# 4 - INVITATION FOR BIDS

The Housing Authority of the County of Erie will receive sealed bids for the following contract for Alterations to Barnett Building Apartments located at 32 West Pearl Street in Albion, Pennsylvania:

Contract – General Construction including Mechanical, Electrical and Plumbing.

Bids will be received until 10:00 am prevailing time on Thursday, September 12, 2024, at the Authority offices, 120 South Center Street – P.O. Box 38, Corry, Pennsylvania 16407, at which time and place all bids will be publicly opened and read aloud.

Plans and Specifications in the form of a link may be obtained by prospective bidders from the office of the Architect, Roth Marz Partnership, 3505 Chapin Street, Erie, Pennsylvania 16508, and (814) 860-8366.

A certified check or bank draft, payable to the Housing Authority of the County of Erie, U.S. Government bonds, or satisfactory bid bond executed by the bidder and acceptable sureties in an amount equal to ten percent of the bid shall be submitted with each bid.

The successful bidder will be required to furnish and pay for satisfactory Performance and Payment Bond or Bonds.

Bidders are cautioned that while telegraphic modifications of Bids may be received such modification, if not explicit and if any sense subject to misinterpretation shall make the Bid so modified or amended subject to rejection. Bidders also have the right to withdraw a bid as long as the Housing Authority of the County of Erie, prior to time and date of bid opening, receives this request.

Bids may be held by the Housing Authority for a period not to exceed 60 days from the date of opening bids for the purpose of reviewing the bids and investigating the qualifications of bidders, prior to awarding the contract.

The contract will be awarded to the responsible and responsive Bidder submitting the lowest bid complying with the conditions as set forth in the specification book. The Bidder to whom the award is made will be notified at the earliest possible date. The Housing Authority, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such reject or waiver is in its interest.

The Contractor will be required to comply with all applicable equal employment opportunity requirements for Federally assisted construction contracts. The Contractor must insure that employees and applicants for employment are not discriminated against because of their race, color, religion, sex and national origin. Attention is called to Executive Order 11256 CFR part 604, & 12086, 17010, and to the Section 3 clause and regulations set forth in 24 CFR, Part 75, Executive Order 11625 (Minority Business Enterprises), Executive Order 12138 clause (Women's Business Enterprises).

The bidders/offerors must submit documentary evidence of minority and women business enterprises who have been contacted and to whom commitments have been made. Documentation of such solicitations and commitments shall be submitted concurrently with the bid.

No bid shall be withdrawn, for a period of 60 days subsequent to the opening of the bids, without the consent of the Housing Authority of the County of Erie.

A pre-bid meeting will be held at 10:00 am prevailing time on Thursday, August 29, 2024, at the Barnett Building Apartments located at 32 West Pearl Street, Albion, Pennsylvania 16401.

Advertise: Friday, August 23, 2024 Monday, August 26, 2024

### **SPECIFICATIONS**

## AND

## CONTRACT DOCUMENTS CONTRACT FORMS

### FOR

# **Alterations to Barnett Building Apartments**

32 West Pearl Street Albion, Pennsylvania 16401

Bids due:

September 12, 2024

THE HOUSING AUTHORITY OF THE COUNTY OF ERIE 120 SOUTH CENTER STREET CORRY, PA 16407

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# 2 – COPYRIGHT

All reports, construction documents, and computer files relating to this project are the property of Roth Marz Partnership, P.C. Roth Marz Partnership, P.C. retains all common law, statue and other reserved rights including the copyright thereto.

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# **3 - NOTICE TO ALL CONTRACTORS**

Due to site access restrictions, the day set for viewing of the building by the Contractor is Thursday, August 29, 2024. We will meet at 10:00 am in the Community Room at 32 West Pearl Street, Albion, Pennsylvania 16401 for a Pre-Bid Conference and immediately following contractors may view the building.

#### IT IS HIGHLY RECOMMENDED THAT ALL CONTRACTORS ATTEND THE PRE-BID CONFERENCE.

If you are unable to attend the viewing on this day, please call Bob Marz at (814) 860-8366 to schedule for another day.

# 4 - INVITATION FOR BIDS

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The successful bidder will be required to furnish and pay for satisfactory Performance and Payment Bond or Bonds.

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The contract will be awarded to the responsible and responsive Bidder submitting the lowest bid complying with the conditions as set forth in the specification book. The Bidder to whom the award is made will be notified at the earliest possible date. The Housing Authority, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such reject or waiver is in its interest.

The Contractor will be required to comply with all applicable equal employment opportunity requirements for Federally assisted construction contracts. The Contractor must insure that employees and applicants for employment are not discriminated against because of their race, color, religion, sex and national origin. Attention is called to Executive Order 11256 CFR part 604, & 12086, 17010, and to the Section 3 clause and regulations set forth in 24 CFR, Part 75, Executive Order 11625 (Minority Business Enterprises), Executive Order 12138 clause (Women's Business Enterprises).

The bidders/offerors must submit documentary evidence of minority and women business enterprises who have been contacted and to whom commitments have been made. Documentation of such solicitations and commitments shall be submitted concurrently with the bid.

No bid shall be withdrawn, for a period of 60 days subsequent to the opening of the bids, without the consent of the Housing Authority of the County of Erie.

A pre-bid meeting will be held at 10:00 am prevailing time on Thursday, August 29, 2024, at the Barnett Building Apartments located at 32 West Pearl Street, Albion, Pennsylvania 16401.

Advertise: Friday, August 23, 2024 Monday, August 26, 2024

# **5 - NOTICE TO BIDDERS**

#### ATTENTION IS CALLED TO THE FOLLOWING:

- 1. The Authority reserves the right to reject any bid on the basis of Bidders Qualifications, regardless of dollar amount. The Authority shall be the sole judge of the qualifications of bidders. Any bid submitted without the Bidder Qualification form filled out will be rejected.
- 2. The Authority may make deletions or additions to the contract when, and if, it is deemed necessary. Changes in the contract shall be made at the time of contract award, where possible, and may include the deletion of certain work items, if budget restraints make this necessary. Bidders should keep this in mind while preparing bids, and should take care to ensure that the amount of bid for any specific work item is ample for the work required to complete that item. If it is necessary to delete a portion of a work item, or to change the scope of the item, such contract changes shall be negotiated, with a written change order to be executed by the Authority and the Contractor.
- 3. Bidders shall become familiar with the Documents contained herein. No changes in Work Programs or Specifications will be permitted without consent of the Housing Authority or it's authorized agents.

The bidder is responsible for all errors in bid preparation. Change Orders will not be approved for mistakes in bidding.

4. CONTRACTORS MUST MAKE AN APPOINTMENT WITH THE HOUSING AUTHORITY STAFF IN ORDER TO ENTER THE PREMISES OF THE CONTRACT SITE. IT WILL NOT BE PERMITTED FOR ANY PROSPECTIVE BIDDER TO VIEW THE WORK ELEMENTS, UNLESS ARRANGEMENTS HAVE BEEN MADE WITH BEVERLY WEAVER, AT THE HOUSING AUTHORITY OFFICE.

IT IS HIGHLY RECOMMENDED THAT ALL CONTRACTORS ATTEND THE PRE-BID CONFERENCE.

- 5. Any checks submitted, as a bid deposit, in lieu of a Bid Bond, must be certified.
- 6. Payment for work performed will be made in accordance with Article 27 of the General Conditions (See page GC-9).
- 7. Attention is called to the fact that the Contract Documents specify the minimum goals regarding hiring of women, minorities and project area residents under Section 3 of the Contract Documents (EEO Requirements).
- 8. Particular attention is called to the Section 3 and Affirmative Action Section of the Specifications. This section must be completed and signed by all bidders and must be included with your bid. Any bid not containing the completed, executed forms will be rejected.

#### ALL BID AMOUNTS SUBMITTED ARE TO BE ROUNDED OFF TO THE NEAREST DOLLAR AMOUNT.

# U.S. Department of Housing and Urban Development

Office of Public and Indian Housing

6

# Instructions to Bidders for Contracts Public and Indian Housing Programs

## Instructions to Bidders for Contracts

Public and Indian Housing Programs

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#### 1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affect-***ing the Work* of the *General Conditions of the Contract for Construc-tion*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

# 2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

#### 3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

#### 4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

- (1) Integrity;
- (2) Compliance with public policy;
- (3) Record of past performance; and
- (4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

#### 5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

#### 6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

#### 7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/ IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

#### 8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, accept other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.

(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

# **9. Bid Guarantee** (applicable to construction and equipment contracts exceeding \$25,000)

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

#### **10. Assurance of Completion**

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

[] (1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

[] (2) separate performance and payment bonds, each for 50 percent or more of the contract price;

[] (3) a 20 percent cash escrow;

[] (4) a 25 percent irrevocable letter of credit; or,

[] (5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website http:// www.fms.treas.gov/c570/index.html, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

# **11. Preconstruction Conference** (applicable to construction contracts)

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

#### **12. Indian Preference Requirements** (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible

(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,

(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indianowned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act: and Indian "tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.

(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.

(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.

(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is -

(1) Within the maximum HUD-approved budget amount established for the specific project or activity for which bids are being solicited; and

(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.

(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:

(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.

(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.

(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.

(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.

(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.

(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.

(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).

(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.

(k) The IHA [] does [] does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.

# U.S. Department of Housing and Urban Development

Office of Public and Indian Housing

7

# Representations, Certifications, and Other Statements of Bidders

**Public and Indian Housing Programs** 

# Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

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#### 1. Certificate of Independent Price Determination

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(l) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(I) through (a)(3) above.

[insert full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

[] [Contracting Officer check if following paragraph is applicable](d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding \$50,000)

(1) Each bidder shall execute, in the form provided by the PHA/ IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) A fully executed "Non-collusive Affidavit"  $\circle{1}$  is,  $\circle{1}$  is not included with the bid.

#### 2. Contingent Fee Representation and Agreement

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:

(1) [] has, [] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [] has, [] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

# 3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (applicable to contracts exceeding \$100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

#### 4. **Organizational Conflicts of Interest Certification**

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

(a) Result in an unfair competitive advantage to the bidder; or,

(b) Impair the bidder's objectivity in performing the contract work.

[] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.

#### 5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

#### 6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of [Contracting Officer insert time period] calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

#### 7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

(a) [] is, [] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) []is, []is not a women-owned business enterprise. "Womenowned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(c) [ ] is, [ ] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:

(Check the block applicable to you)

- [] Black Americans
- [] Hispanic Americans
- [] Asian Pacific Americans [] Asian Indian Americans
- [] Native Americans

- [] Hasidic Jewish Americans
- 8. Indian-Owned Economic Enterprise and Indian Organization Representation (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

The bidder represents and certifies that it:

] is, [ ] is not an Indian-owned economic enterprise. (a) [ "Economic enterprise," as used in this provision, means any commercial, industrial, or business activity established or organized for the purpose of profit, which is at least 51 percent Indian owned. "Indian," as used in this provision, means any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act.

(b) [ ] is, [ ] is not an Indian organization. "Indian organization," as used in this provision, means the governing body of any Indian tribe or entity established or recognized by such governing body. Indian "tribe" means any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

#### 9. Certification of Eligibility Under the Davis-Bacon Act (applicable to construction contracts exceeding \$2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

**10.** Certification of Nonsegregated Facilities (applicable to contracts exceeding \$10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed \$10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

(1) Obtain identical certifications from the proposed subcontractors;

(2) Retain the certifications in its files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

# Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

**Note:** The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

11. Clean Air and Water Certification (applicable to contracts exceeding \$100,000)

The bidder certifies that:

(a) Any facility to be used in the performance of this contract [ ] is, [] is not listed on the Environmental Protection Agency List of Violating Facilities:

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

# **12. Previous Participation Certificate** (applicable to construction and equipment contracts exceeding \$50,000)

(a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "Previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid nonresponsive. No contract award will be made without a properly executed certificate.

(b) A fully executed "Previous Participation Certificate"

[ ] is, [ ] is not included with the bid.

#### 13. Bidder's Signature

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

(Signature and Date) (Typed or Printed Name) (Title)

(Company Name)

(Company Address)

# 8 - CHECKLIST FOR BID SUBMISSION

As a convenience to the Bidder, the following checklist has been provided to ensure that all the required bid documents have been included in your submission.

This will accomplish three goals:

- 1. Uniformity of Bids at opening.
- 2. Complete bid information (lessening the chance for disqualification of your bid for technical reasons).
- 3. By attaching this checklist with the Bid Documents, the person examining the bids will have an inventory of the documents you submitted in case one should become detached.

# PLEASE CHECK OFF THESE ITEMS AND PLACE THEM IN THE SAME ORDER AS THEY APPEAR ON THIS LIST.

\_\_\_\_\_ Bid Proposal Forms (PF-1 to PF-3)

- \_\_\_\_\_ Check figures and addition.
- \_\_\_\_\_ Form signed and all lines filled in.
- \_\_\_\_\_ Recognition of receipt of Addenda(s); include numbers.
- \_\_\_\_\_ Check bid total.
- \_\_\_\_\_ Deposit equals 10% or more of Bid Total.
- \_\_\_\_\_ Bid Bond or Certified funds in the amount of 10% of Bid or greater.
- \_\_\_\_\_ Representations, Certifications, and Other Statements of Bidders.
- \_\_\_\_\_ Certification of Non-segregated Facilities.
- \_\_\_\_\_ Non-collusion Affidavit of Prime Bidder Form.
- \_\_\_\_\_ Statement of Bidder's Qualifications Form.
- \_\_\_\_\_\_ Section 3, MBE/WBE Compliance and Affirmative Action Forms (Appendix 1-5).
- Firm name, Treasury Number, Address, City, State, and Zip Code. Principals Name(s), Home Addresses, including City, State, and Zip Code.

# \_\_\_\_ SEALED BIDS TO BE OPENED AT ECHA OFFICE, 120 S. CENTER ST., CORRY, PA 16407.

2 Envelopes (1 outer and 1 inner- to allow documents to be submitted without folding them), labeled with the words "ALTERATIONS TO BARNETT BUILDING APARTMENTS – (DATE) – 10:00 A.M.", NAME OF BIDDER, AND ADDRESS OF BIDDER.

## 9 – BID PROPOSAL FORM

#### GENERAL CONSTRUCTION (including Mechanical, Electrical and Plumbing)

#### BID PROPOSAL FORM

#### FOR

#### ALTERATIONS TO BARNETT BUILDING APARTMENTS 32 WEST PEARL STREET, ALBION, PENNSYLVANIA 16401

#### ERIE COUNTY, PENNSYLVANIA

#### To: The Housing Authority of the County of Erie 120 South Center Street, P.O. Box 38 Corry, Pennsylvania 16407

1. The undersigned, having familiarized (himself/themselves/itself) with the existing conditions on the Project Area affecting the cost of the Work, and with the Contract Documents (which includes Invitation to Bid, Instructions to Bidders, Form of Bid, Form of Bid Bond, Form of surety bonds, Form of Agreement, Form of Non-Collusion Affidavit, Addenda, General Conditions, Special Conditions, Work Program Descriptions, Certification of Non-Segregated Facilities and the Technical specifications), on file in the office of the Authority hereby proposes to furnish all appurtenances, equipment and services, including utility and transportation services required to construct and complete as specified in the contract documents.

The summary statements prefacing the line items listed on this proposal form reflect the bid amounts for the work as described on the Drawings and Construction Documents.

The scope of work shall include, but is not limited to, the following major items of construction and/or renovation:

TOTAL BID AMOUNT \$\_\_\_\_\_

- 2. In submitting this bid, the bidder understands that the right is reserved by the Housing Authority to reject any and all Bids. If written notice of acceptance of this bid is mailed, telegraphed, or delivered to the undersigned within sixty (60) days after the opening thereof, or at any time thereafter before this bid is withdrawn, the undersigned agrees to execute and deliver an agreement in the prescribed form and furnish the required bond or bonds within ten (10) days after the contract is presented to him for signature.
- 3. A Bid Deposit and Security in the sum of \_\_\_\_\_ Dollars
- 4. (\$\_\_\_\_\_\_), in the form of \_\_\_\_\_\_ is submitted herewith in accordance with the Specifications (10% of the total bid amount.)

- 5. Attached hereto is an affidavit in proof that the undersigned has not entered into any collusion with any person in respect to this proposal or any other proposal or the submitting of proposals for the contract for which this proposal is submitted.
- 6. The Bidder hereby certifies that he is prepared to submit a financial and experience statement upon request.

The undersigned represents that he is in receipt of the following number of Addenda. (If no addenda are issued insert the word "none" in the following space.) \_\_\_\_\_\_

The undersigned hereby agrees, if awarded the Contract, to commence work within the time limits specified in the agreement (contract), and to complete the Contract within one hundred twenty (120) calendar days thereafter.

(Pri	nted)
ΒY	
	(Signature of Authorized Officer)
(Pri	nted Name)
СО	MPANY ADDRESS:
(Pri	nted)
TEI	LEPHONE NUMBER
ΕN	IAIL ADDRESS
DA	TE

For the purpose of making it clear in what capacity the foregoing is bidding, the Bidder certifies that it comes under \_\_\_\_\_\_ as listed below:

- a. An individual under the name signed above.
- b. A partnership composed of the following persons:

- c. A Corporation organized and existing under the Laws of \_\_\_\_\_\_, with it's principal office in \_\_\_\_\_\_.
- d. A Foreign Corporation organized and existing under the Laws of \_\_\_\_\_\_, duly registered for the purpose of doing business in Pennsylvania.
- e. A Limited Partnership organized and existing under the Laws of \_\_\_\_\_\_, with its principal office at \_\_\_\_\_\_.
- f. An Individual or Individuals doing business under a fictitious name who has or have complied with the provisions of law in regard to registration under the Fictitious Names Act of the Commonwealth of Pennsylvania.

The full name and residence of all persons and parties interested in the foregoing are as follows:

NOTICE: In case of a Corporation, give the name of the President, Secretary, Treasurer and Manager.

<u>Name</u>

Address

## 10 – BID BOND

THESE KNOW ALL MEN ΒY PRESENTS. undersigned, the that we PRINCIPAL, as and , as SURETY, are hereto and firmly bound unto The Housing Authority of the County of Erie hereinafter called the "Local Public Agency", in the penal DOLLARS (\$\_\_\_\_\_ \_\_\_\_\_) lawful money of sum of the United States, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that Whereas the Principal has submitted the Accompanying Bid, dated\_\_\_\_\_\_,2024, for

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefor, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Local Public Agency in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such Contract; or in the event of the withdrawal of said bid within the period specified, or the failure to enter into such Contract and give such Bond within the time specified. if the Principal shall pay the Local Public Agency the difference between the amount specified in the said amount for which the Local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this day of , 2024, the name and corporate seal of each corporate party being hereto affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

In presence of:

ATTEST:

(Individual Principal)

(Business Address, Including Zip Code)

(Partnership)

(Seal)

(Business Address Including Zip Code)

By

(SEAL)

(SEAL)

(Corporate Principal)

ATTEST:	Ву	
	(Corporate Surety)	(SEAL)
Countersigned by	Ву	(SEAL)
*Attorney-in-Fact, State of	_	
CERTIFICATE AS 1	TO CORPORATE PRINCIPAL	

I, \_\_\_\_\_\_, certify that I am the \_\_\_\_\_\_, of the Corporation named as Principal in the within bond; that \_\_\_\_\_\_, who signed the said bond on behalf of the Principal was then \_\_\_\_\_\_\_ of said corporation; that I know his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for an in behalf of said corporation by authority of this governing body.

	(Seal)	
Title		

\*Power-of-Attorney for person signing for surety company must be attached to bond.

# 11 – NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State o	)		
County	/ of)		
		_, being first duly sworn, depo	ses and says that:
1)	He is	_ of	, the Bidder
2)	He is fully informed respecting the pre	paration and contents of the a	attached Bid and of all

- He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
- 3) Such bid is genuine and is not a collusive or sham bid;
- 4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other bidder, or to fix any overhead, profit or cost element of the bid price or the Bid price of any other bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Housing Authority or any other person interested in the proposed Contract; and
- 5) The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

	(Signed)	
	(Title)	
Subscribed and sworn to before me this	day of	, 2024.
(Title)		

# **12 - CERTIFICATION OF NONSEGREGATED FACILITIES\***

The Bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting room, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks. locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he will obtain identical certifications, which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Date	, 2024	
		Name of Bidder
Official Address (Including Zip Code)		
		BY
		TITLE

\* Must be included without alteration.

## **13 - STATEMENT OF BIDDER'S QUALIFICATIONS**

(To be submitted by the Bidder with his Bid)

All questions must be answered, and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The bidder may submit any additional information he desires.

Name of Bidder
Permanent main office address
When organized?
If a corporation, where incorporated?
How many years have you been engaged in the contracting business under your present firm or trade name?
Contracts on hand: (show amount of each contract and the appropriate anticipated dates of completion)
Contractor I.D.#
General character of work performed by your company
Have you ever failed to complete any work awarded to you?
List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.

10. List your major equipment AVAILABLE FOR THIS CONTRACT.

11. Experience in construction work similar in importance to this project.

12. Background and experience of the principal members of your organization, including the officers

13. Credit available: \$
14. Give bank reference
15. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by The Housing Authority of the County of Erie?
16. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Housing Authority of the County of Erie in verification of the recitals comprising this statement of bidder's qualifications dated at this day of, 20
17. Contractor Federal I.D.#:
Name of Bidder
BY
TITLE
COMMONWEALTH OF PENNSYLVANIA) ) SS
COUNTY OF ERIE)
Being duly sworn deposes and says that he is ofand that the answers to the
foregoing questions and all statements therein contained are true and correct. Subscribed and sworn to before me this day of, 20
Notary Public
My Commission expires, 20

# 14 - PERFORMANCE BOND

#### KNOW ALL MEN BY THESE PRESENTS, that we

as principal, and \_\_\_\_\_\_, as sureties are held and firmly bound unto the Housing Authority of the County of Erie, its certain attorney, successors or assigns (hereinafter called the obligee), in the full and just sum of

\_\_\_\_\_\_ Dollars (\$\_\_\_\_\_\_) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, administrators, executors, successors and assign, jointly and severally, firmly by these presents:

WHEREAS, said principal has entered into a certain contract with said Obligee, dated \_\_\_\_\_\_, 2023, (hereinafter called the Contract) for

which Contract and the Specifications for said work shall be deemed a part hereof as fully as if set out herein:

NOW, therefore, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the principal shall faithfully perform the contract on his part as of the time and in the manner therein provided and satisfy all claims and demands incurred in or for the same, or growing out of the same, or for injury or damages to persons or property in the performance thereof, and shall fully indemnify and save harmless the said Obligee from any and all cost and damage which the said Obligee may suffer by reason of the principal's failure to do so, and fully reimburse and repay the said Obligee any and all outlay and expense shall be null and void, otherwise it shall remain in full force and virtue.

The said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED AND DELIVERED IN	ORIGINAL	
COUNTERPARTS THIS	, 2024.	
	(Individual Principals sign here)	
		(SEAL)
In the presence of:		(SEAL)
		(SEAL)
		(SEAL)

BY	

(Surety sign here)

The rate or premium charged is \$	per thousand.	The total amount of premium charged
is \$		

(The above must be filled in by the Corporate Surety.)

Attest:

It is hereby stipulated and agreed that if the Principal is a non-Pennsylvania corporation neither Principal nor the Surety shall be discharged from liability on this bond, not the bond surrendered, until such Principal files with the obligee a certificate from the Pennsylvania Department of Revenue evidencing the payment in full of all taxes, penalties and interest, and a certificate from the Bureau of Employment and Unemployment Compensation of the Pennsylvania Department of Labor and Industry, evidencing the payment of all unemployment compensation contributions, penalties and interest due the Commonwealth of Pennsylvania from the said principal, or any non-Pennsylvania corporation subcontractor thereunder, or for which liability has accrued, but the time for payment has not arrived as required by the Act of June 10, 1947, P.L. 493, 8 P.S. Sec. 23, amended.

# **15 - LABOR AND MATERIALMEN'S BOND**

KNOW ALL MEN BY THESE PRESENTS, that we,	<u>,</u> as
principal, and,	surety, are held and
firmly bound unto the Housing Authority of the County of Erie, its certain attorney assigns (hereinafter called the Obligee) in the sum of	, successors, or
Dollars (\$	)
lawful money of the United States for the payment of which sum well and truly to ourselves, our heirs, personal representatives, successors, and assigns, jointly a by these presents.	be made, we bind nd severally, firmly
WILLEDEAC acid principal has entered into a cortain contract with sold Obliges, d	atad

WHEREAS, said principal has entered into a certain contract with said Obligee, dated \_\_\_\_\_\_, 2024, (hereinafter called the Contract) for

which contract and the Specifications for said work shall be deemed a part thereof as fully as if set out herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal and all subcontractors to whom any portion of the work provided for in said contract is sublet and all assignees of said principal and of such subcontractors shall promptly make payment for all materials furnished, labor supplied or performed, rental for equipment employed, and services rendered by public utilities in or in connection with the prosecution of the work whether or not the said material, labor, equipment or services enter into and become component parts of the work or improvement contemplated in said Contract, or in any amendment or extension of or addition to said Contract, then the above obligation shall be void, otherwise to remain in full force and effect. PROVIDED, however, that this bond is subject to the following conditions and limitations.

(a) All persons who have performed labor, rendered services or furnished materials or machinery, shall have a direct right of action against the principal and surety on this bond, which right of action shall be asserted in proceedings instituted in the State in which such labor was performed, services rendered or materials furnished (or where labor has been performed, services rendered or materials furnished (or where labor has been performed, services rendered or materials furnished under said Contract in more than one state, then in any such state). Insofar as permitted by the proceeding instituted in the name of the Obligee to the use and benefit of the person instituting such action and any or all other persons having claims hereunder shall have the right to be made a party to such proceeding (but not later than two years after the complete performance of said Contract and final settlement thereof) and to have such claim adjudicated in such action and judgment rendered thereon.

(b) The surety shall not be liable hereunder for any damages or compensation recoverable under any workmen's compensation or employer's liability statute.

(c) In no event shall the surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or proceeding thereon that is instituted later than two years after the complete performance of said Contract and final settlement thereof.

(d) As used herein: The term "person" refers to any individual form or corporation who have furnished materials or machinery or public utility services to be used on or incorporated in the work or the prosecution thereof provided for in said contract or in any amendment or extension of or addition to said contract, and/or to any person engaged in the prosecution of the work provided for in said Contract or in any amendment or extension of or addition to said Contract or in any amendment or extension of or addition to said Contract who is an agent, servant or employee of the principal or of any subcontractor, or of any assignee of said principal or

of any subcontractor and also anyone so engaged who performs the work of a laborer or of a mechanic regardless of any contractual relationship between the principal, or any subcontractor, or any assignee of said principal or of said subcontractor, and such laborer or mechanic, but shall not include office employees not regularly stationed at the site of the work.

The said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time alteration or additions to the terms of the Contract or to the work or to the Specifications.

ORIGINAL COUNTERPARTS THIS	DAY OF	, 2024.
Witness:	Individual Principals sign here)	
	Title:	(SEAL)
	Title:	(SEAL)
	Title:	(SEAL)
Attest:	Corporate Principal sign here)	
Ву		
Title	Ву	
	Title	(SEAL)
	(Surety sign here)	
	By	
	Title	(SEAL)
The rate of the premium charged is \$	per thousand. The total amount of th	e premium

charged is \$\_\_\_\_\_.

(The above must be filled in by the Corporate Surety.)

It is hereby further stipulated and agreed that if the Principal is a non-Pennsylvania corporation neither Principal nor the Surety shall be discharged from liability on this bond, nor the bond surrendered, until such principal files with the obligee a certificate from the Pennsylvania Department of Revenue evidencing the payment in full of all taxes, penalties and interest, and a certificate from the Bureau of Employment and Unemployment Compensation of the Pennsylvania Department of Labor and Industry, evidencing the payment of all unemployment compensation contributions, penalties and interest due the Commonwealth of Pennsylvania from the said Principal, or any non-Pennsylvania corporation subcontractor thereunder, or for which liability has accrued, but the time for payment has not arrived as required by the Act of June 10, 1947, P.O. 493, 8 P.S. Sec. 23, amended.

## **16 - NOTICE OF AWARD**

ТО PROJECT DESCRIPTION The Housing Authority of the County of Erie has considered the bid submitted by you for the above described work in response to its invitation for Bids dated \_\_\_\_\_\_ and Instructions for Bidders. You are hereby notified that your bid has been accepted for items in the amount of \$\_\_\_\_\_. You are required by the Instructions for Bidders to execute the Agreement and furnish the required certificates of Insurance and Performance and Payment Bonds within ten (10) calendar days from the date of this notice. If you fail to execute said Agreement within ten (10) days from the date of this notice, the Erie County Housing Authority will be entitled to consider all your rights arising out of the Authority's acceptance of your bid as abandoned and as a forfeiture of your bid bond. The Authority will be entitled to such other rights as may be granted by law. You are required to return an acknowledged copy of this Notice of Award to the Authority. Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2024. Beverly Weaver Executive Director Title ACCEPTANCE OF NOTICE Receipt of the above Notice of Award is hereby acknowledged. This the \_\_\_\_\_ day of \_\_\_\_\_, 2024. Ву\_\_\_\_\_

# **17 – CONTRACT AGREEMENT**

THIS AGREEMENT made this day of	2024, by and between
	a corporation organized and
existing under the laws of the State of	or a partnership consisting of
	or an individual trading as
	, hereinafter called the "Contractor" and
the Housing Authority of the County of Erie, hereina	after called the "Local Public Agency".

WITNESSETH, that the Contractor and the Local Public Agency for the considerations stated herein mutually agree as follows:

ARTICLE 1. Statement of Work: The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services, including utility and transportation services, and perform and complete all work required; namely,

(description of work and project identification) other work incidental thereto, all in strict accordance with the \_\_\_\_ including all Addenda thereto, numbered \_\_\_\_\_\_, and dated \_\_\_\_\_\_, all as prepared by the Local Public Agency which said Specifications and Addenda are incorporated herein by reference and made a part hereof.

ARTICLE 2. The Contract Price: The Local Public Agency will pay the Contractor for the performance of the Contract, in current funds, subject to additions and deductions as provided in the specifications. The contract price shall be the sum of \_\_\_\_\_(\$\_\_\_\_\_).

ARTICLE 3. Contract Documents: The Executed contract documents shall consist of the following component parts:

- a. This Instrument
- b. Addenda

- b. Addendag. Supplemental Conditionc. Request for Proposalh. Technical Specificationd. Instructions to Biddersi. Special Conditionse. Signed Copy of Proposalj. Drawings/Sketches
- f. General Conditions
- g. Supplemental Conditions

This Instrument, together with other documents enumerated in this ARTICLE 3, which said other documents are as fully a part of the contract, as if hereto attached or herein repeated, form the contract between the parties hereto. In the event that any provision in any component part of this contract conflicts with any provision of any other component, the provision of the component part first enumerated in this ARTICLE 3 shall govern, except as otherwise specifically stated.

IN WITNESS WHEREOF, the parties hereto have caused this Instrument to be executed in two original copies as of the day and year first above written.

and

	BY
	Title
	Business Address:
	(Street)
	(City) (State) (Zip Code)
ATTEST:	HOUSING AUTHORITY OF THE COUNTY OF ERIE
	BY
	Title
	Business Address:
	120 South Center Street, P.O. Box 38 Corry, Pennsylvania 16407
Certifications:

I,, cert	y that I am the		
of the C	Corporation named as Contractor herein; that		
	who signed this Contract on behalf of said		
Corporation, was then	of said corporation; that said		
Contract was duly signed for and in behalf of s	aid Corporation by authority of its governing		
body, and is within the scope of its corporate p	oowers.		

Title

(Corporate Seal)

## **18 - NOTICE TO PROCEED**

ТО	[	Date	
	I	Project	
You are hereby notified to commend	e work in acco	rdance with the Agreeme	nt dated
,	20, at the	start of business on	
,	20, and t	to complete such work wi	thin 120
calendar days thereafter. The date of	f completion o	f all work is	,
20			
-	<u>The Housing Au</u> Dwner	uthority of the County of E	rie
I	3Y		
-	۲itle		
ACCEPTANCE OF NOTICE			
Dessint of the shows Notice to Dura	a di sa la avalavi a		
Receipt of the above Notice to Proce	ed is nereby a	cknowledged by	
th	s the	day of	, 20
	3Y		
	I ITIE		
(Please return one executed copy)			

## 19 - CHANGE ORDER - PROCEED ORDER ISSUED, TIME NOT CHANGED

CONTRACTOR:

DATE:

ADDRESS:

NAME OF PROJECT:

CHANGE ORDER NO:

Gentlemen:

In connection with Contract \_\_\_\_\_\_ dated \_\_\_\_\_, 2024 for work at \_\_\_\_\_, PA, Erie County, Pennsylvania, the following change is ordered in accordance with Section 29 of the General Conditions.

Subject to conditions hereinafter set forth, an equitable adjustment of the contract price and the contract time is established, as follows:

The conditions last above referred to are as follows:

- A. The aforementioned change, and work affected thereby, are subject to all contract stipulations and covenants; and
- B. The rights of the Housing Authority are not prejudiced; and
- C. All claims against the Housing Authority are incidental to or as a consequence of the aforementioned change are satisfied.

Beverly Weaver, Executive Director

Date \_\_\_\_\_

Contractor

Date

## 19 - CHANGE ORDER - TIME ONLY INVOLVED

CONTRACTOR:

DATE:

ADDRESS:

NAME OF PROJECT:

CHANGE ORDER NO.

Gentlemen:

In connection with the \_\_\_\_\_ Contract dated \_\_\_\_\_ for work on the Capital Funds Assistance Program, Erie County, Pennsylvania, the following change is ordered in accordance with Article 29 of the General Conditions.

- 1. The completion of the work has been delayed by reason of:
- 2. The Housing Authority has duly determined that:

(a) The delay was due to unforeseeable causes beyond our control and without your fault or negligence;

(b) Notice of the cause of the delay was given within the time and in the manner prescribed by the contract; and

(c) The cause of delay justify and require an extension of the time as herein provided as a matter of legal right without the assertion of a claim by the owner for (actual liquidated) damages because of the contractor's failure to complete the work within the number of days specified by the contract.

Subject to conditions hereinafter set forth, an equitable adjustment of the contract time is established, as follows:

## THE CONTRACT TIME IS EXTENDED TO\_\_\_\_\_

The conditions last above referred to are as follows:

- A. The aforementioned adjustment of contract time is subject to all contract stipulations and covenants;
- B. The rights of the Housing Authority are not prejudiced, and
- C. All claims against the Housing Authority are incidental to or as a consequence of the aforementioned change is satisfied.

Beverly Weaver, Executive Director

Date\_\_\_\_\_

Contractor

Date\_\_\_\_\_

## General Conditions for Construction Contracts - Public Housing Programs

U.S. Department of Housing and Urban Development Office of Public and Indian Housing OMB Approval No. 2577-0157 (exp. 1/31/2027)

# Applicability. This form is applicable to any construction/development contract greater than \$250,000.

Public reporting burden for this collection of information is estimated to average 1.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding the accuracy of this burden estimate and any suggestions for reducing this burden can be sent to the Reports Management Officer, Office of Policy Development and Research, REE, Department of Housing and Urban Development, 451 7th St SW, Room 4176, Washington, DC 20410-5000. When providing comments, please refer to OMB Approval No. 2577-0157. This form includes those clauses required by OMB's common rule on grantee procurement, implemented at HUD in 2 CFR 200, and those requirements set forth in Section 3 of the Housing and Urban Development Act of 1968 and its amendment by the Housing and Community Development Act of 1992, implemented by HUD at 24 CFR Part 75. The form is required for construction contracts awarded by Public Housing Agencies (PHAs). The form is used by Housing Authorities in solicitations to provide necessary contract clauses. If the form were not used, PHAs would be unable to enforce their contracts. Responses to the collection of information are required to obtain a benefit or to retain a benefit. The information requested does not lend itself to confidentiality. HUD may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB number.

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Liens

Materials

#### 1. Definitions

- (a) "Architect" means the person or other entity engaged by the PHA to perform architectural, engineering, design, and other services related to the work as provided for in the contract. When a PHA uses an engineer to act in this capacity, the terms "architect" and "engineer" shall be synonymous. The Architect shall serve as a technical representative of the Contracting Officer. The Architect's authority is as set forth elsewhere in this contract.
- (b) "Contract" means the contract entered into between the PHA and the Contractor. It includes the forms of Bid, the Bid Bond, the Performance and Payment Bond or Bonds or other assurance of completion, the Certifications, Representations, and Other Statements of Bidders (form HUD-5370), these General Conditions of the Contract for Construction (form HUD-5370), the applicable wage rate determinations from the U.S. Department of Labor, any special conditions included elsewhere in the contract, the specifications, and drawings. It includes all formal changes to any of those documents by addendum, change order, or other modification.
- "Contracting Officer" means the person delegated the authority by the PHA to enter into, administer, and/or terminate this contract and designated as such in writing to the Contractor. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer also designated in writing. The Contracting Officer shall be deemed the authorized agent of the PHA in all dealings with the Contractor.
- (d) "Contractor" means the person or other entity entering into the contract with the PHA to perform all of the work required under the contract.
- (e) "Drawings" means the drawings enumerated in the schedule of drawings contained in the Specifications and as described in the contract clause entitled Specifications and Drawings for Construction herein.
- (f) "HUD" means the United States of America acting through the Department of Housing and Urban Development including the Secretary, or any other person designated to act on its behalf. HUD has agreed, subject to the provisions of an (f) The Contractor shall confine all operations (including Annual Contributions Terms and Conditions (ACC), to

provide financial assistance to the PHA, which includes assistance in financing the work to be performed under this contract. As defined elsewhere in these General

Conditions or the contract documents, the determination of HUD may be required to authorize changes in the work or for release of funds to the PHA for payment to the Contractor. Notwithstanding HUD's role, nothing in this contract shall be construed to create any contractual relationship between the Contractor and HUD.

- (g) "Project" means the entire project, whether construction or rehabilitation, the work for which is provided for in whole or in part under this contract
- (h) "PHA" means the Public Housing Agency organized under applicable state laws which is a party to this contract.
- (j) "Specifications" means the written description of the technical requirements for construction and includes the criteria and tests for determining whether the

requirements are met.

(I) "Work" means materials, workmanship, and manufacture and fabrication of components.

## 2. Contractor's Responsibility for Work

- (a) The Contractor shall furnish all necessary labor, materials, tools, equipment, and transportation necessary for performance of the work. The Contractor shall also furnish all necessary water, heat, light, and power not made available to the Contractor by the PHA pursuant to the clause entitled Availability and Use of Utility Services herein.
- (b) The Contractor shall perform on the site, and with its own organization, work equivalent to at least [ ] (12 percent unless otherwise indicated) of the total amount of work to be performed under the order. This percentage may be reduced by a supplemental agreement to this order if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the PHA.
- (c) At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.
- (d) The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the PHA, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.
- (e) The Contractor shall lay out the work from base lines and bench marks indicated on the drawings and be responsible for all lines, levels, and measurements of all work executed under the contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.
- storage of materials) on PHA premises to areas authorized or approved by the Contracting Officer.
  - (g) The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the PHA and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.
  - (h) The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the warranties specified elsewhere in the contract.

#### 3. Architect's Duties, Responsibilities, and Authority

(a) The Architect for this contract, and any successor, shall be designated in writing by the Contracting Officer.

- (b) The Architect shall serve as the Contracting Officer's technical representative with respect to architectural, Schedule engineering, and design matters related to the work performed under the contract. The Architect may provide direction on contract performance. Such direction shall be within the scope of the contract and may not be of a nature which: (1) institutes additional work outside the scope of the contract; (2) constitutes a change as defined in the Changes clause herein; (3) causes an increase or decrease in the cost of the contract; (4) alters the Construction Progress Schedule; or (5) changes any of the other express terms or conditions of the contract.
- (c) The Architect's duties and responsibilities may include but shall not be limited to:
- (1) Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to the PHA which shall include all observed deficiencies. The Architect shall file a copy of the report with the Contractor's designated representative at the site;
- (2) Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of change orders and other contract modifications for issuance by the Contracting Officer;
- (3) Reviewing and making recommendations with respect to - (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery, mechanical and other equipment and materials or other articles proposed for use by the Contractor; and, (iv) the Contractor's price breakdown and progress payment estimates; and,
- (4) Assisting in inspections, signing Certificates of Completion, and making recommendations with respect to acceptance of work completed under the contract.

#### 4. Other Contracts

The PHA may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with PHA employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by PHA employees

#### **Construction Requirements**

#### 5. Pre-construction Conference and Notice to Proceed

- of the work, and that it has investigated and satisfied itself
- (a) Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a preconstruction conference with representatives of the PHA, its Architect, and other interested parties convened by the PHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The PHA will provide the Contractor with the date, time, and place of the conference.
- (b) The contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

#### 6. Construction Progress

- (a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.
- (b) The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection

conducted pursuant to the clause entitled Inspection and Acceptance of Construction, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the PHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the Default clause of this contract.

#### 7. Site Investigation and Conditions Affecting the Work

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location

as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads;(3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site,

including all exploratory work done by the PHA, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the PHA.

(b) The PHA assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the PHA. Nor does the PHA assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

#### 8. Differing Site Conditions

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the

Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the PHA within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

#### 9. Specifications and Drawings for Construction

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall

promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown" "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place" that is "furnished and installed".

(d) "Shop drawings" means drawings, submitted to the PHA by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The PHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the PHA's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued. (g) It shall be the responsibility of the Contractor to make timely requests of the PHA for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be required in the planning and production of the work. Such requests may be submitted as the need arises, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

- (h) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the PHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.
- (i) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.
- 10. As-Built Drawings
- (a) "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "Record drawings."
- (b) As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.
- (c) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.
- 11. Material and Workmanship
- (a) All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or

process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

- (b) Approval of equipment and materials.
- (1) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the

machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting

approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(2) When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on

the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.

- (3) Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.
- (4) Approval of a sample shall not constitute a waiver of the PHA right to demand full compliance with contract requirements. Materials, equipment and accessories

may be rejected for cause even though samples have been approved.

(5) Wherever materials are required to comply with recognized standards or specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other contract requirements. The Contracting Officer may require laboratory test reports on items submitted for approval or may approve materials on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer determines necessary to insure compliance of

materials with the specifications. The Contractor will assume all costs of retesting materials which fail to meet contract requirements and/or testing materials offered in substitution for those found deficient.

(6) After approval, samples will be kept in the Project office until completion of work. They may be built into the work after a substantial quantity of the materials they represent has been built in and accepted.

(c) Requirements concerning lead-based paint. The Contractor shall comply with the requirements concerning lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

- 12. Permits and Codes
- (a) The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules and regulations. Notwithstanding the requirement of the Contractor to comply with the drawings and specifications in the contract, all work installed shall comply with all applicable codes and regulations as amended by any

waivers. Before installing the work, the Contractor shall examine the drawings and the specifications for compliance with applicable codes and regulations bearing on the work and shall immediately report any discrepancy it may discover to the Contracting Officer. Where the requirements of the drawings and specifications fail to comply with the applicable code or regulation, the Contracting Officer shall modify the contract by change order pursuant to the clause entitled Changes herein to conform to the code or regulation.

- (b) The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution and completion of the work. Where the PHA can arrange for the issuance of all or part of these permits, fees and licenses, without cost to the Contractor, the contract amount shall be reduced accordingly.
- 13. Health, Safety, and Accident Prevention
- (a) In performing this contract, the Contractor shall:
- (1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;
- (2) Protect the lives, health, and safety of other persons;
- (3) Prevent damage to property, materials, supplies, and equipment; and,
- (4) Avoid work interruptions.
- (b) For these purposes, the Contractor shall:
- (1) Comply with regulations and standards issued by the Secretary of Labor at 29 CFR Part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96), 40 U.S.C. 3701 et seq.; and
- (2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.
- (c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904
- (d) The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.
- (e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the PHA, the Secretary of Housing and Urban Development, or the Secretary of Labor shall direct as a means of enforcing such provisions.

#### 14. Temporary Heating

The Contractor shall provide and pay for temporary heating, covering, and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the PHA in the condition and at the time required by the specifications.

- 15. Availability and Use of Utility Services
- (a) The PHA shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the PHA or,

where the utility is produced by the PHA, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

- (b) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the PHA, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.
- 16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements
- (a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed under this contract, and which do not unreasonably interfere with the work required under this contract.
- (b) The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.
- (c) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground at the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.
- (d) The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the excavations or other operations connected with the construction of the project.
- (e) Any equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

- (f) New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the specifications.
- (g) No structural members shall be altered or in any way
- weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.
- (h) If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or finished surfaces in good condition, but in different planes or on different levels **Construction** when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.
- The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.
- (j) The Contractor shall indemnify and save harmless the PHA from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the PHA may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.
- (k) The Contractor shall repair any damage to vegetation, structures, equipment, utilities, or improvements, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

#### 17. Temporary Buildings and Transportation of Materials

(a) Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials

furnished by the Contractor without expense to the PHA. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(b) The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

#### 18. Clean Air and Water

The contactor shall comply with the Clean Air Act, as amended, 42 USC 7401 et seq., the Federal Water Pollution Control Water Act, as amended, 33 U.S.C. 1251 et seq., and standards issued pursuant thereto in the facilities in which this contract is to be performed.

#### 19. Energy Efficiency

The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under the contract is performed.

#### 20. Inspection and Acceptance of

 (a) Definitions. As used in this clause 
 (1) "Acceptance" means the act of an authorized representative of the PHA by which the PHA approves

and assumes ownership of the work performed under this contract. Acceptance may be partial or complete.

(2) "Inspection" means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.

(3) "Testing" means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.

(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to PHA inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with

the terms of the contract.

- (c) PHA inspections and tests are for the sole benefit of the PHA and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the PHA after acceptance of the
- completed work under paragraph (j) below.
  (d) The presence or absence of the PHA inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer's written authorization. All instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer.
- (e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The PHA may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The PHA shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

- (f) The PHA may conduct routine inspections of the construction site on a daily basis.
- (g) The Contractor shall, without charge, replace or correct work found by the PHA not to conform to contract requirements, unless the PHA decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.
- (h) If the Contractor does not promptly replace or correct rejected work, the PHA may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.
- (i) If any work requiring inspection is covered up without approval of the PHA, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. If at any time before final acceptance of the entire work, the Construction PHA considers it necessary or advisable, to examine work already completed by removing or tearing it out, the

Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the

expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(j) The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the PHA will promptly arrange for the inspection. Unless otherwise specified in the contract, the PHA shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the PHA's right under any warranty or guarantee.

## 21. Use and Possession Prior to Completion

- (a) The PHA shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the PHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The PHA's possession or use shall not be deemed an acceptance of any work under the contract.
  (b) While the PHA has such possession or use, the
- Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the PHA's possession or use, notwithstanding the terms of the clause entitled Permits and Codes herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas

occupied without proper remuneration therefore. If prior possession or use by the PHA delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

## 22. Warranty of Title

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

## 23. Warranty of

- (a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of \_\_\_\_\_\_ (one year unless otherwise indicated) from the date of final acceptance of the work. If the PHA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of (one year unless otherwise indicated) from the date that the PHA takes possession.
- (b) The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to PHA-owned or controlled real or personal property when the damage is the result of—

   (1) The Contractor's failure to conform to contract requirements: or
  - (2) Any defects of equipment, material, workmanship or design furnished by the Contractor.
- (c) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for (one year unless otherwise indicated) from the date of repair or replacement.
- (d) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect or damage.
- (e) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the PHA shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.
- (f) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:
  - (1) Obtain all warranties that would be given in normal commercial practice;
  - (2) Require all warranties to be executed in writing, for the benefit of the PHA; and,
  - (3) Enforce all warranties for the benefit of the PHA.
- (g) In the event the Contractor's warranty under paragraph (a) of this clause has expired, the PHA may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

- (h) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the PHA nor for the repair of any damage that results from any defect in PHA furnished material or design.
- (i) Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (a) and (c) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligation other than specifically to correct the work.
- (j) This warranty shall not limit the PHA's rights under the Inspection and Acceptance of Construction clause of this contract with respect to latent defects, gross mistakes or fraud.
- 24. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

#### Administrative Requirements

25. Contract Period

this contract within calendar days of the effective date of the contract, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

#### 26. Order of Provisions

accordance with the terms and conditions of the In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

#### 27. Payments

- retain ten (10) percent of the amount of progress
- (a) The PHA shall pay the Contractor the price as provided in this contract.
- (b) The PHA shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. The PHA may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.
- (c) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a

basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be acceptable to HUD. If the contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.

(d) The Contractor shall submit, on forms provided by the PHA, periodic estimates showing the value of the work performed during each period based upon the approved

submitted not later than \_\_\_\_\_\_ days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.

(e) Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made: I hereby certify, to the best of my knowledge and belief, that:

 The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

- (2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, is conserved with exhaust any state and
- in accordance with subcontract agreements; and,(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in

subcontract.

Name:

Title:

Date:

(f) Except as otherwise provided in State law, the PHA shall

payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, the PHA may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, the PHA shall reinstate the ten (10) percent (or other percentage as provided in State law) retainage until such time as the Contracting Officer determines that performance and progress are satisfactory.

(g) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments. Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of the PHA's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the PHA.

- (h) All material and work covered by progress payments made shall, at the time of payment become the sole property of the PHA, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the PHA to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the PHA in the course of their employment, the Contractor shall restore such damaged work without cost to the PHA and to seek redress for its damage only from those who directly caused it.
- (i) The PHA shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the PHA arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release.
   Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.
- (j) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is

necessary to substantiate claimed costs.

(k) The PHA shall not; (1) determine or adjust any claims for payment or disputes arising there under between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the PHA to withhold moneys from the Contractor shall in nowise impair the obligations of any

surety or sureties under any bonds furnished under this contract.

#### 28. Contract Modifications

- (a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.
- (b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or

responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the Contractor and the Contracting Officer.

(c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

#### 29. Changes

- (a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within
  - the general scope of the contract including changes: (1) In the specifications (including drawings and designs);
  - (2) In the method or manner of performance of the work;
  - (2) In the method of manner of performance of the V
     (3) PHA-furnished facilities, equipment, materials, services or site or
  - services, or site; or,(4) Directing the acceleration in the performance of the work.
- (b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.
- (c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.
- (d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.
- (e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.
- (f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:

- (1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours or unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/ or revision to shop drawings resulting from the change; Worker's Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs when size of change warrants revision.
- (2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.
- (3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change. The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.
- (g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.
- (h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.
- (i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein.
   Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.
- (j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

## 30. Suspension of Work

(a) The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the

Contracting Officer determines appropriate for the convenience of the PHA.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

(c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

## 31. Disputes

- (a) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.
- (b) Except for disputes arising under the clauses entitled Labor Standards - Davis Bacon and Related Acts, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.
- (c) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.
- (d) The Contracting Officer shall, within 60 (unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.
- (e) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) days after receipt of the Contracting Officer's decision.
- (f) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

## 32. Default

(a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to proceed with the work (or separable part of the work) that has been delayed. In this event, the PHA may take over the work and complete it, by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the PHA resulting from the **Convenience** Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.

- (b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if—
- (1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the PHA or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the PHA, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and
- (2) The Contractor, within days (10 days unless otherwise indicated) from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the Disputes clause of this contract.
- (c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been for convenience of the PHA.

#### 33. Liquidated Damages

- (a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled Default of this contract, the Contractor shall pay to the PHA as liquidated damages, the sum of \$\_\_\_\_\_\_ Contracting Officer insert amount] for each day of delay. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in this contract, liquidated damages shall not be due the PHA. The Contractor remains liable for damages caused other than by delay.
- (b) If the PHA terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final

completion of the work together with any increased costs occasioned the PHA in completing the work.

(c) If the PHA does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

#### 34. Termination for

- (a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.
- (b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the
- value of the work performed by the Contractor.
  (c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.
- (d) Any disputes with regard to this clause are expressly made subject to the provisions of the Disputes clause of this contract.

#### 35. Assignment of Contract

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the PHA under the contract may be assigned to a bank, trust company, or other financial institution. Such assignments of claims shall only be made with the written concurrence of the Contracting Officer. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership as approved by the Contracting Officer.

#### 36. Insurance

- (a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:
  - (1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.
  - (2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than \$ \_\_\_\_\_ [Contracting Officer insert amount]

per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

(3) Automobile Liability on owned and non -owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than \$

[Contracting Officer insert amount] per occurrence. (b) Before commencing work, the Contractor shall furnish the

PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes

possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It

need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.

(c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period. the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or nonrenewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

#### 37. Subcontracts

- (a) Definitions. As used in this contract -
  - (1) "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contract or a subcontract.

- (2) "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor
- (b) The Contractor shall not enter into any subcontract with any subcontractor who has been temporarily denied participation in a HUD program or who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or of the state in which the work under this contract is to be performed.
- (c) The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.
- (d) The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this contract insofar as they are applicable to the work of subcontractors.
- (e) Nothing contained in this contract shall create any contractual relationship between any subcontractor and the PHA or between the subcontractor and HUD.

## 38. Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms

The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to small business firms, minority firms, women's business enterprises, and labor surplus area firms:

(a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists; (b) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;

(c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises:

(d) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises; and

(e) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies.

## 39. Equal Employment Opportunity

During the performance of this contract, the Contractor/ Seller agrees as follows:

(a) The Contractor/Seller shall not discriminate against any employee or applicant for employment because of of race color, religion, sex, sexual orientation, gender identity, disability, or national origin.

- (b) The Contractor/Seller shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, disability, or national origin. Such action shall include, but not be limited to, (1) employment, (2) upgrading demotion, (4) transfer, (5) recruitment or
  - recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training, including apprenticeship

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(c) The Contractor/Seller agrees to post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer setting forth the

provisions of this nondiscrimination clause.

(d) The Contractor/Seller shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor/Seller, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(e) The Contractor/Seller shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(f) The Contractor/Seller shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(g) The Contractor/Seller shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor/Seller shall permit

access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(h) In the event of a that the Contractor/Seller is in noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor/seller may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(i) The contractor/seller will include the provisions of paragraphs (a) through (h) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each sub[contractor/seller] or vendor. The [contractor/seller] will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions in cluding sanctions for noncompliance: Provided, however, that in the event the [contractor/seller] becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the [contractor/seller] may request the United States to enter into such litigation to protect the interests of the United States.

- (j) Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self-Determination and Education Assistance Act and the Indian Preference clause of this contract.
- 40. Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.

(a) The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

(b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 75, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 75 regulations.

(c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 prioritization requirements and shall state the minimum percentages of labor hour requirements established in the Benchmark Notice (FR-6085-N-04).

(d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 75. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 75.
(e) Noncompliance with HUD's regulations in 24 CFR Part 75 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

(f) Contracts, subcontracts, grants, or subgrants subject to Section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5307(b)) or subject to tribal preference requirements as authorized under 101(k) of the Native American Housing Assistance and Self-Determination Act (25 U.S.C. 4111(k)) must provide preferences in employment, training, and business opportunities to Indians and Indian organizations, and are therefore not subject to the requirements of 24 CFR Part 75.

#### 41. Interest of Members of Congress

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

## 42. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees

No member, officer, or employee of the PHA, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the PHA was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

#### 43. Limitations on Payments made to Influence Certain Federal Financial Transactions

- (a) The Contractor agrees to comply with Section 1352 of Title 31, United States Code which prohibits the use of Acts Federal appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.
- (b) The Contractor further agrees to comply with the requirement of the Act to furnish a disclosure (OMB Standard Form LLL, Disclosure of Lobbying Activities) if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

#### 44. Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall save the PHA harmless from loss on account thereof; except that the PHA shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified and the Contractor has no

reason to believe that the specified design, process, or product is an infringement. If, however, the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall promptly notify the Contracting Officer. Failure to give such notice shall make the Contractor responsible for resultant loss.

#### 45. Examination and Retention of Contractor's Records

- (a) The PHA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers,
  - or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.
- (b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding \$10,000.
- (c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the Disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the PHA,
  - HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

#### 46. Labor Standards - Davis-Bacon and Related

If the total amount of this contract exceeds \$2,000, the Federal labor standards set forth in the clause below shall apply to the development or construction work to be performed under the contract.

(a) Minimum Wages.

(1) All laborers and mechanics employed under this contract in the development or construction of the project(s) involved will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably

- anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or
- mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the

appropriate wage rate and fringe benefits in the wage determination for the classification of work actually

performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the

employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- (2) (i) Any class of laborers or mechanics, including
  - helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met: (A) The work to be performed by the classification requested is not performed by a classification in the wage determination; and (B) The classification is utilized in the area by the construction industry; and (C) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(ii)

- In the event the Contractor, the laborers or (iii) mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (a)(2)(ii) or (iii) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in classification.
  - (3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
  - (4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the

amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets

for the meeting of obligations under the plan or program.

- (b) Withholding of funds. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working in the construction or development of the project, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to
  - cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the

respective employees to whom they are due.

- (c) Payrolls and basic records.
  - (1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working in the construction or development of the project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

- (2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1214-0149.)
  - (ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following: That the payroll for the payroll period contains
- (A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c) (1) of this clause and that such information is correct and complete;
- (B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3; and
- (C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
  - (iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.
  - (iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.
  - (3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to

make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

- (d) (1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship and Training, Employer and Labor Services (OATELS), or with a State Apprenticeship Agency recognized by OATELS, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event OATELS, or a State Apprenticeship Agency recognized by OATELS, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
  - (2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under

Previous editions are obsolete Replaces form HUD-5370-A

the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (3) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.
- (e) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.
- (f) Contract termination; debarment. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.
- (g) Compliance with Davis-Bacon and related Act requirements. All rulings and interpretations of the Davis-Bacon and related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.
- (h) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this clause shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.
- (i) Certification of eligibility.
  - (1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

- (2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a United States Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
- (3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.
- (j) Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.
  - (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.
  - (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions set forth in subparagraph (j)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic (including watchmen and guards) employed in violation of the provisions set forth in subparagraph (j)(1) of this clause, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (j)(1) of this clause. DOL posts current fines at: https://www.dol.gov/whd/ govcontracts/cwhssa.htm#cmp
  - (3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontract or for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (j)(2) of this clause.
- (k) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

#### 47. Non-Federal Prevailing Wage Rates

(a) Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under State or tribal law to be prevailing, with respect to any employee in any trade or position employed under the contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever such non-Federal prevailing wage rate exceeds: (1) The variant the contract of the contract of the contract to employee the contract of the contract of

 The applicable wage rate determined by the Secretary of Labor pursuant to the Davis-Bacon Act (40 U.S.C. 3141 et seq.) to be prevailing in the locality with respect to such trade;

 (b) An applicable apprentice wage rate based thereon specified in an apprenticeship program registered with the U.S. Department of Labor (DOL) or a DOLrecognized State Apprenticeship Agency; or
 (c) An applicable trainee wage rate based thereon specified in a DOL-certified trainee program.

48. Procurement of Recovered Materials.

(a) In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor shall procure items designated in the EPA guidelines that contain the highest percentage of recovered materials practicable unless the Contractor determines that such items: (1) are not reasonably available in a reasonable period of time; (2) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable to the item; or (3) are only available at an

unreasonable price.

() Paragraph (a) of this clause shall apply to items

purchased under this contract where: (1) the Contractor purchases in excess of \$10,000 of the item under this contract; or (2) during the preceding Federal fiscal year, the Contractor: (i) purchased any amount of the items for use under a contract that was funded with Federal appropriations and was with a Federal agency or a State agency or agency of a political subdivision of a State; and (ii) purchased a total of in excess of \$10,000 of the item both under and outside that contract.

## PART OF GENERAL CONDITIONS

## **Provisions and Procedures**

## Pertaining to EMPLOYMENT OPPORTUNITIES FOR BUSINESS AND LOWER INCOME PERSONS IN CONNECTION WITH FEDERAL ASSISTED PROJECTS

## In compliance with

## SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1968

## Sec. 4.1 Purpose and Scope

The regulations set forth in this Part contain the procedures established by the Secretary of Housing and Urban Development for carrying out the responsibility under Section 3 of the Housing and Urban Development Act of 1968, 12 U.S.C. 1701u.

## Sec. 4.2 Definitions

"Section 3 Covered Project" means any nonexempt project assisted by any program administered by the Secretary in which loans, grants, subsidies, or other financial assistance are provided in aid of housing, urban planning, development, except as provided under Title 24, Part 75.

## Sect. 4.3 Assurance of Compliance

Every contractor and subcontractor shall incorporate, or cause to be incorporated, in all contracts for work in connection with a Section 3 covered project, the following clause:

- A. The work to be performed under this contract is in a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the business concerns which are located in, or owned in substantial part by persons residing in the area of the project.
- B. The parties to this contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR 75, and all applicable rules and orders of the Department issued thereunder prior to the execution of this contract. The parties to this contract certify and agree that they are under no contractual or other disability which would prevent them from complying with these requirements.
- C. The contractor will send to each labor organization or representative of workers with which he has a collective bargaining agreement or other contract or

understanding, if any, a notice advising the said labor organization or workers' representative of his commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.

- D. The contractor will include this Section 3 clause in every subcontract for work in connection with the project and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR 75. The contractor will not subcontract with any subcontractor where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR 75 and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.
- E. Compliance with the provisions of Section 3, the regulations set forth in 24 CFR 75, and all applicable rules and orders of the Department issued thereunder prior to the execution of the contract, shall be a condition of the Federal assistance provided to the project, binding upon the applicant or recipient for such assistance, it' successors, and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, it's contractors and subcontractors, it's successors, and assigns, to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provided, and to such sanctions are specified by 24 CFR 75.

## Sec. 4.4 Bidding Procedures

Prior to the signing of the contract, the contractor shall provide a preliminary statement of work force needs (skilled, semi-skilled, unskilled labor and trainees by category) where known; where not known, such information shall be supplied prior to the signing of any contract between the contractor and subcontractors.

## A. <u>Trainees</u>

The contractor or subcontractor shall fulfill his obligation to utilize lower income project area residents as trainees to the greatest extent feasible by:

- (1) Utilizing the maximum number of persons in the various training categories in all phases of the work to be performed under the Section 3 covered Project, and
- (2) Filling all vacant training positions with lower income project area residents except for those training positions which remain unfilled after a good faith effort has been made.
- (3) "Manpower Utilization Table" See Appendix #1

## B. <u>Residents as Employees</u>

Each contractor and subcontractor shall fulfill his obligation to utilize lower income project area residents as employees to the greatest extent feasible by:

- (1) Identifying the number of positions in the various occupational categories including skilled, semi-skilled, and unskilled labor needed to perform each phase of the Section 3 covered project.
- (2) Identifying the number of positions currently occupied by regular, permanent employees.
- (3) Identifying the positions not currently occupied by regular, permanent employee.
- (4) Establishing the positions identified in paragraph (3) of this part, a goal which is consistent with this subpart within each occupational category of the number of positions to be filled by lower income residents of the Section 3 covered project area.
- (5) "Work Force Needs Table" See Appendix #1
- C. <u>Utilization of Businesses</u>

Each contractor and subcontractor undertaking work on a Section 3 covered project shall assure that to the greatest extent feasible, contracts for work to be performed in connection with the project are awarded to business concerns located within the Section 3 covered project area or business concerns owned in substantial part by persons residing in the Section 3 covered area.

(1) "Business Utilization Table" – See Appendix #2.

## Sec. 4.5. Good Faith Effort

Each contractor and subcontractor seeking to establish that a good faith effort, as required by Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C., 1701u, has been made to fill all training positions with lower income area residents; and fill all employment positions identified in Section 4.4, paragraph B, subparagraph (3) and (4) shall:

- A. Attempt to recruit from the appropriate areas the necessary number of lower income residents through local advertising media, signs placed at the proposed site and community organizations and public and private institutions operating within or serving the project area, such as State Employment Offices, Opportunities Industrialization Center (OIC) and contact with the awarding agency.
- B. Maintain a list of all lower income area residents who have applied either on their own or on referral from any sources, and employ such person if otherwise eligible and/or qualified and if a vacancy exists. If no vacancies exists, the eligibility and/or

qualifications of the applicant shall be considered and listed for the first available opening.

C. Any contractor or subcontractor which fills vacant apprentice and trainee positions and/or employment position, identified in subparagraph B above, but more specifically identified in Section 3 of the Housing and Urban Development Act of 1968, 12 U.S.C. 1701u, in his organization immediately prior to undertaking work pursuant to a Section 3 covered contract shall set forth pursuant to a Section 3 covered contract shall set forth evidence acceptable to the Secretary that it's actions were not an attempt to circumvent these regulations.

## Sec. 4.6 Affirmative Action Plan

- A. An Affirmative Action Plan pursuant to a Section 3 covered contract shall:
  - (1) Set forth the approximate number and estimated dollar value of contracts to be awarded to eligible businesses and entrepreneurs within each category over the duration of this contract.
  - (2) Ensure that the appropriate business concerns are notified of pending contractual opportunities either personally or through locally utilized media.
- B. Good Faith Effort

Each contractor and subcontractor seeking to establish that a good faith effort has been made shall, as a minimum, attempt to recruit from the appropriate areas the necessary eligible business concerns through:

- (1) Local advertising.
- (2) Signs placed at the site.
- (3) Community organizations, public and private institutions operating or serving within the project areas such as P.A.C., OIC, and any equivalent organization.
- C. "Business Utilization Table" See Appendix #2
- D. "AAP Form" See Appendix #2

## Sec. 4.7 Certificate of Compliance

The contractor shall execute the Certificate of Compliance and cause all subcontractors undertaking work in connection with this contract to furnish the same.

#### **PROVISIONS AND PROCEDURES**

## Pertaining to

## THE MINORITY AND BUSINESS ENTERPRISE PROGRAM IN CONNECTION WITH FEDERAL ASSISTED PROJECTS

## IN COMPLIANCE WITH EXECUTIVE ORDER 11625

## OBJECTIVE

The procedure set forth in this Part contains the method approved by the Secretary of Housing and Urban Development for carrying out the responsibilities under Executive Order 11625.

## DEFINITION

Executive Order 11625 covered projects "means any project assisted by any program administered by the Secretary of Housing and Urban Development in which loans, grants, subsidies, or other financial assistance are provided."

Minority is defined racially to include Negro/black, Spanish American, American Indian, Oriental, and other, not ethnically.

Work is defined for purposes of Executive Order 11625 as construction or construction related activities including the purchase of goods, supplies, and services.

## ASSURANCE OF COMPLIANCE

Every contractor and subcontractor shall incorporate, or cause to be incorporated, in all contracts for work in connection with a Federally-assisted project the following:

- A. The work to be performed under this contract is on a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development, and is subject to the requirements of Executive Order 11625.
- B. The parties to this contract will comply with the intent and purpose of said Executive Order 11625, and all applicable procedures issued thereunder prior to the execution of this contract. The parties to this contract certify and agree that they are under no contractual or other disability which would prevent them from complying with these requirements.

- C. The contractor will send to appropriate minority organizations or representatives of minorities a notice advising the said minority organization or representative of his commitments under this Executive Order 11625, and shall retain copies of the notice in an appropriate file available for inspection by authorized party(s).
- D. The contractor will include this Executive Order in 11625 clause in every subcontract for work in connection with the project and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in non-compliance. The contractor will not subcontract with any subcontractor where it has notice or knowledge that the latter will not participate and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of goals to comply with the intent and purpose of these procedures.
- E. Compliance with the provisions of Executive Order 11625, the intent and purpose thereof, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, it's successors, and assigns, to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provided.

## BIDDING PROCEDURE

Prior to the signing of the contract, the contractor shall provide a preliminary statement of minority business utilization where known; where now known, such information shall be supplied prior to the signing of any contract between the contractor and subcontractor.

## UTILIZATION OF BUSINESSES

Each contractor and subcontractor undertaking work on an Executive Order 11625 covered project shall assure that to the greatest extent feasible, contracts for work to be performed in connection with the project are awarded to minority business concerns.

## NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11625)

- 1. The offerer's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
- 2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables:	Goals for Minority Participation for Each Trade	Goals for Female Participation in Each Trade	
	5%	3%	

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from Project to Project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

- 3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any subcontractor in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.
- 4. As used in this Notice, and in the contract resulting from this solicitation, the "covered areas" are located at within the limits of , Erie County, Pennsylvania.

## INSTRUCTIONS FOR CONTRACTORS REGARDING AFFIRMATIVE ACTION UNDER EXECUTIVE ORDER 11246 (Equal Employment Opportunity)

## EEO: A CONTRACTUAL OBLIGATION

A prime contractor or subcontractor who signs a contract on a Federal or federally assisted construction project assumes the obligation to take whatever affirmative actions are necessary to assure equal employment opportunity in all respects of employment, irrespective of race, color, creed, or national origin. It is expected that a contractor will carry out that part of his contract pertaining to equal employment opportunity with the same amount of thought and action as he will any other part of the contract.

## THE AFFIRMATIVE ACTION PROGRAM

To do this, the contractor must have a program of affirmative action. The program must be tailored to the particular set of circumstances which apply to the contractor and to the locality, the labor market, and the project (or projects) in which the contractor is involved.

It is expected that a contractor's affirmative action program will include action suited to carrying out the principles listed in the following pages, to show that top management of the company intends to, and will, exert positive efforts to assure equal opportunity in employment. (The actions listed under these principles in the following pages are furnished only as suggestions, and are not intended to limit the kinds of actions which may be taken. A substantial proportion of these or comparable actions are considered feasible for the individual employer, either on his own or as part of a joint effort with his professional or trade association in the local area).

## PROCEDURE FOR SUBMITTING WRITTEN PROGRAM

In some cases, submittal of written copies of the program is required. If the box at left is checked, the prime contractor or to develop and submit to the applicant, within 15 days after the preconstruction conference (or after receipt of this notice, if the project is already under construction), three copies of his written affirmative action program. Likewise, if the box is checked, the prime contractor is to submit to the applicant, within 15 days of awarding each non-exempt subcontract of \$100,000 or more, three copies of the affirmative action programs of each subcontractor. An up-date copy of each affirmative action program is also to be maintained at the employment site, available for inspection by representatives of the applicant and of the Government.

If the box is not checked, submittal of written copies will not ordinarily be required, but all other aspects of these instructions remain in effect.

## FOLLOW THROUGH

To assure compliance with equal employment opportunity requirements and evaluate progress made by a contractor under his affirmative action program, the applicant will observe the contractor's performance on a continuing basis. Compliance reviews will also be made by representatives of the Department of Housing & Urban Development. To be acceptable, affirmative action programs must reflect current (as well as past) thought and action on the part of the employer. It is recommended that each contractor and subcontractor keep a file of his equal employment activities and accomplishments.

## PRINCIPLES OF AFFIRMATIVE ACTION (and suggested steps for a program)

- 1. Write out an Equal Employment Opportunity Policy for your company. Make this policy known to all your employees and potential sources of employees and to your subcontractors, asking their cooperation. Use every appropriate means (bulletin boards, handbooks, letters, etc.) to get your points across. Be sure you are understood. (One way is to ask for signed acknowledgments and assurances of cooperation.)
- 2. Appoint a top management official in your company as Equal Employment Opportunity Officer (or equivalent title), to coordinate company efforts, to advise and assist your key staff, including superintendents and foreman, and to serve as focal point for any complaints.
- 3. Assure <u>non discriminatory recruiting</u> for your company, taking appropriate steps such as:
  - (a) Placing employment advertisements in newspapers which serve the largest number of minority group people in the recruiting area;
  - (b) Recruiting through schools and colleges having substantial proportions of minority students;
  - (c) Maintaining systematic contacts with minority and human relations organizations, leaders, and spokesmen to encourage referral of qualified minority applicants (including those in related work such as fabricating shops and home repair) and minority youths interested in construction occupations;
  - (d) Encouraging present employees to refer minority applicants;
  - (e) Making it known to all recruitment sources that qualified minority members are being sought for consideration for supervisory, journeyman, office, and technical jobs as well as others, whenever the company hires.
- 4. Assure <u>non discriminatory hiring</u> by your company, taking appropriate steps such as:
  - (a) Instructing personally those of your staff who make hiring decisions that minority applicants for all jobs (including supervisory, journeyman, office and technical

jobs) are to be considered without discrimination;

- (b) Where upon agreements exist----
  - (1) Cooperation with your unions (perhaps through your contractor's organization) in the development of programs to assure qualified minority persons—including apprentices—of equal opportunity for employment in the construction trades; and
  - (2) Including an effective non-discrimination clause in new or renegotiated union agreements.
- 5. Assure that your company make maximum use of <u>apprenticeship and other training</u> to help equalize opportunity for minority persons, taking appropriate steps such as:
  - (a) Sponsoring and assisting minority youths as well as other to enter preapprenticeship and apprentice training, and making such training available to the maximum extent within your company;
  - (b) Actively encouraging minority employees as well as others to increase education programs, and helping to assure that such programs are adequate and are in fact available to minority persons;
  - (c) Actively participating in Joint Apprenticeship Committees;
  - (d) Working with civic, labor, and contractors' organizations (helping to organize a sponsoring group if necessary) to conduct an open admission training resource for the construction trades in your area.
- 6. Assure <u>non discriminatory placement and promotion</u> within your company, taking appropriate steps such as:
  - (a) Instructing personally those of your staff who make decisions on placement and promotion that minority employees are to be considered without discrimination, and that job areas in which there is little or no minority representation should be reviewed to determine whether this results from discrimination;
  - (b) Distributing written questionnaires to all lower paid employees, inquiring as to their interest and skills with respect to any of the higher paid trades, followed by assistance, counseling, and effective measures to enable employees with interest and potential to qualify themselves for such trades.
- 7. Assure <u>non discriminatory pay</u>, <u>other compensation and working conditions</u> in your company taking appropriate steps such as:
  - (a) Examining rates of pay and fringe benefits for present employees with equivalent duties, and adjusting any inequities found;
  - (b) Not reducing the compensation of existing employees whom you have converted to on the job trainee status;
  - (c) Advising all qualified employees whenever there is an opportunity to perform overtime work.

- 8. Assure <u>non discriminatory demotion, layoff, or termination</u>, perhaps by requiring advance clearance of such actions through your company's Equal Employment Opportunity Officer.
- 9. Encourage <u>non discriminatory subcontracting</u> for your company, taking appropriate steps such as:
  - (a) Encouraging minority group subcontractors, and subcontractors with minority representation among their employees, to bid for subcontracting work;
  - (b) Counseling and assisting minority craftsmen who have the interest and potential to become subcontractors, with respect to securing performance bonds, writing contracts, and making bids.
- 10. <u>Follow through</u>, questioning, verifying making whatever changes or additions to your program may be necessary to obtain results.

## APPENDIX NO. 1

## MANPOWER UTILIZATION TABLE

Occupation	Total Work	SKILLED	TRAINEES	No. of	Project
Category	Force			Residents to	Be utilized
<u>1</u> /					
				SKILLED	TRAINEES
(write list)					

## EMPLOYMENT CERTIFICATION

- A. The Company hereby certifies that the above table represents the appropriate number of employee positions required in the execution of Contract and also represents the number of lower income project area residents that the Company proposes to employ.
- The Company certifies that it will make a good faith effort to employ the number B. of lower income employees stated above utilizing such community based organizations and service agencies as \_\_\_\_\_, Opportunities Industrialization (OIC); and on the site company employment posters.
- The Company certifies that the employee goals listed in the above table C. approximates the ratio of lower income residents to the total population of the project area.

Company

BY\_\_\_\_\_Authorized Signature

Title

Date \_\_\_\_\_

Appendix No. 1 Manpower Utilization Table Page Two

 $\underline{1}$ / The following are the occupational category classifications that should be inserted in the Table:

- 1. Asbestos Workers
- 2. Bricklayers
- 3. Carpenters
- 4. Cement Masons
- 5. Electricians
- 6. Elevator Constructors
- 7. Glaziers
- 8. Iron Workers
- 9. Lathers

- 10. Machinists
- 11. Operating Engineers
- 12. Painters
- 13. Plasterers
- 14. Plumbers
- 15. Roofers
- 16. Sheet Metal
- 17. Tile Setters
- 18. Others (Specify)
### AFFIRMATIVE ACTION PLAN FOR UTILIZATION **OF SECTION 3 PROJECT BUSINESSES**

The Company shall utilize business concerns located in Project No. A. in contracting for work to be performed in connection with the completion of the contract. To this end the Company shall require the services of companies in the project area engaged in the business of:

Subcontracts	Total Subcontractor	Proposed Section 3	Total Subcont. To
<u>1</u> /	Dollar Amount	Business Available	Section 3 Business
		for Use	Dollar Amount
(write list)			

Company

By \_\_\_\_\_\_Authorized Signature

Title \_\_\_\_\_\_

Date

Affirmative Action Plan for Utilization of Section 3 Project Businesses Page Two

\*<u>1/</u> The following are the examples of services which may be required by Suppliers and these classifications should be inserted if applicable.

- 1. Selling Bricks
- 2. Selling Lumber
- 3. Selling Cement, sand and gravel
- 4. Making steel cast
- 5. Selling electrical supplies
- 6. Selling kitchen appliances
- 7. Selling bathroom fixtures
- 8. Window-installation
- 9. Air Conditioning sales and/or installation
- 10. Floor tile sales and/or installation
- 11. Door sales and/or installation
- 12. Landscaping
- 13. Carpeting
- 14. Stationery and/or advertising
- 15. Other (Specify)

This list should also include professional services, and all of the construction trades, i.e., plumbing, electrical, drywall, carpenters, etc. which are intended to be contracted.

### SECTION 3 CERTIFICATION OF COMPLIANCE

\_\_\_\_\_\_ will abide by and initiate in all their subcontracts, to the greatest extent feasible, the requirements of Section 3 of the Housing and Urban Development Act of 1968, 12 U.S.C. 170lu.

Date

By

Title

Project Name

# CERTIFICATION OF INTENT TO COMPLY WITH HIRING AND SUB-CONTRACTING GOALS

On behalf of \_\_\_\_\_\_, I hereby

certify to our intention to make a serious and good faith effort to meet the goals

established by the Housing Authority of the County of Erie regarding the hiring of

women, minorities and project area residents; and the utilization of Minority Businesses

and project area businesses in connection with the Authority's Public Housing Locations

Contract.

Company

Date

Signature

# CERTIFICATION OF COMPLIANCE AFFIRMATIVE ACTION STANDARDS

# **EXECUTIVE ORDER 11246**

, will abide by and initiate in all

their subcontracts, to the greatest extent feasible, the requirements of Executive Order

11246.

Name

Title

Date

# 22 - MBE/WBE CONTACT SOLICITATION

#### Explanation of Column Items

- 1. Provide your company name, address, telephone number
- 2. Provide the invitation for Bid (IFB) number, if available, bid opening date and bidder's contact person.
- 3. Enter the subcontractor's company name, Employer identification Number (EIN), Social Security Number (SSN) and telephone number with area code. Only the company's name is a mandatory item.
- 4. Indicate whether or not the firm is an MBE or WBE. Place a check mark in only one of the appropriate columns.
- 5. Indicate the type of work to be performed and/or material to be supplied.
- 6. Enter the total dollar amount of the quote received.
- 7. Enter the total dollar (S) amount of the commitment which you have made to the MBE or WBE. If no amount is provided in this space, it will be presumed that your firm made no commitment to the MBE or WBE.
- (NOTE:) You must include information on both solicited and unsolicited quotes. Failure to include a firm providing solicited or unsolicited quotes may result in the rejection of the bid. Five days is a guide. However, adequate time must be provided for subcontractors and suppliers to respond to bid.
- 9. (NOTE:) If the minimum participation levels for this project are not achieved, you must provide written explanation on this or a separate sheet explaining the failure to achieve the MPL for either MBE, WBE or both. Failure to provide this explanation will result in the rejection of the bid as non-responsive.
- 10. Indicate the name and title of the person(s) who prepared the form.

\*KEY NOTE: Mandatory Items: Failure to provide mandatory items will result in rejection of the bid as non-responsive. These items appear in Columns 3 and 7. Only the company name is a mandatory item in Column 3.

#### EXHIBIT 1

#### MBE/WBE CONTACT/SOLICITATION AND COMMITMENT STATEMENT

(1)		(2)
BIDDER'S FIRM NAME		FAX NUMBER
ADDRESS	ſ	BID OPENING DATE
TELEPHONE NUMBER	ſ	CONTACT PERSON

(0) NOTE: List those certified minority and/or women owned businesses from which solicited quotes or which contacted you and gave you quotes in regard to this invitation for bld. Bidder's contact with subcontractors and suppliers should be at least (5) days prior to the bid opening date.

(3)	(4	4)	(5)	(6)	(7)
COMPANY NAME ADDRESS AND TELEPHONE NO.			TYPE OF WORK TO BE PERFORMED AND MATERIAL TO BE SUPPLIED	TOTAL DOLLAR AMOUNT OF QUOTE RECEIVED	TOTAL COMMITMENT DOLLAR AMOUNT
	MBE (√)	<b>WBE</b> (√)			

(8)

(9) NOTE: Minimum Participation Levels (MPL); MBE – 5%, WBE – 3%. A presumption of responsibility may be made if the dollar commitment to MBE/WBE's reflects these minimum participation levels

(10) PREPARED BY	TELEPHONE NUMBER

Use additional sheets if necessary

# 23 - SPECIAL CONDITIONS

#### 1. PROJECT SITE

1.1 The site of the Project is shown on the cover sheet of the Drawings and listed below:

Barnett Building Apartments, 32 West Pearl Street, Albion, Pennsylvania 16401

#### 2. TIME FOR COMPLETION

2.1 The work shall be commenced at the time stipulated in the Notice to Proceed to the Contractor and shall be fully completed within: 120 consecutive calendar days thereafter.

#### 3. LIQUIDATED DAMAGES

3.1 As actual damages for any delay in completion are impossible to determine, the Contractor and his sureties shall be liable for and shall pay to the Housing Authority of the County of Erie the sum of \$100.00, as fixed, agreed, and liquidated damages for each calendar day of delay until the work is completed and accepted.

#### 4. <u>COMMUNICATIONS</u>

- 4.1 All notice demands, requests, instructions, approvals, proposals, and claims must be in writing.
- 4.2 Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the Office of the Contractor stated on the signature page of the Contract or at such other office as he may from time to time designate in writing to the Housing Authority of the County of Erie or deposited in the United States Mail in a sealed, postage-prepaid envelope, or if delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.
- 4.3 All papers required to be delivered to the Housing Authority of the County of Erie shall, unless otherwise specified in writing to the Contractor be delivered to the office of the Housing Authority of the County of Erie, 120 South Center St., P.O. Box 38, Corry, Pennsylvania 16407 and any notice to or demand upon the Housing Authority of the County of Erie shall be sufficiently given if so delivered, or deposited in the United States mail in a sealed postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said office at such address, or to such other representative of the Housing Authority of the County of Erie or to such other address as the Housing Authority of the County of Erie may be subsequently specified in writing to the Contractor for such a purpose.
- 4.4 Any such notice shall be deemed to have been given as of the time of actual delivery; or, in the case of mailing, when the same should have been received in due course of post; or, in the case of telegrams, at the time of actual receipt.

#### 5. <u>SIGNS</u>

5.1 Subject to prior approval of the Housing Authority of the County of Erie as to size,

design, type, and location, and to local regulations, the Contractor and his subcontractors may erect temporary signs for purposes of identification and controlling traffic. The Contractor shall furnish, erect, and maintain such signs as may be required by safety regulations and as necessary to safeguard life and property.

#### 6. STORAGE FACILITIES

- 6.1 The Contractor and his subcontractors may maintain such office and storage facilities on the site as designated for such purposes as may be necessary in the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the site. The Housing Authority of the County of Erie shall be consulted with regard to locations.
- 6.2 Upon completion of the project, or as directed by the Housing Authority of the County of Erie, the Contractor shall remove all such temporary structures and facilities from the site, same to become his property, and leave the premises in the condition required by the Contract. It is understood that this may necessitate the removal of temporary gravel, reshaping of the lawn area, and turfing.

END OF SPECIAL CONDITIONS

# **25 – TECHNICAL SPECIFICATIONS INDEX**

SECTIONS	6	PAGE NO.
01 1000	Summary of the Work	1 thru 3
01 3000	Administrative Requirements	1 thru 11
01 4000	Quality Requirements	
01 5000	Temporary Facilities & Controls	÷ 1 thru 8
01 7000	Execution & Closeout Requirements	1 thru 2
DIVISION 0	2 EXISTING CONDITIONS	
02 4119	Selective Demolition	1 thru 4
DIVISION 0	3 CONCRETE	
03 3000	Cast-in-Place Concrete	1 thru 8
DIVISION 04	4 MASONRY	
04 2200	Concrete Unit Masonry	1 thru 9
04 2810	Veneer Masonry	1 thru 20
04 7200	Cast Stone	1 thru 5
DIVISION O	5 METALS	
05 1000	Structural Steel	1 thru 7
05 5000	Metal Fabrications	1 thru 7
DIVISION O	6 WOOD, PLASTICS & COMPOSITES	
06 1000	Rough Carpentry	1 thru 4
06 2000	Finish Carpentry	1 thru 2
DIVISION O	7 THERMAL AND MOISTURE PROTECTION	
07 2100	Insulation	1 thru 4
07 5323	EPDM Adhered Roofing System	1 thru 9
07 9200	Joint Sealants	1 thru 3
DIVISION 0	8 OPENINGS	
08 1113	Hollow Metal Frames	1 thru 6
08 4100	Wood Doors Flush	1 thru 4
08 4113	Aluminum Storefront and Entrance	1 thru 7
08 5313	Vinyl Windows	1 thru 5
08 9700	Structural Glass Canopy	1 thru 5
DIVISION 0	9 FINISHES	
09 2900	Gypsum Wallboard	1 thru 7
09 5000	Acoustical Ceilings	1 thru 4
09 6519	Resilient Tile Flooring	1 thru 5

09 6810	Broadloom Carpet	1 thru 10
09 9100	ranung	1 UIIU 0
<b>DIVISION 10</b>	<u>) SPECIALTIES</u>	
10 1040	Signage	1 thru 3
10 2000	Miscellaneous Specialties	1 thru 16
10 2813	Toilet and Bath Accessories	1 thru 3
DIVISION 12	2 FURNISHINGS	
12 3200	Manufactured Casework	1 thru 6
21 0510		1 thur 0
31 0519	Earthwork	1 thru 3
DIVISION 32	2 EXTERIOR IMPROVEMENTS	
32 1030	Lawn Restoration	1 thru 6

# END OF TECHNICAL SPECIFICATIONS INDEX

# 26 - SCHEDULE OF DRAWINGS

Drawing Number	Description
CS	Cover Sheet
AD100	Demolition Plan and Notes
A100	Overall Floor Plan
A101	Partial Enlarged First Floor Plan, Schedules and Details
A102	Partial Roof Plan and Details; Reflected Ceiling Plan and Details
A200	Exterior Elevations, Window Details
A300	Sections and Details
A301	Interior Elevations and Details
S0	Structural General Notes, Key Plan, and Interior Header Plans
S1	North Addition Structural Plans, Notes, Sections and Details
S2	South Canopy Structural Plans, Notes, Sections and Details
M001	Mechanical Specifications and Schedules
MD100	First Floor Mechanical Demolition Plan
MD101	First Floor Mechanical Demolition Plan
M100	First Floor Mechanical Plan
E001	Electrical Specifications and Legends
ED100	First Floor Electrical Demolition Plan
E100	First Floor Electrical Plan

#### 011000 - SUMMARY OF THE WORK

#### PART 1 - GENERAL

#### 1.1 STIPULATIONS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.

#### 1.2 SUMMARY

A. The project consists of one Prime General Construction Contract including associated electrical and mechanical construction. The work consists of modifications indicated to relocate the main entry to the parking lot side of the building, relocate the office and one apartment, and construct a small addition on to the Community Room.

#### 1.3 COMMENCEMENT OF WORK

A. The work to be performed under the Contract Documents shall be commenced within five (5) calendar days after date of Notice to Proceed and the Contractor shall prosecute his work regularly, diligently and without interruption at the rate stated in progress schedule.

#### 1.4 TIME OF COMPLETION

A. The Work shall be commenced at the time stipulated in the Notice to Proceed to Contractor and shall be completed within 120 consecutive calendar days.

#### 1.5 JOB CONDITIONS

- A. The Contractor shall schedule, manage, and expedite all work under this Contract, coordinating his work with all other subcontractors and trades so that no conflicts of timing or location occur.
- B. It shall be obligatory upon the various contractors before proceeding with the work, to examine the installations made by others, and the conditions created thereby, which in any manner affect the proper installation of their materials.
- C. Should any such adverse conditions be encountered, or anticipated, the matter shall be brought to the attention of the Architect in writing. Failure to do so, and/or proceeding with the work shall be considered as the acceptance of the surface and/or conditions by the Contractor. Contractor shall do all cutting, fitting or patching of his work that may be required to comply with the Drawings and Specifications.
- D. Any cost for correction of defective or ill-timed work shall be borne by the party responsible therefore.
- E. Contractor shall not endanger, cut or alter the work of any other Contractor without the consent of the Architect.

#### 1.6 CONTRACTORS DUTIES

A. Except as specifically noted, provide and pay for:

Labor, materials and equipment Tools, construction equipment and machinery. Other facilities and services necessary for proper execution and completion of work. State sales taxes on materials permanently incorporated, if applicable.

- B. Contractor must notify and coordinate all required inspections with appropriate notice to BIU. The Prime Contractors shall include the cost of permits and inspections for their respective contracts.
- C. Secure and pay for, as necessary for proper execution and completion of work, and as applicable:
  - 1. The Contractor is further responsible for additional permits/fees associated with the construction of this project as required by local, state, federal authorities.
- D. The Contractor shall:
  - 1. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of Work.
  - 2. Promptly submit written notice to the Architect of observed variance of Contract Documents from legal requirements.
  - 3. Appropriate modifications to Contract Documents will adjust necessary changes.
  - 4. Assume responsibility for work known to be contrary to such requirements, or if work is performed without notice.
- 1.7 QUALITY ASSURANCE
  - A. Regulations and Standards: All work shall comply with the rules and regulations of all local and state agencies having jurisdiction. All modifications shall comply with UFAS.
  - B. All work in public property shall conform to applicable rules and regulations of municipality.

#### 1.8 PRODUCTS

A. The mention of a product, material or system herein establishes the contract requirements. An equal or better product may be substituted if approved by a properly executed Change Order with the Housing Authority.

#### 1.9 CONTRACT DOCUMENTS

- A. The Contract Documents consist of all documents listed in the Table of Contents, on the cover sheet of the Drawings and all addenda.
- B. The Contract Documents are complementary and what is shown or required by any one document shall be as binding as if shown or required by all.
- C. The Contractor is directed to review all documents to determine the scope of his work and how it is affected by or affects the work of the other subcontractors on the project.
- D. It is the <u>bidder's responsibility</u> to ensure that they have received and acknowledge all addenda issued for this project.

- 1.10 DRAWINGS/SPECIFICATIONS FOR CONSTRUCTION
  - A. The Contractor shall print out sufficient quantities of the drawings and specifications including addenda from the link provided from Roth Marz and from addenda received during the bidding process. The Contractor shall include the cost of this printing/duplication in the bid.
  - B. The Contractor shall also include the printing of one set of specifications and drawings to be used for 'as built' drawings to be submitted to the Architect at the completion of the project.
- PART 2 PRODUCTS (Not Applicable)
- PART 3 EXECUTION (Not Applicable)

END OF SECTION 011000

#### 013000 – ADMINISTRATIVE REQUIREMENTS

#### PART 1 - GENERAL

#### 1.1 STIPULATIONS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.
- 1.2 DESCRIPTION OF REQUIREMENTS
  - A. <u>General:</u> This section specifies procedural requirements for non administrative submittals including Shop drawings, product date, samples and other miscellaneous work-related submittals. Shop Drawings, product data, samples and other work-related submittals are required to amplify, expand and coordinate the information contained in the Contract Documents.
  - B. Refer to other Division 1 Sections and other Contract Documents for specifications on administrative, non-work-related submittal. Such submittals include, but are not limited to the following items:
    - 1. Permits
    - 2. Payment applications.
    - 3. Performance and payment bonds.
    - 4. Insurance certificates.
    - 5. Inspection and test reports
    - 6. Schedule of values
    - 7. Progress reports
    - 8. List of subcontractors.
  - C. <u>Shop Drawings</u> are technical drawings and data that have been especially prepared for this project, including but not limited to the following items:
    - 1. Fabrication and installation drawings.
    - 2. Setting diagrams
    - 3. Shopwork manufacturing instructions.
    - 4. Templates
    - 5. Patterns
    - 6. Coordination Drawings (for use on-site).
    - 7. Schedules
    - 8. Design mix formulas.
    - 9. Contractor's engineering calculations.
    - 10. Standard information prepared without specific reference to a project is not considered to be shop drawings.
  - D. <u>Product data includes standard printed information on manufactured products that has not</u> been specially-prepared for this project, including but not limited to the following items:
    - 1. Manufacturer's product specifications and installation instructions.
    - 2. Standard color charts.
    - 3. Catalog cuts
    - 4. Roughing-in diagram and templates
    - 5. Standard wiring diagrams
    - 6. Printed performance curves

- 7. Operational range diagrams
- 8. Mill reports
- 9. Standard product operating and maintenance manuals.
- E. <u>Samples</u> are physical examples of work, including but not limited to the following items:
  - 1. Partial sections of manufactured or fabricated work.
  - 2. Small cuts or containers of materials
  - 3. Complete units of repetitively-used materials.
  - 4. Swatches showing color, texture and pattern.
  - 5. Color range sets
  - 6. Units of work to be used for independent inspection and testing.
- F. <u>Mock-ups</u> are special forms of samples, which are too large or otherwise inconvenient for handling in the manner specified for transmittal of sample submittals.
- G. <u>Miscellaneous submittals</u> are work related, non-administrative submittals that do not fit in the three previous categories, including, but limited to the following:

Specially-prepared and standard printed warranties. Maintenance agreements. Workmanship bonds. Survey data and reports. Project photographs. Testing and certification reports. Record Drawings. Field measurement data. Operating and maintenance manuals. Keys and other security protection devices Maintenance tools and spare parts. Overrun stock.

- 1. Prior to submitting each shop drawing, the Contractor shall review said shop drawing for compliance with the contract documents. The contractors stamp and signature shall indicate his approval. Any and all deviations from the contract documents and/or modifications necessary to the equipment being submitted shall be identified on each shop drawings.
- 2. The submissions are the contractors documents and the architects approval constitutes an acknowledge that the documents have been submitted and nothing more. It is the contractors responsibility to check his own submissions for compliance with the contract documents and job conditions.
- 3. The equipment supplier, by submitting, certifies that the materials or equipment proposed is satisfactory for the application intended, including adverse conditions that may prevail at the job site and that materials and equipment are in current production with no known plans to cease productions.
- 4. The contractor agrees that submittals processed by the architect are not change orders, that the purpose of submittals by the contractor is to demonstrate to the architect that the contractor understands the design concept, and that this understanding is demonstrated by indicating which

equipment and materials he or she intends to furnish and install and the fabrication and installation method that he or she intends to use.

#### 1.3 SUBMITTAL PROCEDURES:

- A. <u>General:</u> Refer to the General Conditions for basic procedures for submittal handling.
- B. <u>Coordination</u>: Coordinate the preparation and processing of submittals with the performance of the Work. Coordinate each separate submittal with other submittals and related activities such as testing, purchasing, fabrication, delivery and similar activities that require sequential activity.

Coordinate the submittal of different units of interrelated work so that one submittal will not be delayed by the Architect/Engineer's need to review a related submittal. The Architect/Engineer reserves the right to withhold action on any submittal requiring coordination with other submittals until related submittals are forthcoming.

- C. <u>Scheduling</u>: In each appropriate administrative submittal, such as the progress schedule, show the principal work-related submittals and time requirements for coordination of submittal activity with related work.
- D. <u>Listing</u>: Prepare a separate listing showing principal work-related submittals and their initial submittal dates as required for coordination of the work. Organize the listing by the related specification number sequence. Submit the listing within 30 days of the date of commencement of the work.
- E. <u>Coordination of Submittal Times:</u> Prepare and transmit each submittal to the Architect/Engineer sufficiently in advance of the scheduled performance of related work and other applicable activities. Transmit different kinds of submittals for the same unit of work so that processing will not be delayed by the Architect/Engineer's need to review submittals concurrently for coordination.
- F. <u>Review Time:</u> Allow sufficient time so that the installation will not be delayed as a result of the time required to properly process submittals, including time for resubmittal, if necessary. Advise the Architect/Engineer on each submittal, as to whether processing time is critical to the progress of the Work, and if the Work would be expedited if processing time could be shortened.
  - 1. No material shall be installed without "approved" shop drawings; form the Architect unless written permission is given in order to avoid delays.
  - 2. Allow two weeks for the Architect/Engineer's initial processing of each submittal. Allow a longer time period where processing must be delayed for coordination with subsequent submittals The Architect/Engineer will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination.
  - 3. Allow one week for reprocessing each submittal.
  - 4. No extension of time will be authorized because of the Contractors failure to transmit submittals to the Architect/Engineer sufficiently in advance of the Work.

G. <u>Submittal Preparation</u>: Mark each submittal with a permanent label for identification. Provide the following information on the label for proper processing and recording of action taken.

Project Name Date Name and address of Architect/Engineer Name and address of Contractor Name and address of Subcontractor. Name and address of Supplier. Name of manufacturer. number and title of appropriate specification section. Drawing number and detail references, as appropriate. Similar definitive information as necessary.

Provide a space on the label for the Contractor's review and approval markings, and a space for the Architect/Engineer's "Action" marking.

- H. <u>Submittal Transmittal:</u> Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect/Engineer, and to other destinations as indicated, by use of a transmittal form. Submittals received from sources other than the Contractor will be returned to the sender "without action".
- I. <u>Transmittal Form:</u> The form required to be used for transmittal of submittals is shown by the <u>sample</u> form at the end of this section.
- J. <u>Preparation of Submittal Form:</u> Fill out transmittal form in the following manner using a typewriter and retain one copy-contractors first file:
  - 1. Contractor/Job No. Contractors name and job number
  - 2. Specification Section The specification section number where item is specified do not submit item from more than one Specification Section on the same form.
  - 3. Sequential Number The sequential number for multiple submission in the same Specification Section.
  - 4. Submission No. 1st, 2nd, 3rd, etc. depending on previous submission for same items. (see re-submittal procedure).



- 5. Submitted By Name of Contractor's employee responsible for contractor's review.
- 6. Project No. Project name and architect's project number.

- 7. Date submitted Data leaving contractor's office.
- 8. subcontractor Name of firm preparing original submittals.
- 9. Copies and Type Number of copies submitted and type of material submitted (sepia, print, brochure, or sample etc).
- 10. Drawing No/Description and Date number of the Drawing. Title on the submission (where possible) and date on the submission. Where a group of related Drawings is submitted as one unit, only one entry need be made with a general description of what is included. Drawings should then be numbered consecutively and have the same date.
- 11. Contractor's remarks Note exceptions or deviations from the Contract Documents and reason for them.

All submittals required for each specification section shall be submitted to the Architect in their entirety as a single submittal.

Record relevant information and requests for data on the transmittal form. On the transmittal form, or a separate sheet attached to the form, record deviations from the requirements of the Contract Documents, if any, including minor variations and limitations.

- K. <u>Performance:</u> Promptly check each submittal for accuracy, completeness, and applicability, and review, approve, and submit with reasonable promptness and in sequence that causes no delay in the work or in the work of the Housing Authority or any separate contractor. Identify each submittal to include name of Project, Specification Section supplier, source, finish, and location of use in the Project.
- L. <u>Verification</u> By making a submittal to the Architect Contractor represents that Contractor has approved the submittal and has determined and verified applicability of the submittal to the Project, all quantities and sizes of material, detailed fabricating dimensions, temporary erection, connections or closures, tolerances, proper fit and mating with adjacent materials, related field measurements, field construction criteria, and information pertaining to fabrication process and techniques of construction and erection. Contractor further represents that Contractor has checked and coordinated information contained within the submittal with requirements of the Work and of the Contract Documents.
- M. <u>Responsibility</u>: Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by Architect's review of submittals unless they have specifically informed Architect in writing of such deviation at time of submission, and Architect has taken no written exception to the specific deviation. contractor shall not be relieved from responsibility for errors or omissions in submittals by Architects review of or action upon such submittals.
- N. <u>Submittals Validity</u>: Submittals submitted which are not required to be submitted or submitted without Contractors approval will not be processed by Architect but will be returned for compliance with Contract Documents requirements. In that event it shall be deemed that Contractor has not complied with requirements of the Contract Documents, and Contractor shall bear responsibility for delays as if no submittals has been submitted.

The Contractor shall have a rubber stamp prepared for use on all submittals. The stamp shall bear the following information arranged approximately in the following manner:

Checked for Submission to: Roth, Marz Partnership, P.C.

Name of Project:	
Approved By	
For Paragraph No	(Name of General Contractor) _ of Specification Section No
For Drawings Nos	
Date	
ltem	
Consecutive Submission No	
Submission Rev. No	

#### 1.4 SPECIFIC SUBMITTAL REQUIREMENTS

A. <u>General:</u> Specific submittal requirements for individual units of Work are specified tin the applicable specification section. Except as otherwise indicated in the individual specification section, comply with the requirements specified herein for each type of submittal.

Where it is necessary to provide intermediate submittals between the initial and final submittals, provide and process intermediate submittals in the same manner as for initial submittals.

- B. <u>Shop Drawings:</u> Information required on shop drawings includes, dimensions, identification of specific products and materials which are included in the work, compliance with specified standards and notations of coordination requirements with other work. Provide special notation of dimensions that have been established by field measurement. highlight, encircle or otherwise indicate deviations from the Contract Documents on the shop drawings.
- C. <u>Coordination Drawings:</u> Provide coordination drawings where required for the integration of the Work, including work first shown in detail on shop drawings or product data. Show sequencing and relationship of separate units of Work which must interface in a restricted manner to fit in the space provided, or function as indicated. Coordination Drawings are considered shop drawings and must be definitive in nature.

Refer to Division 15 and Division 16 Sections for additional General Requirements applicable to shop drawings for mechanical and electrical work, respectively.

Do not permit ship drawing copies without an appropriate final "Action" marking by the Architect/Engineer to be used in connection with the Work.

D. <u>Preparation:</u> Submit newly prepared information, drawn to accurate scale on sheets not less than 8 1/2" X 11"; except for actual pattern or template type drawings, the maximum sheet size shall not exceed 36"X48". Indicate the name of the firm that prepared each shop drawing and provide appropriate project identification in the title block. Provide a space not

less than 20 sq. in. beside the title block for marking the record of the review process and the Architect/Engineer's "Action" marking.

- E. Do not reproduce contract documents or copy standard printed information as the basis of Shop Drawings.
- F. <u>Initial Submittal:</u> Provide on correctable translucent reproducible print and on blue-line or black-line print; the reproducible print will be returned.
- G. <u>Final Submittal:</u> Provide 3 prints plus 2 additional prints where they are required for maintenance manuals. Two (2) prints will be retained; the remainder will be returned. One of the prints returned will be marked-up and maintained by the Contractor as a "Record Document".
- H. <u>Product Data:</u> General information required specifically as product data includes manufacturers standard printed recommendations for application and use, compliance with recognized standards of trade associations and testing agencies, and the application of their labels and seals (if any), special notation of dimensions which have been verified by way of field measurement, and special coordination requirements for interfacing the material, product of system with other work.

Refer to Division 16 and Division 16 Sections for additional General Requirements applicable to product data for Mechanical and Electrical Work respectively.

I. <u>Preparation:</u> Collect required product data into a single submittal for each unit of Work or system. Mark each copy to show which choices and options are applicable to the project. where product data has been printed to include information on several similar products, some of which are not required for use on the project, or are not included in the submittal, mark the copies to show clearly that such information is not applicable.

Where product data must be specially prepared for required products, materials, or systems, because standard printed data is not suitable for use, submit data as "Shop Drawings" and not as "Product Data".

- J. <u>Submittals:</u> Product data submittal is required for information and record and to determine that the products, materials, and systems comply with the provisions of the Contract Documents. therefore, the initial submittal is also the final submittal, except where the Architect observes that there is non-compliance with the provisions of the Contract documents and returns the submittal promptly to the Contractor marked with the appropriate "Action".
- K. <u>Initial Submittal:</u> Except as otherwise indicated in individual sections of these specifications, submit four (4) copies of each required product data submittal, plus two (2) additional copies where required for maintenance manuals. The Architect will retain one copy and will return the other marked with "Action" and corrections or modifications as required.

Do not submit product data or allow its use on the project, until compliance with the requirements of the contract Documents has been confirmed by the Contractor.

L. <u>Final Distribution:</u> Furnish copies of product data to subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities and others as required for proper performance of the Work. show distribution on transmittal forms. contractor shall submit to the Housing Authority, at the end of the Project, a neatly bound copy of all Shop Drawings (All Prime Contractors).

- M. <u>Installation Copy:</u> Do not proceed with installation of materials, products and systems until a copy of product data applicable to the installation is in the possession of the installer. do not permit the use of unmarked copies of product data in connection with the performance of the Work.
- N. <u>Samples:</u> Submit samples for the Architect's visual review of general generic kind, color, pattern, and texture, and for a final check of the coordination of these characteristics with other related elements of the Work. Samples are also submitted for quality control comparison of these characteristics between the final sample submittal and the actual work it is delivered and installed.
  - 1. In addition, all Prime Contractors shall be required to submit MSDS documentation that pertains to work effected by that requirement.
  - 2. Refer to individual work sections of these specifications for additional sample requirements, which may be intended for examination or testing of additional characteristics. Compliance with other required characteristics is the exclusive responsibility of the Contractor; such compliance is not considered in the Architect's review and "Action" indication on sample submittals.
  - 3. Documentation required specifically for sample submittals includes a generic description of the sample, the sample source or the product name or manufacturer, compliance with governing regulations and recognized standards. In addition, indicate limitations in terms of availability, sizes, delivery time, and similar limiting characteristics.
  - 4. Refer to Division 15 and Division 16 Sections for additional General Requirements applicable to samples for Mechanical and Electrical Work, respectively.
- O. <u>Preparation:</u> Where possible provide samples that are physically identical with the proposed material or product to be incorporated in the work; provide full scale, fully fabricated samples cured and finished in the manner specified. where variations in color, pattern, or texture are inherent in the material or product represented by the sample, submit multiple units of the sample (not less than 3 units), which show the approximate limits of variations. Where samples are specified for the Architect's selection of color, texture or pattern, submit a full set of available choices for the material or product. Mount, display, or package samples in the manner specified to facilitate the review of indicated qualities. Prepare samples to match the Architect's sample where so indicated.

Refer to individual Sections of these specifications for samples which, because of their relatively high cost or other special consideration, are intended to be returned to the Contractor for incorporation in the Work. Such samples must be in an undamaged condition at the time of use. On the transmittal form to the Architect/Engineer, indicate such special requests regarding the disposition of sample submittals.

- P. <u>Submittal:</u> At the contractor's option, and depending upon the nature of the anticipated response from the Architect/Engineer the initial submittal of samples may be either a preliminary submittal or a final submittal.
- Q. <u>Preliminary Submittal</u>, of a single set of samples, is required where requirements indicate the Architect/Engineer's selection of color, pattern, texture or a similar characteristics from a

manufacturers range of standard choices is necessary. preliminary submittals will be reviewed and returned with the Architect/Engineers "Action" marking.

- R. <u>Final Submittals:</u> Submit 3 sets of samples in the final submittal, one set will be returned.
- S. <u>Distribution of Samples:</u> Maintain the final submittal sets of samples, as returned by the Architect at the project site, available for quality control comparisons throughout the course of performing the work. In addition, final submittal sets may be sued to obtain final acceptance of the work associated with each set. Prepare and distribute additional sets of samples to subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities, and others as required for proper performance of the Work. Show final distribution on transmittal forms.
- T. <u>Mock-Ups</u> and similar samples specified in individual work sections are special types of samples. Comply with sample submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.
- U. <u>Miscellaneous Submittals:</u>
  - 1. <u>Inspection and Test Reports:</u> Classify each inspection and test report as being either "Shop Drawings" or "Product Data" depending on whether the report is specially prepared for the project, or a standard publication of workmanship control testing at the point of production. Process inspection and test reports accordingly.
  - 2. <u>Warranties:</u> Refer to section "Products and Substitutions" for specific General Requirements on warranties, product bonds, workmanship bonds and maintenance agreements. in addition to copies desired for the Contractor's use, furnish 2 executed copies of such warranties, bonds or agreements. Provide 2 additional copies where required for maintenance manuals.
  - 3. <u>Survey Data:</u> Refer to Section "Project Coordination" for specific general requirements on property surveys, field measurements, quantitative records of actual work, damage surveys and similar data required by the individual sections of these specifications. none of the specified copies will be returned.
  - 4. <u>Survey Copies:</u> Furnish 2 copies of general survey data. Provide 10 copies of the final property survey.
  - 5. <u>Record of Actual Work:</u> Furnish 4 copies of records of actual work, one of which will be returned for inclusion in the record documents as specified in Section "Project Closeout".
  - 6. <u>Standards:</u> Where submittal of a copy of standards is indicated, and except where copies of standards are specified as an integral part of a "Product Data" submittal, submit a single copy of standards for the Architect/Engineer's use. Where workmanship, whether at the project site or elsewhere is governed by a standard, furnish additional copies of the standard to fabricators, installers and others involved in the performance of the work.

- 7. <u>Closeout Submittals:</u> Refer to Section "Project Closeout" and to individual Sections of these Specifications for specific submittal requirements of project closeout information, materials, tools, and similar items.
- 8. <u>Record Documents:</u> Furnish set of original documents as maintained on the project site. Along with original marked-up record drawings provide 2 photographic copies of marked-up drawings, which, at the Contractors option, may be reduced to not less than half size.
- 9. <u>Operating and Maintenance Data:</u> Furnish 2 bound copies of operating data and maintenance manuals.
- 10. <u>Materials and tools:</u> Refer to individual sections of these specifications for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys and similar physical units to be submitted.
- 11. <u>General Distribution:</u> Provide additional distribution of submittals to subcontractors, suppliers, fabricators, installers, governing authorities, and others as necessary for the proper performance of the work. Include such additional copies of submittals in the transmittal to the Architect/Engineer where the submittals are required to receive "Action" marking before final distribution. Record distributions on transmittal forms.
- 1.5 ARCHITECT/ENGINEER'S ACTION:
  - A. <u>General:</u> Except for submittals for the record and similar purposes, where action and return on submittals is required or requested, the Architect/Engineer will in the interest of the Housing Authority, review each submittal, mark with appropriate "Action" and where possible return within 2 weeks of receipt. Where the submittal must be held for coordination the Architect/Engineer will so advise the Contractor without delay.
  - B. <u>Action Stamp</u>: The Architect/Engineer will stamp each submittal to be returned with a uniform, self explanatory action stamp, appropriately marked and executed to indicate whether the submittal returned is no exceptions taken, make corrections noted, amend and resubmit rejected or without action (as explained on the transmittal form).

	SAMPLE		
ROTH	I MARZ PARTNER ARCHITECTS & PLAN	RSHIP, P.C.	
REVIEWED			
Note Correctio	ns Resubmit with Corrections	Rejected/ Resubmit	
Checking is only and general com Any action show Contractor is re correlated at the coordination of of his work.	r for general conformance with the upliance with the information given m is subject to the requirements of sponsible for dimensions which sh jobsite, fabrication processes, tech his work with all other trades, and t	design concept of the project in the contract documents. f the plans and specifications. all be confirmed and hniques of construction, the satisfactory performance	
Date	Ву		

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

#### END OF SECTION 013000

#### 014000 - QUALITY REQUIREMENTS

#### PART 1 GENERAL

#### 1.1 STIPULATIONS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.

#### 1.2 SECTION INCLUDES

- A. Quality Monitoring: Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality. Perform quality control procedures and inspections during installation.
- B. Standards: Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Tolerances: Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate. Comply with manufacturers' tolerances.
- D. Reference Standards: For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- E. Manufacturer's Field Services: When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to perform the following as applicable, and to initiate instructions when necessary.
  - 1. Observe site conditions.
  - 2. Conditions of surfaces and installation.
  - 3. Quality of workmanship.
  - 4. Start-up of equipment.
  - 5. Test, adjust and balance of equipment.
- F. Mock-Ups: Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes. Accepted mock-ups shall be a comparison standard for the remaining Work.
- G. Removal of Mock-Ups: Where mock-up has been accepted by Architect and no longer needed, remove mock-up and clear area when directed to do so.
- PART 2 PRODUCTS (Not Applicable)
- PART 3 EXECUTION (Not Applicable)

#### END OF SECTION 014000

#### 015000 - TEMPORARY FACILITIES & CONTROLS

#### PART 1 - GENERAL

#### 1.1 STIPULATIONS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.
- 1.2 DESCRIPTION OF REQUIREMENTS
  - A. This Section specifies administrative and procedural requirements for temporary services and facilities, including such items as temporary utility services, temporary construction and support facilities, and project security and protection.
- 1.3 DIVISION OF RESPONSIBILITIES:
  - A. The Contractor may bring storage trailers on site. The location of the trailers will have to be coordinated with the Housing Authority. If these trailers will need to be set on lawn areas, the respective contractors who use the trailers will need to restore existing conditions when the project is complete. The same holds true for any dumpsters and material staging areas.
  - B. The Contractor shall keep and maintain a full set of the Drawings in his trailer at all times. These Drawings shall be marked in red indicating changes and submitted as "as builts" upon completion of the project.
  - C. The Contractor: Except as otherwise indicated is responsible for the following:
    - 1. Maintaining site and building in a clean, workable condition.
    - 2. Maintaining site clear to allow emergency vehicle access if necessary.
    - 3. First aid supplies and conduct safety meetings on a weekly basis.
    - 4. Water Service Use Charges: Water from the existing Housing Authority's water system may be used if not abused or neglected.
    - 5. Installation, operation, maintenance and removal of each temporary service or facility usually recognized as related to its own normal scope of work, and the costs and use charges associated with each such service or facility.
    - 6. Construction aids and miscellaneous general services and facilities required for its Work.
    - 7. Waste collection.
    - 8. Drinking water
    - 9. Storage and fabrication sheds necessary for it own Work.
    - 10. Hoisting requirements for its Work.
    - 11. Collection and disposal of its own hazardous, dangerous, unsanitary or otherwise harmful waste material.

- 12. Safety measures required for its Work. Construction aids and miscellaneous services and facilities necessary for its own Work and for safety of performance on site.
- 13. Provide independent power source for welding.
- 14. Provide miscellaneous temporary small enclosures necessary for its own Work.
- 15. Fire extinguishers.
- 16. Field Offices located where approved by Housing Authority.
  - a. Relocated trailers to accommodate phasing and staging as required by the progress of the Work.
- 17. Temporary enclosure of the building.
- 18. Construction aids and miscellaneous services and facilities for site and general requirements of the building and safety.
- 19. Temporary portable toilets (job johnnies, port-a-potties, etc.) along with toilet paper, soap and washing facility.
- 20. Temporary signs.
- 21. Rodent and pest control.
- 22. Barricades, warning signs and lights for site and to meet general requirements of the building.
- 23. Temporary walkway protection from stair/exit way.
- 24. Security enclosure and lockup.
- 25. Temporary Heat N/A
- 26. Provide temporary partitions where required in order to maintain exit corridors, isolate construction from occupied areas, limit dust and noise, and to maintain safety throughout the structure and site.

#### 1.4 DIVISION OF RESPONSIBILITIES

- A. For all work items:
  - 1. The Main Prime for each work items is responsible to provide all required temporary facilities for that prime work items.

#### 1.5 QUALITY ASSURANCE

- A. Regulations: The Contractor shall comply with local laws and regulations governing construction and local industry standards, in the installation and maintenance of temporary services and facilities, including but not limited to the following:
  - 1. Building Codes, including local requirements for permits, testing and inspection.

- 2. Health and safety regulations: A copy of Safety Program Manual will be furnished to the Construction Manager on site.
- 3. Utility company regulations and recommendations governing temporary utility services.
- 4. Fire Department rules and recommendations.
- 5. Police and Rescue Squad recommendations.
- 6. Environmental protection regulations governing use of water and energy, and control of dust, noise and other nuisances.
- 7. In addition, each Prime Contractor shall comply with "Environmental Impact" commitments the Housing Authority or previous Housing Authority s of the site have made to secure local approval to proceed with construction of the project.
- B. Standards: The Contractor shall comply with the requirements of NFPA Code 241, "Building Construction and Demolition Operations," and ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and the NECA National Joint Guideline NJG-6 "Temporary Job Utilities and Services".
- C. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", as prepared jointly by AGC and ASC for industry recommendations.
- D. Trade Jurisdictions: The assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with normal application of trade regulations and union jurisdictions applicable to the Work.
- E. Inspections: Inspect and test each service before placing temporary utilities in use. Arrange for required inspections and tests by governing authorities. Obtain required certifications and permits for use.

#### 1.6 JOB CONDITIONS

- A. General: The Contractor shall provide each temporary service and facility ready for use at each location, when first needed to avoid delays in performance of Work. Maintain, expand as required, and modify as needed throughout the progress of the Work. Do not remove until services or facilities are no longer needed, or are replaced by the authorized use of completed permanent facilities.
- B. Temporary use of permanent facilities: Regardless of previously assigned responsibilities for temporary services and facilities, the Installer of each permanent service or facility shall assume responsibility for its operation, maintenance and protection during use as a construction service or facility prior to the Housing Authority s acceptance and operation of the facility.
- C. Conditions of Use: Operate temporary services and facilities in a safe and efficient manner. Do not overload, and do not permit temporary services and facilities to interfere with the progress of work. Do not allow unsanitary conditions, public nuisances or hazardous conditions to develop or persist on the site.
- D. Temporary Utilities: Do not permit freezing of pipes, flooding or the contamination of water sources.

- E. Temporary Construction and Support Facilities: Maintain temporary facilities in a manner to prevent discomfort to users. Take necessary fire prevention measures. Maintain temporary facilities in a sanitary manner so as to avoid health problems.
- F. Security and Protection: Maintain site security and protection facilities in a safe, lawful, publicly acceptable manner. Take measures necessary to prevent site erosion.

#### PART 2 - PRODUCTS

#### 2.1 MATERIALS AND EQUIPMENT

- A. Temporary Utilities: All Prime Contractors will have water available, paid by Housing Authority. Contractor is responsible for connections to the closest source of electric and water.
- B. Power Cords: Use only grounded extension cords; use "hard service" cords where exposed to abrasion and traffic. Use single lengths or waterproof connector to connect separate lengths, if single lengths will not reach work areas.
- C. Temporary Partitions: Shall be erected as deemed necessary and comply with any codes if applicable.
- D. Temporary Construction and Support Facilities: Provide facilities that can be maintained properly throughout the course of use at the project site.
- E. Heating Units: The Contractor shall provide temporary heating units that have been tested and labeled by UL, Fm or another recognized trade association related to the fuel being consumed.
- F. Self-Contained Toilet Units: The Contractor shall provide single-occupant selfcontained toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with glass fiber reinforced polyester shell or similar non-absorbent material in quantities able to accommodate the number of personnel on the site.
- G. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures where work is being or will be performed, provide translucent tarpaulins made of nylon reinforced laminated polyethylene to admit the maximum amount of daylight and reduce the need for temporary lighting.
- H. First Aid Supplies: Comply with governing regulations and recognized recommendations within the construction industry.
- I. Fire Extinguishers: Provide fire extinguishers for temporary offices and similar spaces. Provide either type "ABC" dry chemical extinguishers, or a combination of several extinguishers of NFPA recommended types for the exposures in each case.
- J. Plywood: For safety barriers, sidewalk bridges and similar direct-contact uses, provide exterior type, 5/8" thick minimum prime and finish painted plywood.
- K. Temporary Partition Installation: The Contractor shall enclose all areas of construction in cooperation and by the Housing Authority s direction. All exits shall be maintained including corridors.

- L. Welding: No welding equipment from existing service. Person requiring this service shall provide and pay for all installation, maintenance, servicing, operation and supervision of the temporary service and distribution facilities.
  - 1. It shall be the duty and responsibility of each contractor performing any cutting or welding, to comply with the safety provisions of the National Fire Protection Association's "National Fire Codes" pertaining to such work and the Contractor shall be responsible for all damages resulting from a failure to so comply.

#### PART 3 - EXECUTION

- 3.1 INSTALLATION GENERAL
  - A. Use qualified tradesmen for installation of temporary services and facilities. Locate temporary services and facilities where they will serve the entire project adequately and result in minimum interference with performance of the Work.
  - B. Relocate, modify and extend services and facilities as required during the course of work so as to accommodate the entire work of the project.
- 3.2 WATER SERVICE GENERAL
  - A. Obtain water service from existing source for temporary construction purposes.
    - 1. Cleaning
    - 2. Plant and lawn watering.
    - 3. Maintain hose connections and outlet valves in leak proof condition.
  - B. Sterilization: Except piping of non-potable waste, sterilize temporary water piping prior to use. Refer to Division 15 Sections for procedures.
- 3.3 TEMPORARY HEAT N/A
- 3.4 SANITARY FACILITIES
  - A. The Contractor shall provide sanitary facilities. Comply with governing regulations including safety and health codes for the type, number, location, operation and maintenance of fixtures and facilities; provide not less than specified requirements. Install in locations, which will best serve the project's needs.
    - 1. Locate toilets so that no one within the construction area will need to walk more than 2 stories vertically or 200 feet horizontally to reach these facilities.
    - 2. Supply and maintain toilet tissue, paper towels, paper cups and other disposable materials as appropriate for each facility. Provide covered waste containers for used materials.
    - 3. Toilets: Install self-contained toilet units or water and sewer connected temporary toilet facilities, to the extent permitted by governing regulations. Use of pit-type privies will not be permitted.
    - 4. Provide separate toilet facilities for male and female construction personnel at ground level.
- 3.5 PROJECT IDENTIFICATION AND TEMPORARY SIGNS N/A

#### 3.6 COLLECTION AND DISPOSAL OF WASTE

- A. The Contractor shall establish a system for daily collection and disposal of waste materials from construction areas and elsewhere on the site. Do not hold collected materials at the site more than 7 days during normal weather or 3 days when the daily temperature is expected to rise above 80 degrees F (27 degrees C). Handle hazardous, dangerous, or unsanitary waste materials separately from other inert waste by containerizing appropriately. Dispose of waste material in a lawful manner.
- B. The Contractor shall provide trash collection facilities for the project within 100 feet of the exterior entrance to the project structure:
  - 1. Each prime Contractor: Collect and to deposit each day, debris, garbage, litter, rubble, and rubbish in the collection facilities.
    - a. Dismantle crates, crush cardboard boxes, and otherwise attempt to compact all such trash deposited in these collection facilities.
    - b. Provide a pallet storage area for recycling. Contractor is responsible to have the pallets picked up.
  - 2. The Contractor: Remove trash from the jobsite and the overall cleanliness of the entire jobsite.
  - 3. The Contractor: Remove trash, control dust, and clean area not allowing dirt and mud to accumulate.
  - 4. Burying or burning of waste materials on the site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
  - 5. Provide rodent proof containers located on each floor level to encourage depositing of garbage and similar wastes by construction personnel.

#### 3.7 CONSTRUCTION AIDS AND MISCELLANEOUS SERVICES AND FACILITIES:

- A. The Contractor shall design, construct, and maintain construction aids and miscellaneous services and facilities as needed to accommodate performance of the work. Construction aids and miscellaneous services and facilities include, but are not limited to the following:
  - 1. Temporary stairs and ladders.
  - 2. Guardrails and barriers.
  - 3. Walkways.
- B. Responsibility: General construction aids and miscellaneous facilities required by the Prime Contractor for the Work.
- 3.8 SECURITY AND PROTECTION FACILITIES INSTALLATION:
  - A. General: Provide a neat uniform appearance in security and protection facilities acceptable to the Architect/Engineer and the Housing Authority.

- 1. Do not change over from use of temporary security and protection facilities to use of permanent facilities until substantial completion, or longer as requested by the Architect/Engineer.
- B. Barricades, Warning Signs and Lights:
  - 1. All Prime Contractors shall comply with recognized standards and code requirements for erection of substantial, structurally adequate barricades where needed to prevent accidents and losses. Paint with appropriate colors, graphics and warning signs to inform personnel at the site and the public, of the hazard being protected against.
- C. Security Enclosure and Lockup:
  - 1. The Contractor shall install substantial and durable general temporary enclosure of partially completed areas of construction. Provide locking entrances adequate to prevent unauthorized entrance, vandalism, theft and similar violations of project security.
  - 2. Where materials and equipment must be temporarily stored, prior to and during construction, and are of substantial value or are attractive for possible theft, each contractor shall provide a secure lockup. Enforce strict discipline in connection with the timing of installation and release of materials, so that the Opportunity for theft and vandalism is minimized.
- D. Environmental Protection:
  - 1. General: Provide protection facilities, operate temporary facilities, conduct constructions activities, and enforce strict discipline for personnel on the site in ways and by methods that comply with environmental regulations, and that minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result from performance of work a the site. Avoid the use of tools and equipment, which produce harmful noise. Restrict use of noise making tools and equipment to hors that will minimize complaints from persons or firms near the project site.

#### 3.9 OPERATION, TERMINATION AND REMOVAL:

- A. Supervision: Enforce strict discipline in the use of temporary services and facilities at the site. Limit availability of temporary services and facilities to essential and intended uses to minimize waste and abuse. Do not permit temporary installations to be abused or endangered. Do not allow hazardous, dangerous or unsanitary conditions to develop or persist on the site.
- B. Maintenance: Operate and maintain temporary services and facilities in good operating condition throughout the time of use and until removal is authorized. Protect from damage by freezing temperatures and similar elements.
- C. Maintain operation of temporary enclosures, heating, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results in the work and avoid the possibility of damage to work or the temporary facilities.
- D. Protection: Prevent water-filled piping from freezing by use of ground covers, insulation, by keeping drained or by temporary heating. Maintain distinct markers for underground lines. Protect from damage during excavation operations.

- E. Termination and Removal: Unless the Housing Authority, Architect or Engineer requests that it be maintained for a longer period of time, remove each temporary service and facility promptly when the need for it has ended, or when it has been replaced by authorized use of a permanent facility or no later than the time of substantial completion. Complete or, if necessary, restore permanent work, which may have been delayed because of interference with the temporary service or facility. Repair damaged work, clean exposed temporary service or facility. Repair damaged surfaces and replace work, which cannot be satisfactorily repaired.
- F. Materials and facilities that constitute temporary services and facilities are and remain the property of each prime contractor. The Housing Authority reserves the right to take possession of the project identification signs.
- G. At substantial completion, clean and renovate permanent services and facilities that have been use to provide temporary services and facilities during the construction period, including but not limited to the following:

END OF SECTION 015000

#### 017000 - EXECUTION AND CLOSEOUT REQUIREMENTS

#### PART 1 GENERAL

#### 1.1 STIPULATIONS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.

#### 1.2 SECTION INCLUDES

- A. Cutting and patching.
- B. Substantial Completion: The following are prerequisites to substantial completion. Provide the following.
  - 1. Supporting documentation.
  - 2. Warranties.
  - 3. Certifications.
  - 4. Commissioning documentation.
- C. Final Acceptance: Provide the following prerequisites to final acceptance.
  - 1. Final payment request with supporting affidavits.
  - 2. Completed punch list.
- D. As-Built Drawings: Provide a marked-up set of drawings including changes, which occurred during construction.
- E. Project Closeout: Provide the following during project closeout.
  - 1. Submission of record documents.
  - 2. Submission of maintenance manuals.
  - 3. Training and turnover to the Housing Authority's personnel.
  - 4. Final cleaning and touch-up.
  - 5. Removal of temporary facilities.
- PART 2 PRODUCTS Not applicable to this Section
- PART 3 EXECUTION
- 3.1 CUTTING AND PATCHING
  - A. Cutting and Patching: Provide cutting and patching work to properly complete the work of the project, complying with project requirements for:
    - 1. Structural work.
    - 2. Mechanical/electrical systems.
    - 3. Visual requirements, including detailing and tolerances.
    - 4. Operational and safety limitations.
    - 5. Fire resistance ratings.
    - 6. Inspection, preparation, and performance.
    - 7. Cleaning.
  - B. Means and Methods: Do not cut and patch in a manner that would result in a failure of the work to perform as intended, decrease energy performance, increase maintenance, decrease operational life, or decrease safety performance.
- C. Inspection: Inspect conditions prior to work to identify scope and type of work required. Protect adjacent work. Notify the Housing Authority of work requiring interruption to building services or ECHA's operations.
- D. Performance of Operations: Perform work with workmen skilled in the trades involved. Prepare sample area of each type of work for approval.
- E. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Inspect for concealed utilities and structure before cutting.
- F. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerances for new work.
- G. Cleaning: Clean work area and areas affected by cutting and patching operations.

END OF SECTION 017000

# 024119 - SELECTIVE DEMOLITION

### PART 1 - GENERAL

#### 1.1 STIPULATIONS

- A. The Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.
- 1.2 DESCRIPTION OF WORK
  - A. In the event that the Drawings are not clear, the Contractor shall request that the Architect clarify the scope, intent and purpose of the demolition and related Drawings and/or Specifications.
- 1.3 TYPE OF SELECTIVE DEMOLITION WORK:
  - A. Demolition requires the selective removal and subsequent off-site disposal of:
    - 1. Portions of building structure as required to accommodate new construction weather specifically indicated or not.
    - 2. Cutting and patching as required.
    - 3. Removal of existing roofing, gutters, downspouts, etc.
    - 4. Removal of masonry walls, drywall partitions, finishes, mechanical and electrical items, doors, frames and hardware.
    - 5. Removal of lawn, site concrete, windows, entry doors, etc.
    - 6. Off-site disposal of all above removed materials.

#### 1.4 VERIFYING EXISTING CONDITIONS:

A. Contractor shall verify existing conditions at the site and examine adjoining work, which in any way will affect the completion of this work. The Architect shall be notified in writing should the Contractor have questions as to existing condition that will effect the Work.

# 1.5 RELATED WORK:

A. All cutting and patching in the existing building shall be done by the contractor. This cutting and patching unless noted otherwise, shall include providing and installing all steel lintels required for larger openings.

#### 1.6 SUBMITTALS

A. <u>Schedule:</u> Submit schedule indicating proposed methods and sequence of operations for selective demolition work to Owners representative for review prior to commencement of Work. Include coordination for shut-off, capping, and continuation of utility services as required, together with details for dust and noise control protection.

- B. Provide a detailed sequence of demolition and removal work to insure uninterrupted progress of Owners normal operations.
- C. Coordinate with Owners continuing occupation of the existing building.

# 1.7 JOB CONDITIONS:

- A. <u>Occupancy:</u> Owner will be continuously occupying the units during the work. Conduct select demolition work in manner that will minimize need for disruption of Owners/Occupant normal operations. Provide minimum of 72 hours advance notice to Owner/Occupant of demolition activities, which will severely impact Owners normal operations.
- B. <u>Condition of Structures:</u> Owner assumes no responsibility for actual condition of items or structures to be demolished.
  - 1. Storage or sale of removed items on site will not be permitted.
- C. <u>Protections:</u> Provide temporary barricades and other forms of protection as required to protect Owner's personnel and general public from injury due to selective demolition work.
  - 1. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
  - 2. Protect floors with suitable coverings when necessary.
  - 3. Construct temporary insulated solid dustproof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dust proof doors and security locks if required.
  - 4. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to insure that no water leakage or damage occurs to structure of interior areas of existing building.
  - 5. Remove protections at completion of Work.
- D. <u>Damages:</u> Promptly repair damaged caused to adjacent facilities by demolition work at no cost to the Owner.
- E. <u>Traffic:</u> Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
  - 1. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways, if required, by governing regulations.
- F. <u>Explosives:</u> Use of explosives will not be permitted.
- G. <u>Utility Services:</u> Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations.

- 1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during the interruptions to existing utilities as acceptable to governing authorities.
- H. <u>Environmental Controls</u> Use water sprinkling, temporary enclosures and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection.
  - 1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.
- PART 2 PRODUCTS (Not Applicable)

#### PART 3 - EXECUTION

- 3.1 INSPECTION
  - A. <u>Prior to commencement of selective demolition work</u>, inspect areas in which work will be performed. Photograph existing conditions of structure surfaces, equipment and surrounding properties, which could be misconstrued as damage resulting form selective demolition work. File with Owners Representative prior to starting work.

### 3.2 PREPARATION

- A. <u>Provide interior and exterior shoring</u>, bracing, or support to prevent movement, settlement or collapse of structures to be demolished and adjacent facilities to remain.
  - 1. Cease operations and notify the Owners Representative or Architect immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
- B. <u>Cover and Protect</u> furniture, equipment and fixtures to remain from soiling or damage when demolition work is performed in rooms or areas from which such items have not been removed.
- C. <u>Erect and maintain dust-proof partitions</u> and closures as required to prevent spread of dust or fumes to occupied portions of the building.
  - 1. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dustproof partitions of minimum 4" studs, 5/8" drywall (joints taped) on occupied side, 1/2" fire-retardant plywood on demolition side, and fill partition cavity with sound-deadening insulation.
  - 2. Provide weatherproof closures for exterior openings resulting from demolition work.
- D. Locate, Identify, Stub Off and Disconnect utility services that are not indicated to remain.
  - 1. Provide by-pass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shut-down of service is necessary during change-over.

# 3.3 DEMOLITION:

- A. <u>Perform selective demolition work</u> in a systematic manner. Use such methods as required to complete work indicated on the Drawings in accordance with demolition schedule and governing regulations.
  - 1. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors or framing.
  - 2. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction (DER)
  - 3. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.
  - 4. Completely fill below grade areas and voids resulting from demolition work. Provide fill consisting of approved earth, gravel or sand, free of trash and debris, stones over 6" diameter, roots or other organic matter.

#### 3.4 SALVAGE MATERIALS

- A. <u>Salvage Items:</u> As determined by the Owner (and specifically noted) all items deemed as salvageable shall be carefully removed, cleaned and turned over to the Owner and obtain receipt.
- 3.5 DISPOSAL OF DEMOLISHED MATERIALS:
  - A. Remove debris, rubbish and other materials resulting from demolition operations from building site. Transport and legally dispose of materials off site.
  - B. If hazardous materials are encountered during demolition operations comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.
  - C. Burning of removed materials is not permitted on project site.

# 3.6 CLEAN-UP AND REPAIR:

- A. <u>Upon completion of demolition work</u>, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.
- B. <u>Repair</u> demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to the commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 024119

# 033000 - CAST-IN-PLACE CONCRETE

# PART 1 - GENERAL

# 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this Section.

# 1.2 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.
- B. Related Requirements:1. Section 31 0519 Earthwork for drainage fill under slabs-on-grade.

# 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete mixture.
- C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement.
- 1.4 INFORMATIONAL SUBMITTALS
  - A. Material certificates.
  - B. Material test reports.
  - C. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

# 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
  - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

# 1.6 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

# 1.7 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 306.1.
  - 1. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301 (ACI 301M) and ACI 305.1.
- 1.8 CONCRETE TEST CYLINDERS
  - A. The General Contractor shall make three (3) test cylinders for breaks at 7 day, 14 day and 28 day for each 25 yards of concrete poured.

# PART 2 - PRODUCTS

- 2.1 CONCRETE, GENERAL
  - A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
    - 1. ACI 301 (ACI 301M).
    - 2. ACI 117 (ACI 117M).
- 2.2 FORM-FACING MATERIALS
  - A. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- 2.3 STEEL REINFORCEMENT
  - A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
  - B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.
  - C. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from asdrawn steel wire into flat sheets.
  - D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."
- 2.4 CONCRETE MATERIALS
  - A. Cementitious Materials:

- 1. Portland Cement: ASTM C 150/C 150M, Type I/II, gray.
- 2. Fly Ash: ASTM C 618, Class F or C.
- B. Normal-Weight Aggregates: ASTM C 33/C 33M, graded.
  - 1. Maximum Coarse-Aggregate Size: 1-1/2 inches (38 mm) nominal for foundation concrete and 3/4 inch (19 mm) nominal for all other concrete.
  - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Air-Entraining Admixture: ASTM C 260/C 260M.
- D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
  - 7. Water vapor reducing admix for all interior slabs and all sidewalks and concrete paving surfaces. Products shall be as manufactured by SPG (Vapor Lock, 20/20 & 20/21) or 'Barrier One'. Contractor shall submit concrete mixes to admix manufacture to review and approve. Provide lifetime warranty for interior slabs and minimum 10 years warranty for exterior slabs.
- E. Water: ASTM C 94/C 94M and potable.

# 2.5 WATERSTOPS

A. Flexible PVC Waterstops: CE CRD-C 572, with factory-installed metal eyelets, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes. Vapor retarder shall be 10 mil Stega or approved equal.

#### 2.6 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class B. Include manufacturer's recommended adhesive or pressure-sensitive tape.

# 2.7 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.

- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating. For concrete areas that are not exposed to view.
- F. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A. For concrete area exposed to view.

# 2.8 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: Materials specified within Division 7 specifications.

# 2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301 (ACI 301M).
- B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
  - 1. Use water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
  - 2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.
  - 4. Water vapor reducing admix manufacturer must review and approve mix designs.
- 2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS
  - A. Normal-Weight Concrete for Foundations and Foundation Walls:
    - 1. Minimum Compressive Strength: 4500 psi (31 MPa) at 28 days.
    - 2. Maximum W/C Ratio: 0.42.
    - 3. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
    - 4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch (38-mm) nominal maximum aggregate size.
    - 5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch (19-mm) nominal maximum aggregate size.
  - B. Normal-Weight Concrete for Interior Slabs:
    - 1. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.
    - 2. Maximum W/C Ratio: 0.45.
    - 3. Slump Limit: 5 inches (125 mm), plus or minus 1 inch (25 mm).
    - 4. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.
  - C. Normal-Weight Concrete for Exterior Slabs:
    - 1. Minimum Compressive Strength: 4500 psi (31 MPa) at 28 days.
    - 2. Maximum W/C Ratio: 0.42.

- 3. Slump Limit: 5 inches (125 mm), plus or minus 1 inch (25 mm).
- 4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch (19-mm) nominal maximum aggregate size.
- 2.11 FABRICATING REINFORCEMENT
  - A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."
- 2.12 CONCRETE MIXING
  - A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
    - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

# PART 3 - EXECUTION

# 3.1 FORMWORK INSTALLATION

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301 (ACI 301M), to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 (ACI 117M).
- C. Chamfer exterior corners and edges of permanently exposed concrete.

# 3.2 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

# 3.3 VAPOR-RETARDER INSTALLATION

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
  - 1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.

# 3.4 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
  - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

# 3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
  - 1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

# 3.6 WATERSTOP INSTALLATION

A. Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions.

# 3.7 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.
- B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
  - 1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301 (ACI 301M).

# 3.8 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  - 1. Apply to concrete surfaces exposed to public view.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

# 3.9 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Refer to sections 095000 & 095010 for slab tolerances where wood flooring occurs.
- C. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bullfloated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in one direction.
  - 1. Apply scratch finish to surfaces to receive concrete floor toppings and to receive mortar setting beds for bonded cementitious floor finishes.
- D. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
  - 1. Apply float finish to surfaces to receive trowel finish and to be covered with fluidapplied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- E. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
  - 1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
  - 2. Finish and measure surface, so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).
- F. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thinset method. While concrete is still plastic, slightly scarify surface with a fine broom.
  - 1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- G. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
  - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

# 3.10 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305.1 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written

instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.
- D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
  - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
  - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
    - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.
  - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

# 3.11 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

# 3.12 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a special inspector and / or qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

# END OF SECTION 033000

# SECTION 042200 - CONCRETE UNIT MASONRY

# PART 1 - GENERAL

# 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.

# 1.2 SUMMARY

- A. Section Includes:
  - 1. Concrete masonry units.
  - 2. Split Rib masonry units
  - 3. Steel reinforcing bars.
  - 4. Air Barrier Coating (liquid applied)

# 1.3 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

# 1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For reinforcing steel. Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315.

- C. Samples: For each type and color of the following:
  - 1. Split Rib masonry units (match existing)
  - 2. Pigmented mortar.

# 1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each type and size of product. For masonry units, include data on material properties.

B. Mix Designs: For each type of mortar. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.

2. Include test reports, according to ASTM C1019, for grout mixes required to comply with compressive strength requirement.

# 1.6 QUALITY ASSURANCE

A. Sample Panels: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality

Requirements" for mockups.

1. Build sample panels for each type of exposed unit masonry construction in sizes approximately 48 inches (1200 mm) long by 36 inches (900 mm) high by full thickness.

# 1.7 FIELD CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

#### PART 2 - PRODUCTS

#### 2.1 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.

1. Where fire-resistance-rated construction is indicated, units shall be listed and labelled by a qualified testing agency acceptable to authorities having jurisdiction.

#### 2.2 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

#### B. CMUs: ASTM C90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi (19.3 MPa).

2. Density Classification: Normal weight.

C. Decorative CMUs: ASTM C90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi (19.3 MPa).

- 2. Density Classification: Normal weight.
- 3. Pattern and Texture:
  - a. Standard pattern, split-face finish and colored (match existing).
  - b. As manufactured by A. Duchini, Erie, PA

2.3 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C207, Type S.

C. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar.

# D. Aggregate for Mortar: ASTM C144.

1. White-Mortar Aggregates: Natural white sand or crushed white stone.

2. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

E. Aggregate for Grout: ASTM C404.

F. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

G. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.

H. Water: Potable.

# 2.4 REINFORCEMENT

A. Uncoated-Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60 (Grade 420).

B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch (3.77-mm) steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.

C. Masonry-Joint Reinforcement, General: ASTM A951/A951M.

- 1. Interior Below Grade Walls: Hot-dip galvanized, carbon steel.
- 2. Exterior Walls: Hot-dip galvanized carbon steel.
- 3. Wire Size for Side Rods: 0.148-inch (3.77-mm) diameter.
- 4. Wire Size for Cross Rods: 0.148-inch (3.77-mm) diameter.

5. Spacing of Cross Rods: Not more than 16 inches (407 mm) o.c.

6. Provide in lengths of not less than 10 feet (3 m), with prefabricated corner and tee units.

# 2.5 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A82/A82M, with ASTM A153/A153M, Class B-2 coating.

2. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

B. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch- (6.35-mm-) diameter, hot-dip galvanized-steel wire.

2. Tie Section: Triangular-shaped wire tie made from 0.25-inch- (6.35-mm-) diameter, hotdip galvanized-steel wire.

C. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Connector Section: Dovetail tabs for inserting into dovetail slots in concrete and attached to tie section; formed from 0.060-inch- (1.52-mm-) thick steel sheet, galvanized after fabrication.

2. Tie Section: Triangular-shaped wire tie made from 0.25-inch- (6.35-mm-) diameter, hotdip galvanized-steel wire.

D. Partition Top Anchors: 0.105-inch- (2.66-mm-) thick metal plate with a 3/8-inch- (9.5-mm-) diameter metal rod 6 inches (152 mm) long welded to plate and with closed-end plastic tube fitted over rod that allows rod to move in and out of tube. Fabricate from steel, hot-dip galvanized after fabrication.

E. Rigid Anchors: Fabricate from steel bars 1-1/2 inches (38 mm) wide by 1/4 inch (6.35 mm) thick by 24 inches (610 mm) long, with ends turned up 2 inches (51 mm) or with cross pins unless otherwise indicated.

1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A153/A153M.

2.6 EMBEDDED FLASHING MATERIALS

A. Refer to Specification Section 04200 Unit Masonry

2.7 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.

B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

C. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D226/D226M, Type I (No. 15 asphalt felt).

# 2.8 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators,

retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.

2. Use portland cement-lime mortar unless otherwise indicated.

3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.

1. For masonry below grade or in contact with earth, use Type S.

2. For mortar parge coats, use Type S.

3. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; and for other applications where another type is not indicated, use Type N.

4. For interior nonload-bearing partitions, Type O may be used instead of Type N.

D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.

1. Pigments shall not exceed 10 percent of portland cement by weight.

2. Pigments shall not exceed 5 percent of masonry cement by weight.

3. Application: Use pigmented mortar for exposed mortar joints with the following units:

a. Decorative CMUs.

E. Grout for Unit Masonry: Comply with ASTM C476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.

2. Proportion grout in accordance with ASTM C476, Table 1.

3. Provide grout with a slump of 8 to 11 inches (200 to 280 mm) as measured according to ASTM C143/C143M.

# 2.8 FLUID APPLIED AIR BARRIER

A. Furnish and install "Air Shield LM" as manufactured by WR Meadows to the exterior block surface prior to installing cavity insulation.

B. Follow manufacturer's instructions regarding application, thickness and conditions.

# PART 3 - EXECUTION

# 3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous

pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

# 3.2 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).

2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).

3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.

# B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than  $\frac{1}{4}$  inch in 10 feet (6 mm in 3 m), or 1/2-inch (12-mm) maximum.

2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.

3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.

4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.

5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.

# C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).

2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).

3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).

# 3.3 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

D. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

E. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

F. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

#### 3.4 MORTAR BEDDING AND JOINTING

A. Lay hollow CMUs as follows:

- 1. Bed face shells in mortar and make head joints of depth equal to bed joints.
- 2. Bed webs in mortar in all courses of piers, columns, and pilasters.
- 3. Bed webs in mortar in grouted masonry, including starting course on footings.

4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.

B. Lay solid CMUs with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

# 3.5 MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).

1. Space reinforcement not more than 16 inches (406 mm) o.c.

2. Space reinforcement not more than 8 inches (203 mm) o.c. in foundation walls and parapet walls.

3. Provide reinforcement not more than 8 inches (203 mm) above and below wall openings and extending 12 inches (305 mm) beyond openings in addition to continuous reinforcement.

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

C. Provide continuity at wall intersections by using prefabricated T-shaped units.

D. Provide continuity at corners by using prefabricated L-shaped units.

#### 3.6 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete, to comply with the following:

1. Provide an open space not less than 1/2 inch (13 mm) wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.

2. Anchor masonry with anchors embedded in masonry joints and attached to structure.

3. Space anchors as indicated, but not more than 24 inches (610 mm) o.c. vertically and 36 inches (915 mm) o.c. horizontally.

# 3.7 FLASHING

A. Refer to Specification Section 04200 Unit Masonry

# 3.8 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.

2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height. 2. Limit height of vertical grout pours to not more than 60 inches (1520 mm).

# 3.9 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

B. Inspections: Special inspections according to Level B in TMS 402/ACI 530/ASCE 5.

1. Begin masonry construction only after inspectors have verified proportions of site prepared mortar.

2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.

3. Place grout only after inspectors have verified proportions of site-prepared grout.

C. Testing Prior to Construction: One set of tests.

D. Testing Frequency: One set of tests for each 5000 sq. ft. (464 sq. m) of wall area or portion thereof.

E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C140 for compressive strength.

F. Grout Test (Compressive Strength): For each mix provided, according to ASTM C1019.

# 3.10 PARGING

A. Parge exterior faces of below-grade masonry walls, where indicated, in two uniform coats to a total thickness of 3/4 inch (19 mm). Dampen wall before applying first coat, and scarify first coat to ensure full bond to subsequent coat.

B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot (3 mm per 300 mm). Form a wash at top of parging and a cove at bottom.

C. Damp-cure parging for at least 24 hours and protect parging until cured.

# 3.11 REPAIRING, POINTING, AND CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.

2. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.

# 3.12 MASONRY WASTE DISPOSAL

A. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.

1. Do not dispose of masonry waste as fill within 18 inches (450 mm) of finished grade.

B. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.

C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 04220

# 042810 - VENEER MASONRY

# PART 1 - GENERAL

# 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.
- 1.2 RELATED DOCUMENTS
  - A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

# 1.3 SUMMARY

- A. This Section includes unit masonry assemblies consisting of the following:
  - 1. Manufactured Stone Veneer (Senior Living Building Only)
  - 2. See Section 042200 Concrete Unit Masonry for split rib veneer.
- B. Products installed, but not furnished, under this Section include the following:
  - 1. Steel lintels and shelf angles for unit masonry, furnished under Division 5 Section "Metal Fabrications."
  - 2. Manufactured reglets in masonry joints for metal flashing, furnished under Division 7 Section "Sheet Metal Flashing and Trim."
  - 3. Hollow-metal frames in unit masonry openings, furnished under Division 8 Section "Steel Doors and Frames."
  - 4. Bearing plates for structural steel, furnished under Division 5 Section "Metal Fabrications".

# 1.4 PERFORMANCE REQUIREMENTS

- A. Provide unit masonry that develops the following net-area compressive strengths (f'm) at 28 days. Determine compressive strength of masonry by testing masonry prisms according to ASTM C 1314.
  - 1. Masonry units shall have full face thicknesses. No thin face shell masonry units are to be used in any area of this project. ASTM C90 reports shall certify no reduced face shell thicknesses.

# 1.5 SUBMITTALS

A. Submit each item in this article in accordance with the conditions of the contract and Division 1 Specification Section.

- B. Product Data: For each different masonry unit, accessory, and other manufactured product specified. ASTM C90 reports shall certify no reduced face shell thicknesses.
- C. Shop Drawings: Show fabrication and installation details for the following:
  - 1. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- D. Samples for Initial Selection: For the following:
  - 1. Unit masonry samples in small-scale form showing the full range of colors and textures available for each different exposed masonry unit required. Submit face brick to show range of colors, texture and mortar types for matching existing brick.
  - 2. Mortar samples shall match existing mortar at Hospital.
- E. Samples for Verification: For the following:
  - 1. Full-size units for each different exposed masonry unit required, showing the full range of exposed colors, textures, and dimensions to be expected in the completed construction.
  - 1. Colored mortar Samples for each color required, showing the full range of colors expected in the finished construction. Make samples using the same sand and mortar ingredients to be used on Project. Label Samples to indicate types and amounts of pigments used.
  - 3. Cavity vents and weeping materials
  - 4. Accessories embedded in the masonry.
- F. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.
  - 1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents, unless such deviations are specifically brought to the attention of the Professional and approved in writing.
- G. Qualification Data: For firms and persons specified in "Quality Assurance" Article.
- H. Material Test Reports: From a qualified testing agency hired and paid for by the General Contractor but approved by the Owner; submit data indicating and interpreting test results of the following for compliance with requirements indicated:
  - 1. Each type of masonry unit required.
    - a. Include size-variation data for brick, verifying that actual range of sizes falls within specified tolerances.

- b. Include test results, measurements, and calculations establishing net-area compressive strength of masonry units. ASTM C90 reports shall certify no reduced face shell thicknesses.
- 2. Mortar complying with property requirements of ASTM C 270.
- 3. Grout mixes complying with compressive strength requirements of ASTM C 476. Include description of type and proportions of grout ingredients.
- I. Material Certificates: Signed by manufacturer certifying that each of the following items complies with requirements:
  - 1. Each type of masonry unit required.
    - a. Include size-variation data for brick, verifying that actual range of sizes falls within specified tolerances.
    - b. Include test data, measurements, and calculations establishing netarea compressive strength of masonry units.
    - c. ASTM C90 reports shall certify no reduced face shell thicknesses.
  - 2. Each cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.
  - 3. Each combination of masonry unit type and mortar type. Include statement of net-area compressive strength of masonry units, mortar type, and net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
  - 4. Each material and grade indicated for reinforcing bars.
  - 5. Each type and size of joint reinforcement.
  - 6. Each type and size of anchor, tie, and metal accessory.

# 1.7 QUALITY ASSURANCE

- A. Testing Agency Qualifications: The General Contractor shall employ an independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1093 to conduct the testing indicated, as documented according to ASTM E 548.
- B. ASTM C90 applies; however, NO THIN FACE SHELL SHALL BE PERMITTED ON THIS PROJECT.
- C. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.

- D. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.
- E. Preconstruction Testing Service: General Contractor shall engage and pay for a qualified independent testing agency approved by the Owner to perform the following preconstruction testing:
  - 1. Clay Masonry Unit Test: For each clay masonry unit indicated, per ASTM C 67.
  - 2. Concrete Masonry Unit Test: For each concrete masonry unit indicated, per ASTM C 140.
  - 3. Prism Test: For each type of wall construction indicated, per ASTM C 1314.
  - 4. Mortar Test: For mortar properties per ASTM C 270.
  - 5. Grout Test: For compressive strength per ASTM C 1019.
- F Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.
- G. Sample Panels: Before installing unit masonry, build sample panels, using materials indicated for the completed Work, to verify selections made under sample Submittals and to demonstrate aesthetic effects. Build sample panels for each type of exposed unit masonry assembly in sizes approximately 48 inches long by 48 inches high by full thickness.
  - 1. Locate panels where directed by Professional.
  - 2. Clean exposed faces of panels with masonry cleaner indicated.
  - 3. Where masonry is to match existing, erect panels adjacent and parallel to existing surface.
  - 4. Protect approved sample panels from the elements with weather-resistant membrane.
  - 5. Maintain sample panels during construction in an undisturbed condition as a standard for judging the completed Work.
  - 6. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Professional in writing.
- H. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

# 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver masonry materials to project in undamaged condition.
- B. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
  - 1. Protect Type I concrete masonry units from moisture absorption so that, at the time of installation, the moisture content is not more than the maximum allowed at the time of delivery.
- C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

# 1.9 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
  - 1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
  - 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
  - 1. Protect base of walls from rain-splashed mud and from mortar splatter by coverings spread on ground and over wall surface.
  - 2. Protect sills, ledges, and projections from mortar droppings.
  - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
  - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
  - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
- E. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required.
  - 1. When ambient temperature exceeds 100 deg F, or 90 deg F with a wind velocity greater than 8 mph, do not spread mortar beds more than 48 inches ahead of masonry. Set masonry units within one minute of spreading mortar.

# PART 2 - PRODUCTS

- 2.1 MANUFACTURED MASONRY- 'Stone Veneer'
  - 1. Eldorado Stone- 'Cliffstone'
  - 2. Owens Corning/Cultured Stone- 'Mojave Country Ledgstone'
  - 3. Boulder Creek Stone- 'Bluffstone'
  - A. Contractor shall furnish and install manufactured stone. Architect shall select color from manufacturer's full range of colors. Stones shall range in sizes from 1.5 to 15" high and 5 to 18" long. Colors shall range from gray blends, raw linen, khaki-greens, olive, warm ochres, chestnut browns and raw umber. Grouted installation shall be used for exterior application and dry stacked installation for interior application. Installation methods per manufacturer's instructions recommendations. Mortar color to be selected from full range of color choices.

Contractor shall furnish and install wire mesh and cement plaster scratch coat to provide for a level and consistent substrate over the existing split face concrete block.

- B. Weather Resistant Barrier: No. 15, Type I, asphalt saturated felt, ASTM D 226 (2 layers).
- C. Metal Lath: 2.5 lb galvanized expanded metal lath.
- D. Fasteners:
  - 1. Into Concrete Masonry: Minimum 7/16 head diameter, corrosion- resistant, self-drilling, self tapping, pancake head screws of sufficient length to penetrate 1/4 inch minimum into the concrete block.

E. Mortar: Premixed Type M or S mortar mixed using components and proportions following manufactured masonry manufacturer's installation instructions. Comply with ASTM C 270.

# 2.2 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for coldweather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of Portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.
- D. Mortar Cement: ASTM C 1329.
- E. Masonry Cement: ASTM C 91.
  - 1. For pigmented mortar, use a colored cement formulation as required to produce the color indicated or, if not indicated, as selected from manufacturer's standard formulations.
    - a. Pigments shall not exceed 5 percent of mortar cement or masonry cement by weight for mineral oxides nor 1 percent for carbon black.
- F. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
  - 1. Colored-Mortar Aggregates: Natural-colored sand or ground marble, granite, or other sound stone; of color necessary to produce required mortar color.
- G. Aggregate for Grout: ASTM C 404.
- H. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.
- I. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by the manufacturer for use in masonry mortar of composition indicated.
  - 1. Accelguard 80; Euclid Chemical Co.
  - 2. Morseled; W.R. Grace & Co., Construction Products Division
  - 3. Trimix-NCA; Sonneborn, Div. of ChemRex, Inc.
- J. Water-Repellant Admixture
  - 1. Mortar Tite; Addiment, inc.

- 2. Dry-Block Mortar Admixture; W.R. Grace & Co., Construction Products Division
- 3. Rheopel; Master Builders.
- K. Water: Potable.
- L. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

# 2.3 MASONRY JOINT REINFORCEMENT

- A. General: ASTM A 951 and as follows:
  - 1. Hot-dip galvanized, carbon-steel wire for exterior walls.
  - 2. Wire Size for Side Rods: W1.7 or 0.148-inch diameter.
  - 3. Wire Size for Cross Rods: W1.7 or 0.148-inch diameter.
  - 4. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units where indicated.
- B. For single-wythe masonry, provide truss type with single pair of side rods and cross rods spaced not more than 16 inches o.c. Where vertical reinforcing is spaced closer than 32" o.c. ladder type reinforcing may be used.
- C. For multi-wythe masonry laid simultaneously; provide types as follows:
  - 1. Ladder type with perpendicular cross rods spaced not more than 16 inches o.c. and 1 side rod for each face shell of hollow masonry units more than 4 inches in width, plus 1 side rod for each wythe of masonry 4 inches or less in width.

# 2.4 TIES AND ANCHORS, GENERAL

- A. General: Provide ties and anchors, specified in subsequent articles, made from materials that comply with this Article, unless otherwise indicated.
- B. Mill Galvanized Carbon-Steel Wire: ASTM A 82; with ASTM A 641, Class 1 coating.
- C. Galvanized Steel Sheet: ASTM A 653/A 653M, G60, commercial-quality, steel sheet zinc coated by hot-dip process on continuous lines before fabrication.
- D. Steel Sheet, Galvanized after Fabrication: ASTM A 366 cold-rolled, carbon-steel sheet hot-dip galvanized after fabrication to comply with ASTM A 153.
- E. Stainless-Steel Sheet: ASTM A 666, Type 304 or 316.
- F. Steel Plates, Shapes, and Bars: ASTM A 36.
- 2.5 RIGID ANCHORS

- A. General: Fabricate from steel bars as follows:
  - 1. As indicated.
  - 2. Finish: Hot-dip galvanized to comply with ASTM A 153.

# 2.6 ADJUSTABLE MASONRY-VENEER ANCHORS

- A. General: Provide two-piece assemblies that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to wood or metal studs, and as follows:
  - 1. Structural Performance Characteristics: Capable of withstanding a 100-lbf load in both tension and compression without deforming or developing play in excess of 0.05 inch.
- B. Screw-Attached, Masonry-Veneer Anchors: Units consisting of a wire tie section and a metal anchor section complying with the following requirements:
  - 1. Anchor Section: Sheet metal plate with screw holes top and bottom and with raised rib-stiffened strap stamped into center to provide a slot between strap and plate for connection of wire tie.
    - a. Plate 1-1/4 inches wide by 6 inches 9 inches long with strap 5/8 inch wide by 3-5/8 inches 5-1/2 inches long; slot clearance formed between face of plate and back of strap shall not exceed diameter of wire tie by more than 1/32 inch.
- C. Steel Drill Screws for Steel Studs: ASTM C 954 except manufactured with hex washer head and neoprene washer, No. 10 diameter by length required to penetrate steel stud flange by not less than 3 exposed threads, and with the following corrosion protective coating:
  - 1. Organic polymer coating with salt-spray resistance to red rust of more than 800 hours per ASTM B 117.
- D. Stainless-Steel Drill Screws for Steel Studs: Fastener consisting of carbon-steel drill point and 300 Series stainless-steel shank, complying with ASTM C 954 except manufactured with hex washer head and neoprene washer, No. 10 diameter by length required to penetrate steel stud flange by not less than three exposed threads.
- E. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Screw-Attached, Masonry-Veneer Anchors:
    - a. D/A 213; Dur-O-Wal, Inc.
    - b. Pos-I-Tie; Heckman Building Products, Inc.
    - c. DW-10; Hohmann & Barnard, Inc.

- d. DW-10HS; Hohmann & Barnard, Inc.
- e. DW-10-X; Hohmann & Barnard, Inc.
- 2. Organic-Polymer-Coated, Steel Drill Screws:
  - a. Dril-Flex; Elco Industries, Inc.
  - b. Traxx; ITW-Buildex.
- 3. Stainless-Steel Drill Screws for Steel Studs:
  - a. Stainless Steel SX Fastener; Dur-O-Wal, Inc.
- 2.7 EMBEDDED FLASHING MATERIALS
  - A. Metal Flashing: Exposed metal flashing under this section refers to metals not covered in the roofing section but may need to match colors selected for those roofing items.
    - 1. Fabricate metal drip edges from metal specified. Extend at least 3 inches into wall and 1/2 inch out from wall, with a hemmed outer edge bent down 30 degrees.
  - B. Concealed Flashing: Use asphalt coated copper;

Asphalt-Coated Copper Flashing: Manufacturer's standard product consisting of sheet copper of weight per sq. ft. indicated below coated with flexible fibrated asphalt.

- 1. Weight: 7 oz.
- 2. Products: Subject to compliance with requirements, provide one of the following:
  - a. "Cop-A-Cote"; Afco Products Co.
  - b. "Coated Copper Flashing; Sandell Manufacturing Inc
  - c. "Copperseal"; York Manufacturing, Inc.
- C. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by the flashing manufacturer for bonding flashing sheets to each other and to substrates.
- 2.8 MISCELLANEOUS MASONRY ACCESSORIES
  - A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene urethane or PVC.

- B. Preformed Control-Joint Gaskets: Material as indicated below, designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
  - 1. Styrene-Butadiene-Rubber Compound: ASTM D 2000, Designation M2AA-805.
  - 2. PVC: ASTM D 2287, Type PVC-65406.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- D. Rectangular 'Cell Vent' weep holes and vents 3/8" x 3 5/8" x 2 ¼". Use at upper portion of wall to all equal pressurization of any wall cavity as weep holes at flashing locations. Install at 24" oc. horizontal.
- E. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.142-inch steel wire, hot-dip galvanized after fabrication.
  - 1. Provide units with either two loops or four loops as needed for number of bars indicated.
- F. Available Products: Subject to compliance with requirements, cavity drainage materials that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Plastic Weep Hole/Vent:
    - a. Cell Vent; Dur-O-Wal, Inc.
  - 2. Reinforcing Bar Positioners:
    - a. D/A 811; Dur-O-Wal, Inc.
    - b. #RB Rebar Positioner; Hohmann & Barnard, Inc.
  - H. Mortar Breaks: At all exterior wall flashing areas provide Mortar Break II System as manufactured by Advanced Building Products or equal installed in cavity wall area of exterior walls.

Mortar Break II is a polymer core geomatrix composed of high density polyethylene geomatrix design woven into a 1.5" thick mesh, installed in strict accordance with manufacturer's recommendations.

# 2.9 MASONRY CLEANERS

- A. Job-Mixed Detergent Solution: Solution of 1/2-cup dry measure tetrasodium polyphosphate and 1/2-cup dry measure laundry detergent dissolved in 1 gal. of water.
  - 1. Products: Subject to compliance with requirements, provide one of the following:

- a. Cleaners for Red and Light-Colored Brick Not Subject to Metallic Staining with Mortar Not Subject to Bleaching:
  - 1. 202 New Masonry Detergent; Diedrich Technologies, Inc.
  - 2. Sure Klean No. 600 Detergent; ProSoCo, Inc.
- b. Cleaners for Red and Dark-Colored Brick Not Subject to Metallic Staining:
  - 1. 200 Lime Solv; Diedrich Technologies, Inc.
  - 2. Sure Klean No. 101 Lime Solvent; ProSoCo., Inc.
- c. Cleaners for Brick Subject to Metallic Staining:
  - 1. 202V Vana-Stop; Diedrich Technologies, Inc.
  - 2. Sure Klean Vana Trol; ProSoCo, Inc.

# 2.10 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
  - 1. Do not use calcium chloride in mortar or grout.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification.
  - 1. Extended-Life Mortar for Unit Masonry: Mortar complying with ASTM C 1142 may be used instead of mortar specified above, at Contractor's option.
  - 2. Limit cementitious materials in mortar to Portland cement, mortar cement, and lime.
  - 3. Limit cementitious materials in mortar for masonry veneer construction to masonry cement only.
  - 4. For masonry below grade, in contact with earth, and where indicated, use Type M.
  - 5. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type S.
  - 6. For interior non-load-bearing partitions, with 750-psi average 28-day compressive strength.

- C. Pigmented Mortar: Select and proportion pigments with other ingredients to produce color required. Limit pigments to the following percentages of cement content by weight:
  - 1. For mineral-oxide pigments and Portland cement-lime mortar, not more than 10 percent.
  - 2. For carbon-black pigment and Portland cement-lime mortar, not more than 2 percent.
  - 3. For mineral-oxide pigments and mortar cement mortar, not more than 5 percent.
  - 4. For carbon-black pigment and mortar cement mortar, not more than 1 percent.
- D. Colored-Aggregate Mortar: Produce required mortar color by using colored aggregates combined with selected cementitious materials.
  - 1. Mix to match existing color.
- E. Grout for Unit Masonry: Comply with ASTM C 476.
  - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 5 of ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
  - 2. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143.

# 2.11 SOURCE QUALITY CONTROL

- A. Brick Tests: For each type and grade of brick indicated, units will be tested according to ASTM C 67.
- B. Concrete Masonry Unit Tests: For each type of concrete masonry unit indicated, units will be tested according to ASTM C 140.

# PART 3 - EXECUTION

# 3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
  - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.
  - 2. Verify that foundations are within tolerances specified.
  - 3. Verify that reinforcing dowels are properly placed.

- 4. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Before installation, examine rough-in and built-in construction to verify actual locations of piping connections.

# 3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this Section and in other Sections of the Specifications.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to the opening.
- D. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
  - 1. Mix units from several pallets or cubes as they are placed.
- F. Wetting of Brick: Wet brick before laying if the initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

# 3.3 CONSTRUCTION TOLERANCES

- A. Comply with tolerances in ACI 530.1/ASCE 6/TMS 602 and the following:
- B. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/4 inch in 20 feet, nor 1/2 inch maximum.
- C. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, nor 1/2 inch maximum.
- D. For conspicuous horizontal lines, such as exposed lintels, sills, parapets, and reveals, do not vary from level by more than 1/4 inch in 20 feet, nor 1/2 inch maximum.
- E. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
F. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.

# 3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Lay exposed masonry in the following bond pattern; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
  - 1. As indicated on Drawings for new soldier face brick.
  - 2. Match existing masonry for new face brick.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: In each course, rack back one-half-unit length for onehalf running bond or one-third-unit length for one-third running bond; do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly if required, and remove loose masonry units and mortar before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.
- F. Fill space between hollow-metal frames and masonry solidly with mortar, unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.
- H. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
- I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, unless otherwise indicated.
  - 1. Install compressible filler in joint between top of partition and underside of structure above.
  - 2. At fire-rated partitions, install firestopping in joint between top of partition and underside of structure above to comply with Division 7 Section "Firestopping."

## 3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow masonry units as follows:
  - 1. With full mortar coverage on horizontal and vertical face shells.
  - 2. Bed webs in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout.
  - 3. For starting course on footings where cells are not grouted, spread out full mortar bed, including areas under cells.
- B. Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Set cast stone trim units in full bed of mortar with vertical joints slushed full. Fill dowel, anchor, and similar holes solid. Wet stone-joint surface thoroughly before setting; for soiled stone surfaces, clean bedding and exposed surfaces with fiber brush and soap powder and rinse thoroughly with clear water.
- D. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than the joint thickness, unless otherwise indicated.
  - 1. For glazed masonry units, use a nonmetallic jointer 3/4 inch or more in width.
- E. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.
- F. All exposed masonry mortar joints are to be colored mortar unless painted or otherwise noted.

# 3.6 BONDING OF MULTIWYTHE MASONRY

- A. Use masonry joint reinforcement installed in horizontal mortar joints to bond wythes together.
- B. Corners: Provide interlocking masonry unit bond in each wythe and course at corners, unless otherwise indicated.
  - 1. Provide continuity with masonry joint reinforcement at corners by using prefabricated "L" units as well as masonry bonding.
- C. Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, bond walls together as follows:
  - 1. Provide continuity with masonry joint reinforcement by using prefabricated "T" units.

# 3.7 MASONRY JOINT REINFORCEMENT

A. General: Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on

exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.

- 1. Space reinforcement not more than 16 inches o.c., unless shown otherwise on drawings.
- 2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
- 3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings.
  - a. Reinforcement above is in addition to continuous reinforcement.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

## 3.8 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joints in unit masonry where indicated. Buildin related items as masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.
- B. Form control joints in concrete masonry as follows:
  - 1. Fit bond-breaker strips into hollow contour in ends of concrete masonry units on one side of control joint. Fill resultant core with grout and rake joints in exposed faces.
  - 2. Install preformed control-joint gaskets designed to fit standard sash block.
  - 3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake joint.
  - 4. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete.
- C. Form expansion joints in brick made from clay or shale as follows:
  - 1. Build flanges of metal expansion strips into masonry. Lap each joint 4 inches in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints, if any.
  - 2. Build in joint fillers where indicated.

- 3. Form open joint of width indicated, but not less than 3/8 inch for installation of sealant and backer rod specified in Division 7 Section "Joint Sealants." Keep joint free and clear of mortar.
- D. Build in horizontal, pressure-relieving joints where indicated; construct joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 7 Section "Joint Sealants."
  - 1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry veneer and attached to structure behind masonry veneer.

# 3.9 LINTELS

- A. Install steel lintels where indicated.
- B. Shall provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.

## 3.10 FLASHING, WEEP HOLES, AND VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.
- B. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
- C. Install flashing as follows:
  - 1. At thru-wall base flashing conditions and at composite masonry walls, including cavity walls, install a (two piece interlocking type) 22 gauge stainless steel sheet flashing through the outer wythe of masonry. Turn up embedded piece a minimum of 2 inches, flush with inner wythe of masonry at cavity to form a pan (Behind insulation). Overlap ends of stainless steel flashing a minimum of 6 inches and seal lap with elastomeric sealant. Extend composite fabric flashing from a point 1 inch from exterior face of outer wythe of masonry, through the outer wythe, turned up a minimum of 8 inches (behind insulation) and into the inner wythe 1 1/2 inches. Seal lap between stainless steel flashing and fabric flashing with elastomeric sealant. Install interlocking piece of flashing over roof termination and/or flashing
  - 2. At lintels and shelf angles, extend composite fabric flashing a minimum of 4 inches into masonry at each end. At heads and sills, extend flashing 4 inches at ends and turn up not less than 2 inches to form a pan.
  - 3. At thru-wall intermediate/cap flashing locations and at high roof/low roof conditions, install a (two piece interlocking type) 22 gauge stainless steel sheet flashing through the outer wythe of masonry. Turn up embedded piece a

minimum of 2 inches, flush with inner wythe of masonry at cavity to form a pan (Behind insulation). Overlap ends of stainless steel flashing a minimum of 6 inches and seal lap with elastomeric sealant. Extend composite fabric flashing from a point 1 inch from exterior face of outer wythe of masonry, through the outer wythe, turned up a minimum of 8 inches (behind insulation) and into the inner wythe 1 1/2 inches. Seal lap between stainless steel flashing and fabric flashing with elastomeric sealant. Install interlocking piece of flashing over roof termination and/or flashing as indicated on drawing.

- 3. At thru-wall intermediate flashing locations, install a 22 gauge stainless steel sheet flashing though the outer wythe of masonry. Turn up stainless steel flashing a minimum of 2 inches, flush with inner wythe of masonry at cavity to form a pan (behind insulation). Overlap ends of stainless steel flashing a minimum of 6 inches and seal lap with elastomeric sealant. Extend composite fabric flashing from a point 1 inch from exterior face of outer wythe of masonry, through the outer wythe, turned up a minimum of 8 inches (behind insulation) and into the inner wythe 1 1/2". Seal lap between stainless steel flashing and fabric flashing with elastomeric sealant.
- D. Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:
  - 1. Use weep vents above flashing in walls at window heads and above flashings at the base of walls. See drawings for locations. Space at max 32" o.c.
- E. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.
- F. Install cavity vents at +/- 32" on center horizontally at the upper part of exterior masonry walls

## 3.11 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

- 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Professional's approval of sample cleaning before proceeding with cleaning of masonry.
- 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
- 1. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing the surfaces thoroughly with clear water.
- 2. Clean brick by the bucket-and-brush hand-cleaning method described in BIA Technical Notes No. 20, using job-mixed detergent solution.
- 4. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

## 3.13 MASONRY WASTE DISPOSAL

- A. Recycling: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Excess Masonry Waste: Remove excess, clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 048100

#### 047200 - CAST STONE

#### PART 1 - GENERAL

#### 1.1 STIPULATIONS

- A. The section "General Conditions" and "Special Requirements" form a part of this section by this reference thereto and shall have the same force and effect as if printed herewith in full.
- 1.2 <u>SECTION INCLUDES</u> Architectural Cast Stone.
  - A. Scope Cast Stone shown on architectural drawings and as described in this specification.
    1. Manufacturer shall furnish Cast Stone covered by this specification.

#### 1.3 RELATED SECTIONS

- A. Section 04 2200 Unit Masonry.
- B. Section 07 9200 Joint Sealant

#### 1.4 <u>REFERENCES</u>

- A. ACI 318 Building Code Requirements for Reinforced Concrete.
- B. ASTM A 185 Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
- C. ASTM A 615/A 615M Standard Specification for Deformed and Plain Billet-Steel Bars for Reinforced Concrete.
- D. ASTM C 33 Standard Specification for Concrete Aggregates.
- E. ASTM C 150 Standard Specification for Portland Cement.
- F. ASTM C 595 Blended Cement
- G. ASTM C 1157 Hydraulic Cement
- H. ASTM C 173 Standard Test Method for Air Content of Freshly Mixed Concrete by the Volume Method.
- I. ASTM C 231 Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
- J. ASTM C 260 Standard Specification for Air-Entrained Admixtures for Concrete.
- K. ASTM C 270 Standard Specification for Mortar for Unit Masonry.
- L. ASTM C 426 Standard Test Method for Linear Shrinkage of Concrete Masonry Units.
- M. ASTM C 494/C 494M Standard Specification for Chemical Admixtures for Concrete.
- N. ASTM C 618 Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
- 0. ASTM C 666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
- P. ASTM C 979 Standard Specification for Coloring Pigments for Integrally Pigmented Concrete.
- Q. ASTM C 989 Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete.
- R. ASTM C 1116 Standard Specification for Fiber Reinforced Concrete and Shotcrete.
- S. ASTM C 1194 Standard Test Method for Compressive Strength of Architectural Cast Stone.
- T. ASTM C 1195 Standard Test Method for Absorption of Architectural Cast Stone.
- U. ASTM C 1364 Standard Specification for Architectural Cast Stone.
- V. ASTM D 2244 Standard Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
- W. Cast Stone Institute® Technical Manual (Current Edition).

#### 1.5 <u>DEFINITIONS</u>

A. Cast Stone - a refined architectural concrete building unit manufactured to simulate natural cut stone, used in Division 4 masonry applications.

- 1. Wet Cast manufactured from measurable slump concrete.
  - a. Wet casting method: manufactured from measurable slump concrete and vibrated into a mold until it becomes densely consolidated.

#### 1.6 <u>SUBMITTALS</u>

- A. Samples: Submit pieces of the Cast Stone that are representative of the general range of finish and color proposed to be furnished for the project.
- B. Test results: Submit manufacturer's test results of Cast Stone previously made by the manufacturer.
- C. Shop Drawings: Submit manufacturer's shop drawings including profiles, cross-sections, reinforcement, exposed faces, arrangement of joints (optional for standard or semi-custom installations), anchoring methods, anchors (if required), annotation of stone types and their location.
- D. Warranty: Submit Cast Stone Institute ® Member Limited Warranty.
- E. Certification: Submit valid Cast Stone Institute ® Plant Certification.

#### 1.7 <u>OUALITY CONTROL</u>

- A. Manufacturer Qualifications:
  - 1. Cast Stone shall be produced in a plant certified by the Cast Stone Institute®.
  - 2. Manufacturers shall have sufficient plant facilities to produce the shapes, quantities and size of Cast Stone required in accordance with the project schedule.
  - 3. Manufacturer shall submit a written list of projects similar in scope and at least three (3) years of age, along with Using Agency, Professional and contractor references.
- B. Standards: Comply with the requirements of the Cast Stone Institute® Technical Manual and the project specifications. Where a conflict may occur, the contract documents shall prevail.
- C. Warranty Period: 10 years.

#### PART 2 - PRODUCTS

- 2.1 MANUFACTURERS
  - A. Manufacturers: Subject to compliance with requirements, provide Architectural Cast Stone by one of the following:
    - 1. Edwards Cast Stone Company
    - 2. Continental Cast Stone
    - 3. Custom Cast Stone, Inc.
    - 4. Great Lakes Cast Stone
    - 5. Or equal as approved by Professional

#### 2.2 ARCHITECTURAL CAST STONE

- A. Comply with ASTM C 1364
- B. Physical properties: Provide the following:
  - 1. Compressive Strength ASTM C 1194: 6,500 psi minimum for products at 28 days.
  - 2. Absorption ASTM C 1195: 6% maximum by the cold water method, or 10% maximum by the boiling method for products at 28 days.
  - 3. Air Content ASTM C 173 or C 231, for wet cast product shall be 4-8% for units exposed to freeze-thaw environments. Air entrainment is not required for VDT products.
  - 4. Freeze-thaw ASTM C 1364: The CPWL shall be less than 5% after 300 cycles of freezing and thawing.
  - 5. Linear Shrinkage ASTM C 426: Shrinkage shall not exceed 0.065%.

- C. Job site testing One sample from production units may be selected at random from the field for each 500 cubic feet delivered to the job site.
  - 1. Three field cut cube specimens from each of these samples shall have an average minimum compressive strength of not less than 85% with no single specimen testing less than 75% of design strength as allowed by ACI 318.
  - 2. Three field cut cube specimens from each of these samples shall have an average maximum cold-water absorption of 6%.
  - 3. Field specimens shall be tested in accordance with ASTM C 1194 and C 1195.

## 2.3 RAW MATERIALS

- A. Portland cement Type I or Type III, white and/or grey, ASTM C 150. Blended Cement, ASTM C595 or Hydraulic Cement ASTM C1157
- B. Coarse aggregates Granite, quartz or limestone, ASTM C 33, except for gradation, and are optional for the VDT casting method.
- C. Fine aggregates Manufactured or natural sands, ASTM C 33, except for gradation.
- D. Colors Inorganic iron oxide pigments, ASTM C 979 except that carbon black pigments shall not be used.
- E. Admixtures Comply with the following:
  - 1. ASTM C 260 for air-entraining admixtures.
  - 2. ASTM C 494/C 495M Types A G for water reducing, retarding, accelerating and high range admixtures.
  - 3. Other admixtures: Integral water repellents and other chemicals, for which no ASTM Standard exists, shall be previously established as suitable for use in concrete by proven field performance or through laboratory testing.
  - 4. ASTM C 618 mineral admixtures of dark and variable colors shall not be used in surfaces intended to be exposed to view.
  - 5. ASTM C 989 granulated blast furnace slag may be used to improve physical properties. Tests are required to verify these features.
- F. Water Potable.
- G. Reinforcing bars:
  - 1. ASTM A 615/A 615M: Grade 40 or 60 steel galvanized or epoxy coated when cover is less than 1.5 in.
  - 2. Welded Wire Fabric: ASTM A 185 where applicable for wet cast units
- H. Fiber reinforcement (optional): ASTM C 1116
- I. All anchors, dowels and other anchoring devices and shims shall be standard building stone anchors commercially available in a non-corrosive material such as zinc plated, galvanized steel, brass, or stainless steel Type 302 or 304.

#### 2.4 COLOR AND FINISH

- A. Color to be selected from manufacturers' standard colors.
- B. All surfaces intended to be exposed to view shall have a fine-grained texture similar to natural stone, with no air voids in excess of 1/32 in. and the density of such voids shall be less than 3 occurrences per any 1 in.2 and not obvious under direct daylight illumination at a 5 ft distance.
- C. Units shall exhibit a texture approximately equal to the approved sample when viewed under direct daylight illumination at a 10 ft. distance.
  - 1. ASTM D 2244 permissible variation in color between units of comparable age subjected to similar weathering exposure.
    - a. Total color difference not greater than 6 units.
    - b. Total hue difference not greater than 2 units.
- D. Minor chipping resulting from shipment and delivery shall not be grounds for rejection. Minor chips shall not be obvious under direct daylight illumination from a 20-ft. distance.
- E. The occurrence of crazing or efflorescence shall not constitute a cause for rejection.
- F. Remove cement film, if required, from exposed surfaces prior to packaging for shipment.

#### 2.5 <u>REINFORCING</u>

- A. Reinforce the units as required by the drawings and for safe handling and structural stress.
- B. Minimum reinforcing shall be 0.25 percent of the cross section area.
- C. Reinforcement shall be noncorrosive where faces exposed to weather are covered with less than 1.5 in. of concrete material. All reinforcement shall have minimum coverage of twice the diameter of the bars.
- D. Panels, soffits and similar stones greater than 24 inches in one direction shall be reinforced in that direction. Units less than 24 inches in both their length and width dimension shall be non-reinforced unless otherwise specified.

#### 2.6 <u>CURING</u>

A. Cure units in a warm curing chamber approximately 100°F (37.8°C) at 95 percent relative humidity for approximately 12 hours, or cure in a 95 percent moist environment at a minimum 70°F (21.1°C) for 16 hours after casting. Additional yard curing at 95 percent relative humidity shall be 350 degree-days (i.e. 7 days @ 50°F (10°C) or 5 days @ 70°F (21°C)) prior to shipping. Form cured units shall be protected from moisture evaporation with curing blankets or curing compounds after casting.

#### 2.7 MANUFACTURING TOLERANCES

- A. Cross section dimensions shall not deviate by more than  $\pm 1/8$  in. from approved dimensions.
- B. Length of units shall not deviate by more than length/ 360 or  $\pm 1/8$  in., whichever is greater, not to exceed  $\pm 1/4$  in.
  - 1. Maximum length of any unit shall not exceed 15 times the average thickness of such unit unless otherwise agreed by the manufacturer.
- C. Warp, bow or twist of units shall not exceed length/  $360 \text{ or } \pm 1/8 \text{ in.}$ , whichever is greater.
- D. Location of dowel holes, anchor slots, flashing grooves, false joints and similar features On formed sides of unit, 1/8 in., on unformed sides of unit, 3/8 in. maximum deviation.

#### 2.8 PRODUCTION QUALITY CONTROL

- A. Testing.
  - 1. Test compressive strength and absorption from specimens taken from every 500 cubic feet of product produced.
  - 2. Perform tests in accordance ASTM C 1194 and C 1195.
  - 3. Have tests performed by an independent testing laboratory every six months.
  - 4. New and existing mix designs shall be tested for strength and absorption compliance prior to producing units.
  - 5. Retain copies of all test reports for a minimum of two years.

#### 2.9 DELIVERY, STORAGE AND HANDLING

- A. Mark production units with the identification marks as shown on the shop drawings.
- B. Package units and protect them from staining or damage during shipping and storage.
- C. Provide an itemized list of product to support the bill of lading.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

A. Installing contractor shall check Cast Stone materials for fit and finish prior to installation. Unacceptable units shall not be set.

#### 3.2 SETTING TOLERANCES

- A. Comply with Cast Stone Institute® Technical Manual.
- B. Set stones 1/8 in. or less, within the plane of adjacent units.
- C. Joints, plus 1/16 in., minus 1/8 in.

#### 3.3 JOINTING

- A. Joint size:
  - 1. At stone/brick joints 3/8 in.
  - 2. At stone/stone joints in vertical position 1/4 in. (3/8 in. optional).
  - 3. Stone/stone joints exposed on top 3/8 in.
- B. Joint materials:
  - 1. Mortar, Type N, ASTM C 270.
  - 2. Use a full bed of mortar at all bed joints.
  - 3. Flush vertical joints full with mortar.
  - 4. Leave all joints with exposed tops or under relieving angles open for sealant.
  - 5. Leave head joints in copings and projecting components open for sealant.
- C. Location of joints:
  - 1. As shown on shop drawings.
  - 2. At control and expansion joints unless otherwise shown.

### 3.4 <u>SETTING</u>

- A. Drench units with clean water prior to setting.
- B. Fill dowel holes and anchor slots completely with mortar or non-shrink grout.
- C. Set units in full bed of mortar, unless otherwise detailed.
- D. Rake mortar joints 3/4 in. in for pointing.
- E. Remove excess mortar from unit faces immediately after setting.
- F. Tuckpoint unit joints to a slight concave profile.

### 3.5 JOINT PROTECTION

- A. Comply with requirements of Section 07900.
- B. Prime ends of units, insert properly sized backing rod and install required sealant.

#### 3.6 REPAIR AND CLEANING

- A. Repair chips with touchup materials furnished by the manufacturer.
- B. Saturate units to be cleaned prior to applying an approved masonry cleaner.
- C. Consult with the manufacturer for appropriate cleaners.

#### 3.7 INSPECTION AND ACCEPTANCE

- A. Inspect finished installation according to Cast Stone Institute ® Technical Bulletin #36.
- B. Do not field apply water repellent until repair, cleaning, inspection and acceptance is completed.

# 3.8 WATER REPELLENT

A. Apply water repellent in accordance with Cast Stone Institute ® Technical Bulletin #35 or water repellent manufacturer's directions.

# END OF SECTION 04 7200

## 051000 - STRUCTURAL STEEL

#### PART 1 - GENERAL

### 1.1 STIPULATIONS

A. The specifications section "General Conditions" and "Special Requirements" form a part of this section by this reference thereto and shall have the same force and effect as if printed herewith in full.

#### 1.2 <u>SUMMARY</u>

- A. <u>Extent</u> of structural steel work is shown on Drawings, including schedules, notes and details to show size and location of members, typical details and type of steel required.
- B. <u>Structural Steel</u> is that work defined in AISC "Code of Standard Practice" and as otherwise shown and referred to on Drawings.
- C. <u>Miscellaneous Metal Fabrications</u> are specified elsewhere in Division 5.
- D. <u>Refer to Division 3</u> for anchor bolt installation in concrete; Division 4 for masonry.
- E. <u>Painting</u> is specified in Section 09 9000.
- F. <u>Source quality Control:</u> Materials and fabrication procedures are subject to inspection and tests in mill, shop and field, conducted by a qualified inspection agency. Such inspections and tests will not relieve Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements.
- G. Foreign steel will not be accepted for use in this Project.
- H. Promptly remove and replace materials or fabricated components which do not comply.
- I. <u>Design of Members and Connections:</u> Details shown are typical; similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at site whenever possible without causing delay in the work.
- J. Promptly notify Architect whenever design of members and connections for any portion of structure are not clearly indicated.

## 1.3 <u>SUBMITTALS:</u>

- A. <u>Product Data:</u> Submit producer's or manufacturer's specifications and installation instructions for the following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).
- B. Structural steel (each type), including certified copies of mill reports covering chemical and physical properties.
- C. High-strength bolts (each type), including nuts and washers.
- D. Structural steel primer paint. (non-lead)

- E. Structural steel finish paint (non-lead).
- F. Shrinkage-resistant grout.
- G. <u>Shop Drawings:</u> Submit Shop Drawings prepared under supervision of a registered professional engineer retained by the fabricator, including complete details and schedules for fabrication and assembly of structural steel members procedures and diagrams. Submit signed and sealed affidavit prepared by engineer responsible for supervision.
- H. Include details of cuts, connections, camber, holes and other pertinent data. Indicate welds by standard AWS A2.1 and A2.4 symbols, and show size, length, and type of each weld.
- I. Provide setting drawings, templates and directions for installation of anchor bolts and other anchorages to be installed as work of other sections.
- J. <u>Test Reports:</u> Submit copies of reports of test conducted on shop and field bolted and welded connections. Include data on types of tests conducted and test results.
- K. All bolted connections shall be field tested by an independent testing lab/company.
- L. <u>Surveys:</u> Submit certified copies of each survey conducted by a registered professional engineer verifying all showing elevations and locations of base plates and anchor bolts to receive structural steel, and final elevations and locations for major members. Indicate discrepancies between actual installation and contract documents.

## 1.4 QUALITY ASSURANCE

## A. <u>CODES AND STANDARDS:</u>

- 1. Comply with provisions of following, except as otherwise indicated:
- 2. AISC "Code of Standard Practice for Steel Buildings and Bridges".
- 3. AISC "Specifications for Design, Fabrication, and Erection of Structural Steel for Buildings", including "Commentary" and Supplements thereto as issued.
- 4. AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" approved by the Research Council on Riveted and bolted Structural Joints of the Engineering Foundation.
- 5. AWS D1.1 "Structural Welding Code".

## 1.5 QUALIFICATIONS FOR WELDING WORK

- A. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure".
- B. Provide certification that welders to be employed in work have satisfactory passed AWS qualification tests.
- C. If recertification of welders is required, retesting will be Contractor's responsibility.

# 1.6 DELIVERY, STORAGE AND HANDLING

- A. <u>Deliver materials</u> to site as such intervals to insure uninterrupted programs of work.
- B. <u>Deliver anchor bolts</u> and anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time so as not to delay work.
- C. <u>Store materials</u> to permit easy access for inspection and identification. Keep steel members off the ground, using pallets, platforms or other supports. Protect steel members and packaged materials from corrosion and deterioration.
- D. <u>Do not store materials</u> on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

# PART 2 - PRODUCTS

# 2.1 <u>MATERIALS</u>

# A. METAL SURFACES, GENERAL

- 1. For fabrication of work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, rust and scale seam marks, roller marks, rolled trade names and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating and application of surface finishes.
- 2. <u>Structural Steel Shapes</u> : ASTM A 992; except plates, angles and channel shall conform to ASTM A36..
- 3. <u>Cold-Formed Steel Tubing</u>: ASTM A 500, Grade B, unless noted otherwise on Drawings.
- 4. <u>Steel Pipe:</u> ASTM A 53, Type E, or S, Grade B; or ASTM A 501.
- 5. <u>Finish:</u> Black, except where indicated to be galvanized.
- 6. <u>Anchor Bolts:</u> ASTM F1554 (Grade 36), nonheaded type unless otherwise indicated.
- 7. <u>Unfinished Threaded Fasteners:</u> ASTM A 307, Grade A, regular low-carbon steel bolts and nuts.
- 8. <u>High-Strength Threaded Fasteners:</u> Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows:
- 9. <u>Electrodes for Welding:</u> Comply with AWS Code.
- 10. <u>Structural Steel Primer Paint:</u> Fabricator's standard rust-inhibiting primer. See High Performance Coating Specification in Division 09900 for primer required for steel within natatorium.
- 11. <u>Structural Steel Finish Paint:</u> See Painting Specification in Division 09900. See High Performance Coating Specification in Division 09900 for coatings for steel within natatorium

- 12. <u>Galvanizing</u>: Hot dipped after fabrication, conforming to ASTM A 123 and A-153 as applicable. Sherardizing or electro-glazing will not be acceptable.
- 13. <u>Cement Grout:</u> Portland cement (ASTM C 150, Type I or Type III) and clean, uniformly graded, natural sand (ASTM C 404, Size No. 2). Mix at a ratio of 1.0 part cement to 3.0 parts sand by volume, with minimum water required for placement and hydration.
- 14. <u>Non-Metallic Shrinkage-Resistant Grout:</u> Pre-mixed, non-metallic, non-corrosive, nonstaining product containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water reducing agents. Comply with CRD-C621.
- 2.2 <u>PRODUCTS:</u> Subject to compliance with requirements, provide one of the following:

Euco N.S.; Euclid Chemical Company Crystex; L&M Construction Chemicals Masterflow 713; Master Builders Five Star Grout; U.S. Grout Corporation

# 2.3 FABRICATION

- A. <u>SHOP FABRICATION AND ASSEMBLY:</u> Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final Shop Drawings. Provide camber in structural members where indicated.
- B. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.
- C. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.
- 2.4 <u>CONNECTIONS:</u> Weld or bolt shop connections, as indicated.
  - A. Bolt field connections, except where welded connections or other connections are indicated.
  - B. Provide high-strength threaded fasteners for principal bolted connections, except where unfinished bolts are indicated.
  - C. Provide unfinished threaded fasteners for only bolted connections of secondary framing members to primary members (including purlins, girts, and other framing members taking only nominal stresses) and for temporary bracing to facilitate erection.
  - D. <u>High-Strength Bolted Construction</u>: Install high-strength threaded fasteners in accordance with AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" (RCRBSJ).
  - E. <u>Welded Construction</u>: Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.
  - F. Assemble and weld build-up sections by methods which will produce true alignment of axes without warp.

- G. <u>Holes for Other Work:</u> Provide holes required for securing other work to structural steel framing, and for passage of other work through steel framing members, as shown on final Shop Drawings.
- H. Cut, drill or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

# 2.5 SHOP PAINTING

- A. <u>General:</u> Shop paint structural steel, except those members of portions of members to be embedded in concrete or mortar. Paint embedded steel which is partially exposed on exposed portions and initial 2" of embedded areas only. Refer to Painting Specification in Division 09900 for coating system for steel within natatorium.
- B. All exterior (exposed to weather) steel shall be galvanized per ASTM A123.
- C. Do not paint surfaces which are to be welded or high-strength bolted with slip critical connections.
- D. All lintels shall be painted if not required to be galvanized.
- E. Do not paint surfaces which are scheduled to receive sprayed-on fireproofing.
- F. Apply 2 coats of paint to surfaces which are inaccessible after assembly or erection. Change color of second coat to distinguish it from first. These 2 coats shall include all structural steel work trusses, struts, bracing, beams, etc.
- G. <u>Painting</u>: Provide a one coat shop applied paint system complying with Steel structures Painting Council (SSPS) Paint system Guide No. 7.00 (non-lead).
- H. \*Priming and painting of steel/joist deck at swimming pool (natatorium) and at the underside/support of natatorium bleachers see High Performance Coatings Section 09960.

## PART 3 - EXECUTION

# 3.1 <u>ERECTION</u>

- A. <u>Surveys:</u> Check elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices before erection work proceeds, and report discrepancies to the Architect. Do not proceed with erection until corrections have been made or until compensating adjustments to structural steel work have been agreed upon with the Architect. (See "Surveys" in Part 1 of this Section).
- B. <u>Temporary Shoring and Bracing:</u> Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made.
- C. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.
- D. <u>Temporary Planking</u>: Provide temporary planking and working platforms as necessary to effectively complete work.

E. <u>Setting Bases and Bearing Plates:</u> Clean concrete and masonry bearing surfaces of bondreducing materials and roughen to improve bond to surface. Clean bottom surface of base and bearing plates.

Set loose and attached base plates and bearing plates for structural members on wedges or other adjusting devices.

- F. <u>Tighten anchor bolts</u> after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
- G. <u>Pack grout</u> solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
- H. <u>For proprietary grout materials</u>, comply with manufacturer's instructions.
- I. <u>Field Assembly:</u> Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming part of complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

Level and plumb individual members of structure within specified AISC tolerances.

Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.

Splice members only where indicated and accepted on Shop Drawings.

- J. <u>Erection Bolts:</u> On exposed welded construction, remove erection bolts, fill holes with plug welds and grind smooth at exposed surfaces.
- K. <u>Comply with AISC Specifications</u> for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

Do not enlarge unfair holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.

- L. <u>Gas Cutting:</u> Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members which are not under stress, as acceptable to Architect. Finish gas-cut sections equal to a sheared appearance when permitted.
- M. <u>Touch-Up Painting</u>: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas with same material as used for shop painting.

Apply by brush or spray to provide minimum dry film thickness of 1.5 mils.

# 3.2 QUALITY CONTROL:

A. Owner shall:

Engage an independent testing and inspection agency to inspect all bolted connections and welded connections and to perform tests and prepare test reports.

Testing agency shall conduct and interpret tests and state in each report whether test specimens comply with requirements, and specifically state any deviations there from.

Provide access for testing agency to places where structural steel work is being fabricated or produced so that required inspection and testing can be accomplished.

Testing agency may inspect structural steel at plant before shipment; however, Architect reserves the right, at any time before final acceptance, to reject material not complying with specified requirements.

- B. <u>Correct deficiencies</u> in structural steel work which inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as may be necessary to reconfirm any non-compliance of original work, and as may be necessary to show compliance of corrected work.
- C. <u>Shop Bolted Connections:</u> Inspect or test in accordance with AISC Specifications.
- D. <u>Shop Welding</u>: Inspect and test during fabrication of structural steel assemblies, as follows:
- E. <u>Certify welders</u> and conduct inspections and tests as required. Record types and locations of defects found in work. record work required and performed to correct deficiencies.
- F. <u>Perform visual inspection</u> of all welds.
- G. <u>Perform ultrasonic inspection</u> in accordance with ASTM E 164 for all full and partial penetration welds.
- H. Field Bolted Connections: Inspect in accordance with AISC Specifications.
- I. <u>Field Welding</u>: Inspect and test during erection of structural steel as follows:
- J. <u>Certify welders</u> and conduct inspections and tests as required. Record types and locations of defects found in work. record work required and performed to correct deficiencies.
- K. <u>Perform visual inspection</u> of all welds.
- L. <u>Perform ultrasonic inspection</u> in accordance with ASTM E 164 for all full and partial penetration welds.

END OF SECTION 05 1000

## SECTION 05 5000 - METAL FABRICATIONS

# PART I - GENERAL

# 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section
- 1.2 DESCRIPTION OF WORK
  - A. <u>DEFINITION</u>: Metal fabrications include items made from iron and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems specified elsewhere.
  - B. <u>Extent</u> of metal fabrications is indicated on the Drawings and Schedules, and includes but is not limited to:

Rough Hardware

Loose bearing and leveling plates

Loose steel lintels

Miscellaneous framing and supports

Miscellaneous steel trim

Steel Pipe Railings, Hardrails, etc.

Structural steel is specified in another Section within Division 5.

#### 1.3 SYSTEM PERFORMANCES

A. <u>Structural Performances:</u> Provide assemblies which, when installed comply with the minimum requirements for Structural performance, unless otherwise indicated.

## 1.4 QUALITY ASSURANCE

A. <u>Shop Assembly:</u> Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

## 1.5 SUBMITTALS

- A. <u>Product Data:</u> Submit manufacturers specifications, anchor details and installation instructions for products used in miscellaneous metal fabrications, including paint products and grout.
- B. <u>Shop Drawings:</u> Submit Shop Drawings for fabrication and erection of miscellaneous metal fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.

- C. <u>Samples:</u> Submit 2 sets of representative samples of materials and finished products as may be requested by the Architect.
- PART 2 PRODUCTS
- 2.1 MATERIALS
  - A. Ferrous Metals:
    - 1. <u>Metal Surfaces, General:</u> For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
    - 2. <u>Steel Plates, Shapes and Bars:</u> ASTM A-36.
    - 3. <u>Steel Bar Grating:</u> ASTM A 569 or ASTM A 36.
    - 4. <u>Steel Tubing:</u> Cold-formed, ASTM A 500; or hot rolled, ASTM A 501
    - 5. <u>Structural Steel Sheet:</u> Hot-rolled, ASTM A 570; or cold-rolled ASTM A 611, Class 1; of grade required for design loading.
    - 6. <u>Galvanized Structural Steel Sheet:</u> ASTM A 446, of grade required for design loading. Coating designation as indicated, or if not indicated, G90.
    - 7. <u>Steel Pipe:</u> ASTM A 53; Type and grade (if applicable) as selected by fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (schedule 40), unless otherwise indicated.
    - 8. Gray Iron castings: ASTM A 48, Class 30.
    - 9. <u>Malleable Iron Castings:</u> ASTM A 47, grade as selected by fabricator.
    - 10. <u>Brackets, Flanges and Anchors:</u> Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
    - 11. <u>Concrete Inserts:</u> Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A 153.
    - 12. <u>Copper Box Time Capsule</u>: Provide copper box with lid, 22" w x 15" h x 3 ½" deep (nominal dimensions), 21 ga., 24 oz. Seal all joints, seal lid after capsule is filled. See drawings for details.
  - B. Grout:
    - 1. <u>Non-Shrink Non-Metallic Grout:</u> Pre-mixed, factory packaged, non-staining, noncorrosive, non-gaseous grout complying with CE CRD-C621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this Section.
  - C. Fasteners:

- 1. <u>General:</u> Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
- 2. <u>Bolts, And Nuts:</u> Regular hexagon head type, ASTM A-307,.
- 3. Lag Bolts: Square head type, FS-FF-B-561
- 4. Machine Screws: Cadmium plated steel, FS FF-S-92
- 5. <u>Wood Screws:</u> Flat head carbon steel, FS FF-S-111
- 6. Plain Washers: Round, carbon steel, FS FF-W-92
- 7. Masonry Anchorage Devises: Expansion shields, FS FF-S-325
- 8. <u>Toggle Bolts:</u> Tumble-wing type, FS FF-B-588, Type, Class and Style as required.
- 9. Lock Washers: Helical spring type carbon steel, FS- FF-W-84.

# 2.2 PAINT

- A. <u>Shop Primer for Ferrous Metal:</u> Manufacturer's or Fabricator's standard, fast-curing, lead-free, "universal" primer; selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure; complying with performance requirements of FS -TT-P-645.
- B. <u>Galvanizing Repair Paint:</u> High zinc dust content paint for regalvanizing welds in galvanized steel, complying with the Military Specifications MIL-P-21035 (Ships) or SSPC-Paint-20.
- C. <u>Concrete Fill:</u> Where required.

## 2.3 FABRICATION, GENERAL

- A. <u>Workmanship</u>: Use materials of size and thickness indicated, or if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions indicated or accepted on Shop Drawings, using proven details of fabrication and support. Use type of materials indicate or specified for various components of work.
- B. <u>Form exposed work</u> true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise indicated. form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- C. <u>Weld corners and seams</u> continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.
- D. <u>Form exposed connections</u> with hairline joints, flush and smooth, using concealed fasteners wherever possible, Use exposed fasteners of type indicated or, if not indicated, Phillips flathead (countersunk) screws or bolts.
- E. <u>Provide for anchorage</u> of type indicated, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

- F. <u>Cut, reinforce, drill and tap</u> miscellaneous metal work as indicated to receive finish hardware and similar items.
- G. <u>Galvanizing</u>: Provide a zinc coating for those items indicated or specified to be galvanized, as follows:

ASTM A 153 for galvanizing iron and steel hardware.

<u>ASTM A 123</u> for galvanized rolled, pressed and forged steel shapes, plates, bars and strip 1/8" thick and heavier.

<u>ASTM A 386</u> for galvanizing assembled steel products.

<u>Fabricate joints</u> which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

Provide galvanizing for all exterior steel.

#### 2.4 SHOP PAINTING

- A. <u>Apply shop primer</u> to surfaces of metal fabrications except those which are galvanized or as indicated to be embedded in concrete or masonry, unless otherwise indicated, and in compliance with requirements of SSPC-PA1 "Paint Application Specification No. 1" for shop painting.
- B. <u>Surface Preparation:</u> Prepare ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
- C. Exteriors (SSPC Zone 1B): SSPC-SP6 "Commercial Blast Cleaning"
- D. Interiors (SSPC Zone 1A): SSPC-SPC3 "Power Tool Cleaning.

## 2.5 ROUGH HARDWARE

- A. <u>Furnish bent</u> or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items as specified in Division 6 Sections.
- B. <u>Fabricate items</u> to sizes, shapes and dimensions required. Furnish malleable-iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.
- 2.6 LOOSE BEARING AND LEVELING PLATES
  - A. <u>Provide loose bearing and leveling plates</u> for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.
- 2.7 LOOSE STEEL LINTELS

- A. <u>Provide loose bearing and leveling lintels</u> for openings and recesses in masonry walls and partitions as shown. Weld adjoining members together to form a single unit where indicted. Provide not less than 8" bearing at each side of openings, unless otherwise indicated.
- B. <u>Galvanize</u> loose steel lintels to be installed in exterior walls.
- 2.8 MISCELLANEOUS FRAMING AND SUPPORTS & ELEVATOR PIT LADDER (See Drawings for details)
  - A. <u>Provide miscellaneous steel framing</u> and supports which are not a part of structural steel framework, as required to complete work.
  - B. <u>Fabricate miscellaneous units</u> to sizes, shapes and profiles indicated or, if not indicated, of required dimensions to receive adjacent other work to be retained by framing. Except as otherwise indicated, fabricated from structural steel shapes, plates and steel bars of welded construction using mitered joints for field connection. Cut, drill and tap units to receive hardware and similar items.
  - C. <u>Equip</u> units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.
  - D. Except as otherwise indicated, space anchors 24" o.c. and provide minimum anchor units of 1 1/4" X 1 1/4" X 8' steel straps.
  - E. <u>Galvanize</u> miscellaneous steel trim where indicated.
- 2.9 MISCELLANEOUS STEEL TRIM
  - A. <u>Provide shapes and sizes</u> indicated for profiles shown. Unless otherwise indicated, fabricate units from structural steel shapes, plates and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other work.
  - B. <u>Galvanize</u> miscellaneous steel trim where indicated.
- 2.10 STEEL PIPE RAILINGS AND HANDRAILS
  - A. <u>Fabricate steel pipe railings and handrails</u> to design, dimensions, and details indicated. Provide railings and handrails members formed of pipe of sizes and wall thickness indicated, but not less than that required to support design loading.
  - B. <u>Interconnect railing</u> and handrail members by butt-welding or welding with internal connectors, at fabricator's option, unless otherwise indicated.
  - C. <u>At tee and cross intersections</u> provide coped joints.
  - D. <u>At bends</u> interconnect pipe by means of prefabricated elbow fittings or flush radius bends, as applicable, of radiuses indicated.
  - E. <u>At elbow bends</u> provide mitered joints.
  - F. <u>Form bends</u> by use of prefabricated elbow fittings and radius bends or by bending pipe, at fabricators option.

- G. <u>Form simple and compound curves</u> by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross-section of pipe throughout entire bend without buckling, twisting or otherwise deforming exposed surfaces of pipe.
- H. <u>Provide wall returns</u> at ends of wall mounted handrails, except where otherwise indicated.
- I. <u>Close exposed ends</u> of pipe by welding 3/16" thick steel plate in place or by use of prefabricated fittings.
- J. <u>Toe Boards:</u> Where required, provide toeboards at railings around openings and at the edge of open-sided floors and platforms. Fabricate to dimensions and details indicated, or if not indicated use a 6" high X 1/8" plate welded to, and centered between, each railing post.
- K. <u>Brackets, Flanges, Fittings and Anchors:</u> Provide wall brackets, end closures, flanges, miscellaneous fittings and anchors for interconnections of pipe and attachment of railings and handrails to other work. Furnish inserts and other anchorage devices for connecting railings and handrails to concrete masonry work.
- L. <u>For railing posts set in concrete</u> provide sleeves of galvanized steel pipe not less than 6" long and with an inside diameter not less than 1/2" greater than the outside diameter of pipe. Provide steel plate closure welded to bottom of sleeve and of width and length not less than 1" greater than outside diameter of sleeve.

Provide friction fit, removable covers designed to keep sleeves clean and hold top edge of sleeve 1/2" below finished surface of concrete.

M. <u>Pipe Bollards:</u> Anchor 6" O.D. galvanized steel Pipe bollards in concrete with pipe sleeves and anchored into the concrete. After bollards have been inserted into sleeves, fill annular space between bollard and sleeve solidly with nonshrink, nonmetallic grout mixed and placed to comply with grout manufacturer directions. Fill bollards solidly with concrete, mounding tip surface and paint with color as selected by Architect.

## PART 3 - EXECUTION

## 3.1 PREPARATION

- A. <u>Field Measurements:</u> Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.
- B. <u>Coordinate and furnish</u> anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

# 3.2 INSTALLATION

- A. <u>General:</u>
  - 1. <u>Fastening to In-Place Construction</u>: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, throughbolts, lag bolts, wood screws and other connectors as required.

- 2. <u>Cutting, Fitting and Placement:</u> Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, level, true and free of rack, measured from through-bolts, lag bolts, wood screws and other connectors as required.
- 3. <u>Fit exposed connections</u> accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.
- 4. <u>Field Welding</u>: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.
- 5. <u>Setting Loose Plates:</u> Clean concrete and masonry bearing surfaces of any bondreducing materials, and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.
- 6. <u>Set Loose leveling and bearing plates</u> on wedges, or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut-off flush with the edge of the bearing plate before packing with grout. Use metallic non-shrink grout in concealed locations where not exposed to moisture; use nonmetallic, non shrink grout in exposed locations, unless otherwise indicated.

Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

- Secure handrails to walls with wall brackets and end fittings. Provide bracket with not less than 1 1/2" clearance from inside face of handrail and finished wall surface. Locate brackets as indicated, or if not indicated, at spacing required for design loading. Secure wall brackets and wall return fittings to building construction as follows:
- 8. <u>For stud partitions</u> use lag bolts set into wood backing between studs. coordinate with stud installations for accurate location of backing members.

# 3.3 ADJUST AND CLEAN

- A. <u>Touch-up Painting</u>: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting.
- B. <u>For galvanized surfaces:</u> Clean filed welds, bolted connections and abraded areas and apply galvanizing repair paint to comply with ASTM A 780.

END OF SECTION 05 5000

# 061000 - ROUGH CARPENTRY

# PART 1 – GENERAL

# 1.1 STIPULATIONS

A. The Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.

# 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Wood furring, grounds, nailers, and blocking.
  - 2. Plywood backing panels
  - 3. Rough hardware and anchors
  - 4. Miscellaneous Framing

# 1.3 DEFINITIONS

A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise specified.

## 1.4 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
  - 1. Wood preservative lumber, plywood backing.
- B. Wood treatment data as follows, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials:
  - 1. For each type of preservative-treated wood product, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
  - 2. For waterborne-treated products, include statement that moisture content of treated materials was reduced to levels indicated before shipment to Project site.
  - 3. For fire-retardant-treated wood products, include certification by treating plant that treated materials comply with specified standard and other requirements as well as data relative to bending strength, stiffness, and fastener-holding capacities of treated materials.
- C. Material test reports from a qualified independent testing agency indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with requirements indicated.
- D. Warranty of chemical treatment manufacturer for each type of treatment.
- 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.
  - 1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

# PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Wood-Preservative-Treated Materials:
    - a. Chemical Specialties, Inc. Pressure treated "Preserve"
    - b. Hoover Treated Wood Products, Inc. Pyroguard
    - c. Osmose Wood Preserving, Inc. "Nature Wood"
  - 2. Fire-Retardant-Treated Materials, Interior Type A:
    - a. Chemical Specialties, Inc. D-Blaze
    - b. Hickson Corp. Fire X
    - c. Osmose Wood Preserving Inc; ProFire
  - 3. Metal Framing Anchors (as required for framing systems):
    - a. Cleveland Steel Specialty Co.
    - b. Harlen Metal Products, Inc.
    - c. Silver Metal Products, Inc.
    - d. Simpson Strong-Tie Company, Inc.
    - e. Southeastern Metals Manufacturing Co., Inc.

## 2.2 LUMBER, GENERAL

- A. Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.
- B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:
  - 1. NELMA Northeastern Lumber Manufacturers Association.
  - 2. NLGA National Lumber Grades Authority (Canadian).
- C. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
  - 1. For exposed lumber, furnish pieces with grade stamps applied to ends or back of each piece, or omit grade stamps and provide grade-compliance certificates issued by inspection agency.
- D. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

- 1. Provide dressed lumber, S4S, unless otherwise indicated.
- 2. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

# 2.3 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWPA C2 (lumber) and AWPA C9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.
  - 1. Do not use chemicals containing chromium or arsenic.
- B. Pressure treat aboveground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft.. After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent, respectively. Treat indicated items and the following:
  - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
  - 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
  - 3. Wood framing members less than 18 inches above grade.
- C. Complete fabrication of treated items before treatment, where possible. If cut after treatment, apply field treatment complying with AWPA M4 to cut surfaces. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

# 2.4 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated wood is indicated, comply with applicable requirements of AWPA C20 (lumber) and AWPA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL; U.S. Testing; Timber Products Inspection, Inc.; or another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Research or Evaluation Reports: Provide fire-retardant-treated wood acceptable to authorities having jurisdiction and for which a current model code research or evaluation report exists that evidences compliance of fire-retardant-treated wood for application indicated.
- B. Interior Type A: For interior locations, use chemical formulation that produces treated lumber and plywood with the following properties under conditions present after installation:
  - 1. Bending strength, stiffness, and fastener-holding capacities are not reduced below values published by manufacturer of chemical formulation under elevated temperature and humidity conditions simulating installed conditions when tested by a qualified independent testing agency.
  - 2. No form of degradation occurs due to acid hydrolysis or other causes related to treatment.
  - 3. Contact with treated wood does not promote corrosion of metal fasteners.

- C. Inspect each piece of treated lumber or plywood after drying and discard damaged or defective pieces.
- 2.5 DIMENSION LUMBER
  - A. General: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.

# 2.6 BOARDS

- A. Concealed Boards: Where boards will be concealed by other work, provide lumber with 19 percent maximum moisture content and of following species and grade:
  - 1. Species and Grade: Eastern softwoods, No. 3 Common per NELMA rules.
  - 2. Species and Grade: Northern species, No. 3 Common or Standard per NLGA rules.
  - 3. Species and Grade: Any species above.

# 2.7 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Moisture Content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.
- D. Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA of any species.
- E. Roof Sheathing: APA-rated sheathing.

## 2.8 STRUCTURAL-USE PANELS FOR BACKING

A. Plywood Backing Panels: For mounting electrical or telephone equipment, provide fireretardant-treated plywood panels with grade, C-D Plugged Exposure 1, not less than 15/32 inch thick.

# 2.9 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
  - 1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.
- B. Nails, Wire, Brads, and Staples:

- C. Power-Driven Fasteners: CABO NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

## 2.11 METAL FRAMING ANCHORS

- 1. General: Provide galvanized steel framing anchors of structural capacity, type, and size required for application.
- 2. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653, G60 coating designation; structural, commercial, or lock-forming quality, as standard with manufacturer for type of anchor indicated.

#### 2.12 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Closed-cell foam insulation, fabricated in strip form, for use as a sill sealer; 1/4-inch nominal thickness, compressible to 1/32 inch; selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturers.
- C. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3iodo-2-propynyl butyl carbonate (IPBC) as its active ingredient.

## PART 3 - EXECUTION

- 3.1 INSTALLATION, GENERAL
  - A. Discard units of material with defects that impair quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
  - B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
  - C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
  - D. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.
  - E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

- 1. CABO NER-272 for power-driven staples, P-nails, and allied fasteners.
- 2. Published requirements of metal framing anchor manufacturer.
- 3. "Recommended Nailing Schedule" of referenced framing standard and with AFPA's "National Design Specifications for Wood Construction."
- 4. "Table 2305.2-Fastening Schedule" of the BOCA National Building Code.
- F. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.
- G. Use hot-dip galvanized or stainless-steel nails where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.
- H. Countersink nail heads on exposed carpentry work and fill holes with wood filler.
- 3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS
  - A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attaching other work. Form to shapes shown and cut as required for true line and level of attached work. Coordinate locations with other work involved.
  - B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

# END OF SECTION 061000

# 062000 - FINISH CARPENTRY - LABOR & MATERIALS

## PART 1 - GENERAL

## 1.1 STIPULATIONS

- A. The Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.
- 1.2 DESCRIPTION:
  - A. All applicable requirements of general conditions apply to work of this Section.
- 1.3 SCOPE OF WORK
  - A. Under this Section of the Specifications the Contractor shall furnish all labor required to complete all finish carpentry shown on the Drawings and specified herein.
  - B. Include all required fasteners.
- 1.4 WORK NOT INCLUDED
  - A. Rough Framing Material & Labor
- 1.5 QUALITY ASSURANCE (LABOR AND PERFORMANCE)
  - A. Standards:
    - 1. The "Quality Standards" of the Architectural Woodwork Institute shall apply and by reference and hereby made a part of this Specification. Any reference to Premium, Custom or Economy in this Specification shall be defined in the latest edition of the AWI "Quality Standards".
    - 2. Any item not given a specific quality shall be Custom grade as defined in the latest edition of the AWI "Quality Standards".

## PART 2 - PRODUCTS

- 2.1 STANDARDS
  - A. Comply with applicable requirements of the following "Architectural Woodwork Quality Standards" AWI.
- 2.2 DESCRIPTION OF WORK
  - A. Extent of each type of architectural woodwork is shown on drawings. In general, work consists of 'Fypon' polyurethane moulded trime/wall cap at screen walls.
  - B. Material shall be fabricated delivery and unloaded to appropriate area with the structure.
  - C. Shop Drawings: Submit shop drawings for each item of architectural woodwork.

D. Samples: Submit finished samples of each wood species and cut indicated for transparent finishes and opaque finishes, along with plastic laminate color chips.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install finish carpentry work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Scribe and cut finish carpentry items to fit adjoining work. Anchor finish carpentry work securely to supports and substrates, using concealed fasteners and blind nailing where possible. Use fine finishing nails for exposed nailing except as indicated, countersunk and filled flush with finished surface.
- B. Standard and Running Trim: Install with minimum number of joints possible, using full length pieces from maximum length of lumber available. Cope at returns, miter at corners to produce tight fitting joints. Use scarf joints for end-to-end joints.
- C. The installation of finished carpentry shall be in accordance with the standard referred to above, in the locations shown on the drawings and specified herein, using the best methods of craftsmanship to produce a first class installation in every respect.
- D. All items shall be firmly attached to walls, floors, etc.
- E. Set items to levels indicated on the drawings, plumb and square in every respect, with no open joints between woodwork and adjacent materials.
- F. Repair or replace all items damaged during construction and leave woodwork ready to receive final finishing.
- G. Set all door frames as approved on shop drawings.
- H. Check the plumbness and square of all frames during construction.
- I. Doors shall have 1/8" clearance at jamb and head and 3/16" clearance over thresholds. Doors to be undercut to have clearance above floor finishes.
- J. Doors shall be hung and trimmed with hardware furnished under Section 08710. Locks with standardized cases shall all be installed at the same height.
- K. Installation of Architectural Hardware: Install all hardware that is specified in hardware section and called for in the schedule in accordance with manufacturers instructions.

END OF SECTION 062000

### 072100 - INSULATION

#### PART 1 - GENERAL

#### **RELATED DOCUMENTS:**

Drawings and general provisions of contract, including General and Supplementary Conditions and Division-1 specification sections, apply to work of this section.

#### **DESCRIPTION OF WORK:**

Extent of insulation work is shown on drawings and indicated by provisions of this section.

Applications of insulation specified in this section include the following:

Acoustical insulation Permiter insulation (foundation) See Masonry and Roofing for other insulation

#### **QUALITY ASSURANCE:**

<u>Thermal Resistivity</u>: Where thermal resistivity properties of insulation materials are designed by R-values they represent the rate of heat flow through a homogeneous material exactly 1" thick, measured by test method included in reference material standard or otherwise indicated. They are expressed by the temperature difference in degrees F between the two exposed faced required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

<u>Fire Performance Characteristics</u>: Provide insulation materials, which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per method indicated below, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

Surface Burning Characteristics: ASTM E 84.

Fire Resistance Ratings: ASTM E 119.

#### SUBMITTALS:

<u>Product Data:</u> Submit manufacturers product literature and installation instructions for each type of insulation and vapor retarder material required.

<u>Certified Test Reports:</u> With product data, submit copies of certified test reports showing compliance with specified performance values, including R-values.

# DELIVERY, STORAGE AND HANDLING:

<u>General Protection</u>: Protect insulations from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturers recommendations for handling, storage and protection during installation.

#### Protection for Plastic Insulation:

Do not expose to sunlight, except to extent necessary for period of installation and concealment.

Protect against ignition at all times. Do not deliver plastic insulating materials to project site ahead of installation time. Complete installation and concealment of plastic materials as rapidly as possible in each area of work.

### PART 2 - PRODUCTS

#### ACCEPTABLE MANUFACTURERS:

Manufacturers: Subject to compliance with requirements, provide products of one of the following:

International Cellulose Com Dow Chemical USA Minnesota Diversified Products, Inc. UC Industries or Approved Equal (as selected by Architect)

Manufacturers of Glass Fiber Insulation:

CertainTeed Corp. Knauf Fiber Glass GmbH Manville Corp. Owens-Corning Fiberglass Corp.

#### **INSULATING MATERIALS:**

<u>General:</u> Provide insulating materials, which comply with requirements indicated for materials, compliance with referenced standards, and other characteristics.

<u>Preformed Units:</u> Sizes to fit applications indicated, selected from manufacturers standard thickness, widths and lengths.

<u>Extruded Polystyrene Board Insulation:</u> Rigid, cellular thermal insulation with closed cells and integral high density skin, formed by the expansion of polystyrene resin in an extrusion process to comply with ASTM C 578 for Type indicated; with 5 year aged R-values of 5.4 and 5 at 40 and 75 deg. F (4.4 and 23.9 Deg. C), respectively; and as follows:

Type IV, 1.6 lb./cu. ft. min, density, unless otherwise indicated.Use as perimeter insulation

<u>Surface Burning Characteristics:</u> Maximum flame spread and smoke developed values of 5 and 165, respectively.

<u>Fiber Safing Insulation</u>: Semi designed for use as a fire stop, produced by combining semi refractory mineral fiber manufactured from slag with thermosetting resin binders to comply with ASTM C 612, Class 1 and 2, nominal density of 4.0 lbs. per cu. ft.; passing ASTM E 136 for combustion characteristics; R-value of 4.0 at 75 deg. F (23.0 deg. C).

<u>Kraft Faced Fiberglass Blanket/Batt Insulation</u>: Thermal insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type III, Class A blankets with reflective vapor retarder membrane facing with flame spread of 25 or less); foil scrim kraft vapor retarder membrane on one face, respectively. Supply and install a min of R13 unless noted otherwise and as follows:

<u>Mineral Fiber Type:</u> Fibers manufactured from glass . Full thickness of wall unless noted otherwise. Use where required to maintain fire rating or required for fire test assemblies.

<u>Surface Burning Characteristics:</u> Maximum flame spread and smoke developed values of 25 and 50, respectively.

Noise Barrier Insulation: Batt insulation as manufactured by Rockwool "Safe'n'Sound

#### AUXILIARY INSULATING MATERIALS:

<u>Adhesive for Bonding Insulation:</u> Type recommended by insulation manufacturer, and complying with requirements for fire performance characteristics.

<u>Mechanical Anchors</u>: Type and size indicated or, if not indicated as recommended by insulation manufacturer for type of application and condition of substrate.

#### PART 3 - EXECUTION

#### **INSPECTION AND PREPARATION:**

<u>Require Installer</u> to examine substrates and conditions under which insulation work is to be performed. A satisfactory substrate is one that complies with requirements of the section in which substrate and related work is specified. Obtain Installer's written report listing conditions detrimental to performance of work in this section. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected. Co-ordinate with other trades before installing any insulation.

<u>Clean substrates</u> of substances harmful to insulations or vapor retarders, including removal of projections, which might puncture vapor retarders.

#### **INSTALLATION, GENERAL:**

<u>Comply with manufacturers instructions</u> for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturers technical representative for specific recommendations before proceeding with work.

<u>Extend insulation full thickness</u> as shown over entire area to be insulated. Fit tightly around obstructions, and fill voids with insulation. Remove projections, which interfere with placement.

<u>Apply a single layer</u> of insulation of required thickness, unless otherwise shown or required to make up total thickness.

#### **INSTALLATION OF PERIMETER INSULATION:**

<u>On vertical surfaces</u>, set units in adhesive applied in accordance with manufacturers instructions. Use type of adhesive recommended by manufacturer of insulation.

#### **INSTALLATION OF GENERAL BUILDING INSULATION:**

<u>Apply insulation units</u> to substrate by methods complying with manufacturers recommendations. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

#### PROTECTION:
<u>General:</u> Protect installed insulation from harmful weather exposures and from physical abuses, where possible by nondelayed installation of concealing work or, by temporary covering or enclosure.

END OF SECTION

# 075323 - EPDM ADHERED ROOFING SYSTEM

# PART 1 GENERAL

# 1.1 SUMMARY

- A. Furnish and install elastomeric sheet roofing system, including:
  - 1. Roofing manufacturer's requirements for the specified warranty.
  - 2. Preparation of roofing substrates including complete demolition of existing roofing system down to wood deck.
  - 3. Wood nailers for roofing attachment.
  - 4. Insulation.
  - 5. Elastomeric EPDM membrane roofing.
  - 6. Install new fascia.
  - 7. Flashings.
  - 8. Other roofing-related items specified or indicated on the drawings or otherwise necessary to provide a complete weatherproof roofing system.
- B. Disposal of demolition debris and construction waste is the responsibility of Contractor. Perform disposal in manner complying with all applicable federal, state, and local regulations.
- C. Comply with the published recommendations and instructions of the roofing membrane manufacturer, at <u>holcimelevate.com</u>
- D. Contractor shall accommodate inspections by the Roofing Consultant.

# 1.2 REFERENCES

- A. Referenced Standards: These standards form part of this specification only to the extent they are referenced as specification requirements.
  - 1. ASTM C 1177/C 1177M Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2006.
  - 2. ASTM C 1289 Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2013.
  - 3. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.
  - 4. ASTM D 4637 Standard Specification for EPDM Sheet used in Single-Ply Roof Membrane; 2004.
  - 5. ASTM D 4811 Standard Specification for Nonvulcanized (Uncured) Rubber Sheet Used as Roof Flashing; 2004.
  - 6. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials; 2013a.
  - 7. ASTM E 136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.
  - 8. FM 1-28 Design Wind Loads; Factory Mutual System; 2007.

- 9. FM 1-29 Roof Deck Securement and Above Deck Roof Components; Factory Mutual System; 2006.
- 10. FM 4470 Approval Standard Class I Roof Covers; current version.
- 11. PS 1 Construction and Industrial Plywood; 2009.
- 12. PS 20 American Softwood Lumber Standard; 2010.
- 13. SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems; 2007. (ANSI/SPRI ES-1).

# 1.4 SUBMITTALS

- A. Product Data:
  - Provide membrane manufacturer's printed data sufficient to show that all components of roofing system, including insulation and fasteners, comply with the specified requirements and with the membrane manufacturer's requirements and recommendations for the system type specified; include data for each product used in conjunction with roofing membrane.
  - 2. Where UL or FM requirements are specified, provide documentation that shows that the roofing system to be installed is UL-Classified or FM-approved, as applicable; include data itemizing the components of the classified or approved system.
  - 3. Confirm installation material and methods per specifications and drawings.
- B. Shop Drawings: Provide:
  - 1. The roof membrane manufacturer's standard details customized for this project for all relevant conditions, including flashings, base tie-ins, roof edges, terminations, expansion joints, penetrations, and drains.
- C. Pre-Installation Notice: Copy to show that manufacturer's required Pre Installation Notice (PIN) has been accepted and approved by the manufacturer.
- D. Executed Warranty as a requirement of project close-out.
- E. Specimen Warranty: Submit prior to starting work.

# 1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: Roofing installer shall have the following:
  - 1. Current Master Contractor status.
  - 2. At least five years' experience in installing specified system.
  - 3. Capability to provide payment and performance bond to building owner.
- B. Pre-Installation Conference: Before start of roofing work, Contractor shall hold a meeting to discuss the proper installation of materials and requirements to achieve the warranty.
  - 1. Require attendance with all parties directly influencing the quality of roofing work or affected by the performance of roofing work.
  - 2. Notify Architect and Roofing Inspector well in advance of meeting.

# 1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original containers, dry and undamaged, with seals and labels intact and legible.
- B. Store materials clear of ground and moisture with weather protective covering.

C. Keep combustible materials away from ignition sources.

# **1.7 WARRANTY**

- A. Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.
- B. Warranty: 25 year/73 MPH Red Shield Limited Warranty covering membrane, roof insulation, adhesives, flashings, vapor retarded, and membrane accessories.

Warranty	Membrane Thickness,
Duration	required minimums
25 year	.060 RubberGard SA EPDM

- 1. Limit of Liability: No dollar limitation.
- 2. Scope of Coverage: Repair leaks in the roofing system caused by:
  - a. Ordinary wear and tear of the elements.
  - b. Manufacturing defect in materials.
  - c. Defective workmanship used to install these materials.
  - d. Damage due to winds up to 73 mph.

# PART 2 PRODUCTS

- 2.1 MANUFACTURERS (BASIS OF DESIGN)
  - A. Acceptable Manufacturer Roofing System: Holcim Elevate, Nashville, TN. www.holcimelevate.com
    - 1. Roofing systems manufactured by others may be acceptable provided the roofing system is completely equivalent in materials and warranty conditions and the manufacturer meets the following qualifications:
      - a. Specializing in manufacturing the roofing system to be provided.
      - b. Minimum ten years of experience manufacturing the roofing system to be provided.
      - c. Able to provide a no dollar limit, single source roof system warranty that is backed by corporate assets in excess of one billion dollars.
      - d. ISO 9002 certified.
      - e. Able to provide isocyanurate insulation that is the same or better R Value to specified product.
  - B. Manufacturer of Metal Roof Edging, Insulation, and Coverboard: Same manufacturer as roof membrane.
    - a. Metal roof edging products by other manufacturers are not acceptable.
    - b. Field- or shop-fabricated metal roof edgings are not acceptable.
  - C. Substitution Procedures: See Instructions to Bidders.
    - a. Submit evidence that the proposed substitution complies with the specified requirements.

# 2.2 ACCEPTABLE MANUFACTURERS

- A. Holcim Elevate
- B. Versico
- C. Carlise

# 2.3 ROOFING SYSTEM DESCRIPTION

- A. Roofing System:
  - 1. Membrane: Ethylene propylene diene monomer (EPDM).
  - 2. Thickness: As specified elsewhere.
  - 3. Membrane Attachment: Self adhered.
  - 4. Slope: provide slope of 1/8 inch per foot by means of tapered insulation.
  - 5. Comply with applicable local building code requirements (IBC 2018).
  - 6. Provide assembly having Underwriters Laboratories, Inc. (UL) Class A Fire Hazard Classification.
  - 7. Provide assembly complying with Factory Mutual Corporation (FM) Roof Assembly Classification, FM DS 1-28 and 1-29, and meeting minimum requirements of FM 1-90 wind uplift rating. Also 1-49 edge assembly.
- B. Insulation:
  - 1. Total System R Value: 30 at 4' from roof edge (at gutter)
  - Base Layer: Polyisocyanurate foam board, non-composite.
    a. Attachment: Fully adhered
  - Top Layer: Polyisocyanurate foam board, non-composite.
    a. Attachment: Fully adhered
  - 4. Taper layers as required.

### 2.4 EPDM MEMBRANE MATERIALS

- A. Roofing and Flashing Membrane: Black cured synthetic single-ply membrane composed of ethylene propylene diene monomer (EPDM) with the following properties:
  - 1. Thickness: 0.060 inch (1.5 mm).
  - 2. Nominal Thickness Tolerance: Plus/minus 10 percent.
  - 3. Sheet Width: 10'
  - 4. Acceptable Product: RubberGard Non-Reinforced SA EPDM Membrane with 'Secure Bond' technology by Elevate.
- B. Flashing Membrane: Self-curing, non-reinforced membrane composed of nonvulcanized EPDM rubber, complying with ASTM D 4811 Type II, and with the following properties:
  - 1. Thickness: 0.055 inch (1.4 mm).
  - 2. Color: Same as field membrane
  - 3. Acceptable Product: RubberGard EPDM FormFlash.
- C. Self-Adhesive Flashing Membrane: Semi-cured 45 mil EPDM membrane laminated to 35 mil (0.9 mm) EPDM tape adhesive; QuickSeam Flashing.
- D. Pre-Molded Pipe Flashings: EPDM, molded for quick adaptation to different sized pipes.
- E. Self-Adhesive Lap Splice Tape: 35 mil (0.9 mm) EPDM-based, formulated for compatibility with EPDM membrane and high-solids primer; QuickSeam Splice Tape.

- F. Splice Adhesive: Synthetic polymer-based, formulated for compatibility with EPDM membrane and metal surfaces; SA-1065 Splice Adhesive.
- G. Adhesive Primer: Synthetic rubber-based primer formulated for compatibility with EPDM membrane and tape adhesive, with VOC content less than 2.1 lb/gal (250 g/L); QuickPrime Plus LVOC.
- H. Low Rise Foam Adhesive: Two-component, low-rise polyurethane adhesive designed to attach polyisocyanurate insulation to a variety of acceptable substrates; ISO Stick.
- I. Seam Edge Treatment: EPDM rubber-based sealant, formulated for sealing exposed edges of membrane at seams; Lap Sealant HS.
- J. Pourable Sealer: Two-part polyurethane, two-color for reliable mixing; Pourable Sealer.
- K. Water Block Seal: Butyl rubber sealant for use between two surfaces, not exposed; Water Block Seal.
- L. Metal Plates and Strips Used for Fastening Membrane and Insulation: Steel with Galvalume coating; corrosion-resistance meeting FM 4470 criteria.
  - 1. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches (33 mm) wide by 0.10 inch (2.5 mm) thick; Firestone Termination Bar.

# 2.5 ROOF INSULATION AND COVERBOARD

- A. Polyisocyanurate Board Insulation: Closed cell polyisocyanurate foam with black glass reinforced mat laminated to faces, complying with ASTM C 1289 Type II Class 1, with the following additional characteristics:
  - 1. Thickness: As indicated elsewhere.
  - Size: 48 inches (1220 mm) by 48 inches (1220 mm), nominal.
    a. Insulation to be attached using adhesive.
  - 3. R-Value (LTTR): 1.0 inch (25 mm) Thickness: 5.7, minimum.
  - 4. Compressive Strength: 20 psi (138 kPa) when tested in accordance with ASTM C 1289.
  - 5. Ozone Depletion Potential: Zero; made without CFC or HCFC blowing agents.
  - 6. Recycled Content: 19 percent post-consumer and 15 percent post-industrial, average.
  - 7. Acceptable Product: ISO 95+ polyiso board insulation.
- B. Adhesive for Insulation Attachment: Low rise polyurethane adhesive.

# 2.6 METAL ACCESSORIES

- A. Metal Roof Edging and Fascia: Continuous metal edge member acting as termination of the roofing membrane and retainer for metal fascia; watertight with no exposed fasteners, mounted to the roof edge nailer.
  - 1. Wind Performance:
    - a. Membrane Pull-Off Resistance: 100 lbs/ft (1460 N/m), minimum, when tested in accordance with ANSI/SPRI ES-1 Test Method RE-1, current edition.
    - b. Fascia Pull-Off Resistance: At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-2, current edition.
    - c. Provide product listed in current Factory Mutual Research Corporation Approval Guide with I-49 uplift resistance.
  - 2. Description: Two-piece; 45 degree sloped galvanized steel sheet edge member securing top and bottom edges of formed metal fascia; Firestone EdgeGard.
  - 3. Fascia Face Height: See Drawings

- 4. Edge Member Height Above Nailer: 1-1/4 inches (31 mm).
- 5. Fascia Material and Finish: .050" aluminum with Kynar 500 finish in manufacturer's standard color; matching concealed joint splice plates; factory-installed protective plastic film.
- 6. Length: 120" min.
- 7. Functional Characteristics: Fascia retainer supports while allowing for free thermal cycling of fascia.
- 8. Aluminum Bar: Continuous 6063-T6 alloy aluminum extrusion with pre-punched slotted holes; miters welded; injection molded EPDM splices to allow thermal expansion.
- 9. Anchor Bar Cleat: 20 gauge, 0.036 inch (0.9 mm) G90 coated commercial type galvanized steel with pre-punched holes.
- 10. Curved Applications: Factory modified.
- 11. Fasteners: Factory-provided corrosion resistant fasteners, with drivers; no exposed fasteners permitted.
- 12. Special Shaped Components: Provide factory-fabricated pieces necessary for complete installation, including miters, scuppers, and end caps; minimum 14 inch (355 mm) long legs on corner pieces.
- 13. Scuppers: Welded watertight.
- 14. Accessories: Provide matching brick wall cap, downspout, extenders, and other special fabrications as shown on the drawings.

# 2.8 ACCESSORY MATERIALS

- A. Wood Nailers: PS 20 dimension lumber, Structural Grade No. 2 or better Southern Pine, Douglas Fir; or PS 1, APA Exterior Grade plywood; pressure preservative treated.
  - 1. Width: See Drawings, nominal minimum, or as wide as the nailing flange of the roof accessory to be attached to it.
  - 2. Thickness: See Drawings

# PART 3 INSTALLATION

- 3.1 GENERAL
  - A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system. Where manufacturer provides no instructions or recommendations, follow good roofing practices and industry standards. Comply with federal, state, and local regulations.
  - B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.
  - C. Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project requires a manufacturer's warranty.
  - D. Perform work using competent and properly equipped personnel.
  - E. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.
  - F. Install roofing membrane only when surfaces are clean, dry, smooth and free of snow or ice; do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold

weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F (15 to 25 degrees C).

- G. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.
  - 1. Protect from spills and overspray from bitumen, adhesives, sealants and coatings.
  - 2. Particularly protect metal, glass, plastic, and painted surfaces from bitumen, adhesives, and sealants within the range of wind-borne overspray.
  - 3. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.
- H. Until ready for use, keep materials in their original containers as labeled by the manufacturer.
- I. Consult membrane manufacturer's instructions, container labels, and Material Safety Data Sheets (MSDS) for specific safety instructions. Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition.

### 3.2 EXAMINATION

- A. Examine roof deck to determine that it is sufficiently rigid to support installers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck.
- B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.
- C. Examine roof substrate to verify if it is flat or sloped to the drains to coordinate insulation taper.
- D. Verify that the specifications and drawing details are workable and not in conflict with the roofing manufacturer's recommendations and instructions; start of work constitutes acceptable of project conditions and requirements.

### 3.3 PREPARATION

- A. Take appropriate measures to ensure that fumes from adhesive solvents are not drawn into the building through air intakes.
- B. Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened surfaces, loose or foreign materials, oil, grease and other materials that may damage the membrane.
- C. Fill all surface voids in the immediate substrate that are greater than 1/4 inch (6 mm) wide with fill material acceptable insulation to membrane manufacturer.
- D. Seal, grout, or tape deck joints, where needed, to prevent bitumen seepage into building.

### 3.4 INSULATION INSTALLATION

- A. Install insulation in configuration and with attachment method(s) specified in PART 2, under Roofing System.
- B. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather. C. Lay roof insulation in courses parallel to roof edges.

D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch (6 mm). Fill gaps greater than 1/4 inch (6 mm) with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch (6 mm).

# 3.5 SINGLE-PLY MEMBRANE INSTALLATION

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
- C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.
- D. Install membrane adhered to the substrate, with edge securement as specified.
- E. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches (1:6) using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.
  - 1. Exceptions: Round pipe penetrations less than 18 inches (460 mm) in diameter and square penetrations less than 4 inches (200 mm) square.
  - 2. Metal edging is not merely decorative; ensure anchorage of membrane as intended by roofing manufacturer and compliant with IBC.

# 3.7 FLASHING AND ACCESSORIES INSTALLATION

- A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.
- B. Metal Accessories: Install metal edgings, gravel stops, and copings in locations indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.
  - 1. Follow roofing manufacturer's instructions.
  - 2. Remove protective plastic surface film immediately before installation.
  - 3. Install water block sealant under the membrane anchorage leg.
  - 4. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
  - 5. Where single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
  - 6. If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.
  - 7. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.
- C. Scuppers: Set in sealant and secure to structure; flash as recommended by manufacturer.
- D. Roofing Expansion Joints: Install as shown on drawings and as recommended by roofing manufacturer.
- E. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces

that the roofing membrane abuts to; extend flashing at least 8 inches (200 mm) high above membrane surface.

- 1. Use the longest practical flashing pieces.
- 2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
- 3. Complete the splice between flashing and the main roof sheet with specified splice adhesive before adhering flashing to the vertical surface.
- 4. Provide termination directly to the vertical substrate as shown on roof drawings.
- F. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.
  - 1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical; otherwise use specified self-curing elastomeric flashing.
  - 2. Pipe Clusters and Unusual Shaped Penetrations: Provide penetration pocket at least 4 inches (100 mm) deep, with at least 2 inch (50 mm) clearance from penetration, sloped to shed water.
  - 3. Structural Steel Tubing: If corner radii are greater than 1/4 inch (6 mm) and longest side of tube does not exceed 12 inches (305 mm), flash as for pipes; otherwise, provide a standard curb with flashing.
  - 4. Flexible and Moving Penetrations: Provide weathertight gooseneck set in sealant and secured to deck, flashed as recommended by manufacturer.

# 3.8 FIELD QUALITY CONTROL

- A. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).
- B. Perform all corrections necessary for issuance of warranty.

### 3.9 CLEANING

- A. Clean all contaminants generated by roofing work from building and surrounding areas, including bitumen, adhesives, sealants, and coatings.
- B. Repair or replace building components and finished surfaces damaged or defaced due to the work of this section; comply with recommendations of manufacturers of components and surfaces.
- C. Remove leftover materials, trash, debris, equipment from project site and surrounding areas.

### 3.10 PROTECTION

A. Where construction traffic must continue over finished roof membrane, provide durable protection and replace or repair damaged roofing to original condition.

# END OF SECTION 075323

#### 079200 JOINT SEALANTS

#### PART 1 GENERAL

### 1.1 STIPULATIONS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.
- 1.2 DESCRIPTION
  - A. Furnish all labor, materials, tools, equipment and services to install new caulking where shown in conjunction with new masonry and where indicated on the drawings.
  - B. Work shall be performed in such a manner that a positive barrier against passage of air and a passage of moisture is provided.
- 1.3 QUALITY ASSURANCE
  - A. Installers shall be thoroughly trained and experienced in the necessary skills and shall be thoroughly familiar with the specified requirements.
- 1.4 SUBMITTALS
  - A. Submit Manufacturers Specification Data Sheet.
  - B. Submit Manufacturers Standard Color Chart.
- 1.5 PRODUCT HANDLING
  - A. Deliver all products to the job site in the original unopened containers with the labels intact. Store only under the conditions recommended by the manufacturer. Do not use any materials which have exceeded their shelf life.
  - B. Use all means to protect the materials of this section before, during and after installation and to protect the existing finishes.

#### PART 2 PRODUCTS

- 2.1 SEALANT
  - A. Sealant shall be a three component epoxidized polyurethane sealant conforming to ASTM C-920-86, Type M, Grade NS, Class 25 and US Federal Specification TT-S-00227-E, Class A, Type II and shall be Dymeric 240FC as manufactured by Tremco, Inc. Color of sealant shall be selected by the Architect.
- 2.2 PRIMER
  - A. Primer shall be equal to Tremco Primer #1 to be used on porous substrates and Tremco Primer #6 to be used on metal substrates.
- 2.3 BACK-UP MATERIALS

- A. Joints that are devoid of back-up materials, or joints where back-up materials have been damaged during removal of sealants, or joints containing deleterious or insufficient back-up materials shall be properly prepared and new back-up materials shall be installed.
- B. Joint filler DOW Ethafoam as manufactured by H.B.R. Inc.
- C. Bond Breaker 3M 226, 3M 481, 3M 710 as manufactured by 3M Corporation or as recommended by Tremco.
- D. Back-Up Materials shall be installed in a dimension to allow 20-25% compression, and to the proper depth in accordance with the manufacturers recommendations. Care should be taken to install the backer rod with a blunt instrument to avoid puncturing.

### PART 3 - EXECUTION

# 3.1 INSPECTION

- A. In addition to permitting inspection as required under paragraph 1.05 above, contractor shall examine the areas and conditions under which the work will be performed and will correct conditions detrimental to proper and timely completion of the work.
- B. Should the conditions of the work indicate a required change of materials or methods, the contractor shall notify the Architect prior to proceeding with the work.
- C. Remove any rust or oxidation from all metal surfaces by means of wire brushing or mechanical abrasion.
- D. Remove all dust and foreign materials from the joints.
- E. Inspect all joints to ensure that they are free of dust, foreign matter and are dry. Apply Tremco #200 cleaner per manufacturers recommendations.
- F. Prime joint interfaces with Tremco Primer #1 if substrate is porous, Tremco Primer #6 if it is metal.
- 3.3 INSTALLATION OF BACK-UP MATERIALS
  - A. Install backer rod with blunt instrument to avoid puncturing.
  - B. Backer rod shall be installed at a depth equal to 1/2 the width of the joint but may not be less than 1/4" or more than 1/2" deep. Joints over 1/2" wide shall be kept to a depth of 1/2"-5/8".
- 3.4 APPLICATION OF SEALANT
  - A. Multi component material shall be mixed in accordance with the manufacturers recommendations.
  - B. Apply sealant with a gun with the proper size nozzles. Use sufficient pressure to fill all voids and joints solid to the backer rod material.
  - C. Surface of sealant shall be a full smooth bead, free of ridges, wrinkles, sags, air pockets and embedded impurities.

D. After all joints have been completely filled, they shall be neatly tooled to eliminate air pockets or voids, and to provide a smooth neat finish and intimate contact with the joint surfaces.

# 3.5 CLEANING

- A. Clean adjacent surfaces free of sealant as the work progresses. Use solvents or cleaning agents only as directed by the sealant manufacturer.
- B. Leave the work in a clean condition.

END OF SECTION 079200

# 081113 - HOLLOW METAL FRAMES

### PART 1 - GENERAL

### 1.1 STIPULATIONS

A. The specifications sections "General Conditions of the Construction Contract", "Special Conditions", and "Division 1 - General Requirements" form a part of this Section by this reference thereto and shall have the same force and effect as if printed herewith in full.

### 1.2 SUMMARY

- A. Section Includes:
  - 1. Standard hollow metal frames.
- B. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
  - 1. ANSI/SDI A250.8 Recommended Specifications for Standard Steel Doors and Frames.
  - 2. ANSI/SDI A250.4 Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frames Anchors and Hardware Reinforcing.
  - 3. ANSI/SDI A250.6 Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
  - 4. ANSI/SDI A250.10 Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
  - 5. ANSI/SDI A250.11 Recommended Erection Instructions for Steel Frames.
  - 6. ASTM A1008 Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
  - 7. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - 8. ASTM A924 Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
  - 9. ASTM C 1363 Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
  - 10. ANSI/BHMA A156.15 Hardware Preparation in Steel Doors and Frames.
  - 11. ANSI/SDI 122 Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
  - 12. ANSI/NFPA 80 Standard for Fire Doors and Fire Windows; National Fire Protection Association.
  - 13. ANSI/NFPA 105: Standard for the Installation of Smoke Door Assemblies.
  - 14. NFPA 252 Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
  - 15. UL 10C Positive Pressure Fire Tests of Door Assemblies.
  - 16. UL 1784 Standard for Air Leakage Tests of Door Assemblies.

# 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.
- B. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.
- C. Shop Drawings: Include the following:
  - 1. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
  - 2. Locations of reinforcement and preparations for hardware.
  - 3. Details of anchorages, joints, field splices, and connections.
  - 4. Details of accessories.
- D. Samples for Verification:
  - 1. Samples are only required by request of the Professional and for manufacturers that are not current members of the Steel Door Institute.

# 1.4 QUALITY CONTROL

- A. Source Limitations: Obtain hollow metal doors and frames through one source from a single manufacturer wherever possible.
- B. Quality Standard: In addition to requirements specified, comply with ANSI/SDI A250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".
- 1.5 DELIVERY, STORAGE, AND HANDLING
  - A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.

### 1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.
- 1.7 COORDINATION
  - A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

#### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. CECO Door Products.
  - 2. Curries Company.
  - 3. Steelcraft.
  - 4. Or equal as approved by the Professional.

### 2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.
- C. Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

### 2.3 STANDARD HOLLOW METAL FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
- B. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.
  - 1. Fabricate frames with mitered or coped corners.
  - 2. Fabricate frames with "closed and tight" miter seams continuously welded on face, finished smooth with no visible seam unless otherwise indicated.
  - 3. Frames: Minimum 16 gauge (0.053-inch -1.3-mm) thick steel sheet.
  - 4. Manufacturers Basis of Design:
    - a. Curries Company M Series.
- C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

### 2.4 FRAME ANCHORS

- A. Jamb Anchors:
  - 1. Stud Wall Type: Designed to engauge stud and not less than 0.042 inch thick.
- B. Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches thick.

# 2.5 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.
- C. Hollow Metal Frames:
  - 1. Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  - 2. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
    - a. Welded frames are to be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.
  - 3. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
  - 4. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops, provide security screws at exterior locations.
  - 5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
  - 6. Jamb Anchors: Provide number and spacing of anchors as follows:
    - a. Stud Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
      - 1) Three anchors per jamb up to 60 inches high.
      - 2) Four anchors per jamb from 60 to 90 inches high.
      - 3) Five anchors per jamb from 90 to 96 inches high.
      - 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
      - 5) Two anchors per head for frames above 42 inches wide and mounted in metal stud partitions.
  - 7. Door Silencers: Except on weatherstripped or gasketed doors, drill stops to receive door silencers. Silencers to be supplied by frame manufacturer regardless if specified in Division 08 Section "Door Hardware".

### 2.6 STEEL FINISHES

- A. Prime Finishes: Frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.
  - 1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

### PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. General Contractor to verify the accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness.
- C. Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames."
- D. Drill and tap doors and frames to receive non-template, mortised, and surface-mounted door hardware.

# 3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 and NFPA 80 at fire rated openings.
  - 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete and frames properly set

and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.

# 3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Prime-Coat and Painted Finish Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touchup of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

END OF SECTION 08 1113

# 081400 - WOOD DOORS (FLUSH)

### PART 1 GENERAL

### 1.1 STIPULATIONS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

### 1.2 SUMMARY

- A. Extent and location of each type of flush wood door is indicated on drawings and in schedules.
- B. Types of doors required include the following:
  - 1. Solid core flush wood doors with wood veneer faces.
- C. Metal door frames for flush wood doors are specified in another Division-8 section.

# 1.3 SUBMITTALS

- A. Product Data: Door manufacturers technical data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory finishing specifications.
- B. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for factory finishing and other pertinent data.
- C. Samples: Submit samples, 1-0" square or as indicated, for the following:
  - 1. Doors for Transparent Finish: Door faces with solid wood edging representing typical range of color and grain for each species of veneer and solid lumber required (3" x 1"-0" pcs.).
  - 2. Factory Finished Doors: Each type of factory finished required.

# 1.4 QUALITY ASSURANCE

- A. Quality Standards: Comply with the following standards:
  - 1. NWWDA Quality Standard: I.S.1 Industry Standard for Wood Flush Doors, of National Wood Window and Door Association (NWWDA).
  - AWI Quality Standard: Architectural Woodwork Quality Standards, including Section 1300 Architectural Flush Doors, of Architectural Woodwork Institute (AWI) for grade of door, core construction, finish and other requirements exceeding those of NWWDA quality standard.
  - NWWDA Quality Marking: Mark each wood door with NWWDA Wood Flush Door Certification Hallmark certifying compliance with applicable requirements of NWWDA I.S. 1 Series.
- B. For manufacturers not participating in NWWDA Hallmark Program, a certification of compliance may be substituted for marking of individual doors.

- C. Fire Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies per ASTM E 152 and which are labeled and listed for ratings indicated by UL, Warnock Hersey or other testing and inspection agency acceptable to authorities having jurisdiction.
- D. Oversize Fire Rated Wood Doors: For door assemblies exceeding sizes of tested assemblies, provide manufacturers certificate stating that doors conform to all standard construction requirements of tested and labeled fire door assemblies except as to size.
- E. Manufacturer: Obtain doors from a single manufacturer.

# 1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standards and recommendations of NWWDA pamphlet "How to Store, Handle, Finish, Install and Maintain Wood Doors", as well as with manufacturers instructions.
- B. Identify each door with individual opening numbers which correlate with designation system used on shop drawings for door, frames, and hardware, using temporary, removable or concealed markings. Package doors at factory prior to shipping. Unwrapped door will not be accepted.

# 1.6 PROJECT CONDITIONS

- A. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to projects geographical location:
  - 1. Referenced AWI quality standard including Section 100-S-3 "Moisture Content".

### 1.7 WARRANTY

- A. Door Manufacturers Warranty: Submit written agreement on door manufacturers standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup or twist) or that show telegraphing of core construction in face veneers or do not conform to tolerance limitations of referenced quality standards (NIVMA and AWI). Warranty shall be for a period of 10 years.
- B. Warranty shall also include reinstallation, which may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.
- C. Warranty shall be in effect during following period of time after date of Substantial Completion.
- D. Contractors Responsibilities: Replace or refinish doors where contractor's work contributed to rejection or to voiding of manufacturers warranty.

### PART 2 PRODUCTS

### 2.1 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide Solid Core with Wood Veneer Face doors of one of the following:

- 1. Algoma Hardwoods Inc.
- 2. Cal-Wood Door Div., Timberland Industries, Inc.
- 3. Eggers Industries, Architectural Door Division
- 4. Glen-Mar Door Mfg. Co.
- 5. Mohawk
- 6. Weyerhauser Company
- 7. Graham

# 2.2 INTERIOR FLUSH WOOD DOORS

- A. Solid Core Doors for Transparent Finish: Comply with the following requirements:
  - 1. Faces: Red Oak, plain sliced. Side match veneers for grain and color at meeting stills for doors hung in pairs.
  - 2. AWI Grade: Premium.
  - 3. Construction: solid core particle board construction, thickness of each face .125" (1/8").
- B. Fire Rated Solid Core Doors: Comply with the following requirements:
  - 1. Construction: 20 min. doors shall be particle board construction (same as above)if fire rating can be achieved.
- C. Pairs: Furnish formed steel edges and astragals for pairs for fire rated doors, unless otherwise indicated.
- 2.3 LIGHT FRAMES
  - A. Metal Frames for Light Openings in all Wood Doors (unless noted otherwise on the drawings): Manufacturers standard frame formed of 18 gage cold rolled steel, factory primed. Metal frames shall be approved for use in door of fire rating indicated. Metal frames shall be field finish painted. Color as selected by the Architect.

### 2.4 FABRICATION

- A. Fabricate flush wood doors to produce doors complying with following requirements:
  - 1. Light openings: Factory cut.
  - 2. Cut and trim openings through doors and panels as indicated. Comply applicable requirements of referenced standards for kinds of doors required.
- 2.5 FINISHING Factory finish
  - A. Finish all six (6) sides.
  - B. Prepare for hardware.
- PART 3 EXECUTION
- 3.1 EXAMINATION
  - A. Examine installed door frames prior to hanging door:
    - 1. Verify in writing that frames comply with indicated requirements for type, size, location and swing characteristics and have been installed with plumb jambs and level heads.
    - 2. Reject doors with defects.

3. Do not proceed with installation until unsatisfactory conditions have been corrected.

# 3.2 INSTALLATION

- A. Hardware: For installation see Division 8 "Finish Hardware" section of these specifications.
- B. Manufacturers Instructions: Install wood doors to comply with manufacturers instructions and of referenced AWI standard and as indicated.
- C. Install fire rated doors in corresponding fire rated frames in accordance with requirements of NFPA No. 80.
- D. Job Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below, do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.
- E. Fitting Clearances for Non Rated Doors: Provide 1/8" at jambs and heads, 1/16" per leaf at meeting stiles for pairs of doors, and 1/8" from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4" clearance from bottom of door to top of threshold.
- F. Fitting Clearances for Fire Rated Doors: Comply with NFPA 80.
- G. Bevel non Rated Doors: 1/8" in 2" at lock and hinge edges.
- H. Bevel fire rated doors 1/8" in 2" in lock edge, trim stiles and rails only to extend permitted by labeling agency.
- I. Prefit Doors: Fit to frames for uniform clearance at each edge.
- 3.3 ADJUSTING AND PROTECTION
  - A. Operation: Rehang or replace doors, which do not swing or operate freely.
  - B. Finished Doors: Refinish or replace doors damaged prior to substantial completion & acceptance by the Owner.
  - C. Protect Doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at time of Substantial Completion.

END OF SECTION 081400

# 084113 - ALUMINUM STOREFRONT AND ENTRANCES

### PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.

### 1.2 WORK INCLUDED

- A. Furnish aluminum architectural storefront and entrances complete with related components as shown on drawings and specified in this section.
- B. All aluminum storefront used in exterior walls shall be EFCO 2-1/4" x 4-1/2" System 403-I, thermally improved, flush glazed for 1" glazing. Interior units can be 401 system. Interior vestibule can be glazed with ¼" tempered glass.
- C. All aluminum entrance doors shall be EFCO Series D302 ThermaStile entrances 3 <sup>1</sup>/<sub>2</sub>" stile.
- D. Other manufacturers requesting approval to bid their product as equal must submit the following information ten days prior to the close of bidding to the architect. Manufacturer's specifications, details, samples of the products proposed and certified test reports documenting compliance with the specifications set forth herein must be submitted. Approval of acceptable product will be in form of addendum. <u>Bids received for products not pre-approved will be rejected</u>.
  - 1. <u>Manufacturer's Qualifications: Manufacturers must demonstrate a minimum of 5</u> years' experience in manufacturing storefront and entrance door systems.
- E. Single Source Requirement
  - 1. <u>All aluminum storefront and entrance doors and all products listed in Section 1.02</u> shall be supplied by the same manufacturer to assure the owner of single source responsibility.

### 1.3 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials, and equipment necessary to complete the work of the storefront and entrance installation or replacement, and without limiting the generality thereof include:
  - 1. Provide new thermally improved storefront as specified herein together with necessary mullions, anchors, and all other accessories as required.
  - 2. G.C to prepare new openings and provide all required blocking.
  - 3. Removal from site and legal disposal of all removed materials, debris, packaging, banding, and all other surplus materials and equipment.
  - 4. Provide sill flashing required for secure installation.

- 5. Sealing of all joints within the storefront systems assembly.
- 6. Sealing of entire exterior and interior perimeters of storefront and entrance systems after installation.
- 7. Field observations and measurements of existing openings and conditions.
- 1.4 QUALITY ASSURANCE
  - A. Provide test reports from AAMA certified laboratories certifying performance as herein specified.

# 1.5 SUBMITTALS

- A. General: Provide submittals in compliance with the following:
  - Shop Drawings: Submit shop drawings showing all storefront and entrance openings, unit elevations and full size detail sections of every typical composite member. Show anchors, hardware operators and other components not included in manufacturer's standard data inclusive of glazing details and standards for field and factory glazed units. Also, show locations for fasteners, sealants, blocking, and demolition of existing storefront and entrances that will be required to be furnished and performed by the installer.
  - 2. Samples: Submit samples as follows:
    - a. One sample of each required aluminum finish.
    - b. Additional samples if and as directed by Architect, to show fabrication techniques, workmanship or component parts and design of hardware and other exposed auxiliary items.

# 1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Provide manufacturer's instructions on proper storage and handling of aluminum storefront and entrances, inclusive of mullions, hardware and all appurtenant items.

# 1.7 <u>Project Warranties</u>

- A. Manufacturer's Warranties: Submit written warranties from storefront and entrance manufacturer for the following:
  - 1. Total Storefront System: The responsible contractor shall assume full responsibility and warrant for one year the satisfactory performance of the total storefront and entrance installation. This includes the glass (including insulated units), glazing, anchorage and setting system, sealing, flashing, etc., as it relates to air, water and structural adequacy as called for in the specifications and approved shop drawings.
  - 2. Finish: The pigmented organic finishes on storefront, entrances and component parts (mullions and the like) are certified as complying fully with requirements set forth in

these specifications and fully warranted against cracking, blistering, peeling or otherwise losing adhesion for a period of fifteen (15) years from date of installation.

3. Glass: IG unit is warranted against obstruction in vision due to seal failure for a period of ten (10) years.

# 1.8 TESTING AND PERFORMANCE REQUIREMENTS - ALUMINUM STOREFRONT

- A. Provisions for Thermal Movements
  - Storefront framing systems shall be designed to provide for thermal movement of all component materials resulting from surface temperature ranging from -20 degrees F to 130 degrees F without causing buckling, stresses on glass, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or other detrimental effects. Operating windows and doors shall function normally over this temperature range.
- B. Test Procedures and Performance
  - 1. Air Infiltration Test
    - a. Test unit in accordance with ASTM E 283 at static air pressure difference of 1.56 psf.
    - b. Air infiltration shall not exceed .06 cfm per square foot of fixed wall area.
  - 2. Water Resistance Test
    - a. Test unit in accordance with ASTM E 331.
    - b. There shall be no uncontrolled water leakage at a static test pressure of 6.24 psf.
  - 3. Uniform Load Deflection Test
    - a. Test unit in accordance with ASTM E 330.
    - b. The system shall withstand the following design wind pressure normal to the plane of the wall: 20 psf.
    - c. Deflection under design load shall not exceed I/175 of the clear span or 3/4".
  - 4. Uniform Load Structural Test
    - a. Test unit in accordance with ASTM E 330 at a pressure 1.5 times the design wind pressure in 1.05 B.3.b.
    - b. At the conclusion of the test, there shall be no glass breakage, permanent damage to fasteners, storefront parts, or any other damage that would cause the storefront to be defective.
  - 5. Condensation Resistance Test (CRF)
    - a. Test in accordance with ASTM 1502.7.

- b. Condensation Resistance Factor shall not be less than 59.
- 6. Thermal Transmittance Test (Conductive U-Value)
  - a. Test in accordance with ASTM 1503.1
  - b. Conductive thermal transmittance (U-Value) shall not be more than .64 BTU/hr/degree F/sf.

### 1.9 TESTING AND PERFORMANCE REQUIREMENTS - ENTRANCE DOORS

- A. Test Units
  - 1. Air test unit shall be minimum size of 3'-0" x 7'-0".
- B. Test Procedures and Performances
  - 1. Entrance doors shall conform to all requirements for the door type referenced in 1.01.C. In addition, the following specific performance requirements shall be met.
  - 2. Air Infiltration Test
    - a. With door closed and locked, test unit in accordance with ASTM E 283 at a static air pressure difference of 1.57 psf.
    - b. Air infiltration shall not exceed .50 cfm per foot of perimeter crack length for single doors.
    - c. Air infiltration shall not exceed .10 cfm per foot of perimeter crack length for a pair of doors.
  - 3. Uniform Load Structural Test
    - a. With door sash closed and locked, test unit in accordance with ASTM E 330 at a static air pressure difference of 60.00 psf positive pressure and 60.00 psf negative pressure.
    - b. At conclusion of test there shall be no glass breakage, permanent damage to fasteners, hardware parts, or actuating mechanisms, nor any other damage which would cause the door to be inoperable.

# PART 2 - PRODUCTS

# 2.1 GENERAL

A. Manufacturer: Subject to compliance with the Contract Documents and specifications, provide 403-I thermally improved flush glazed storefront as manufactured by EFCO Corporation. In addition, provide EFCO Series D302 ThermaStile\_entrance door.

# 2.2 MATERIALS

- A. Aluminum
  - 1. Extruded aluminum shall be 6063-T5 or T6 alloy and temper as required.

- B. Glass and Glazing
  - 1. Exterior aluminum storefront and entrances shall be glazed with 1" insulated glass.
    - a.  $\frac{1}{4}$ " clear tempered lite interior and  $\frac{1}{4}$ " Vitro Architectural Glass Solar (tint) tempered lite exterior. Match glass tint at existing building.
  - 2. Provide monolithic 1/4" clear tempered glass at interior storefront and entrances.
- C. Dissimilar Metals
  - 1. All dissimilar metals must be properly insulated to prevent galvanic action.
- D. Fasteners
  - 1. All exposed fasteners shall be aluminum or stainless steel.
- E. Thermal Barrier Storefront and Entrance Doors
  - 1. All exterior aluminum shall be separated from interior aluminum by a ridged, structural thermal barrier. For purposes of this specification, a structural thermal barrier is defined as a system that shall transfer shear during banding and, therefore, promote composite action between the exterior and interior extrusions.
  - 2. The thermal barrier shall be Ensinger's INSULBAR® or equal, and consist of two glass reinforced polyamide 6/6 nylon struts mechanically crimped in raceways extruded in the exterior and interior extrusions.
  - 3. Poured and debridged urethane thermal barriers will be acceptable as long as there is an option for the owner to select two separate colors - one on the interior face of the storefront and entrances and one on the exterior face of the storefront and entrances.
- F. Finish
  - 1. Match existing building.

# 2.3 FABRICATION

- A. General Aluminum Entrance Doors and Storefront
  - 1. All aluminum storefront vertical and horizontal extrusions shall have a minimum wall thickness of .125".
  - 2. Major portions of door sections and frame shall have a .125" wall thickness. Exterior glazing stops shall be an integral part of the door; glazing stop sections shall have .050" wall thickness. Interior stops shall be snap-in type. Both stops will have E.P.D.M. gaskets.

- 3. Mechanical fasteners, welded components and hardware items shall not bridge thermal barriers. Thermal barriers shall align at all corners.
- 4. Depth of doors shall not be less than 2". Stiles shall be no less than 3-1/2". For interior doors at Independent Living Building and match stile at existing hospital (wide stile) for exterior pair of doors at connecting link.
- B. Entrance Doors
  - 1. Door stiles and rails shall have hairline joints at corners.
  - 2. Exterior corner construction is true mortise and tenon for physical interlock between the rails and stiles.
  - 3. Interior corner construction shall be joined by heavy concealed reinforcement brackets with screws and shall be deep penetration and fillet welded.
  - 4. All doors shall have an adjusting mechanism in the top rail to provide for minor clearance adjustments.
  - 5. Weather-stripping shall be wool pile and shall be installed in one stile of pairs of doors and in jamb stiles of center pivot doors.
- C. Door Frame & Other Storefront Framing
  - 1. Depth of frame shall not be less than 4-1/2".
  - 2. Face dimension of framing shall not be less than 2-1/4".
  - 3. Shear block construction shall be utilized through out.
  - 4. System design shall be such that raw edges will not be visible at joints.

# 2.4 HARDWARE

- A. Hardware for aluminum entrances is specified under "Finish Hardware Section" of the specifications and shall be furnished to the door manufacturer for installation at the factory. The finish hardware supplier shall be responsible for furnishing physical hardware, and templates of all hardware to the entrance manufacturer prior to fabrication, and for coordinating hardware delivery requirements with the hardware manufacturer the general contractor and the entrance manufacturer.
- PART 3 EXECUTION
- 3.1 INSPECTION
  - A. Job Conditions

1. All openings shall be prepared by others to the proper size and shall be plumb, level, and in the proper location and alignment as shown on the Architect's drawings.

# 3.2 INSTALLATION

- A. Aluminum entrances and storefront shall be securely installed according to the manufacturer's recommendations and the approved shop drawings.
- B. All operating hardware shall be checked for proper function and adjustment.
- C. All joints between framing and the building structure shall be sealed in order to secure a water tight installation.
- 3.3 PROTECTION AND CLEANING

The general contractor shall protect the aluminum materials and finish against damage from construction activities and harmful substances. The general contractor shall clean the aluminum surfaces as recommended for the type of finish applied, and shall be responsible for final cleaning of all glass and glazing.

END OF SECTION 08 4113

# 085313 - VINYL WINDOWS

PART 1 - GENERAL

- 1.1 SECTION INCLUDES
  - A. Vinyl Windows: Sliding Windows.
- 1.2 REFERENCES
  - A. American Architectural Manufacturer Association (AAMA):
    - 1. AAMA/WDMA/CSA 101/I.S.2 /A440 North American Fenestration Standard/Specification for windows, doors, and skylights (NAFS).
    - 2. AAMA 307 Specification for Laminates Intended for use on AAMA Certified Profiles.
      - a. 4.2.1 Muriatic Acid Resistance.
      - b. 4.2.1.1 Testing Methods.
        - 1) Test per AAMA 613, Section 7.6.1.1.
      - c. 4.2.1.2 Performance Requirements.
        - 1) Requirements per AAMA 613, Section 7.6.1.2.
      - d. 4.2.2 Mortar Resistance (24 Hour Pat Test).
      - e. 4.2.2.1 Testing Methods.
        - 1) Test per AAMA 613, Section 7.6.2.1.
      - f. 4.2.1.2 Performance Requirements.
        - 1) Requirements per AAMA 613, Section 7.6.2.2.
      - g. 4.3 Detergent Resistance.
      - h. 4.3.1 Testing Methods.
        - 1) Test per AAMA 613, Section 7.7.1.
      - i. 4.3.2 Performance Requirements.
        - 1) Requirements per AAMA 613, Section 7.7.2.
  - B. National Fenestration Rating Council (NFRC):
    - 3. NFRC 100 Procedure for Determining Fenestration Thermal Properties
    - 4. NFRC 200 Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.
  - C. ASTM International:
    - 5. ASTM E90 Laboratory measurement of Airborne Sound Transmission of Building Partitions and Elements.
    - 6. ASTM E1332 Standard Classification for Rating Outdoor Indoor Sound Attenuation.
- 1.3 SUBMITTALS
  - A. Submit under provisions of Section 0 13 00
  - B. Product Data: Manufacturer's data sheets on each product to be used, including:
    - 1. Preparation instructions and recommendations.
    - 2. Storage and handling requirements and recommendations.
    - 3. Installation methods.

- C. Shop Drawings: Submit shop drawings indicating details of construction, flashings and relationship with adjacent construction.
- D. Selection Samples: For each factory-finished product specified, two complete sets of color chips representing manufacturer's full range of available finishes.
- E. Verification Samples: For each factory-finished product specified, two samples, minimum size 6 inches (150 mm) square, representing actual finishes.
- F. Design Data, Test Reports: Provide manufacturer test reports indicating product compliance with indicated requirements.

### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum 5 year(s) installing similar assemblies.
- B. Certifications: AAMA certification label indicating assemblies meet the design requirements
- C. Pre-installation Meeting: Conduct pre-installation meeting on-site two weeks prior to commencement of installation.
- 1.5 DELIVERY, STORAGE, AND HANDLING
  - A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards.
  - B. Deliver and store assembly materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact. Protect from damage.

# 1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by Manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

# 1.7 WARRANTY

- A. Manufacturer's Standard Warranty: Assemblies will be free from defects in materials and workmanship from the date of manufacture for the time periods indicated below:
  - 1. Basic Product Coverage Window Unit: Commercial: 10 years
  - 2. Glazing:
    - a. Insulated Glass: 10 years
    - b. Special Glazing: 5 years.
  - 3. Colored Exterior: 10 years.

### PART 2 - PRODUCTS

- 2.1 MANUFACTURER
  - A. Acceptable Manufacturer: JELD-WEN, Inc.; 2645 Silver Crescent Dr.; Charlotte, NC 28273; Toll Free Tel: 800-535-3936; Tel: 541-850-2606; Fax: 541-851-4333; Email: architectural\_inquiries@jeld-wen.com; Web: http://www.jeld-wen.com.
  - B. Or equal approved by Architect.
- 2.2 VINYL WINDOWS GENERAL
  - A. Design Requirements

- 1. Provide windows capable of complying with requirements indicated, based on testing manufacturer's window that are representative of those specified and that are of test size required by AAMA/WDMA/CSA 101/I.S.2/A440.
- 2. Test Size: In compliance with requirements of AAMA/WDMA/CSA 101/I.S2/A440.
- 3. Structural Requirements: Provide assemblies complying with requirements indicated:
  - c. Performance Class: Commercial.
  - d. Performance Grade: Heavy Duty.
- 4. NFRC Requirements: Provide assemblies complying with the following total window ratings:
  - e. U-Factor: 0.5 in accordance with NFRC 100.
  - f. Solar Heat Gain Coefficient (SHGC): 0.40 in accordance with NFRC 200.
- B. Installation Accessories:
  - 1. Flashing: Refer to Section 07600 Flashing and Sheet Metal.
  - 2. Sealants: OSI Sealants (OSI QUAD Max, OSI QUAD Foam) by Henkel Corporation.
  - 3. Sealants: Refer to Section 07920 Joint Sealants.
  - 4. Sealants: Manufacturer recommended sealants to maintain watertight conditions.
- C. Materials:
- D. Laminate Exterior Finishes:
  - 1. AAMA 303 Voluntary Specification for Poly (Vinyl Chloride) (PVC) Exterior Profile Extrusions.
    - a. Boil and Heat Resistance Test.
  - 2. Vertical Heat Build-Up (HBU) Less than 45° F (ASTM D4803).
  - 3. Pencil Hardness "F" (ASTM D3363).
- E. Finishes:
  - 1. Interior Finishes for Windows:
    - a. Standard Vinyl: Color to be selected from manufacturer standard range.
  - 2. Exterior Finishes for Windows:
    - a. Standard Vinyl: Color to be selected from manufacturer standard range.

# 2.3 VINYL WINDOW ASSEMBLIES

- A. Basis of Design: Builders Vinyl Series window assemblies as manufactured by JELD-WEN, Inc.: Sliding Windows (V-4500)
- B. Window Fabrication:
  - 1. Sliding Windows:
    - a. Frame: Fusion welded corners.
    - b. Sash: Fusion welded corners.
    - c. Glass: Mounted using silicone glazing compound or glazing tape.
- C. Frames:
  - 1. Jamb Depth: [Double-Hung Windows: 3 1/4 inch (82.5mm)].

- D. Sashes:
  - 1. Sash Thickness: 1 1/4 inch (37.1mm)
- E. Exterior Trim
  - 1. Frame
    - a. For masonry opening, provide brick mould

# F. Frame Accessories:

- 1. Exterior: a. Slope Sill Adapter.
- 2. Interior: a. Vinyl Trim
- G. Extension Jambs: Provide at all sides of frame
  - 1. n/a
- H. Weatherstripping: .270" fin pile
- I. Window Hardware
  - 1. Sliding Windows:
    - a. Balance: Block and Tackle System.
    - b. Lock: Standard, Style Cam-Lock.
    - c. Finish: White (Standard)
- J. Glazing for Windows.
  - 1. Glazing Type: Insulated Glass
    - a. Description: Two panes of glass utilizing a continuous roll formed stainless steel and dual seal sealant.
    - b. Strength: Annealed glass (Standard)
    - c. Overall Nominal Thickness: 3/4 inch.
    - d. Glass Coating: Low-E (Standard)
- K. Insect Screens
  - 1. Screen Type: Screen (Standard).
    - a. Screen Mesh Type: Charcoal Fiberglass screen cloth (18 by 16 mesh) set in painted roll formed aluminum frame.
    - b. Screen Options: Standard Screen Frame.
  - 2. Frame Finish: Color match window frame extrusion.

### PART 3 - EXECUTION

- 3.1 GENERAL
  - A. Install windows in accordance with manufacturer's installation guidelines and recommendations.
- 3.2 EXAMINATION

- A. Inspect window prior to installation.
- B. Inspect rough opening for compliance with window manufacturer recommendations. Verify rough opening conditions are within recommended tolerances.

# 3.3 PREPARATION

A. Prepare windows for installation in accordance with manufacturer's recommendations.

# 3.4 INSTALLATION

- A. Insert window into rough opening:
  - 1. Shim side jambs straight.
  - 2. Inspect window for square, level and plumb.
  - 3. Fasten window through jamb, shim and into rough opening jamb.
  - 4. Test and adjust for smooth operation of window.
  - 5. Ensure weep holes are clear of debris for proper drainage.

### 3.5 CLEANING

- A. Remove Preserve® film from glass.
- B. Clean the exterior surface and glass with mild soap and water.

### 3.6 PROTECTION

A. Protect installed windows from damage.

END OF SECTION 08 53 13

#### 089700 - STRUCTURAL GLASS CANOPY

#### PART 1 GENERAL

#### 1.1 <u>STIPULATIONS</u>

A. The specifications sections "General Conditions", "Special Requirements", and "General Requirements" form a part of this section by this reference thereto and shall have the same force and effect as if printed herewith in full.

#### 1.1 <u>SUMMARY</u>

Section Includes: glass and connections for the structural glazing system, in accordance with the contract documents.

#### 1.2 QUALITY CONTROL

Sole Source Responsibility:

1. The installer of the structural glass system is responsible for supplying and erecting the complete structural glazing system, coordinating and maintaining tolerances, between the structure and glazing system, and with individual suppliers and manufacturers.

Safety Glass: Provide Safety Glass as indicated or required by authorities having jurisdiction. Products must comply with ANSI Z97.1 and 16 CFR 1201 Category II.

#### 1.3 SYSTEM DESCRIPTION

Design Requirements:

- 1. Design wind load: In accordance with IBC 2018 & ASCE 7-05; design parameters are shown on the contract drawings.
- 2. Snow Load: 40# Ground Snow Load
- 3. Seismic loads: In accordance with IBC 2018 & ASCE 7-05; design parameters are shown on the contract drawings.
- 4. Live load deflection of supporting structure: L/240

Structural Glazing System:

- 1. Fittings are designed to give a surface disc appearance to the outward surface of the glazing system. Attachment fittings will be spider type. Contact J.E. Berkowitz, LP for fitting selection.
- 2. The design of the structural fittings is the sole responsibility of J.E. Berkowitz, LP.
- 3. All connection members are to be designed to prevent high-stress concentration at the hole positions and must allow for:
  - a. Negative and positive wind loading
  - b. Seismic loads
- c. Thermal movement
- d. Construction tolerances
- e. Live load and dead load movements
- 4. All canopy connection assemblies must be designed with durable, flexible disc/pads, to accommodate hole sizes in hardware assemblies, which allow for movement and glass manufacturing tolerances.
- 5. Contact J.E. Berkowitz, LP for project application design assistance.

#### 1.4 <u>SUBMITTALS</u>

1. Shop drawings: shop drawings shall clearly indicate material and methods, indicate coordination with other trades, and display the glazing system manufacturer's signed approval and the glazing system installer's signed approval, as well as the stamp of a registered licensed professional engineer.

2. Product data: provide product data for all proposed components, materials, products and accessories. Provide photographs or drawings of fittings and hardware.

3. Samples: submit samples of glass and glazing materials required for the project. Glass samples shall be 12" x 12"; samples of sealants or gaskets shall be 12" long. Submit samples of glass fitting hardware assemblies, complete with the glass, bolt and accessories.

4. Calculations: provide calculations, bearing the stamp of a registered licensed professional engineer, supporting the structural glazing system's performance criteria and compliance with specified loads.

### 1.5 <u>WARRANTY</u>

#### Manufacturer Warranty

1. Provide a one-year warranty for the design and materials supplied by the system provider. Provide written requirements for notification of the manufacturer and terms for maintaining warranty provisions.

#### Installer Warranty

1. Warrant the installation for a period of one year for installation and repairs of failures. Provide written requirements for notification of the installer and terms for maintaining warranty provisions. Do not contradict the requirements of the contract documents.

2. The warranties submitted under this section shall not deprive the owner of other rights or remedies that the owner may have under other provisions of the contract documents and the laws of governing jurisdictions, and are in addition to and run concurrently with other warranties made by the contractor under requirements of the contract documents.

PART 2 PRODUCTS Materials

- 2.1 <u>CANOPY SYSTEM</u>: Canopy system will be designed to have specialized fittings and attachments plates. The face glass will be fastened to the supporting structure as shown on the architectural drawings. Approved manufactures are:
  - A. J.E. Berkowitz, LP, Pedricktown, NJ Ph: 800-257-7827
- 2.2 <u>GLASS</u>: All glass must be laminated and fully tempered. Overall thickness of the facade glass is to be determined by the manufacturer, in accordance with specifications and drawings. Note: when using laminated glass, the interlayer must be a laid-in-place interlayer bonded using an autoclave heat and pressure process.

Use a 0.060" Sentry Glas Plus minimum interlayer thickness. (Poured or cast resin laminates will not be permitted.) All glass must be horizontally tempered, eliminating tong marks. All edges will be ground flat with a frosted appearance unless otherwise noted. All edgework, holes and notches in the tempered glass panels will be completed before tempering and will comply with the following requirements:

- 1. ASTM C1036 Standard Specification for Flat Glass
- 2. ASTM C1048 Standard Specification for Heat-Treated Flat Glass
- 3. ASTM C1172 Standard Specification for Laminated Architectural Flat Glass
- 4. Safety glazing requirements as defined in ANSI Z97.1 and CPSC 16CFR1201
- 5. Glass shall be a tinted. Owner to select color from manufacturers standards.
- 2.3 <u>METAL SUPPORT FRAMING:</u> Provide perimeter metal framing to support glass panels as shown on the Drawings and Shop Drawings. Material shall be of type, size and thickness based on application requirements.
- 2.4 <u>FINISHES</u> All exposed surfaces will be free of scratches and other serious blemishes. Rail, channel and pan cover finishes will be:
  - For extruded aluminum, an Architectural Class II clear anodic coating conforming to Aluminum Association standards.
  - Stainless Steel clad using an alloy 304 finished as follows (specify one): satin.
- 2.5 <u>FITTINGS:</u> Manufacturer to design and provide fittings.
  - 1. Fitting types Spider and Spring Plates (Stainless Steel Grade 316) and Conventional Patch Fittings.
  - 2. Subcontractor will provide evidence that the stresses induced in the glass by these "fittings" are compatible with the strength of the glass and meets the performance criteria specified.
  - 3. Fitting finish will be denoted on the Drawings.

- 4. Exterior fitting hardware will be surface discs, countersunk heads or conventional patch system assemblies.
- 5. Bushings will be UV-resistant nylon.

#### PART 3. EXECUTION

- 3.1 <u>EXAMINATION</u> Prior to delivery of glass panels, verify project is ready for the openings, support framing, surrounding substrate and dimensions). Follow GANA (Glass Association of North America) inspection procedure recommendations. Do not begin work until unsatisfactory conditions have been corrected. Installation of work will constitute acceptance of the related construction.
- 3.2 <u>PREPARATION</u> Pre-installation: Coordinate with the material suppliers and installers of the surrounding materials that interact with the glass façade system installation. Review the method of delivering and handling glass, and installing glazing materials. Review chemical compatibility of all glazing materials and framing sealants with each other and with like materials used in glass fabrication.
- 3.3 <u>INSTALLATION OF METAL FRAMING</u> Securely attach perimeter metal framing to structure, align framing plumb, level and without twist or warp. Separate dissimilar metals to prevent electrolysis and other forms of corrosion with bituminous paint or gasketing.

#### 3.4 INSTALLATION of GLASS

- 1. Install in accordance with the glass system provider's requirements, the shop drawings and the GANA Glazing Manual.
- 2. Utilize only experienced glaziers who have had previous experience with the materials and systems being applied. Use tools and equipment recommended by the manufacturer.
- 3. Panel to panel joints of glass are to be sealed with silicone sealant. Design joint dimensions to be compatible with sealant properties and live load movement of the structure.
- 4. Torque bolts to torques specified on shop drawings using a calibrated tool.
- 5. Clean glazing connectors receiving glazing materials of harmful substances that might impair the work. Remove protective coatings that might fail in adhesion or interfere with bond of sealants. Comply with the manufacturer's instructions for the application of primer and glazing sealants. Wipe metal surfaces with an appropriate cleaning agent.
- 6. Inspect each unit of glass immediately before installation. Glass that has significant impact damage at edges, scratches, and abrasion of faces or any other evidence of damage will not be installed.
- 7. Sealants: prime surfaces to receive glazing sealants where required, in accordance with the manufacturer's recommendations.

- 8. Locate setting blocks, if required by the drawings, at the quarter points of the sill, but no closer than 6 inches to corners of the glass. Use blocks of proper sizes to support the glass in accordance with the manufacturer's recommendations.
- 9. Provide spacers to separate the glass from attachment plates.
- 10. Set the glass in a manner that produces the greatest possible degree of uniformity in appearance.
- 11. Use masking tape or other suitable protection to limit the coverage of glazing materials on the surfaces intended for sealants.
- 12. Tool the exposed surfaces of glazing materials.
- 13. Clean excess sealant from the glass and support members immediately after the application, using solvents or cleaners recommended by the manufacturers.

## 3.5 CLEANING, CURING AND PROTECTION

- 1. Cure sealants in accordance with the manufacturer's instructions.
- 2. Clean all surfaces after the installation, leaving all in a clean and workmanlike manner.
- 3. Final cleaning and protection after installation are the responsibilities of others.

## END OF SECTION

### 092900 - GYPSUM BOARD

## PART 1 - GENERAL

### 1.1 STIPULATIONS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.

### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Gypsum board screw-attached to wood studs
  - 2. Misc accessories related to this section
  - 3. 1x4 wood furring strips at maximum 24" o.c.
  - 4. Mold Resistant Gypsum Board at bathrooms and toilet room
- B. Definitions
  - 1. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA 505 for definitions of terms for gypsum board construction not otherwise defined in this Section or other referenced standards.

### 1.3 SUBMITTALS:

- A. Product data from manufacturers for each type of product specified, and samples of gypsum board (each type), steel studs, all types of channels and furring members, hangers, ties and fasteners. Samples of each are required for Professionals review.
- 1.4 QUALITY CONTROL:
  - A. Fire-Resistance Rating: Where required, provide materials and construction which are identical to those of assemblies whose fire resistance rating has been determined per ASTM E 119 by a testing and inspecting organization acceptable to authorities having jurisdiction.
  - B. Provide fire-resistance-rated assemblies identical to those indicated by reference to GA File No's. in GA-600"Fire Resistance Design Manual" or to design designations in U.L. "Fire Resistance Directory" or in listing of other testing and agencies acceptable to authorities having jurisdiction.
  - C. Single Source Responsibility: Obtain each type of gypsum board and related joint treatment materials from a single manufacturer

### 1.5 DELIVERY AND STORAGE OF MATERIALS

- A. Deliver material in their original packages, containers or bundles bearing brand name and identification of manufacturer and supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.

C. Handle gypsum boards to prevent damage to edges, ends, and surfaces. do not bend or otherwise damage metal corner beads and trim.

#### 1.6 PROJECT CONDITIONS:

- A. Environmental Conditions, General: Establish and maintain environmental conditions for application and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.
- B. Minimum Room Temperature: For nonadhesive attachment of gypsum board to framing, maintain not less the 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board maintain not less than 50 degrees F (10 deg. C) for 48 hours prior to application and continuously thereafter until drying is complete.
- C. Ventilate building spaces to remove water not required for drying joint treatment materials. Avoid drafts during dry, hot weather to prevent materials from drying too rapidly.
- D. Application of gypsum board may not proceed unless a constant temperature not lower than 55 degrees F has been maintained for a minimum of 48 hours.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
  - 1. Gypsum Boards and Related Products:

Bostwick Steel Framing Co. Dale Industries, Inc. Gold Bond Building Product Div. National Gypsum Co. Incor, Inc. Marino Industries Corp. United States Gypsum Centex American Gypsum Co. Domtar Gypsum Co. Georgia-Pacific Corp. Or equal as approved by Professional

### 2.2 GYPSUM WALLBOARD

- A. General: Provide gypsum wallboard of types indicated in maximum lengths available to minimize end-to-end of joints.
- B. Thickness: Provide gypsum board in thickness' indicated, or if not otherwise indicated, in 5/8" thickness to comply with ASTM C 840 for application system and support spacing indicated.
- C. Gypsum Wallboard: ASTM C 36, and as follows:
  - 1. Type: Regular, unless otherwise indicated. ASTM C1629 Class Level 2 AR
  - 2. Type: Type X for fire-resistance-rated assemblies. ASTM C1629 Class Level 2 AR

- 3. Edges: Tapered.
- D. Products: subject to compliance with requirements, provide one of the following products where Type X gypsum wallboard is indicated:
- 2.3 TRIM ACCESSORIES:
  - A. Cornerbead and Edge Trim for Interior Installation: Comply with ASTM C 940 and the following:
  - B. Cornerbead formed from zinc alloy, with flanges knurled and perforated or of fine-mesh expanded metal.
  - C. Steel Edge Trim formed from galvanized steel, types per Fig. 1 of ASTM C 840 as follows:
  - D. "LC Bead" unless otherwise indicated.
  - E. "LK" Bead with square nose for use with kerfed jambs.
  - F. Metal Cornerbead and Edge Trim for Exterior Ceilings: Comply with ASTM C 840 and the following:
  - G. Zinc Edge Trim formed from zinc alloy, type "LC" Bead per Fig. 1 of ASTM C 840 unless otherwise indicated.
- 2.4 GYPSUM BOARD JOINT TREATMENT MATERIALS:
  - A. General: Provide materials complying with ASTM C 475, ASTM C 840, and recommendations of manufacturer of both gypsum board and joint treatment materials for the application indicated.
  - B. Joint Tape: Paper reinforcing tape, unless otherwise indicated.
  - C. Joint Compounds: Factory-prepackaged, job-mixed, chemical hardening powder products formulated for uses indicated/Durabond product at walls.
    - 1. Where setting-type joint compounds are indicated for use as taping and topping compounds, use formulation for each which develops greatest bone strength and crack resistance and is compatible with other joint compounds applied over it.
    - 2. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer for this purpose.
    - 3. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by gypsum board manufacturer for this purpose.
    - 4. Drying-Type Joint Compounds: Factory-prepackaged vinyl-based products complying with the following requirements for formulation and intended use.
    - 5. Ready-Mix Formulation: Factory-premixed product.
    - 6. Job-Mixed Formulation: Powder product for mixing with water at Project site.

- 7. Taping compound formulated for embedding tape and for first coat over fasteners and flanges of corner beads and edge trim.
- 8. Topping compound formulated for fill (second) and finish (third) coats.
- 9. All purpose compound formulated for use as both taping and topping compound.
- 2.5 MISCELLANEOUS MATERIALS:
  - A. General: Provide auxiliary materials for gypsum drywall construction which comply with referenced standards and the recommendations of the manufacturer of the gypsum board.
  - B. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum boards.
  - C. Spot Grout: ASTM C 475, setting type joint compound of type recommended for spot grouting hollow metal door frames.
  - D. Gypsum Board Screws: ASTM C !002
  - E. Control Joint: ASTM C840- metal spaces at a mixium of 24'-0" at walls and ceilings.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Examine substrates to which drywall construction attaches or abuts, preset hollow metal frames, cast-in-anchors, and structural framing with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of drywall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

A. GENERAL: Install the gypsum wallboard in accordance with the Drawings and with the separate boards in moderate contact but not forced into place. At internal and external corners conceal the cut edges of the boards by the overlapping covered edges of the abutting boards. Stagger the boards so that corners of any four boards will not meet at a common point except in vertical corners. Set all base, wall and top tracks in two beads of acoustical sealant. Install sealing compound ASTM C929 around all outlets, penetrations, voids to seal all openings. Install sealant bead around entire perimeter of drywall edges in partition. (Note: acoustical isolation is important, Professional will require removal of partitions if sound treatment is not installed)

# 3.3 PREPARATION:

A. Ceiling Anchorage: Coordinate installation of ceiling suspension system with installation of overhead structural systems to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling anchors in a manner that will develop their full strength and at spacing required to support c ceiling.

### 3.4 APPLICATION AND FINISHING OF GYPSUM BOARD, GENERAL:

- A. Gypsum Board Application and Finishing Standards: Install and finish gypsum board to comply with ASTM C 840.
- B. Install sound insulation where indicated, prior to gypsum board unless readily installed after board has been installed.
- C. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.
- D. Install ceiling boards in manner which minimized the number of end-butt joint or avoids them entirely where possible. At stairwells and similar high walls, install boards horizontally with end joint staggered over studs.
- E. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards. Do not force into place.
- F. Locate either edge or end joints over supports, except in horizontal applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joint over different stud on opposite sides of partitions.
- G. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.
- H. Spot Grout hollow metal door frames for solid core wood doors, hollow metal doors and doors over 32" wide. Apply spot grout at each jamb anchor clip just before inserting board into frame.
- I. Form control joints and expansion joints at locations indicated, with space between edges of boards, prepared to receive trim accessories. If not shown install per manufacture's written recommendations. Submit locations to Professional for approval before installation.
- J. Cover both faces of stud partition framing with gypsum board in concealed spaces (above ceiling, etc), except in chase walls which are braced internally.
  - 1. Except where concealed application is indicated or required for sound, fire, air or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. area, and may be limited to not less than 75 percent of full coverage.
  - 2. Fit gypsum board around ducts, pipes, and conduits.
- K. Isolate perimeter of non-load-bearing drywall partitions at structural abutments. Provide 1/4" to 1/2" space and trim edge with "U" bead edge trim. Seal joints with acoustical sealant.
- L. Space fasteners in gypsum boards in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations.
- 3.5 METHODS OF GYPSUM BOARD APPLICATION:

- A. Single Layer Application: Install gypsum wallboard as follows:
- B. On Ceilings: Apply gypsum board prior to wall/partition board application.
- C. On partitions/walls apply gypsum board vertically (parallel to framing), unless otherwise indicated, and provide sheet lengths which will minimize end joints.
- D. On partitions/walls 8'-1" or less in height apply gypsum board horizontally (perpendicular to framing); use maximum length sheets to minimize end joints.
- E. Double-Layer Application: Install gypsum backing board for base layer and gypsum wallboard for face layer.
- F. On partitions/walls apply base layer and face layers vertically (parallel to framing) with joints of base layer over supports and face layer joints offset at least 10" with base layer joints.
- G. Single-Layer Fastening Methods: Apply gypsum boards to supports as follows:
  - 1. Fasten with screws.
- H. Double-Layer Fastening Methods: Apply base layer of gypsum board and face layer to base layer as follows:
  - 1. Fasten both base layers and face layers separately to supports with screws.
  - 2. Fasten base layers with screws and face layer with adhesive and supplementary fasteners.
- I. Installation Of Drywall Trim Accessories
  - A. General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges to comply with manufacturers recommendations.
  - B. Install corner beads at external corners.
  - C. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed, and except where plastic trim is indicated. Provide type with face flange to receive joint compound.
    - 1. Install "LC" bead where drywall construction is tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
    - 2. Install "LK" bead where substrate is kerfed to receive long flange of trim.
    - 3. Install "L" bead where edge trim can only be installed after gypsum board is installed.
    - 4. Install U-type trim where edge is exposed, revealed, gasketed, or sealant-filled. (including expansion joints).
- 3.6 FINISHING OF DRYWALL PROVIDE LEVEL 4 FINISH:

- A. General: apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for decoration.
  - 1. Prefill open joints and rounded or beveled edges, if any, using setting-type joint compound.
  - 2. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
  - 3. Finish interior gypsum wallboard by applying the following Durabond joint compounds in 3 coats (not including prefill or openings in base), and sand between coats and after last coat:
  - 4. Embedding and First Coat: Setting-type joint compound.
  - 5. Fill (second) Coat: Setting-type joint compound.
  - 6. Finish (third) Coat: Ready-mix drying-type all-purpose or topping compound.

END OF SECTION 092900

## 095000 - ACOUSTICAL CEILINGS

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of contact including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

## 1.2 SUMMARY

- A. Extent of each type of acoustical ceiling is shown on the drawings.
- B. Type of acoustical ceilings specified in this section include the following:
  1. Acoustical panel ceilings, exposed suspension.

## 1.3 SUBMITTALS

- A. Product Data: Submit manufacturers technical data for each type of acoustical ceiling unit and suspension system required.
- B. Samples of Initial Selection Purposes: Submit manufacturers standard size samples of acoustical units, but not less than 6" square, and of exposed ceiling suspension members including wall and special moldings. Provide samples showing full range of colors, textures and patterns available for each type of component required.
- C. Samples of Verification Purposes: Submit the following:
  - 1. 12" square samples of each acoustical tile, type, pattern and color.
  - 2. Set of 12" long samples of exposed runners and moldings for each color and system type required.
  - 3. Certificates: Submit certificates from manufacturers of acoustical ceiling units and suspension systems attesting that their products comply with specification requirements.

# 1.4 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Provide acoustical ceiling components that are identical to those tested for the following fire performance characteristics, according to ASTM test method indicated, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction. Identify acoustical ceilings components with appropriate marking of applicable testing and inspecting agency.
- B. Surface Burning Characteristics: As follows, tested per ASTM E 84.
  - 1. Flame Spread: 25 or less
  - 2. Smoke Developed: 50 or less
- C. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other work supported by, or penetrating through, ceilings, including light fixtures, HVAC equipment, fire suppression system components (if any), and partition system (if any).

### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packaged and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination or other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

### 1.6 PROJECT CONDITIONS

A. Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings is

complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

## 1.7 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials described below matching products installed, packaged with protective covering for storage and identified with appropriate labels.
- B. Acoustical Ceiling Units: Furnish quality of full size units equal to 2.0% of amount installed.
- C. Exposed Suspension System Components: Furnish quantity of each exposed component equal to 2.0% of amount installed.

### PART 2 - PRODUCTS

- 2.1 ACOUSTICAL CEILING UNITS, GENERAL
  - A. Standard for Acoustical Ceiling Units: Provide manufacturers standard units of configuration indicated which are prepared for mounting method designated and which comply with FS SS-S-118 requirements, including those indicated by reference to type, form, pattern, grade (NRC or NIC as applicable), light reflectance coefficient (LR), edge detail, and joint detail (if any).
  - B. Sound Attenuation Performance: Provide acoustical ceiling units with ratings for ceiling sound transmission class (STC) of range indicated as determined according to AMA 1-II "Ceiling Sound Transmission Test by Two-Room Method" with ceilings continuous at partitions and supported by a metal suspension system of type appropriate for ceiling unit of configuration indicated (concealed for tile, exposed for panels).
  - C. Color, Textures, and Patterns: provide products to match appearance characteristics indicated or, if not otherwise indicated, as selected by Architect from manufacturers standard colors, surface textures, and patterns available for acoustical ceiling units and exposed metal suspension system members of quality designated with hold-down clips and provide "Fire Rated" Ceiling tile, Fire rated Suspension System where indicated on the drawings.

# 2.2 ACOUSTICAL PANELS

- A. Ceiling Designations
  - 1. see drawings for ceilings designations and sizes.
- C. Locations of different sized ceiling panels are indicated on the drawings.
- D. Products: Subject to compliance with requirements, provide a product from one of the following manufacturers:
  - 1. Armstrong (Basis of Design)
  - 2. Celotex
  - 3. Owens Corning
  - 4. USG Acoustical Products Co.
- 2.3 METAL SUSPENSION SYSTEMS, GENERAL
  - A. Aluminum Suspension Systems: Provide suspension systems of type, structural classification and finish indicated which comply with applicable ASTM C 635 requirements. Use at locker rooms and natatorium offices and at wet areas.
  - B. Finishes and Colors: Provide manufacturers standard factory applied finish for type of system indicated. For exposed suspension members and accessories with painted finish, provide color indicated or, if not otherwise indicated, as selected by Architect from manufacturers full range of standard colors.
  - C. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung.

- D. Concrete Inserts: Inserts formed from hot dipped galvanized sheet steel and designed for attachment to concrete forms and for embedment in concrete, with holes or loops for attachment at hanger wires.
- E. Hanger Wire: Galvanized carbon steel wire, ASTM A641, soft temper, prestretched, Class 1 coating, sized so that stress a 3 times hanger designload (ASTM C635, Table 1, Direct Hunt), will be less than yield stress of wire, but provide not less than 12 gage.
- F. Edge Moldings and Trim Metal or extruded plastic of types and profiles indicated or, if not indicated provide manufacturers standard molding for edges and penetrations of ceiling which fits with type of edge detail and suspension system indicated. Contractor shall use channel edge molding, angle edge molding is not permitted.
- G. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
- H. Hold Down Clips: Provide standard hold-down clips at designated areas at the mid points of the tile (2 per tile).

# 2.4 EXPOSED METAL DIRECT HUNG SUSPENSION SYSTEMS

- A. Non Fire Resistance Rated Double Web Steel Suspension System: Manufacturers standard system roll formed from prefinished cold rolled steel sheet with 15/16" wide exposed faces on structural members, other characteristics as follows:
- B. Finish: Painted in color as selected by Architect, from manufacturers standard. Use aluminum grid at wet locations.
- C. Use FireGuard at all areas indicated as Fire Rated ceilings.
- D. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
  - 1. Chicago Metallic Corporation
  - 2. Donn Corporation
  - 3. Eastern Products Div., Armstrong World Industries Inc.

## 2.5 MISCELLANEOUS MATERIALS

- A. Acoustical Sealant: Resilient, non-staining, non-shrinking, non-hardening, non-skinning, nondrying, non-sag sealant intended for interior sealing of concealed construction joints.
- B. Acceptable Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
  - 1. BA-98, Pecora Corp.
  - 2. Tremco Acoustical Sealant, Tremco

### PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.
- B. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.
- C. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling.
- 3.2 INSTALLATION
  - A. General: Install materials in accordance with manufacturers printed instructions, and to comply with governing regulations, fire resistance rating requirements as indicated, and CISCA standards applicable to work.
  - B. Install tile with pattern running in one direction.
  - C. Install suspension systems to comply with ASTM C 636, with hangers supported only from building structural members. Locate hangers not less than 6" from each end and spaced 4'-

0" along each carrying channel or direct hunt runner, unless otherwise indicated, leveling to tolerance of 1/8" in 12'-0".

- D. Secure wire hangers by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices which are secure and appropriate for substrate, and which will not deteriorate or fail with age or elevated temperatures.
- E. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum which are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal force by bracing, countersplaying or other equally effective means.
- F. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.
- G. Screw attach moldings to substrate at intervals not over 16" o.c. and not more than 3" from ends, leveling with ceiling suspension system to tolerance of 1/8" in 12'-0". Miter corners accurately and connect securely.
- H. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.

# 3.3 CLEANING

A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members, comply with manufacturers instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 5000

## 096519 - RESILIENT TILE FLOORING

## PART 1 - GENERAL

### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. LVT Flooring, Vinyl Base

### **1.2 SUBMITTALS**

- A. Product Data: For each type of product specified.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors and patterns available for each type of product indicated.
- C. Samples for Verification: Full-size tiles of each different color and pattern of resilient floor tile specified, showing the full range of variations expected in these characteristics.
  - 1. For resilient accessories, manufacturer's standard-size samples, but not less than 12 inches long, of each resilient accessory color and pattern specified.
- D. Product Certificates: Signed by manufacturers of resilient products certifying that each product furnished complies with requirements.
- E. Maintenance Data: For resilient floor tile to include in the maintenance manuals specified in Division 1.

### 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing resilient products similar to those required for this Project and with a record of successful in-service performance.
- B. Source Limitations: Obtain each type, color, and pattern of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
- C. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Critical Radiant Flux: 0.45 W/sq. cm or greater when tested per ASTM E 648.
  - 2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.
- D. Flooring contractor is responsible for verifying if concrete slabs are suitable for flooring installation including moisture content
- E. Provide transition strips at all dissimilar materials.
- F. Comply with Americans With Disability Act (ADA)

### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to Project site in manufacturer's original, unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.
- B. Store products in dry spaces protected from the weather, with ambient temperatures maintained between 50 and 90 deg F (10 and 32 deg C).
- C. Store tiles on flat surfaces.
- D. Move products into spaces where they will be installed at least 48 hours before installation, unless longer conditioning period is recommended in writing by manufacturer.

### 1.5 PROJECT CONDITIONS

- A. Maintain a temperature of not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C) in spaces to receive products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods. After post installation period, maintain a temperature of not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- B. Do not install products until they are at the same temperature as the space where they are to be installed.
- C. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by manufacturer.
- D. Install tiles and accessories after other finishing operations, including painting, have been completed.
- E. Do not install flooring over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive, as determined by flooring manufacturer's recommended bond and moisture test regarding vapor emissions. Flooring Contractor shall conduct adequate moisture emission tests.

### 1.6 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
  - 1. Furnish not less than one box for each 50 boxes or fraction thereof, of each type, color, pattern, class, wearing surface, and size of resilient tile flooring installed.
  - Furnish not less than 10 linear feet (3 linear m) for each 500 linear feet (150 linear m) or fraction thereof, of each type, color, pattern, and size of resilient accessory installed.
  - 3. Furnish net less than 10 each treads and risers
  - 4. Deliver to owner in marked boxes tagged with color, texture, size, etc.

### PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated in the Resilient Tile Flooring Schedule at the end of Part 3.

## 2.2 RESILIENT ACCESSORIES

- A. Vinyl Accessory Moldings: Products complying with requirements specified in the Resilient Tile Flooring Schedule.
- B. LVT Tile 7x48 LVT Wood by Milliken.
- C. 6" Vinyl cove base by Johnsonsite.

## 2.3 INSTALLATION ACCESSORIES

- A. Trawlable Leveling and Patching Compounds: Latex-modified, Portland-cement-based formulation provided or approved by flooring manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
- C. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of tiles, and in maximum available lengths to minimize running joints.

### PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer present, for compliance with manufacturer's requirements. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
  - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by flooring manufacturer.
  - 2. Subfloor finishes comply with requirements specified in Division 3 Section "Cast-in-Place Concrete" for slabs receiving resilient flooring.
  - 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

A. General: Comply with resilient product manufacturer's written installation instructions for preparing substrates indicated to receive resilient products.

- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Broom and vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.
- E. Flexible Epoxy Isolation Leveling / Patching Compound: Prepare and pre-fill substrate cracks with membrane material according to LVT and carpet Manufacturer's requirements.
- F. All floors to be free and cleaned of all glue or residue from previous flooring.

## 3.3 RESILIENT ACCESSORY INSTALLATION

- A. General: Install resilient accessories according to manufacturer's written installation instructions.
- B. Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
  - 1. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
  - 2. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
  - 3. Do not stretch base during installation.
  - 4. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
  - 5. Install premolded outside and inside corners before installing straight pieces.
- C. Place resilient accessories so they are butted to adjacent materials and bond to substrates with adhesive. Install reducer strips at edges of flooring that would otherwise be exposed.
- D. Apply resilient products to stairs as indicated and according to manufacturer's written installation instructions.

### 3.4 CLEANING AND PROTECTING

- A. Perform the following operations immediately after installing resilient products:
  - 1. Remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.
  - 2. Sweep or vacuum floor thoroughly.
  - 3. Do not wash floor until after time period recommended by flooring manufacturer.
  - 4. Damp-mop floor to remove marks and soil.
- B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by flooring manufacturer.

- 1. Cover products installed on floor surfaces with undyed, untreated building paper until inspection for Substantial Completion.
- 2. Do not move heavy and sharp objects directly over floor surfaces. Place plywood or hardboard panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.
- C. Clean floor surfaces not more than 4 days before dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products according to manufacturer's written recommendations.
  - 1. Before cleaning, strip protective floor polish that was applied after completing installation.
  - 2. After cleaning, reapply a minimum of four coats of premium polish to floor surfaces to restore protective floor finish according to flooring manufacturer's written recommendations. Coordinate with Owner's maintenance program.
- 3.5 Installation of LVT shall be in strict accordance with manufacturer's instructions and recommended adhesives, etc.

END OF SECTION 096519

### 09681- BROADLOOM CARPET

### PART 1: GENERAL

### 1.1 SECTION INCLUDES:

- A. Manufacturers
- B. Testing Protocols
- C. Performance Requirements
- D. Product Specifications
- E. Environmental Requirements
- F. Warranties
- G. Exclusions
- H. Installation
- I. Maintenance
- J. Accessories

## 1.2 REFERENCES

### American Association of Textile Chemists and Colorists (AATCC):

- AATCC 16, Test Method of Colorfastness to Light.
- AATCC 107, Test Method for Colorfastness to Water.
- AATCC 129, Test Method for Colorfastness to Ozone in the Atmosphere Under High Humidity.
- AATCC 134, Test Method for Electrostatic Propensity of Carpets.
- AATCC 165-(93), Test Method for Colorfastness to Crocking: Carpets AATCC Crock meter Method.
- AATCC 175-(98), Test Method for Stain Resistance: Pile Floor Coverings
- AATCC 189, Test Method for Fluorine Content of Carpet Fibers
- AATCC 164, Test Method for Colorfastness to Oxides of Nitrogen in the atmosphere under High Humidities.

## American Society for Testing and Materials (ASTM):

- ASTM D418-(12), Methods for Testing Pile Yarn Floor Covering Construction (Finished Pile thickness Only)
- ASTM D5848, Standard Test Method for Mass Per Unity of Pile Yarn for Floor Covering.
- ASTM D5823, Standard Test Method for Tuft Height of Pile Floor Coverings
- ASTM D5793, Standard Test Method for Binding Sites Per Unity Length or Width of Pile Yarn Floor Coverings.
- ASTM D1335 Standard Test Method for tuft Bind of Pile Yarn Floor Covering.
- ASTM E648- Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
- ASTM E662 Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
- ASTM D3676, Standard Specification for Rubber Cellular Cushion Used for Carpet or Rug Underlay (covers thickness, Compression Resistance, Volume, Density, Compression Set, and Accelerated Aging).
- ASTM D3574, Standard Test Methods for Flexible Cellular Materials Slab, Bonded, and Molded Urethane Foams.

 ASTM D3936, Standard Test Method for Resistance to Delamination of the Secondary Backing of Pile Yarn Floor Covering.

# International Standards Organization (ISO):

ISO 2551, Test Method for Dimensional Stability (Aachen test)

## Supplemental Testing Procedures:

PT-155-Rev. 86, Loop Pile Run Resistance test

## Carpet and Rug Institute (CRI):

CRI Indoor Air Quality Testing and Labeling Program

## U.S. Department of Housing and Urban Development (HUD):

 HUD UM 44D-(93), HUD Building Product Standards and Certification Program for Carpet.

# 1.3 SUBMITTALS

- <u>Manufacturer's Data</u> Submit two (2) copies of manufacturer's specifications and installation instructions for Broadloom carpet and related items specified.
- <u>Fiber Requirements</u> Submit certification from the fiber producer verifying the following:
  - $\circ$   $\;$  Use of the specified fiber in the submitted carpet product.
- <u>Warranties</u>
  Submit warranties as described in Section 1.13
- Maintenance
  - Maintenance Manual submit manual of carpet manufacturer's recommendations for the general care, cleaning and maintenance of carpet products.
- <u>Certificate of Compliance</u>

Submit certified test reports that carpet meets all the performance requirements stated above in section 1.3 Performance requirements. Submit <u>certified</u> test reports from a NVLAP Certified Lab that carpet meets all performance criteria.

Shop Drawings

For carpeted areas submit shop drawings showing installation of carpeting, pattern direction, necessary installation accessories, and provisions for work of other trades. Show location of different patterns or styles of carpet. Also show locations of any threshold conditions

 $\circ$   $\,$  The contractor will supply reproducible prints on request, to facilitate shop drawing preparation.

Samples

Submit standard-size carpet samples of each type of carpet, in each specified pattern, color and construction.

Any alternates to specified products must be submitted for approval by a representative of the end user or architect/design firm at least ten (10) working days prior to bid or proposal.

- Final Sample Submittal
  Submit two (2) sets of samples for each carpet type.
- No carpet shipments are permitted until acceptance of final samples is given by representative of the end user or architect/design firm, certifying that samples are the approved color, pattern and texture.
- Custom Color only A representative of the end user or architect/design firm, certifying that the samples are the approved color, pattern and texture, shall sign high quality color samples.
- Samples submitted are assumed to be the manufacturer's best obtainable match to the color described under Materials Section.
- Must have federally registered Branded trademark.

# 1.4 CLOSEOUT SUBMITTALS

Maintenance Data

Include maintenance procedures, recommended cleaning and stain removal materials, and recommended cleaning schedule. Include product data and Material Safety data Sheets (MSDS) for cleaning and stain-removal materials.

- <u>Installation Instructions</u>
  Include detailed installation procedures. Include carpet installation procedures, adhesive types, trowel sizes, spread rates, open times, and Material Safety data sheets (MSDS) for all carpet adhesives.
- <u>Warranties and Performance Certifications</u> Submit written warranties for all products as well as Performance testing results on all items included in Warranty section (including all testing results mandated by EverSet warranty on EverSet products) and Performance section of this specification.

# 1.5 QUALITY ASSURANCE

- <u>Single Source Responsibility</u>: Provide products from a single manufacturer.
  - Warranties must be standard and not job specific.
  - $\circ$   $\;$  All styles must come from the same manufacturer.
  - $\circ$   $\;$  Must be single source fiber extrusion and yarn manufacturing.

 Flooring contractor is responsible for verifying if concrete slabs are suitable for flooring installation including moisture content. Contractor shall perform relative humidity tests at rates recommended by the flooring manufacturer.

# 1.6 QUALIFICATIONS

Manufacturer

Company specializing in manufacturing commercial carpet with minimum five (5) years (documented) experience.

- Installer/Flooring Contractor Qualifications
  - Carpet contractor must provide all the necessary licenses, performance bonds, and insurance certificates that comply with all local, state, and federal laws, ordinances, or codes prior to the start of the installation.
  - Carpet contractor shall be a firm established not less than five (5) years and, if requested, shall submit evidence of having furnished and installed commercial carpet projects of similar size and scope for at least give (5) years.
  - $\circ$   $\,$   $\,$  Flooring Contractor to provide references at the request of the owner.
  - Carpet Contractors must also be mill certified for installing products.
  - Carpet Contractor will be responsible for the proper product installation, including floor preparation, in those areas indicated in the Drawings.
  - Carpet Contractor to provide owner a written warranty that guarantees the completed installation be free from defects in materials and workmanship for a period of two (2) years after job completion.

# 1.7 DELIVERY, STORAGE AND HANDLING

- Deliver carpet in sealed protective rolls and accessories in sealed containers. Segregate each product (if several product styles are involved), according to style, color, pattern, dye lot, run number, and quantity.
- Store products in an enclosed and dry area protected from damage and soiling.

# 1.8 SITE ENVIRONMENTAL REQUIREMENTS

- Do not install carpet until areas have been fully enclosed and environmental conditions have reached the levels indicated during occupancy.
- Maintain ambient temperature and humidity conditions during and after installation of carpet at levels indicated during occupancy.
- Allow carpet to reach room temperature or minimum temperature recommended by manufacturer before beginning installation.

 Protect adhesives from freezing. Follow manufacturer's recommendations for minimum temperatures to which adhesives are exposed.

# 1.9 FIELD MEASUREMENTS

Verify that field measurements are as indicated on drawings.

# 1.10 SEQUENCING

- Sequence installation so as to minimize possibility of damage and soiling of carpet.
- Do not commence installation until painting and finishing work are complete, and ceiling and overhead work have been tested, approved and completed.
- Remove and replace existing carpet (renovations) in accordance with pre-approved architectural plan.

# 1.11 WARRANTY

## Warranty Performance Requirements:

- Warranties must be for Lifetime on all items.
- Lifetime warranties must cover face components and backing components
- Warranties must be non-prorated
- Carpet manufacturer must warrant both product and adhesive systems.
  Fiber must have lifetime static warranty.
  - Fiber must have metime static warrar
- Warranty include coverage for:
  - Provide carpet installer's warranty against defects in installation
  - Provide full spectrum of Manufacturer's <u>Lifetime</u> warranties as outlined below:
    - Wear
    - Tuft Bind
    - Static
    - Edge Ravel
    - Zippering
    - Delamination
    - Impervious to Liquids
    - Dimensional Stability
- Supplemental Lifetime Warranty Items:
  - Protection against Anionic Stains
  - o Protection against Neutral Stains
  - Protection against Color transfer (wet/dry).
  - Protection against Water Bleed.
  - Protection against Alkalis.
  - "Water" Stain Removal warranty.

# 1.13 EXTRA MATERIALS

 Provide percent overage of calculated yardage for each type of carpet (include carpet needed for complete installation plus waste and usable scraps in calculated yardage) as specified by architect and/or end user. Recycle waste, unusable scrap and any carpet damaged during installation through manufacturer's environmental program.

- Elevator carpet: Provide extra stock for two (2) complete carpet changes for each elevator cab.
- Deliver specified attic stock to Owner's designated amounts and to designated storage space, properly packaged and identified. Redirect small pieces of waste to be appropriately recycled.

# PART 2: PRODUCTS

## 2.1 MANUFACTURERS

- J and J Flooring Group
- Substitutions or Equals:
  - o Substitutions are allowed only if they meet the following criteria:
    - Acceptance of alternate product(s) that are accepted as equals must be approved by parties (including, but not limited to) parties that have material interest in the specifications including: Designer, Architect, End-User and Flooring Contractor.
    - Products must meet the following:
      - Must document NO 4 PCH
      - Must not contain SBR Latex
      - Must not contain PVC
      - Unitary backs not acceptable
    - Length of manufacturing Specific Product (s): Must be in production at least 5 Years.
    - Must have documented installations.

# 2.2 CARPET CONSTRUCTION

- All yarn and other carpet materials shall be manufacturer's first quality.
- Carpet shall have the following construction characteristics.
  - Must have <u>no</u> secondary backing

### DETAILED PRODUCT CONSTRUCTION SPECIFICATIONS

Style Name: Boucle II Product Type: Broadloom Construction: **Textured Loop** Fiber Type: **Encore Sdultima** Face Weight: 25.0 Oz. per sq. yd. Dye Method: Solution Dyed Premier Bac Plus (A) Backing Foundation: Width: 12' (3.66m) All specifications are subject to normal manufacturing tolerances

# 2.3 ENVIRONMENTAL ATTRIBUTES AND CRITERIA

- Environmental claims by manufacturer must comply with FTC guidelines.
- Low Emitting Materials Broadloom Carpet. Carpet must pass the Carpet and Rug Institute Green Label Plus Program for VOC emissions.
- Low Emitting Materials: Carpet and all installation components including adhesives, sealers, seam welds and seam sealers must meet the *Low Emitting Materials* standards as outlined in U.S. Green Building Council LEED criteria. Adhesives must meet VOC emissions standards per South Coast Air Quality Management District Rule #1168.
- Installation adhesives must pass the CRI Green Label plus equivalent protocol for VOC emissions.
- End of Life Reclamation Carpet manufacturers must have existing program in place to achieve landfill diversion. Refer to Section 3.7 of this section for specific requirements for reclamation of material. ReCover Carpet recycling program, call toll free 877-373-2925.
- Recycled Content: Carpet must contain a minimum of 14% post-consumer recycled content based on total product weight.
- NSF/ANSI 140 2007e Platinum Certified
- Carpet Face Yarn: In accordance with Executive Order 13101, carpet face yarn must contain minimum 25% pre-consumer Recycled content.
- Manufacturer's recycled yarn content claim must be third party certified by Scientific Certification Systems or other third party auditing company.

### 2.4 ACCESSORIES

- Leveling Compound: Latex type as recommended by carpet manufacturer; compatible with carpet adhesive and curling/sealing compound used on concrete.
- Multipurpose Adhesive: Low VOC NuBroadlok<sup>™</sup> premium multipurpose adhesive or NuSprayLok<sup>™</sup> adhesive, as recommended by carpet manufacturer for direct glue down of carpeting; comply with CRI Green Label Certification Program.
- Non-Metallic Carpet edge Guard: Extruded or molded heavy-duty vinyl or rubber carpet edge guard of size and profile indicated; minimum two (2) inch wide anchorage flange; colors selected by (Architect) (Designer) from manufacturer's standard range of colors.
- Miscellaneous Materials: As recommended by manufacturer of carpet, cushion, and other carpet products; as required to complete installation.

### PART 3 EXECUTION

# 3.1 EXAMINATION

- Examine substrates for conditions under which carpeting is to be installed.
- Verify that floor surfaces are smooth and flat within tolerances specified in Section 3.2 and are ready to receive work.
- Beginning of installation means installer accepts existing substrate conditions.

## 3.2 PREPARATION

- Allow new concrete to cure for 90 days before carpet installation starts.
- Perform moisture content testing as required by manufacturer's instructions to ensure pH readings of no more than nine (9). Moisture transmission of 5.0-lbs/sq. ft per 24 hours is acceptable. If values exceed this level, follow manufacturer's recommendations for moisture transmission mitigation. Do not proceed until unsatisfactory conditions have been corrected.
- Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes and other defects with sub-floor filler.
- Fill, level and make smooth cracks 1/16 inch or more, holes, unevenness, and roughness with compatible latex floor patching compounds. Feather floor filling or leveling compound a minimum of four (4) ft. Sweep floor of loose granular debris prior to filling. After filling, allow filler to dry. Damp mop floor with warm water and allow to dry. Vacuum after mopping to ensure that loose granular debris is removed and to provide a proper substrate to install Broadloom carpet. Prohibit traffic until filler is cured.
- Vacuum floor again immediately before installation of carpeting.
- Confirm compatibility of premium multipurpose adhesive with curing compounds on concrete floors.
- Preheat areas to receive carpet to a minimum temperature of 68° F for 72 hours prior to installation, with a relative humidity of not more than 65 percent. Maintain minimum temperature of 50° F thereafter. Carpet and adhesive must be stored at a minimum temperature of 68° F, for 72 hours prior to installation.
- Store premium multi purpose adhesive and other liquid materials in same atmospheric conditions as carpet, 68° F for at least 72 hours.

# 3.3 INSTALLATION

 Install carpet in accordance with the Technical Bulletins provided by the manufacturer for tufted and/or woven products. These technical bulletins will offer the proper instructions to install carpet including: (1) Conducting Site Testing and conditioning, (2) Floor Preparation, (3) Installation of the carpet, including layout (seaming, carpet layout and cutting, power stretching, approved adhesives systems and seam sealers, etc.) As a supplement, the CRI 104, section 8 will supply additional installation support guidance for your installation.

- Adhesives and Sealers: Carpet adhesives and sealers include, but may not be limited to, Nu Broadlok<sup>™</sup> premium multipurpose adhesive, Nu Broadlok<sup>™</sup> Latex Carpet Edge Sealers, and Nu Broadlok<sup>™</sup> Solvent Free Carpet Seam Sealer.
- Install carpet under open-bottom obstructions and under removable flanges and furnishings, and into alcoves and closets in each space.
- Provide cut outs where required. Conceal cut edges with protective edge guards or flanges.
- Install carpet under open-bottom items and install tight against walls, columns, and cabinets so that the entire floor area is covered with carpet. Cover over floor-type door closers.
- Install edging guards at openings and doors wherever carpet terminates, unless indicated otherwise.
- Perform cutting in accordance with manufacturer's recommendation using tools designed for carpet being installed. Verify carpet match before cutting to insure minimal variation between dye lots.
- Install carpet from same dye lot and run within each continuous carpet area.
- Seal seams with manufacturer recommended seam sealer, if applicable.
- Install carpet with pile-lay in same direction except when indicated otherwise on drawings.
- Use leveling compound where necessary. Feather floor leveling compounds minimum of 4 ft.
- Do not bridge building expansion joints with continuous carpeting. Provide for movement.
- Apply seam adhesive to base of edge glued down. Lay adjoining piece with seam straight, not overlapped or peaked, and free of gaps.
- Roll with appropriate roller for complete contact of adhesive to carpet backing.
- Trim carpet neatly at walls, and around interruptions
  OR
- Extend carpet at base finish up vertical surface to form base. Terminate top of base with cap strip.
- Complete installation of edge strips, concealing exposed edges.
- Cut carpet at fixtures, architectural elements, and perimeters.
- Use a fixed reducer trip to secure broadloom area in open perimeter designs.

 Install carpet on stairs using acceptable permanent adhesive. Furnish and use compatible edge strip and nosing products as required.

# 3.4 FIELD QUALITY CONTROL

- Inspect completed carpet installation on each floor
- Verify that installation is complete; work is properly done and acceptable
- Remove and replace, at no additional cost to owner, any work found not to be acceptable.

## 3.5 CLEANING

- On completion of installation in each area, remove dirt and scraps from surface of finished carpet. Clean soiling, spots, or excess adhesive on carpet with cleaning materials recommended by carpet manufacturer.
- Remove debris; sort pieces from carpet scraps
- At completion of work, vacuum carpet using commercial vacuuming equipment as recommended by manufacturer. Remove spots and replace carpet where spots cannot be removed. Remove rejected carpet pieces and replace with new carpeting. Remove any protruding yarns with shears or sharp scissors.

# 3.6 PROTECTION

- Do not permit traffic over unprotected carpet surface.
- Protect carpet against damage during construction. Cover with 6-mil thick polyethylene covering joints during construction period whenever protection is required so that carpet will be without soiling, deterioration, wear, or damage at time of completion.
- Damaged carpet will be rejected. As carpet is installed, remove trimmings, scraps of carpet and installation materials.
- Maintain protection of carpeting on each floor or area until work is accepted.

END OF SECTION

#### 099100 - PAINTING

#### PART 1 GENERAL

#### 1.1 STIPULATIONS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.

#### 1.2 SUMMARY

- A. Extent of painting work is indicated on drawings and schedules, and as herein specified.
- B. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.
- C. Paint as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and filers, and other applied materials whether used as prime, intermediate or finish coats.

#### 1.3 QUALITY ASSURANCE

- A. Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.
- B. Coordination of Work: Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use, to endure compatible prime coats are used.

### 1.4 SUBMITTALS

- A. Produce Data: Submit manufacturers technical information including paint label analysis and application instructions for each material proposed for use.
- B. Samples: Prior to beginning work, Contractor shall furnish full range of color chips for surfaces to be painted. Submit samples for Professional review of color and texture. Provide a listing of material and application for each coat of each finish sample.
- C. On actual wood surfaces, provide two 4" X 8" samples f natural and stained wood finish. Label identify each as to locations and application.
- D. On concrete masonry, provide two 4" square samples of masonry
- E. for each type of finish and color, defining filler, prime and finish coat.
- F. On actual wall surfaces and other exterior and interior building components, duplicate painted finished of prepared samples. Provide full-coat finish samples on at least 100 sq. ft. of surface, as directed, until required sheen, color and texture is obtained; simulated finished lighting conditions for review of in-place work.
- G. Final acceptance of colors will be from samples applied on the job.
- 1.5 DELIVER AND STORAGE:

- A. Deliver materials to the job site in original, new and unopened packages and containers bearing manufacturers name and label, and following information:
  - 1. Name or title of material.
  - 2. Fed. Spec. number, if applicable.
  - 3. Manufacturers stock number and date of manufacturer.
  - 4. manufacturers name.
  - 5. Content by volume, for major pigment and vehicle constituents.
  - 6. Thinning instructions.
  - 7. Application instructions.
  - 8. Color name and number.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage of paint in a clean condition, free of foreign materials, and residue.
- C. Protect from freezing where necessary. Keep storage area neat and orderly. Remove oily rags and waste daily. Take all precautions to ensure that workmen and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application of paints.
- 1.6 JOB CONDITIONS:
  - A. Apply water-base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F. (10 Deg. C) and 90 degrees F. (32 deg. C) unless otherwise permitted by paint manufacturers printed instructions.
  - Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F. (7 deg. C) and 95 degrees F. (35 deg. C) unless otherwise permitted by paint manufactures printed instructions.
  - C. Do not apply paint in snow, rain, fog or mist, or when relative humidity exceeds 85% or to damp or wet surfaces, unless otherwise permitted by paint manufacturers printed instruction.
    - 1. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.
    - 2. Do not apply paint to plastered walls until the plaster has been thoroughly cured and dried. Obtain plasterer's approval before proceeding.

#### PART 2 PRODUCTS

#### 2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements provide products of one of the following:
  - 1. Sherwin- Williams Co.
  - 2. M.A. Bruder & Son, Inc.
  - 3. Coronado Paint
- 2.2 MATERIALS

- A. Material Quality: Provide best quality grade various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturers identification as a standard, best-grade product will not be acceptable.
- B. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.
- C. Lead content in pigment, is prohibited.
  - 1. This limitation is extended to interior and exterior surfaces which are readily accessible to children.

### PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Applicator must examine areas and conditions under which painting work is to be applied and notify the Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.
- B. Starting of painting work will be construed by Applicators acceptance of surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

## 3.2 SURFACE PREPARATION

- A. General:Perform preparation and cleaning procedures in accordance with paint manufacturers instructions and as herein specified, for each particular substrate condition.
- B. Provide barrier coats over incompatible primers or remove and reprime as required. Notify Professional in writing of any anticipated problems in using the specified coating systems with substrates primed by others.
- C. Remove hardware, hardware accessories, machined surface, plates, lighting fixtures, and similar items in place and not to be finish painted, or provide surface-applied protection prior to surface preparation and painting operations. remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.
- D. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.
- E. Cementitious Materials: Prepare cementitious surfaces of concrete, concrete block, cement plaster to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.
  - 1. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct these condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturers printed directions.

- F. Wood: Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.
  - 1. Prime or seal wood required to be job-painted immediately upon deliver to job. Prime edges, ends, faces, undersides, and backsides of such wood.
  - 2. When transparent finish is required, use varnish as specified for backpriming.
- G. Ferrous Metals: Clean ferrous surfaces, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
  - 1. Touch up shop-applied prime coats wherever damaged or bare.
  - 2. Clean and touch-up with same type shop primer.
  - 3. Galvanized Surfaces: Clean free of oil and surface contaminants with nonpetroleum based solvent.
  - 4. All exterior metal lintels shall be galvanized and require painting.

### 3.3 MATERIALS PREPARATION

- A. Mix and prepare painting materials in accordance with manufacturers directions.
- B. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. remove film and, if necessary, strain material before using.

# 3.4 APPLICATION

- A. General: Apply paint in accordance with manufacturers directions. Use applicators and techniques best suited for substrate and type of material being applied.
  - 1. Paint, surface treatments, and finishes, are indicated in "Schedules" of the Contract Documents.
  - 2. Provide finish coats which are compatible with prime paints used.
  - 3. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  - 4. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.

- 5. Finish exterior doors, on tops, bottoms and side edges same as exterior faces, unless otherwise indicated.
- 6. Sand lightly between each succeeding enamel or varnish coat.
- 7. Omit first coat (primer) on metal surfaces which have been shop-primed and touch up painted, unless otherwise indicated.

## 3.5 SCHEDULING PAINTING

- A. Apply first coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
- B. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- C. Minimum Coating Thickness: Apply materials at not less than manufacturers recommend spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.
- D. Prime Coats: Apply prime coat of material which is required to be painted or finished, as scheduled.
- E. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
- F. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.
- G. Transparent Clear Finishes: Use multiple coats to produce glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surfaces imperfections.
- H. Provide satin finish for final coats, unless otherwise indicated.

### 3.6 CLEAN-UP AND PROTECTION

- A. Clean- up: During progress of work, remove from the site discarded paint materials, rubbish, cans and rags at end of each workday.
- B. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing and repainting as acceptable to Professional.
  - 1. Provide "Wet Paint" signs as required to protect newly-painted finishes.

## 3.7 SCAFFOLDING

- A. Furnish and maintain all scaffolding and similar temporary work necessary for the execution of the work covered by this Section of Specifications. Scaffolding shall interfere as little as possible with the work being performed by other trades; shall be shifted between coats, if necessary, to allow installation of other work, and shall be removed promptly upon completion of painting or finishing.
- B. General: Provide the following paint systems for the various substrates, as indicated. Materials are based on products of Sherwin-Williams Co. Equivalent products of listed manufacturers are approved subject to compliance with specification requirements.

# 3.8 PAINT SCHEDULE:

- A. <u>Drywall:</u> Two coats over Primer (Eggshell Finish) First and Second Coats: S-W PROMAR 200 Latex
- <u>Ferrous Metal:</u> 2 coats over primer (semi-gloss finish)
  Primer: Kem Kromick Universal Metal Primer B50Z series
  First and Second Finish Coats: ProMar 200 Interior Alkyd Semi-Gloss Enamel,
  B34W200 series
- C. <u>Drywall Ceilings</u>: Two coats over existing (flat finish) First and Second Coats: S-W PROMAR 200 Latex

END OF SECTION 099100
#### 101014 - SIGNAGE

#### <u> PART 1 - GENERAL</u>

#### 1.1 <u>STIPULATIONS</u>

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Section apply to Work of this Section.

#### 1.2 <u>SUMMARY</u>

- A. Forms of specialty signs required include the following:
  - 1. Interior Signage

#### 1.3 <u>SUBMITTALS</u>

- A. Submit shop drawings for fabrication and erection of specialty signs. Include plans, elevations, and large-scale details of sign wording and lettering layout. Show anchorages and accessory items. Furnish location template drawings for items anchored to permanent construction.
- B. Product Data: Submit manufacturer's technical data and installation instructing for each type of sign required.
- C. Samples: Submit samples of each sign form and material showing finishes, colors, surface textures and qualities of manufacturer and design of each sign component including graphics.
  - 1. Submit full-size sample units, if requested by the Architect. Acceptable units may be installed as part of the work.

#### PART 2 - PRODUCTS

#### 2.1 INTERIOR SIGNS

- A. Plaque Signs: Fabricate panel signs to comply with the requirements indicted for materials, thickness', finished, colors, designs, shapes, sizes, and details of construction.
  - 1. Produce smooth, even, level sign panel surfaces, constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16" measured diagonally.
- B. Unframed Plaque Signs: Fabricate unframed plaque signs with edges mechanically and smoothly finished to conform with the following requirements:
  - 1. Construction: 0.080" thick semi-matte finish acrylic plastic panel, laminated to a 0.080" thick acrylic plastic base.
  - 2. Corner Condition: Provide corners rounded to 1/2" radius.

C. Laminated Sign Panels: Permanently laminate face panels to backing sheets of material and thickness indicated using the manufacturers standard process, unless otherwise indicated.

#### 2.2 GRAPHIC IMAGE PROCESS

- A. Graphic Content and Style: Provide sign copy to comply with the requirements indicated for sizes, styles, spacings, content, positions, materials, finishes and colors of letters, numbers, symbols, and other graphic devices.
- B. Subsurface Copy: Apply copy to the back face of clear acrylic sheet forming the panel face by process indicated to produce precisely formed opaque images, free from rough edges.
- C. Use reverse silk-screen process to print copy; overspray the copy with an opaque background color coating.
- D. Use Dupont "Chromalin" heat and pressure-laminated photopolymer film system to form copy and background color.

The manufacturer has the option of selecting either process indicated above, or using the subsurface engraving process, as appropriate to the copy form and the economics of production.

- E. Typography: As selected by Architect from full range of samples.
- F. Provide the following signs:

Provide (1) 7 x 7  $\pm$  sign for Unisex HC Restroom Provide (2) Exit Signs

- G. Provide Braille and letter/number ht. as required by ADA.
- H. All signs shall be the same type.

#### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. General: Locate sign units and accessories where indicated or if not indicated as directed by Architect using mounting methods of the type described and in compliance with the manufacturer's instructions.
- B. Install Interior sign units level, plumb and at 60"  $\pm$  (verify with local code inspector) AFF to the top of the sign. Locate on the strike side of the opening  $\pm$  3" from the frame (on the wall).
- C. Wall Mounted Plaque Signs: Attach panel signs to wall surfaces using double face tape as recommended by manufacturer.

D. All other signs shall be mounted in locations and heights as selected by the Architect.

#### 3.2 CLEANING AND PROTECTION

A. At completion of the installation, clean soiled sign surfaces in accordance with the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

END OF SECTION 10 1040

#### 102000 - MISCELLANEOUS SPECIALTIES

#### PART 1 GENERAL

#### 1.1 STIPULATIONS

- A. The Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.
- 1.3 DESCRIPTION OF WORK
  - A. Extent of each type of specialty is shown on the drawings and herein specified.
- 1.4 QUALITY ASSURANCE
  - A. Coordinate installation of Miscellaneous Specialties with related trades.
  - B. Products: Provide products of same manufacturer for each type of specialty unit and for units exposed in same areas.
- 1.5 SUBMITTALS
  - A. Product Data: Submit manufacturers technical data and installation instruction for each specialty.
  - B. Samples: Submit full size samples of units to professionals for review of design and operation. Acceptable samples will be returned and may be used in the work.
  - C. Setting Drawings: Provide setting drawings, templates, instructions, and directions for installation of anchorage devices in other work.

#### PART 2 - PRODUCTS

- 2.1 WIRE SHELVING AND HANGING ROD
  - A. Manufacturer: Closetmaid
  - B. Install at Pantry, Linen and Utility Closets
- 2.2 COUNTERTOP SUPPORT BRACKETS
  - A. Provide countertop support brackets in accordance is the attached cut sheet.
  - B. Manufacturer: Ironsupports.com
  - C. Eclipse Iron Corbel 1.5 inch wide
  - D. Location found on Drawings.
- 2.3 CABINETS (at Apartment only)
  - A. Provide manufactured casework as indicated on the drawings.
  - B. Manufacturer: Hampton Bay
  - C. Color: to be selected by Architect for manufacturers standard colors.
  - D. See Cut Sheets (attached) 4 pages
- 2.4 CABINET PULLS/HANDLES
  - A. Provide cabinet pulls for casework as indicated on the drawings.

- B. Manufacturer: Ravinte
- C. Style: Bar Color: Satin Nickel
- D. Size: 6 inches
- E. See Cut Sheets (attached) 2 pages
- 2.5 ELECTRIC FREE-STANDING FRONT-CONTROL ELECTRIC RANGE
  - A. Provide Electric free-standing front-control electric range as indicated on the drawings.
  - B. Manufacturer: General Electric
  - C. Size: 30" as shown on the drawings.
  - D. Color: to be selected by Architect for manufacturers standard colors.
  - E. See Cut Sheet (attached) 2 pages
  - F. Quantity: 2

#### 2.6 RANGE HOOD

- A. Provide 4-Way Convertible Range Hood as indicated on the drawings.
- B. Manufacturer: Broan
- C. Color: to be selected by Architect for manufacturers standard colors.
- D. See Cut Sheet (attached) 1 page

#### 2.7 REFRIGERATORS

- A. Provide a refrigerator at the Apartment and at the Community Room.
- B. Manufacturer: General Electric
- C. Size: 17.5 CF at Apartment; 21.9 CF at Community Room
- D. See Cut Sheets (attached) 4 pages
- 2.8 STAINLESS STEEL BACKSPLASH
  - A. Provide and install stainless steel backsplash behind the range. See drawing for extent.

#### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in for electrical systems if applicable for locations of connections before item installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Coordinate size and location of items to be attached to or recessed into surfaces. Furnish anchoring devices with templates, diagrams, and instructions for their installation.
- B. Set items true and plumb. Provide necessary non corroding shims and fasteners required.
- C. Have pre-installation meeting with all applicable parties affected by the installation.

D. Clean area of debris.

#### 3.3 INSTALLATION

- A. General: Install all items as per the written instructions of the manufacturer.
- 3.4 ADJUSTING AND CLEANING
  - A. Adjust items for proper, safe, efficient operation.
  - B. Test all items after installation for appropriate workability.
  - C. Restore marred, abraded surfaces to their original condition.
  - D. Conduct on site session with Owner's representative discussing operation of any items. Demonstrate operations and maintenance of applicable items.

## END OF SECTION 102000



# **Cabinet Selection**

Available in finished cabinetry only.

<sup>♦</sup>Available in unfinished cabinetry only.

#### Wall Cabinets

Wall cabinets are 12"D unless noted.

Wall 30"H 9"W 12"W 15"W 15"W 18"W 21"W 24"W	<b>36"H</b> 9"W 12"W 15"W 18"W 21"W 24"W	<b>42"H</b> <sup>◆</sup> 12"W 15"W 18"W 24"W			<b>Wall</b> <b>30"H</b> 27"W 30"W 36"W	<b>36"H</b> 27"W 30"W 36"W	<b>42"H<sup>●</sup></b> 30"W 36"W
24"W	24"W			N.			



Corner Wall					
30"H	36"H	42"H <sup>◆</sup>			
24"W	24"W	24"W			
Installs in a 24" x 24" wall area					



Wall Bridge					
12"H	15"H	18"H			
30"W	30"W	30"W			
36"W	36"W	36"W			



**Tall Wall Bridge** 231/2"H 30"W 30"W x 15"D 36"W



Wide Wall Bridge<sup>◊</sup> 24"H 54"W

Actual installed height is 23 1/2" tall



30"H 18"W

Wall Flex<sup>•</sup>

Open Shelves



Organizer Cubes



18"H 30"W



5	
$\sim$	

Microwave Shelf

Open Shelves



Ready to Assemble. Trimable and configurable.

Wall Flex Shelf<sup>•</sup> 13 3/8"H 48"W

Model numbers for wall cabinets start on page 18. See finishes on page 3.

• Wall Flex cabinets come with the shelves and dividers to configure them your way. Our flex cabinets have finished matched interiors. The Wall Flex Shelf requires installation assembly.

# Cabinet Selection

•Available in finished cabinetry only.

 $^{\Diamond}\mbox{Available}$  in unfinished cabinetry only.



to heights of 90" and 96"H.



 $\langle \rangle$ 

Home > PULLS > 10 Pack 6 Inch Cabinet Pulls Brushed Nickel Stainless Steel Kitchen Cupboard Handles Cabinet Handles, 3.75 Inch Hole Center

# SIDEBAR



Have Questions? <u>Ask An Expert</u>

# 10 Pack 6 inch Cabinet Pulls Brushed Nickel **Stainless Steel Kitchen Cupboard Handles** Cabinet Handles, 3.75 inch Hole Center

5 sold in last 16 hours

Brand:	<u>Ravinte</u>
Product Code:	
Availability:	67 In stock

Limited-Time Offers, End in: 00D:00H:00M:00S

# \$16.99

Colour:Satin Nickel Style Name :Bar Material Type : Metal Shape: Round If you're replacing your handle, measure and ensure the center to center hole spacing of the current handle is 3-3/4 inches. Installing new cabinet handles, drill two holes with center to center spacing of 3-3/4 inches. [MEASUREMENT]: 3.75 inch(96mm), Total...

Quantity:

>

1

Subtotal: \$16.99

**ADD TO CART** 



SIZE GUIDE

I agree with the <u>Terms & conditions</u>

**BUY IT NOW** 

99 customers are viewing this product

#### **DESCRIPTION CUSTOMER REVIEWS**

Colour:Satin Nickel

Style Name :Bar

Material Type : Metal

Shape: Round

If you're replacing your handle, measure and ensure the center to center hole spacing of the current handle is 3-3/4 inches. Installing new cabinet handles, drill two holes with center to center spacing of 3-3/4 inches.

[MEASUREMENT]: 3.75 inch(96mm), Total Length:6 inch(152mm), Diameter:1/2 inch(12mm) Projection:1-1/4 inch(32mm)

#### **RELATED PRODUCTS**

## **100 DAY TRIAL**



#### **RECENTLY VIEWED PRODUCTS**



Ravinte Cabinet Pulls Brushed Nick... \$59.99 from \$14.99

**STAY CONNECTED** 

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#### APARTMENT RANGE - GE ELECTRIC RANGE

GE® 30" Free-Standing Electric Range - JBS460DMWW - GE Appliances

## GE\* 30" Free-Standing Electric Range

Model #: JBS460DMWW **\*\*\*\*** <u>4.2 (66)</u> Write a review



# <u>SPECS & DETAILS</u> $\sim$

#### Dimensions: 47 H x 30 W x 28 3/4 D

APPEARANCE			
Color Appearance	White		
Control Knobs	Color-Matched		
Handle	Designer Style		
Handle Color	White		
Oven Door Features	Big View Oven Window Glass Door		
Textured Steel Side Panels	Yes		

CAPACITY	
Total Capacity (cubic feet)	5.00 cu ft

## ECHA BARNETT APPLIANCES

FEATURES	
Configuration	Range with Storage Drawer
Control Location	Front
Cooking Technology	Traditional
Cooktop Burner Type	Coil
Cooktop Surface	One-Piece Upswept Porcelain-Enamel
Cooktop Type	Coil
Drawer Type	Storage
Element - Left Front	6" 1250W Temp Limiting Coil
Element - Left Rear	8" 2400W Temp Limiting Coil
Element - Right Front	8" 2400W Temp Limiting Coil
Element - Right Rear	6" 1250W Temp Limiting Coil
Fuel Type	Electric
Heating Element "ON" Indicator Light	Yes
Lift-Up Cooktop With Support Rods	Yes
OU Certified	No
Oven Cleaning Type	Standard Clean
Oven Control Features	Oven "ON" Light
Oven Features	4-Pass Bake Element 4-Pass Broil Element
Oven Interior	1 Incandescent Light
Oven Rack Features	2 Oven Racks
Oven Rack Positions (Single or Upper/Lower)	6
Product Type	Free-Standing Single Oven
Removable One-Piece Drip Bowls	Chrome
Sabbath Mode	Yes
Storage Drawer Features	Removable Full-Width

# BRSAN

# **SPECIFICATION SHEET**

# F40000 SERIES TWO-SPEED 4-WAY CONVERTIBLE RANGE HOOD



Constructed with quality and good looks, the F40000 is superior to the competition whether ducted vertically, horizontally, or non-ducted.

#### FEATURES

- Two speed fan control
- Polymeric blade and light lens (accepts up to 75W bulb)
- Washable aluminum filter
- Converts to non-ducted by removing cover plate from front of hood and installing the non-ducted filter (purchase separately)
- Mitered sides and hemmed bottom for safety and good looks
- 3¼" x 10" damper/duct connector included
- 7" round duct adapter plate included. 7" round damper purchase separately.
- Contemporary styling in White, Almond, Biscuit, Black, and Stainless Steel
- Available in 24, 30", 36" and 42" widths

#### SPECIFICATIONS

VOLTS	AMPS	RPM	CFM	SONES	DUCT
120	2.5	2850	160	6.5	3¼" x 10" (H)
120	2.0	2850	160	6.5	3¼" x 10" (V)
120	2.0	2850	190	6.5	7" Round (V)
120	2.0	2850	-		Non-ducted



HVI-2100 CERTIFIED RATINGS comply with new testing technologies and procedures prescribed by the Home Ventilating Institute, for off-the-shelf products, as they are available to consumers. Product performance is rated at 0.1 in. static pressure, based on tests conducted in a state-of-the-art test laboratory. Sones are a measure of humanly-perceived loudness, based on laboratory measurements.



# TYPICAL SPECIFICATION

Range hood shall be Broan Model F40000.

Unit shall be convertible between ducted using a washable aluminum filter (included) and non-ducted (purchase nonducted filter separately).

Motor to be permanently lubricated. RPM not to exceed 2850.

Unit shall have a two-speed fan switch with separate light switch.

Sides shall be mitered and bottom edge hemmed - with no sharp edges.

Air delivery shall be no less than 160 CFM and sound levels no greater than 6.5 Sones  $(3\frac{4}{x} \times 10^{\circ})$  horizontal and vertical discharge) or 190 CFM at 6.5 Sones (7" round discharge). All air and sound ratings shall be certified by HVI.

Unit shall be U.L. listed.



\* Center point for 7" round installation

Broan-NuTone LLC, 926 West State Street, Hartford, WI 53027 (1-800-637-1453)

REFERENCE	QTY.	REMARKS	Project	
			Location	
			Architect	
			Engineer	
			Contractor	
· -			Submitted by	Date
	~			

99043020E

#### APARTMENT REFRIGERTOR, 18 CF

GE® 17.5 Cu. Ft. Top-Freezer Refrigerator - GTS18HYNRFS - GE Appliances

## GE\* 17.5 Cu. Ft. Top-Freezer Refrigerator

Model #: GTS18HGNRWW **\*\*\* 4.5** (2255) Write a review





# <u>SPECS & DETAILS</u> $\sim$

Dimensions: 67 3/8 H x 28 W x 32 1/2 D

ACCESSORIES				
Optional Icemaker Kit	IM4D			
APPEARANCE				

Coll-Free Back	Yes
Color Appearance	White
Door Stops	Yes
Door Swing	Reversible Hinges
Exterior Design	Smooth Rounded Doors
Handle Color	White
Textured Steel Case	Color Matched

## ECHA BARNETT APPLIANCES

CAPACITY		
Freezer Capacity	4.04 cu ft	
Fresh Food Capacity	13.49 cu ft	
Total Capacity (cubic feet)	17.50 cu ft	

Control Type	Upfront Temperature Controls
Defrost Type	Frost Free
Exterior Style	Free-Standing
Freezer Cabinet Shelves	1 Adjustable Glass
Freezer Door Shelves	2 Full-Width Fixed
Freezer Features	1 Adjustable Shelf Spillproof Freezer Floor
Fresh Food Cabinet Drawers	2 Clear 1 Half-Width Deli Drawer
Fresh Food Cabinet Shelves	3 Total 2 Glass

Fresh Food Cabinet Shelves	3 Total 2 Glass 2 Full-Width 2 Adjustable 1 Glass Drawer Cover	
Fresh Food Door Features	Gallon Storage Dairy Compartment	
Fresh Food Door Shelves	3 Fixed (2 with Gal. Storage)	
Fresh Food Features	Interior Lighting - LED	
Icemaker	Optional (IM4D Ready)	
Leveling System	2 Point Front Adjustable	
OU Certified	No	
Performance Features	Easily Removable Door Gaskets	
Product Type	Top Freezer Refrigerator	
Refrigerant Type	R600a	
Sabbath Mode	Yes	
Temperature Management Features	Air Tower	

#### RECREATION ROOM REFRIGERATOR, 20 CF

GE® ENERGY STAR® 21.9 Cu. Ft. Top-Freezer Refrigerator - GIE22JTNRWW - GE Appliances

## GE\* ENERGY STAR\* 21.9 Cu. Ft. Top-Freezer Refrigerator

Model #: GIE22JTNRWW **\*\*\* \*** <u>4.0</u> (226) Write a review



# <u>SPECS & DETAILS</u> $\sim$

Dimensions: 66 3/8 H x 32 3/4 W x 34 1/2 D

APPEARANCE		
Coil-Free Back	Yes	
Color Appearance	White	
Door Stops	Yes	
Door Swing	Reversible Hinges	
Exterior Design	Textured Rounded Doors	
Handle Color	White	
Textured Steel Case	Color Matched	

### ECHA BARNETT APPLIANCES

CAPACITY		
Freezer Capacity	6.68 cu ft	
Fresh Food Capacity	15.25 cu ft	
Total Capacity (cubic feet)	21.90 cu ft	

FEATURES		
Control Type	Upfront Temperature Controls	
Defrost Type	Frost Free	
Exterior Style	Free-Standing	
Freezer Cabinet Shelves	1 Adjustable Wire	
Freezer Door Shelves	2 Full-Width Fixed	
Freezer Features	Spillproof Freezer Floor Ice Bucket 1 Adjustable Shelf	
Fresh Food Cabinet Drawers	3 Total 2 Clear 1 Snack Drawer	
Fresh Food Cabinet Shelves	3 Total 2 Glass 2 Full-Width 2 Adjustable 1 Glass Drawer Cover	
Fresh Food Door Bins	2 Total	
Fresh Food Door Features	Gallon Storage Dairy Compartment	
Fresh Food Door Shelves	2 Total 1 with Gallon Storage	
Fresh Food Features	Interior Lighting - LED	
Icemaker	Factory-Installed	
Leveling System	2 Point Front Adjustable	
OU Certified	No	
Performance Features	Easily Removable Door Gaskets Never Clean Condenser	
Product Type	Top Freezer Refrigerator	
Sabbath Mode	Yes	
Temperature Management Features	Air Tower	

#### 102813 - TOILET AND BATH ACCESSORIES

#### PART 1 - GENERAL

#### 1.1 STIPULATIONS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to Work of this Section.

#### 1.2 <u>SUMMARY</u>

A. Extent of each type of toilet accessory is indicated on the Drawings.

#### 1.3 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.
- B. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.
- C. Products: Provide products of same manufacturer for each type of accessory unit and for units exposed in same areas, unless otherwise acceptable to Architect.

#### 1.4 <u>SUBMITTALS</u>

- A. Product Data: Submit manufacturer's technical data and installation instructions for each toilet accessory.
- B. Samples: Submit full-size samples of units to Architect for review of design and operation. Acceptable samples will be returned and may be used in the work.
- C. Setting Drawing: Provide setting drawings, templates, instructions and directions for installation of anchorage devices and cut-out requirements in other work.

#### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide toilet accessories by one of the following:
  - 1. Bobrick Washroom Equipment, Inc.
  - 2. A & J Washroom Accessories
  - 3. American Specialties, Inc.
  - 4. Bradley Corporation
  - 5. Franklin Brass Mfg. Co.
  - 6. Hallmack-Nutone/Div. Scovill
  - 7. G.M. Ketcham Co., Inc.
  - 8. McKinney/Subsidiary Kidde, Inc.
  - 9. Watrous, Inc.
  - 10. GAMCO
- B. See Drawings/Accessory Schedule for specific equipment required.

C. Grab bars and mirrors are furnished and installed by the General Contractor. Other accessories are furnished by the Owner and installed by the General Contractor (please see drawings). All blocking/backing installed by the General Contractor.

#### 2.2 MATERIALS, GENERAL

- A. Stainless Steel: AISI Type 302/304, with satin finish, 22 gage (.034") minimum, unless otherwise indicated.
- B. Sheet Steel: cold rolled, commercial quality ASTM A 366, 20 gage (.040") minimum, unless otherwise indicated. Surface preparation and metal pretreatment as required for applied finish.
- C. Galvanized Steel Sheet: ASTM A 527, G60
- D. Galvanized Steel-Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit or of galvanized steel where concealed.

#### 2.3 FABRICATION

A. General: Only an unobtrusive stamped logo of manufacturer is permitted on exposed face of toilet or bath accessory units. On either interior surface not exposed to view or back surface, provide additional identification by means of either a printed, waterproof label or a stamped nameplate, indicating manufacturers name and product model number.

#### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install toilet accessory units in accordance with manufacturer's instructions, using fasteners which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations and at heights indicated, or if not indicated, as directed by the Architect.
- B. All accessories mounting heights must comply with the requirements set forth in the ANSI A117.1-2003 code.
  - 1. If a discrepancy exists between the contract documents and the code listed above, the ANSI requirements must be satisfied.

#### 3.2 ADJUSTING AND CLEANING

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces after removing temporary labels and protective coatings.
- 3.3 The General Construction shall furnish and install accessories as indicated on the drawings as to 'furnish and install' such as grab bars, mirrors, etc.
- 3.4 The General Contractor shall install accessories provided by the Owner as indicated on the drawings such as toilet paper holders, paper towel dispensers, soap dispensers, etc.

3.5 The General Contractor shall provide solid backing in stud/drywall construction to provide adequate support for all accessories shown.

END OF SECTION 10 2813.13

#### 123200 - MANUFACTURED CASEWORK

#### PART 1 GENERAL

#### 1.1 STIPULATIONS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.
- B. See Section 10 2000 Miscellaneous Specialties for kitchen cabinetry.

#### 1.2 DESCRIPTION OF WORK

- A. The extent of Manufactured Casework is shown on the drawings. Work includes the fabrication, delivery and unloading of all plastic laminate cabinets, counter tops, vanities, shelving, etc. as shown on the drawings and installation of same.
- B. Comply with ADA and ANSI accessibility requirements.
- C. Provide all necessary materials, labor, and accessories required to provide fully functioning assemblies.
- D. All end panels shall be finished materials as well as any panels exposed to normal viewing.
- E. Scribe all units tight to adjacent surfaces.
- F. This section also includes solid surface tops and back and side splashes.

#### 1.3 SCOPE OF WORK

- A. It is the intent of this specification to establish minimum performance and quality criteria consistent with pre-established standards of design and function herein described. Laminated plastic casework not meeting these minimum standards will be unacceptable.
- B. Where specific materials, finishes, construction details and hardware are specified herein, the casework contractor shall be held in strict accordance. Substitutions will be considered prior to bid date providing same are submitted in writing to the Architect no later than seven work days prior to bid date; said substitutions will list any and all deviations from this specification. A formal addenda will be issued if any/all of said substitutions are accepted, listing appropriate changes. No other deviations will be accepted.
- C. Installation shall be by experienced carpenters. Coordinate with plumbing and electrical contractors.
- D. Work in this section includes but is not limited to Community Room Cabinetry, all miscellaneous tops and window stools, all other casework and tops not specified elsewhere.

#### 1.4 GENERAL REQUIREMENTS

A. It is the intent to have one manufacturer or distributor be responsible to furnish all the millwork and accessories in this section in order to insure uniformity and coordination of finish, color, design, construction, hardware and other refinements.

- B. Provide all corner fillers, face fillers of any type and all necessary fittings and scribing to walls as required with suitable scribing strips.
- C. Items of material not specifically mentioned, but required or necessary for the complete installation of the equipment described herein, shall be furnished as if called for in detail by the specifications and/or shown upon the drawings.

#### 1.5 STANDARD OF QUALITY

- A. Design and arrangement of equipment shown on plans as herein specified has been determined after considerable study and planning. This contractor will be required to adhere to the requirements shown on the drawings and specifications.
- B. The approval of a manufacturer other than specified does not necessarily indicate that the manufacturers standard products are acceptable. The specifications indicate a minimum standard of materials, methods and detailing. All manufacturers must have been in the manufacture of Manufactured Casework at least 5 consecutive years.
- C. In submitting equipment of other manufacturers, a complete list of catalog numbers, specifications and illustrations must be submitted with the bid in order that a fair comparison can be made as to quality, size and design of equipment each bidder intends to furnish and install under this contract.
- D. Casework shall be constructed to conform to the Architectural Wood Institute AWI " Premium" Division 400 level of construction. Submit certification that products produced comply with the specified grade.

#### 1.6 QUALITY CONTROL

- A. Manufacturer offering products to comply with the requirements for Manufactured Casework for plastic laminate work:
  - 1. LSI Corp. of America, Minneapolis, Minn
  - 2. "Wood Metal Industries", Selingsgrove, PA
  - 3. TMI, Systems Design Corp. Dickenson, ND, Trimline 7000 Series.
  - 4. "Southside Mfg. Co.", PO Box 207, Danville, VA
  - 5. Greensteel MG 200 Series, Dixonville, PA
  - 6. "Tru-Built" Calmar Manufacturer, Calmar, IA
  - 7. Local cabinet manufacturers with capability of volume production, quality control and construction methods/materials described herein.

#### 1.7 SUBMITTALS

- A. Shop Drawings: Complete shop drawings shall be submitted for approval. These drawings shall show the size and arrangements of all equipment and the relation to adjacent work and material.
  - 1. All required measurements shall be obtained at the building.
  - 2. Complete sets of drawings shall be supplied in quantities as required by the Conditions of Contract for distribution.
  - 3. No fabrication shall be started until the drawings with the Professionals "Final Approval" stamp affixed have been received.

#### 1.8 PRODUCT HANDLING

- A. In order to insure safe delivery to job site, all equipment is to be delivered uncrated in padded vans.
- B. Deliver wood equipment only after wet operations in building are completed.
- C. Store completed wood equipment in a ventilated place, protected from the weather, with relative humidity therein of 50% or less at 70° F.
- D. Protect finished surfaces from soiling and damage during handling and installation. Keep covered with polyethylene film or protective covering.

#### PART 2 PRODUCTS

#### 2.1 MATERIALS

- A. Plastic laminate, vertical grade exposed exterior vertical surfaces ( and inside surfaces exposed where there are no doors or have glass doors) shall have a textured finish and meet NEMA Standard LD3-1980 GP20 for vertical grade plastic laminate. Colors are to be selected from the manufacturers standard color chart.
- B. Plastic laminate, horizontal grade plastic laminate countertop surfaces shall have a textured finish and meet NEMA Standard LD3-1980 GP50 for horizontal grade plastic laminate. Colors are to be selected from the manufacturers color chart.
- C. Balance Sheet unexposed ends, tops, bottoms, and the underside of countertops shall have a backer sheet suitable to provide a balanced construction.
- D. Cabinet Liner theramally fused low pressure laminate in colors selected from standard option choices.
- E. Particleboard shall be of (3) ply construction, a minimum of 45 lb. per cubic foot density, and with a moisture content not be exceed 8%.
- F. Thermal fused particleboard for cabinet backs shall be 1/2 nominal thickness, finished in standard option choices.
- G. PVC Edging shall be a high impact PVC, UV cured for durability. Edging to be applied with hot melt adhesive under heat and pressure. Use 3 mm for drawers and doors.

#### 2.2 METAL PARTS

A. All metal parts shall be appropriately protected from oxidation by painting or anodizing at the option of the manufacturer.

#### 2.3 HARDWARE

- A. Hinges shall be the Blum Modul 90 or equal, concealed self closing type metal hinges with a 170° opening.
- B. Pulls shall be stainless steel with satin nickel finish, 6 1/8" long as manufactured by Alpine.

- C. Drawer suspensions:
  - 1. Regular drawers shall be metal equipped with white epoxy coated bottom mounted drawer suspensions with a static load capacity of 100 lbs.
  - 2. File drawers shall be equipped with metal white epoxy coated "full extension" suspensions with a static load capacity of 100 lbs.
  - 3. Apron drawers shall be equipped with a precision ball bearing metal suspension.
  - 4. All drawer suspensions have an integral drawer stop.
- D. Adjustable Shelf Supports adjustable shelves are supported by heavy duty nylon shelf clips to be inserted in pre-drilled holes spaced 1-1/4" (32mm) apart. Support clips shall have a (2) stem engagement system.

#### 2.4 CABINET CONSTRUCTION

- A. The terms "exposed surfaces", "semi exposed surfaces", and "concealed surfaces" shall be defined per the Architectural Woodwork Institute, AWI 1600B-G-1 Identification of Cabinet Parts by Surface Visibility.
- B. Joinery Cabinets shall be assembled using dowel construction to comply with AWI standards called for.
- C. Bases All base and tall cabinets shall have an integral exterior plywood base with an unfinished toe board. A 2-1/8" by 4" toespace is provided by notching the end panels.
  - 1. Note: seal all bottoms of cabinetry edges or ladder bases in contact with floor to prevent soak up of spills of water.
- D. Tops and Bottoms:
  - 1. Full solid bottoms and tops shall be constructed of 3/4" thick particleboard. Semi exposed tops and bottoms are surfaced with melamine cabinet liner on the interior and a suitable balance sheet on the reverse side. Front edges shall be banded to match the cabinet interior.
  - 2. The bottom surface of wall cabinet bottoms shall be finished in cabinet liner.
  - 3. Sink cabinet interiors shall be laminated with melamine cabinet liner. Sink cabinets shall be provided without a solid top and shall have a removable back.
  - 4. All base cabinets without countertops 72" or less in height are provided with a finished top.
- E. Ends All ends shall be 3/4" thick particleboard. The interior of unexposed ends are finished in melamine cabinet liner with a suitable backer sheet on the reverse side. Exposed ends shall have a balancing cabinet liner interior. The front edge of the end panel of base and tall cabinets and the front and bottom edge of wall cabinets are finished in edging to match the cabinet interior. Where required, holes for adjustable shelves are bored on 1-1/4" (32mm) centers. No extra holes are bored. All ends are dadoed to accept a fully captured back.
- F. Partitions shall be 3/4" thick particleboard laminated on both sides with melamine cabinet liner. The front edge of the partition is banded with edging to match the cabinet interior.
- G. Adjustable Shelves All shelves 30" in length and less shall be made from 3/4" thick particleboard core. Shelves greater than 30" in length shall be made from 1" thick particleboard core. Both surfaces of the shelves are to be finished in melamine cabinet liner

permitting both surfaces of the shelf to be used. The front edge of the shelf to be banded with edging to match the cabinet interior.

- Backs Standard backs shall be 1/2" thick prefinished particleboard and are to be fully captured in the cabinet ends. Sink cabinet backs are removable for access to plumbing.
  Exposed exterior backs are 3/4" thick particleboard and laminated with vertical grade plastic laminate on the exterior and almond cabinet liner on the interior.
- Doors and Drawer Fronts shall be overlay in design. Door and drawer fronts shall be 3/4" thick particleboard with vertical grade laminate on the exterior and interior. Double doors shall be used on cabinets with widths greater than 24". All edges of doors and drawer fronts shall be banded with edging to match the cabinet face door. The number of hinges per door areas follows:

<u>Door Height</u>	Number of Hinges
0" - 36"	2
37" - 61"	3
62" - 80"	4
81" - 96"	5

- J. Drawers drawer box fronts, backs and sides shall be of 1/2" thick particleboard with almond melamine laminate on the interior and exterior surfaces. The top edges of the drawer box are to be banded with matching PVC edging. The drawer box bottom is manufactured from 1/4" thick prefinished particleboard. The drawer box front, back and sides are to be assembled with dowels spaced at 1-1/4" (32mm) centers. The bottom shall be completely inset into a dado in the box sides, front and back members. The drawer front is separate and is attached to the drawer box with screws.
- K. Hanging Rails 2 hanging rails of 3/4" thickness, running the width of the cabinet, shall be attached to each wall cabinet. (1) 3/4" hanging rail shall be attached to each base cabinet in the upper back area. The hanging rails must be integrally attached to the cabinet ends and the cabinet top to provide a secure attachment to the wall. Rails shall be a minimum of 3-3/4" wide.
- L. All drawers and cabinets shall be lockable

#### 2.5 COUNTERTOPS AND BACKSPLASHES

- A. Plastic laminate countertops shall be a solid 1 1/8" thick particleboard with a horizontal grade high-pressure laminate on the top surface with a suitable backer sheet on the bottom surface. In line installation shall have continuous tops manufactured in the longest possible lengths. (12 feet is the maximum length available.) Field seams shall not occur at sink cut outs. All cut outs in countertops shall be made at the jobsite by the casework installer.
- B. Backsplashes shall be <sup>3</sup>/<sub>4</sub>" thick particleboard by 4" wide and shall be furnished where required as shown on the architectural plans.
- C. Window stools shall be solid surface, Corian or approved equal. Color as selected from Price Groups 1 and 2.

#### PART 3 EXECUTION

#### 3.1 INSTALLATION

A. Installation shall be performed by the manufacturers authorized representative and shall conform to the manufacturers procedures. All connecting hardware, fillers, and closure panels shall be provided as required. The casework should be accurately placed, set plumb, and permanently secured to the wall and/or the floor. All casework shall be cleaned at completion of installation.

#### 3.2 WARRANTY

A. All casework furnished under this section will be guaranteed for a period of 2 years after installation. Normal wear and abuse are not included under this warranty.

#### END OF SECTION 123200

#### 310519 - EARTHWORK

#### PART 1 - GENERAL

#### 1.1 STIPULATIONS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.

#### 1.2 SECTION REQUIREMENTS

- A. Unauthorized excavation consists of excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- B. Do not interrupt existing utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

#### PART 2 - PRODUCTS

#### 2.1 <u>MATERIALS</u>

- A. Satisfactory Soil: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 2 inches (50 mm) in any dimension, debris, waste, frozen materials, vegetation, or other deleterious matter.
- B. Unsatisfactory Soil: ASTM D 2487 Soil Classification Groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.
- C. Backfill and Fill: Satisfactory soil materials.
- D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.
- E. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.
- F. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

#### PART 3 - EXECUTION

#### 3.1 <u>EARTHWORK</u>

- A. Call Pennsylvania One Call System at 811 or 1-800-242-1776 not less than three working days before performing Work. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Protect and maintain erosion and sedimentation controls during earthwork operations.
- C. Protect subgrades and foundation soils from softening and damage by water, freezing temperatures, or frost.
- D. Explosives: Do not use explosives
- E. Excavate to subgrade elevations regardless of character of materials and obstructions encountered.
- F. Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect or Engineer.
- G. Excavate for structures, building slabs, pavements, and walkways. Trim subgrades to required lines and grades.
- H. Utility Trenches: Excavate trenches to indicated slopes, lines, depths, and invert elevations. Maintain working clearance as indicated on each side of pipe or conduit.
  - 1. Place, compact, and shape bedding course to provide continuous support for pipes and conduits over rock and other unyielding bearing surfaces and to fill unauthorized excavations.
  - 2. Place and compact initial backfill of satisfactory soil material or subbase material, free of particles larger than 1 inch, as indicated over the utility pipe or conduit. Place and compact final backfill of satisfactory soil material to final subgrade.
- I. Plow strip or break up sloped surfaces steeper than 1 vertical to 4 horizontal to receive fill.
- J. When subgrade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface, pulverize, moisture-condition or aerate soil, and re-compact.
- K. Place backfill and fill in layers not more than 8 inches in loose depth at optimum moisture content. Compact each layer under structures, building slabs, pavements, and walkways to 95 percent of maximum dry unit weight according to ASTM D 698; elsewhere to 90 percent.
- L. Grade areas to a smooth surface to cross sections, lines, and elevations indicated. Grade lawns, walkways, and unpaved subgrades to tolerances of plus or minus 1 inch and pavements and areas within building lines to plus or minus 1/2 inch.

- M. Under pavements and walkways, place subbase course material on prepared subgrades and compact at optimum moisture content to required grades, lines, cross sections, and thicknesses.
- N. Under slabs-on-grade, place drainage course on prepared subgrade and compact to required cross section and thickness.
- 0. Allow testing agency to inspect and test each subgrade and each fill or backfill layer and verify compliance with requirements.
- P. Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 31 0519

#### 321030 - LAWN RESTORATION

#### PART 1 GENERAL

#### 1.1 STIPULATIONS

A. Drawings, general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All references are to the most current published version.

U.S. Department of Agriculture (USDA): AMS Seed Act Federal Seed Act

Pennsylvania Department of Transportation (PennDOT): PennDOT Publication 408 Specifications

#### 1.3 DEFINITIONS

A. Disturbed Areas: "Disturbed areas" shall in this section be defined as any area where the ground surface consists of loose, unconsolidated, tracked, or rutted soil or the existing vegetation has been uprooted, as a result of excavation, embankment, movement of trucks or equipment, stockpiling of earth or other material, or other actions of the CONTRACTOR. Areas where the existing vegetation has been cut, brush hogged, trampled, broken, or matted down shall not be considered "disturbed areas" unless the above definition also applies.

#### 1.4 SUBMITTALS

- A. The following shall be submitted in accordance with the procedures for submittals described in the General Requirements.
  - 1. Product Data
    - a. Mulch
    - b. Fertilizer
    - c. Seed Mix
  - 2. Test Reports
    - a. Topsoil composition tests (at the request of Architect).
  - 3. Manufacturer's Instructions
    - a. Erosion Control Materials

#### 1.5 DELIVERY, STORAGE, AND HANDLING

#### A. Delivery

- 1. Seed Protection: Protect seed from drying out and from contamination during delivery, on-site storage, and handling.
- 2. Fertilizer and Lime Delivery: Deliver to the site in original, unopened containers bearing manufacturer's chemical analysis, name, trade name, trademark, and indication of conformance to state and federal laws. Instead of containers, fertilizer and lime may be furnished in bulk with a certificate indicating the above information.

#### B. Storage

- 1. Seed, Fertilizer, and Lime Storage: Store in cool, dry locations away from contaminants.
- 2. Handling: Do not drop or dump materials from vehicles.

#### 1.6 TIME RESTRICTIONS AND PLANTING CONDITIONS

- A. Planting Dates: Permanent seeding shall be applied only between March 15 and June 1 or August 1 to October 15, or as otherwise directed by Engineer.
- B. Temporary seeding: Temporary seeding shall be applied in accordance with the Erosion and Sedimentation Control Plan outside the planting dates for permanent seeding. Temporary seeding must later be replaced by permanent seeding for a permanent stand of grass. The same requirements of turf establishment for permanent seeding apply for temporary seeding.
- C. Restrictions: Do not plant when the ground is frozen, snow covered, muddy, or when air temperature exceeds 90 degrees Fahrenheit.
- D. Timing: Apply seed within twenty-four hours after seed bed preparation. Seeding shall be applied within 14 days of achieving final grade.

#### PART 2 - PRODUCTS

#### 2.1 SEED

- A. Classification: Provide seed meeting the requirements of PennDOT Publication 408, Section 804 of the latest season's crop delivered in original sealed packages, bearing producer's guaranteed analysis for percentages of mixtures, purity, germination, weedseed content, and inert material. Label in conformance with AMS Seed Act and applicable state seed laws. Wet, moldy, or otherwise damaged seed will be rejected. Field mixes will be acceptable when field mix is performed on site in the presence of ENGINEER.
- B. Seed Purity: Seed purity shall be in accordance with PennDOT Publication 408, Section 804 for Formula B.
- C. Seed Mixture by Weight:

- 1. Permanent Seeding: Seed mixture for permanent seeding shall be in accordance with PennDOT Publication 408, Section 804 for Formula B, or a lawn seed mix selected by OWNER.
- 2. Temporary Seeding: Seed mixture for temporary seeding shall be in accordance with PennDOT Publication 408, Section 804 for formula E (annual ryegrass).

#### 2.2 TOPSOIL

- A. On-Site Topsoil: Surface soil stripped and stockpiled on site and modified as necessary to meet the composition requirements as specified herein. When available, topsoil shall be existing surface soil stripped and stockpiled on-site.
- B. Off-Site Topsoil: Topsoil obtained from off-site shall conform to composition requirements as specified herein. Additional topsoil shall be furnished by the CONTRACTOR where sufficient on-site topsoil is not available.
- C. Composition: Topsoil composition whether from on-site or off-site shall conform to the requirements of PennDOT Publication 408, Section 802.
- 2.3 SOIL CONDITIONERS AND FERTILIZERS
  - A. Soil conditioners shall be added to topsoil in accordance with PennDOT Publication 408, Section 804.
    - 1. Lime: Lime shall be pulverized agricultural limestone manufactured for lawn application.
    - 2. Fertilizer: Commercial fertilizer shall be a dry formulation of 10-20-20 analysis. Slow-release nitrogen fertilizer shall be a dry formulation 38-0-0 ureaform, 32-0-0 to 38-0-0 sulfur coated urea, or 31-0-0 IBDU.

#### 2.4 MULCH

- A. Mulch shall be free from noxious weeds, mold, and other deleterious materials.
  - 1. Straw: Stalks from oats, wheat, rye, barley, or rice. Furnish in air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Straw shall contain no fertile seed.
  - 2. Hay: Air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Hay shall be sterile, containing no fertile seed.
  - 3. Wood Cellulose Fiber Mulch: Use recovered materials of either paper-based (100 percent) or wood-based (100 percent) hydraulic mulch. Processed to contain no growth or germination-inhibiting factors and dyed an appropriate color to facilitate visual metering of materials application. Composition on air-dry weight basis: 9 to 15 percent moisture, pH ranges from 5.5 to 8.2. Use with hydraulic application of grass seed and fertilizer.

#### 2.5 EROSION CONTROL MATERIALS

- A. Erosion control material shall conform to the following:
  - 1. Erosion Control Blanket: 100 percent agricultural straw or 70 percent agricultural staw/30 percent coconut fiber matrix stitched with degradable nettings, designed to degrade within 12 months.
  - 2. Erosion Control Fabric: Fabric shall be knitted construction of polypropylene yarn with uniform mesh openings 3/4 to 1 inch square with strips of biodegradable paper. Filler paper strips shall have a minimum life of 6 months.
  - 3. Erosion Control Net: Net shall be heavy, twisted jute mesh, weighing approximately 1.22 pounds per linear yard and 4 feet wide with mesh openings of approximately 1 inch square.
  - 4. Hydrophilic Colloids: Hydrophilic colloids shall be physiologically harmless to plant and animal life without phytotoxic agents. Colloids shall be naturally occurring, silicate powder based, and shall form a water insoluble membrane after curing. Colloids shall resist mold growth.
  - 5. Erosion Control Material Anchors: Erosion control anchors shall be as recommended by the manufacturer.

#### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Extent Of Work: Provide soil preparation (including soil conditioners as required), fertilizing, seeding, and surface topdressing of all newly graded finished earth surfaces, unless indicated otherwise, and at all areas inside or outside the limits of construction that are disturbed by the CONTRACTOR's operations.
- B. Topsoil: Topsoil shall be distributed over all disturbed areas to a uniform depth of 4 inches to within 0.1 foot of the indicated finish grade. After areas have been brought to indicated finish grade, incorporate lime and fertilizer into soil a minimum depth of 2 inches by disking, harrowing, tilling or other method approved by the ENGINEER. Remove debris and stones larger than 3/4 inch in any dimension remaining on the surface after finish grading. Correct irregularities in finish surfaces to eliminate depressions. Protect finished topsoil areas from damage by vehicular or pedestrian traffic.
- C. Soil Conditioner and Fertilizer Application Rates: Apply soil conditioners at rates as determined by laboratory soil analysis of the soils at the job site. The following application rates are to be used for bidding purposes only.

Lime: 800 pounds per 1,000 square yards. Commercial Fertilizer: 140 pounds per 1,000 square yards. Slow-release Nitrogen Fertilizer: 50 pounds per 1,000 square yards.

D. Subsoiling (Tilling): All disturbed areas that are to be planted with grass and/or landscaped shall be tilled (subsoiled) to a minimum depth of 12 inches prior to spreading of topsoil and planting of grass or other landscape features.

#### 3.2 SEEDING

- A. Permanent Seeding: The seed mixture for permanent seeding shall be applied at the rate of 62 pounds per 1,000 square yards. Permanent seeding will be permitted only between March 15 and June 1, and between August 1 and October 15, unless otherwise directed by ENGINEER. Immediately before seeding, restore soil to proper grade. Do not seed when the ground is muddy, frozen, snow covered or in an unsatisfactory condition for seeding. If special conditions exist that may warrant a variance in the above seeding dates or conditions, submit a written request to the ENGINEER stating the special conditions and proposed variance. Apply seed within twenty-four hours after seedbed preparation. Sow seed by approved sowing equipment. Sow one-half the seed in one direction, and sow remainder at right angles to the first sowing.
- B. Temporary Seeding: Where permanent seeding cannot be applied within the constraints of the above paragraph, CONTRACTOR shall apply temporary seeding within 14 days of achieving finished grade. CONTRACTOR shall later apply permanent seeding when conditions allow. Temporary seeding shall be applied at the rate of 10 pounds per 1,000 square yards.
- C. Seed Application Method: Seed may be applied by hydroseeding, broadcasting, drilling, or hand.
  - Broadcast and Drop Seeding. Seed shall be uniformly broadcast at the specified rate. Use broadcast or drop seeders. Sow one-half the seed in one direction, and sow the remainder at right angles to the first sowing. Cover seed uniformly to a maximum depth of 1/4 inch in clay soils and 1/2 inch in sandy soils by means of spike-tooth harrow, cultipacker, raking or other approved devices.
  - 2. Drill Seeding: Seed shall be drilled at the specified rate. Drill seed uniformly to average depth of 1/2 inch.
  - 3. Hydroseeding: Prior to hydroseeding, CONTRACTOR shall mix water and fiber. Wood cellulose fiber, paper fiber, or recycled paper shall be applied as part of the hydroseeding operation. Fiber shall be added at 1,000 pounds, dry weight, per acre. After the fiber has been mixed, CONTRACTOR shall then add and mix seed and fertilizer to produce a homogeneous slurry. Seed shall be mixed to ensure broadcasting at the specified rate. When hydraulically sprayed on the ground, material shall form a blotter like cover impregnated uniformly with grass seed. Spread with one application with no second application of mulch.

#### D. Mulching

1. Hay or Straw Mulch: Hay or straw mulch shall be spread uniformly at the rate of 3 tons per acre to produce a layer 1.0 to 1.5 inches deep. Mulch shall be spread by hand, blower-type mulch spreader, or other approved method. Mulching shall be started on the windward side of relatively flat areas or on the upper part of steep slopes, and continued uniformly until the area is covered. The mulch shall not be bunched or clumped. Sunlight shall not be completely excluded from penetrating the ground surface. All areas installed with seed shall be mulched on the same day as the seeding. Mulch shall be anchored immediately following spreading.
- 2. Mechanical Anchor: Mechanical anchor shall be a V-type-wheel land packer; a scallopeddisk land packer designed to force mulch into the soil surface; or other suitable equipment.
- E. Rolling: Immediately after seeding, firm entire area except for slopes in excess of 3 to 1 with a roller not exceeding 120 pounds for each foot of roller width. If seeding is performed with cultipacker-type seeder or by hydroseeding, rolling may be eliminated.
- F. Erosion Control Material: Where indicated on the drawings, CONTRACTOR shall install erosion control material in accordance with manufacturer's instructions.

## 3.3 RESTORATION

A. Existing turf areas and landscaping which have been damaged during construction operations shall be restored to their original condition at the CONTRACTOR's expense. Keep clean at all times at least one paved pedestrian access route and one paved vehicular access route to each building. Clean other paving and sidewalks when work in adjacent areas is complete.

END OF SECTION 321030



# **Alterations To Barnett Building Apartments** Housing Authority of the County of Erie 32 West Pearl Street Albion, Pennsylvania 16401

	GENERAL NOTES	INDEX OF DRAWINGS
p PC	<ul> <li>(APPLIES TO ALL CONTRACTORS)</li> <li>1. Contractor shall check and verify conditions at the site prior to bidding the project. Notify Architect of any discrepancies between bid documents and site conditions prior to bidding. No considerations will be given to contractors for not becoming familiar with site conditions.</li> <li>2. Contractor shall check and verify dimensions and conditions prior to installation of any items.</li> </ul>	CS COVER SHEET AD100 DEMOLITION PLAN AND NOTES A100 OVERALL PLAN A101 PARTIAL ENLARGED FIRST FLOOR PLAN, SCHEDULES, AND DETAILS
	<ol> <li>Contractor shall creck and verify dimensions and conditions prior to installation of any items.</li> <li>Contractor shall provide necessary concealed blocking for support of cabinets, shelving, accessories and alike at no additional cost.</li> </ol>	A102 PARTIAL ROOF PLAN AND DETAILS; REFLECTED CEILING PLAN AND DETAILS A200 EXTERIOR ELEVATIONS, WINDOW DETAILS A300 SECTIONS AND DETAILS A301 INTERIOR ELEVATIONS AND DETAILS
e-Charge	<ol> <li>Contractor shall verify depth/height of any items installed and make appropriate adjustments for a clean installation.</li> <li>If discrepancies occur between drawings and/or project specifications and no addenda are issued to clarify the discrepancies, the more expensive option(s) shall be included in the bid.</li> <li>It shall be the responsibility of the contractor(s) to coordinate their work with other contractors working on the project and for sharing shop drawings and installation instructions.</li> <li>Any damage to site and/or buildings caused as a result of the construction process shall be repaired and/or made new by the contractor causing the damage. If the source of the damage cannot be established, then the cost of repair will be equally divided among all contractors.</li> <li>Any labor and material required in order to make a system operable and/or required for proper installation shall be made at no additional cost regardless if specified or not.</li> </ol>	S0       STRUCTURAL GENERAL NOTES, KEY PLAN, AND INTERIOR HEADER PLANS         S1       NORTH ADDITION STRUCTURAL PLANS, NOTES, SECTIONS AND DETAILS         S2       SOUTH CANOPY STRUCTURAL PLANS, NOTES, SECTIONS AND DETAILS         M001       MECHANICAL SPECIFICATIONS AND SCHEDULES         MD100       FIRST FLOOR MECHANICAL DEMOLITION PLAN         M101       FIRST FLOOR MECHANICAL DEMOLITION PLAN         M100       FIRST FLOOR MECHANICAL PLAN         E001       ELECTRICAL SPECIFICATIONS AND LEGENDS         E002       ELECTRICAL PANELS DIAGRAMS         E0100       FIRST FLOOR ELECTRICAL DEMOLITION PLAN         E100       FIRST FLOOR ELECTRICAL PLAN
	9. All work shall be installed as per regulations of the jurisdiction where the work is occuring.	CODE INFORMATION, 2018 I-CODE SERIES
	<ul> <li>All permits and lees shall be paid by the installing contractor unless otherwise noted.</li> <li>10. Any item passing through a fire rated or sound rated partition shall seal accordingly with rated barrier materials by the contractor installing them.</li> <li>11. Where a fire rated or sound rated partition/wall is called for, all voids between the partition and adjoining surface shall be sealed accordingly with rated barrier materials by the contractor installing the partition.</li> <li>12. All caulking/ fire sealing shall be the responsibility of that trade installing that item.</li> </ul>	Occupancy Classification:R2       IEBC Level 2 Alterations (Chapter 8)         Type Of Construction:       VB, Non-Sprinklered         IEBC Level 2 Alterations/Building Addition       802.4         Existing Building, 3 Story       802.4         SF Area Per Story       1st Fl         2nd Fl       17,836 SF         2nd Fl       17,836 SF         Building Total       53,508 SF         SF Area, Renovation:       2,156 SF         SF Area, Addition       312 SF         Construction: Slab On Grade, Masonry Bearing Exterior       Recreation Room Occupant Load <50 door swing not required to be in direction of egress (805.4.2); panic hardware not required (805.4.4).         Corritor Partitions, Constructed circa 1976.       806
	LOCATION MAP	Recreation Room, Occupancy Load:       807       Electrical - New work to comply with NFPA 70/International Electric Code.         808       Mechanical - New work to comply with IBC.       Altered/reconfigured spaces to
Engineers	SITE LOCATION BIT HERE OF A LUMPIKE OF A LUMPIKE WEST VIRGINIA NORTH EAST NEW YORK NO SCALE NEW YORK NO SCALE PENNSYLVANIA OF A LUMPIKE NEW YORK NO SCALE OF A LUMPIKE NEW YORK NO SCALE OF A LUMPIKE NEW YORK NO SCALE OF A LUMPIKE NO SCALE OF A LUMPIKE NEW YORK NO SCALE	634 Net SF       provide ventilation per International Mechanical Code. Existing ventilation         Table 1004,5.       systems which are altered shall provide minimu 5 cm/person of outdoor air and 15 cfm/person ventilation air. Local exhaust to be provided as required.         Total Occupants: 43       809       Plumbing - No increase in occupant load; new work installition to comply with IBC.         Ist Floor, Occupancy Load:       809       Plumbing - No increase in occupant load; new work to comply with IBC.         IBC Table 1004.5:       Apartments (Residential) - 1 occupant/200 gsf       Energy Conservation - New work to comply with IBC         Accessory Mech/Storage Spaces - 1 occupant/150 gsf       IEBC Level 1 Alterations (Chapter 7) New Work Complies With IBC Section 804 (Class II).         60 Occ Apartment Units - 20 units under 600 sf, 3 occ each       702.6       All New Work Will Comply With Materials And Methods Requirements In I-Code Series, As Applicable.         3 Occ Office Area/Mail Rm - 357 sf @ 1 occ/150 gsf       705       Reregry Conservation : Not Applicable         706       Structural: Not Applicable       705       Reregry Conservation : Not Applicable         705       Reregry Conservation : Not Applicable       705       Reregry Conservation : Not Applicable         707       Energy Conservation : Not Applicable       705       Rerogroups and the detained.         705       Rerogroups and the detaing addition will comply with IBC       PROJECT
		<ul> <li>1104 Smoke Alarms: Smoke Alarms to be provided in the existing building per IFC 1103.8.</li> <li>1105 Carbon Monoxide Alarms: To be provided in the existing building per IFC 1103.9.</li> <li>1106 Storm Shelters: Not Applicable</li> </ul>

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REF	LECTED CEILING LEGEND
ROC ROOM	M NAME NUMBER WHERE "MAX" IS INDICATED, CONTRACTOR TO MAXIMIZE CEILING HEIGHT. IG TYPE.
A. 24" ACO	x 48" FISSURED SQUARE EDGE LAY-IN PUSTICAL TILE, SEE SPECS
B. 24" ACC	X 48" TEGULAR EDGE, SCORED 2'X2' LOOK DUSTICAL TILE, SEE SPECS.
C. 5/8"	GYPSUM BOARD CEILING ON WD FURRING.
D. EXIS REQ	TING CEILING TO REMAIN, PATCH/MODIFY AS UIRED BY NEW WORK.
CE	ILING SYMBOL LEGEND
	GYPSUM BOARD CEILING, BULKHEAD, OR SOFFIT
	2 X 4 ACOUSTIC CLG SYSTEM GRID/ TILE TYPE A
+++	2 X 4 ACOUSTIC CLG SYSTEM GRID/ TILE TYPE B
$\square$	2 × 2 LIGHT FIXTURE BY .4 CONTRACTOR, SEE ELECTRICAL DRAWINGS
ο	LOW PROFILE LED CANLESS DOWNLIGHT, SEE ELECTRICAL DRAWINGS
$\bigcirc$	CEILING MOUNTED APARTMENT LIGHT FIXTURE, SEE ELECTRICAL DRAWINGS. 12" DIA IN LIVING RM; 9" DIA IN BEDROOM
	WALL MTD TR LIGHT FIXTURE, SEE ELECTRICAL DRAWINGS
	WALL MTD CLOSET LIGHT FIXTURE, PULL CHAIN, SEE ELECTRICAL DRAWINGS
	CANOPY LIGHT FIXTURE, SEE ELECTRICAL DRAWINGS
EXIT	ILLUMINATED EXIT SIGN, SEE ELECTRICAL DRAWINGS
	ILLUMINATED DIRECTIONAL EXIT SIGN, SEE ELECTRICAL DRAWINGS
	SUPPLY DIFFUSER, SEE HVAC DRAWINGS
	RETURN DIFFUSER, SEE HVAC DRAWINGS
	EXHAUST, SEE HVAC DRAWINGS
	NOTES
I. ALL E 2. REFE MOUN GRILL 3. ALL F CEILII MAKII	EXPOSED STRUCTURE TO BE PAINTED. R TO MEP DRAWINGS FOR ALL CEILING TED ITEMS (LIGHT FIXTURES, DIFFUSERS, LES, ELECTRICAL DEVICES, ETC.) PENETRATIONS THROUGH FLOORS OR RATED NGS SHALL BE SEALED BY CONTRACTOR NG THE PENETRATION WITH UL RATED EM OF FIRE SAFING INSUL AND CAULKING
FOR 4. ALL L ELEC DRAV	THE APPROPRIATE HOUR RATING REQUIRED. LIGHT FIXTURES SHOWN ARE BY THE .4 TRICAL CONTRACTOR. SEE ELECTRICAL NINGS.

5. ALL GRILLES, REGISTERS, DIFFUSERS ARE BY THE

.2 HVAC CONTRACTOR. SEE HVAC DRAWINGS.

BOB BOTTOM OF BULKHEAD

6. ABBREVIATIONS:

EXST EXISTING









![](_page_296_Figure_0.jpeg)

# BUILDING CODES

International Building Code 2018

Building Code 2018 of Pennsylvania

• Existing Building Code 2018 of Pennsylvania

DESIGN STANDARDS

ACI 318-14: Building Code Requirements for Structural Concrete

- 11

- AISC 360-16: Specification for Structural Steel Buildings
- ASCE 7-16: Minimum Design Loads and Associated Criteria for Buildings and Other Structures SDI 2017: Standards for Noncomposite Steel Floor Deck/Steel Roof Deck/Composite Steel Floor Deck
- TMS 402-2016: Building Code for Masonry Structures
- WRI/CRSI-81: Design of Slab-on-Ground Foundations-with 1996 Update

## DESIGN CRITERIA Building Category Exposure

Superimposed Roof Dead Load	
North Entrance	
EPDM	2 psf
6" Rigid Insulation	4 psf
Metal Deck	2 psf
MEP	3 psf
Drywall Ceiling	3 psf

### South Entrace Entrance Architectural Roof 10 psf (assumed)

Existing Floor Dead Load	(From Existing Drawings)
Precast Floor	64 psf
Partition Walls	18 psf
Ceiling	4 psf
MEP	10 psf

Roof Live Load	20 psf

Existing Floor Live Load	(From Existing Drawings)
Living Units	40 psf
Corridors	100 psf

Snow Load (ASCE 7-16 Chapter 7)	
Ground Snow (pg)	50 psf
Exposure Factor (Ce)	1.0
Thermal Factor (Ct)	1.2
Importance Factor (Is)	1.0
Flat Roof Snow (pf)	42 psf

## Wind Load (ASCE 7-16 Chapter 26) Basic Wind Speed (V) 107 psf Wind Directionality Factor (K<sub>d</sub>) 0.85 Topographic Factor (K<sub>zt</sub>) 1.0 Ground elevation Factor (K<sub>e</sub>) 1.0 Velocity Pressure Exposure Coefficient $(K_h/K_z)$ : 0.85 Velocity Pressure $(q_z) = 0.00256 K_z K_z K_d K_e V^2 = 21.8 \text{ psf}$

Seismic Load (ASCE 7-16 Chapter 11 & 12)

Not applicable based on wind load controlling lateral systems

# 1. <u>GENERAL NOTES</u>

- The Contractor shall notify the Structural Engineer of Record regarding any discrepancies on the Structural Drawings. The Contractor shall notify the Architect regarding any discrepancies between the Construction Drawings including but not limited to the 2.
- Archtiectural, Structural, Civil, Electrical, Plumbing and Mechanical.
- Existing conditions are approximate. The Contractor is responsible for field measurements to verify the accuracy of the Construction 3. Drawings.

# 2. <u>Excavation and Foundations</u>

1. A presumptive allowable bearing pressure was used based on Building Code 2018 of Pennsylvania Table 1806.2 Presumptive Load-Bearing Values Material 5. This office assumes no liability regarding this assumption as the Owner did not provide a Geotechnical Report. 2. Assumed Soil Values

- Allowable Bearing Pressure: 1,500 psf
- Active Pressure Coefficient (Ka)=0.3
- At Rest Pressure Coefficient (Ko)=0.5
- Passive Pressure Coefficient (Kp)=2.0
- Concrete to Soil Friction Coefficient (f)=0.3
- Frost Depth = 48"
- Subgrade Modulus=50 kips/cubic ft 3. Fill Requirements (uno in Civil Construction Documents)
- Contractor may use on site native material if material is free of organic matter or other questionable material. Select Fill: Conforming to ASTM D2487 Group Symbols SM, SP, GM, or GP.
  - Percent Passing Sieve Size 100 3/8" 95-35 No. 4 90-25 80-15 No. 10 445-10 No. 40
  - No. 200 15-3 Plastic Index: Max 7 Liquide Limit: Max 25
- Frost Free Fill: Well graded granular fill similar to AASHTO No. 57 or 67.
- All Fill shall be clean, uncontaminated and non-decomposable
- Call Pennsylvania One Call System prior to performing any excavation to determine location and mark underground utilities Contractor is responsible for protection utilities during construction.
- Compaction: Contractor shall compact fill under foundations, retaining walls, and slabs with a mechanical, vibrating compactor in lifts no more than 8". 4. Retaining walls shall have 8" of free draining gravel fill installed behind the vertical wall surface from the base of the wall to 6" below
- the top of the wall, uno. Contractor shall provide a perforated drain with wrap at the base of the wall 4" above the top of the foundation.
- 5. Contractor shall grade soil away from any buildling wall a minimum of 24".
- 6. Contractor shall provide continuous dewatering system within the excavation until the excavated area is filled per the construction drawings.
- 7. Unless noted otherwise, the bottom of foundation shall be placed no higher than the frost depth per Note 2.1.6.

### 3. CONCRETE

- Construction shall meet all the requirements of ACI 318-16 and corresponding standards/references. 2. Contractor shall submit rebar shop drawings indicating the size, spacing, layout, and orientation for Structural Engineer of Record
- approval. Contractor shall review and sign the shop drawings prior to submission.
- 3. Material Specifications
  - 1. Footings & Retaining Walls f'c = 4,000 psi
  - Slump = 4" +/- 1"
  - Air Entrainment = 6% +/- 1.5%
  - 2. Slab on Grade (Interior) f'c = 3,000 psi
  - Slump = 4" +/- 1"
- 3. Mix Design Requirements
  - Fine and Course Aggregate must conform to ASCM C33. Aggregate must be washed/clean. Water shall be potable free of foreign substances
  - Admixtures are permitted. Contractor shall submit admixture specifications with the mix design submittal.
  - Contractor shall provide the location and intent of the admixture. Admixtures must be approved by the Structural Engineer of Record.
  - Maximum Water to Cement Percentage: 45%
- 5. Concrete mix design submittals shall meet the requirements of ACI301 Section 4.2.3.
- 4. Contractor shall provide formwork required to resist forces from wet concrete during construction. Forms shall remain in place until 75% of the concrete design strength is met. Contractor shall submit a request to the Structural Engineer of Record
- if forms are required to be removed prior to 75% strength.
- Concrete shall be vibrated internally into forms or slab on grade using a mechanical vibrator.
- Contractor shall coordinate the concrete finish per the Architectural Drawings.
- Contractor shall provide necessary chairs, wire ties, or other means of supporting reinforcement during construction.
- 8. Curing Methods
  - Water Curing: Contractor shall provide a covering to retain moisture for a minimum of seven days after placement Liquid Membrane Curing: Contractor shall provide the curing compound over the placed concrete per the curing compound manufactureers requirements. Contractor shall provide the Structural Engineer of Record the curing compound submittal for approval.
- 9. A set of five,  $6'' \emptyset \times 12''$  concrete cylinders shall be taken for each concrete pour. A record of where the corresponding concrete was placed in the project shall be provided. Cylinders shall be tested as follows: (1) at 7 days, (1) at 14 days, (2) at 28 days, (1) Spare. The spare shall be tested at 56 days only if the average of the 28 day test is less than the design compressive
- strength.
- 10. Reinforcement Laps/Splices
- Compression and Other Splices: Shall be a minimum of 30 times the rebar diameter Tensions Splices (as noted in the structural details)

4. <u>STEEL</u>

Construction shall meet all the requirements of AISC 360-16 and corresponding standards/references. Contractor shall submit shop drawings indicating the size, spacing, layout, and orientation for Structural Engineer of Record approval. Shop drawings shall include fabrication level details including cuts, connections, splices, camber, holes, welds (size, type, & length), and bolts. Contractor shall review and sign the shop drawings prior to submission. 3. Material Specifications

- Wide Flange Shapes (ASTM A992) Fy=50 ksi Channels & Angles (ASTM A36) Fy=36 ksi Plate & Bar (ASTM A36) Fy=36 ksi Fy=46 ksi HSS Round (ASTM A500 Gr C) HSS Rectangular (ASTM A500 Gr C) Fy=50 ksi
- HSS Pipe (ASTM A53 Gr B) Fy=35 ksi Painting: Steel shall be finished with one coat of rust inhibiting primer and a two coats of finish paint (color: Gray) Bolted Connections: High strength bolts with nuts and washer shall be used for connections unless noted otherwise. Bolts shall meet ASTM 4.
- Weld Connections: Welds shall comply with AWS D1.1, AISC 303, and AISC 360. Weld electrodes shall be E70XX.
- Steel framing and connections shall not be modified without approval from the Engineer of Record.
- Materials shall be devlired, handled, and stored such that distortion or damage does not occure. Contractor is responsible for replacing any

- material deemed to not comply by the Engineer of Record.

- A325 material specificaitons, welds shall meet ASTM A563, and washers shall meet ASTM F436.
- 1. Bolts shall be installed snug tight unless noted otherwise on the drawings.
- Contractor is responsible for furnishing and installing termporary bracing to provide stability during erection and prevent damage.

INTERIOR HEADER DETAIL (3) <u>3/4" = 1'-0"</u>

 $1 \frac{1}{1/16''} = 1'-0''$ 

8" MIN BRG. T

EXISTING CMU WALL ABOVE

![](_page_297_Figure_117.jpeg)

1/2" BRG PLATE – w/ 1/2"Øx3" HEADED STUD GROUT MINIMUM 2 COURSES **BELOW BEARING** INTERIOR HEADER BEARING

EXISTING CMU WALL

3/4" = 1'-0"

EXISTING OPENING, SEE ARCH DWGS

- EXISTING PRECAST FLOOR

<u>T/SECOND FLOOR</u> 120' - 9"

2 SOUTH INTERIOR BEARING WALL-HEADER PLAN 1/2" = 1'-0"

BUILDING KEY PLAN EXISTING 8" CMU BUILDING WALL

S0

EXISTING PRECAST FLOOR

T/SECOND FLOOR

\*CONTRACTOR SHALL

TO SUPPORT EXISTING

FLOOR

BEAM, SEE PLAN

SUBMIT SHORING DESIGN

120' - 9"

$\sim$	
	SETH
	STRUCTURAL
	ENGINEERING

ERIE, PA 16506 PHONE: 814-812-3406 EMAIL: MSETH@SETHSTRUCTURAL.COM

ENGINEER: M. SETH

![](_page_297_Figure_133.jpeg)

\*ARCHITECTURAL BACKGROUND USED FOR REFERENCE. SEE ARCHITECTURAL DRAWINGS FOR LAYOUT

![](_page_297_Figure_135.jpeg)

![](_page_297_Picture_136.jpeg)

![](_page_298_Figure_0.jpeg)

![](_page_299_Figure_0.jpeg)

![](_page_299_Figure_1.jpeg)

![](_page_299_Figure_2.jpeg)

![](_page_299_Figure_3.jpeg)

# ERIE, PA 16506 PHONE: 814-812-3406

EMAIL: MSETH@SETHSTRUCTURAL.COM ENGINEER: M. SETH

![](_page_299_Figure_6.jpeg)

![](_page_299_Picture_9.jpeg)

# SECTION 15010

# MECHANICAL GENERAL PROVISIONS

PART 1 GENERAL

## 1.01 GENERAL

- The provisions of the Instructions to Bidders, General Conditions, upplementary Conditions, Alternates, Addenda and Division I are a part of this Specification. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. Contractors and Sub contractors shall examine same as well as other Divisions of the Specifications which affect work under this Division.
- Mechanical, Architectural, Structural, Electrical and all other Drawings as well В. as the Specifications for all the Divisions are a part of the Contract Documents.
- C. Drawings and Specifications are to be considered as supplementing each other. Work specified but not indicated or indicated but not specified, shall be provided as though mentioned in both Specifications and Drawings.
- 1.02 WORK INCLUDES
- Mechanical General Provisions includes Plumbing, Heating, Ventilating, Air A. Conditioning, Fire Protection, Temperature Control, and Mechanical Systems Balancing, collectively, individually or in any combination of the several headings and the coordination and administration thereof.
- B. Codes, Permits and Fees
  - Comply with rules, regulations of State, County, and City Authorities having jurisdiction over the premises, including safety requirements of OSHA. Do not construe this as relieving Contractor from complying with specifications, which exceed Code requirements, and not in conflict therewith.
- Secure and pay for all permits and certificates of inspection required. 3. Deliver official record of approval by governing agencies to architect for
- transmittal to Owner. 4. Obtain all inspections required by law, ordinances, rules, regulations of authorities having jurisdiction. Furnish certificates of such inspections. Provide all equipment, power and labor necessary for inspections and
- 1.03 SCOPE OF WORK
- A. The Bidder is required to examine carefully the site of the proposed work, the proposal, drawings, specifications, and contract forms. He shall satisfy himself as to the character, auglity, and augnitities of work to be performed. materials to be provided and as to the requirements of these specifications. special provisions and contract. The submission of a proposal shall be prima facie evidence that the Bidder has made such an examination.
- B. The Contractor shall, at his own expense, furnish all the necessary materials, labor, superintendence, tools, appliances, and equipment, and shall execute in a workmanlike manner the work of this contract within the time and in the manner specified, and in conformity with the requirements set forth in the specifications herein contained or hereto attached and in accordance with the contract drawings of said work.
- 1.04 SHOP DRAWINGS
- Prepare shop drawings for mechanical equipment with adequate details and scales as necessary to clearly show construction. Clearly identify each item on the drawings as to mark location and use.
- 1.05 COORDINATION AND SUPERVISION
- Examine work of other trades, which comes in contact with or is covered by this work. Do not attach to, cover, or finish against any defective work, or install work of this Division in a manner, which will prevent other trades from properly installing their work. Consult all drawings, specifications and details of other Divisions of the work.
- B. If any work is installed so that the architectural design cannot be adhered to, Contractor is liable for cost of making such changes as Architect may
- C. Provide adequate competent supervision at all times when work is being performed. Cooperate with all other trades to avoid interferences and delays. 1.06 LOCAL CONDITIONS
- A. Visit site, become familiar with conditions affecting this work. No additional payment will be made on claims that arise from lack of knowledge of existing conditions.
- This project involves remodeling of existing areas in an operating facility. Plan work including alterations, connections to existing facilities, to permit carrying on normal building functions. When necessary to temporarily nterrupt a service, arrange with Owner in advance as to time, which will be least disruptive. Consider all work as being performed during normal working hours and in conformity with approved work progress schedule.
- C. Provide temporary services of any nature required to keep building functioning. Remove temporary services when permanent facilities are completed.

## 1.07 PRODUCT HANDLING

- A. Pay all costs for transportation of materials, equipment to job site.
- Provide all scaffolding, tackle, hoists, rigging necessary for placing mechanical materials and equipment in their proper place. Scaffolding, hoisting equipment: comply with applicable Federal, State, and Local regulations. Remove temporary work when no longer required.
- Arrange for packaging of equipment, which must be hoisted, so that there will be no damage or distortion caused by hoisting operation. Protect all coils, bearings, fan shafts and housing from any damage during hoisting operation.
- D. Store all heating, ventilating, air conditioning equipment, plumbing fixtures, etc., in dry location until building is ready to receive them. Protect all openings, bearings, motor controls, etc., from dirt and moisture.

## PART 2 PRODUCTS

- 2.01 GUARANTEE AND WARRANTIES
  - Warrant that equipment and all work is installed in accordance with acod engineering practice and that all equipment will meet requirements specified. Any equipment failing to perform or function as specified shall be replaced with complying equipment, without cost to the Owner.
- B. Guarantee against defects in workmanship and materials; make good, repair or replace any defective work, material or equipment within one year from date of acceptance.

## 2.02 EQUIPMENT

- A. Bids shall be based upon the specified product or listed alternative. Bidders may guote on substitute products by listing them on the substitution page of the bid form and by indicating the additional cost or credit. No later substitutions will be permitted. Refer to Instructions to Bidders.
- B. Design drawings are based on the products specified by type model and size and thus establish minimum qualities, which substitutes must meet to qualify as acceptable. Proof of equality rests with the Bidder; provide all data necessary to demonstrate acceptability. The Architect reserves the right to reject proposed substitutes.
- C. The bid price for each listed alternative or substitute shall include all costs required to incorporate the item into the project.
- D. Where only one make is named, it shall be provided.

# 2.03 MATERIALS

- All materials shall be new, full weight, of the best quality with the same brand or manufacturer used for each class of material or equipment.
- 2.04 DAMAGE AND EMERGENCY REPAIRS
  - Assume responsibility for any damage caused by leaks in the piping systems being installed under this Contract. Repair all damage without extra cost to Owner.

# PART 3 EXECUTION

- 3.01 INSTALLATION REQUIREMENTS
  - Locations of piping, equipment, ducts, etc., on the drawings are diagrammatic; indicated positions shall be followed as closely as possible exact locations shall be subject to building construction and interferences with other work. Difficulties preventing the installation of any part of work as indicated shall be called to the attention of the Architect. Architect will determine locations and changes. Contractor shall install the work accordingly. Architect reserves right to make minor changes in location of any part of the work up to the time of roughing in without additional cost.
- B. Do all cutting and patching in construction as necessary for installation of this work. Do not cut any structural member without specific permission from the Architect. Have cutting done by skilled mechanics as carefully as possible, and with as little damage as possible. Have patching done by first class mechanics, skilled in the several trades.

C. Take all measurements and determine all elevations at the building.

## 3.02 RECORD DRAWINGS (ALSO SEE DIVISION I GENERAL REQUIREMENTS) A. Each Contractor or Sub-contractor for mechanical work shall keep one complete set of the contract working drawings on the job site on which he shall record any deviations or changes from such contract drawings made during construction.

# 3.03 PAINTING

3.04 EQUIPMENT IDENTIFICATION

A. Finish painting is included under Division 9 - Finishes, except where specifically called for under this Division.

## A. Identify each piece of equipment and ducts as to nature of service and system number corresponding to designation on the drawings, by stenciling with 1" high letters or attaching two-color engraved plastic nameplates.

- Apply one coat lacquer or varnish over the stencils. 3.05 PIPE IDENTIFICATION
- A. Identify each pipe in Equipment Rooms and above accessible ceilings with contents of pipe in conformance with Scheme for Identification of Piping Systems, ANSI A13.1-2002.

## 3.06 LUBRICATION, PACKING AND SUPPLIES

A. Properly lubricate all equipment before it is started. B. Install initial charge of refrigerant and any other supplies required to place equipment in operation

# 3.07 TESTS AND ADJUSTMENTS

Α.	All piping shall be given the follo pressure drop. Equipment which v pressure shall be isolated from t	wing pressu vould be da ne system c	re test with maged by t during test.	out appreciable he required test
	SERVICE	MEDIUM	(PSI)	HRS.
	Domestic water Gas	Water Air	125 50	6 24
	* AWWA Procedures			

- B. Sanitary and storm sewers per State Plumbing Code or Local Authority.
- C. Test medium for refrigerant piping shall be oil pumped dry nitrogen Twenty-four hour standing time minimum. Test the low side of the system to 150 psi and the high side to 300 psi. Tests shall conform to ANSI

Standard B31.5 "Refrigeration Piping."

# 3.08 CLEANING UP

- A. At all times, keep premises and building in neat and orderly condition. Follow explicitly any instructions of Architect in regard to storing of materials, protective measures and disposing of debris.
- B. Domestic water systems: Flush out system first, then hold a solution mixture of 500 ppm of chlorine in the water in system for a 24-hour period. Drain systems and flush. After flushing, chlorine residual shall not be in excess of 0.5 ppm at 4 widely spaced checkpoints. Chlorination procedures shall conform to AWWA Specification C601-54 and be accepted by local health department. Repeat chlorination if necessary until accepted.
- C. Replace all throw away filters used during construction with proper system filters at completion of work.
- D. Provide chemical cleaning for piping systems with an approved detergent to remove pipe dope, slushing compounds, oil, welding slag, loose mill scale and other extraneous materials.
  - Fill hot water radiation, reheat, chilled water and condenser water systems with clean water and flush; refill with clean water to which proper amount of detergent has been added; circulate for at least 8 hours; drain system and flush with clean cold water. Add water treatment at this time.
- E. After initial period of operation, clean all strainers, traps, and dirt legs.
- F. Upon completion of work, remove all tools, equipment, surplus materials, thoroughly clean all piping, fixtures and equipment removing all dirt, grease and oil.

## 3.09 HVAC SYSTEMS ADJUSTMENTS AND BALANCE

- A. Put all heating, ventilating, exhaust and air conditioning systems and equipment into full operation and continue operation of same during each working day of testing and balancing. All testing and balancing shall be done under both cooling and heating modes of operation.
  - Balance and adjust air-handling system for design flow of supply, return and outdoor air to within 10% of design requirements.
  - Balance all diffusers, grilles, registers and VAV terminals to within 10% of design requirements. Submit recorded results of all testing to Architect in triplicate with room numbers, design air quantities and actual air quantities.
- 3. Submit tabulated results in triplicate including motor amperage, cfm, and location.
- 4. After or during one complete heating cooling season, make any minor adjustments that may be necessary to insure uniform temperatures throughout the space.

# END OF SECTION

SECTION 15050

BASIC MATERIALS AND METHODS

PART 1 GENERAL 1.01 MATERIALS

A. Pipe and Fittings

## A/C Condensate Drain - Type "L" hard copper. Domestic Water (3" and Smaller) - Type "L" hard copper. Gas (Inside Building) — Schedule 40 black steel, 150 lb. malleable iron

fittings. CSST w/ EHD of IPS shown.

## B. Valves

Valves shall be of the same manufacture where possible and equivalent to those manufactured by Nibco, Jenkins, Fairbanks, Powell, Milwaukee, Keystone or Hammond and withstand minimum 125 lbs. steam working pressure.

## C. Sewers

2. Soil, Waste, Vent and Drain Piping (Above Ground Interior) - No hub cast iron pipe and fittings made in accordance with Cast Iron Soil Pipe Institute Standard 301 72 or schedule 40 PVC drain waste and vent pipe and fittings with solvent weld joints per ASTM D2665 78 except in return air plenums.

# D. Hangers and Supports

Provide all hangers, anchors, guides and supports to properly support and retain piping and ductwork; to control expansion, contraction, anchorage, drainage and prevent sway and vibration. Piping shall be so supported as not to place a strain on valves or equipment. E. Vibration Control

## Vibration or noise created in any part of the building by the operation of any equipment furnished and/or installed under this contract will be prohibited and this Contractor shall take all precautions by isolating the various items of equipment from the building structure.

- 2. Piping and ductwork shall be supported independently of the mechanical equipment and shall be isolated as follows
- a. Suspend piping by threaded rods incorporating resilient hangers precompressed molded fiberglass inserts.
- Flexible connections shall be used between ductwork and air handling equipment, and the ductwork attached rigidly to the

# F. General Piping

structure.

- Provide shutoff valves at all branch connections to main, at all fixture groupings, each piece of apparatus and in mains to sectionalize the
- 2. Install valves with stems at or above horizontal position.
- 3. Plug open ends of pipe or equipment at all times during installation to keep dirt and foreign material out of system.
- Arrange and install all pipes, valves, cleanouts, access openings and equipment so as to be accessible for service. Locate equipment to maintain clearances for tube, coil pulling, periodic servicing.

SECTION 15250 INSULATION PART 1 GENERAL 1.01 GENERA

END OF SECTION

## G. Joints 1. All pipe must be reamed and cleaned before assembly. Apply pipe compound to male end of threaded joints. All welded joints shall be as hereinbefore specified. All soldered connections on copper lines shall be cleaned, fluxed and soldered with 95 5 solder, except where a silver-brazing alloy is specified.

2. Make joints in refrigerant with silver brazing alloy having a melting point above 1000 degree F.

3. Construct, install and inspect all pressure piping systems in accordance with authorities having jurisdiction.

H. Expansion Install all piping throughout the project with adequate allowance for expansion to prevent damage to building, equipment and piping. Provide anchors, loops or approved type expansion joints as required for complete control of movement. Make changes in directions with fittings.

A. All insulation shall be installed over clean dry surfaces. Insulation must be dry and in good condition. Wet or damaged insulation will not be acceptable. No insulation shall be applied prior to pressure test completion of the respective piping systems.

B. All insulation shall be continuous through wall and ceiling openings, sleeves and pipe hanger locations. C. Ductwork where indicated on plans to be lined shall not require exterior

D. AP Armaflex pipe insulation shall be applied with proper adhesive for working temperature of service, insulate all valves and fittings to match adjacent piping.

# PART 2 - PRODUCTS 2.01 MATERIAL

A. All insulation material (insulation, jackets, adhesives, cements, mastics, sealers, coating and finishes) shall have composite fire and smoke hazard ratings as tested under procedure ASTM E 84, NFPA 255 and UL 723, not exceeding, as follows:

## Flame Spread 25 Smoke Developed 50

B. Insulation products as manufactured by Armstrong, CertainTeed or Knauf are acceptable.

- OWENS CORNING FIBERGLAS 25: ASJ/SSL HEAVY DENSITY PIPE INSULATION (see insulation thickness schedule) Service Thickness Type Domestic Cold Water Domestic Hot Water
- 2. Schedule of "Fiberglas 25" Pipe Insulation Thickness MINIMUM PIPE INSULATION THICKNESS
- SIZE 1¼-2" 2½"-4" 5"-6" ABOVE 6" TO 1" TYPE
- 1/2" 1/2" 1/2" 1/2" 1" 1/2" 1"
- 3. AP ARMAFLEX II FR: 1/2" THICK PIPE INSULATION SERVICE
- Air Conditioning Condensate Drain 4. OWENS CORNING ED150 FRK 25: 2" THICK FACED DUCTWRAP Service
- Concealed Supply Air Ductwork (except in return air plenums) Concealed Outside Air Intake Ductwork
- 5. OWENS CORNING FIBERGLAS 705: 1" THICK ASJ EQUIPMENT INSULATION (DENSITY 6 PCF)
- Service Exposed Supply Ductwork

END OF SECTION

SECTION 15400

PLUMBING

PART 1 GENERAL

# 1.01 INSTALLATION A. Sanitary Drainage Systems

1. Location of soil, waste, and vent piping shall be as indicated on the drawings and meet the various building conditions. Do any work necessary to conceal piping or clear piping and ductwork of other

- 2. At least one soil or waste stack shall extend full size through the roof and shall be as direct as possible and free from sharp angles and turns.
- B. Piping Systems
- Provide water, gas, and sanitary systems as indicated on drawings with same being supplied and connected to all fixtures and equipment.
- H. General Requirements for Plumbing Fixtures and Trim
- 3. The Plumbing Contractor shall provide all plumbing fixtures indicated complete and ready for use.
- 4. All fixture supports to be of type permitting adjustment to fit variation in construction.
- 5. The Plumbing Contractor shall provide all stops, traps, escutcheons connections as necessary to complete installation of each fixture. whether such items are listed or not.
- 6. After all fixtures have been set and are ready for use, thoroughly clean all fixtures furnished, removing all stickers, rust stains and any other matter or discoloration leaving every part in good condition. Adjust all flush valves and other fixture water supplies to give proper water flow
- 7. All finished exposed faucets, traps, connecting piping, stops, flush valves and other fixture trim shall be chromium-plated brass unless otherwise specified and shall be supported rigidly to fixtures and to walls with matching brackets. All fastenings shall be chromium-plated brass.
- 8. Assemble lavatory and sink wastes and traps with slip joints and compression fittings on fixture side of trap. Sewer side connections shall be made with screwed joints. Slip joints on sewer side of traps are not acceptable
- 9. Vacuum breakers shall be provided as part of the fixture trim wherever there is a possibility of back siphoning.
- I. Fixture Schedule Special Equipment END OF SECTION

SECTION 15800

AIR DISTRIBUTION

# PART 1 GENERAL 1.01 WORK INCLUDES

A. All HVAC materials, equipment and controls. 1.02 INSTALLATION

## A. Provide all sheet metal work as indicated on the drawings in accordance with the latest edition of the ASHRAE guide and data book, SMACNA standards, 1995 Second Edition, and this specification, the most demanding of which shall be the minimum standard. All joints to be Seal Class "A".

# PART 2 PRODUCTS 2.01 MATERIALS

A. Low Pressure Ductwork

- 1. All ductwork shall be constructed of galvanized steel except where noted on plans to be aluminum. Exposed ductwork in architecturally finished spaces shall be fabricated from "Paint Grip" galvanized steel or similar mill surface etch treatment.
- 2. Construct all ductwork following SMACNA "HVAC Duct Construction
- Standards," 1995 edition. 3. All ducts, except kitchen exhaust, shall be constructed to 1" W.G.
- 4. Seal all ducts to seal Class "A."
- B. All ductwork shall be constructed of galvanized steel except where noted on drawings to be aluminum. Exposed ductwork in architecturally finished spaces shall be fabricated from "Paint Grip" galvanized steel or similar mill surface each treatment.

# C. Dampers and Deflectors

- 1. Provide and install all manual dampers and deflectors indicated on drawings or where necessary to properly distribute and balance air. Provide damper in each supply duct leaving duct main and in each branch serving individual supply, return and exhaust outlets and where otherwise indicated. Registers, Diffusers
- 1. In general, Titus is specified. Equals by Krueger, Carnes or Nailor Hart
- 2. All registers, diffusers to have a factory applied off white finish unless otherwise noted. See drawings for schedule

# G. Instrument and Test Openings

- 6. Provide a pitot tube test access point at each fan discharge, and suction, and at main branches for balancing and adjusting the systems. 7. Provide openings in accessible locations and in sufficient number to
- achieve traverses in 6" arids.
- 8. Provide openings complete with gaskets and insulation extension necks for insulated sheet metal work. Openings to be equal to Ventlock No.

# L. Filter Gauge

- 8. Provide a filter gauge for measuring resistance to airflow through all pre-filters and final filters in all existing and new air handlers. 9. Gauge shall be Dywer Instruments, Inc., 2000 Series or equivalent,
- complete with all fittings, tubing, means of mounting gauges and two static pressure taps per instrument. M. Filters

# 1. Provide two (2) complete sets of filters for each filter bank. Install

one set of filters in units when construction is complete. Furnish the other set as a spare to the Owner when the project is complete. Filters shall not be shipped to the jobsite until construction is complete and the units are ready to have the first set of clean filters installed.

## N. Equipment 1. See drawings for schedule of HVAC equipment, and diffusers.

# END OF SECTION

SECTION 15900 CONTROLS AND INSTRUMENTATION

PART 1 GENERAL

# 1.01 WORK INCLUDES

Complete temperature control system having all necessary component parts such as transformers, relays, thermostats, damper motors, etc. System shall be installed by competent technician familiar with the control system.

## PART 2 AND 3 - PRODUCTS AND EXECUTION 2.01 SERVICE AND GUARANTEE

- A. After completion HVAC Contractor shall adjust all thermostats, control valves, motors, sensors, dampers and other equipment provided under his contract with trained personnel in his employ. Place controls in operating condition subject to the approval of the Engineer. Instruct operating personnel in the operation and maintenance of the control system.
- B. The control system specified herein shall be guaranteed free from defects in workmanship and material under normal use and service for a period of one year after acceptance.
- C. Any equipment herein described proven to be defective in workmanship or material during the guarantee period shall be adjusted, repaired or replaced at no charge to the Owner.

# 2.02 WIRING

- A. All wiring incidental to this temperature control system shall be provided by the HVAC Contractor.
- B. The term "wiring" shall be construed to include furnishing of wire, conduit, miscellaneous materials and labor as required for mounting and connecting electrical control devices and providing electrical interlocks between equipment. All wiring not indicated on electrical drawings is the responsibility of this Contractor

# 2.03 SEQUENCE OF OPERATION

END OF SECTION

					VERTIC	AL TER	MINAL
			OA			HEATING	CAPACITY
MARK	SERVICE	CFM	CFM	ESP	VOLTAGE	INPUT	BIU/HR
VTAC	COMMUNITY ROOM	700	60	.10"	208V-1P	7.5	18,000
REMARKS 1. EXTERIO 2. ARCHITED 3. ACCESS 4. DIGITAL	<u>S:</u> R WALL ADAPTOR CTURAL LOUVER PANEL/ RETURN <i>A</i> WALL THERMOSTAT	AIR GRILLE	5. UNIT 6. CON	<sup>-</sup> SHALL BE HAR DENSATE DRAIN	D WIRED TO DAYLIGHT		
					PACKAG	GED TER	RMINAL

### INAL AIR CONDITIONING UNIT SCHEDULE OA HEATING CAPACITY SERVICE CFM CFM ESP VOLTAGE INPUT BTU/HR TOTAL MARK PTAC-1 OFFICE 400 65 208-1P 5 KW 14,000 11.600

UNIT SHALL BE PROVIDED BY OWNER FROM BUILDING STOCK. HVAC CONTRACTOR SHALL INCLUDE THERMOSTAT.

FIXTURE CONNECTION SCHEDULE						
MARK	FIXTURE	HW	CW	SAN	VENT	
SP-1	SUITE WATER CLOSET	1	1/2"	3"	2"	
SP-2	SUITE LAVATORY	1/2"	1/2"	1½"	1¼"	
SP-3	SUITE TUB	1/2"	1/2"	1½"	1¼"	
SP-4	SUITE KITCHEN SINK	1/2"	1/2"	1½"	1¼"	
P-1	WATER CLOSET	-	1/2"	3"	2"	
P-2	LAVATORY	1/2"	1/2"	1½"	1¼"	
P-3	COMMUNITY ROOM SINK	1/2"	1/2"	1½"	1¼"	
P-4	FLOOR DRAIN	_	_	3"	1½"	

FAN I REMARKS: DISCONNECT SWITCH BACKDRAFT DAMPER EC MOTOR WITH VARIABLE SPEED . CONTROLLED BY WALL SWITCH

# EF-1

# FIXTURE SPECIFICATIONS

<u>SP-1 WATER CLOSET – FLUSH TANK:</u> AMERICAN STANDARD H20PTIMUM SIPHONIC #288CA114.020, STANDARD HEIGHT, ELONGATED BOWL, WHITE VITREOUS CHINA, 1.10 GPF, PRESSURE ASSIST. <u>SEAT:</u> AMERICAN STANDARD ELONGATED, WHITE, CLOSED FRONT SEAT WITH COVER. FLUSH HANDLE SHALL BE LOCATED ON OPEN SIDE OF ROOM.

SP-2 COUNTERTOP LAVATORY: INTEGRAL BOWL BY GENERAL CONTRACTOR, TRIM AND FINAL CONNECTIONS BY PLUMBING CONTRACTOR. FAUCET: DELTA #520LF-HGMHDF, ADA SINGLE-HANDLE LEVER, POP-UP DRAIN, 0.5 GPM AERATOR.

<u>SP-3 TUB/SHOWER:</u> STERLING 60" X 30" TUB "ACCORD" #71141116 AND "ACCORD" #71244106 3-PIECE SURROUND SET WITH BACKER BOARDS FOR FUTURE GRAB BAR INSTALL. TRIM: DELTA #T13420-H20T, ASSE 1016 PRESSURE BALANCE MIXER, HIGH LIMIT STOP, INTEGRAL CHECKS, CHROME FINISH, ADA METAL LEVER HANDLE, FIXED SHOWERHEAD, 1.5 GPM, TUB SPOUT WITH DELTA. COORDINATE LEFT/RIGHT ORIENTATION WITH FLOOR PLANS. CURTAIN ROD TO BE PROVIDED BY GENERAL CONTRACTOR.

<u>SP-4 KITCHEN SINK:</u> ELKAY "DAYTON" #DD23322, 22-GAUGE STAINLESS STEEL, DOUBLE BOWL, 7" DEEP, CENTER DRAIN. FAUCET: DELTA #340-WE-DST, SINGLE-LEVER HANDLE, 1.5 GPM AERATOR. DRAIN TYPE: BASKET STRAINER.

P-1 WATER CLOSET, FLUSH TANK: AMERICAN STANDARD CADET PRO RIGHT HEIGHT 215AA.105.020, 16-1/2" HIGH TOILET, VITREOUS CHINA, FLOOR MOUNTED, 1.28 GPF, ELONGATED BOWL, SIPHON JET, TWO-PIECE GRAVITY FLUSH TANK. AMERICAN STANDARD #5910.110.020, 'COMMERCIAL'. EXTRA HEAVY-DUTY TOILET SEAT. WHITE FINISH SOLID POLYPROPYLENE PLASTIC WITH EVERCLEAN SURFACE, OPEN FRONT LESS COVER. MCGUIRE LFH166N3 TOILET SUPPLY ANGLE STOP. CHROME PLATED FINISH, ESCUTCHEON AND FLEXIBLE COPPER RISER, PROVIDE FLOOR FLANGE WITH ALL BRASS BOLTS AND WITH RUBBER GASKET.

<u>P-2 LAVATORY, WALL HUNG:</u> AMERICAN STANDARD #0355.012.020 'LUCERNE' BASIN, WHITE FINISH. AMERICAN STANDARD #6114116.002, 'MONTERREY', SINGLE HANDLE FAUCET. POWERS #LFE480, POWERS #LFE480-00, ASSE 1070, POINT OF USE THERMOSTATIC MIXING VALVE MCGUIRE #LFH170BV, CHROME POLISHED BRASS FAUCET SUPPLIES, #155A OPEN GRID DRAIN, #8872CB, P-TRAP WITH CLEAN-OUT. PROVIDE FLOOR MOUNTED FIXTURE CARRIER WITH CONCEALED ARMS. PROVIDE BRAIDED STAINLESS STEEL FLEXIBLE SUPPLIES TO AS REQUIRED FOR INSTALLATION. PROVIDE FIXTURE WITH MCGUIRE #155WC OFFSET OPEN GRID DRAIN AND 'PROWRAP' #PW2000WC SANITARY COVERING.

P-3 SINK, BREAK ROOM, DOUBLE BOWL STAINLESS STEEL: JUST DL-2228-A-GR LEDGE TYPE - DOUBLE BOWL, 18 GAUGE SINK, 3 HOLES, SELF-RIMMING TOP MOUNT GRIP-RIM WITH STAINLESS STEEL MOUNTING CHANNELS, 22" FRONT TO BACK AND 28" LEFT TO RIGHT, 7½" DEEP. AMERICAN STANDARD #4175300.002, 'COLONY SOFT', SINGLE HANDLE FAUCET, CHROME POLISHED BRASS. MCGUIRE 151 STAINLESS STEEL BRASS BASKET STRAINER, #LFH170BV POLISHED BRASS FAUCET SUPPLIES AND #8912CB P-TRAP AND 'PROWRAP' #PW2000WC SANITARY COVERING.

P-4 FLOOR DRAIN: WATTS MODEL #FD-100-A FLOOR DRAIN, EPOXY COATED CAST IRON DRAIN BODY, NICKEL BRONZE STRAINER, ANCHOR FLANGE, REVERSIBLE CLAMPING COLLAR WITH PRIMARY AND SECONDARY WEEP HOLES, ADJUSTABLE ROUND HEEL PROOF STRAINER, AND NO HUB OUTLET.

NOTE: MODEL NO. ARE BASED ON

GREENHECK. COOK IS EQUAL.

# EXHAUST FAN SCHEDULE

NO.	SERVICE	CFM	S.P.	WATTS	VOLTAGE	RPM	SONES	TYPE	MANUF. & MODEL NO.	REMARKS
1,2,3	RESTROOM	70	0.4	17	115V-1ø	817	1.5	CEILING FAN	SP-AP0511W	1,2,3,4

**GRILLE & DIFFUSERS** DAMPER FRAME MARK | MODEL NO. NUMBER BORDER PATTERN FINISH REMARKS 24"x24" OPPOSEI BY ARCH LAY-IN SPD BLADE 4-WAY DISCHARGE Δ SURFACE MOUNT BY ARCH 45° FIXED DEFLECTION 530 <u>REMARKS</u> NOTE: MODEL NO. ARE BASED ON MARK PRICE. TITUS IS EQUAL. 1. REFER TO ARCHITECTURAL PLANS FOR – NECK/MODUL | <del>• ∖</del> EXACT LOCATIONS AND CEILING TYPES. — VOLUME (CFM 

# NAL AIR CONDITIONING UNIT SCHEDULE

CO	OLING CAPAC	ITY	EL	ECTRICAL DA	ΓA		MANUFACTURER		
TOTAL	SENS	EER	VOLT	MCA	MOCP	DIMENSIONS	MODEL	REMARKS	
22,500		11.0	208V-1P	42.6	45	23'X23"X52"	AMANA AVH-24	225	1,2,3,4,5,6

СС	OLING CAPAC	ITY		ELECTRIC	CAL DATA	MANUFACTURER			
	SENS	EER	VOLT	MCA	MOCP	POWER CORD	MODEL	WEIGHT	REMARKS
		11.1	208V-1P	27.6	30	6-30P	AMANA PTH123K50AXXX	108	SEE NOTE

RANERSHIP P.C.	3505 Chapin Street Erie, Pennsylvania 16508 Phone: 814-860-8366 Fax: 814-860-8606 email: info@rothmarz.com
ROTH MARZ PAF	ARCHITECTS INTERIORS PLANNERS PROJECT MANAGERS
CON	REGISTERED PROFESSIONAL MICHAEL THOMAS DENK ENGINEER NO. PE074583
	ALTERATIONS TO BARNETT BUILDING APARTMENTS 32 WEST PEARL STREET ALBION, PENNSYLVANIA 16401
MEC SPEC AND	
PROJI DATE	CHANICAL CIFICATIONS SCHEDULES ECT NO. DAI24106 8-23-2024

![](_page_301_Figure_0.jpeg)

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# GENERAL NOTES:

- 1. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE VARIOUS EQUIPMENT PLACEMENTS, ROUGH-INS, BUILDING PENETRATIONS, AND SYSTEM RUNS WITH THE G.C. AND ALL OTHER TRADES, AND RESPECTIVE UTILITY COMPANIES PRIOR TO CONSTRUCTION AND PURCHASE/SHIPMENT OF MATERIALS.
- ARCHITECTURAL CEILING PLAN, SECTIONS, ELEVATIONS, AND DETAILS. THE ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE LOCATION OF RECEPTACLES, DATA OUTLETS, AND ALL OTHER WALL MOUNTED DEVICES WITH THE ARCHITECTURAL WALL FINISHES AND ELEVATIONS.
- 3. THE ELECTRICAL WIRING CONNECTION AND PROTECTION REQUIREMENTS FOR OWNER FURNISHED EQUIPMENT SHALL BE VERIFIED IN THE FIELD WITH THE OWNER'S EQUIPMENT SUPPLIER AND WITH THE NAMEPLATE DATA. THE ELECTRICAL CONTRACTOR SHALL FURNISH THE PROPER NEMA RECEPTACLE CONFIGURATIONS, CONNECTIONS AND CIRCUITS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
- 4. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF MECHANICAL EQUIPMENT WITH THE MECHANICAL CONTRACTOR EXACT ELECTRICAL REQUIREMENTS SHALL BE VERIFIED IN THE FIELD WITH THE EQUIPMENT NAMEPLATE DATA. THE ELECTRICAL CONTRACTOR SHALL MAKE APPROPRIATE ADJUSTMENTS TO WIRE AND FUSE SIZES IN ACCORDANCE WITH THE NAMEPLATE DATA.
- 5. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SIZING OF ALL MOTOR OVERLOAD DEVICES (HEATERS) IN STARTERS BASED ON ACTUAL NAMEPLATE RATINGS ON THE MOTORS BEING INSTALLED.
- 6. THE MEANS OF DISCONNECT/CONTROL FOR ALL MOTORS AND EQUIPMENT SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION AND SHALL HAVE PROPER WORKING SPACE AS DEFINED IN NEC ARTICLE 100 AND 110.
- 7. CONNECT ALL EMERGENCY EGRESS/EXIT LIGHTING/EXIT SIGNAGE/NIGHT LIGHTING TO LOCAL LIGHTING BRANCH CIRCUIT, AHEAD OF LOCAL SWITCHING PER STATE AND LOCAL CODES.
- 8. THE ELECTRICAL CONTRACTOR SHALL VERIFY THAT ALL DOOR SWINGS ARE CORRECT BEFORE INSTALLING LIGHT SWITCH OUTLETS.
- 9. FINAL CONNECTIONS TO ALL LAY-IN FIXTURES SHALL BE MADE WITH FLEXIBLE CONDUIT, UNLESS OTHERWISE NOTED.
- 10. JUNCTION BOXES SHALL NOT BE INSTALLED ABOVE GYPBOARD CEILINGS, DUE TO INACCESSIBILITY. RELOCATE ALL J-BOXES TO AN ACCESSIBLE LOCATION, OR ABANDON.
- 11. THE ELECTRICAL CONTRACTOR SHALL REMOVE SUCH EXISTING WORK AS CALLED FOR IN THE DRAWINGS, OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.
- AREAS. 13. ALL BRANCH CIRCUITS AND FEEDERS SHALL CONTAIN INSULATED GROUNDING CONDUCTOR IN ACCORDANCE WITH SPECIFICATION
- SECTION 16400.
- BE COORDINATED WITH, AND SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION.
- 15. ALL LOW VOLTAGE AND SYSTEM CABLING LOCATED ABOVE CEILINGS SHALL BE PROPERLY RATED FOR THE APPLICATION. WITHOUT EXCEPTION, ALL CABLING SHALL BE HUNG FROM BRIDAL TYPE RINGS OR PLACED IN CABLE TRAY BY THE ELECTRICAL CONTRACTOR IN EXPOSED CEILING AREAS, ALL CABLING SHALL BE RUN IN CONDUIT TO THE NEAREST ACCESSIBLE CEILING LOCATION.
- 16. WIRE SIZES SHALL BE BASED ON THE 60°C. AMPACITIES FOR WIRE SIZES #14 THROUGH #1AWG, AND 75°C. AMPACITIES FOR WIRE SIZES #1/0 AWG AND LARGER.
- 17. ALL CONDUCTORS SHALL BE COPPER. ALUMINUM WIRING IS AN ACCEPTABLE ALTERNATE FOR FEEDERS 100 AMPERES OR LARGER.
- FOR LOW VOLTAGE CABLE AND 120V POWER FOR CARD READERS/SENSORS WITH THE OWNERS SECURITY SYSTEM VENDOR PRIOR TO ROUGH-IN.
- 19. COORDINATE COMMUNICATIONS CABLING, ROUTING, MOUNTING BOXES, AND TERMINATIONS WITH THE OWNER, ARCHITECT AND OWNERS COMMUNICATIONS CONSULTANT PRIOR TO ROUGH-IN.
- 20. ALL 15- AND 20-AMPERE, 120-VOLT NONLOCKING TYPE RECEPTACLES IN THE AREAS SPECIFIED IN NEC 406.12(1) THROUGH (7) SHALL BE LISTED TAMPER RESISTANT.
- 21. ALL CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS, FLOORS, OR SHAFTS SHALL BE SEALED IN ACCORDANCE WITH SPECIFICATIONS.
- 22. UTILIZATION OF THE PHRASE "PROVIDED BY" WITHIN THE CONTEXT OF THESE DOCUMENTS SHALL EXPLICITLY REPRESENT "FURNISHED AND INSTALLED BY".
- 23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTLY PHASING THE CIRCUITS IN THE PANELBOARDS. THREE SINGLE-PHASE CIRCUITS MAY BE COMBINED IN ONE CONDUIT WITH A COMMON NEUTRAL, AS INDICATED ON DRAWINGS, PROVIDED EACH CIRCUIT IS ON AN OPPOSITE PHASE.
- SUSPENSION SYSTEM INDEPENDENTLY OF CEILING MATERIAL.
- 25. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR ALL BRANCH CIRCUITS.
- 26. ALL CONDUITS THAT CROSS EXPANSION JOINTS SHALL HAVE EXPANSION SEISMIC COUPLINGS.
- 27. 120V.-20A. HOMERUNS SHALL BE #12AWG UNDER 100', #10AWG 100'-200' #8AWG 200'-300', UNLESS OTHERWISE NOTED.
- 28. ALL ABANDONED ELECTRICAL CONDUITS OR OPENINGS MADE BY REMOVAL OF EXISTING ELECTRICAL COMPONENTS SHALL BE FIRE STOPPED WITH APPROVED U.L. RATED MINERAL WOOL AND/OR FIRE CAULK. U.L. APPROVED FIRE STOP METHOD/MATERIAL SHALL MATCH THE EXISTING AND/OR NEW RATED ASSEMBLY.
- 29. MC CABLE MAY BE UTILIZED IN ALL AREAS AS APPROVED IN THE NATIONAL ELECTRICAL CODE.

2. THE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF ALL LIGHT FIXTURES AND CEILING MOUNTED DEVICES WITH THE

12. PROVIDE SEAL-OFFS WHERE CONDUITS PASSES THROUGH AREAS OF DIFFERENT AMBIENT TEMPERATURES AND/OR HAZARDOUS

14. THE ROUTING OF ALL SURFACE MOUNTED/EXPOSED CONDUIT IN FINISHED AREAS (OR WHERE NOTED ON THE DRAWINGS) SHALL

18. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF ALL DEVICE BOXES FOR SECURITY SYSTEM, CONDUIT

24. LIGHTING FIXTURES INSTALLED IN SUSPENDED CEILINGS SHALL BE SUPPORTED FROM MAIN CHANNELS, OR TEES OR CEILING

			L	IGHTING FIXTURE SCHEDULE	
		LUMINAIRE		ΝΕςοριστίων	
TIPE	LAMP	DIMMING W	ATTAGE	DESCRIPTION	MOONTING
A	LED 120V 35/40/50K 4000-6000L	0-10V 1%	—W	2'X2' BACKLIT LED PANEL, SWITCHABLE COLOR TEMPERATURE AND LUMENS, LAY-IN CEILING, SET TO MATCHING CORRIDOR COLOR TEMPERATURE, MEDIUM LUMEN.	LAY-IN CEILING
B	LED 120V 40K 575L	NON-DIMMING	—W	BATHROOM VANITY FIXTURE, VERIFY FINISH WITH ARCHITECT	CEILING MOUNT
CS ■	LED 120V 40K 575L	NON-DIMMING	11W	7" CLOSET MOTION SENSOR FIXTURE	CEILING MOUNT
СМ	LED 120V 40K 925L	NON-DIMMING	14W	18" CLOSET MOTION SENSOR FIXTURE	CEILING MOUNT
D O	LED 120V 30K 2000L		20W	RETROFIT DOWNLIGHT	RECESSED
F	LED 120V 30K 506L	NON-DIMMING	7W	SWIVEL UNDERCABINET LIGHT, MOUNT OVER SINK, VERIFY LENGTH IN THE FIELD, VERIFY FINISH WITH ARCHITECT, INSTALL PER MANUFACTURER'S RECOMMENDATIONS, SET TO 30K.	UNDER CABINET
G	LED 120V K L	NON-DIMMING	—W	OUTDOOR SCONCE UNDER CANOPY, COORDINATE FIXTURE WITH ARCHITECT.	WALL MOUNT
X	LED 120V - -	-	—W	LED UNIVERSAL MOUNT EXIT SIGN, MATCH EXISTING EXIT SIGNS IN BUILDING.	_
XR	LED 120V - -	-	-W	LED UNIVERSAL MOUNT EXIT SIGN WITH REMOTE HEAD CAPBAILITY, MATCH EXISTING EXIT SIGNS IN BUILDING.	_
RH <b>∢⊳</b>	LED 120V - -	-	-W	LED EMERGENCY DUAL REMOTE HEADS, OUTDOOR LOCATION, MATCH EXISTING REMOTE HEADS AROUND BUILDING.	_

# LIGHTING FIXTURE SCHEDULE NOTES:

1. THE E.C. SHALL COORDINATE ALL COLORS, FINISHES, LENGTHS, ETC. OF FIXTURES WITH THE ARCHITECT AND ACTUAL FIELD CONDITIONS PRIOR TO PLACING PURCHASE ORDER.

2. THE E.C. SHALL COORDINATE ALL TRIMS OF LIGHT FIXTURES WITH ARCHITECTURAL REFLECTED CEILING PLANS, EXISTING CONDITIONS, ETC. AND INCLUDE APPROPRIATE TRIM (LAY-IN, DRYWALL, ETC.) IN BASE BID. SUBMISSION OF SHOP DRAWINGS WILL BE INTERPRETED THAT THIS COORDINATION WITH THE ARCHITECT HAS BEEN COMPLETED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO THE LACK OF THIS COORDINATION.

# ELECTRICAL DEMOLITION NOTES

1. PRIOR TO ANY EXECUTION OF WORK, THE CONTRACTOR SHALL MEET WITH THE OWNER, ARCHITECT AND ENGINEER AND DISCUSS SCOPE OF DEMOLITION WORK.

- 2. PRIOR TO ANY ISOLATION OF SYSTEMS. SHUTDOWNS OR DEMOLITION THE CONTRACTOR SHALL PROVIDE NECESSARY INVESTIGATION AND NOTIFY THE FACILITIES ENGINEERING/MAINTENANCE PERSONNEL OF WORK TO BE PERFORMED SO AS TO AVOID ANY DETRIMENTAL SHUTDOWN OF SYSTEMS TO ADJACENT SPACES.
- 3. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SAFETY BY DISCONNECTING, CUTTING AND MAKING SAFE ALL DEMOLITION WORK.
- 4. CONTRACTOR SHALL NOTIFY OWNER, ARCHITECT AND ENGINEER OF ANY SITUATIONS THAT MODIFY OR INCREASE THE SCOPE OF WORK FROM THAT DESCRIBED IN THE DOCUMENTS.
- 5. CONTRACTOR SHALL INCLUDE IN THE BASE CONTRACT ALL PREMIUM TIME REQUIRED FOR SHUTDOWNS.
- 6. THE FLOOR PLANS HAVE BEEN DEVELOPED UTILIZING EXISTING DOCUMENTS AND READILY OBSERVABLE SITE CONDITIONS. THE FLOOR PLANS MAY NOT SHOW EVERY EXISTING RECEPTACLE, LUMINAIRE, SWITCH, CONDUIT, ETC. FIELD VERIFICATION OF ALL EXISTING DEVICES WILL BE REQUIRED TO BE MADE BY THE CONTRACTOR. EXISTING DEVICES WHICH ARE LOCATED ON EXISTING WALLS WHICH ARE TO BE DEMOLISHED OR IN THE PATH OF A NEW WALL SHALL BE REMOVED AND/OR RELOCATED AS REQUIRED. THE CONTRACTOR SHALL CONTACT THE ARCHITECT OR ENGINEER IF UNANTICIPATED FIELD CONDITIONS ARE ENCOUNTERED DURING CONSTRUCTION. NOTE THAT ELECTRICAL OR ELECTRONIC CIRCUIT TRACERS WERE NOT USED TO VERIFY THESE PLANS. CONTRACTOR SHALL FIELD VERIFY ALL SYSTEMS PRIOR TO COMMENCEMENT OF WORK.
- 7. MAINTAIN AND RESTORE, IF INTERRUPTED BY DEMOLITION OR IN THE PATH OF NEW CONSTRUCTION. ALL CIRCUITS. CONDUITS AND FEEDERS PASSING THROUGH AND SERVING OUTSIDE OF DEMOLITION AREA.
- 8. INVENTORY MAJOR ELECTRICAL ITEMS THAT ARE BEING REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS NOT RETAINED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
- 9. EXISTING CONDUITS STUBBED THROUGH FLOOR SERVING ITEMS BEING REMOVED AND NOT REQUIRED FOR REUSE SHALL BE CUT OFF FLUSH WITH FLOOR.
- 10. ALL WIRING (BRANCH CIRCUIT, FEEDER, FIRE ALARM, ETC) THAT IS TO BE DEMOLISHED SHALL BE REMOVED COMPLETELY BACK TO SOURCE INCLUDING ALL CONDUIT, SUPPORTS, CONDUCTORS, ETC. DO NOT ABANDON ANY MATERIALS ABOVE CEILINGS OR IN WALLS. THE ASSOCIATED CIRCUIT BREAKERS SHALL BE TURNED OFF AND MARKED AS SPARE IF NOT REUSED FOR THE NEW CONSTRUCTION. UPDATE PANELBOARD DIRECTORIES AS REQUIRED,
- 11. CONTRACTOR SHALL INCLUDE IN THEIR BID PRICE THE FIELD TRACING OF ALL FEEDERS AND BRANCH CIRCUITS ASSOCIATED WITH THE RENOVATION AREA TO VERIFY DEMOLITION AND REMOVAL OF SAME. AT A MINIMUM, THE CONTRACTOR SHALL UTILIZE ELECTRONIC CIRCUIT TRACERS TO AID IN THE TRACING OF CIRCUITS. THE CONTRACTOR SHALL DOCUMENT ALL FINDINGS, NOTING CONFLICTS AND DISCREPANCIES WITH CONSTRUCTION DOCUMENTS. FINDINGS SHALL BE SUBMITTED AS A SHOP DRAWING TO THE ENGINEER FOR REVIEW.
- 12. MAINTAIN AND RESTORE IF INTERRUPTED BY REMOVALS OR IN THE PATH OF NEW CONSTRUCTION ALL CIRCUITS AND FEEDERS PASSING THROUGH AND SERVING UNDISTURBED AREAS SHOWN OR NOT SHOWN.
- 13. IN ANY AREA REQUIRING THE PERFORMANCE OR ANY TRADES WORK, THIS CONTRACTOR SHALL CAREFULLY REMOVE AND RESTORE ANY OR ALL ELECTRICAL ITEMS IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED AFTER COMPLETION OF OTHER TRADES WORK IN THAT AREA.
- 14. IN ALL EXISTING OR NEW AREAS SPECIFIED OR SHOWN TO BE PAINTED, THIS CONTRACTOR SHALL REMOVE ALL ELECTRICAL ITEMS AS REQUIRED INCLUDING BUT NOT LIMITED TO LUMINAIRES, DEVICE PLATES, DEVICES, ETC. REINSTALL SAME AFTER COMPLETION OF PAINTING. ANY ITEM NOT REMOVED AND PAINTED OVER SHALL BE SUITABLY CLEANED OR REPLACED WITH A NEW ITEM BY THIS CONTRACTOR.
- 15. EXISTING FLUSH OUTLET BOXES MAY BE REUSED IF AT PROPER HEIGHT, LOCATION AND IN GOOD CONDITION. EXISTING CONCEALED RACEWAYS MAY BE REUSED IF IN GOOD CONDITION, RACEWAYS FOR CIRCUITRY SHOWN ON PLANS SHALL GOVERN.

			-
	ELECT	RICAL SYMBOL LEGEND	
		HOMERUN TO PANEL "A", CIRCUITS 1 and 3	<b>P P</b> Street a 1650 0-8366 -8606
CATALUG NU.	HP-1,2	INDICATES HOMERUN TO HOUSE POWER PANEL "HP-1", CIRCUIT $#2$	ani 260.360.360.360.360.360.360.360.360.360.3
LITHONIA LIGHTING CPX 2X2 ALO7 80CRI SWW7 DIFFUSER MVOLT OR EQUAL	\$a	SWITCH – SINGLE POLE – LOWER CASE LETTER "a" INDICATES THIS SWITCH TO CONTROL LIGHT FIXTURES DESIGNATED WITH LOWER CASE "a".	5 Chap 5 Chap ennsylv e: 814-8 : 814-8
LITHONIA LIGHTING FMVTRL 24IN MVOLT 30K 90CRI BN OR EQUAL	\$ •	COMBINATION SWITCH AND DUPLEX RECEPTACLE – MOUNTING AT 48" A.F.F.	Erie, Pé Fax
LITHONIA LIGHTING EMMCL 840 PIR	$\oplus$	SPECIAL PURPOSE RECEPTACLE – SEE PLANS FOR DESCRIPTIONS	
OR EQUAL	$\oplus$	DUPLEX RECEPTACLE – MOUNTED AT 18" A.F.F. VERIFY EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH–IN.	
LITHONIA LIGHTING FMMCL 18 840 PIR	0	DUPLEX RECEPTACLE - TOP SWITCHED, BOTTOM CONTINUOUS	
OR EQUAL	0	DUPLEX RECEPTACLE MOUNTED HORIZONTALLY – VERIFY EXACT	
LITHONIA LIGHTING	Ð	MOUNTING HEIGHT WITH ARCHITECT	
LSS MVOLT EZ1 OR FQUAL	$\oplus$	DOUBLE DUPLEX (QUADPLEX) RECEPTACLE	N FIREN
JUNO	⊕c	DUPLEX RECEPTACLE – G.F.C.I. TYPE	AR ORA
UPLD 22IN SWW4 90CRI WH OR EQUAL	Фc	DUPLEX RECEPTACLE – MOUNTED AT 7" ABOVE COUNTERTOP	
TO BE SELECTED BY	O <sub>B</sub>	LIGHT FIXTURE TYPE "B"	
	ЮС	LIGHT FIXTURE – WALL MOUNTED TYPE "C"	
MATCH EXISTING	⊷∽	UTILITY WALL FIXTURE WITH PULL CHAIN.	
MATCH EXISTING		CIRCUIT BREAKER PANELBOARD	
MATCH EXISTING		COMBINATION TELEPHONE/DATA OUTLET MOUNTING AT 18" A.F.F. (C – INDICATES OUTLET TO BE MOUNTED 7" ABOVE COUNTER). PROVIDE (2) RJ45 – CATEGORY 6 OUTLETS.	NWEAL A

1. THIS CONTRACTOR IS TO INSTALL A MEDIA PANEL (FURNISHED BY OTHERS) IN EACH APARTMENT, COMPLETE WITH A DUPLEX RECEPTACLES MOUNTED INSIDE THE PANEL. PROVIDE A CATEGORY 6 CABLE AND A RG6 (QUAD SHEILDED/HI-BANDWIDTH) FROM THE MEDIA BOX TO EACH COMBINATION DATA/CABLE OUTLET PER THE DRAWINGS. TERMINATE CABLES ON

OUTLETS. ALL CABLES SHALL BE LABELED IN THE MEDIA CABINET. TEST ALL CABLES AND

ELECTRICAL CONTRACTOR SCOPE NOTES:

PROVIDE RESULTS TO THE OWNER.

# ELECTRICAL SPECIFICATIONS

- 1. ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST PROVISIONS OF THE NATIONAL ELECTRICAL CODE, THE STATE BUILDING CODE, AND ANY MODIFICATIONS OR REGULATIONS PUBLISHED BY LOCAL OR STATE AUTHORITIES.
- 2. EQUIPMENT AND MATERIALS USED ON THIS PROJECT SHALL BE NEW, AND UL LABELED. EXISTING EQUIPMENT MAY BE REUSED WHERE INDICATED ON THE DRAWINGS.
- 3. TEMPORARY ELECTRICAL SERVICE, LIGHTING AND RELATED WIRING SHALL BE PROVIDED TO OSHA AND NEC REQUIREMENTS FOR THE USE OF ALL TRADES DURING CONSTRUCITON.
- 4. PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF ELECTRICAL WORK. ALL CUTTING OF FIRE RATED FLOORS. SHAFTS OR WALLS SHALL BE FIRE STOPPED TO MATCH RATING OF ASSEMBLY PENETRATED, PRIOR TO FINISH PATCHING.
- 5. GROUND ALL CONDUITS, CABINETS, PANELS AND OTHER EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH THE NEC.
- 6. INTERIOR RACEWAYS SHALL BE EMT (1/2" MINIMUM), OR MC/AC CABLE (WHERE APPROVED BY OWNER).
- 7. CONDUCTORS SHALL BE TYPE THHN/THWN INSULATION, 600-VOLT, 90°, COPPER FOR BRANCH CIRCUITS, #12 MINIMUM SIZE.
- 8. WIRING DEVICES SHALL BE COMMERCIAL GRADE, AS MANUFACTURED BY HUBBELL, PASS & SEYMOUR, LEVITON, OR ARROW HART.
- 9. FUSES SHALL BE DUAL ELEMENT TIME DELAY TYPE. CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC TYPE WITH MINIMUM SHORT CIRCUIT CAPACITY OF 10,000 AMPS.
- 10. DISTRIBUTION EQUIPMENT AND PANELBOARDS SHALL BE MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, ITE/SIEMENS, WESTINGHOUSE/CUTLER HAMMER OR CHALLENGER. DISTRIBUTION EQUIPMENT AND PANELBOARDS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS IN ACCORDANCE WITH NEC 110.16.
- 11. LIGHTING FIXTURES SHALL BE PROVIDED AS SPECIFIED ON THE FIXTURE SCHEDULE OR AS INDICATED ON THE DRAWINGS. LIGHTING FIXTURES SHALL BE SUPPORTED IN ACCORDANCE WITH ARTICLE 410-15 OF THE NEC.
- 12. LOW VOLTAGE WIRING, SUCH AS TELEPHONE, DATA, SOUND SYSTEM, FIRE ALARM, OR CONTROL WIRING SHALL BE PLENUM RATED AND SHALL BE INSTALLED UNDER SEPARATE CONTRACT WITH THE OWNER, UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

![](_page_304_Picture_93.jpeg)

PROFESSIONAL T

MICHAEL THOMAS DENK

ENGINEER

NO. PE074583

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THE COUNTY ( BUILDING APARTN RL STREET TVANIA 16401

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PROJECT NO. DAI24106 DATE 8-23-2024 DRAWING NO.

![](_page_304_Picture_96.jpeg)

	NAME:	PANEL					
	SPACES:						
CKT.	DESC	RIPTION					
1	LIVING REC	EPTACLES					
3	KITCHEN						
5	KITCHEN RE	CEPTACLES					
7	DISPOSAL						
9							
11	RANGE						
13							
15							

<u>NOTE:</u> THIS PANEL SHALL REMAIN AND BE REUSED

	NAME: LAUNDRY R	N
	<b>SPACES:</b> <u>42</u>	
СКТ.	DESCRIPTION	-
1	COMMUNITY RM LIGHTS	-
3	COMMUNITY BATH LIGHTS	
5	BLANK	
7	CORR N S EQ/STOR LTS	
9	GFCI PANEL & OUTSIDE	
11	COMM & BATH RECEPT.	
13	ELECTRIC WATER COOLER	
15	OFFICE RECEPTACLES	
17	BLANK	
19	BLANK	
21	LAUNDRY ROOM RECEPT.	
23	SPACE	
25	SPACE	
27	SPACE	
29	DRYER – WEST	
31		
33	SPACE	
35	SPACE	
37		
39	NEW PANEL "BM"	
41		

NOTE: THIS PANEL SHALL REMAIN AND BE REUSED

# EXISTING SUITE PANEL SCHEDULE

Voltage: <u>120/208V.-1ø-3W</u> AMPS: <u>100A</u> Type: <u>FLUSH</u> 

1004/2PKWD. XX ()

 LOC	ATION:		2			MCB:	_100A	/ 25	. KV	1 <b>D:</b> <u>^^</u>	.0	
LTG.	REC.	HTG.	MISC.	C/B	φ	C/B	MISC.	HTG.	REC.	LTG.	DESCRIPTION	СКТ.
-	-	-	-	15/1	A	15/1	-	-	-	_	BEDROOM	2
-	-	-	-	15/1	B	15/1	-	-	-	-	BATHROOM	4
-	1	Ι	-	20/1	A	20/1	-	-	-	-	KITCHEN RECEPTACLES	6
-	1	Ι	-	15/1	B	1	-	-	-	-	SPACE	8
-	1	Ι	-	50/2	A	30/2	-	-	-	_		10
1	١	I	-	30/2	B	JU/ Z	_	-	-	_		12
1	١	I	-	30/2	A	15/2						14
_	_	-	-	30/2	В	13/2	_	-	_	_	DASEDUAND HEAT	16

# EXISTING LAUNDRY ROOM PANEL SCHEDULE

<u>M</u>	<b>VOLTAGE:</b> <u>120/208V3ø-4W</u>				AMPS:	400		TYPE: SURFACE					
_	LOC	CATION:	VARIE	S			MCB:			. KV	<b>D:</b> <u>XX</u>	.0	
	LTG.	REC.	HTG.	MISC.	C/B	Φ	C/B	MISC.	HTG.	REC.	LTG.	DESCRIPTION	CKT.
	_	_	-	_	20/1	A	20/1	_	_	-	_	PARKING LOT LIGHTS	2
	_	_	-	_	20/1	В	20/1	-	_	– – MAIN ENTRANC		MAIN ENTRANCE LIGHTS	4
	_	_	-	_	20/1	C	20/1	-	_	– – EAST OUTSIDE STO		EAST OUTSIDE STOR LTS	6
	_	_	-	-	20/1	A	20/1		_	-	_	BLANK	8
	-	-	20/1		20/1	B	20/1	-	-	-	-	BLANK	10
	-	-	– – 20/1		C	20/1	I	-	-	_	CORR RECEPT N-S & EQ	12	
	-	-	20/1		A	20/1	-	-	-	-	BLANK	14	
	-	-	20/1			В	20/1	I	-	-	-	BLANK	16
	-	-	-	- 20/1 (		C	20/1	-	-	-	-	FIRE ALARM BOOSTER PNL	18
	-	-	-	-	20/1	A	20/1	1	-	-	-	BLANK	20
	-	-	-	-	20/1	В	20/1	I	-	-	-	EAST CTYD GLOBE LIGHT	22
	-	-	-	-		C	20/1	١	-	-	-	BLANK	2 <b>4</b>
	-	-	-	-		A	20/1	١	-	-	-	FLAG LT/SIDEWALK/GFCI	26
	-	-	-	-		В	20/1	-	-	-	-	SIDEWALK BOLLARD LT.	28
	-	-	-	-	30/2	C	30/2	Ι	-	-	_	DRYER - FAST	30
	-	-	-	-	30/2	A	3072	Ι	-	-	_	DRIER - LAST	32
	-	-	-	-		В	20/1	١	-	-	-	FRNT LOBBY ELECT DOORS	34
	-	-	– – – c		C	30/1	١	-	-	-	ELEV HEATER OUTLET	36	
	-	-	-	-		A		-	-	-	-	SPACE	38
	-	-	-	-	125/3	В		-	-	-	-	SPACE	40
	-	-	-	-		C		_	-	-	_	SPACE	42

![](_page_305_Picture_12.jpeg)

PER OBC.

	NAME: <u>BM</u>	VOL	TAGE:	120/2	208V	1ø-3W		AMPS:	<u>125A</u>		. TY	PE: <u>Fl</u>	JSH	
	<b>SPACES:</b> <u>24</u>	LOC	CATION:	MAILROOM			MCB:	<u>100A</u>	/2P	. <b>K</b> V	<b>KWD:</b> <u>XX.0</u>			
СКТ.	DESCRIPTION	LTG.	REC.	HTG.	MISC.	C/B	Φ	C/B	MISC.	HTG.	REC.	LTG.	DESCRIPTION	CKT.
1	KITCHEN COUNTER RECEPT	-	-	-	-	20/1	A	20/1	-	-	-	-	KITCHEN COUNTER	2
3	REFRIGERATOR	-	-	-	-	20/1	В	20/1	-	-	-	-	COMM ROOM RECEPTACLE	4
5		-	-	-	-	20/1	C	20/1	-	-	-	-	LOBBY LIGHT	6
7	KIICHEN KANGE	-	-	-	-	20/1	A	20/1	I	-	-	-	COMM. ROOM RECEPTACLE	8
9	улас 1	-	-	-	-	50/2	В	70/2	-	-	-	-		10
11	VIAC-I	-	-	-	-	30/Z	C	30/2	I	-	-	-	SPARE	12
13		-	-	-	-	30/2	A	30/2	-	-	-	-		14
15	PTAC-Z	-	-	-	-	30/2	В	30/2	I	-	-	-	EXISTING WATER DEATER	16
17	SPARE	-	-	-	-	20/1	C	20/1	-	-	-	-	SPARE	18
19	SPARE	_	-	-	-	20/1	A	20/1	-	_	-	-	SPARE	20
21	SPARE	-	-	-	-	20/1	B	20/1	-	-	-	-	SPARE	22
23	SPARE	_	-	-	-	20/1	C	20/1	-	_	-	-	SPARE	24

![](_page_305_Figure_16.jpeg)

![](_page_305_Picture_17.jpeg)

# NEW SUITE 115 CIRCUIT BREAKER PANEL SCHEDULE

PANEL	VOL	TAGE:	120/2	208V	1ø-3W		AMPS:	<u>100A</u>		. TYI	<b>PE:</b> <u>RE</u>	CESSED		
16	LOC	ATION:	SUITE 115				MCB:	<u>100A</u>	/2P	. KV	<b>VD:</b> <u>XX</u>	0		
CRIPTION	LTG.	REC.	HTG.	MISC.	C/B	Φ	C/B	MISC.	HTG.	REC.	LTG.	DESCRIPTION	CKT.	r.
EPTACLES	-	-	-	-	15/1	A	15/1	-	-	-	-	BEDROOM	2	1
ÖR	-	_	_	-	15/1	В	20/1	-	-	-	-	BATHROOM	4	
ECEPTACLES			_	-	20/1	A	20/1					KITCHEN RECEPTACLES	6	1
	-	-	_	-	-	В	20/1	-	-	-	_	LIGHTS	8	1
	-	_	_	-	E0 /0	A	70/0	_	_	-	_	DIAC	10	
			_	-	50/2	В	30/2	-	-	-	_		12	
	_	_	_	_	_	A	_	_	_	_	_	SPACE	14	
	-	_	-	-	-	В	_	_	_	-	-	SPACE	16	

ALL 15A AND 20A, 120V BRANCH CIRCUITS SUPPLYING OUTLETS IN THE FOLLOWING LOCATIONS REQUIRE AFCI PROTECTION: KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, REC ROOMS, CLOSETS, HALLWAYS, AND OTHER SIMILAR AREAS OR U.O.N., IN ACCORDANCE WITH NEC 2017.

# APARTMENT GENERAL NOTES:

1. EXHAUST FANS ARE TO BE INSTALLED BY THE MC AND WIRED BY THE EC.

2. SUITE COMBINATION SMOKE/CO DETECTORS SHALL BE INTERCONNECTED SO THAT ACTIVATION OF ONE SMOKE DETECTOR SHALL ACTIVATE ALL DETECTOR ALARMS WITHIN THE TOWNHOUSE. SEE TYPICAL WIRING DIAGRAM ON E001. DETECTORS SHALL BE WIRED TO COMMON LIGHTING CIRCUIT

# NEW PANEL 'BM' SCHEDULE

# PARTIAL POWER RISER DIAGRAM

# PARTIAL POWER RISER DIAGRAM CODED NOTES:

() EXISTING SUITE PANEL 124 TO BE REMOVED AND REWORKED INTO PULL BOX FOR EXTENSION OF EXISTING FEEDER TO NEW SUITE PANEL "115". NEW 125A FEEDER. WIRE WITH (4) #1AWG, (1) #6AWG(G), 2" CONDUIT FROM 125A/3P CIRCUIT BREAKER IN PANEL "LR"

RTNERSHIP P.C.	3505 Chapin Street Erie, Pennsylvania 16508	Phone: 814-860-8366 Fax: 814-860-8606	email: info@rothmarz.com
ROTH MARZ PA		ARCHITECTS	PROJECT MANAGERS
CONTRACTOR OF	REGIST PROFES MICHAEL THO ENGIN NO. PEC	ERED SIONAL DMAS DENK IEER 174583	NOF YOU
HOUSING AUTHORITY OF THE COUNTY OF ERIE ALTERATIONS TO BARNETT BUILDING APARTMENTS 32 WEST PEARL STREET ALBION, PENNSYLVANIA 16401			
ELE PAN			
	CTRICA ELS GRAMS	L	
DIAC PROJ DATE DRAW	ELS GRAMS ECT NO. /ING NO.	DAI2410 8-23-20	06 24

![](_page_306_Picture_0.jpeg)

![](_page_306_Figure_2.jpeg)

- Security/ camera system and monitor(s)
- Door access
- IT/ server computer
- Emergency Call

Apartment Unit

FIRST FLOOR ELECTRICAL DEMOLITION PLAN CODED NOTES:

- 1 REMOVE ALL RECEPTACLES ON EXISTING WALLS TO BE DEMOLISHED COMPLETE BACK TO PANEL. SWITCH BREAKER OFF AND MARK SPARE.
- 2 EXISTING EMERGENCY CALL SYSTEM TO REMAIN AND BE RECONNECTED.
- 3 EXISTING DUKANE INTERCOM PANEL AND INTERCOM CONTROL PANEL TO BE REMOVED.
- 4 EXISTING RENT SLOT TO BE REMOVED AND RELOCATED.
- 5 EXISTING OLD STYLE DOOR CALL SYSTEM TO BE REMOVED.
- 6 EXISTING SELECT ENGINEERED SYSTEM INC. DOOR ACCESS SYSTEM TO BE RELOCATED.
- (7) EXISTING ADA DOOR(EXTERIOR) OPERATOR TO BE REMOVED AND RELOCATED. ÉXTEND CIRCUIT WITH SWITCH TO NEW LOCATION.
- 8 EXISTING LIGHT SWITCHES WITH OPERATOR RESTRICTION PLATE TO BE RELOCATED. ONE IS FOR EXTERIOR THE OTHER FOR CORRIDOR.
- (9) EXISTING FIRE ALARM PULL STATION TO BE RELOCATED.
- (10) EXISTING THRU-WALL PTAC TO BE REMOVED.
- (1) EXISTING SECURITY SYSTEM AND MONITOR(S) TO BE
- RELOCATED.
- 12 FIRE ALARM BELL TO BE RELOCATED.
- (13) EXISTING TIME CLOCK TO BE RELOCATED. WIRED TO PANEL "B", LAUNDRY ROOM, CIRCUIT #22.
- (14) EXISTING SUITE TO BE COMPLETELY REMOVED. REMOVE ALL LIGHTS, DEVICES, SWITCHES AND CIRCUITS COMPLETE BACK TO PANEL LOCATION COMPLETE WITH ALL CONDUIT AND WIRE.
- (15) EXISTING DOMESTIC WATER HEATER TO REMAIN FOR RESTROOM AND ADJOINING APARTMENT. DISCONNECT FORM SUITE BRANCH PANEL.
- $\overbrace{16}^{(16)} \text{EXISTING FIRE ALARM CONTROL PANEL TO BE RELOCATED BY OTHERS.}$
- (17) EXISTING PTAC UNIT 208V–1P RECEPTACLE TO BE RELOCATED EXTEND CIRCUIT AS REQUIRED.
- (18) EXISTING SECURITY CAMERA SYSTEM TO BE RELOCATED BY OTHERS.
- (19) EXISTING EMERGENCY, CALL LIGHT TO BE REMOVED AND RELOCATED OVER NEW RESIDENTIAL APARTMENT DOOR IN CORRIDOR.
- (20) EXISTING PHOTOCELL AND OUTSIDE OF BUILDING TO REMAIN.
- (21) EXISTING SUIT PANEL TO BE REMOVED . REWORKED FOR NEW SITE FEEDER.

<u>GENERAL NOTE:</u> ALL NMC/ROMEX ABOVE CEILING IN THE AREA OF WORK SHALL BE REMOVED. NO NEW NMC/ROMEX SHALL BE REINSTALLED ON THE PROJECT.

RE – REMOVE EXISTING RR – REMOVE / RELOCATED ETR – EXISTING TO REMAIN

![](_page_306_Figure_36.jpeg)

![](_page_306_Picture_37.jpeg)

# DEMOLITION PLAN

PROJECT NO. DAI24106 8-23-2024 DATE DRAWING NO.

![](_page_306_Picture_40.jpeg)

![](_page_307_Figure_0.jpeg)

![](_page_307_Figure_2.jpeg)

UNIT 115 SUITE CODED NOTES:

- 1) <u>RANGE HOOD:</u> 120V-1ø, 1.6 ANTICIPATED. PROVIDE A G.F.C.I. PROTECTED DUPLEX RECEPTACLE MOUNTED AT APPROXIMATELY 72" A.F.F. ABOVE RANGE (COORDINATE WITH ARCHITECTURAL ELEVATIONS AND EQUIPMENT BEING PROVIDED). WIRE WITH 2#12AWG, 1#12AWG(G) IN 3/4" CONDUIT TO A DEDICATED 20A-1P CIRCUIT BREAKER IN PANEL.
- 2 <u>REFRIGERATOR:</u> 120V-1ø, 1.0 KW ANTICIPATED. PROVIDE A DEDICATED NEMA 5-20R G.F.C.I. DUPLEX RECEPTACLE MOUNTED AT 48" A.F.F. WIRE WITH 2#12AWG, 1#12AWG(G) IN 3/4" CONDUIT TO A DEDICATED 20A-1P CIRCUIT BREAKER IN PANEL.
- 3 ELECTRIC RANGE: 208/240V-10, 8.0 KW ANTICIPATED. PROVIDE A NEMA #14-50R RECEPTACLE MOUNTED AT 48" A.F.F. WIRE WITH 3#6AWG, 1#10AWG(G), TO TO A DEDICATED 50A-2P G.F.C.I. CIRCUIT BREAKER IN PANFI
- PROVIDE RESIDENTIAL SMOKE/CO SINGLE STATION DETECTOR. DETECTORS SHALL BE INTERCONNECTED SO THAT ACTIVATION OF ONE DETECTOR SHALL ACTIVATE ALL DETECTOR ALARMS WITHIN THE SUITE. SEE TYPICAL WIRING DIAGRAM ON SHEET XXX. DETECTORS SHALL BE 120V-10 WITH BATTERY BACK-UP. PROVIDE A DUAL TECHNOLOGY IONIZATION/PHOTOELECTRIC DETECTOR OUTSIDE THE BEDROOM AND AN IONIZATION DETECTOR IN THE BEDROOM.
- 5 LOW FREQUENCY SOUNDER IN THE BEDROOM CONNECTED TO FIRE ALARM SYSTEM.
- 6 MICROWAVE ON THE COUNTER: 120V-10, 1.6 KW ANTICIPATED. PROVIDE A NEMA #5-20R GFCI DUPLEX RECEPTACLE AND A DEDICATED 120V, 20A-1 POLE CIRCUIT BREAKER ROUTED TO THE TENANT PANEL VIA 2#12AWG, 1#12AWG(G).
- (7) EMERGENCY CALL SYSTEM PROVIDED BY OTHERS
- (8) FIRE ALARM DEVICE PROVIDED BY OTHERS.

# FIRST FLOOR ELECTRICAL PLAN CODED NOTES:

- NEW VTAC UNIT. WIRE WITH 2#10AWG, 1#10AWG(G), 3/4" CONDUIT TO 30A/2P CIRCUIT BREAKER IN PANEL 'BM'.
- 2 FORMER SUITE PANEL LOCATION. REWORK FOR NEW FEEDER TO NEW SUITE 11 PANEL.
- 3 NEW PTAC UNIT IN OFFICE SPACE. WIRE WITH 2#10AWG, 1#10AWG(G), 3/4" CONDUIT TO 30A/2P CIRCUIT BREAKER IN EXISTING PANEL 'BM'.
- $\langle 4 \rangle$  NOT USED.
- 5 NEW KEY SWITCH FOR CORRIDOR AND CANOPY LIGHTING CONTROL.
- 6 RELOCATED PULL STATION.
- $\overline{\langle 7 \rangle}$  Relocated select engineered system door access system.
- 8 RELOCATED SECURITY SYSTEM AND MONITORS.
- 9 DOOR SHALL HAVE ADA PUSH BUTTON AND MOTOR OPERATED OPENER.
- (10) EXISTING SES DOOR ACCESS SYSTEM TO BE RELOCATED BY OTHERS.
- (11) NEW SUITE 115 FEEDER
- (12) REUSE EXISTING CIRCUIT.
- (13) WIRE TO EXISTING LIGHTING CIRCUIT.
- (14) EXISTING WATER HEATER PREVIOUSLY WIRED TO SUITE PANEL.
- (15) NEW EMERGENCY CALL SYSTEM SUITE LIGHT BY OTHERS.
- (16) CORRIDOR AND EMERGENCY/EGRESS LIGHT FIXTURES SHALL BE CONNECTED TO EMERGENCY GENERATOR CIRCUIT.
- (17) EXTEND EMERGENCY CIRCUIT FOR NEW REMOTE HEAD.

![](_page_307_Figure_30.jpeg)

![](_page_307_Figure_31.jpeg)