PUBLIC WORKS FACILITY REMODEL

for

City of Lovington, New Mexico

PUBLIC WORKS FACILITY REMODEL
400 E. AVE. H, LOVINGTON, NM

PROJECT MANUAL INDEX

BID INVITATION

NOTICE IS HEREBY GIVEN that sealed bids for the project **Public Works Facility Remodel**, will be received by City of Lovington, 214 S. Love St., Lovington, NM 88260 (PO Box 1268). On Tuesday, April 19, 2017 at 3:00 bids will be publicly opened and read aloud. Bids received after opening time will be returned unopened.

The Bid Proposal will embody statements to the effect that the bid is accompanied by an acceptable **Bid Bond or Cashier's Check, in a sum not less than FIVE PERCENT (5%) of the greatest total bid amount**, payable to the Owner, with the understanding that if the bid is accepted, the bidder will, within 10 days after NOTICE OF AWARD enter into a contract and must be able to furnish acceptable Performance Bond and Labor and Material Payment Bond from an approved surety company in the full amount of the contract for such work. Bids may not be withdrawn after the bid opening for at least 30 days, or until notice of award of contract or rejection of the bid has been received. In case of failure of the successful bidder to enter into a contract and give acceptable Performance Bond and Labor and Material Payment Bond, the bid bond or cashier's check will be forfeited to the Owner as liquidated damages; otherwise, it will be returned to the bidder within 30 days from the date of opening of bids.

It is recommended that all bidders attend the PRE-BID CONFERENCE on Tuesday, April 12, 2017 at 3:00 pm. To be held at City Hall 214 S. Love St. After the meeting any interested party can proceed to the Public Works Facility building at 400 E. Ave. H, Lovington, NM to acquaint themselves with the site of work. Prior to the pre-bid meeting one can Contact Wyatt Duncan at 704-9171 or Darren Click at 704-9172 to gain access to the building. It is the responsibility of each bidder to exercise due diligence in reviewing the site of the Work before bidding. Failure to do so shall not constitute grounds for their receiving any additional monies in connection with this Work

Plan set, consisting of Drawings and Project Manual (Specifications), can be examined without charge through TESKE ARCHITECTS, 1000 N Turner St, Hobbs, NM 88240 - (575) 393-0960.

The Contract may be awarded with or without Alternates or one or more Alternates may be accepted and the other(s) rejected. Decision as to the award of the Base Bid and the Alternate(s) or which one or ones, if any or none, is up to the sole discretion of the Owner. The Owner reserves the right to reject any or all bids or to accept any or all bids and to waive defects, and to waive any or all formalities or irregularities. All bids may be held for 30 days after receipt of bids. **All bid prices submitted SHALL NOT include State gross receipts tax or local option taxes.** A bid not submitted in accordance with the Drawings and Specifications (Project Manual) and/or not submitted on the forms provided for this purpose will be considered non-responsive. The Owner reserves the right to reject any bid so submitted.

No substitution will be considered unless a WRITTEN Request for Approval has been submitted by the Bidder and has been received by the Architect within 10-days PRIOR to the bid date. The materials, products, and equipment described in the Drawings and Project Manual establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution. Any request for consideration of a proposed substitution is subject to conditions of Supplementary Instructions to Bidders. Each such request will include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute, including drawings, cuts, performance, test data, warranties, and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitute would require, shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final. **If prior approval is given by the Architect/Engineer on a substitution, it does not waive the Architect's/Engineer's authority to reject said substitution during the submittal review process addressed in Section 01300 and as such, the decision made by the Architect/Engineer shall be final.**

The bidder's attention is directed to the requirements of the Drawings and Project Manual for adherence to applicable state and local statutes, regulations, ordinances, including, but not limited to, requirements as to minimum wage rates to be paid under the contract, and payment of applicable gross receipts taxes.

In case of ambiguity or lack of clearness in stating proposal prices the City of Lovington reserves the right to adopt the most advantageous thereof, or to reject any or all bids and waive irregularities.

NAME OF PROJECT : **Public Works Facility Remodel**
OWNER AND ADDRESS : **City of Lovington, New Mexico**

PROPOSAL FOR A LUMP SUM CONTRACT:
PLACE :_____
DATE :_____
PROPOSAL FROM :_____
STATE OF NEW MEXICO LABOR ENFORCEMENT FUND REGISTRATION NUMBER:_____
TO : CITY OF LOVINGTON, NEW MEXICO

GENTLEMEN:

1. The Bidder in compliance with your Bid Invitation for the Public Works Facility Remodel having examined the Plans and Specifications and all other Contract Documents and the site for the proposed work, and being familiar with all the conditions surrounding the construction of the proposed Project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies and to construct the Project in accordance with the Contract Documents, within the time set forth herein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents of which this Proposal is a part.
2. The Bidder hereby agrees to complete all work in the Contract Documents to a point of Substantial Completion no later than 120 calendar days from the date set forth in the written Notice to Proceed, issued by the Architect.
3. The Bidder further agrees to pay in liquidated and ascertained damages, the sum of Five Hundred Dollars ($500) for each calendar day that any portion of the work under this Contract remains incomplete beyond the date/time specified in the above paragraph.
4. By the signing of this Bid Proposal, the Bidder hereby attests that all subcontractors and suppliers he intends on using on this Project (Base Bid and any Alternates) meet or exceed all requirements (including Prior Approval - **A MINIMUM OF 10 DAYS BEFORE BID DATE - SEE Division 0/Information for Bidders, for more on Prior Approvals**) and qualifications for their respective portions of the Work as set forth in the Project Manual and the Drawings.
5. The Bidder must include in his Bid the costs of all tests.
6. The Bidder acknowledges receipt of the following Addenda: _____.

7. _____ ←Initial in acknowledgment of the following: **Bidder understands that the Owner reserves the right to reject any or all bids, to accept any bid, and to waive any and all formalities or technicalities.**

8. _____ ←Initial in acknowledgment of the following: **Attached (on bidders letterhead) as part of this Bid Form, is the Bidders statement acknowledging if any asbestos containing materials will be used in the construction of this project and listing what said materials are and what percent they contain asbestos.**

9. _____ ←Initial in acknowledgment of the following: **CONTRACT CLOSE-OUT - The Bidder acknowledges all warranties/guarantees addressed in the Bid Documents and agrees to fulfill their commitment of same. Bidder understands the ramifications involved if the Close-Out portion of the work is not completed within 4-months. See #30 in Information for Bidders for more information.**

10. _____ ←Initial in acknowledgment of the following: **WARRANTIES SUBMITTALS - The Bidder agrees to submit copies of all manufacture warranties along with the other submittals (as specified in Division 1, Para. 1.5).**

11. _____ ←Initial in acknowledgment of the following: **The Bidder acknowledges the Modification Allowance and understands the stipulations thereof.**

12. _____ ←Initial in acknowledgment of the following: **The Bidder agrees that this Bid will be good and may not be withdrawn for a period of 30 days after the scheduled closing time for receiving bids.**

13. _____ ←Initial in acknowledgment of the following: **Bidder understands and agrees to comply with the following. Page 2 of each Pay Request will now contain a separate Line Item to address the Close-Out portion of the project. SEE #26 in Information for Bidders for more information.**

14. _____ ←Initial in acknowledgment of the following: **Bidder understands and will comply with the ramifications involved if the Architect has to perform more than two Project Reviews to determine 'final completion' of the project. SEE 9.10 in Supplementary General Conditions for detailed information.**

NOTE: **GROSS RECEIPTS TAX SHALL NOT BE INCLUDED IN ANY OF THE FOLLOWING BIDS:**

BASE PROPOSAL FOR: PUBLIC WORKS FACILITY REMODEL as prepared by Teske Architects. For all Base Bid work described in the Contract Documents Bidder agrees to perform this work for the sum(s) of:
BASE BID: _____ ($ _____)
⁎**IMPORTANT**⁎ Modification allowances shall be included in the Base Bid **and** all alternates, as applicable. In the event modifications are not requested or the sum used is less than the allowances shown, the remainder of the allowance will be returned to the Owner. **See SECTION 01020 for further information and clarifications.**

ALTERNATE PROPOSAL (S): For work described in the Contract Documents for Alternate Proposal(s), Bidder agrees to perform this Work for the sums of:

Additive Alternate #1: _____ **($ _____)**
Install one layer of 5/8" OSB on top of ceiling / floor joists at Mezzanine before installing second layer of 5/8" T&G BC Plywood. All layers are to be glued & screwed in place.

Additive Alternate #2: _____ **($ _____)**
Prep floors/ remove existing floor cover at Office1 and Office 2 before installing new Vinyl Comp. Floor Tile. Remove wall base at these rooms and install new 4" vinyl wall base over prepped wall surfaces.

It is understood that this Bid becomes a part of the Contract Documents upon the signing of the Contract. Failing to comply with any part of this Bid will be taken as a failure to comply with the Contract and will be just cause for rejection of the Work.

Upon receipt of Notice of the Acceptance of this Bid, Bidder will execute the formal Contract attached within 10 days and deliver the required Surety Bonds and Certificate of Insurance for the faithful performance of this Contract. **The Bid Security attached without endorsement in the amount of:**

_____ ($ _____),
is to become the property of the Owner, in the event the Contract and the Bonds are not executed within the time set forth above, as liquidated damages for the delay and additional work caused thereby.

By : _____
(FIRM NAME)

_____
(SIGNATURE of person authorized to sign)

_____
(PRINTED NAME of person authorized to sign)

_____
(TITLE)

_____
(Business PHYSICAL Address)

⁎By the signing of this Bid Proposal the the Bidder hereby attests that all Sub-contractors intended to be hired to work on to work on this Project (Base Bid and Alternates, meet or exceed all the requirements, including Prior Approval and Qualifications for their respective portions of Work as set forth in the Project Manual and the Drawings (inclusive of all Addenda).

Per the NM Department of Workforce Solutions: It is required that all bidders submitting a bid of $60,000+ are required to be registered and appear on the State web site by the Bid Date.

Prime Bidders CANNOT use a subcontractor's bid that exceeds the $60,000+ threshold unless the Prime Bidder knows for a fact that subcontractor does meet the LEFA requirements.

If there is no LEFA number listed for a subcontractor, proof of said subcontractor's bid NOT exceeding the $60,000+ threshold will be required by the Architect PRIOR to the Project being considered for award. This 'proof' will be supplied immediately to the Architect upon request.

LEFA REQUIREMENTS WILL BE UPHELD - NO EXCEPTIONS !!

If there is not enough room to list all subcontractors, list the balance on a separate sheet of paper and attach to bid.

SUBCONTRACTOR LIST: ***PUBLIC WORKS FACILITY REMODEL***
PRIME BIDDER: _____

Area of Work	Company Name & FULL Address	LEFA № & County
		№:
		County:
		№:
		County:
		№:
		County:
		№:
		County:
		№:
		County:
		№:
		County:
		№:
		County:
		№:
		County:
		№:
		County:
		№:
		County:
		№:
		County:

Job Superintendent:_____.
Years of Experience as Job Superintendent:_____.

SHOULD CHANGES IN THE SUBCONTRACTORS OR JOB SUPERINTENDENT BE DESIRED, SUCH CHANGES SHALL BE SUBMITTED FOR THE ARCHITECT'S APPROVAL; **OTHERWISE**, SUBCONTRACTORS AND/OR JOB SUPERINTENDENT LISTED SHALL BE USED ON THE ENTIRE CONSTRUCTION PHASE OF THE PROJECT.

MAJOR WORK COMPLETED DURING THE LAST TWO YEARS:

PROJECT NAME	OWNER	APPROXIMATE COST	ARCHITECT / ENGINEER

Upon request, each Bidder shall furnish a statement of the Bidder's financial resources, construction experience, and organization available for the contemplated work, on AIA Document A305 "Contractor's Qualification Statement".

✳ **By the signing of this Bid Proposal, the Bidder hereby attests that all subcontractors and suppliers he intends to use on the Project, Base Bid and Alternates (if any), meet or exceed all requirements (including Prior Approval) and qualifications for their portions of the Work as set forth in the Project Manual and Drawings.**

BY:_____ DATE:_____

GENERAL CONTRACTOR:_____

NEW MEXICO CONTRACTOR'S LICENSE №:_____

RESIDENT CONTRACTOR'S CERTIFICATION №: _____

LABOR ENFORCEMENT FUND REGISTRATION № _____

BIDDERS PREFERENCE FORM
(as part of the Bid Invitation)
for
PUBLIC WORKS FACILITY REMODEL

Date:_____, 2017

TO: The City of Lovington, New Mexico

Bid of:_____:

A) A Corporation under the laws of the State of _____; or

B) A partnership consisting of _____;or

C) An individual trading as_____.

The undersigned bidder, pursuant to the foregoing "Notice to Bidders", has carefully examined the instructions to Bidders, this bid form and the Detailed Specifications.

_____ _____
Residence Preference Certification Number

Company Name

_____

BY:_____

_____
Type or Print Name

_____
Address

_____ _____
Telephone Number City State Zip

NOTE: To be valid, bid must be signed. The signature of a corporation is its president, or an authorized vice president, attested by the secretary. A signature of a partnership must be a valid partner.

Do Not Return Invitation to Bid Form in Case of a "NO BID"

If applicable - bidder acknowledges receipt of the following AMENDMENT(S):

Amendment No:_____ Dated:_____ Amendment No.:_____ Date:_____
Amendment No:_____ Dated:_____Amendment No.:_____ Date:_____

Susana Martinez
New Mexico Governor

Ed Burckle
Cabinet Secretary
General Services Department

Lawrence O. Maxwell
State Purchasing Agent

STATE OF NEW MEXICO

GENERAL SERVICES DEPARTMENT
PURCHASING DIVISION

Administrative Services Division
(505) 827-0620
Building Services Division
(505) 476-2425
Property Control Division
(505) 827-2141
Purchasing Division
(505) 827-0472
Risk Management Division
(505) 827-0442
State Printing & Graphic Services Bureau
(505) 476-1950
Transportation Services Division
(505) 476-1902

July 1, 2012

SPD POLICY MEMO FY13-001

Application of Veterans Preference

In accordance with Sections 13-1-21 and 13-1-22 NMSA 1978 resident veterans businesses are to receive the following preferences:

1. Resident veterans businesses with annual revenues of $1M or less are to receive a 10% preference discount on their bids and proposals.

2. Resident veterans businesses with annual revenues of more than $1M but less than $5M are to receive an 8% preference discount on their bids and proposals.

3. Resident veterans businesses with annual revenues of more than $5M are to receive a 7% preference discount on their bids and proposals.

This preference is separate from the current instate preference and is not cumulative with that preference. However, veteran businesses will still receive the in state preference once the veteran's preference cap is exceeded. This law applies to all departments, commissions, councils, boards, committees, institutions, legislative bodies, agencies, government corporations, educational institutions or officials of the executive, legislative or judicial branches of the government of the state or political subdivisions of the state and agencies, instrumentalities and institutions thereof, including two-year post-secondary educational institutions, school districts, local school boards and all municipalities, including home-rule municipalities.

The Taxation and Revenue Department (TRD) will be issuing a three (3) year certificate to each qualified business. Businesses are required to reapply to TRD every three (3) years with the proper documentation to renew their certificate.

All public solicitations must contain the attached "Resident Veterans Preference Certification".

All requests for proposals (RFP's) must contain the following statement in the Evaluation and Points Summary:

New Mexico Business Preference

Points will be awarded based on Offerors ability to provide a copy of a current Resident Business Certificate or Resident Veterans Certificate.

In addition, the attached certification form must accompany any RFP and any business wishing to receive a resident veteran's preference must complete and sign the form.

RFP's are to be evaluated on preference as follows:

In addition to the total points on an RFP, 10% must be added for preference award. For example; an RFP has a total value of 1000 points. Five proposals are received; one from a resident business, one from a resident veterans business with an 8% preference and three non-resident businesses.
The two preference businesses would receive 50 points and 80 points to their already evaluated score, making it possible for the highest score total 1080.

"I agree to submit a report, or reports, to the State Purchasing Division of the General Services Department declaring under penalty of perjury that during the last calendar year starting January 1 and ending on December 31, the following to be true and accurate:

"In conjunction with this procurement and the requirements of this business' application for a Resident Veteran Business Preference/Resident Veteran Contractor Preference under Sections 13-1-21 or 13-1-22 NMSA 1978, when awarded a contract which was on the basis of having such veterans preference, I agree to report to the State Purchasing Division of the General Services Department the awarded amount involved. I will indicate in the report the award amount as a purchase from a public body, or as a public works contract from a public body, as the case may be.

"I understand that knowingly giving false or misleading information on this report constitutes a crime."

I declare under penalty of perjury that this statement is true to the best of my knowledge. I understand that giving false or misleading statements about material fact regarding this matter constitutes a crime.

This policy is effective July 1, 2012. Procurements involving federal funds are excluded from in state preference laws.

Lawrence O. Maxwell

State Purchasing Agent

PROJECT : PUBLIC WORKS FACILITY REMODEL

RESIDENT VETERANS PREFERENCE CERTIFICATION

_____ (NAME OF CONTRACTOR) hereby certifies the following in regard to application of the resident veterans' preference to this procurement:

Check one box only:

☐ I declare under penalty of perjury that my business prior year revenue starting January 1ending December 31 is less than $1M allowing me the 10% preference discount on this solicitation. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

☐ I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is more than $1M but less than $5M allowing me the 8% preference discount on this bid or proposal. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

☐ I declare under penalty of perjury that my business prior year revenue starting January 1ending December 31 is more than $5M allowing me the 7% preference discount on this bid or proposal. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

"I agree to submit a report, or reports, to the State Purchasing Division of the General Services Department declaring under penalty of perjury that during the last calendar year starting January 1 and ending on December 31, the following to be true and accurate:"

"In conjunction with this procurement and the requirements of this business' application for a Resident Veteran Business Preference/Resident Veteran Contractor Preference under Sections 13-1-21 or 13-1-22 NMSA 1978, when awarded a contract which was on the basis of having such veterans preference, I agree to report to the State Purchasing Division of the General Services Department the awarded amount involved. I will indicate in the report the award amount as a purchase from a public body or as a public works contract from a public body as the case may be."

"I understand that knowingly giving false or misleading information on this report constitutes a crime."

I declare under penalty of perjury that this statement is true to the best of my knowledge. I understand that giving false or misleading statements about material fact regarding this matter constitutes a crime.

_____ _____

(Signature of Business Representative)* (Date)

***Must be an authorized signatory for the Business.**

The representations made in checking the boxes constitutes a material representation by the business that is subject to protest and may result in denial of an award or unaward of the procurement involved if the statements are proven to be incorrect.

CAMPAIGN CONTRIBUTION DISCLOSURE FORM

Pursuant to NMSA 1978, § 13-1-191.1 (2006), any person seeking to enter into a contract with any state agency or local public body **for professional services, a design and build project delivery system, or the design and installation of measures the primary purpose of which is to conserve natural resources** must file this form with that state agency or local public body. This form must be filed even if the contract qualifies as a small purchase or a sole source contract. The prospective contractor must disclose whether they, a family member or a representative of the prospective contractor has made a campaign contribution to an applicable public official of the state or a local public body during the two years prior to the date on which the contractor submits a proposal or, in the case of a sole source or small purchase contract, the two years prior to the date the contractor signs the contract, if the aggregate total of contributions given by the prospective contractor, a family member or a representative of the prospective contractor to the public official exceeds two hundred and fifty dollars ($250) over the two year period.

Furthermore, the state agency or local public body shall void an executed contract or cancel a solicitation or proposed award for a proposed contract if: 1) a prospective contractor, a family member of the prospective contractor, or a representative of the prospective contractor gives a campaign contribution or other thing of value to an applicable public official or the applicable public official's employees during the pendency of the procurement process or 2) a prospective contractor fails to submit a fully completed disclosure statement pursuant to the law.

THIS FORM MUST BE FILED BY ANY PROSPECTIVE CONTRACTOR WHETHER OR NOT THEY, THEIR FAMILY MEMBER, OR THEIR REPRESENTATIVE HAS MADE ANY CONTRIBUTIONS SUBJECT TO DISCLOSURE.

The following definitions apply:

"**Applicable public official**" means a person elected to an office or a person appointed to complete a term of an elected office, who has the authority to award or influence the award of the contract for which the prospective contractor is submitting a competitive sealed proposal or who has the authority to negotiate a sole source or small purchase contract that may be awarded without submission of a sealed competitive proposal.

"**Campaign Contribution**" means a gift, subscription, loan, advance or deposit of money or other thing of value, including the estimated value of an in-kind contribution, that is made to or received by an applicable public official or any person authorized to raise, collect or expend contributions on that official's behalf for the purpose of electing the official to either statewide or local office. "Campaign Contribution" includes the payment of a debt incurred in an election campaign, but does not include the value of services provided without compensation or unreimbursed travel or other personal expenses of individuals who volunteer a portion or all of their time on behalf of a candidate or political committee, nor does it include the administrative or solicitation expenses of a political committee that are paid by an organization that sponsors the committee.

"**Family member**" means spouse, father, mother, child, father-in-law, mother-in-law, daughter-in-law or son-in-law.

"**Pendency of the procurement process**" means the time period commencing with the public notice of the request for proposals and ending with the award of the contract or the cancellation of the request for proposals.

"**Person**" means any corporation, partnership, individual, joint venture, association or any other private legal entity.

"**Prospective contractor**" means a person who is subject to the competitive sealed proposal process set forth in the Procurement Code or is not required to submit a competitive sealed proposal because that person qualifies for a sole source or a small purchase contract.

"**Representative of a prospective contractor**" means an officer or director of a corporation, a member or manager of a limited liability corporation, a partner of a partnership or a trustee of a trust of the prospective contractor.

Campaign Contribution Disclosure Form - continued . . .

DISCLOSURE OF CONTRIBUTIONS:

Contribution Made By: _____

Relation to Prospective Contractor: _____

Name of Applicable Public Official: _____

Date Contribution(s) Made: _____

_____

Amount(s) of Contribution(s) _____

_____

Nature of Contribution(s) _____

_____

Purpose of Contribution(s) _____

_____

(Attach extra pages if necessary)

_____ _____
Signature Date

_____
Title (position)

--OR—

NO CONTRIBUTIONS IN THE AGGREGATE TOTAL OVER TWO HUNDRED FIFTY DOLLARS ($250) WERE MADE to an applicable public official by me, a family member or representative.

_____ _____
Signature Date

_____
Title (Position)

The information being provided on this page is not to be construed as FULLY accurate, complete, and/or current. **Address all questions regarding LEFA and State Wage Rate information to NM Department of Workforce Solutions 575-524-6195.** ***It is the responsibility of EACH BIDDER to investigate further into these requirements if there are any questions and/or concerns regarding this information.***

1. ***Labor Enforcement Fund Act (LEFA)***

Parts A, B, C & D of State Statute for Labor Enforcement Fund are below.

13-4-13.1.1. Public works contracts; registration of contractors and subcontractors.

A. Except as otherwise provided in this subsection, in order to submit a bid valued at more than sixty thousand dollars ($60,000) and in order to respond to a request for proposals or to be considered for award of any portion of a public works project greater than sixty thousand dollars ($60,000) for a public works project that is subject to the Public Works Minimum Wage Act [13-4-10 to 13-4-17 NMSA 1978], the contractor, serving as a prime contractor or not, shall be registered with the Division. Bidding documents issued or released by a state agency or political subdivision of the state shall include a clear notification that each contractor, prime contractor or subcontractor is required to be registered pursuant to this subsection.

B. The state or any political subdivision of the state shall not accept a bid on a public works project subject to the Public Works Minimum Wage Act from a prime contractor that does not provide proof of required registration for itself.

C. Contractors and subcontractors may register with the division on a form provided by the division and in accordance with Workforce Solutions Department rules. The Division shall charge a registration fee of four hundred dollars ($400) every two years. The division shall issue to the applicant a certificate of registration within fifteen days after receiving from the applicant the completed registration form and the registration fee.

D. No less than thirty days before the expiration of a registration certificate, the Division shall mail or electronically transmit to a registrant's address as reflected in the files of the Division a reminder of the approaching expiration date.

The latest LEFA Statute (in full) can be found at: http://www.dws.state.nm.us/pdf/LaborEnforcementStatute.pdf. For any questions regarding the Labor Enforcement Fund Act, please call 575-524-6195. You must mail the application to the mailing address shown on the application.

- ***If there is no LEFA number listed for a subcontractor, proof of said subcontractor's bid NOT exceeding the $60,000+ threshold will be required by the Architect PRIOR to the Project being considered for award. This 'proof' will be supplied immediately to the Architect upon request.***
- ***If Alternates are involved, the Low Bidder is determined by what Alternate(s) the Owner may or may not award.***
- ALL subcontractors are required to be listed on Subcontractor List.

All contractors and/or subcontractors interested in bidding on this project that have not yet registered with the Department of Labor regarding this Act HB 471, need to do so by submitting the required application with payment. Please call 505-841-4405 on how to submit an application. ***NOTE*** You may not bid on a New Mexico public works project until your registration is posted on the Department of Workforce Solutions website. If you wish to check status of your registration number and/or get a copy of ACT HB 471, please contact the New Mexico Department of Workforce Solutions at 505-841-4405.

2. VERY IMPORTANT - **Wage RATE SUBSISTENCE PAY INFORMATION**:

It is HIGHLY recommended that ALL POTENTIAL BIDDERS go to the following link to review in detail Subsistence Pay that may be applicable to their particular trade: https://www.dws.state.nm.us/Portals/0/DM/LaborRelations/Subsistence_Zone_Incentive_Pay_2017.pdf

Address ALL questions regarding Wage Rate information to NM Department of Workforce Solutions 575-524-6195. **Failing to review said information could result in unknown financial obligations.**

3. QUALIFICATIONS OF BIDDER: The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligation of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted.

4. BID SECURITY: Bidders are required to use the Proposal Form attached to and made a part of the Contract Documents. Each Proposal must be accompanied by a bid bond equal to at least five percent (5%) of the Proposal amount. Bond shall be payable without condition to the Owner as guarantee that the Bidder, if awarded the Contract, will promptly execute such Contract in accordance with the Proposal and in manner and form required by the Contract Documents, and will furnish good and sufficient bond for the faithful performance of the same. The bid security of the three lowest Bidders will be retained until the Contract is awarded, or other disposition is made thereof. The bid security of all Bidders except the three lowest may be returned promptly after the canvass of bids.

5. INTERPRETATION OF DOCUMENTS: If any person contemplating submitting a bid for the proposed Contract is in doubt as to the meaning of any part of the Plans, Specifications, or other proposed Contract Documents, he may submit to the Architect a written request for an interpretation thereof prior to 48 hours before the hour of opening of bids.

   The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed Documents will be made only by an Addendum duly issued and a copy of such Addendum will be mailed or delivered to each person receiving a set of such Documents. The Architect will not be responsible for any other explanation or interpretation of the proposed Documents.

6. BID FORM: **DO NOT** submit the Project Manual as part of your bid. Copy the Bid Form in its entirety that is supplied in the project manual and submit only the bid form.

7. BONDING:

   A. **CONTRACTOR RESPONSIBILITIES:**

      1. PUBLIC WORK:

         a. It is the responsibility of the Prime Bidder to ensure that any subcontractor whose work is $125,000 or over will furnish to Prime Bidder a performance bond and a labor and material bond from their bonding company for the dollar amount of the work he has quoted to the Prime Bidder. The percentage cost amount of the bond can vary as there is no set percentage cost amount. **The cost for said bond(s) from all subcontractors shall be included in the bids received by the Prime Bidder. The Prime Bidder shall be sure these bond costs are also included in his cumulative bid he submits to the Owner.

         b. There is no State law that says a subcontractor is required to carry bonding for public works projects for bids UNDER the $125,000 threshold. However, the contractor can require bonding of his subcontractors for any said amount he chooses.

      2. PRIVATE WORK: To our knowledge there is no law that dictates that a subcontractor is required to carry bonding for private work; however, a General/Prime Contractor can require this of his subcontractors.

      3. **Regarding subcontractors who submit separate bids for different portions of work under the SAME company name** - SEE Item B, 1. b. (directly below).

   B. **SUBCONTRACTOR RESPONSIBILITIES:**

      1. PUBLIC WORK:

         a. RELATING TO PUBLIC WORKS; RAISING THE MINIMUM CONTRACT AMOUNT FOR WHICH A SUBCONTRACTOR IS REQUIRED TO PROVIDE A BOND. BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF NEW MEXICO:

            Section 1. Section 13-1-148.1 NMSA 1978 (being Laws 2005, Chapter 99, Section 1) is amended to read: "13-1-148.1. BONDING OF SUBCONTRACTORS.--A subcontractor shall provide a performance and payment bond on a public works building project if the subcontractor's contract for work to be performed on a project is one hundred twenty-five thousand dollars ($125,000) or more." Section 2. EFFECTIVE DATE.--The effective date of the provisions of this act is July 1, 2007.

            https://www.nmlegis.gov/Legislation/Legislation?Chamber=S&LegType=B&LegNo=0227&year=07

The following information below (B. 1. b.) was given to Carrie Teske w/Teske Architects via a bonding company in Albuquerque, New Mexico. This was the only place she could find to inquire about this type bonding situation. Lengthy efforts were made to find and contact the appropriate State agency regarding subcontractor bonding, but to no avail. BE IT KNOWN that Teske Architects and its employees DO NOT claim to know the full ramifications regarding bonding of this situation. It is advised that if a subcontractor and/or a general contractor have any concerns with the information given within this project manual regarding ANY portion of Public Works rules/laws, ***IT IS THE subcontractor and/or prime contractor's responsibility to investigate for themselves. Teske Architects will not be held responsible and/or liable under any circumstance or situation regarding any information given within this project manual regarding Public Works rules/laws.***

b. **** Subcontractor's who are licensed in more than one area of work for a proposed project:**

● If a subcontractor who **(*for example*)** has a plumbing license and a mechanical license submits a bid to a Prime Bidder/Contractor for both areas of work on the same project, said bids are considered separate regardless of their being under the same company name **AS LONG AS** each portion of the work is submitted as a SEPARATE bid to the Prime/General Contractor.

● The Prime/General Contractor MUST list these bids SEPARATELY on the Subcontractor List that is submitted with his bid. IN ADDITION, if the Prime Bidder/ Contractor ends up hiring said subcontractor for the work, the Prime/General Contractor MUST contract the work separately with the subcontractor in order to maintain a 'legal' separation of the work.

2. PRIVATE WORK: Subcontractors need to be bonded **ONLY IF** the General/Prime Contractor requires them to be.

8. PRIME BIDDER RESPONSIBILITIES:

A. It is the ***sole responsibility of each Prime Bidder*** to ensure that each subcontractor and/or supplier that he intends to use on a Project, inclusive of any Alternates, meet and/or exceed the qualifications and requirements (including Prior Approval - A MINIMUM OF 10-DAYS BEFORE BID DATE) for their respective portions of the Work, as set forth in the Project Manual and the Drawings. No monetary allowances will be made to the Contractor if any subcontractor and/or supplier listed on his Bid fails to meet these requirements and qualifications. It is also the Prime Bidder's sole responsibility to satisfy themselves that all subcontractors and suppliers who submit bids to him have examined the Project Site, have reviewed the Project Manual and the Drawings in regards to their portion of the Work.

B. Prime Bidder shall require said subcontractors and suppliers to attest that they meet and/or exceed the qualifications and requirements (including Prior Approval - A MINIMUM OF 10-DAYS BEFORE BID DATE) for their respective portions of the Work in order to submit their bid/quote to him. If this is not stated to the Prime Bidder when receiving their bid, he has the option to NOT use their bid/quote in his final bid to the Owner.

C. In order to avoid possible confusion and problems with a Bid, it is ***REQUIRED*** that the ***each Prime Bidder*** shall review each Division within the Project Manual to ensure that he is aware of all requirements and qualifications that are required on the Project. Required areas for review include, but not limited to ●Roofwork, ●Exterior Finishes, ●HVAC, ●All Alternates (if any). Highly suggested topics for review are ●Warranties, ●Tests, ●Prior Approval, ●Certification. This recommendation of suggested topics does not cover all areas of the Project Manual; therefore, the Prime Bidder is required to review each Division of the Project Manual.

9. INTERPRETATION OF QUOTED PRICES: In case of a difference in written words and figures in a Proposal, the amount stated in the written words shall govern.

10. EXAMINATION OF SITE: Bidders are required to inform themselves fully of the condition relating to construction and labor under which the work will be or is now being performed, and each Bidder must employ, so far as possible, such methods and means in the carrying out of his work as will not cause any interruption of interference with the adjoining property. It is the Prime Bidder's responsibility to ensure himself that all parties who submit bids to him have also examined the project site(s).

11. NUMBERS OF SIGNED SETS OF DOCUMENTS: The Contract and all Bonds will be prepared in not less than three (3) counterpart originally signed sets. The Architect will furnish the Contractor with four (4) sets of confirmed Contract Documents free of charge.

12. E-MAIL MODIFICATIONS: Any bidder may modify his bid by E-mail communication at any time prior to the scheduled closing time for receipt of bids, provided such communication is received by the Owner prior to said closing time, and provided further, that the Owner is satisfied that a written confirmation of such modifications over the signature of the Bidder was mailed prior to said closing time. If such written confirmation is not received within two days from said closing time, no consideration shall be given to the said modifications.

13. DELIVERY OF PROPOSALS: It is each Bidder's responsibility to deliver his Proposal at the proper time to the proper place. The mere fact that a proposal was dispatched will not be considered. Each Bidder must have the Proposal actually delivered.

14. TIME FOR COMPLETION AND LIQUIDATED DAMAGES: Each Bidder agrees that the work envisioned by the Bid Documents shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion of the Project within the time agreed upon in the Bid Documents. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for completion of the work described therein is a reasonable time for the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

15. REGARDING SUBCONTRACTORS: The Prime Bidder shall include with his bid, a sealed envelope listing the names of the subcontractors he intends to use if awarded the Contract. New Mexico's "Subcontractor Fair Practice Act", of April 6, 1989, requires listing of all subcontracts of equal to the greater of five thousand dollars ($5,000) or one-half of one not including any alternates, which ever is greater.

    Only the envelope of the apparent low Bidder will be opened and the names of the Subcontractors read aloud. The envelopes of the other Bidders will not be opened unless the Contractor is being considered for award of the Contract, and will be returned on request within 30 days after the opening of Bids. If any Subcontractor intends to sublet a large portion of his work, the name or names of such Subcontractors shall also be listed.

16. MINIMUM WAGE RATES: In compliance with Article 6, Section 6-6, New Mexico Statutes Annotated, 1953 compilation, the attached Minimum Wage Rates Decision № LE-17-0435-B are declared to be prevailing and apply to the construction. Bidders warrant and agree by submission of a bid that, if awarded a contract, they (including all subcontractors) shall comply with all applicable provisions of the New Mexico Public Works Minimum Wage Act. See the end of Division 0, before the AIA Forms, guarantees, etc. Minimum Wage Rates shall only apply to a bid submitted by a bidder which exceeds $60,000 in total bid. The Contractor is required to submit certified weekly payrolls directly to the State Labor Commissioner. The payrolls are to include all workmen, whether employed by the Contractor or Subcontractor.

17. LICENSED BIDDERS: The Prime Bidder and any Subcontractors bidding on this project are required to be licensed by the State of New Mexico.

18. POWER OF ATTORNEY: Attorneys-in-Fact who sign Bid Bonds or Contract Bonds must file with each Bond a certified and effectively dated copy of their Power-of-Attorney.

19. EQUAL EMPLOYMENT OPPORTUNITY: The Contractor shall maintain policies of employment as required by federal and state laws:

    19.1 The Contractor and all Subcontractors shall not discriminate against any employee or application for employment because of race, religion, color, sex, or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

    19.2 The Contractor and all Subcontractors shall, in all solicitation or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration or employment without regard to race, religion, color, sex, or national origin.

20. AGREEMENT - GENERAL CONTRACT: The Contract for this Project shall be written on AIA Document № A101, "The Standard Form of Agreement Between Owner and Contractor for the Construction of Buildings", copies of which are available for review at the office of the Architect.

21. PERFORMANCE - PAYMENT BOND: The bond for the Project shall be written on AIA separate Performance and Labor and Material Payment Bond Document № A312, copies of which are available for review at the office of the Architect. These bonds shall only be required if a bid submitted by a prime bidder exceeds $50,000 in total bid.

22. GENERAL CONDITIONS: General Conditions of the Contract for Construction shall be AIA Document A201 current authorized edition, are hereby made a part of these Specifications to the same extent as if bound herein. The General Conditions, including Supplementary General Conditions herein, shall become a part of the Contract and shall apply to all Contractors and Sub-contractors. A copy of the AIA General Conditions may be examined at the office of the Architect or obtained through the Albuquerque Chapter AIA, 318 Isleta Blvd. SW, Albuquerque, NM 87105 505-242-9800 or 9801 - Fax: 505/877-0873.

23. INSTRUCTIONS TO BIDDERS: “Instructions to Bidders”, AIA Document A701, current authorized edition, are hereby made part of these Specifications to the same extent as if bound herein. The Instructions to Bidders, including Supplementary Instructions to Bidders, herein, shall apply to all Contractors and Subcontractors. A copy of the AIA General Conditions may be examined at the office of the Architect or obtained through the Albuquerque Chapter AIA, 318 Isleta Blvd. SW, Albuquerque, NM 87105 505-242-9800 or 9801 - Fax: 505/877-0873.

24. ADDENDA: Addenda issued during the time of bidding shall be included in the Proposal, and in closing of the Contract, they will become a part thereof. The Bidder shall acknowledge the receipt of all Addenda on the Bid Form.

25. GUARANTEE: The Contractor shall guarantee all the work covered by the Contract Documents against failure caused by omission of materials, defective materials, or poor workmanship for a period of one year from the date of acceptance by the Owner. The guarantee shall include all labor, materials, equipment, and appliances against failure, as were required to complete the mechanical, electrical, structural, and architectural work for the construction of the Project. The Guarantee shall include all costs of replacement or repair. Extended guarantees beyond one year for labor, materials and equipment shall be as noted in individual Specification Sections.

26. Required “Close-Out” Line Item: It is required that Page 2 of the Contractor’s Pay Request include a separate Line Item called: Close-Out to cover the ‘close-out’ portion of the Owner/Contractor Contract. This Line Item will equal 2% of the Contract Amount (excluding NM Gross Receipts Tax and any Modification Allowance). This step is being taken due to the difficulties the Architect has with the general contractor either taking an unreasonable length of time complying to the Close-Out portion of the contract OR never fully complying. In addition, any change order that increases or decreases the Contract Amount, adjustments will be made accordingly to the Line Item: 2% Close-Out.

27. **PROJECT WALK-THRU (FINAL PUNCH):**

ATTENTION DIVISIONS 15 & 16 SUBCONTRACTORS*:*

It is your responsibility to review your Division of the Specifications for all references to ● ***FIELD QUALITY CONTROL REPORTS/TESTS*** and ● ***QUALITY ASSURANCE REPORTS/TESTS*** because you **ARE** required to submit a copy of **ALL** the various "reports/tests" to the Engineer **during the Engineer's initial punch of the project**. **THIS WILL BE ENFORCED.**

A. If some or all of the "reports" are not supplied to the Engineer at the "punch", the general contractor will have 5 working days to transmit the balance of said reports directly to the Engineer and notify the Architect of same. The Architect WILL NOT act as the courier service.

B. In addition, if these "reports" are not submitted, the Project will not be found Substantially Complete until said "reports" are received, reviewed, and approved.

28. **SUBSTANTIAL COMPLETION:** When the General Contractor considers the Work substantially complete and ready for the Architect's review, Contractor shall submit a **written 'request for review'** (via mail or email) to the Architect no later than 10-days **PRIOR** to the date requested with a punch list attached addressing all remaining items to be completed or corrected. After Contractor has completed all punch lists (his, the Architect's and/or the Engineer's) Contractor is to submit a second written notice requesting the Architect to review the finished work. (SEE Section 01700 - Close-Out for further requirements.)

29. **CLOSE-OUT:**

A. Review of the Specifications and Drawings for close-out requirements is strongly recommended so that any bidder is aware of what is required at the end of the Project. By the submission of a Bid Proposal (be it a supplier, subcontractor, or general contractor), that bidder agrees to submit/perform all Close-Out Requirements addressed within the Specifications and Drawings, as applicable.

Be it noted that to whomever the construction contract is awarded, they will be required to adhere to ALL close-out requirements addressed throughout the Specifications and Drawings. If there are ANY guarantees/warranties, tests, etc. that are questioned, contact the Architect/Engineer (as applicable).

The awarded bidder will be contractually obligated to the Owner to fulfill ALL close-out requirements contained within the Construction Documents (Drawings, Specifications, and all Addenda).

B. The following two items are required with the General Contractor's final pay application:

1. The following TWO items are required with the General Contractor's final pay application. ■General Contractor's 1-Year Warranty ■AIA Form: Contractor's Affidavit of Payment of Debts and Claims. Regarding the AIA form, "Exceptions" is where you list all subcontractors and/or suppliers that have not been paid in full.

2. The Close-Out portion of the Contract must be fulfilled by ALL parties before they can claim they have completed their portion of the Work to 100%. It is recommended that the General Contractor have something within their contract with their subcontractors and suppliers that payment in full will not be made until they fully comply with the close-out portion of their work (wording of this or whether this is done is up to the general contractor). Further the General Contractor's choice to pay the subs and suppliers to 100% whether they have complied to 100%.

C. **WARRANTY BINDERS:** General Contractor (GC) shall submit ONE 3-ring binder containing ORIGINALS. The binder will contain ALL of the warranties inclusive of the following (as applicable to a particular project): •3 AIA Forms (found at the back of Division 0) •Contractor's 1-Year Guarantee •Certificate of Occupancy •Contractor and Subcontractor warranties that extend beyond 1-Year •Original Manufacturer Warranties specified within the Project Manual, Drawings, and Addenda for ALL Divisions, INCLUDING 15 & 16 •Anything else called for. **When it is a Public Works project, there is no need to include the following in the 3-ring binder:** •1-Year guarantees/warranties •Subcontractor Release of Lien to the GC. **However**, it is recommended that the GC collect and keep these for his files.

It is recommended that the General Contractor begin compiling the warranty/guarantee by thoroughly reviewing the project manual and any addenda to compile a list of ALL warranties that exceed 1-Year and forward this to the Architect for a double check. **Division 15 & 16:** Due to the difficulties in finding the warranties that various subcontractors provide, you need to inform them that they are to provide you with copies of all warranties (that exceed 1-Year) for insertion in the Warranty Binders.

During Close-Out: Submit a 'Warranty List' to your transmittal letter. List ONLY what warranties are being delivered at that time. Another 'warranty list' will need to be submitted for each time warranties are being delivered. The 'Warranty Information Sheet' needs to be on the GC's letterhead with the following Project Information: (1)Project Name (2)Name of each warranty being submitted (2)Exactly what is being warrantied (3)Length of warranty (4)who provides the warranty. This can done in any format just as long as it shows the information above.

D. **EXTRA MATERIALS**: Where ever Extra Materials are called for within the Specifications, all contractors are required to submit the Extra Materials to the General Contractor. The General Contractor is then required to list all Extra Materials in letter form to the Architect. Letter must state that said materials have been received by the Owner's representative and signed by the Owner's representative. THIS IS MANDATORY AND WILL BE REQUIRED AT **CLOSE-OUT.**

30. **NON-COMPLIANCE OF CLOSE-OUT:** Due to continual problems with the Close-Out portion of the Contract being drawn out to unreasonable lengths of time and in some cases the Owner never receiving everything required within this portion of the Contract and in the best interest of the Owner, **the following actions will be implemented:**

A. When entering into a contract , the General Contractor (GC) is legally bound to fulfill all the requirements within the Project Manual & Drawings which includes the Close-Out portion of the Work. This is to inform all Prime Bidders that if after 4-months of the Project being Substantially Complete the Architect has not received all of the Close-Out Requirements, the Architect will inform the Owner of same.

The Owner may, at his discretion, contact the GC's bonding company to report non-compliance of the Contract. If the GC believes there is a viable reason for the delay of a close-out item(s), the GC must inform the Architect of this **in writing within 2-months after Substantial Completion** and the Architect will forward same to the Owner. ***The Architect will confirm said reason(s) and confer with the Owner.*** If the Owner is in agreement, then said close-out item(s) will be extended another month for submission to the Owner. ***HOWEVER, all other close-out requirements MUST be submitted within the 4-month time frame.***

B. It is **HIGHLY** recommended that the General Contractor (GC) have something written within their contracts with their subcontractors/suppliers stating that payment in full will not be made until said subcontractor/supplier have fully complied with the close-out portion of their work (wording of this or whether this is implemented is up to the GC). The GC's decision to pay their subcontractors/suppliers to 100% (whether said subs/suppliers have completed their work to 100% or not) is up to the GC but does not negate the GC's responsibility to the Owner.

31. SUBMITTAL PHASE: It is **mandatory** that a sample of all manufacturer warranties specified for this project be included with the submittal of all Shop Drawings/Submittals, to either the Architect or Engineer. If said sample is not submitted, the Shop Drawings/Submittals will be automatically put on review hold until said sample is provided. If a submitted 'sample' is not the warranty specified, the Shop Drawings/Submittals will not be reviewed for approval until the specified warranty is provided, **regardless if the contractor has to pay extra (after the fact) to attain it.** There will be no excuses regarding this required information being provided since all potential bidders are being notified of same during the bid phase of this project. **THIS WILL BE ENFORCED.**

    If the length of EACH individual submittal is 10 pages or more it shall be bound in a binder of some sort. If the length of EACH individual submittal is less than 10 pages it shall be stapled in the UPPER LEFT HAND corner.

    If there are any comments and/or questions regarding any of the manufacturer warranties specified, contact the Architect's office. Any "corrections" and/or 'changes" in a manufacturer's warranty must be addressed by an Addendum DURING the bid phase, NOT after the project is awarded. It is the BIDDER'S responsibility to thoroughly review their portion of the work and materials for specified manufacturer warranties. **It is the Bidder's responsibility to check with the manufacturer(s) as to whether the warranties spec'd in their portion of the Work are in fact available. If a specified warranty is not available, the bidder must immediately contact the Architect FIVE (5) BUSINESS days PRIOR to the Bid Date at cteske@teskearchitects.com with detailed information as to who was spoken with, the contact number, what was discussed, etc. This is to be submitted to the Architect FIVE (5) BUSINESS days prior to the Bid Date.**

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These Supplementary Instructions to Bidders contain amended or supplemented portions of AIA Document A701, "Instructions to Bidders" (current authorized edition) and are applicable to all work performed on this Project and are hereby incorporated into the Bidding Documents.

ARTICLE 1 DEFINITIONS --- The following Paragraphs are amended to read:

1.1 Bidding Documents shall include the Advertisement or Bid Invitation, Instructions to Bidders, and the Bid Form in addition to those items enumerated in the General Conditions of the Contract for Construction. The proposed Contract Documents shall include the Performance Bond and the Labor and Material Payment Bond.

1.2 Definitions set forth in the General Conditions of the Contract for Construction as amended or in other Contract Documents are applicable to the Bidding Documents.

1.4 A Bid is a complete and properly signed proposal to do the Work, or designated portion thereof, for the sums stipulated therein supported by data called for by the Bidding Documents.

1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or deducted for sums stated in Alternate Bids.

1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in project scope, materials, or methods of construction described in the Bidding Documents is accepted.

1.9 The Prime Bidder is one who submits a Bid for a prime Contract with the Owner for the Work described in the proposed Contract Documents.

Any other Bidder is one who submits a Bid to the Prime Bidder in his role as either a supplier or subcontractor shall be deemed as being a subcontractor on this project.

ARTICLE 2 BIDDER'S REPRESENTATIONS

2.1 The Bidder by making a Bid represents that:

Add: **2.1.5** The Prime Bidder is a General Contractor currently licensed by the State of New Mexico, giving said License Number, License Classification, Resident Contractor's Certification Number (if applicable), and expiration date are as listed on the Bid Form, below the signature line.

Add: **2.1.6** Bidder has examined the project area(s) and has satisfied himself/herself as to the nature and location of the work, difficulties to be encountered in performing the work, and the equipment needed by him to perform the work in a satisfactory manner.

Add: **2.1.7** The Prime Bidder shall acknowledge, as an attachment to the Bid Form, if any asbestos containing materials will be used in construction of the project by listing what these materials are and to what percent they contain asbestos.

ARTICLE 3 BIDDING DOCUMENTS

3.3 Substitutions

3.3.2 Add to the end: If prior approval is given by the Architect/Engineer (as applicable) on a substitution during the bidding phase, it does not waive the Architect's/Engineer's authority to reject said substitution during the submittal review process addressed in Section 01300 and as such, the decision made by the Architect's/Engineer's shall be final.

Add: **3.3.5** By making requests for substitution approval, the Contractor:

.1 represents that he has personally investigated the proposed substitute product and determined that it is equivalent or superior in all respects to that specified.

.2 represents that he will provide the same warranty for the substitute material that he would for that specified.

.3 certifies that the cost data presented is complete and includes all related costs under this contract, but excludes costs under separate contracts, and excludes the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent.

.4 will coordinate the installation of the accepted substitute, making such changes as may be required for the work to be completed in all respects.

3.4 Addenda

Add: **3.4.5** Addenda issued during the time of bidding shall be included in the Bid Proposal, and in closing the Contract, they will become a part thereof.

ARTICLE 4 BIDDING PROCEDURES

4.1 Preparation of Bids

4.1.1 Add this sentence to the end: Submit one original Bid Form copied from the Project Manual. **DO NOT** submit a bid by way of submitting the entire Project Manual, meaning using the 'original' bid from still intact IN the Project Manual.

Add: **4.1.8** Each Contractor shall include with his bid, a sealed envelope listing the names of any subcontractors he intends to use if awarded the Contract. Only the Subcontractor and Suppliers List Envelope of the apparent low Bidder will be opened and the names of the Subcontractors and Suppliers read aloud. The envelopes of the other bidders will not be opened unless the Contractor is being considered for award of the Contract, and will be returned on request within 30 days after the opening of bids. If any subcontractor intends to sublet a large portion of his work, the names of such sub-subcontractors shall also be listed.

4.2 Bid Security

4.2.1 Add to the end: Submit bid security in the amount of five percent (5%) of the base bid, in the form of Cashier's Check, Certified Check, or acceptable Bid Bond. Securities of all but three lowest bidders will be returned within 10 days after bid openings.

4.3 Submission of Bids

4.3.1 Add to the end:

In the lower left corner of the envelope, write Name of Company submitting the Bid, the Project Name, Bid Opening date & time, and the Bid Number if applicable. (If there is a Bid Number it will be shown on the title page of the project manual)

ARTICLE 5 CONSIDERATION OF BIDS

5.3 Acceptance of Bid (Award)

Add: **5.3.2** The Contract may be awarded with or without Alternates or one or more Alternates may be accepted and the other(s) rejected. Decision as to the award of the Base Bid and the Alternate(s) or which one or ones, if any or none, is up to the sole discretion of the Owner.

5.3.3 The Owner shall apply a preference of five percent (5%) to bids by bidders who are certified residents of New Mexico. Bidder must have current, and in force, certification from the State Purchasing Agent. Fill in the Certification Number in the blank provided on the Bid Form.

5.3.4 The Owner reserves the right to reject any or all bids or to accept any or all bids and to waive defects, and to waive any or all formalities or irregularities. All bids may be held for 30 days after receipt of bids. A bid not submitted in accordance with the Drawings and Specifications (Project Manual) and/or not submitted on the forms provided for this purpose will be considered non-responsive. The Owner reserves the right to reject any bid so submitted. Final decision on the awarding of bid(s) submitted, rests solely with the Owner.

5.3.5 The Owner reserves the right to award individual contracts for each low base bid or award one contract to combined low base bids, whether a combined base bid is indicated on the bid form or not.

5.3.5 In accordance with Sections 13-1-21 and 13-1-22 NMSA 1978 resident veterans businesses are to receive the following preferences: **(This policy is effective July 1, 2012. Procurements involving federal funds are excluded from instate preference laws.)**

(1) Resident veterans businesses with annual revenues of $1M or less are to receive a 10% preference discount on their bids and proposals.

(2) Resident veterans businesses with annual revenues of more than $1M but less then $5M are to receive an 8% preference discount on their bids and proposals.

(3) Resident veterans businesses with annual revenues of more than $5M are to receive a 7% preference discount on their bids and proposals.

This preference is separate from the current instate preference and is not cumulative with that preference. However, veteran businesses will still receive the instate preference once the veteran's preference cap is exceeded. This law applies to all departments, commissions, councils, boards, committees, institutions, legislative bodies, agencies, government corporations, educational institutions, or officials of the executive, legislative, or judicial branches of the government of the State or political subdivisions of the State and agencies, instrumentalities and institutions thereof, including 2-year post-secondary educational institutions, schools districts, local school boards, and all municipalities, including home-rule municipalities.

The Taxation and Revenue Department (TRD) will be issuing a 3-year certificate to each qualified business. Businesses are required to reapply to TRD every three (3) years with the proper documentation to renew their certificate. All public solicitations must contain the attached "Resident Veterans Preference Certification" **(SEE Bid Form, Page 5)**.

ARTICLE 6 POST-BID INFORMATION

6.1 Contractor's Qualification Statement

Add: **6.1.1** The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligation of the Contract and to complete the work contemplated therein. **Conditional bids will not be accepted**.

Add: **6.1.2** General Contract: The Contract for this Project shall be written on AIA Document № A101, current edition of "The Standard Form of Agreement Between Owner and Contractor for the Construction of Buildings", copies of which are available for review at the office of the Architect.

Add: **6.1.3** The Contract and all bonds will be prepared in triplicate, with the originals going to the Owner.

6.3 Submittals

6.3.1 Replace 6.3.1 with the following: The following requirements for Subcontractor and Supplier Listing to be attached to the Bid Form shall be the basis for the list to be submitted after notification of award, and these requirements supplement those of Article 6.

All bidders are required to submit, completed, the form List of Subcontractors and Suppliers in this manual, with their bids:

.1 Each bidder shall list the Subcontractors and Material Suppliers he proposes to use for all trades or items listed on the listing form. If awarded the Contract, the Bidder shall use the firms listed, or himself if "General Contractor" has been listed, unless a request for change or substitution should be approved by the Owner.

.2 The Owner will consider any request for a change in the listed firms if the Bidder can furnish evidence of being able to perform the work in a manner more satisfactory and beneficial to both the Owner and Bidder by not using the listed firm. Satisfactory reasons for a substitution may include the inability to bond or lack of evidence of being able to furnish acceptable materials on schedule. Also, if the Bidder has made a legitimate error in listing a low Subcontractor, a request for substitution, made after the Bid Opening with the Architect's and the Owner's approval, will be considered. The proof of error must be conclusive, based on the verification of the evidence by the listed Subcontractor, Material Supplier, and/or any other confirmation satisfactory to the Owner.

.3 The Bidder shall not list himself as the Supplier or as the Subcontractor for any trade unless he has previously performed work of this type, and can prove to the Owner's & Architect's satisfaction that he actually has, and will provide fully adequate facilities to perform the work with his own forces.

.4 Omission or non-compliance with the intent of the Subcontractor listing form will be grounds for considering a bid as non-responsive.

.5 Subcontractors, suppliers, or any other bidders who believe that the Prime Bidder has not complied with the intent of these listing requirements must notify the Owner and Architect within 24 hours after the Bid Opening of their intent to file an appeal, and must submit their reasons in writing within 48 hours after Bid Opening. All decisions reached by agreement between the Architect and Owner shall be final.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

7.1 Bond Requirements

Add: **7.1.4 Furnish Bonds in the amount of 100% of the contract sum**. The Bond for the Project shall be written on a separate AIA "Performance Bond and Labor and Materials Payment Bond", Document № A312, copies of which are available at the office of the Architect.

The cost of the Bonds shall be included in the Bid. These bonds shall only be required if any bid submitted by a bidder exceeds $50,000 in total bid.

Add the following Article:

ARTICLE 9 SUPPLEMENTS

9.1 LATE CLARIFICATIONS

9.1.1 Clarification issues which arise too late to be included in a last Addendum shall be handled as follows in order to assure uniformity of bidding:

.1 Bid the greater quantity, better quality, and the more expensive work.

.2 If for any good reason this procedure should be impossible to follow, bidder must attach a sheet to his bid describing the alleged contradiction in full and stating which option he elected to bid. If this explanation is not attached, or if in the opinions of the Architect and Owner a verifiable contradiction in the Bidding Documents did not exist, the bid shall be understood to automatically include the greater quantity, better quality, and the more expensive work.

.3 Bid the interpretation which seems most in keeping with the general nature and quality of the project. Attach a sheet to the bid describing in full the work which is unclear, and stating exactly the basis on which the bid is made. Also attach a unit price or list of unit prices to establish a basis for equalizing bids or adjusting the Contract if necessary.

9.2 PRE-BID CONFERENCE

9.2.1 It is strongly recommend that all prime-contract and sub-contract bidders attend the Pre-Bid Conference, if one is scheduled. See Bid Invitation for date and time. Each bidder and sub-bidder is responsible for checking with the Architect (505-393-0960) at least one day before the scheduled Conference Date to **confirm** day, time, and location of meeting.

9.2.2 All questions or uncertainties relating to the Bidding Documents, or any procedures concerning the proposed Project must be presented to the Architect in writing, at the Pre-Bid Conference meeting. All answers will also be confirmed in writing by published Addendum(a).

9.2.3 No person or firm who fails to attend the Pre-Bid Conference and submit his/their question(s) at that time shall have the right to make any claims against the Owner and Architect or any of their agents at any time following the Pre-Bid Conference, if such claims were based on problems or situations which could have been resolved by timely review of the Bid Documents and presentation of the question(s) at the Pre-Bid Conference.

9.3 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

9.3.1 The Bidder agrees that the Work envisioned by the Bid Documents shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion of the Project within the time agreed upon in the Bid Documents. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for completion of the Work described therein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

9.3.2 Should the Prime Bidder who is awarded the Contract, pursuant to the Bid Invitation, neglect, fail, or refuse to complete the work within the specified time, or any proper extension of Contract time thereof granted by the Owner, then that Bidder does hereby agree, as a part consideration for the awarding of this Contract, to pay to the Owner the amount of Five Hundred Dollars ($500) **for each calendar day that any portion of the Work under this Contract remains incomplete beyond the time written on the Proposal Form, not as a penalty, but as liquidated damages for such breach of Contract**.

9.4 GUARANTEE

9.4.1 The Contractor shall guarantee all the work covered by the Contract Documents against failure caused by omission of materials, deficient or defective materials, or poor workmanship (regardless of sources) for a period of one year from the date of acceptance by the Owner. The guarantee shall include all labor, materials, equipment, and appliances against failure, as were required to complete the mechanical, electrical, structural, and architectural work for the construction of the Project.

9.4.2 The guarantee shall include all costs of replacement or repair of Contractor's Work and other adjacent Work which may be displaced in making repair or replacement.

9.4.3 Extended guarantees beyond one year for materials and equipment (manufacturer, sub, or supplier) shall be as noted in individual Specifications Sections.

9.4.4 The Contractor, subcontractor, or supplier shall use the appropriate guarantee-warranty and release of final lien forms shown in the back of this Division; the release of final liens shall be notarized. The Contractor may re-type or photocopy these forms onto his letterhead, but if re-typed, it shall contain same wording.

9.4.5 RELATED DAMAGES & LOSSES: Remove and replace work which is damaged as a result of failure, or which must be removed and replaced to provide access for correction of warranted work.

9.4.6 REPLACEMENT COST: Replace or restore failing warranted items without regard to anticipated useful service lives.

9.4.7 Owner reserves right to reject unsolicited and coincidental product warranties which detract from or confuse interpretations of Contract Documents.

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These Supplementary General Conditions contain amended or supplemented portions of the be AIA Document A201, 1997 Edition, are applicable to all work performed on this Project and are hereby incorporated into the Bidding Documents.

ARTICLE 3 CONTRACTOR

3.2 DELETED (See 3.1 in AIA Document A701 Instruction to Bidders)

3.4 Labor and Materials

Add: **3.4.4** **S U B S T I T U T I O N S:** Any material and/or product specified by brand, trade name shall establish a standard of quality for that particular specified item. If a contractor, subcontractor, and/or a supplier believe there is another material/product that has the same required qualities and/or characteristics and is equivalent to the specified material/product and wishes said material/product to be considered as a substitute, the contractor, subcontractor, and/or supplier shall be subject to the following conditions: ❶ A request for a change and/or substitution in material/product shall be submitted, **IN WRITING** during the Bid Phase of the Project **no later than TEN (10) days prior to the Bid Date**. Proposal for a substitution must provide sufficient technical specifications, physical samples, and copies of manufacturer's warranties in order for the Architect to compare the characteristics, etc. of the proposed substitution with the material/product specified herein. **HOWEVER**, if there is material/product specifically named with no reference to an approved equivalent being given, then no substitution will be allowed. ❷ Any and all substitutions, must be followed up with written approval from the Architect and/or Engineer, as applicable to the Work. ❸ If a substitution is granted, it is the sole responsibility of the requesting party to ENSURE that they have received written approval for any and all substitutions before it is to be considered as an equivalent to what has been specified.

Add: **3.4.5** The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect/Engineer to evaluate the Contractor's substitution(s) proposal, if awarded the contract, and his time to make mutually agreeable changes in the Drawings and Specifications if deemed necessary by the acceptance and prior approval (a minimum of 10-days before bid date) of such substitutions.

3.5 Warranty

Add: **3.5.2** The General Contractor shall, in case of work performed and guaranteed by his Subcontractors, shall secure Warranties from Subcontractors and deliver copies to the Architect upon completion of the Work.

Add: **3.5.3** The General Contractor shall warrant all work performed by him directly, and where guarantees are required in the Sections of these Specifications, he guarantees the work of his various Subcontractors for periods specified.

Add: **3.5.4** The General Contractor shall warrant that all material and workmanship is of the quality and quantity and character specified and/or shown. Any defect due to the use of any improper workmanship or material, discovered and made known to him within one year after the final acceptance of the Project or for longer periods as noted in certain Sections of the Specifications, shall be repaired, replaced, corrected, and/or otherwise made good by him at no additional cost to the Owner.

3.6 Taxes

3.6.1 This excerpt from New Mexico Statutes 13-1-108, Amendment effective June 19, 1987 replaces 3.6.1:

"Contracts solicited by competitive sealed bids shall require that the bid amount exclude the applicable state gross receipts tax or applicable local option tax, but that the contracting agency shall be required to pay the applicable tax including any increase in the applicable tax becoming effective after the date the Contract is entered into. The applicable gross receipts tax or applicable local option tax shall be shown as a separate amount on each billing or request for payment made under the contract."

3.7 Permits, Fees and Notices

Add: **3.7.5** The Contractor and Subcontractor shall pay all lawful fees under his own Contract.

Add: **3.7.6** The Contractor and Subcontractors shall secure all certifications of inspection and of occupancy that may be required by authorities having jurisdiction over the Work, including the Board of Fire Underwriters' Certificates. He shall deliver same to the Architect upon completion of the Work.

3.9 Superintendent

Add: **3.9.2** The Contractor shall employ a superintendent or an assistant to the superintendent who will perform as a coordinator for mechanical and electrical work. This coordinator shall be knowledgeable in mechanical and electrical systems and capable of reading, interpreting, and coordinating Drawings, Specifications, and Shop Drawings pertaining to such systems. The superintendent shall assist the Subcontractors in arranging space conditions to eliminate interference between the mechanical and electrical systems and other work and shall supervise the preparation of coordination drawings, documenting the spatial arrangements for such systems within restricted spaces. The superintendent shall assist in planning and expediting the proper sequence of delivery of mechanical and electrical equipment to the site.

3.12 Shop Drawings, Product Data, and Samples

Add: **3.12.11** The Architect's review of Contractor's submittals will be limited to examination of an initial submittal and ONE (1) re-submittal. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for evaluation of such additional re-submittals.

3.13 Use of Site

3.13.1 Replace with the following: The Contractor shall hold and save the Owner and Architect free and harmless for liability of any nature or kind arising from the use, trespass, or damage occasioned by the operations of his workmen on the premises of third persons.

3.15 Cleaning Up

Add: **3.15.3** In addition to removal of rubbish and leaving the building "broom clean", the Contractor shall execute the following:

.1 Contractor shall remove putty stains and paint from glass, and shall wash and polish same. Care shall be taken not to scratch the glass.

.2 Contractor shall remove all marks, stains, fingerprints, and other soil or dirt from all painted, decorated, and stained work.

.3 Contractor shall remove all temporary protections, and shall clean all floors at completion.

.4 Contractor shall clean and polish all hardware for all trades; this shall include removal of all stains, dust, dirt, paint, etc. upon completion.

.5 Contractor shall remove all spots, soil, and paint from all tile work and shall wash the same upon completion.

.6 Contractor shall clean all the fixtures and equipment, removing all stains, paint, dirt, and dust.

3.18 Indemnification

Add: **3.18.3** Adequacy of Design: It is understood that the Owner has selected the Architect named in this Agreement to prepare the Specifications, Drawings, and all Supplements thereto; and agreed that the Owner will be responsible for the adequacy of the design thereto and additions and alterations thereto, approved by the Architect. The burden of proof shall be upon the Contractor to show that he has complied with this Contract, Specifications, Drawings, and all Modifications thereof, and all additions and alternations thereto.

ARTICLE 4 ADMINISTRATION OF THE CONTRACT

4.3.7 Claims for Additional Time

Add: **4.3.7.3** Claims for increase in the Contract Time shall set forth in detail the circumstances that form the basis for the Claim, the date upon which each cause of delay began to affect the progress of the Work, the date upon which each cause of delay ceased to affect the progress of the Work and the number of days' increase in the Contract Time claimed as a consequence of each such cause of delay. The Contractor shall provide such supporting documentation as the Owner may require including, where appropriate, a revised construction schedule indicating all the activities affected by the circumstances forming the basis of the Claim.

Add: **4.3.7.4** The Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which may have concurrent or interrelated effects on the progress of the Work, or for concurrent delays due to the fault of the Contractor.

4.3.10 Claims for Consequential Damages

Add: **4.3.10** If, before expiration of 30 days from the date of execution for the Agreement, the Owner obtains by separate agreement and furnishes to the Contractor a similar mutual waiver of all claims from the Architect against the Contractor for consequential damages which the Architect may incur as a result of any act or omission of the Owner or Contractor, then the waiver of consequential damages by the Owner and Contractor contained in the Subparagraph 4.3.10 shall be applicable to claims by the Contractor against the Architect.

ARTICLE 5 SUBCONTRACTORS

5.2 Award of Subcontracts and Other Contracts for Portions of the Work

5.2.3 Replace the last sentence with: No increase in the Contract Sum shall be allowed for such substitutions unless the Contractor submits conclusive evidence that the rejected Subcontractor can perform work required based upon a minimum of three years satisfactory experience performing the type of work required.

5.2.4: Add the following: The Contractor shall not substitute a Subcontractor, person, or entity (hereafter referred to as Subcontractor) listed on their Subcontractor List without the written approval of the Owner. Further, the Contractor shall submit to the Owner and Architect, documented proof and/or justified reasons for requesting the substitution. The Owner and/or Architect will have the right to contact the 'listed' Subcontractor's representative and/or substitute subcontractor's representative to discuss the Contractor's request for substitution.

With careful and thoughtful consideration, the Owner will make the decision as to weather the substitution will be allowed. If the Owner determines that the 'request for subcontractor substitution' is valid and in the best interest of the Project, then said substitution shall be allowed as will any increase in the Contract Sum and/or Time. If the Owner determines that the 'request for subcontractor substitution' is not valid or in the best interest of the project, the 'request' will be denied. If this is the outcome, the Contractor will have one to work out arrangements with the 'listed' Subcontractor and continue the Project status quo without any increase in the Contract Sum or Time.

ARTICLE 7 CHANGES IN THE WORK

7.2 Change Orders

7.2.2 Change to read: Methods used in determining adjustments to the Contract sum shall be as in Paragraph 1.7 in Section 01150 - Measure and Payment.

7.3 Construction Change Directives

7.3.3 Change to read: If Construction Change Directives provides for an adjustment to the Contract Sum, the adjustment shall be based on Paragraph 1.7 in Section 01150 - Measure and Payment.

7.3.6 Change to read: If Construction Change Directives provides for an adjustment to the Contract Sum, the adjustment shall be based on Paragraph 1.7 in Section 01150 - Measure and Payment.

ARTICLE 8 TIME

8.2 Progress and Completions

Add: **8.2.4** It is hereby understood and mutually agreed, by and between the parties hereto, that the date of beginning, rate of progress and the time for completion of the Work to be done hereunder are essential conditions of the Contract, and it is further mutually understood and agreed by and between the parties hereto, that the Work embraced in this Contract shall be commenced within seven (7) calendar days after the date of the Notice to Proceed was issued.

Add **8.2.5** The Contractor agrees that said Work shall be prosecuted regularly, diligently, and uninterruptedly at such a rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed by and between the parties hereto, that the time for completion is the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

Add: **8.2.6** If the Contractor neglects, fails, or refuses to complete the Work within the time specified herein, then the said Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay the Owner the sum of FIVE HUNDRED DOLLARS ($500) for each consecutive calendar day that the Contractor shall be in default after the time stipulated in the Contract, not as a penalty, but as liquidated damages for such Breach of Contract as hereinafter set forth.

Add: **8.2.7** The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such even sustain, and said amount is agreed to be the amount of damages which the Owner would sustain, and said amount shall be retained from time to time by the Owner from current periodic estimates.

Add: **8.2.8** It is further agreed that time is of the essence of each and every portion of this Contract, and where under the Contract any additional time is allowed for the completion of any Work, the new time limit fixed by such extension shall be of the essence of this Contract provided that the Contractor shall not be charged with liquidated damages, or any excess cost when the delay is justified under Article 8.3 of the General Conditions.

ARTICLE 9 PAYMENTS AND COMPLETION

9.2 Schedule of Values

Add: **9.2.2** The form for schedule of values shall be AIA Document G703 (current authorized edition) Continuation Sheet.

9.3 Applications for Payment

9.3.1 Change to read: The Contractor shall make his application (according to breakdown) for monthly payments to the Architect on or about the Twenty-Fifth (25th) day of each month. Certificates will be reviewed and forwarded to the Owner on or before the tenth (10th) day of each month at which time the Contractor should receive payment from the Owner for said Certificate for Payment.

The form of Application for Payment shall be a notarized AIA Document G702 (current authorized edition) Application and Certificate for Payment, supported by AIA Document G703 (current authorized edition) Continuation Sheet, submitted in triplicate.

Add: **9.3.1.3** In preparing the Application for Payment, the Contractor shall verify the accuracy of requests for payment submitted by his Subcontractors and material suppliers and shall not include in his Application for Payment any sum which will result in an overpayment for work performed or material delivered.

Add: **9.3.1.4** All items in crates or wrapped shall be uncrated or unwrapped and inspected by the Contractor upon arrival at the site. Materials shall be carefully inspected for quantities, sizes, color (if color selection is a consideration), damage, defects. If damaged, defective, or otherwise not in conformance with the Contract Documents, items shall reordered immediately.

Add: **9.3.1.5** The Contractor shall not request payment for any items until he has inspected the items. Items which are not in conformance with the Contract Documents shall not be included in any Application for Payment.

9.10 Final Completion/Final Payment and Close-Out Requirements

Add: **9.10.1.1** The Architect will not perform more than TWO reviews to determine whether the Work or a designated portion thereof has attained 'final completion' in accordance with the Contract Documents and any 'punch lists' of work needing correcting and/or completion. If the Architect has to perform more than two reviews to determine final completion of any of the aforementioned work, the Architect may bill the Owner up to $150 per visit for service beyond the second review. **The Owner will deduct this fee from the Contractor's final payment.** These steps are being taken due to past projects not reaching final completion within a reasonable length of time beyond the project's substantial completion date. **THIS WILL BE ENFORCED**.

9.10.2 In addition to the items listed: The Contractor shall deliver the following additional items to the Architect before receiving final payment:

(6) All warranties and guarantees as required on specific products or portion of the Work, in triplicate.

(7) Project Record Documents required by Sub-Paragraph 3.11.1.

(8) Operation and maintenance manuals and other pertinent data specified in Project Manual including Divisions 15 and 16.

(9) Certificate of Occupancy

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

10.1 Safety Precautions and Programs

Add: **10.1.2** Within a reasonable time after notification, the Owner will render harmless all known hazardous materials encountered during the progress of the Work.

Add **10.1.3** This Contract is subject to Section 107 of the Contract Work Hours and Safety Standards Act (40USC333), commonly known as the Construction Safety Act, and they are hereby incorporated by reference. All Safety and Health Standards and other rules issued by the Secretary of Labor pursuant to said Act and published in CFR, Part 1518 (36 F.R. 7339), and other rules are subject to all applicable rulings and interpretations of the Secretary of Labor which are now or may hereafter be in effect.

10.2 Safety of Persons and Property

Add: **10.2.4.1** When permissible, and when the use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary, the Contractor shall give the Owner reasonable advance notice.

10.3 Hazardous Materials

Add: **10.3.1.1** Within a reasonable time after notification, the Owner will render harmless all known hazardous materials encountered during the progress of the Work.

ARTICLE 11 INSURANCE AND BONDS

11.1 Contractor's Liability Insurance

11.1.2 Add the following: The insurance required by Subparagraph 11.1.1 shall be written for not less than the following or greater if required by law:

.1 Employers Liability: Coverage shall be as provided in the amount of $100,000 basic limits, as a minimum.

.**2** Workers' Compensation: Coverage shall be as provided by law for the State of New Mexico in the amount of $100,000 / $500,000 basic limits, as a minimum.

.**3** Comprehensive General Liability: Includes Premises Operations; Independent Contractors' Protection, Products & Completed Operations; Broad Form Property Damage; Contractual Liability, Personal Injury with Employment Exclusion:

1. Combined single limit for Bodily Injury & Property Damage:

$1,000,000. . . . . Per Occurrence

$2,000,000. . . . . Aggregate

2. Products & Completed Operations to be maintained for two years after final payment.

3. Property Damage Liability shall provide Explosion, Collapse, & Underground Hazards (XCU) coverage.

4. Broad form property damage coverage shall include completed operations.

.**4** Comprehensive Automobile Liability: Combined single limit with coverage including Owned, Hired, and Non-Owned Vehicles

1. BODILY INJURY/PROPERTY DAMAGE. $1,000,000 Per Occurrence

11.1.3 Delete and replace with the following: Prior to execution of the Contract, the Contractor shall furnish Architect with four (4) copies of each Certificate of Insurance herein required for each copy of the Agreement, which shall specifically set forth evidence of all coverage required by Paragraph 11.1. If the insurance is written on the Comprehensive General Liability policy form, the Certificate shall be AIA Document G705, Certificate of Insurance. If this insurance is written on a Commercial General Liability policy form, ACCORD Form 25S will be acceptable. The Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending coverage or limits.

All policies shall be so written that the Owner will be notified of cancellation or restrictive amendment at least 30 days prior to the effective date of such cancellation or amendment. Certificates from the insurance carrier stating the limits of liability and expiration shall be filed in triplicate with the Owner before operations begin. Such certificates not only shall name the types of policy provided, but also shall refer specifically to this Contract and Article and the above Paragraphs of this Contract, and shall be sufficiently comprehensive as to permit the Owner to determine that the required insurance coverage has been provided without the necessity of examining the individual insurance policies.

Coverage on all policies to name the General contractor and in addition shall name the Owner, the Architect and his Consultants. The coverage shall hold harmless each of the additional Insureds and waive any subrogation rights. Should the initial insurance expire prior to completion of the Work, renewal certificates shall be furnished by the date of expiration.

The Contractor shall require each of his Subcontractors to procure and maintain, until the completion of that subcontractor's work, Worker' Compensation and Employers Liability: Coverage as provided by law for the State of New Mexico and Employers Liability Coverage in the amount of $100,000/$500,000/$100,000 Basic Limits.

11.2 Owner's Liability Insurance

11.2.1 Change as follows: The Contractor shall be responsible for purchasing and maintaining liability insurance in the name of the Owner and the Architect as an additional insured, for their protection against claims which may arise from operations under the Contract. Bodily injury including death and property damage with limits of liability to be the same as required under Contractor's Liability Insurance listed as Excess Liability.

.1 The Contractor shall obtain at his expense an Owner's Protective Liability Insurance Policy naming the Owner, it's employees and the Architect as insured, with the following limits:

$ 500,000. . . . . Per Occurrence

$1,000,000. . . . . Aggregate

11.5 Performance Bond and Payment Bond

Add **11.5.3** The Owner WILL REQUIRE a Performance Bond and Labor and Material Payment Bond as noted in Instructions to Bidders, and Amendments/Supplements to Instructions to Bidders.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

12.2 Correction of the Work

Add: **12.2.2.4** Upon request by the Owner and prior to the expiration of one year from the date of Substantial Completion, the Architect will conduct and the Contractor shall attend a meeting with the Owner to review the facility operations and performance.

ARTICLE 13 MISCELLANEOUS PROVISIONS

13.2 Successors and Assigns

13.2.2 DELETED

Add the following Sub-Paragraph:

13.8 EQUAL OPPORTUNITY REQUIREMENTS

13.8.1 The Contractor and Subcontractors will not discriminate against any employee(s) or applicant(s) for employment because of race, creed, sex, color, or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, sex, color, or national origin. Such action shall include, but not be limited to, the following:

.1 Employment, upgrading, demotion, or transfer.

.2 Recruitment or recruitment advertising.

.3 Layoff or termination.

.4 Rates of pay or other forms of compensation.

.5 Selection for training, including apprenticeship.

13.8.2 The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notice to be provided setting forth the provisions of this non-discrimination clause.

13.8.3 The Contractor and Subcontracts will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, or national origin.

13.8.4 The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

13.8.5 The Contractor will comply with all provisions of Executive Order No. 11246, dated September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

13.8.6 The Contractor will furnish all information and reports, required by Executive Order 11246 dated September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and certain compliance with rules, regulations, and orders.

13.8.7 The Contractor will include the provisions of Paragraph 1 through Paragraph 6 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 No. 11246, dated September 24, 1965, so that such provisions will be binding upon each Subcontractor or Vender. The Contractor will take such action with respect to any Subcontractor purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for non-compliance; provided however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or Vender, as a result of such direction by the agency, the Contractor may request the United States to enter into such litigation to protect the interest of the United States.

Add the following Sub-Paragraph:

13.9 Minimum Wage Rate

13.9.1 In compliance with Chapter 13, Section 13-4-11, New Mexico Statues Annotated (NMSA) 1978, the attached Minimum Wage Rates Decision № LE-17-0435-B is declared to be prevailing and applies to this construction. See the end of Division 0, before the AIA Forms, guarantees, etc.

13.9.2 Bidders warrant and agree by submission of a bid that, if awarded a contract, they (includes all Subcontractors) shall comply with all applicable provisions of the New Mexico Public Works Minimum Wage Act. Minimum Wage Rates shall only apply to a bid submitted by a bidder which exceeds $60,000 in total bid.

ARTICLE 15 ENUMERATION OF THE CONTRACT DOCUMENTS

Add the following Article:

15.1 Drawings, Specifications, Addenda, and Supplements

15.1.1 The following Documents, Drawings, Specifications, all Addenda issued prior to execution of the Contract, and all modifications thereto form a part of this Contract as set forth in the General Conditions:

1. FORMS/DOCUMENTS:

Division 0 - Bidding and Contracts

.2 SPECIFICATIONS:

Division 1 - General Requirements
Division 2 - Site Work
Division 3 - Concrete. . . . . N/A
Division 4 - Masonry. . . . . N/A
Division 5 - Metals
Division 6 - Carpentry
Division 7 - Moisture Protection
Division 8 - Doors / Windows / Glass
Division 9 - Finishes
Division 10 - Specialties
Division 11 - Equipment. . . . . N/A
Division 12 - Furnishings. . . . . N/A
Division 13 - Special Construction. . . N/A
Division 14 - Conveying Systems. . . . N/A
Division 15 - Mechanical
Division 16 - Electrical

.3 DRAWINGS:

A-101 FLOOR PLANS AND ROOM FINISH SCHEDULE
A-201 WALL SECTIONS
A-301 3" SCALE DETAILS AND DOOR SCHEDULE
S-101 MEZZANINE FLOOR/CEILING JOISTS FRAMING PLAN
M-P101 PARTIAL MECHANICAL AND PLUMBING FLOOR PLANS
E-101 PARTIAL ELECTRICAL FLOOR PLANS

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STATE OF NEW MEXICO
NEW MEXICO DEPARTMENT OF
WORKFORCE SOLUTIONS
Labor Relations Division,
121 Tijeras Ave NE, Suite 3000
Albuquerque, NM 87102
www.dws.state.nm.us

Wage Decision Approval Summary

1) Project Title: Public Works Facility Remodel
Requested Date: 03/13/2017
Approved Date: 03/14/2017
Approved Wage Decision Number: LE-17-0435-B

Wage Decision Expiration Date for Bids: 07/12/2017

2) Physical Location of Jobsite for Project:
Job Site Address: 400 E. Avenue H
Job Site City: Lovington
Job Site County: Lea

3) Contracting Agency Name (Department or Bureau): City of Lovington
Contracting Agency Contact's Name: James Williams
Contracting Agency Contact's Phone: (575) 396-2884 Ext. 303

4) Estimated Contract Award Date: 05/01/2017

5) Estimated total project cost: $80,000.00
a. Are any federal funds involved?: No
b. Does this project involve a building?: Yes - Large warehouse that will have office and break room space added.
c. Is this part of a larger plan for construction on or appurtenant to the property that is subject to this project?: No
d. Are there any other Public Works Wage Decisions related to this project?: No
e. What is the ultimate purpose or functional use of the construction once it is completed?: To create additional office space and break room space in the Public Works Facility.

6) Classifications of Construction:

Classification Type and Cost Total	Description
General Building (B) **Cost:** $80,000.00	To create additional office space and break room space in the Public Works Facility.

Type "B" - GENERAL BUILDING *Effective January 1, 2017*

	Base Rate	Fringe Rate	Apprenticeship
Asbestos Worker - Heat & Frost Insulator	31.26	11.11	0.50
Boilermaker	21.77	3.98	0.50
Bricklayer/Blocklayer/Stone mason	23.46	7.66	0.50
Carpenter/Lather	23.75	8.77	0.50
Cement Mason	19.96	9.57	0.50
Electricians			
Outside Classifications			
Groundman	21.81	10.70	0.50
Equipment Operator	31.31	13.08	0.50
Lineman/Tech	36.83	14.45	0.50
Cable Splicer	40.51	15.38	0.50
Inside Classifications			
Wireman/Technician	30.00	10.15	0.50
Cable Splicer	33.00	10.24	0.50
Sound Classifications			
Installer	23.39	8.31	0.50
Technician	28.95	7.52	0.50
Soundman	27.01	8.31	0.50
Elevator Constructor	38.37	28.08	0.50
Elevator Constructor Helper	26.86	28.08	0.50
Glazier	20.15	4.35	0.50
Ironworker	26.50	13.68	0.50
Painter (Brush/Roller/Spray)	16.60	5.38	0.50
Paper Hanger	16.60	5.38	0.50
Drywall Finisher/Taper	23.75	8.77	0.50
Plasterer	21.66	7.93	0.50
Plumber/Pipefitter	28.87	10.83	0.50
Roofer	15.18	0.50	0.50
Sheetmetal Worker	28.28	15.91	0.50
Soft Floor Layer	23.75	8.77	0.50
Sprinkler Fitter	28.90	18.82	0.50
Tile Setter	23.46	7.66	0.50
Tile Setter Helper/Finisher	15.53	7.66	0.50
Laborers			
Group I	16.09	5.38	0.50
Group II	16.74	5.38	0.50
Group III	17.71	5.38	0.50
Group IV	19.94	5.38	0.50
Operators			
Group I	19.96	6.10	0.50
Group II	21.97	6.10	0.50
Group III	22.40	6.10	0.50
Group IV	22.81	6.10	0.50
Group V	22.98	6.10	0.50
Group VI	23.18	6.10	0.50
Group VII	23.29	6.10	0.50
Group VIII	26.10	6.10	0.50
Group IX	28.32	6.10	0.50
Group X	31.48	6.10	0.50
Truck Drivers			
Group I	14.76	6.25	0.50
Group II	15.00	6.25	0.50
Group III	15.50	6.25	0.50
Group IV	15.51	6.25	0.50
Group V	15.60	6.25	0.50
Group VI	15.75	6.25	0.50
Group VII	15.90	6.25	0.50
Group VIII	16.11	6.25	0.50
Group IX	16.32	6.25	0.50

NOTE: SUBSISTENCE, ZONE AND INCENTIVE PAY APPLY ACCORDING TO THE PARTICULAR TRADES COLLECTIVE BARGAINING AGREEMENT. DETAILS ARE LOCATED AT WWW.DWS.STATE.NM.US.

STATE OF NEW MEXICO
NEW MEXICO DEPARTMENT OF
WORKFORCE SOLUTIONS
Labor Relations Division
121 Tijeras Ave NE, Suite 3000
Albuquerque, NM 87102
www.dws.state.nm.us

PUBLIC WORKS PROJECT REQUIREMENTS

As a participant in a Public Works project valued at more than $60,000 in the State of New Mexico, the following list addresses many of the responsibilities that are defined by statute or regulation to each project stakeholder.

Contracting Agency

- Ensure that all Contractors wishing to bid on a Public Works project when the project is $60,000 or more are actively registered with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa (Contractor Registration) prior to bidding.
- Please submit Notice of Award (NOA) and Subcontractor List(s) to the PWAA website promptly after the project is awarded.
- Please update the Subcontractor List(s) on the PWAA website whenever changes occur.

General Contractor

- Provide a complete Subcontractor List and Statements of Intent (SOI) to Pay Prevailing Wages for each Contractor to the Contracting Agency within 3 (three) days of award.
- Ensure that all Subcontractors wishing to bid on a Public Works project have an active Contractor Registration with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa prior to bidding when their bid will exceed $60,000.
- Submit bi-weekly certified payrolls to the Contracting Agency.
- Make certain the Public Works Apprentice and Training Act contributions are paid either to an approved Apprenticeship Program or to the Public Works Apprentice and Training Fund.
- Confirm the Wage Rate poster, provided in PWAA, is displayed at the job site in an easily accessible place.
- Make sure, when a project has been completed, the Affidavits of Wages Paid (AWP) are sent to the Contracting Agency.

Subcontractor

- Ensure that all Subcontractors wishing to bid on a Public Works project have an active Contractor Registration with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa prior to bidding when their bid will exceed $60,000.
- Submit bi-weekly certified payrolls to the General Contractor(s).

- Make certain the Public Works Apprentice and Training Act contributions are paid either to an approved Apprenticeship Program or to the Public Works Apprentice and Training Fund.

Additional Information

Reference material and forms may be found at New Mexico Department of Workforce Solutions Public Works web pages at: http://www.dws.state.nm.us/new/Labor_Relations/publicworks.html.

CONTACT INFORMATION

Contact the Labor Relations Division for any questions relating to Public Works projects by email at public.works@state.nm.us or call (505) 841-4400.

COMMODITY CODES:

Effective July 1, 2016, each state agency and local public body shall use the standardized classification codes developed by the state purchasing agent. (NMSA 1978 13-1-30.1)

Applicable classification codes for this proposal are:

5-DIGIT CODE	ITEM DESCRIPTION
91461	Painting and Wallpapering
90922	Building Construction, Non-Residential (Office Bldg., etc)

CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS

AIA DOCUMENT G706A

OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
SURETY ☐
OTHER ☐

TO (Owner)

ARCHITECT'S PROJECT NO:

CONTRACT FOR:

CONTRACT DATE:

PROJECT:
(name, address)

State of:

County of:

The undersigned, pursuant to Article 9 of the General Conditions of the Contract for Construction, AIA Document A201, hereby certifies that to the best of his knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS: (If none, write "None". If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each exception.)

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR:

Address:

BY:

Subscribed and sworn to before me this

day of 19

Notary Public:

My Commission Expires:

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

AIA DOCUMENT G707

OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
SURETY ☐
OTHER

PROJECT:
(name, address)

TO (Owner)

ARCHITECT'S PROJECT NO:

CONTRACT FOR:

CONTRACT DATE:

CONTRACTOR:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the (here insert name and address of Surety Company)

, SURETY COMPANY,

on bond of (here insert name and address of Contractor)

, CONTRACTOR,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its obligations to (here insert name and address of Owner)

, OWNER,

as set forth in the said Surety Company's bond.

IN WITNESS WHEREOF,
the Surety Company has hereunto set its hand this day of 19 .

Surety Company

Signature of Authorized Representative

Attest:
(Seal):

Title

NOTE: This form is to be used as a companion document to AIA DOCUMENT G706, CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS, Current Edition

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CONTRACTOR'S 1-YEAR GUARANTEE - WARRANTY

PROJECT NAME : _____

PROJECT ADDRESS: _____ COUNTY _____

OWNER NAME : _____

CONTRACTOR : _____

FOR ABOVE NAMED PROJECT, WE HEREBY GUARANTEE THAT ALL THE WORK PERFORMED AND MATERIALS, EQUIPMENT, & APPLIANCES INSTALLED IN UNDER THE CONTRACT DOCUMENTS, FOR THE ABOVE NAMED OWNER, HAS BEEN DONE IN ACCORDANCE WITH THE DRAWINGS & SPECIFICATIONS AND THAT THE WORK, AS PERFORMED AND/OR INSTALLED, WILL FULFILL THE REQUIREMENTS OF THE GUARANTY-WARRANTY INCLUDED IN THE SPECIFICATIONS. WE AGREE TO REPAIR OR REPLACE ANY OR ALL OF OUR WORK, TOGETHER WITH ANY OTHER ADJACENT WORK WHICH MAY BE DISPLACED BY SO DOING, THAT MAY PROVE TO BE DEFECTIVE IN IT'S MATERIAL OR WORKMANSHIP (UNUSUAL ABUSE OR NEGLECT EXCEPTED) WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION (_____) OF THE ABOVE NAMED PROJECT, WITHOUT ANY EXPENSE, WHATSOEVER, TO THE OWNER.

IN THE EVENT OF OUR FAILURE TO COMPLY WITH THE ABOVE MENTIONED CONDITIONS WITHIN THIRTY DAYS AFTER BEING NOTIFIED IN WRITING BY THE OWNER, WE COLLECTIVELY OR SEPARATELY DO HEREBY AUTHORIZE THE OWNER TO PROCEED TO HAVE SAID DEFECTS REPAIRED AND MADE GOOD AT OUR EXPENSE, AND WE WILL HONOR AND PAY THE COSTS AND CHARGES THEREFORE UPON DEMAND.

_____ _____

SIGNATURE DATE

_____

PRINTED NAME

_____

TITLE

** Warranties are not intended to cover failures which result from the following:

- unusual or abnormal phenomena of the elements
- owner's misuse, maltreatment, or improper maintenance of work
- vandalism after substantial completion
- insurrection or acts of aggression, including war

CONTRACTOR'S GUARANTEE - WARRANTY FOR BEYOND 1 YEAR

PROJECT NAME : _____

PROJECT ADDRESS: _____ COUNTY _____

OWNER NAME : _____

SUBCONTRACTOR/
SUPPLIER : _____

CONTRACTOR : _____

FOR ABOVE NAMED PROJECT, WE HEREBY GUARANTEE THAT THE WORK PERFORMED AND MATERIALS, EQUIPMENT, & APPLIANCES INSTALLED, NAMELY, _____

_____

_____,

UNDER THE CONTRACT DOCUMENTS, FOR ABOVE NAMED OWNER, HAS BEEN DONE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND THAT THE WORK, AS PERFORMED AND/OR INSTALLED, WILL FULFILL THE REQUIREMENTS OF THE GUARANTY-WARRANTY INCLUDED IN THE SPECIFICATIONS. WE AGREE TO REPAIR OR REPLACE ANY OR ALL OF OUR WORK, TOGETHER WITH ANY OTHER ADJACENT WORK WHICH MAY BE DISPLACED BY SO DOING, THAT MAY PROVE TO BE DEFECTIVE IN IT'S MATERIAL OR WORKMANSHIP (ORDINARY WEAR & TEAR AND UNUSUAL ABUSE OR NEGLECT EXCEPTED) WITHIN A PERIOD OF ____ YEARS FROM THE DATE OF SUBSTANTIAL COMPLETION (_____) OF THE ABOVE NAMED PROJECT, WITHOUT ANY EXPENSE, WHATSOEVER, TO THE OWNER.

IN THE EVENT OF OUR FAILURE TO COMPLY WITH THE ABOVE MENTIONED CONDITIONS WITHIN THIRTY DAYS AFTER BEING NOTIFIED IN WRITING BY THE OWNER, WE COLLECTIVELY OR SEPARATELY DO HEREBY AUTHORIZE THE OWNER TO PROCEED TO HAVE SAID DEFECTS REPAIRED AND MADE GOOD AT OUR EXPENSE, AND WE WILL HONOR AND PAY THE COSTS AND CHARGES THEREFORE UPON DEMAND.

_____ _____

SIGNATURE DATE

_____

PRINTED NAME

_____

TITLE

** Warranties are not intended to cover failures which result from the following:

- unusual or abnormal phenomena of the elements
- owner's misuse, maltreatment, or improper maintenance of work
- vandalism after substantial completion
- insurrection or acts of aggression, including war

CONTRACTOR'S WAIVER OF FINAL LIEN

TO WHOM IT MAY CONCERN:

PROJECT NAME : _____

PROJECT ADDRESS : _____ COUNTY: _____

OWNER NAME : _____

CONTRACTOR : _____

FINAL CONTRACT SUM (NO TAX) : _____

SUBSTANTIAL COMPLETION DATE : _____

WHEREAS, I, THE UNDERSIGNED, HAVE BEEN EMPLOYED BY SAID OWNER TO FURNISH LABOR AND MATERIALS FOR SAID PROJECT.

NOW, THEREFORE, KNOW YE, THAT SAID CONTRACTOR, FOR AND IN CONSIDERATION OF THE SUM OF:

_____ ($ _____)
(SPELL OUT SUM OF MONEY)

PLUS APPLICABLE TAXES, HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THAT THIS WAIVER OF RELEASE INCLUDES THE CONTRACTOR, ALL SUBCONTRACTORS, AND ALL SUPPLIERS OF MATERIALS AND EQUIPMENT.

THE RECEIPT WHEREOF IS HEREBY ACKNOWLEDGED, DO HEREBY WAIVE AND RELEASE ANY AND ALL LIEN OR CLAIM, OR RIGHT OF CLAIM ON SAID ABOVE DESCRIBED PROJECT UNDER THE STATUTES OF THE STATE OF _____, RELATING TO MECHANIC'S LIENS ON ACCOUNT OF LABOR, MATERIALS, OR BOTH FURNISHED UP TO THIS DATE BY THE UNDERSIGNED TO OR ON ACCOUNT OF SAID OWNER.

SIGNED: _____
SIGNATURE

_____
PRINTED NAME

_____
TITLE

GIVEN UNDER MY HAND AND SEAL ON THE _____ DAY OF _____, 199_____.

NOTARY PUBLIC:

_____

ROOFING CONTRACTOR'S GUARANTEE - WARRANTY

PROJECT NAME : _____

PROJECT ADDRESS : _____ COUNTY _____

OWNER NAME : _____

DATE OF ACCEPTANCE : _____

FOR ABOVE NAMED PROJECT, WE HEREBY GUARANTEE THAT THE WORK PERFORMED AND MATERIALS, EQUIPMENT, & APPLIANCES INSTALLED UNDER THE CONTRACT DOCUMENTS, FOR ABOVE NAMED OWNER, HAS BEEN DONE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND THAT THE WORK, AS PERFORMED AND/OR INSTALLED, WILL FULFILL THE REQUIREMENTS OF THE GUARANTY-WARRANTY INCLUDED IN THE SPECIFICATIONS.

THE ROOF WORK WHICH HAS JUST BEEN COMPLETED IS GUARANTEED FOR A PERIOD OF 2 YEARS FROM THE DATE OF FINAL ACCEPTANCE BY THE ARCHITECT. WE AGREE TO REPAIR OR REPLACE ANY OR ALL OF THE WORK, TOGETHER WITH ANY OTHER ADJACENT WORK WHICH MAY BE DISPLACED BY SO DOING, THAT MAY PROVE TO BE DEFECTIVE IN IT'S MATERIAL OR WORKMANSHIP (UNUSUAL ABUSE OR NEGLECT EXCEPTED). THE WARRANTY IS TO BE ASSIGNABLE WITHOUT CHARGE IF THE INTENDED USE OF THE BUILDING REMAINS SIMILAR AND CONSISTENT WITH IT'S USAGE AT THE COMMENCEMENT OF THE WARRANTY. THE ROOFING CONTRACTOR WARRANTS THAT ALL WORK PERFORMED UNDER THIS CONTRACT CONFORMS TO THE CONTRACT REQUIREMENTS AND IS FREE FROM ANY DEFECTIVE MATERIAL OR WORKMANSHIP PERFORMED BY THE ROOFING CONTRACTOR. UNDER THIS WARRANTY, THE ROOFING CONTRACTOR SHALL REMEDY, AT HIS OWN EXPENSE, ANY SUCH FAILURE. FAILURE SHALL BE DEFINED AS WATER LEAKAGE AT ANY POINT WITHIN THE BUILDING THROUGH THE ROOFING SYSTEM AND IT'S ASSOCIATED FLASHING AND SHEET METAL WORK. FAILURE SHALL ALSO BE DEFINED AS BLISTERING, SPLITTING, BITUMEN DRIPPAGE, BUCKLES OR WRINKLES, AND SLIPPAGE OF THE NEW ROOF MEMBRANES. THE ROOFING CONTRACTOR WILL BE REQUIRED TO MAKE TEMPORARY REPAIRS WITHIN 48 HOURS OF NOTICE OF ROOF FAILURE. UPON COMPLETION OF TEMPORARY REPAIRS, THE ROOFING CONTRACTOR WILL REPAIR THAT AREA OF THE ROOF AFFECTED BY THE FAILURE TO THE ORIGINAL CONDITION WITHIN A PERIOD OF 7 DAYS THEREAFTER. ALL REPAIRS MADE UNDER THIS WARRANTY ARE PERFORMED WITHOUT ANY EXPENSE, WHATSOEVER, TO THE OWNER.

CORPORATE SEAL if a Corporation

_____
SIGNATURE

_____
PRINTED NAME

_____
TITLE

_____
DATE

** Warranties are not intended to cover failures which result from the following:
- unusual or abnormal phenomena of the elements
- owner's misuse, maltreatment, or improper maintenance of work
- vandalism after substantial completion
- insurrection or acts of aggression, including war

SUBCONTRACTOR /SUPPLIER GUARANTEE - WARRANTY

PROJECT NAME : _____

PROJECT ADDRESS: _____ COUNTY _____

OWNER NAME : _____

SUBCONTRACTOR/
SUPPLIER : _____

CONTRACTOR : _____

FOR ABOVE NAMED PROJECT, WE HEREBY GUARANTEE THAT THE WORK PERFORMED AND MATERIALS, EQUIPMENT, & APPLIANCES INSTALLED, NAMELY, _____
_____
_____
_____,

UNDER THE CONTRACT DOCUMENTS, FOR ABOVE NAMED OWNER, HAS BEEN DONE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND THAT THE WORK, AS PERFORMED AND/OR INSTALLED, WILL FULFILL THE REQUIREMENTS OF THE GUARANTY-WARRANTY INCLUDED IN THE SPECIFICATIONS. WE AGREE TO REPAIR OR REPLACE ANY OR ALL OF OUR WORK, TOGETHER WITH ANY OTHER ADJACENT WORK WHICH MAY BE DISPLACED BY SO DOING, THAT MAY PROVE TO BE DEFECTIVE IN IT'S MATERIAL OR WORKMANSHIP (ORDINARY WEAR & TEAR AND UNUSUAL ABUSE OR NEGLECT EXCEPTED) WITHIN A PERIOD OF ____ YEARS FROM THE DATE OF SUBSTANTIAL COMPLETION (_____) OF THE ABOVE NAMED PROJECT, WITHOUT ANY EXPENSE, WHATSOEVER, TO THE OWNER.

IN THE EVENT OF OUR FAILURE TO COMPLY WITH THE ABOVE MENTIONED CONDITIONS WITHIN THIRTY DAYS AFTER BEING NOTIFIED IN WRITING BY THE OWNER, WE COLLECTIVELY OR SEPARATELY DO HEREBY AUTHORIZE THE OWNER TO PROCEED TO HAVE SAID DEFECTS REPAIRED AND MADE GOOD AT OUR EXPENSE, AND WE WILL HONOR AND PAY THE COSTS AND CHARGES THEREFORE UPON DEMAND.

SUBCONTRACTOR / SUPPLIER (CIRCLE ONE)	CONTRACTOR:
_____	_____
SIGNATURE	SIGNATURE
_____	_____
PRINTED NAME	PRINTED NAME
_____	_____
TITLE	TITLE
_____	_____
DATE	DATE

** Warranties are not intended to cover failures which result from the following:
- unusual or abnormal phenomena of the elements
- owner's misuse, maltreatment, or improper maintenance of work
- vandalism after substantial completion
- insurrection or acts of aggression, including war

01000 - GENERAL - SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

A. Where specific items are called for by name, make, or catalog number, such reference shall be interpreted as establishing a standard quality and not construed as limiting completion, and the Contractor may, at his option, use any article, device, product, material, fixture, form, or type of construction which, in the judgement of the Architect, submitted in writing, is equivalent to that specified.

1.2 SCOPE:

A. The work covered by these Contract Documents consists of furnishing all labor, materials, equipment, and appliances, and of performing all operations to complete all construction shown or noted in Bid Documents and any Addenda for the construction of Public Works Facility Remodel for City of Lovington. The work shall be accomplished in accordance with the Drawings, Project Manual, and any Addendum subject to the terms and conditions of the Contract.

1.4 GENERAL DESCRIPTION OF THE PROJECT:

A. The project consists of select interior renovations at City of Lovington Water Department Building.

1.5 INQUIRIES:

A. During the Bidding and Construction Phases of this Project inquiries shall be directed to:

ARCHITECTURAL. . . . . David Teske, PA, Principal
Teske Architects (575) 393-0960

STRUCTURAL. . . . . Same as Architectural

MECHANICAL.. . . . . Same as Architectural

ELECTRICAL. . . . . Monty Bradshaw, PE
BSA Engineering (806) 780-7475

• • •

PART 1 - GENERAL

1.1 EXAMINATION OF SITE:

A. Bidders are expected to visit the site of the building and compare the drawings and specifications with existing conditions, and inform themselves of all conditions which will affect this work. Failure of the successful bidder to do so will in no way relieve the bidder from the necessity of furnishing any materials, labor, equipment, or performing any work that may be required to complete work in accordance with the Drawings and Specifications, without additional cost to the Owner.

1.2 PROTECTION AND ACCESS:

A. The Contractor shall adequately protect the property at all times, and shall make good at his own expense any damage to such property arising out of any operation connected with this Contract.

B. The Contractor shall at all times protect the building during its renovations from damage by rain water, ground water, backing up of drains or sewers, and all other water.

C. The Contractor shall at all times provide protection against weather (rain, wind, storms, frost, or heat) so as to maintain all work, materials, apparatus, and fixtures from injury or damage. At the end of the day's work all new or old work likely to be damaged, shall be protected.

1.3 AWARD OF SUBCONTRACTS & OTHER CONTRACTS FOR PORTIONS OF THE WORK:

A. Before the award of the Contract, the Contractor shall furnish to the Architect in writing for acceptance by the Owner and the Architect a list of the names of Subcontractors proposed for the various portions of the work, including the Contractor's and Subcontractor(s)' New Mexico Contractor's License Number(s) along with their addresses and phone numbers. Award of Contract will not be considered until all Subcontractors are approved by Owner and Architect.

1.4 COORDINATION:

A. The Contractor and all of his subcontractors on the project shall coordinate their work with each other, advising on work schedules, equipment locations, etc.

B. Mechanical , Plumbing, and Electrical Subcontractors shall coordinate routes of piping, ductwork, conduits, etc. with each other and the project superintendent prior to starting the work.

1.5 PROJECT SUPERVISION:

A. Laying out work: A competent foreman or superintendent initially approved by the Architect, shall be kept by the Contractor at the construction site at all times and in continuous daily superintendence during the progress of the work, to receive instructions and to act for the Contractor in the coordination and direction of the work.

1.6 REGULATORY REQUIREMENTS:

A. Permits and Laws:

1. The Contractor shall comply with federal, state, and municipal laws, codes, and ordinances applicable to the work of this Contract, and he shall also comply with all regulations of the National Board of Fire Underwriters having jurisdiction, and he shall obtain and pay for all permits required in connection with the execution of his work. The Architect shall be furnished with certified copies of these permits if requested.

2. If the above laws, codes, or ordinances conflict with the Contract Documents, then the laws, codes, or ordinances shall govern instead of the Documents, except in such cases where the Documents exceed them in quality of materials or labor, then the Documents shall be followed.

1.7 SPECIAL PROJECT PROCEDURES:

A. Alterations to existing facilities:

1. The Contractor shall cooperate with the Owner in scheduling his work. Due to the nature of the work required by this Contract, all construction operations must be coordinated with the Owner to insure a minimum of interference with the continuing use of the existing facilities.
2. This Contract shall include renovations to existing building as indicated on the drawings. Each bidder will be expected to familiarize himself with conditions affecting the execution of this work.
3. The drawings and notes do not indicate complete existing building, plumbing, mechanical, electrical, or other construction conditions and each bidder shall visit the site prior to submitting his bid proposal and shall review the existing installation and conditions to be met and work to be accomplished in removing and modifying the existing work and installing any new work in the existing building. **It is the bidders responsibility to exercise due diligence in reviewing the sites of the Work before bidding. Failure to comply with this shall not constitute grounds for their receiving any additional monies in connection with removing or modifying any part of the existing installations and/or installation any new Work to meet the requirements of this Contract.**
4. Certain information is shown on the drawings concerning the existing installation for general information purposes, but shall not be interpreted as representing "recorded" conditions. Where the existing conditions are found to be different from that indicated, the Contractor shall notify the Architect and Owner so a resolution of the situation can be resolved without additional expense to the Owner in so far as possible.
5. The Owner shall retain possession of all moveable equipment and other equipment not attached to the building. In addition the Owner may elect to retain possession of other materials not re-used in the Construction. Materials not retained by the Owner or to be re-used in the Project shall be removed from the site by the General Contractor.
6. Where alterations to existing building is required, the Contractor shall, after his work is otherwise complete, repair adjacent finishes and do patching work as necessary to leave the adjacent work in acceptable condition. He shall paint, plaster, trim out, and finish new work and as much adjacent existing work as is necessary to leave the job clean, neat and attractive and matching existing finishes.
7. All existing piping and/or circuits which are disconnected during the course of this work shall be reconnected and left in satisfactory operating order unless they are specifically noted to be removed or disconnected.

B. Repair of Damage: The Contractor shall be responsible for any loss or damage caused by him, his workmen, or his Subcontractors to the work or materials, to tools and equipment of one another, to property and persons, and shall make good any loss, damage, or injury without cost to the Owner.

1.8 PROJECT MEETINGS:

A. **Pre-Bid Meeting:** It is recommended that all bidders attend the Pre-Bid Conference on Tuesday, April 11, 2017 at 3:00 pm. To be held at 214 S. Love St. After the meeting any interested party can proceed to the City Hall Water Department Building at 400 E. Ave. H, Lovington, NM to acquaint themselves with the site of work. Contact Wyatt Duncan at 704-9171 or Darren Click at 704-9172 to gain access to the building. **It is the responsibility of each bidder to exercise due diligence in reviewing the sites of the Work before bidding. Failure to do so shall not constitute grounds for their receiving any additional monies in connection with this Work.**

B. **Project Meetings:**

1. Every month, the Contractor shall brief the Owner and Architect on Project progress during the preceding period. Any slippage in schedule shall be discussed during the meetings.
2. Meetings shall be held at a time and place established by the Architect.

1.9 SUBMITTALS:

A. Project Schedule:

1. Within 14 days after receiving the Notice to Proceed, the Contractor shall submit to the Architect a Project Progress Schedule or Critical Path Method (CPM) Chart showing the sequence of construction together with proposed completion dates for the various trades. SEE Section 01300, Paragraph 2.1 A-3 for additional requirements.
2. Schedule shall also indicate the start and finish dates for the various major phases of the work.

1.10 TRAFFIC REGULATION:

A. **Parking of private cars shall be permitted only in construction areas designated by the Owner.** The Contractor shall notify his employees and Subcontractors of this requirement at beginning of the Project. The Contractor shall coordinate with Owner on locations for his parking use at the beginning of construction.

1.11 FIRE PROTECTION DURING CONSTRUCTION:

A. The Contractor, subcontractors, and their personnel are required to be in compliance with the fire protection and prevention requirements of the Occupational Safety and Health Act for Construction (OSHA).

B. Fire extinguisher(s) shall be available at all times while work is being performed. The number and type are to be as specified in Sub-part F of OSHA. The Contractor is required to furnish his own extinguisher(s).

C. Waste combustible materials shall not be allowed to accumulate at the work site, and shall be removed from the work site and disposed on a regular basis.

1.12 MATERIAL AND EQUIPMENT:

A. Storage and Protection:

1. The Contractor shall carefully consider material storage, so as to avoid interference with other phases of construction and the Owner's access to parking areas and the building.
2. He shall store, pile, and arrange his materials so that they will not be injured by the elements, by the progress of erection, by contact with the ground or from any other cause. He shall provide and do all covering necessary for this purpose and shall remove from the premises any damaged materials when so directed by the Architect.
3. The Owner will designate an area onto the building site for storage of materials, if needed. Storage area shall be fenced by the Contractor that is in need of exterior storage, coordinated with the Architect in order to keep unauthorized persons from having access to said storage area.

1.13 FINAL CLEANING:

C. The work shall be cleaned prior to final acceptance.

B. Use experienced workmen or professional cleaners for cleaning.

C. At completion of construction and just prior to acceptance, conduct a final inspection of exposed interior surfaces and perform final cleaning.

D. Remove any grease, dust, dirt, stains, labels, fingerprints, and any other foreign materials from interior surfaces.

E. Repair, patch, and touch up marred surfaces to match adjacent finishes.

F. Replace air conditioning filters if units were operated during construction.

G. Clean ducts, blowers, and coils if air conditioning units were operating without filters during construction.

H. Vacuum carpet thoroughly and remove any possible soiled areas per carpet manufacturer's recommendations.

I. Dust walls, metal, wood, and similar finished materials and ceramic tile.

J. Clean cabinet casework.

K. Wash and/or wipe down plumbing and/or electrical fixtures to clean surfaces.

L. Wash, buff, or polish resilient flooring materials.

M. Clean vinyl base of any marks or stains.

N. Replace broken, cracked, or scratched glass with new glass.

O. Clean all glass of dirt, stains, and fingerprints.

P. Broom clean affected paved surfaces; rake and/or sweep clean other surfaces of the grounds.

Q. Remove stains, marks, spots, and paint spots from all surfaces in construction areas.

R. Clean all fixtures and hardware of dirt, stains, labels, and fingerprints.

S. The Contractor will remove all rubbish, tools, equipment, etc., and leave the building and site clean.

T. All Subcontractors shall keep their part of the work cleaned up on a daily basis. Upon completion of the project, all tools, equipment, debris, etc. shall be removed prior to final clean-up by the General Contractor.

• • •

PART 1 - GENERAL

1.1 MODIFICATIONS ALLOWANCE:

A. The Modification Allowances shall be included in the Base Bid of only the PRIME BIDDERS. ***There is NO additional allowance for any Alternate***; however, these Modification Allowances may be used toward any Additive Alternate(s) work as well as the Base Bid. The Modification Allowances will cover Owner and Architect requested modifications in the following amount(s):

IF YOU NEED CLARIFICATION REGARDING MODIFICATION ALLOWANCES, PLEASE CONTACT THE ARCHITECT BEFORE BIDDING.

General Allowance .. . . . . $ 7,500

See Section 10400, Identifying Devices, for further information.

1.2 CONTRACTOR/SUBCONTRACTOR ALLOWANCES:

A. These allowances shall be for net material, net labor, or combination thereof. All other Contractor/Subcontractor mark-up, including supervision/coordination, estimating, lay-out, job expense / processing, overhead and profit on ALL these allowances, shall be included in the price of the Base Bid and Alternates, if any, for this project, respectively, **and NOT** in the allowances themselves.

B. In the event the Owner or Architect does not request modifications, or that the sum used is less than the allowances shown, the remainder of the allowance will be returned to the Owner.

C. Contractor shall provide a complete itemized breakdown to include at least the following information:

1. Material quantities and unit costs.
2. Labor amounts and hourly rates (including labor burden).
3. Costs inherent to use of Contractor/Subcontractor-owned equipment.
4. Equipment rental, if any.

1.3 PROCESSING OF MODIFICATIONS ALLOWANCE:

A. Monies that are extracted from the Modifications Allowance shall be done by executed Field Order(s) signed and dated by both the Architect and the Contractor.

B. Only until any Field Order is fully executed will any of the Work begin as designated on said Field Order.

C. Only until any Field Order is fully executed will any of the cost for the Work be shown on a Pay Request.

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PART 1 - GENERAL

1.1 WORK AND STORAGE:

A. The work and storage of materials shall be confined to the construction site. Coordinate the location of temporary facilities for construction purposes with the Owner. Access to adjacent buildings, parking areas, driveways, and walks must be maintained.

1.2 OWNER:

A. Wherever the term "Owner" is used in these Specifications, it refers to James Williams, City Manager. Any notice to or demand upon the Owner shall be sufficiently given if delivered to City of Lovington, Attn: James Williams - City Manager, 214 S. Love St. (PO Box1268). Lovington, NM 88260, or to such address as the Owner may subsequently specify in writing to the Contractor for such purposes.

1.3 ARCHITECT:

A. Wherever the term "Architect" is used in these Specifications, it refers to TESKE ARCHITECTS, 1000 N. Turner, Hobbs, New Mexico 88240, (575) 393-0960, who by Contract with the Owner is authorized to prepare Construction Documents for this work, and to administer the Contract.

1.4 CONTRACTOR:

A. Wherever the term "Contractor" or "General Contractor" is used in these Specifications, it refers to the successful Bidder, who by Contract with the Owner, shall perform the work.

1.5 EXAMINATION OF SITE:

A. Before submitting Proposals for this work, each Bidder will be held to have examined the site and satisfied himself as to existing conditions under which he will be obligated to operate, or that will, in any manner, affect the work under this Contract. No allowance shall be made subsequently in this connection, in behalf of the Contractor for any error or negligence on his part.

1.6 PERMITS, LICENSE, AND ORDINANCES:

A. Building permit fees as required by state, county, and city laws or ordinances shall be paid by the Contractor and he shall give all notices necessary in connection therewith. All work shall comply with local and other governing ordinances and codes, but this requirement does not relieve the Contractor of the responsibility of complying with specifications if the requirements exceed those of governing codes and regulations. No claims for additional payment will be approved for changes required to comply with codes, ordinances, and regulations governing electrical and mechanical services and installations, since it is the Contractor's responsibility to familiarize himself with such requirements before submitting his proposal.

1.7 SPECIFICATIONS TITLES:

A. Titles to divisions and paragraphs in these Contract Documents are introduced merely for convenience and shall not be taken as part of the specifications; furthermore, they shall not be taken as a correct or complete segregation of the several units of materials and labor. No responsibility, due to real or alleged error in arrangement of matter in these Contract Documents, either direct or implied, is assumed by the Architect for omissions or duplications by the Contractor or his Subcontractors.

1.8 EXECUTION, CORRELATION, AND INTENT OF DOCUMENTS:

A. Should there be a discrepancy within the Specifications or on the Drawings, the Architect will be notified and he shall decide which stipulation will provide the best installation. His decision shall be final. In the event that there is insufficient time to notify the Architect and receive a decision, then the Contractor is to use the most stringent requirement.

1.9 CONSTRUCTION RESPONSIBILITY:

A. The Architect will not be responsible for, and will not have control of or be in charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work. He will not be responsible for the Contractor's failure to carry out the work in accordance with the

Contract Documents. The Architect will not be responsible for, or have control or charge over, the acts or omissions of the Contractor, Subcontractors, or any of their agents or employees, or any other persons performing any of the work.

1.10 SAFETY AND HEALTH ACT:

A. The Contractor shall comply with the requirements of the Williams-Steiger Occupational Safety and Health Act of 1970 and protective devices shall be provided by the Contractor in accordance with the International Building Code.

1.11 TEMPORARY CONTROLS:

A. The Contractor shall keep the construction area free of weeds. Weeds shall be kept to a height of no more than 12" to comply with any other City ordinances as applicable.

B. The Contractor shall remove all combustible and noncombustible waste materials completely from the Owner's property and legally dispose of same. Burning of any materials will not be permitted within the boundaries of the Owner's property.

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PART 1 - GENERAL

1.1 WORK INCLUDED:

A. To enable the Owner to compare total costs where alternate materials and methods might be used, Alternates have been established as described on the Drawings and in this Section of these Specifications.

1.2 RELATED WORK DESCRIBED ELSEWHERE:

A. Materials and methods to be used in the Base Bid and in the Alternates have been described on the Drawings and in pertinent sections of these Specifications.

1.3 SUBMITTALS:

A. All Alternates described in this Section are required to be reflected on the Bid Form as submitted by bidders; however, do not submit Alternates other than as described in this Section, except as provided for "Substitutions" under the General Conditions.

1.5 AWARDING OF ALTERNATES:

A. If there is more than one alternate, said alternates do not necessarily have to be awarded in any certain priority order.

1.6 ALTERNATES:

A. Additive Alternate № 1: Install one layer of 5/8" OSB on top of ceiling / floor joists at Mezzanine before installing second layer of 5/8" T&G BC Plywood. All layers are to be glued & screwed in place.

B. Additive Alternate № 2: Prep floors/ remove existing floor cover at Office1 and Office 2 before installing new Vinyl Comp. Floor Tile. Remove wall base at these rooms and install new 4" vinyl wall base over prepped wall surfaces.

1.7 EXECUTION:

A. Immediately after award of the Contract, or as soon thereafter as the Owner has made a decision on which, if any Alternates will be selected, the General Contractor will clearly advise all necessary personnel and suppliers as to the nature and extent of Alternate(s) selected by the Owner. Use all means necessary to alert those personnel and suppliers involved as to all changes in the work caused by the Owner's selection or rejection of Alternate(s).

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PART 1 - GENERAL

1.1 UNIT PRICES:

A. Unit prices shall be used to adjust the contract price if materials must be increased or decreased other than as stated on the Bid Form or as subsequently agreed upon by Owner and Contractor.

1.2 PROGRESS PAYMENTS:

A. Monthly payments in triplicate shall be initiated by the Contractor on AIA Documents G702 and G703A, Application and Certificate for Payment, and submitted to the Architect for approval.

1.3 CHANGE ORDERS:

A. When required, Change Orders shall be issued by the Architect on the standard AIA Document G701, latest edition. With each proposal for a change in the amount of the Contract, the Contractor shall submit a detailed breakdown indicating all costs for the change. See "Changes in work 1.6."

1.4 STORED MATERIALS:

A. Progress payments will include materials and equipment suitably stored on the construction site or at some other location agreed upon by the Architect.

1.5 PROGRESS SCHEDULE:

A. The Contractor shall submit a Project Progress Schedule to the Architect within 14 days after receipt of the Notice to Proceed to show the term of the construction for the completed Project. The schedule shall show the dates for commencement and completion of the various categories of work and the percentage of scheduled completion at the end of each month for each category.

B. The Contractor shall submit three copies of the Project Progress Schedule with each Certificate for Payment, showing the actual commencement and percentage of completion for each category of the work, by the 25th of that particular month.

1.6 CHANGES IN THE WORK:

A. *By submission of a Bid, the Contractor agrees and binds himself to the following method of calculating* ***only Change Orders****.* **All mark-up for Field Orders are to be part of the Base Bid as noted in Section 01020 - Allowances.** By enclosure in these Documents, the Owner also agrees to the following method of calculating the cost of any changes to the Contract.

1. The maximum allowance for General Administration, Supervision, Insurance, Bonds, Overhead, and Profit combined included in the total cost to the Owner, shall be based on the following schedule:

	Subtotal Amount Before Applying the % Shown		
	$500&Less	**Over $500**	**Over $5,000**
* For work performed by Contractor's own force.	30%.	25%.	20%
* For work performed by Subcontractor's own force	25%.	20%	15%
* Contractor for work performed by Subcontractor	10%.	8%	6%

Changes in the Work - continued . . .

2. With each proposal for a change in the amount of the Contract, the Contractor shall submit an itemized breakdown of all increases or decreases in the cost of the Contractor's and all Subcontractor's work to include at least the following information in the general order listed:
   a. Material quantities and unit costs.
   b. Labor amounts and hourly rates (identified with specific items of material to be placed or operation to be performed).
   c. Costs inherent to use of Contractor/Subcontractor owned equipment.
   d. Equipment rental, if any.
   e. Worker's Compensation and Public Liability Insurance.
   f. General Administration, Overhead, Supervision, Project Insurance and Profit (as scheduled above).
   g. Employment taxes under FICA and FUTA.
   h. State Gross Receipts Tax (Contractor only).
3. Cost to which overhead and profit is to be applied shall be determined in accordance with the above schedule.

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PART 1 - GENERAL

1.1 PROJECT MEETINGS:

A. Project meetings will include a Pre-Bid Conference, a Pre-Construction Conference and Progress Meetings.

1.2 TIME AND DATE:

A. **Pre-Bid Conference** : See Invitation to Bid, Page 1

Pre-Construction Conference : As scheduled by the Architect

Progress Meetings : Monthly

B. The Progress meetings will be scheduled as agreed among the Owner, Architect, and Contractor to provide an orderly review of the progress of the work to discuss any problems relative to execution or scheduling of the work, and the problems to arrive at solutions thereto.

C. The Contractor's representative at these meetings shall have the authority to commit the Contractor to the solutions as agreed upon in the Project Meeting.

D. Subcontractors and/or Material Suppliers may be invited to attend the Project Meetings when their aspects of the work are involved. The Contractor's relations with his Subcontractors and Material Suppliers, and discussions relative thereto, are the Contractor's responsibility as described in the "General Conditions", and are not part of Project Meetings content.

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PART 1 - GENERAL

1.1. GENERAL:

A. Refer to General Conditions of the Contract for Construction shall be AIA Document A201, Article 4.12, latest edition.

B. Each Subcontractor and Supplier will submit samples of exact material intended for use, along with a complete set of available colors, finishes, or textures. Any deviation or change from specified material is to be outlined by letter included at the front of the submittal. Submit colors, textures, etc. only form current, available products.

C. All submittals must first go through the General Contractor and be thoroughly checked for correctness prior to submitting to the Architect/Engineer. General Contractor shall sign or stamp submittal certifying that it has been reviewed by General Contractor prior to submitting to Architect/Engineer. The Architect/Engineer will then check for general conformance with design concept and contract documents only. **All submittals must comply with the following, or will be automatically rejected without review by Architect/Engineer.** All dimensions, field verifications, quantities, catalog numbers, warranty requirements, and coordination in the field with all trades *are the responsibility of the General Contractor*. General Contractor's responsibility for errors and omissions in submittals *are not relieved by Architect/Engineer's review of submittals*.

1.2 SHOP DRAWINGS:

A. Original drawings, prepared by Contractor, Subcontractor, Supplier, or Distributor, which illustrate some portion of the work, showing fabrication, layout, setting, or erection details, prepared by a qualified detailer.

1.3 PRODUCT DATA:

A. Manufacturer's standard schematic drawings:

1. Modify drawings to delete information which is not applicable to this Project.
2. Supplement standard information to provide additional information applicable to this Project.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data:

1. Clearly mark each copy to identify pertinent materials, products, or models.
2. Show dimensions and clearances required.
3. Show performance characteristics and capacities.
4. Show wiring diagrams and controls.

1.4 SAMPLES:

A. Physical examples to illustrate materials, equipment, and workmanship and to establish standards by which completed work is judged. Samples will be required on any substitution unless waived in writing by Architect/Engineer.

B. Field samples and mockups:

1. Erect at Project site at location acceptable to Architect.
2. Construct each sample or mock-up complete, including work of all trades required in finished work.

1.5 MANUFACTURER WARRANTIES:

A. ***WHEN A MANUFACTURERS WARRANTY IS REQUIRED OF ANY SECTION OF THIS PROJECT MANUAL, A SAMPLE COPY OF EACH SPECIFIED WARRANTY SHALL BE SUBMITTED FOR REVIEW BY THE ARCHITECT AND/OR ENGINEER ALONG WITH OTHER SUBMITTAL INFORMATION FOR THAT SECTION. IF THE SAMPLE WARRANTY SUBMITTED, THE SUBMITTED INFORMATION WILL BE REJECTED AND RETURNED TO THE GENERAL CONTRACTOR UNTIL REQUIRED WARRANTY SAMPLE IS SUBMITTED. THIS WILL BE ENFORCED.***

1.6 METHOD OF NUMBERING:

A. All suppliers of hardware, hollow metal doors, windows, and structural steel are to use the **identical** numbering system by the Architect/Engineer for Shop Drawing Submittals as used in the Specifications and/or in the working Drawings. Since any change in numbering makes checking and field use more complicated, **any deviations from this will automatically be rejected without review by Architect/Engineer**.

1.7 SUBSTITUTIONS: ***(ALSO SEE SUPPLEMENTARY INSTRUCTIONS TO BIDDERS - 3.3 AND SUPPLEMENTARY GEN. CONDITIONS - 3.4)***

A. Contractor shall submit a letter of request for a substitution with any submittal to the Architect describing any substitution he intends to use on the project. Review of the submittals does not authorize changes to the Contract requirements, either in fact or implied, unless so stated in separate letter or request for a change order. Review of the Submittals shall not relieve the Contractor of the responsibility for any errors and/or omissions which may exist. Any deviations in submittals from requirements of Contract Documents are not relieved by review of Architect/Engineer, unless the Architect/Engineer gives written acceptance of those specific deviations. Contractor shall be totally responsible for any failure to submit a letter of request for substitution. Failure to do so does not relieve him of fully complying with the specified products or systems as specified herein. ***The Architect/Engineer reserves the right to reject any requested substitution submitted after bidding if it was not requested and given written prior approval, A MINIMUM OF 10 DAYS BEFORE THE BID OPENING. The Architect/Engineer decision on approval or disapproval of the requested substitution will be final.***

1.8 SUBMITTAL REQUIREMENTS:

A. HARD COPIES of submittals are required. Submittals sent by e-mail are not allowed; therefore, will be rejected.

B. **IT IS MANDATORY** that a sample of manufacturer warranties specified for this project be included with the submittal of all Shop Drawings/Submittals, to either the Architect or Engineer. If said sample is not submitted, the Shop Drawings/Submittals will be automatically rejected and returned for re-submission until said sample is provided. If a submitted 'sample' is not the warranty specified, the Shop Drawings/Submittals will not be approved until the specified warranty is provided, **regardless if the contractor has to pay extra (after the fact) to attain it.** There will be no excuses since this information is being provided during the bid phase of this project. **THIS WILL BE ENFORCED.** All manufacturer warranties specified in the Project Manual, Drawings, and any Addenda are expected to be received at the end of this job.

If you have any information and/or questions regarding any of the manufacturer warranties specified, contact the Architect's office. Any manufacturer warranty "correction" and/or 'change" must be addressed by an Addendum DURING the bid phase, NOT after the project is awarded. It is the responsibility of each Bidder to THOROUGHLY review their portion of the work & materials for specified manufacturer warranties. **It is the Bidder's responsibility to ENSURE that the manufacturers' warranties specified herein are available.**

C. Schedule Submittals at least 14 days before date reviewed submittals will be needed, in accordance with approved Submittal Schedule.

D. Submit number of samples as specified in each Specification Section.

E. Accompany each Submittal with Transmittal Letter containing:

1. Date
2. Project Title
3. Contractor's name and address
4. The number of each Shop Drawing, Product Data and Sample submitted
5. Written notification of deviations from Contract Documents
6. Any other pertinent data

F. Submittals shall include:
   1. Date and revision dates
   2. Project title
   3. Names of Architect, Contractor Subcontractor, Supplier, and Manufacturer
   4. Identification of product or material
   5. Field dimensions, clearly identified as such
   6. Other pertinent data required by specifications
   7. Identification of deviations from Contract Documents
   8. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurement, and compliance with Contract Documents
   9. Space large enough to accept Architect's review stamp (4" x 2" x ½")

1.9 RE-SUBMISSION REQUIREMENTS:

A. Shop Drawings:
   1. Revise initial drawings as required and resubmit as specified for initial submittal.
   2. Indicate on drawings any changes which have been made, other than those requested by Architect.

B. Product Data and Samples:
   1. Submit new data and samples as required for initial submittal.

1.10 DISTRIBUTION OF SUBMITTALS AFTER REVIEW:

A. Distribute copies of shop drawings and product data which carry Architect's stamp as required for construction, including Contractor's File, Project Site File, Record Documents File, other Prime Contractors, Subcontractors, Suppliers and Fabricators.

B. General Contractor shall keep an approved copy of each Submittal at Project Site at all times.

PART 2 - SUBMITTALS REQUIRED

2.1 SUBMITTALS REQUIRED:

A. Instructions to Bidders - General and Supplemental Conditions:
   1. Post Bid Information. . . . . 3 each
   2. Performance Bond, Labor, and Material Payment Bond. . . . . 3 each
   3. Project Progress Schedule. . . . . 3 each
      To be submitted within 14 days after Notice to Proceed has been given
   4. Record Drawings and Documents. . . . . 1 each
   5. Insurance Certificates. . . . . 4 each

2.2 SITE WORK (Division 2):. . . . . N/A

2.3 CONCRETE (Division 3):. . . . . N/A

2.4 MASONRY (Division 4):. . . . . N/A

2.5 METALS (Division 5):

A. Shop Drawings for miscellaneous steel items. . . . . 6 each

2.6 CARPENTRY (Division 6):

A. Product Data on all rough carpentry items. . . . . 6 each

2.7 MOISTURE PROTECTION (Division 7):

A. Shop Drawings and Product Data for joint sealers and building insulation. . . . . 6 each

2.8 DOORS, WINDOWS, AND GLASS (Division 8):

A. Shop Drawings and Product Data for all doors/frames, glazing, hardware schedule. . . . 6 each

B. Samples of any metal door and/or frame construction if requested by Architect.

C. Samples of glazing if requested by Architect.

2.9 FINISHES (Division 9):

A. Samples and Product Data on resilient flooring, rubber/vinyl base and accessories. . . . 4 each

B. Samples and/or Product Data on all gypsum drywall and components. . . . . 4 each

C. Color samples of paint selections, including stain colors and paint colors. . . . . 4 each

D. Paint/stain schedule showing what type of paint/stain will be used. Schedule shall be similar to schedule in Specification. Show percent volume solids (vehicle/pigment) breakdown on each paint/stain type. . . . . 6 each

E. Samples and Product Data on Fiberglass Reinforced Plastic Panels. . . . . 4 each

2.10 SPECIALTIES (Division 10):

A. Shop Drawings and Product Data for all items specified in Division 10. . . . . 6 each

2.11 EQUIPMENT (Division 11):. . . . . N/A

2.12 FURNISHINGS (Division 12):. . . . . N/A

2.13 SPECIAL CONSTRUCTION (Division 13):. . . . . N/A

2.14 CONVEYING EQUIPMENT (Division 14):. . . . . N/A

2.15 MECHANICAL (Division 15):

A. Shop Drawings and/or Product Data for all mechanical equipment and materials. . . . . 6 each

B. Maintenance and operation manuals. . . . . 4 each

2.16 ELECTRICAL (Division 16):

A. Shop Drawings and/or Product Data for all electrical equipment and materials. . . . . 6 each

B. Maintenance and Operation Manuals. . . . . 4 each

PART 3 - EXECUTION

3.1 Submittal quantities included herein are minimum and may be increased and required by other Sections of these specifications or the Contractor's requirements.

3.2 **DO NOT BEGIN WORK OR ORDER MATERIALS WHICH REQUIRE SUBMITTALS UNTIL SUBMITTALS HAVE BEEN RETURNED, REVIEWED WITH ARCHITECT'S / ENGINEER'S STAMP AND INITIALS/SIGNATURE INDICATING REVIEW.**

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PART 1 - GENERAL

1.1 QUALITY ASSURANCE TESTS:

A. The Contractor shall include in his BID the cost of ALL tests such as Quality Assurance, Operating Adjustments, etc., which are required pursuant to the work. Also, see Divisions 15 & 16 for other respective tests required of contractor as noted in these Divisions.

1.2 DESCRIPTION:

A. The testing shall be performed by recognized testing laboratories or agencies selected by the Contractor in consultation with, and after approval by, the Architect. The costs of all required or necessary tests, re-tests, inspections, and re-inspections shall be included in the contract for this project.

B. Test(s) shall be performed according to the requirements of this Section and the specific requirements set forth in Division 2 through Division 16 of these Specifications, and unless otherwise indicated, shall be governed by current, applicable ASTM Standards and Procedures.

1.3 TEST REPORTS:

A. Written reports must be made by the testing agency within 24 hours of test performance, directly to the following:

1. Copy each to the Architect, Contractor, and each Consultant (when applicable).

a. Consultants are as listed in 01000 "General Summary of Work", 1.4 INQUIRES

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PART 1 - GENERAL

1.1 UTILITIES AND SERVICE: BY OWNER

A. The responsibility will be upon the Owner to provide and maintain at their own expense all temporary utilities and services, including electricity and water. Contractor shall coordinate all connections for construction with Owner at the start of the Work. At the completion of the work, all temporary utility/service connections shall be removed from the site by the contractor. Contractor shall provide temporary chemical toilet facilities.

1.2 FIELD TELEPHONE & PROJECT FILES:

A. The Contractor shall provide his job superintendent with a cellular phone during the work of the project. Phone shall be with job superintendent at all times while Work is in progress.

B. A complete set of Drawings, Specifications, Addenda, Field Orders, and Submittals are to be available to the Architect at all times on the job.

1.2 TEMPORARY ELECTRICAL:

A. The electrical contractor shall provide temporary feeders of sufficient capacity from the existing electrical panels for this type of building project while under construction. Temporary electrical shall be based on one 150 watt lamp covering 100 square feet of floor area in the building for all trades. Sufficient wiring and outlets shall be installed to insure proper electrical for all construction areas, or public areas if affected. All necessary transformers, meters, cables, protective devices, etc. shall be provided by electrical contractor.

B. The electrical contractor shall also install and maintain temporary service to all areas of the existing building, using a feeder(s) of sufficient capacity for the requirements of each area and covering the entire length of the building and provide sufficient number of outlets, located at convenient points, so that extension cords of not over 50'-0" will reach all areas requiring artificial light and power. Contractors of all other trades shall furnish their own extension cords and temporary lights (wattage as noted above) as may be required for their own work, and shall also pay the electrical contractor for the cost of all temporary wiring of construction offices and/or job trailers, if any, used by them on the project.

C. All temporary electrical work shall be furnished and installed in conformity with the National Electrical Code and in accordance with the requirements of governing authority and utility company. The electrical contractor shall secure necessary permits for such temporary work.

1.3 TOILETS:

A. The Contractor shall provide and maintain in good order, temporary chemical toilet facilities for all workmen and shall remove same at completion of the work. Toilets shall be completely enclosed and of neat appearance. Toilet locations shall be approved by the Architect.

1.4 BARRIERS:

A. This Contractor is to provide any necessary barriers, etc. to separate construction areas from areas used by the Owner. Where barriers, etc. are provided, same shall be well-lighted, dust-tight, clean, and unobstructed for safe use by the owner's personnel. **It is the responsibility of the General Contractor to coordinate with Owner and place barriers as needed on a day-by-day basis throughout the entire construction phase of the Project.**

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ATTENTION: The awarded bidder will be contractually obligated to the Owner to fulfill all close-out requirements contained within the Construction Documents (Drawings, Specifications, and all Addenda). The owner reserves the right to contact the awarded bidder's bonding company if said close-out is not submitted to the Owner in a timely manner and/or if the awarded bidder fails to submit all said close-out. If there are ANY guarantees/warranties, tests, etc. that are questioned, contact the Architect/Engineer (as applicable) before bidding on this project.

PART 1 - GENERAL

1.1 SCOPE: BELOW ARE THE CLOSE-OUT REQUIREMENTS.

A. Substantial Completion:

1. Procedures and Instructions
   - Certificate of Substantial Completion
   - Warranties/Guarantees
   - Final Pay Request to 100%
   - Lien Waivers, AIA Forms
   - Record Documents
   - Tests / Adjusting
   - Keys
   - Final Cleaning
   - Extra Materials

1.2 SUMMARY:

A. Close-out requirements for every portion of the Work are included in pertinent Sections of the Project Manual. This Section includes procedures and instructions for contract close-out. The Contractor shall comply with all requirements stated in the General and Supplementary Conditions and all other related Sections of the Project Manual in closing-out the Work.

1.3 CLOSE-OUT PROCEDURES for SUBSTANTIAL COMPLETION:

A. When the Contractor has inspected the Work and considers it, or portion thereof, substantially complete, in compliance with the Contract Documents and ready for Architect's review, the Contractor shall submit a written request to the Architect attesting to the foregoing, with a Punch List attached by him addressing any remaining items to be completed or corrected.

1. The Architect has the option to decline to make a project review to determine if the project is substantially complete until there has been given sufficient evidence from the Contractor to indicate that substantial completion has, in fact, been obtained. The Architect will set the actual date the project will be reviewed for Substantial Completion.
2. If the Contractor does not forward his Punch List with his written request to the Architect, the Architect will not perform a review of the project to determine if it is, in fact, substantially complete.
3. Contractor shall submit to the Architect his written request and Punch List no later than 10 days prior to the date requested for Substantial Completion Project Review.

B. The following items are considered minimum submission information required **prior to** the date of Substantial Completion Project Review. They are to be submitted to the Architect, for issue to the Owner, no later than 10 days prior to the date requested for Substantial Completion Project Review, by the Contractor. A Certificate of Substantial Completion **will not** be issued if the Contractor fails to provide this information as follows:

1. Contractor's written request with his Punch List attached.
2. **Manufacturer's Standard Warranties/Guarantees for beyond 1-Year for ALL products and/or services applied/performed on the project.**
   a. Submittals which make reference to or include a sample of a warranty/guarantee are not acceptable as a written Warranty and/or Guarantee.
3. Warranties for Beyond One-Year, as applicable
4. Contractor's One-Year Warranty/Guarantee
5. Copy of approved Submittals. Bound in 3-ring binders.
6. Mechanical O&M Manuals
7. Field Quality Control Reports ARE required at Close-Out. All Subcontractors shall submit a written report stating that their work was tested and met the requirements within the specifications.
8. Quality Assurance Reports ARE required at Close-Out. All Subcontractors shall submit a written report stating that their work was tested and met the requirements within the specifications.
9. Extended Warranties (as referenced in the Project Manual):
11. Extra Materials
12. Staff Training on Mechanical/Electrical Equipment: Submit a signed letter or certificate signed by Owner stating they have been trained and understand the operation of equipment provided within this Contract.
13. Deliver all keys and schedules to Owner.

C. Architect will review the project to determine status of Substantial Completion.

1. During this Substantial Completion Project Review, not only will the Architect review the Contractor's Punch List, but he will also review the project for other possible areas requiring completion or correction.
2. Should Architect determine that the Work is not substantially complete, he will reject the Contractor's request and Punch List as failing to respond to actual status of substantial completion.
3. Should the Architect determine that the Work is substantially complete, with exception of minor items on Contractor's Punch List, he will notify Owner and Contractor of said items/work still pending, in writing by way of his own punch list. Any of these remaining items will be completed or corrected within ten (10) days from that date shown on the Architect's punch list.

D. When the Architect determines the Work to be substantially complete, exclusive of minor items, he will perform the following:

1. After Contractor has remedied any remaining deficiencies, the Architect will require the Contractor to send a second written notice requesting the Architect to review the finished work.
2. Thereafter, if any required additional review of the work by the Architect is required, it shall be a cause for claims for additional services by the Architect.
3. When the Architect determines that the work, or designated portion thereof, to be finally complete, he will then issue a Certificate of Substantial Completion.

E. After Contractor certifies and Architect determines that all the work is finally complete, the Architect will review the Contractor's Final Certificate for Payment upon Contractor's compliance with requirements of Contract Documents.

F. Prior to requesting final payment, and before Architect's review of Final Certificate for Payment, the following is enumeration of that which shall have been fulfilled or submitted by Contractor:

1. Satisfactory completion of construction and acceptance by Architect and Owner.
2. Submission to Owner, through the Architect, of required **Certificate of Occupancy** and Certificates of Completion.
3. Submission to Owner, through Architect, of release of Waiver of Liens as required by General Contractor.
4. Submission to Owner, through Architect, of Record Drawings.
5. Delivery to Owner all keys, properly tagged and identified.
6. Submission to Owner, through Architect, of complete list of Subcontractors and principal Vendors, including addresses and telephone numbers.
7. Submission to Owner, through Architect, of Operation and Maintenance Manuals, Manuals of Material and Finish Data, Testing & Adjusting Reports, and Extended Warranties, in form prescribed by the Architect.
8. Instruction of Owner's personnel in operation and maintenance of systems, subject to satisfaction of the Owner.

PART 2 - DIRECTION / DESCRIPTIONS OF CLOSE-OUT REQUIREMENTS

2.1 LIEN WAIVERS AND AIA FORMS:

A. **LIEN WAIVERS:** The Contractor, Subcontractors, and Suppliers shall provide, in duplicate, Release of Liens. All Release of Liens shall be attached to the appropriate form(s) as shown below in Paragraph B. Use the appropriate Release of Lien form which is shown in front of Division 1 (copy or re-type onto your letterhead, wording is to remain the same).

B. **AIA FORMS:** The Contractor shall provide, in duplicate, notarized copies of the following forms: affidavit of payment (AIA Form G706); Release of Liens (AIA Form G706A); and Consent of Surety (AIA Form G707). These forms are shown in front of Division 1; copy these forms onto a blank paper. (These are AIA forms and cannot be re-worded).

2.2 RECORD DOCUMENTS:

A. The Contractor shall maintain a complete set of Drawings, Addendum, and Project Manual (specifications) on the job at all times for the purpose of indicating any changes between the actual installation and the installation shown on the Drawings or called for in the Project Manual. Any changes shall be clearly and neatly shown on these Drawings and Project Manual in RED PENCIL, and upon completion of the Project, all shall be submitted through the Architect to the Owner.

2.3 GUARANTEES, WARRANTIES, & TEST REPORTS:

A. **You MUST review 'Information for Bidders' in Division 0 for thorough information regarding the Contract Close-Out portion of the Work.**

B. Copies and faxes of Guarantees and Warranties WILL NOT be accepted. All Guarantees and Warranties have to be originals with all pertinent information i.e. job and/or order #, owner information, date warranty begins, original signature, etc., whether being supplied by the contractor, subcontractor(s), manufacturer(s), and/or supplier(s).

C. When written warranties/guarantees beyond one year after substantial completion are required of any section of the Project Manual, the Contractor shall secure from the manufacturer or from the Subcontractor(s) such warranties and/or guarantees properly addressed and signed and in favor of the Owner.

D. Specified products and/or materials which carry a Warranty and/or Guarantee through the Manufacturer shall also be addressed and signed in favor of the Owner. ✶✶NOTE✶✶ Submittals which make reference to Warranties and/or Guarantees are not acceptable as a written Warranty and/or Guarantee.

E. Any standard written manufacturer warranties for a period of time beyond one year on any product or system offered through the manufacturer shall be given to the Owner for this project whether specified herein or not.

F. Delivery of Warranties and/or Guarantees shall not relieve Contractor from any obligations assumed under any other provision of his Contract.

G. Nothing herein intends or implies that Warranties and/or Guarantees shall apply to work abused or neglected by Owner.

H. Refer to sections of the Project Manual for those Warranty requirements which pertain to Contractor's/Subcontractor's respective trade(s).

I. The Contractor shall submit a 1-Year Warranty. SEE "Instructions to Bidders" Pg. 4 of 4, #9.4 'Guarantee'.

J. The Contractor shall furnish the Owner with all guarantees & warranties (manufacturers or otherwise), and test reports as specified throughout the project manual. SEE "Instructions to Bidders" Pg. 4 of 4, #9.4 'Guarantee'. USE THE APPROPRIATE GUARANTEE/WARRANTY FORM WHICH IS SHOWN IN FRONT OF DIVISION 1 (COPY OR RE-TYPE ONTO YOUR LETTERHEAD, WORDING IS TO REMAIN THE SAME).

2.4 EXTRA MATERIALS:

A. Since exact matching of materials at a later time is often impossible, the Contractor shall **clearly label** and place in a storage area designated by the Owner and shall notify the Owner's representative of same. The Contractor shall submit to the Architect , In writing, the name of the person he left the extra materials with, where & what date materials were left ALONG WITH a list of all materials. All extra materials to be left on this project are as listed below:

1 extra gallon (in a 1-gallon container) of each color of paint used (label where used).

1 extra quart (in a 1-quart container) of each color of stain & finish used (label where used).

1 extra box of each type of floor tile.

1 extra box of each type of vinyl base.

See Mechanical and/or Electrical Specifications for any required mechanical or electrical materials or parts

2.7 FINAL CLEAN UP:

A. **SEE** Section 01010 (Special Conditions) "Final Cleaning."

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02010 - GENERAL - SITE WORK

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

A. Where specified items are called for by name, make, or catalog number, such reference shall be interpreted as establishing a standard quality and not construed as limiting competition, and the Contractor may, at his option, use any article, device, product, material, fixture, form, or type of construction which in the judgement of the Architect, submitted in writing, is equivalent to that specified.

1.2 SCOPE:

A. The work required under this Division consists of all materials, labor, and equipment necessary to do all hauling, salvage, demolition, and final clean-up as described in the Specifications and indicated on the Drawings.

1.3 SUBMITTALS:

A. Submittals as required as in accordance with Paragraph 1.1, Section 01300, Division 1.

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PART 1 - GENERAL

1.1 SCOPE OF THE WORK:

A. This Section covers demolition, salvage, and disposition of existing material and equipment.

1.2 GENERAL NOTES:

A. Material and equipment to be salvaged will remain the property of the Contractor, unless otherwise specified herein or indicated under Part 2 - "Materials".

B. Protection of persons and property shall be provided throughout the progress of the work. The work shall proceed in such manner to minimize the spread of dust and flying particles, and to provide safe working conditions for all construction personnel.

C. Before starting the work, utilities shall be disconnected only as required. The water supply to fire hydrants shall not be disrupted. Approved provisions shall be made to avoid interference with, or the free passage to, adjoining and adjacent buildings and areas not in the Contract.

D. No burning of materials will be permitted on the property.

E. Items, equipment, assemblies, etc. removed during demolition, unless specifically noted otherwise, shall not be reinstalled or reused on this Project. See Drawings for additional information.

PART 2 - MATERIALS

2.1 SALVAGING OF MATERIAL(S):

A. Salvaged materials and equipment listed below shall be delivered to the Owner's designated warehouse(s) or storage areas by the Contractor.

B. Material not to be salvaged shall be hauled from site and legally disposed of by the Contractor.

C. Salvage to be retained by Owner shall consist of specific doors, hardware, and plumbing fixtures.

D. All other materials which cannot or will not be re-used, shall be hauled from the site and legally disposed of by the Contractor.

PART 3 - EXECUTION

3.1 DISMANTLE AND REMOVE:

A. Walls, HVAC equipment, conduit/wiring, and any other extraneous materials which interfere with new construction.

B. Owner's salvage shall be removed from work areas by Contractor as these items are available and stored as discussed above.

3.2 CLEAN-UP:

A. Upon completion of demolition and salvage operations, the entire affected area(s) shall be cleaned of all debris and any other extraneous materials.

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05010 - GENERAL

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

A. Each item, including all labor, equipment, and incidentals, shall be provided in accordance therein. Where specific items are called for by name, make or catalog number, such reference shall be interpreted as establishing a standard quality and not construed as limiting competition and the Contractor may, at his option, use any article, device, product, materials, fixture, form, or type of construction, which in the judgment of the Architect, submitted in writing, is equivalent to that specified.

1.2 SCOPE:

A. The work required under this Division consists of all miscellaneous metals and related items necessary to complete the work indicated on the Drawings and described in this Specification.

1.3 COMPLIANCE WITH STANDARD AND INDUSTRY SPECIFICATIONS:

A. Any material or operation specified by reference to published specification of a manufacturer, the American Society for Testing and Materials (ASTM), the American Institute of Steel Construction (AISC), the American Welding Society (AWS), or other published standards, shall comply with the latest or current edition.

1.4 SUBMITTALS:

A. Shop Drawings and/or samples are required in accordance with Paragraph 1.1, Section 01300 of Division 1.

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PART 1 - GENERAL

1.1 GENERAL:

A. Miscellaneous metals in this work includes, but is not necessarily limited to, steel guard posts, floor grating and frames, steel ladders, steel hand/guard rails, and all other miscellaneous iron and steel items not specifically described in other Sections of these Specifications.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

Rough Carpentry. . . . . Section 06100

Painting . . . . . Section 09900

1.3 QUALITY STANDARDS:

A. Comply with the provisions of the following codes, standards, and specifications, except as otherwise shown and specified.

1. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings", including "Commentary of the AISC Specification".
2. AISC "Specification for the Design of Cold-Formed Steel Structural Members".
3. AWS "Code for Welding in Building Construction".

1.4 SUBMITTALS:

A. Submit Shop Drawings in accordance with Section 01300. Indicate each item being furnished, including materials, quantities, sizes, shapes, locations, connections, and fasteners. Designate shop and field welds in accordance with AWS standard symbols. Furnish setting diagrams, erection plans, templates, and directions for installation of backing plates, embedded anchors, and other items.

B. For each catalog items, submit manufacturer's product data sheet indicating product description and installation recommendations. Submittal shall be in accordance with Section 01300.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING:

A. Properly identify and mark items in accordance with approved Shop Drawings.

B. Take all means necessary to protect miscellaneous metal before, during, and after installation, and to protect the installed work of other trades. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.6 COORDINATION:

A. Coordinate with other trades were their work is affected by miscellaneous metal work.

PART 2 - MATERIALS

2.1 VARIOUS MATERIALS:

A. Fasteners: Furnish galvanized with galvanized items.

1. Bolts:. . . . . ASTM A307, Grade A
2. Expansion Bolts:.. . . . . Self-drilling anchors, Hilti "Red Head" Self-Drilling Series, or approved equivalent.

B. Shop Paint: TNEMEC Series 10-99 red metal primer, or F.S. TT-P-86, Type II, red lead mixed pigment alkyd varnish-linseed oil.

C. Galvanized Touch-Up: Galvicon or ZRC compound.

2.2 FABRICATION:

A. Fabricate work true to shape, size, and tolerances, as detailed, with straight lines, square corners, or smooth bends that are free from twists.

B. Grind and dress edges and ends of metal smooth, with no sharp edges and with corners slightly rounded.

C. Perform welding in accordance with AWS D1.1 and approved Shop Drawings. Grind welds smooth and at decorative items; polish to uniform surface or radius.

D. Construction connections and joints exposed to weather to exclude water.

E. Provide sufficient type, quantity, and size of anchors for proper fastening of items. Fastenings shall be concealed wherever possible.

F. Provide holes and connections for work of other trades.

G. Pre-assemble items in the shop to the greatest extent possible so as to minimize field splicing and assembly of units at the project site. Disassemble units only to the extent necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installations.

2.3 FABRICATED PRODUCTS:

A. Miscellaneous Steel Shapes: Channels, angles, plates, connectors, and bolts where shown and detailed in Drawings.

PART 3 - EXECUTION

3.1 INSPECTION AND PREPARATION:

A. Examine structure and surfaces for defects that would prevent proper installation of miscellaneous metal items. Report discrepancies.

B. Field measure related work and openings as required for proper fit.

3.2 INSTALLATION:

A. Coordinate installation schedule with the schedules of other trades to insure orderly and timely progress of the work.

B. Field weld members in accordance with AWS D1.1. Grind exposed welds smooth.

C. Provide anchoring devices and fasteners for properly installing items.

D. Erect and install all miscellaneous metal in strict accordance with the Drawings, the approved Shop Drawings, and the referenced standards, aligning straight, plumb, and level within a tolerance of ⅛" to 10'-0".

E. Upon completion, re-examine work and correct to insure that installation is firm, tight, anchored, in true alignment with neat fits, without distortions, unsightly fastenings, raw edges, or protrusions.

F. Touch-up all shop priming coats damaged during transportation and erection, using the priming paint specified for shop priming.

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06010 - GENERAL

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

A. Each item, including all labor, equipment, and incidentals, shall be provided in accordance therein. Where specific items are called for by name, make or catalog number, such reference shall be interpreted as establishing a standard quality and not construed as limiting competition and the Contractor may, at his option, use any article, device, product, materials, fixture, form, or type of construction, which in the judgment of the Architect, submitted in writing, is equivalent to that specified.

1.2 SCOPE:

A. This Division of the Specifications is intended to cover all necessary work to be done by carpentry trade, including all framing & blocking, anchor setting, and finishing as required to complete the entire work in a "1st Class" workmanlike manner. Where nailers, anchors, stringers, furring strips are required, they shall be furnished whether specified and detailed or not.

1.4 SUBMITTALS:

A. Shop Drawings and/or samples are required in accordance with Paragraph 1.1, Section 01300 of Division 1.

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PART 1 - GENERAL

1.1 GENERAL:

A. In addition to all framing operations normal to the fabrication and erection of the structure and its component parts, install all backing and blocking required for the work of other trades. Set horizontal and sloped members with crown up. Do not notch, bore, or cut members for pipes, ducts, conduits, or other reasons, except as shown on the Drawings or as specifically approved by the Architect. Make all bearings full and all blocking solid, unless otherwise indicated on the Drawings. Finish all bearing surfaces on which structural members are to rest, so as to give sure an even support. Where framing members slope, cut or notch the ends as required to give uniform bearing surface.

B. SEE Section 09250 - Gypsum Drywall for other rough carpentry/wood stud requirements.

1.2 STORAGE OF MATERIALS:

A. All lumber shall be stored off the ground and protected from the weather.

B. All other materials specified in this Section must be stored indoors, out of the weather.

1.3 QUALITY ASSURANCE:

A. All lumber shall be grade stamped by a certified agency of the American Lumber Standards Committee and manufactured in accordance with voluntary Product Standard PS 20-99, as published by Department of Commerce and described in the official WWPA Western Lumber Grading Rules.

PART 2 - MATERIALS

2.1 CODES AND STANDARDS:

A. Materials shall be in strict conformance with the requirements of the International Building Code. Grades shall conform to the Specifications of the Association of Lumber Manufacturers producing the materials specified. Sizes are standard yard dimensions. Materials shall be free from warps that cannot be corrected in the process of nailing. All lumber shall be live, sound, and commercial dried.

2.2 LUMBER:

A. Lumber shall be surfaced four sides and dressed. Sizes and patterns shall conform to Department of Commerce SPR-R-16-39. Moisture content shall not exceed 15% for yard lumber (MC15 or KD15) and 12% for millwork.

B. All softwood lumber shall meet all the grading requirements of the association recognized in the trade as covering the species and under whose grading rules it was produced.

1. LUMBER AND WOODWORK	**GRADES AND SPECIES**
Furring, grounds, blocking, and etc...	**Construction grade #2 Hem-Fir OR #2 Southern Yellow Pine, 1700 psi**
Treated Oriented Strand Board (OSB)..	**5/8" to 7/8" APA rated exterior grade as manufactured by Louisiana/Pacific.**
Interior Plywood	**5/8" to 3/4" APA rated BC grade as manufactured by Louisiana/Pacific.**

2.3 PRESERVATIVE TREATMENT:

A. Where treated wood is indicated on the Drawings, treatment shall be in accordance with the Vacuum Wood Preserves Institute (VWPI) standards and shall conform to Federal Specification TT-W-572. The treatment shall be with a water repellent preservative containing 5% by weight of pentachlorophenol, with a 2 lb. retention per cu. ft. using the Dri-Vac process of controlled vacuum. Use this treatment where wood treatment is called for on the Drawings.

B. Retreat, regardless of type of preservative or method of treatment, all surfaces exposed by sawing, planing, boring, or cutting, with a liberal brush application or by immersing in the preservative initially used.

PART 3 - EXECUTION:

3.1 BLOCKING:

A. Install all blocking required to support all items of finish, and to cut-off all concealed draft openings, both vertical and horizontal, between ceiling and floor areas. Fire stops, when of wood, shall be 2" (nominal) in thickness by the full width of the opening being blocked.

B. For bolting, drill holes 1/16" larger in diameter than the bolts. Drill straight and through one side only.

C. For lag screws and wood screws, pre-bore holes same diameter as root of thread. Enlarge holes to shank diameter for the length of the shank. Screw, do not drive, all lag screws and wood screws.

3.2 ALIGNMENT:

A. On all framing members to receive a finished wall or ceiling, align the finish sub-surface and vary not more than ⅛" from the plane of surfaces of adjacent framing and furring members.

3.3 ANCHORS:

A. Anchors shall be installed where specified or shown on the drawings to anchor carpentry to masonry or concrete. Anchors for wall and partition sills shall be ½" bolts 8" long spaced 8' on center or power driven hot-dipped galvanized 16d nails at 4' o.c.

3.4 MOISTURE SEAL:

A. A moisture seal or barrier shall be placed under or around wood members which bear on, or are embedded in, concrete or masonry. Seal shall be asphalt mastic or another approved type.

3.5 ROUGH HARDWARE:

A. Provide and install all rough hardware and metal fastenings as shown on Drawings, specified herein, or required for proper installation of carpentry. Nails, spikes, screws, bolts, and similar items shall be of sizes and types to rigidly secure member in place.

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PART 1 - GENERAL

1.1 SUMMARY

A. Section includes wood chord and plywood and/or oriented strand board web joists for roof and floor framing; bridging, bracing and anchorage; framing for openings; and preservative treatment of wood.

B. **Related Sections:**

1. Rough Carpentry. . . . . Section 0610

1.2 REFERENCES

A. **APA-The Engineered Wood Association:**

1. APA/EWS PRI-400 - Fire Retardant Treated Plywood.

B. **American Wood-Preservers' Association:**

1. AWPA C1 - All Timber Products - Preservative Treatment by Pressure Process.

C. **ASTM International:**

1. ASTM D2559 - Standard Specification for Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions.
2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.

1.3 SYSTEM DESCRIPTION

A. Design Floor Live Load: 40 lbs/sq ft with deflection limited to 1/240 of span.

1.4 SUBMITTALS

A. **Section 01300 - Submittal Procedures:** Submittal procedures.

B. **Shop Drawings:** Indicate sizes and spacing of joists, fastener description and spacings, loads, framed openings. Submit design calculations.

C. **Product Data:** Submit joist configurations, bearing and anchor details, bridging and bracing.

1.5 QUALITY ASSURANCE

A. **Perform Work in accordance with the following:**

1. I-Joist Quality Assurance Agency.

B. Joists detailed and installed in accordance with current National Evaluation Report or ICBO Engineering Service Report.

C. Fire Rated Floor Construction. 1-Hour rated assemblies.

1. Tested Rating: Determined in accordance with ASTM E119.

1.6 QUALIFICATIONS

A. **Manufacturer:** Company specializing in manufacturing products specified in this section with minimum three (3) years documented experience.

B. Design joists and associated components under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of New Mexico.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 01600 - Product Requirements: Product storage and handling requirements.

B. Protect structural components from warping or other distortion by stacking in vertical position, braced to resist movement.

PART 2 PRODUCTS

2.1 PLYWOOD I JOISTS

A. **Manufacturers:**

1. Roseburg Forest Products
2. Georgia Pacific Corp.
3. Louisiana-Pacific Corp.
4. Trus Joist MacMillan
5. Weyerhaeuser Engineered Stand Products
6. Boise Cascade Wood Products
7. Substitutions: See Section 01300 and Supplementary General Conditions.

2.2 MATERIALS

A. Plywood or oriented strand board webs, Structural I, Exposure I.

B. Laminated veneer timber flanges.

C. Structural waterproof adhesives.

D. Joist shall meet manufacturer's code reports for proprietary grades and APA-EWS performance Rated I-Joists Code Reports for span ratings.

2.3 ACCESSORIES

A. Adhesive: ASTM D2559.

B. Wood Blocking, Plating, Support Members, Framing for Openings: In accordance with Section 06100.

C. Fasteners and Anchors:

1. Fasteners: Hot dipped galvanized steel for treated wood locations, unfinished steel elsewhere.

2.4 FABRICATION

A. Fabricate joists to achieve structural requirements specified.

B. Brace members for support during transit.

C. Fabricate bottom and top chord extensions as indicated on Drawings.

D. Fabricate to achieve minimum end bearing of:

1. 2 inches on wood.

2.5 FACTORY WOOD TREATMENT

A. Wood Preservative (Pressure Treatment): AWPA Treatment C1 using water borne preservative with 0.25 lbs/cu. ft. retention.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify supports and openings are ready to receive joists.

3.2 PREPARATION

A. Coordinate placement of support items.

3.3 ERECTION

A. Set structural members level and plumb, in correct position.

B. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure plumb, and in alignment until completion of erection and installation of permanent bracing.

C. Do not field cut or alter structural members without approval of Architect/Engineer.

D. Place headers and supports to frame openings.

E. Frame openings between joists with lumber in accordance with Section 06100.

F. Coordinate placement of sheathing with Work of this section.

3.4 ERECTION TOLERANCES

A. Framing Members: ½ " maximum, from indicated position.

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07010 - GENERAL

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

A. Each item, including all labor, equipment, and incidentals, shall be provided in accordance therein. Where specific items are called for by name, make or catalog number, such reference shall be interpreted as establishing a standard quality and not construed as limiting competition and the Contractor may, at his option, use any article, device, product, materials, fixture, form, or type of construction, which in the judgment of the Architect, submitted in writing, is equivalent to that specified.

1.2 SCOPE:

A. The material and work required under this Division consists of all insulation, sealants, and related items necessary to complete the work indicated on the Drawings and described in the Specifications.

1.4 SUBMITTALS:

A. Shop Drawings and/or samples are required in accordance with Paragraph 1.1, Section 01300 of Division 1.

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PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

A. The "General Conditions", Document A201, apply to all work of this Section. Each item, including all labor, equipment, and incidentals shall be provided in accordance therein.

1.2 SCOPE

A. The work required under this Section consists of all roof deck, ceiling, exterior wall, foundation and sound insulation, and related items necessary to complete the work indicated on the Drawings and described in this Specification.

1.3 SUBMITTALS:

A. Shop Drawings or samples are required in accordance with Paragraph 1.1, Section 01300 of Division 1.

1.4 Related Work Specified Elsewhere:

Rough Carpentry . . . . . Section 06100

Gypsum Drywall . . . . . Section 09250

PART 2 - MATERIALS

2.1 MISCELLANEOUS:

A. Ceiling Insulation: Shall be 12" thick x 24" wide Kraft-faced fiberglass batts, R-38, as manufactured by Owens-Corning Fiberglass Corporationor approved equivalent.

B. Exterior Studwall Insulation: Shall be 6" thick x 16" wide Kraft-faced fiberglass batts, R-20, as manufactured by Owens-Corning or approved equivalent.

PART 3 - EXECUTION

3.1 INSTALLATION OF INSULATION:

A. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Verify that the building insulation may be installed in accordance with the original design and the manufacturer's recommendations.

C. In the event of discrepancy, immediately notify the Architect. Do not proceed with installation until all such discrepancies have been fully resolved.

3.2 CEILING INSULATION:

A. Fold out side tabs and install batts directly to bottom of roof rafters and/or ceiling joists Butt ends of batts snugly together to prevent air circulation.

3.5 EXTERIOR WALL INSULATION:

A. Stud Wall Batt Insulation: Refer to wall sections and details and install as shown.

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PART 1 - GENERAL

1.1 SCOPE:

A. Throughout the work, caulk and seal all joints where shown on the Drawings and elsewhere as required to provide a positive barrier against passage of air and passage of moisture.

1.2 QUALIFICATIONS OF MANUFACTURERS:

A. Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items, and with a history of successful production acceptable to the Architect.

1.3 QUALIFICATION OF INSTALLERS:

A. Proper caulking and proper installation of sealants require that installers be thoroughly trained and experienced in the necessary skills, and thoroughly familiar with the specified requirements. For caulking and installation of sealants throughout the work, use only personnel who have been specifically trained in such procedures and who are completely familiar with the joint details shown on the Drawings, and the installation requirements called for in this Section.

1.4 DELIVERY AND STORAGE:

A. Deliver all materials of this Section to the job site in the original, unopened containers with all labels intact and legible at time of use. Store only under conditions recommended by the manufacturers. Do not retain on the job site, any material which has exceeded the shelf life recommended by it's manufacturer.

PART 2 - MATERIALS

2.1 SEALANTS:

A. Except as specifically otherwise directed by the Architect, use only the type of sealants described in this Article.

B. Colors: For exposed materials, provide color as indicated or is not indicated, as selected by Architect from manufacturer's standard colors. For concealed materials, provide the natural color which has the best overall performance characteristics.

C. Hardness: As recommended by manufacturer for application shown, unless otherwise indicated. Will not harden beyond shore A durometer of 50 nor soften below minimum of 10.

D. Modulus of Elasticity: Provide the lowest available modulus of elasticity which is consistent with exposure to weathering, indentation, vandalism, abrasion, support of loading, and other requirements.

E. Compatibility: Before purchase of each required material, confirm its compatibility with each other material to which it will be exposed in the joint system. Sealant will not bleed, stain, or significantly change color when used with compatible back-up materials.

2.2 ELASTOMERIC JOINT SEALANTS:

A. Acrylic-Emulsion Sealant:. . . . . Manufacturer's standard, one-part nonsag acrylic, mildew-resistant, complying with ASTM C834, formulated to be paintable and recommended for exposed applications on interior and on protected exterior exposures involving joint movement of not more than + 7.5%:

•AC-20 - Pecora Corporation

•Chem-Calk 600 - Bostik Construction Products

•Sonolac - Sonneborn Building Products

•Tremco Acrylic Latex Caulk - Tremco, Inc.

2.3 PRIMERS:

A. Use only those primers which are non-staining, have been treated for durability on the surfaces to be sealed, and are specifically recommended for this installation by the manufacturer of the sealant used.

2.4 BACKUP MATERIALS:

A. Use only those backup materials which are specifically recommended for this installation by the manufacturer of the sealant used, and which are non-absorbent and non-staining.

B. Bituminous and Fiber Joint Filler: Provide resilient and non-extruding type pre-molded bituminous impregnated fiberboard units complying with ASTM-D-1751, FS HH-F-341, Type 1 and ASSHO-M-213.

C. Molded PVC Gasket (MPVGH): Provide flexible extruded polyvinyl chloride gaskets of the profile shown, or if not shown, as required by the joint shape, size, and movement characteristics to maintain a watertight and airtight seal, complying the ASTM-D-2287, equivalent to Progress Unlimited Plasti-Grip #B-3.

D. Plastic Foam Joint-Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of material indicated below, and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

1. Either flexible, open cell polyurethane foam or non-gassing, closed-cell polyethylene foam, unless otherwise indicated, subject to approval of sealant manufacturer.

E. Joint Primer/Sealer: Provide the type of joint primer/sealer recommended by the sealant manufacturer for the joint surfaces to be primed or sealed.

F. Bond Breaker Tape: Polyethylene tape or other plastic tape as recommended by the sealant manufacturer to be applied to sealant contact surfaces where bond to the substrate or joint filler must be avoided for proper performance of sealant. Provide self adhesive tape wherever applicable.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 PREPARATION:

A. Concrete, Masonry, and Ceramic Tile Surfaces: All surfaces in contact with sealant shall be dry, sound, well-brushed, and wiped free from dust. Use solvent to remove oil and grease, wiping the surface with clean rags. Where surfaces have been treated, remove the surface treatment by use of sandblasting or wire brushing. Remove all laitance and mortar from the joint cavity to the depth required.

B. Steel Surfaces: Steel surfaces in contact with sealant shall be sandblasted, or if sandblasting would not be practical or would damage adjacent finish, the metal shall be scraped or wire-brushed to remove mill scale. Use solvent to remove oil and grease, wiping the surfaces with clean rags. Remove protective coatings on steel by sandblasting or by a solvent that leaves no residue.

C. Aluminum Surfaces: Aluminum surfaces in contact with sealant shall be cleaned of temporary protective coatings, dirt, oil, and grease. When masking tape is used for a protective cover, remove the tape just prior to applying the sealant. Use only such solvents to remove protective coatings as are recommended for that purpose by the manufacturer of the aluminum work, and which are non-staining.

3.3 INSTALLATION OF BACK-UP MATERIAL:

A. Use only the backup material recommended by manufacturer of the sealant and approved by the Architect for the particular installation, compressing the backup material 25% to 50% to secure a positive and secure fit. When using backup of tube or rod stock, avoid lengthwise stretching of the material. Do not twist or braid hose or rod backup stock.

3.4 PRIMING:

A. Use only the primer recommended by the manufacturer of the sealant and approved by the Architect for the particular installation. Apply the primer in strict accordance with the manufacture's recommendations as approved by the architect.

3.5 BOND BREAKER INSTALLATION:

A. Install an approved bond breaker where recommended by the manufacturer of the sealant, of where directed by the Architect, adhering strictly to the installation recommendations of the manufacturer.

3.6 INSTALLATION OF SEALANTS:

A. General: Prior to start of installation in each joint, verify the joint type according to the details in the Drawings, and verify that the required proportion of width of joint to depth of joint has been secured. Maximum width to depth ratio shall not exceed 2:1.

B. Equipment: Apply sealant under pressure with hand or power-actuated gun, or other appropriate means. Guns shall have nozzle of proper size and shall provide sufficient pressure to completely fill joints as designed.

C. Masking: Thoroughly and completely mask all joints where the appearance of sealant on adjacent surfaces would be objectionable.

D. Installation of Sealant: Install the sealant in strict accordance with the manufacturer's recommendations as approved by the Architect, thoroughly filling all joints to the recommended depth.

E. Tooling: Tool all joints to the profile shown on the Details in the Drawings.

F. Clean-Up: Remove masking tape immediately after joints have been tooled. Clean adjacent surfaces free from sealant as the installation progresses. Use solvent or cleaning agent as recommended by the sealant manufacturer.

3.7 JOINT SEALER SCHEDULE:

A. Acrylic-Emulsion Sealant: Interior joints in field-painted vertical and overhead surfaces, at perimeter of hollow metal door frames; gypsum drywall; concrete and all other interior locations not indicated otherwise.

3.8 GUARANTEE:

A. All materials and workmanship furnished by the Installing Contractor shall be guaranteed for a period of 2-Years from date of Substantial Completion, and on written request by the Owner within this period, any defective materials or workmanship shall be replaced or corrected by Contractor at his expense. Contractor shall use the appropriate guarantee that is in the front of Division 1 in the Project Manual.

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08010 - GENERAL

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

A. Each item, including all labor, equipment and items are called for by name, make, or catalog number. Such reference shall be interpreted as establishing a standard of quality and not construed as limiting competition. The Contractor may, at his option, use any article, device, product, material, fixture, form, or type of construction which in the judgement of the Architect, submitted in writing, is equivalent to that specified.

1.2 SCOPE:

A. This Division of the Specifications is intended to cover all necessary materials, labor, and equipment for the fabrication and installation of all doors, hardware, and sealants as specified herein.

1.3 SUBMITTALS:

A. Shop drawings and/or samples are required in accordance with Paragraph 1.1, Section 01300, Division 1.

B. Submit along with the submittals, a "sample" of the manufacturers lifetime warranty guaranteeing doors to be free of defects in materials and workmanship. It shall provide complete replacement of defective doors including hanging and finishing, at no cost to the Owner.

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PART 1 - GENERAL

1.1 GENERAL:

A. Refer to Drawings and Schedules for locations, sizes, and quantities.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

Hardware & Specialties.. . . . . Section 08700

Gypsum Drywall. . . . . Section 09250

Painting . . . . . Section 09900

1.3 SUBMITTALS:

A. Product Data: For each type of door and frame indicated, include door designation, type, level & model, material description, core description, construction details, label compliance, sound & fire-resistance ratings, and finishes.

B. Shop Drawings (show the following):

1. Elevations of each door design.
2. Details of doors including vertical and horizontal edge details.
3. Details and locations of reinforcement and preparations for hardware.
4. Details of anchorages, accessories, joints, and connections.

1.4 QUALITY ASSURANCE:

A. Comply with ANSI/SDI 100.

B. Manufacturer and supplier of hollow metal doors and frames shall show proof of al least 5 years experience in fabricating custom hollow metal work. Manufacturer is subject to Architect's approval and, if requested, shall submit a list of recent local representative projects completed.

1.5 DELIVERY AND STORAGE:

A. Deliver, store, and handle hollow metal work in manner to prevent damage and deterioration. Provide individual cardboard containers for doors. Store doors and frames upright in a protected dry area.

PART 2 - MATERIALS

2.1 BASIC MATERIALS:

A. Sheet steel for doors: Cold rolled stretcher leveled sheet steel, ASTM A366.

2.2 HOLLOW METAL DOORS:

A. Hollow metal doors shall be constructed of two solid sheets of 16 ga. cold-rolled steel on exterior doors and 18 ga. cold-rolled steel on interior doors. Doors shall be rigid constructed and reinforced inside with 20 ga. vertical channel reinforcement at approximately 6" o.c., welded to face sheets at 5" o.c. Doors to be made free of metallic ring with use of suitable solid deadening material, minimum 3 lb. density. Doors shall be mortised and reinforcement plates are to be provided for all types of hardware. All welds and joints to be ground smooth and filled with a mineral filler to conceal all seams. Doors are to receive two coats of light grey zinc-chromate rust inhibitive primer baked on at the factory.

B. Door shall have flush tops and inverted bottom channels: Reinforcement shall not be less than the following:

1. Hinge and pivot reinforcements. . . . . 7 gauge
2. Reinforcement for lock face, flush bolts, concealed holders, concealed or surface mounted closers. . . . . 12 gauge

2.3 INSULATED HOLLOW METAL DOORS:

A. Same as in 2.3 (above) except provide internal insulation to give unit thermal performance value equal to U=0.33, or approved equivalent. See Drawings and Schedules for location.

2.4 MANUFACTURER/SUPPLIER:

A. Doors that meet above specifications shall be manufactured by Curries, Fenestra, Gateway Metal Products, Southwestern Hollow Metal, or an approved equivalent. Manufacturer/Supplier shall show proof of at least five years' experience in fabricating hollow metal doors and work.

2.5 PRODUCT HANDLING:

A. Doors shall be stored under cover at the building site on wood skids or on floors in a manner that will prevent rust and damage. Care shall be taken to avoid creating a humidity chamber by using a plastic or canvas shelter, and not venting the area covered.

PART 3 - EXECUTION

3.1 DOORS:

A. Doors shall be installed plumb and in true alignment per ANSI/SDI 100 in a prepared opening, and be fastened to achieve the maximum operational effectiveness and appearance of the unit.

B. Install fire-rated doors with clearances as specified in NFPA 80 and smoke-control doors in compliance with NFPA 105.

3.2 HARDWARE:

A. This installation shall include all items of hardware finished for metal doors. The hollow metal supplier shall make any necessary provisions for additional reinforcing plates, special fasteners, etc. as job conditions require. All exterior doors shall be left in the most secure manner possible. The installation of these units does not include thresholds or weatherstripping unless the items are to be furnished under the Finish Hardware Section. Door stops that anchor into concrete shall be installed by the Contractor.

3.3 PRIMED COAT TOUCH-UP:

A. **Immediately after installation** of door, sand smooth any rusted or damaged primed coat areas and apply touch-up compatible air-drying primer.

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Part 1 - GENERAL

1.1 Work Included

A. The work under this section shall include the furnishing of all items shown on the drawings and as specified, including but not limited to, the following:

A. Knocked down, site assembled pre-finished steel door frames.

B. Knocked down, site assembled sidelight, borrowed light, transom, and fullbound access door frames.

C. Pocket trim jambs and casings (Pocket frame and hardware not included).

1.2 Related Sections

A. Section 01300 - Submittals

B. Section 06100 - Rough Carpentry

C. Section 07900 - Joint Sealers

D. Section 08200 - Wood Doors

E. Section 08700 - Hardware and Specialties

F. Section 08810 - Glazing

1.3 References

A. ASTM A653 – Standard for hot dipped galvanized steel material.

B. UBC 7-2-97, UBC 7-4-97 Positive Pressure Fire Test Certification.

C. UL 10B Fire test of Door Assemblies and UL10C Standard for Positive Pressure Fire Tests of Door Assemblies.

D. NFPA 80 - Fire Doors and Windows (Latest Edition).

E. NFPA-101 - Life Safety Codes (Latest Edition).

1.4 Submittals

A. Section 01300: Submittal procedures.

B. Product Data: Indicate frame material, gage, configuration and finishes.

C. Shop Drawings: Indicate frame elevations, details of frame anchorage, reinforcements required, rough opening requirements, location of hardware embosses, and finishes. Detail each floor of the building separately.

D. Samples: Submit CK Series standard frame sample, illustrating factory finished frame color(s).

E. Manufacturer's Installation Instructions: Provide installation instructions for all products under this section.

1.5 Quality Assurance

A. Quality Standards

1. Material free from defects in material and according to project specifications for pre-engineered opening systems.

2. Proven durability of factory finishes allowing for bending and shaping of material after finish is applied.

B. Fire Rated Frame Construction

1. Conform to ASTM E152, NFPA 252, UL 10B and 10C.

C. Installed Frame Assembly: Conform to NFPA 80

1. Use only installers familiar with installation of pre-finished opening systems and applied casing frame installation.

1.6 Delivery, Storage and Handling

A. Transport, handle, store, and protect products in a dry area off the ground.

B. Accept frames on site in manufacturer's box packaging with identification labels intact. Inspect for damage.

C. Do not open individual boxes until installation is to begin.

Part 2 - PRODUCTS

2.1 Acceptable Manufacturers

A. Timely Industries (A Division of SDS Industries, Inc., 10241 Norris Avenue, Pacoima, CA, 91331-2292; 800-247-6242; Fax: 818-492-3530) or approved equivalent.

B. Frames: Provide all interior frames for project from same manufacturer. Provide exterior frames as shown on dawings.

C. Substitutions: Refer to Section 01300 - Submittals, Para. 1.7.

2.2 Frames

A. Frame Material: Hot dipped galvanized steel, for interior frames in normal atmospheric exposures.

B. Frame Throat Opening: As shown on plan details to suit finished wall thickness.

C. Fire rated frames and Office Entry frames to be CK series with kerf formed into frame profile with factory installed, pre-mitered smoke/sound control gasket.

D. Frame Profile - Unequal Rabbet profile, standard with manufacturer.

1. CK Series, 18 gage thick, with kerf for door seal/gasket.

E. Casings

1. Provide steel formed to be applied to heat treated clips on frame face after frame is anchored to wall

2. Standard Steel - TA-8 with 1/4" reveal, on steel, stainless steel, and/or brass frames. Fit factory assembled units with MiterGard corner alignment clips.

2.3 Frame Reinforcement and Accessories

A. Provide reinforcements shipped loose to project site for hardware application.

1. TA-10 - Regular arm closers, casing mounted coordinators.

2. Provide hinge reinforcement (TA-11) of 14 gage steel pierced to create depth of thread for hinge screws equal to or exceeding 7 gage steel.

B. Smoke Gasket: TA-46 (QDS500) 20 minute rated gasket for kerfed frames. All pieces factory mitered to assure perfect corner alignment. Color to be selected from Standard Colors.

C. Prepare frames for ASA 4-7/8" strikes where required. Provide minimum ¼" depth of threads in factory tapped screw holes.

D. Installation fasteners (Provided by others)

1. Interior Frames: #6 Drywall type length sufficient to penetrate studs or structure at least ½" at 11" o.c. maximum.

2.4 Fabrication

A. Openings for single swing to be pre-cut, notched and fabricated at the manufacturer's facility. For fire rated openings, provide kerf at stop for installation of smoke gasket.

B. Provide minimum 14 gage hinge reinforcement plate tapped for machine screws supplied with hinges. Hinge plate to be mechanically attached to hinge emboss on frame.

C. Casing Clips: Fabricate frames with factory applied, heat treated clips to ensure no deflection in the clip upon application or removal of casing. Attachment clips may not be of same material as frame.

D. Provide notches, tabs and/or stops for positive alignment of frame parts at all corners.

E. Attach approved mylar label to each fire-rated frame indicating fire rating details.

F. Factory install TA-46 smoke gasket on all pre-finished, CK series frames. Install with factory mitered corners to ensure adequate seal and pleasing appearance.

2.5 Finishing

A. Frame Units: Pre-finished with factory applied impact resistant, polyurethane baked enamel finish or optional electrostatic applied water based paint system.

B. Casing Finishes

1. Steel: Prefinished with factory applied impact resistant, polyurethane baked enamel finish.

D. Colors: (Select)

1. Standard Colors: Browntone (SC101) or Western White (SC107).

Part 3 – EXECUTION

3.1 Examination

A. Verify acceptability of existing project conditions before starting work.

B. Verify that opening sizes and wall thicknesses are within specified tolerances. Verify that all finished walls are in plane to ensure proper door alignment.

3.2 Installation

A. Install frames in accordance with manufacturer's requirements.

B. Anchor frames with screws located at every casing clip or every 11" as shown on manufacturer's instructions. Field verify quantity and location of fasteners prior to installing casing.

C. Install Pre-finished frames near end of the project after wall painting and wall coverings are applied.

D. Install frames using qualified installers familiar with installation of pre-finished drywall frames.

E. Coordinate installation of frames with installation of hardware specified in Section 08700 and doors in Sections 08100 and 08200.

G. Touch-up blemishes on finished frames with factory prepared touch up paint furnished from the factory.

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PART 1 - GENERAL

1.1 GENERAL:

A. Refer to Drawings and Schedules for locations, sizes, and quantities.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

Hollow Metal Doors & Frames. . . . . Section 08100

Hardware and Specialties. . . . . Section 08700

Glazing . . . . . Section 08810

1.3 SUBMITTALS:

A. Product Data: For each type of door, include details of core and edge construction and trim for openings.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.

1. Indicate dimensions and locations of mortises and holes for hardware.
2. Indicate dimensions and locations of cut-outs.
3. Indicate doors to be factory finished and finish requirements. Show the full range of colors available for stained finishes.
4. Indicate requirements for veneer matching.
5. Indicate fire ratings for fire doors.

C. Samples for Verification:

1. Corner sections of veneer doors, approx. 8" x 10": Show faces, edges, and core.
2. Frames for light openings, 6" long, for each material, type, and finish required.
3. Factory finishes applied to actual door face materials, approx. 8" x 10" for each material and finish. Provide set of three (3) samples showing typical range of color and grain to be expected in the finished work.

1.4 QUALITY ASSURANCE:

A. Acceptable Manufacturers:

1. Weyerhaeuser (Marshfield), Timblend Core.
2. Eggers Hardwood Products Corp., Master Flush
3. Algoma Hardwoods, Novodor
4. Graham Manufacturing Corp.

B. Reference Standards:

1. AWI - Architectural Woodwork Quality Standards and Guide Specifications, Section 01300, latest edition.
2. NWWDA - National Wood Window Door Association, Industry Standard I.S. 1-80 Series, latest edition.
3. **Fire Rated Wood Doors:** Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.

1.5 PROJECT CONDITIONS:

A. Environmental Limitations: DO NOT deliver or install doors until building is enclosed and wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.6 GUARANTEE:

A. Interior Solid Core Doors: Provide Owner with manufacturer's written lifetime guarantee which shall guarantee doors to be free of defects in materials and workmanship. Guarantee shall provide for complete replacement of defective doors, including hanging and finishing, at no cost to Owner.

PART 2 - MATERIALS

2.1 DOORS:

A. Solid Core Doors: Doors shall be 1¾" thick, type DPC-1, particle board wood core, 1⅛" top and bottom rails and ¾" side edges bonded to core. Hardwood cross-bands and standard face veneers are bonded to the core with exterior resin glue. Face veneer to be ~~Birch, all rotary cut~~. Factory applied aluminum moisture protection at door top, bottom, and glazing cut-outs on all doors used in exterior installations.

B. Fire Label Doors: Doors to be 1¾" thick 5-ply, Grade A face, DFP-20 Partial Board labeled 20-minute by Underwriter's Laboratories, Inc. Hardwood cross-bands and standard thickness face veneer are bonded to core with Type one waterproof glue. Face veneer is to be ~~Birch, rotary cut~~ with 1⅛" top and bottom edge.

C. Metal Light Frames: All doors scheduled with lights opening on corridors, all labeled doors and doors elsewhere indicated, shall have factory primed hollow metal through-bolted U.L. approved opening surround frames (Weyerhaeuser beveled frame #109 style of sized shown) complete with screws. Install frames with screws on occupancy side (opposite side from key side when doors have locks).

2.2 PRODUCT HANDLING:

A. Store flat on a level surface in a clean, dry, and well ventilated area which is protected from sunlight.

B. Avoid subjecting doors to extreme heat, dryness, or moisture.

C. Cover to keep clean but permit air circulation.

D. Do not drag one door across another or across other surfaces.

2.3 FABRICATION:

A. Fabricate doors in accordance with requirements of reference standards, cut light, and louver openings at factory, provide bead moldings as detailed, species to match face veneer.

1. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:

   a. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements in NFPA 80 for fire-rated doors.

2. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with KHI-WDHS-3. Comply with final hardware schedules, door frame shop drawings, DHI A 115-W series standards, and hardware templates.

   a. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

3. **Openings:** Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.

   a. **Light Openings:** Trim openings with moldings and associated rated assembly accessories of material and profile indicated.

2.4 FACTORY FINISHING:

B. **General:** Comply with AWI's "Architectural Woodwork Quality Standards Illustrated" for factory finishing.

C. Finish doors at factory, Transparent Finish:

1. **Grade:** Custom
2. **Finish:** Manufacturer's standard finish with performance comparable to ASI System TR-4 conversion varnish.
3. **Staining:** As selected by Architect from manufacturer's full color range.
4. **Effect:** Semi-filled finish.
5. **Sheen:** Satin

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Examine doors and installed door frames **before** handing doors.

1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.

3.2 WOOD DOOR INSTALLATION:

A. Allow doors to become acclimated to site heat and humidity before hanging.

B. Hang and fit doors to frames with 1/8" clearance at head and jamb, ½" clearance over hard floors, ¼" clearance over thresholds, and 1/8 " clearance over carpet.

C. In fitting for width, trim equally from both sides. Fire rated doors shall be trimmed only from the lock edge and shall be trimmed no more than 3/16" as per NFPA 80.

D. In fitting for height, do not trim top or bottom rails more than ½". Fire rated doors shall be trimmed only from the bottom rails and shall be trimmed no more than ⅜".

E. Use drilled pilot holes for all screws.

F. Doors shall operate properly with no binding.

G. After setting, remove doors for sealing lock opening(s), top and bottom edges which have been trimmed. Rehang after sealing.

H. Do not remove labels from fire rated doors.

3.3 ADJUSTMENTS:

A. **Operation:** Rehang or replace doors that do not swing or operate freely.

B. **Finished Doors:** Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and show no evidence of repair or refinishing.

C. **Factory Finished Doors:** Restore finish before installation if fitting or machining is required at project site.

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PART 1 - GENERAL

1.1 DESCRIPTION:

A. Perform all work required to complete the finish hardware installation indicated by the Contract Documents. Furnish all supplementary items necessary for proper installation.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

Finish Carpentry. . . . . Section 06220

Hollow Metal Doors & Frames. . . . . Section 08100

Wood Doors . . . . . Section 08200

1.3 QUALITY ASSURANCE:

A. This material shall be procured from a source of supply approved by the Architect as competent to correctly interpret the Drawings and Specifications, and be prepared at all times to promptly and satisfactorily service the hardware on the job. This supplier must be an established contract builders hardware firm who meets all the requirements, **and who maintains AND operates an office display room and stock**. This material must be furnished by, or under the direct supervision of, a member of the American Society of Architectural Hardware Consultants, **and must be so certified in submittals from this supplier.**

B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of the Section.

1.4 SUBMITTALS:

A. Schedules: Submit **detailed** finish hardware schedule in accordance with Section 01300 for Architect's review. Schedule shall be complete, including type, manufacturer's name and number, and finish of each item required. A complete schedule of keying shall also be furnished. **DO NOT** order or deliver finish hardware until Architect has reviewed schedules.

B. Manufacturer's Data: Submit manufacturer's data on each item of hardware, including maintenance and installation instructions.

C. Samples: If requested by the Architect, submit a sample of each type of finish hardware item used on the Project. If approved, samples may be used on the Project.

D. Templates: Furnish templates to other trades as required for fabrication of hollow metal door and frames, aluminum & glass doors, or other items related to hardware.

1.5 FINISH:

A. Finish on all hardware to be to be **626** unless scheduled otherwise.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Package and deliver hardware items separately and mark each to correspond with numbers on hardware schedule. Include necessary instructions, templates, drawings, and fasteners for proper installation. **Include extra fasteners**.

B. Provide secure lock-up for hardware delivered to the project site. But not yet installed. Control the handling and installation of hardware items which are not immediately replaceable, so the completion of the work will not be delayed by hardware losses, both before and after installation.

C. Coordinate hardware with other work. Review approved Shop Drawings of related trades and verify that scheduled finish hardware is suitable fore each related item of work. Tag each item or package separately, with identification related to the final hardware schedule.

1.7 KEYS AND KEYING:

A. Factory restricted key ways, required for all keys. Furnish interchangeable cylinder cores on all exterior hardware and all interior hardware. Three keys shall be furnished for each cylinder lock. All locks to one area or room shall be keyed alike, otherwise the keys of any one lock shall not operate any other lock. Consult with the Owner about which doors are to be under which Master Key. Furnish three master keys per set. After all locks have been installed and locks and keys are operating and each lock verified, they shall be tagged and delivered to the Owner, by registered mail directly from the factory.

1. After installation of all hardware and before acceptance of the building, hardware supplier shall check each locked door against key code index to make certain that correct lockset(s) and/or cylinder(s)/core(s) are on proper doors. On any incorrectly located lockset(s) and/or cylinder(s)/core(s), he shall tag and have General Contractor relocate to proper position.

PART 2 - MATERIALS

2.1 GENERAL:

A. Locksets/Exit Devices: Furnish all interior locksets with interchangeable cylinder cores (sent factory direct to Owner), except that the Contractor may furnish and install his own interim cylinder cores for locking of doors during the Project construction period, provided he furnishes the Owner with one key for each such lock installed. In the event interim cylinder cores are installed by the Contractor, remove all such interim cylinder cores at such point near the end of Project construction, in order that the permanent cylinder cores furnished under this Contract by the Contractor can be installed by the Contractor in coordination with the Owner.

B. Kickplates: Shall be Trimco. Where kickplates are noted, they are to be 10" high, full width of door, less 2" with three edges beveled. Thickness of kickplates to be 16 gauge (.050). Mount directly above door sweep.

C. Door Silencers: Furnish for each metal door frame, Trimco 1229A door silencers. Three (3) for each single frame and four (4) for each double frame.

D. Door Stops: Trimco and/or Quality. Floor mounted or wall mounted.

E. Hand of Door: The drawings show the swing hand of each door leaf (left, right, reverse bevel, etc.). Furnish each item of hardware for proper installation and operation of the door swing as shown.

F. Fasteners: Manufacture hardware to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated. Provide concealed fasteners for hardware units, which are exposed when the door is closed, except to the extent no standard-manufacturer units of the type specified are available with concealed fasteners.

G. Fire-Rated Openings: Provide hardware for fire-rated openings that complies with NFPA 80, Standard for Fire Doors and Windows, latest edition.

H. Screws: Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match the hardware of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

I. Hardware Schedule: Furnish the following items in the amounts required for a complete and operable facility. **NO HARDWARE ITEM IS TO BE SUBSTITUTED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT.**

MANUFACTURERS LEGEND

(B)	Best Lock Corporation	-	Indianapolis, IN
(SA)	Sargent & Company	-	New Haven, CT
(T)	Triangle Brass Mfg., Co.	-	Los Angeles, CA
(P)	Pemko Manufacturing Co.	-	Memphis, TN
(ST)	Stanley Hardware	-	New Britan, CT

K. Guarantee: All items shall carry a 1-year, minimum, replacement guarantee for any reason, except vandalism or misuse. Items which have a standard manufacturer's warranty beyond 1-year shall be provided to the Owner and will be noted as such on Submittals furnished for the Architect's review.

HARDWARE SCHEDULE

HARDWARE #1:

1 Door # 1.	Hall 101 from Data 101A
1 Door # 1.	Storage 104 from Hall 101
1 Door # 3.	Office 106 from Hall 105
2 Doors # 3.	Office 107 from Hall 105
2 Doors #4..	Lounge 109 from Halls 101 & 105
1 Door #6.	Office 1 from Alcove 102
1 Door #6	Office 2 from Alcove 102

Each door to have:

1-1/2 Pr. Butts.	FFB 179.	626.	4-1/2" x 4-1/2".	(ST)
1 Lockset	93K-7R-14D-S3.	626.		(B)
1 Closer	EN 351-UH.			(SA)
1 Kickplate.	1024.	626.		(T)
1 Wall Stop.	W1276CS.	626.		(T)
1 Smoke Seal.	S44W.		17'-2".	(P)

HARDWARE #2:

1 Door # 2.	Unisex 103 from Alcove 102

Each door to have:

1-1/2 Butts..	FBB 179.	626.	4-1/2" x 4-1/2".	(ST)
1 Privacy Latch.	93K-OL-14D-S3..	626.		(B)
1 Closer	EN351-UH.			(SA)
1 Kickplate.	1024.	626.	8" x 34".	(T)
1 Wall Stop.	W1276CS.	626.		(T)
1 Smoke Seal.	S44 W.		17'-2".	(P)

PART 3 - EXECUTION

3.1 GENERAL:

A. Finish Hardware: The finish hardware shall be installed by mechanics skilled in this type of work. The escutcheons must be set plumb and locks, knobs, and cylinders must be installed square with the door. The materials shall be installed in a neat and workmanlike manner and all knobs, latches, etc. shall work freely and easily.. Construct hardware to fit details as shown. Where flush bolts are required, apply them to edge of doors. Furnish hardware to template and with machine screws for use with metal frames or metal covered on hollow metal doors. Use strike boxes under ALL strike plates on all locks. Supply all necessary template information to the various manufacturers. Sizes, functions, and type of hardware specified must be furnished.

B. Fastenings: Finish hardware shall be complete with all necessary screws, bolts, and other fastenings for proper application. Such application shall be suitable size and shape, and shall be provided for each type and size of special head screws used in the installations.

C. Rough Hardware: It is not intended that this Specification itemizes all of incidental rough hardware. It is the duty of the Contractor to furnish and install all nails, bolts, misc. items, and other similar rough hardware required in the assembling and securing of his work.

D. Installation: The installation of this material shall be done by the General Contractor, but his subcontractor or supplier shall deliver all items to the building properly marked and identified.

1. Mount hardware units at heights recommended in "Recommended Location for Builder's Hardware" by BHMA, except as otherwise specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by the contracting officer.
2. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, install each item completely and then remove and store in a secure place during the finish application. After completion of the finishes, re-install each item. Do not install surface-mounted items until finishes have been completed on the substrate.
3. Set units level, plumb and true to line and location. Adjust and re-enforce the attachment substrate as necessary for proper installation and operation.
4. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

F. Final Adjustment:

1. Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make a final check and adjustment of all hardware items in such space or area. Clean and re-lubricate operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
2. Instruct Owner's personnel in proper adjustment and maintenance of hardware during the final adjustment of hardware.

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PART 1 - GENERAL

1.1 GENERAL:

A. Refer to Drawings and Schedules for locations, sizes, and quantities.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

Hollow Metal Doors & Frames. . . . . Section 08100

Wood Doors. . . . . Section 08200

1.3 SUBMITTALS

A. Submit the following accordance with Section 01300 - Submittals.

B. Product Data: Submit manufacturer's published data for each security glazing type, including type of materials, thickness, method of test and performance.

C. Submit written test reports showing compliance with specified requirements.

D. Submit written certification by manufacturer that products supplied comply with performance requirements specified.

E. Submit written maintenance data covering cleaning and protection requirements.

F. Samples: 12 x 12 inch (300mm x 300mm) of each specified glass type and thickness.

G. Shop drawings: Indicating glass type and thickness intended for use in each opening.

1.4 CODES AND STANDARDS:

A. In addition to complying with all pertinent codes, Consumers Product Safety - Part V and Regulations, install all glass in accordance with the standards stated in the "Glazing Manual" of the Flat Glass Jobbers Association.

1.5 PRODUCT HANDLING:

A. Protect glazing materials before, during, and after installation and protect the installed work of other trades. In the event of damage, immediately make all repairs and replacements necessary to approval of the Architect at no additional cost to the Owner. Deliver glazing compounds in manufacturer's unopened and labeled containers.

1.6 WARRANTY

A. Provide Manufacturer’s 3-year warranty that glazing units will not de-laminate or become opaque under normal wear and tear. Warranty shall also cover units which are insulated from condensation and dust inside the unit.

B. Glazing Contractor shall provide a 3-Year written warranty signed by installer to cover weather tightness of installation including air and water integrity.

C. Warranties to include removal of failed units, furnishing, and installation of replacement units at no additional cost to the Owner.

PART 2 - MATERIALS

2.1 MISCELLANEOUS:

A. Wire Glass: Shall be ¼" thick, Nuweld polished wire glass, square mesh pattern to comply with F.S. DD-G-451c, as manufactured by ASG Industries, Inc. Wire glass shall be installed typically in all door openings and fixed hollow metal sash throughout the building, unless shown otherwise.

B. Silicone Glazing Sealant: Single component elastomeric silicone sealant complying with FS TT-S-001543, Class A, non-sag, and with ASTM C 920, Type S, Grade NS, Glass 25, Use G and, as applicable to use indicated, Uses A and O, and with the following requirements:

1. Low Modulus Silicone Glazing Sealant: Manufacturer's standard low-modulus non-acid curing sealant that can withstand an increase and decrease of 50% of joint width as measured at time of application when tested per ASTM C 719.

C. Pre-Formed Butyl-Polyisobutylene Glazing Tape:

1. Blend of butyl-polyisobutylene rubber with a solids content of 100%, in extruded tape form, complying with AAMA 807.1, packaged on rolls with a release paper on side, with or without continuous spacer rod as recommended by manufacturers of tapes and glass for application indicated.

2.2 FABRICATION

A. Fabricate glazing with bite and edge clearance dimensions, including tolerances, as recommended by manufacturer and FGMA "Glazing Manual." Exception: Where specific bite dimensions are indicated on drawings, as required for proper securement of glazing in frames, comply with those dimensions.

B. Cut or drill holes in laminated units as required.

C. Grind exposed edges smooth, using methods recommended by manufacturer.

2.3 GLAZING ACCESSORIES

A. Installation Materials -- General: Select products that have appropriate performance characteristics as recommended by glazing manufacturer and that are compatible with materials they will contact.

B. Glazing Tape: Pre-cured, 100 percent solids, butyl polyisobutylene rubber with internal spacer rod, complying with AAMA 807.1 tape, as described in AAMA 800-86.

C. Glazing Sealant: Neutral curing silicone complying with ASTM C 920, Grade NS, Type S or M, Class 25, Uses NT, A, G, an O -- as applicable to glazing substrates indicated.

1. Color: As selected from standard colors.

D. Glazing Blocks: Monsanto "Santoprene" No. 101-80 or 101-87 or as recommended by glazing manufacturer to be compatible with polycarbonate and urethane laminates.

1. Setting Blocks: 80 to 90 Shore a hardness.

a. Lengths of setting blocks shall be coordinated with glazing manufacturer.

b. As required to provide face and edge clearances recommended by glazing manufacturer.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS:

A. Prior to all work of this Section, carefully inspect the installed work of other trades and verify that all such work is complete to the point where this installation may commence, and verify that glazing may be performed in accordance with the referenced standards and the original design.

B. Obtain glass sizes from the work at the building, and from the manufacturer of frames, sash, etc. in which the glass is to be set. Glass labels shall be left intact until final approval. Prime all rabbet and glazing beads. Set all glass in a true plane, tight and straight, with proper and adequate clearance firmly anchored to prevent rattling and looseness. Make all glass edges cleanly cut; do not nip or seam the edges. Replace all breakage caused in executing the work, and by faulty installation before acceptance. Protect glass against damage during the construction and after the Architect's approval, remove all labels, smears, spots, and wash clean.

3.2 TAPE GLAZING

A. Install tape continuously, placed so that when compressed the exposed face will be flush with the face of the framing.

B. Do not use joints in tape, except at corners; seal joints with compatible sealant.

C. After installation of stops, apply fillet bead of glazing sealant over exposed tape on both sides of glazing.

3.3 CAULKING:

A. Caulk around all doors, windows, fixed glass frames under thresholds, and all other framing cracks to insure tight construction. If joint to be caulked is greater than 2" in depth, pack with un-tarred oakum to within 1" of face and the caulk. Before caulking, all surfaces shall be clean of dirt, grease and other foreign matter. follow manufacturer's directions closely in mixing and applying.

3.4 PROTECTION AND CLEANING

A. Apply warning tape or bands across opening without touching glazing, immediately after installing glazing in frames.

B. Do not apply tape or labels to glazing; remove temporary labels.

C. Protect glazing during subsequent construction operations; remove dirt, contaminants, staining agents and other deposits promptly using manufacturer's recommended procedures.

D. Replace glazing that is damaged.

E. Provide final protection and maintain conditions in a manner acceptable to manufacturer and Installer that ensures that security glazing is without damage or deterioration at the time of Substantial Completion.

F. Wash both sides of glazing not more than 10 days before inspections for Substantial Completion.

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09010 - GENERAL

PART 1 - GENERAL

1.1 GENERAL:

A. Each item, including all labor, equipment and incidentals shall be provided in accordance therein. Where specific items are called for by name, make or catalog number, such reference shall be interpreted as establishing a standard quality and not construed as limiting competition, and the Contractor may at his option, use any article, device, product, material, fixture, form, or type of construction which in the judgement of the Architect, submitted in writing, is equivalent to that specified.

1.2 SCOPE:

A. The work required under this Section consists of all drywall, wall covering, and related items necessary to complete the work indicated on the drawings and described in the Specifications.

1.3 SUBMITTALS:

A. Shop drawings and/or samples are required in accordance with Paragraph 1.1, Section 01300 of Division 1.

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PART 1 - GENERAL

1.1 GENERAL:

A. See Drawings and Schedules for location and extent of drywall work included herein. Include labor and materials required to complete the drywall systems shown and specified for the Project. Construct and present sample work as herein specified and as drawn for Architect's approval before proceeding.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

Rough Carpentry. . . . . Section 06100
Building Insulation. . . . . Section 07200
Joint Sealers.. . . . . Section 07900
Hollow Metal Doors and Frames. . . . . Section 08100
Painting. . . . . Section 09900

1.3 SCOPE:

A. Gypsum drywall applied to wood framing and furring.
B. Gypsum drywall including screw-type metal support system.
C. Gypsum backing boards for application of other finishes.
D. Drywall finishing.

1.4 QUALITY ASSURANCE:

A. Fire-Resistance Rating: Where gypsum drywall systems with fire-resisting rating are indicated or are required, the entire assembly and/or installation shall comply with governing regulations, and shall have been tested and listed by recognized authorities.
B. Manufacturer: Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.
C. Qualifications of Installer: Minimum of 3 years previous experience in comparable work.
D. Requirements of Regulatory Agencies: Underwriters Laboratories Inc.; Fire Hazard Classification; Local Building Code.
E. Allowable Tolerances: ⅛" offsets between planes of board faces, and ⅛" in 8'-0" for plumb, level, warp, and bow.

1.5 PRODUCT HANDLING, DELIVERY AND STORAGE:

A. Deliver, identify, store, and protect gypsum drywall materials to comply with referenced standards.

1.6 ENVIRONMENTAL CONDITIONS:

A. Comply with manufacturer's recommendations.

1.7 COORDINATION:

A. Build in openings and chases for heating, plumbing, and electrical ducts, pipes, and conduits built into drywall partitions and ceilings.
B. Consult other trades in advance and make provisions for their work to avoid cutting and patching.

PART 2 - MATERIALS

2.1 ACCEPTABLE MANUFACTURERS:

A. The following manufacturers are approved subject to compliance with requirements and provide products of one of the following:

1. Framing Materials:

a. United States Gypsum Company

b. National Gypsum Company, Gold Bond Building Products Division

c. Inryco Inc., Milcor Division

2. Gypsum Board and Related Products:

a. United States Gypsum Company

b. American Gypsum Company

c. The Celotex Corporation

d. The Flintkote Company

e. Georgia-Pacific Corporation

f. National Gypsum Company, Gold Bond Building Products Division

2.2 SUPPORT MATERIALS:

A. Ceiling Support Materials and Systems:

1. See Section 06176 - WOOD I-JOISTS

B. Wall Framing Materials and Systems:

1. Wood Studs: SEE Section 06100 - Rough Carpentry for Wood Stud Framing.

2.3 GYPSUM BOARD:

A. Gypsum Wallboard: Conforming to ASTM C 36, of types, edge configuration and thickness indicated; in maximum lengths available to minimize end-to-end butt joints.

1. Type: Type X for fire rated assemblies and where indicated.

2. Edges: Tapered.

3. Thickness: 5⁄8", except where otherwise indicated.

B. Abuse Resistant Gypsum Wallboard: Conforming to a minimum of 264 ft./lbs. impact/penetration resistance per ASTM-D 2394 Modified, of type and edge configuration and thickness indicated, in maximum lengths available to minimize end-to-end butt joints.

1. Type: Type X for fire rated **abuse resistant** assemblies and where indicated.

2. Edges: Tapered.

3. Thickness: 5⁄8", except where otherwise indicated.

2.4 TRIM ACCESSORIES:

A. General: Provide manufacturer's standard trim accessories of types indicted for drywall work, formed of galvanized steel unless otherwise indicated, with either knurled and perforated or expanded flanges for nailing or stapling, and beaded for concealment of flanges in joint compound. Provide corner beads, L-type edge trim-beads, U-type edge trim-beads, special L-kerf-type edge trim-beads, and one-piece control joint beads.

B. Semi-Finishing Type: Manufacturer's standard trim units which are not to be finished with joint compound (non-beaded).

2.5 JOINT TREATMENT MATERIALS:

A. General: ASTM C 475; type recommended by the manufacturer for the application indicted, except as otherwise indicated.

B. Joint Tape: Perforated type approved by the drywall manufacturer.

C. Joint Compound: On interior work provide chemical-hardening-type for bedding and filling, ready-mixed vinyl-type or vinyl-type powder type for topping. At rated wall and ceiling construction use Fire Code Compound by U.S.G. or approved equivalent.

2.6 MISCELLANEOUS:

A. General: Provide auxiliary materials for gypsum drywall work of the type and grade recommended by the manufacturer of the gypsum board.

B. Gypsum Board Screws: Comply with ASTM C 646.

C. Acoustical Sealant: Water base type, non-drying, non-bleeding, non-staining type; permanently elastic, as recommended by gypsum board manufacturer for application indicated.

D. Fire Rated Wall Compound: UL Classified USG Firecode Compound conforming to ASTM E 814, ULC-S115 and ASTM E 1966. Color is to be PINK or RED. **To be used at both side of all corridor walls and ceilings.**

2.7 TEXTURE FINISH MATERIALS:

A. Primer: Of type recommended by manufacturer of texture finish.

B. Spatter Finish: Shall be spray texture finish as manufactured by United States Gypsum Co. or approved equivalent. Finish of spatter texture shall match adjacent surfaces.

PART 3 - EXECUTION

3.1 INSTALLATION OF SUPPORT SYSTEMS:

A. General: Do not bridge building expansion joints (E.J.) with support system, frame both sides of joints with furring and other supports as indicated. Screw furring members to wood framing as indicated.

B. Ceiling Support Systems:

1. See Section 06176: WOOD I-JOISTS and Drawings.

C. Wall Framing System:

1. Top & Bottom Plates: Align accurately according to partition layouts and fasten to structure at 24" o.c. Brace top plates to structure above as indicated on the Drawings.

2. Acoustical Sealant: After anchoring runners of partitions shown to have sound insulation, apply two beads of ⅜" diameter acoustical sealant to contact surfaces of runner tracks and end studs to seal with adjoining structure and gypsum board. Follow manufacturer's recommendations for installation of sealant.

3. Wood Studs: Place in accordance with schedule below, unless otherwise noted on drawings, into floor and ceiling runners. Secure studs to stud plates with 16d nails at door and window frames, partition intersections and corners and secure remaining studs with positive attachment. Where required for additional height at non-load bearing walls, splice studs by splicing a minimum lap of 18" and attach together with 24" scab fully nailed w/16d nails.

a. Interior Stud Spacing and Gauge:

1. 16" o.c. for heights up to 14'-0".

2. 16" o.c. for all walls scheduled to receive ceramic tile.

b. Exterior Stud Spacing:

1. 16" o.c. at all wall framing

4. Doors and Borrowed-Light Frames:

a. Studs adjacent to door and borrowed-light frames shall be securely screwed or bolted to jamb and head anchors clips of frames.

b. At the frame jambs use standard studs doubled with trimmer and cripple studs at each side of opening.

c. At the frame head use header or lintel as scheduled resting on each trimmer stud at each side of opening. In-fill above header or lintel with cripples up to top plate with cripples spaced at 16" o.c.

3.2 GENERAL GYPSUM BOARD INSTALLATION REQUIREMENTS:

A. Pre-Installation Conference: Meet at the project site with the installers of related work and review the coordination and sequencing of work to ensure that everything to be concealed by gypsum drywall has been accomplished, and that chases, access panels, openings, supplementary framing and blocking, and similar provisions have been completed.

B. Preparation: Maintain minimum of 55° F. temperature in building one week prior to installation and until insulation and joint treatment is complete. Provide adequate ventilation to remove excess moisture during joint treatment.

C. Sound Attenuation Blankets: Install sound attenuation blankets as indicated, prior to gypsum board installation on both sides of stud wall framing.

D. End-Butt Joints: Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 1'-0" in alternate courses of board.

E. Ceiling/ Soffit Boards: Install ceiling boards in the direction and manner which will minimize the number of end-but joints, and which will avoid end joints in the central area of each ceiling. Stagger end joints at least 1'-0" in alternate courses of board.

F. Wall/Partition Boards: Install wall/partition boards vertically to avoid end-butt joints wherever possible. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs.

G. Exposed Gypsum Board: 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" open space between boards. DO NOT force into place.

H. Locate either edge or end joints over supports, except in horizontal applications or where intermediate supports over gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut i.e. 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 joints over different studs on opposite sides of partitions.

I. Attach gypsum board to framing and blocking as required for additional support at opening and cutouts.

J. Form control joints (C.J.) and expansion joints (E.J.) with space between edges of boards, prepared to receive trim accessories.

K. Sound Sealant: Where sound insulated drywall work is indicated, including double-layer work and work on resilient furring, seal the work at perimeters, control and expansion joints, openings and penetrations with continuous bead of acoustical sealant including a bead at both faces of partitions. Comply with manufacturer's recommendations for location of beads, and close off sound-flanking paths around and through the work, including sealing of partitions above acoustical ceilings.

L. Space fasteners in gypsum boards in accordance with referenced standards and manufacturer's recommendations, except as otherwise indicated.

M Penetrations through Fire-Rated Construction: Where not exposed to view, install Fire Code Compound around all through penetrations of conduit, pipe, or ductwork in accordance with manufacturers requirements to achieve a UL System Design with at least an “F” rating for the type of rated wall or ceiling construction which is to be penetrated. Use FireStop sealants around ALL penetrations which are in view.

N. Frame Head: At the frame head use header or lintel as scheduled, resting on each trimmer stud at each side of opening. In-fill above header or lintel with cripples up to top plate with cripples spaced at 16" o.c.

O. Frame Jambs: At frame jambs use standard studs doubled with trimmer and cripple studs at each side of opening.

3.3 METHOD OF GYPSUM DRYWALL APPLICATION:

A. Single-Layer Application: Install gypsum wallboard:

1. On ceilings apply gypsum board prior to wall/partition board application to the greatest extent possible.
2. On partitions/walls apply gypsum board vertically (parallel), unless otherwise indicated, and provide sheet lengths which will minimize end joints.
3. On partitions/walls 8'-1" or less in height apply gypsum board horizontally (perpendicular); use maximum length sheets possible to minimize end joints.

B. Wall Tile Base: Where drywall is base for thin-set ceramic tile and similar rigid applied wall finishes, install gypsum backing board.

1. At showers, tubs, and similar "wet" areas, install water-resistant backing board. Apply with un-cut long edge at bottom of work, and space ¼" above fixture lips. Seal ends, cut-edges, and penetrations of each piece with water-resistant compound before installation.

C. Single Layer Fastening Methods: Apply gypsum drywall board to supports as follows:

1. Fasten with screws at maximum 12 inch o.c. spacing along each support framing member. Board which abuts at framing support member shall be secured at 8 inch o.c. along edge of each board.

D. Direct Bonding to Substrate: Where gypsum board is indicated to be directly adhered to a substrate (other than studs, joists, furring members or base layer of gypsum board), comply with gypsum board manufacturer's recommendations, and temporarily brace or fasten gypsum board until fastening adhesive has set.

3.4 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 by screwing or stapling in accordance with manufacturer's instructions and recommendations.

B. Install metal corner beads at external corners of drywall work.

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 except where semi-finishing type is indicated. Install L-type trim where work is tightly abutted to other work, and install special kerf-type where other work is kerfed to receive long leg of L-type trim. Install U-type trim where edge is exposed, revealed, gasketed, or sealant filled (including expansion joints).

D. Install metal control joint (beaded type) where indicated (C.J.). Unless otherwise shown, install above door frame jambs, at changes in back-up material, in partitions at 30'-0" o.c., in ceilings at 50'-0" o.c. in both directions, in wings where "L", "U", and "T"-shaped ceiling areas are joined, at locations where expansion or control joints occur in the base wall and elsewhere as recommended by the drywall manufacturer.

3.5 FINISHING OF DRYWALL:

A. General: Apply treatment at gypsum board joints (both directions), flanges of trim accessories, penetrations, fastener heads, surface defects, and elsewhere as required to prepare work for decoration. Pre-fill open joints as required.

B. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.

C. Apply joint compound in 3 coats (no including pre-fill of openings in base), and sand between last two coats and after last coat.

D. In areas not to be tiled, treat fastener heads and embed tape as indicated above using organic adhesive, tape joints and apply 4" coat of joint compound.

E. Partial Finishing: Omit third coat (if specified) and sanding on concealed drywall work which is indicated for drywall finishing or which requires finishing to achieve fire-resistance rating, sound rating or to act as air or smoke barrier. Refer to Sections of painting, coating, and wall coverings in Division 9 for decorative finishes to be applied to drywall work.

3.6 APPLICATION OF TEXTURE FINISH:

A. Surface Preparation and Primer: Prepare and prime drywall and other surfaces in strict accordance with texture finish of manufacturer's instructions. Apply primer to all surfaces to achieve texture finish.

B. Finish Application: Mix and apply finish to drywall and other surfaces indicated to receive finish in strict accordance with manufacturer's instructions to produce a uniform texture without starved spots or other evidence of thin application, and free of application patterns. Remove any texture droppings or overspray from door frames, windows, and other adjoining work.

3.7 PROTECTION OF WORK:

A. Installer shall advise Contractor of required procedures for protecting gypsum drywall work from damage and deterioration during remainder of construction period.

3.8 FINAL CLEANING:

A. At completion of installation, remove rubbish from building, leaving floors broom clean. Remove excess material, scaffolding, tools, and other equipment from building and job-site.

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PART 1 - GENERAL

1.1 GENERAL:

A. Work of this Section shall conform to applicable requirements of the General Conditions, Modifications to the General Conditions and to Divisions 1 through 16 of these Specifications.

B. See Drawings and Schedules for locations, types, and extent of resilient floor covering for this project.

C. Extra Stock: See Section 01700 - Contract Closeout 1.6 for extra material to be left for Owner's maintenance. These materials shall not be used by the Contractor during the one-year guarantee period to make any required repairs as part of the warranty.

D. Quality Assurance: Sub-floor tolerances shall be plus or minus within specified distance and are not cumulative.

1. New or existing slabs at resilient floors: True to plane within 1/8" in 10'-0".

1.2 SUBMITTALS:

A. Product Data: For each type of product specified.

B. 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.

C. Metal edge strip section, 12" minimum length in finish and profile 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 be included in the maintenance manuals specified in Division 1.

1.3 QUALITY ASSURANCE:

A. 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.

B. 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.

1.4 DELIVERY, STORAGE, AND HANDLING:

A. Deliver products to project site in manufacturer’s original, unopened packing.

B. Store products in dry spaces protected from the weather, with ambient temperatures maintained between 50° and 90° F.

1.5 INSTALLATION CONDITIONS:

A. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by manufacturer.

PART 2 - MATERIALS

2.1 FLOOR COVERINGS:

A. Vinyl Composition: Azrock standard patterns or approved equivalent. Tile shall comply with FS-SS-T-312B, type IV, 12" x 12" size. Flame spread shall be certified to be 75 or less, per ASTM E-84. Colors as selected by Architect. Allowance shall be made by Contractor for 2 different color selections.

B. Vinyl Cove Base: 0.80" gauge 4" and 6" high by Rope or approved equivalent. Colors to match existing. Provide base in long rolls (90'-0" -120'-0") to eliminate as many seams as possible. Vinyl Base shall comply with FS-SS-W-40A. Allowance shall be made by Contractor for 2 different color selections.

C. Sheet Vinyl: .090 minimum gauge, Armstrong Vinyl Corlon with Hydrocord back, Sandoval, or approved equivalent manufacturer, in 6'-0" widths.

D. Edge Strips/Reducers: Not less than 1" wide with design suited to condition by Johnsonite.

E. Leveling Materials: Floor leveling compound to be composed of a latex-base liquid emulsion with Portland Cement and sand by Camps or Sonocrete by Sonneborn.

F. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 INSPECTION AND PREPARATION:

A. Prior to installation of resilient flooring materials, remove dirt, oil, grease, paint, and other foreign matter from surfaces.

B. Inspect surfaces for holes, cracks, and other abrasions, and fill with latex leveling compound.

C. Inspect surfaces for deviations beyond allowable tolerances. Fill depressions with latex leveling compound.

D. Trowel and feather-edge leveling compound to a smooth and level surface.

E. Leave sub-surfaces clean, true to plane within allowable tolerances, and ready to receive finish materials.

F. Maintain 70° F minimum temperature 24 hours before and after laying materials. Stack materials in prepared areas at 70° F 24 hours prior to laying floor.

G. Subsurface shall be properly prepared, inspected and approved, ready for floor covering application before such application is started. Do not proceed with the work until unsatisfactory conditions have been corrected.

H. Apply concrete slab primer, if recommended by flooring manufacturer, prior to applying adhesive. Apply according to manufacturer's recommendation.

3.2 REDUCERS INSTALLATION:

A. Install vinyl reducers sized to different thicknesses of floor covering at all transitions between dissimilar floor covering materials. Use adhesives recommended by the manufacturer. Set reducers after all quarry and/or ceramic tile is laid and before installation of carpet.

3.3 BASE INSTALLATION:

A. 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. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

1. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned. Apply resilient base in lengths as long as possible. ***All outside corners*** shall be factory pre-formed units. Mitered and field formed outside corners **are not acceptable**. Terminal ends shall be provided with matching end stops. Base shall be installed after flooring materials have been installed.
2. Do not stretch base during installation.
3. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler materials.
4. Install pre-molded outside corners before installing straight pieces.
5. Install pre-molded inside corners before installing straight pieces or form inside corners on job, from straight pieces of maximum lengths possible, by cutting an inverted 'V-shaped' notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce in a snug fit to substrate.

B. Place resilient products 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.

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PART 1 - GENERAL

1.1 GENERAL:

A. It is the responsibility of the painting subcontractor to inspect all surfaces to be painted or finished. The commencing of work or the absence of the notification in writing, shall be construed as acceptance of the surfaces by the painting subcontractor. It shall be the responsibility of the painting subcontractor then to correct any defects appearing in the painting work thereafter. All surfaces shall be dry, and free from ANY foreign matter before applying paint.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

Miscellaneous Metals. . . . . Section 05700

Hollow Metal Doors and Frames. . . . . Section 08100

Joint Sealers . . . . . Section 07900

Gypsum Drywall. . . . . Section 09250

Division 15

Division 16

1.3 FACTORY SHOP COAT:

A. Shop coats are required on some, but not all of the items described in other sections of these Specifications. Carefully study the drawings and the specifications and determine the painting requirements as listed. Paint or finish all exposed surfaces of items required to be finished or painted, and left unfinished in the work of other trades.

1.4 CAULKING:

A. Where caulking is required beyond the caulking performed by other trades, perform all such caulking in strict accordance with the provisions of Section 07900 - Joint Sealers.

1.5. PROTECTION:

A. Take all means necessary to insure the safe storage and use of paint materials and the prompt and safe and proper disposal of waste.

B. Take all means necessary to protect paint materials before, during, and after installation, and to protect the installed work of other trades. In the event of damage, immediately make all repairs and replacements necessary to the approval of, and at no additional cost to the Owner.

C. Mask and protect all surfaces not scheduled or noted to receive new paint finishes.

1.6 ENVIRONMENTAL CONDITIONS:

A. Take special care to comply with the manufacturer's recommendations as to environmental conditions under which the coatings and coating systems may be applied. Do not apply paint in areas where dust is being generated.

B. No work shall be done under conditions which are unsuitable for production of good results. Do not apply paint or varnish when temperature is below 50° F. No exterior paint shall be applied in damp rainy weather, nor shall paint be applied on surfaces so hot (including direct sun) as to prevent proper drying. Interior areas shall be maintained at a temperature of not less than 70° F, while surfaces are being painted. Either protect or remove all hardware, accessories, fixtures, and similar items. Upon completion of painting, reinstall all items removed.

1.7 PAINTING NOT INCLUDED:

A. The following categories of work are not included as part of the painter applied finish work, or are included in other sections of these Specifications, unless otherwise shown or specified.

1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various sections for structural steel, miscellaneous metal, hollow metal work, and cellular items. Also, for fabricated components such as architectural woodwork, wood casework, and shop fabricated or factory built mechanical and electrical equipment or accessories. Some items do require two additional coats of paint.

2. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory finishing or installer is specified for such items as, but not limited to, metal toilet enclosures, acoustic materials, pre-finished architectural woodwork and pre-finished casework, finished electrical and mechanical equipment including light fixtures, switchgear and distribution cabinets, elevator entrance frames, doors, and equipment.

3. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts.

4. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials, will not require finish painting, except as otherwise indicated.

5. Operating Parts and Labels: Do not paint any moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, signage, linkages, sensing devices, motor and fan shafts, unless otherwise indicted. Do not paint over any code required label, such as Underwriter's Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.

1.8 SUBMITTALS:

A. See Section 01300 - Submittals and submit paint and stain schedule as scheduled herein. Indicate the percent volume of vehicle/pigment for each type of paint and stain. Furnish color samples of all types of paint and stain scheduled.

1.9 EXTRA MATERIALS:

A. See Section 01700 - Contract Closeout 2.5, for extra materials furnished for Owner's Maintenance.

PART 2 - MATERIALS

2.1 PAINT STANDARDS:

A. The paint must meet or exceed the following standards as determined by all of these test methods:

Opacity (TT-P-141 #4121), Reflectance (TT-P-141 #6121), Scrubability (ASTM D2486-79).

B. Products by the following manufacturing companies are acceptable when the specific products are certified by the paint manufacturer.

Wellborn Paint Manufacturing Company

Sherwin-Williams Paint Company

Hanley Paint Company

Benjamin Moore Paint Company

C. Any exception or variation must be requested by the Contractor in writing, to the Architect, stating the reason for requesting the change prior to bidding the project.

D. All primers and under-coats must be from the same manufacturer as the finish coat, unless otherwise stated in Schedule of Finishes.

2.2 OTHER REQUIREMENTS:

A. Any paint shall be delivered to the site in manufacturer's unbroken, sealed containers, bearing its original label.

B. Test existing wall finishes to assure that new coatings are compatible with existing finishes.

C. All materials shall be applied in strict accordance with manufacturer's directions, as printed on the container, and any thinning required shall be done in the manner prescribed and exclusively with the type of reducer recommended by the manufacturer.

D. Colors for all finish coats of paint shall be selected or approved by the Architect with duplicates supplied to the Contractor. Colors are not to imply grade, type, or quality of products. Colors selected will be from manufacturer's standard color line. Use only factory-mixed colors, except for minor tinting as may be required on the job.

E. The Architect reserves the right to take a representative sample of any material the painting contractor brings on the job and have it tested by an approved laboratory to verify that the materials conform to the specifications. Costs of tests, if required, shall be paid by the Contractor.

PART 3 - EXECUTION

3.1 GENERAL:

A. It is intended that this Specification shall cover all painting throughout the building on wood, metal, masonry, and all other surfaces as required to make a thoroughly complete job in every respect, where the item is herein specifically mentioned or not. Where items are not mentioned, they shall be finished the same as specified for similar work.

B. Enamel and varnishes shall be sanded lightly between coats with #00 sandpaper and dusted before succeeding coat is applied.

C. Prime all surfaces as quickly after installation as possible. Use primer thinned down according to manufacturer's directions. After priming, putty all nail holes and cracks. Make sure all surfaces are clean, smooth, dry, and free from dust and grit before priming; shellac all pitch knots and streaks.

D. Rake and seal all control joints and/or other cracks in plaster or stucco work; clean and paint exposed metal surfaces.

E. All paints must be smooth and have even spread without runs, streaks, sags, brush marks, unfilled patches, or other blemishes. Apply coats of paint in strict accordance with manufacturer's current published Specifications.

F. Allow paints to dry in accordance with manufacturer's recommendations and specifications.

G. Lighting: Provide not less than twenty foot candle illumination in all areas to be painted or coated.

H. Signs: Provide "WET PAINT" signs as required to protect newly painted surfaces.

3.2 SPECIAL SURFACE PREPARATION:

A. Ferrous Metal Surfaces: All rust and mill scale shall be removed by power-tool cleaning as specified by the Steel Structures Painting Council. All weld flux shall be power-tool cleaned as specified by the Steel Structures Painting Council and washed thoroughly with water to remove all weld flux splatters and alkali contaminants.

B. Galvanized Metal Surfaces: Wash thoroughly with mineral spirits and etch with a solution of chemical phosphoric metal etch and allow to dry.

C. Wood Surfaces: Sand smooth and apply primer as specified. Holes, splits, and scratches shall be puttied or spackled smooth before applying the prime coat.

E. Drywall Surfaces: Shall be cleaned of hand prints, body oil, etc. Sand down rough areas and fill-in all holes with spackling before painting.

3.3 PAINTING SCHEDULE:

A. Refer to Finish Schedule on Drawings to locate specific surfaces to receive finishes specified herein. Apply paint in strict accordance with manufacturer's recommendations and as specified. Manufacturers are listed in alphabetical order, listing order does not indicate preference. Use only one manufacturer throughout Project. Do not intermix manufacturers.

B. **INTERIOR PAINTING:**

1. GYPSUM BOARD: SEMI-GLOSS

a. **1ST COAT:** Vinyl Acrylic Latex Primer, 1.4 mils. DFT:

•Benjamin Moore Moorcraft Super-Hide Latex Primer - Undercoater 284

•Hanley Ambassador Q.D. Vinyl Wall Primer, 31-001

•Sherwin Williams PrepRite 200 Latex Primer Sealer, B28

•Wellborn D.E. Pro-Primer Latex Primer- Sealer

b. **2ND & 3RD COATS:** Gloss Latex Enamel 50% - 60% on a 60° gloss meter, 1.3 mils. DFT:

•Benjamin Moore Moorcraft Latex Semi-Gloss Enamel 276

•Hanley Old Pro Latex Semi-Gloss Enamel, 15P Series

•Sherwin Williams ProMar 200 Semi-Gloss Latex Enamel, B31

•Wellborn D.E. PAR Gloss Semi-Gloss Latex Enamel

2. FERROUS METALS: HOLLOW METAL DOORS, METAL DOOR FRAMES, BORROWED LIGHT FRAMES, EXPOSED STRUCTURE, NON-GALVANIZED PIPING AND CONDUITS.

a. **1ST COAT:** Red Oxide Primer (unless shop primed), 1.6 mils. DFT:

•Benjamin Moore Alkyd Metal Primer M06.

•Hanley Sunfoe Rust Hib Iron Oxide Shop Primer, 33-204.

•Sherwin Williams KemKromik Universal Metal Primer, B50Z Series.

•Wellborn D.E. A-640 Rust Inhibitive Red Oxide Primer.

b. **2ND & 3RD COATS:** Alkyd semi-gloss enamel, 50%-60% on a 60° gloss meter, 2.0 mils. DFT:

•Benjamin Moore Moorcraft Alkyd Semi-Gloss Enamel 271.

•Hanley Ambassador Semi-Gloss Enamel, 85 Series.

•Sherwin Williams Pro Classic B31 W20.

•Wellborn D.E. #90 Semi-Gloss Alkyd Enamel, 2241 00.

3. PLUMBING, HEATING, VENTILATING & ELECTRICAL ITEMS: EXPOSED UNPAINTED, PRIME COAT PAINTED, AND INSULATED ITEMS, HANGERS, STRAPS, CONDUITS/JUNCTION BOXES, DUCTS, ETC., OF PLUMBING, HEATING, AIR CONDITIONING, AND VENTILATING AND ELECTRICAL WORK SHALL BE PAINTED IN FINISHED SPACES WHERE EXPOSED.

a. INSULATED OR WRAPPED WORK:

1. **1ST COAT:** Aluminum size to shrink canvas:

2. **2ND & 3RD COATS:** Semi-Gloss Latex Enamel 50% - 60% on a 60° gloss meter, 1.3 mils. DFT:

•Benjamin Moore Moorcraft Latex Semi-Gloss Enamel 276.

•Hanley Old Pro Latex Semi-Gloss Enamel, 15P Series.

•Sherwin Williams ProMar 200 Semi-Gloss Latex Enamel, B31.

•Wellborn D.E. PAR Gloss Semi-Gloss Latex Enamel.

b. NON-INSULATED WORK:

1. **1ST & 2ND COATS:** Semi-Gloss Latex Enamel 50% - 60% on a 60° gloss meter, 1.3 mils. DFT:
   - •Benjamin Moore Moorcraft Latex Semi-Gloss Enamel 276.
   - •Hanley Old Pro Latex Semi-Gloss Enamel, 15P Series.
   - •Sherwin Williams ProMar 200 Semi-Gloss Latex Enamel, B31.
   - •Wellborn D.E. PAR Gloss Semi-Gloss Latex Enamel.

4. WOOD, TRANSPARENT FINISH:

a. **1ST COAT:**
   - •Benjamin Moore Benwood Penetrating Stain 234.
   - •Hanley Ambassador Color Guild Stain Base, 04-CB.
   - •McCloskey Tungseal Wood Stain.
   - •Sherwin Williams Wood Classis Int. Stain A48-200.

b. **2ND & 3RD COATS:** Gloss Varnish 1.0 mils. DFT:
   - •Benjamin Moore Benwood Urethane Gloss 428.
   - •Hanley Ambassador Gloss Trim Varnish, 45-000.
   - •Sherwin Williams Wood Classics Poly Varnish, A67 Series.
   - •Wellborn D.E. Flex-O-Thane.

5. EXISTING WALL SURFACES: SEMI-GLOSS

a. **1ST COAT:** Vinyl Acrylic Latex Primer, 1.4 mils. DFT:
   - •Benjamin Moore Moorcraft Super-Hide Latex Primer - Undercoater 284
   - •Hanley Ambassador Q.D. Vinyl Wall Primer, 31-001
   - •Sherwin Williams PrepRite 200 Latex Primer Sealer, B28
   - •Wellborn D.E. Pro-Primer Latex Primer- Sealer

b. **2ND & 3RD COATS:** Gloss Latex Enamel 50% - 60% on a 60° gloss meter, 1.3 mils. DFT:
   - •Benjamin Moore Moorcraft Latex Semi-Gloss Enamel 276
   - •Hanley Old Pro Latex Semi-Gloss Enamel, 15P Series
   - •Sherwin Williams ProMar 200 Semi-Gloss Latex Enamel, B31
   - •Wellborn D.E. PAR Gloss Semi-Gloss Latex Enamel

3.4 FIELD QUALITY CONTROL:

A. Corrective Measures as required by the Architect at no cost to the Owner.

1. Clean Up: During progress of work, remove from site discarded paint materials, rubbish, cans, and rags at end of each work day.
2. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and refinish work. Correct any damage by cleaning, repairing or replacing, and repainting as acceptable to the Architect.

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PART 1 - GENERAL

1.1 GENERAL:

A. The extent of the work is shown on the drawings and herein specified.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Joint Sealers. . . . . Section 07900

B. Gypsum Drywall. . . . . Section 09250

C. Ceramic Tile. . . . . Section 09300

1.3 QUALITY ASSURANCE:

A. Single-Source Responsibility: Provide each type of FRP panel as produced by a single manufacturer, including recommended molding, sealants, and adhesive. Panels shall be installed by qualified tradesmen in accordance with manufacturer's current installation guidelines.

1.4 SUBMITTALS:

A. Product Data: Submit manufacturer's technical data and installation instructions for each type of sanitary wall panel and installation materials to be installed. Submittals shall be in accordance with Section 01300.

B. Maintenance Instructions: Submit manufacturer's printed instructions for maintenance of installed work, including precautions for use of cleaning materials which could damage wall panels.

C. Samples: Manufacturer's standard colors and textures.

1.5 PRODUCT DELIVERY AND STORAGE:

A. Comply with instructions and recommendations of manufacturer.

1.6 JOB CONDITIONS:

A. Environmental Requirements: Comply with manufacturer's written recommendations regarding environmental conditions under which panels can be installed.

PART 2 - MATERIALS

2.1 MISCELLANEOUS:

A. Fiberglass Reinforced Panels: Shall be Marlite Brand, FRP Pebble Surface Panels as manufactured by Marlite, Dover, Ohio, or approved equivalent. FRP Pebble Surface Panels shall be installed where scheduled on the Drawings.

B. Panel Size: Shall be 1/16" thick in sheet size of 4'-0" x 8'-0". Color of panels shall be selected by Architect from manufacturer's standard color palette.

2.2 ACCESSORIES:

A. Adhesive: Manufacturer's standard or recommended high strength waterbase adhesive for substrate involved. Adhesive shall be equivalent to Marlite C-375 Neoprene Based, C-551 Latex Based and/or C-792 Latex Based.

B. Sealants: Manufacturer's standard or recommended sealant. Sealant shall be equivalent to Marlite MS 250 clear silicone and/or Marlite MS 251 white silicone.

C. Trim: Where scheduled and/or noted, install Marlite M350FP Inside Corner, M360FP Outside Corner, M365FP Division and M370FP Edge Trim Pieces as needed for a complete installation.

D. Joints and Edges: All joints and edges shall be trimmed out or capped with appropriate trim in accordance with manufacturer's instructions. All trim shall be sealed with MS250 Clear Silicone.

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Examine surfaces to receive FRP panels and condition under which panels will be installed. Do not proceed with work until surfaces and conditions comply with requirements indicated in manufacturer's installation instructions.

3.2 INSTALLATION:

A. Work shall be performed in strict accordance with manufacturer's written instructions by workmen experienced in this trade and performed in a workmanlike manner.

B. Troweling of adhesive onto wall substrate and panels shall be done using **ONLY** a 1/4" V-notched trowel with notches 3/4" apart. **Any changes in using a different trowel has to be submitted in writing from the adhesive manufacturer.** Apply adhesive using the cohesive technique **ONLY**. **Any other method has to be submitted in writing from the manufacturer.** After fanning panels into position roll **ALL** surfaces with a roller to facilitate good bond to substrate.

3.3 SAMPLE WORK:

A. Contractor shall install panels on one wall for each panel type, and shall present sample work for Architect's approval. When such sample has been approved, the work shall be retained and shall govern remaining work for this project.

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10010 - GENERAL

PART 1 - GENERAL

1.1 GENERAL

A. Each item, including all labor equipment and incidentals, shall be provided in accordance therein. Where specific items are called for by name, make, or catalog number, such reference shall be interpreted as establishing a standard quality and not construed as limiting competition, and the Contractor may, at his option, use any article, device, product, material, fixture, form, or type of construction which in the judgement of the Architect, submitted in writing, is equivalent to that specified.

1.2 SCOPE:

A. The work required under this Division consists of all furnishing and installing of fire extinguishers, room signs, toilet accessories, marker/tack boards and related work indicated on the Drawings and described in these Specifications.

1.3 SUBMITTALS:

A. Shop drawings and/or samples are required in accordance with Paragraph 1.1, Section 01300 of Division 1.

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PART 1 - GENERAL

1.1 GENERAL:

A. Refer to the Drawings for locations, types, sizes, and other information relating to toilet compartments and toilet accessories.

B. Prepare and submit shop drawings for Architect's approval including manufacturer's pictorial and descriptive literature.

C. SEE Section 01020 - Alternates for various areas of work related to this Section.

PART 2 - MATERIALS

2.1 TOILET ACCESSORIES: As scheduled below and manufactured by Bobrick unless noted otherwise. Bradley, ASI, or other approved equivalent manufacturers are acceptable.

A. Napkin Disposer: B-270, furnish one for each water closet at Uni-sex Restroom 103. Mount on wall next to tissue dispenser with bottom 18" above finish floor.

B. Benches: All wall mounted benches shall be 1-1/2" HDPE slab construction by Scranton Products or approved equivalent with support brackets as shown on drawing details.

PART 3 - EXECUTION

3.1 MISCELLANEOUS:

A. Verify location, mountings, finished, colors, etc with Architect before proceeding.

B. Install all toilet accessories and related items where shown to prior approved shop drawings, to proper backing, secure, neat, and upright to Architect's approval.

C. Final installation shall be complete, undamaged , in approved location ,first quality, compartments and accessories of types specified, best quality workmanship, and approved installation.

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PART 1 - GENERAL

1.1 GENERAL:

A. Refer to the Drawings for locations, types, sizes, and other information relating to corner guards.

B. Prepare and submit shop drawings for Architect's approval, including manufacturer's pictorial and descriptive literature.

PART 2 - MATERIALS

2.1 CORNER GUARDS:

A. Shall be surface mounted Pro-Tek Model CG-10 (90°) corner guards manufactured by Pawling or approved equivalent.

B. Corner guards shall extend from top of base to 1'-0" from ceiling.

C. End Caps are required.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Install in strict accordance with manufacturer's specifications on approved backing.

B. Corner guards shall be installed per manufacturer's instructions, using appropriate fasteners and/or adhesives as recommended by manufacturer.

C. Sample Work: Contractor shall install corner guards and/or wall covering on one wall on in one entire room, and present such sample work for be retained and shall govern such work for this project.

D. Color shall be selected by Architect.

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

C. This Sections includes the following.

1. Dimensional characters, letters, and numbers for exterior use.
2. Signage accessories.

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of sign.

B. Shop Drawings: Include plans, elevations, and large-scale sections of typical members and other components. Show mounting methods, grounds, mounting heights, layout, spacing, reinforcement, accessories, and installation details.

C. Samples for Initial Selection: For each type of sign material indicated that involves color selection.

D. Samples for Verification: For each type of letter & number include the following Samples to verify color selected.

1. **Dimensional Characters:** Two full-size samples of type of dimensional character (letter and number) required. Show character style, material, finish, and method of attachment.
2. **Casting:** Show representative texture, character style, spacing, finish, and method of attachment.
3. Approved samples WILL NOT be returned for installation into Project.

E. Maintenance Data: For signage cleaning and maintenance requirements to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Installer Qualifications An authorized representative of signage manufacturer for installation and maintenance of units required for this Project.

B. Source Limitations Obtain each sign type through one source from a single manufacturer.

C. Regulatory Requirements Comply with Americans with Disabilities Act (ADA) and with code provisions as adopted by authorities have jurisdiction.

1. **Interior Code Signage:** Provide signage as required by accessability regulations and requirements or authorities having jurisdiction. These include, but are not limited to the following:
   a. Signs for Accessible Spaces

1.5 PROJECT CONDITIONS

A. Field Measurements Where sizes of signs are determined by dimensions of surfaces on which they are installed, verify dimensions by field measurement before fabrication and indicate measurements on Shop Drawings.

1.6 COORDINATION

A. For signs supported by or anchored to permanent construction, advise installers of anchorage devices about specific requirements for placement of anchorage devices and similar items to be used for attaching signs.

1. For signs supported by or anchored to permanent construction, furnish templates for installation of anchorage devices.

PART 2 - MATERIALS

2.1 ROOM SIGNAGE:

A. Room signs shall be based on HC300 System as manufactured by Best Manufacturing, using "graphic blast" engraved graphics on ES Plastic with contrasting core color. Color shall be selected by the owner from the manufacturer's standard colors. Signs shall have letter & number style as selected by Architect. Architect will provide signage schedule.

ROOM SIGNAGE SCHEDULE:

HC 300A	
QUANTITY	**TEXT**
2	UNI-SEX
HC 300E	
1	DATA
1	STORAGE
5	OFFICES
2	LOUNGE

2.2 RAISED COPY:

A. Machine-cut copy characters (includes room numbers and/or room names) from matte-finished opaque acrylic sheet and chemically weld onto the acrylic sheet forming sign panel face. Product precisely formed characters with square cut edges free from burrs and cut marks.

1. Panel Material: Matte-finished opaque acrylic sheet.
2. Raised Copy Thickness: Not less than 1/32", 3/4" in height, all capital letters, sans serif Helvetica Medium, width-to-height character ratio between 3:5 to 1:1 and a stroke width-to-height ratio of 1:5 and 1:10.
3. Spacing between vertical elements of raised characters and braille shall be 3/16" minimum.

2.3 FINISH AND CONTRAST:

A. Non-glare finish. Provide light characters on dark background or dark characters on light background. Color selection shall be approved by the Architect.

PART 3 - EXECUTION

3.1 MISCELLANEOUS:

A. Verify location of all signage with Architect before mounting. Mount bottom of all signs at 60" above finish floor. Signs shall be mounted to the strike side of all door frames.

B. Mount in accordance with manufacturer's recommendations and material to which attachment will be made.

3.2 INSTALLATION:

A. General: Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.

1. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.

B. Wall Mounted Panel Signs: Attach panel signs to wall surfaces using the methods indicated below:

1. **Vinyl-Tape Mounting:** Use double-sided foam tape to mount sign to smooth, nonporous surfaces. **DO NOT** use this method for vinyl-covered or rough surfaces.

3.3 CLEANING AND PROTECTION:

A. After installation, clean soiled sign surfaces according to the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

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PART 1 - GENERAL

1.1 GENERAL:

A. Lockers shall be as manufactured by companies named below or approved equivalent manufacturers. These specifications are for ALL Bolted type lockers and shall be regarded as minimum standards for construction, material gauges, and finish.

B. Provide shop drawings for Architect's approval prior to fabrication of lockers.

C. Quality Assurance:

A. Acceptable Locker Manufacturers BOLTED- STANDARD:

a. Medart, Inc.

b. Republic Storage Products, LLC

c. Penco Products, Inc.

D. Delivery and Storage: Deliver lockers in factory containers in a manner to prevent damage. Store in a dry, protected area off the ground.

E. Coordination: Coordinate with other trades for proper spaces and sizes to prevent cutting and patching.

PART 2 - MATERIALS

2.1 LOCKER TYPES:

A. Single Tier Lockers:

1. To be 24" square x 72" tall (7 units in each locker room). 4" base to be integral with locker for total height of 76".

2. Standard loxkers construction. Povide lockers with sloped tops.

3. Provide all filler panels, anchors, etc to make a complete and satisfactory job. Panels shall match locker body finishes.

4. Provide number plates 1 through 7.

2.2 COLOR:

A. Shall be selected by Owner and Architect from Standard Palette.

2.3 BASIC LOCKER MATERIALS:

A. Doors & Frames: Cold-rolled and leveled sheet steel.

B. Perforated Steel: Formed ¾" diamond perforated 14 ga. Cold rolled carbon steel - 37% ventilation at Ventilated Lockers.

C. Other Parts : Cold rolled sheet steel.

2.4 STANDARD LOCKER CONSTRUCTION:

A. General: Individual unit construction, each locker having individual doors, frame, and top and bottom with interchangeable parts.

B. Doors: 16 gauge steel with flanged bottom and top edges and vertical side edges formed to channel shape. Provide three hinges per single tier door and 2" hinges per double tier door. Provide standard door louver arrangements.

C. Locking Device: Quiet, positive automatic spring-actuated galvanized steel locking channel enclosed by a box formation on door, engaging with door strike jamb. Device shall be pre-locking, permitting self-latching without manipulation of door handle. Provide rubber silencers on door frame.

D. Frame: Formed channel shape sheet steel, 16 gauge. Uprights and cross members electrically projection welded.

E. Body: Fabricate backs, sides, shelves, and tops and bottoms from 24 gauge sheet metal.

F. Hinges: 14 gauge steel, five knuckle type, projection welded to door frame and fastened to side flange of door.

G. Trim and Filler Panels: Provide 18 gauge steel trim at perimeter of recessed lockers. Provide adjustable front filler angles and panels and adjustable corner filler required to complete installation.

2.5 LOCKER ACCESSORIES:

A. Number Plates: Provide each locker door with satin-finished aluminum number plate with ⅜" etched numerals. Secure with oval slotless head bolts and nuts.

B. Hooks: Provide each single tier and double tier locker compartment with two wall hooks and one double-prong ceiling hook; chrome plated.

C. Shelf: Single tier lockers shall have one 24 gauge shelf with rolled front, approximately 12" below top of locker.

D. Recess Trim: 18 gauge steel formed 3" wide, on recessed lockers.

2.8 FINISH:

A. All steel parts to be electro-galvanized and finished with one heavy polyester powder coat of enamel, baked at 425° for 20 minutes. Color to be selected from Manufacturer's Standard Color Palette.

B. Finish interior body parts of regular and quiet type lockers with manufacturer's standard interior color.

C. Finish exposed surfaces with manufacturer's standard colors as selected by Architect. Allow for up to two colors.

2.9 WARRANTY:

A. 2-Year limited warranty to original purchaser from date of Substantial Completion. Warranty shall cover all defects in materials and workmanship, excluding vandalism and improper installation.

PART 3 - EXECUTION:

3.1 INSTALLATION:

A. Install metal lockers at the locations shown in accordance with approved shop drawings and the manufacturer's instructions for a plumb, level, rigid, and flush installation.

B. Space fastening about 48" o.c. and apply through suitable reinforcing plates where necessary to prevent metal distortion. Conceal all fasteners wherever possible. Use suitable anchors to provide secure anchorage. Where lockers are installed against a wall, install 2" continuous 4" wide strips of 1" thick rigid insulation between back of locker and face of wall.

C. Install trim pieces to provide a flush, hairline joint against adjacent surfaces. Install with concealed bolts.

D. Touch-up any marred finishes or replace as directed by the Architect. Use only materials and finishes as recommended or furnished by the locker manufacturer.

E. Adjust doors and latches to operate easily without bind. Verify satisfactory operation of integral locking devices.

F. Install fill-in units as required.

G. Deliver master keys to Architect by registered mail.

3.2 EXTRA MATERIALS:

A. Provide one pint of touch-up paint for **each** color selected.

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PART 1 - GENERAL

1.1 GENERAL:

A. See Drawings for locations, types, and other information relative to fire fighting devices, and related work.

PART 2 - MATERIALS:

2.1 TYPES:

A. Extinguisher: 2 required, Class ABC dry chemical type, 10 lbs. capacity, cabinet mounted, Larsen 's Model MP10 with 546 bracket or an approved equivalent.

B. Cabinets: 2 required, Larsen's, Cameo Series Model AL C2409-5R clear - no letters - convex Plexiglass door semi-recessed. Finish to be clear anodized.

PART 3 - EXECUTION:

3.1 INSTALLATION:

B. Install where shown on the drawings. Top of cabinet to be set 60" above floor as per manufacturer's instructions.

B. All extinguishers shall be fully charges by Manufacturer and inspected by local fire authority at Contractor’s request.

C. Post directions for operation.

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15000 - HEATING, VENTILATING AND AIR CONDITIONING

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

A. In general, the systems shall consist of through-wall (PTAC) AC units as indicated on the Drawings. Mechanical systems shall consist of automatic controls and other accessories as scheduled.

1.2 SCOPE OF THE WORK:

A. The work included under this Division of the Specifications includes all of the necessary labor materials, tools, equipment, rigging, fees, permits, certificates of inspection, etc. and other items necessary or reasonably required for the complete installation of all heating, ventilating, and air conditioning work indicated on the Drawings and/or herein specified. The entire work shall be delivered complete and in perfect working order.

B. Scope of the Work Includes: The scope of work includes, but is not necessarily limited to the following general listings, in addition to which the Contractor shall furnish and install all items as may be required for a complete operating system(s), including all parts auxiliary to the system(s), whether or not specifically set forth herein and/or indicated on the Drawings.

1. Through-Wall Package Terminal (PTAC) AC Units

1.3 CODES, ORDINANCES, PERMITS & INSPECTIONS:

A. The work shall comply with latest adopted Uniform Mechanical Code and State adopted Edition of this Code, drawings and/or specifications to the contrary notwithstanding.

1. This Contractor shall obtain all necessary permits, local and otherwise, that may be required, paying all fees thereof, and shall give the proper authorities all requisite notices relating to the work under his charge, and shall afford the Architect and all authorized inspectors every facility for inspection. Upon completion of the work, this Contractor shall have the entire work inspected, and will obtain, and turn over to the Owner, a Certificate of Inspection and approval from State Mechanical Inspector.

1.4 COOPERATION & CLEAN-UP:

A. This Contractor shall plan and execute his work in cooperation with all other Contractors and trades on the job, and in such manner that he will not interfere with the work of the others.

1. When his part of the work is finished, the Contractor shall remove from the premises all tools, machinery, debris, etc. and shall leave the premises broom clean and free from all obstructions.

1.5 DRAWINGS:

A. These indicate the extent and general arrangement of the various systems. If any departures from these Drawings are deemed necessary by the Contractor, drawings, and descriptions of the departures and a statement of the reasons shall be submitted to the Architect for approval.

1. The Drawings showing the extent and arrangement of the work of a particular trade must be used together with the Drawings showing the extent and arrangement of the work of other trades, and this Contractor shall lay out his work with due consideration for the other trades, and shall be responsible for investigating any interferences encountered and such interferences shall be called to the attention of the Architect before any equipment is ordered, installed, and/or before any material is fabricated and/or reinstalled. Relocation resulting from interferences shall me made at no additional cost to the Owner.

PART 2 - MATERIALS

2.1 GENERAL:

A. Each item of equipment furnished under this Specification shall be essentially the standard product of the manufacturer. Where two or more units of the same kind or class of equipment are required, these shall be the products of a single manufacturer.

B. All material and equipment shall be of the best quality normally used in good commercial practice and shall be the product of a reputable manufacturer. Each major component shall bear a name plate giving the name and address of the manufacturer and the catalog number or designation.

1. Verify electrical characteristics with electrical subcontractor prior to placing equipment order.

C. All equipment and components shall be as scheduled and described on the Drawings or equal, and shall be complete with all internal piping, wiring, controls for automatic operations, safety devices, etc.

2.2 MISCELLANEOUS:

A. Controls:

1. Thermostats shall be located as shown on the Drawings. All other necessary controls (remote), etc. shall be furnished by this Contractor.

B. Electrical Connection Devices by Electrical Contractor: Furnish for approval a complete wiring diagram, showing all connections to each piece of equipment. This diagram shall be used by the electrical contractor as his installation drawing. At the completion of the installation, a representative of the mechanical contractor and the electrical contractor shall check out the entire system and both shall certify in writing to the Architect that all wiring is correct.

PART 3 - EXECUTION

3.1 WARRANTIES:

A. This Contractor shall guarantee all equipment, materials, and workmanship to be free from defects for a period of one year from the date of the Owner's acceptance of the completed contract (Substantial Completion) and shall promptly replace or repair such equipment, part or material, at no expense to the Owner.

B. TIME FRAMES:

1. Compressor: Manufacturer's standard 5-Year Warranty, **parts only**, from date of Substantial Completion.

C. Extended 5-Year Warranty: If available and after the contract has been awarded, the contractor will, in writing, offer the owner an extended 5-Year Warranty to cover the entire unit for parts & labor at an additional cost to the owner with the additional cost disclosed in the request. A copy of the written request will also be sent to the Architect the same time it is sent to the owner.

3.3 SITE VISIT:

A. The Contractor shall visit the site prior to bidding and satisfy himself as to the condition under which the mechanical systems are to be installed. No subsequent allowance shall be made in his behalf for failure to make such a visit. ● ● ●

PART 1 - GENERAL

1.1 SCOPE OF WORK:

A. Furnish all materials and labor for the complete installation of all plumbing, sewer work, and waste disposal system as indicated on the Drawings and described in these Specifications.

B All fixtures are to be trapped and vented and all work is to be done in accordance with the latest State adopted Uniform Plumbing Code requirements.

C. This Contractor will obtain and pay for all permits, licenses, fees, and any utility provider charges for connection for water and sewer, in connection with his work.

D. All fixtures to be branch vented to minimize number of vents through roof. Conceal vents from street view.

1.2 GUARANTEE:

A. The Contractor shall guarantee all plumbing against defective materials and faulty workmanship for a period of one year from the date of acceptance by the Owner and does agree to keep same in repair for the above period free of charge or expense of any kind, except such damage as is the result of carelessness or negligence on the part of the Owner.

PART 2 - MATERIALS

2.1 WATER PIPING:

A. All materials of every kind shall be the best of their kind and thoroughly tested as required. All water pipe and fittings shall be of Type "L" copper.

B. All valves shall be Jenkins brass valves or equal. All unions to be brass.

2.2 SEWER LINES:

A. All sewer lines inside the building are to be placed in fill, under the slab, and shall be connected to existing sewer system or noted on Drawings, and shall be service weight cast iron soil pipe, thoroughly coated with asphaltum or plastic CS-207-60 or CS 256-63 outside building. The fittings shall be of the same grade. Schedule 40 PVC for building sewer outside building is acceptable.

2.3 WATER LINES AND SERVICE:

A. Connect water service line to the existing water line and carry risers and branches to the different fixtures. No 2 fixtures shall be on any ½" pipe.

B. Insulate all lines with 1" formed fiberglass insulation.

PART 3 - EXECUTION

3.1 GENERAL:

A. The installation shall be in conformity with the best practice and shall contribute to the efficiency of operation, accessibility, sightliness, and minimum maintenance. It shall conform to the codes and standards of the National Engineering Societies applicable, to the manufacturer's recommendations, and shall also conform and accommodate itself to the building structure, equipment, and usage. No part of the installation shall interfere with the operation of any other system or operational part of the building. The Drawings show the general design, arrangement, and extent of the system, and shall not be scaled for rough-in measurements or used as shop drawings.

B. The Contractor shall verify the dimensions and conditions governing this work at the building. No extra compensation shall be claimed or allowed on account of differences between actual dimensions and those indicated on the drawings. He shall examine adjoining work on which his work is dependent, for perfect efficiency, and shall report any work which must be corrected. No waiver of responsibility for defective work shall be claimed or allowed due to failure to report unfavorable conditions affecting his work. Ceiling cavity space must be carefully coordinated with all trades. Installation of mechanical equipment within the ceiling cavity space allocation, in the event of conflict, shall be in the following order:

1. Plumbing Waste Lines
2. Domestic Hot and Cold Water

3.2 PIPING:

A. Alignment: All installed pipe lines shall be straight and shall remain straight against strains. Proper allowance shall be made for expansion and contraction. No bending or springing of piping will be allowed.

B. Clean as Installed: All piping must be cleaned free from scale or loose dirt when installed, and must be kept clean during the completion of the installation. All openings in the piping systems shall be capped or plugged while awaiting further connections.

C. Insulation: Shall be continuous through walls, partitions, floors, and ceilings.

3.3 WATER SUPPLY SYSTEM:

A. Each hot and cold water connection to a fixture or faucet shall be equipped with a full size vertical air cushion, not less than 12" long.

B. Tests: Upon completion of any part of the roughing-in and setting of fixtures, the entire hot and cold water piping system shall be tested at a hydrostatic pressure of not less then 100 lbs. per sq. inch gauge, standproof tight at this pressure for not less then 8 hours.

3.4 SOIL AND WASTE SYSTEM:

A. Grade: Piping 4" and smaller to be installed with a fall of not less than ¼" per foot. 6" pipe and larger shall be installed with a fall of not less than ⅛" per foot.

3.5 PLUMBING FIXTURES AND TRIM:

A. All fixtures shall be securely bolted to walls and floors in accordance with the manufacturer's roughing-in and setting requirements. Use floor mounted carriers at all wall hung lavatories as approved by lavatory manufacturer.

B. Stop and shut-off valves shall be provided for each fixture, sinks included.

C. All trim and exposed piping at fixtures shall be chromium plated with chromium plated escutcheons.

3.6 JOINTS:

A. Caulked Joints: Caulked joints in hub and spigot piping shall be packed firmly with oakum or hemp and caulked with pure molten lead not less than 1" deep. Resilient molded gaskets may be used on hub and spigot piping in lieu of lead and oakum packing. The Contractor may also use the no-hub sanitary system for pipe 6" and below with neoprene sealing gaskets, stainless steel retaining sleeves with 2 draw bands, and cast iron soil pipe. An adequate torque wrench shall be used with the system.

B. Solder Joints: Tubing shall be cut square and burrs removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Joints for sweated fittings shall be made with a non-corrosive paste flux and solid 50-50 solder. Cored solder will not be permitted.

C. Cemented Joints: Pipe shall be cut square with pipe cutters designed specifically for plastic pipe. Pipe shall be protected from serrated holding devices and abrasion. Remove burrs from inside and outside of pipe. Clean the joining surfaces using an approved ABS cleaning compound. Following the instructions on the can, apply the ABS cement and assemble the joint as quickly as possible before the cement dries.

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SECTION 16010 - GENERAL PROVISIONS FOR ELECTRICAL

I. GENERAL

A. RELATED DOCUMENTS:

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

B. ELECTRICAL LINES:

1. General: In general, the electrical lines to be installed under these Specifications shall be run as indicated, as specified herein, as required by particular conditions at the site, and as required to conform to the generally accepted standards as to complete the work in a neat and satisfactorily workable manner. The following is a general outline concerning the running of electrical lines and is to be excepted where the drawings or conditions at the building necessitate deviating from these standards. All conduit shall be installed concealed in new walls or into existing walls as required.
2. General Construction: The Contractor shall thoroughly acquaint himself with the details of the construction and finishes before submitting his bid as no allowances will be made because of the Contractor's unfamiliarity with these details. Place all inserts in masonry walls while they are under construction. All concealed lines shall be installed as required by the pace of the general construction to precede that general construction.
3. Field Conditions: The electrical Drawings do not give exact details as to elevations of electrical lines, exact locations, etc., and do not show all the offsets, and other installation details. The Contractor shall carefully lay out his work at the site to conform to the architectural and structural conditions, to avoid all obstruction, to conform to details of installation supplied by the manufacturers of the equipment to be installed, and thereby to provide an integrated, satisfactorily operating installation.
4. Locations of Electrical Devices: The electrical Drawings show diagrammatically the locations of the various electrical outlets and apparatus and the method of circuiting and controlling them. Exact locations of these outlets and apparatus shall be determined by reference to the general Drawings and to all detail drawings, equipment drawings, roughing-in drawings, etc., by measurements at the building, and in cooperation with other sections, and in all cases shall be subject to the approval of the Architect. It is assumed the Architect/Owner reserves the right to make any reasonable change in location of any outlet, switch, receptacle, fixture or panelboard or apparatus before installation (within a 20 feet radius of location shown on drawings) or after installation if an obvious conflict exists, without additional cost to the Owner.
5. Space Requirements: The Contractor shall be responsible for the proper fitting of his material and apparatus into the space. Should the particular equipment that any bidder proposes to install require other space conditions than those indicated on the drawings, he shall arrange for such space with the Architect before submitting his bid. Should changes become

necessary on account of failure to comply with this clause, the Contractor shall make such necessary changes at his (the Contractor's) own expense.

6. Working Drawings: The Contractor shall submit scale working drawings of all his apparatus and equipment which in any way varies from these Specifications and Drawings. The Architect shall check these variations from the Specifications and Drawings before the work is started. Before the work proceeds, the contractor shall correct any interference with the structural conditions.
7. Order of Precedence: Order of precedence shall be observed in laying-out the conduit in order to fit the material into the space above the ceiling and in the chases and walls. The installation shall be coordinated with the work of all other trades. The following order shall govern unless designated otherwise by the Architect or Owner:
   a) Items affecting the visual appearance of the inside of the building such as lighting fixtures, outlets, panelboards, etc. Coordinate all items to avoid conflicts at the site.
   b) Lines requiring grade to function such as sewers.
   c) Large ducts and pipes with critical clearances.
   d) Conduit, water lines, and other lines whose routing is not critical and whose function bends and offsets would not impair.
8. Equipment Connections: Conduits serving outlets on items of equipment shall be run in the most appropriate manner. Where the equipment has built-in chases, the lines shall be contained therein. Where the equipment is of the open type, the lines shall be run as close as possible to the underside of the top and in a neat and inconspicuous manner.
9. Exceptions and Inconsistencies: Exceptions and inconsistencies in Drawings and Specifications shall be brought to the Architect's attention before the contract is signed. Otherwise, the Contractor shall be responsible for any and all changes and additions that may be necessary to accommodate his particular apparatus, material, or equipment.
10. Intent of Drawings and Specifications: The Contractor shall distinctly understand that the work described herein and shown on the accompanying drawings shall result in a finished and working job, and any item required to accomplish this intent shall be included whether specifically mentioned or not.
11. Examination of Drawings and Specifications: Each bidder shall examine the Drawings and Specifications for the General Construction. If these documents show any item requiring work under Division 16 and that work is not indicated on the respective Electrical drawings, he shall notify the Architect in sufficient time to clarify before bidding. If no notification is received, the Contractor is assumed to require no clarification, and shall install the work as indicated on the General Drawings in accordance with the Specifications.

C. DIMENSIONS:

1. General: Before ordering any material or doing any work, the Contractor shall verify all dimensions, including elevations, and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and measurements indicated on the drawings. Any difference that may be found

shall be submitted to the Architect for consideration before proceeding with the work.

D. INSPECTION OF SITE:

1. General: The accompanying Drawings do not indicate completely the existing electrical installations. The bidders for the work under these sections of the Specifications shall inspect the existing installations and thoroughly acquaint themselves with conditions to be met and the work to be accomplished in removing and modifying the existing work, and in installing the new work in the present building and underground serving to and from that structure. Failure to comply with this shall not constitute grounds for any additional payments in connection with removing or modifying any part of the existing installations and/or installing any new work.
2. Utilities: Any overhead, underground or other type mechanical, electrical communication service of any nature damaged by the construction shall be restored to working condition during and after construction to the satisfaction of the Owner. The Owner will make every effort to assist the Contractor, but the location of services shall be the responsibility of the General Contractor and Electrical Contractor.

E. ELECTRICAL WIRING:

1. Description: All electric wiring of every character, both for power supply, for pilot and control, for temperature control, etc. will be done under Division 16 of these Specifications. Every electrical current consuming device furnished as a part of this project, or furnished by the Owner and installed in this project, shall be completely wired up under Division 16. Verification of exact location, method of connection, number and size of wires required, voltage requirements, and phase requirements is the responsibility of the Contractor under Division 16. If conflicts occur between the drawings and the actual requirements, actual requirements shall govern.

F. PROGRESS OF WORK:

1. General: The Contractor shall keep himself fully informed as to the progress of the work and do his work at the proper time without waiting for notification from the Architect or Owner.

G. MANUFACTURER'S DIRECTIONS:

1. General: All manufactured articles shall be applied, installed and handled as recommended by the manufacturer.

H. MATERIALS AND WORKMANSHIP:

1. Materials: All materials shall be new unless otherwise specified and of the quality specified. Materials shall be free from defects and undamaged. All materials of a type for which the Underwriters Laboratories, Inc. have established a standard shall be listed by the Underwriters Laboratories, Inc. and shall bear their label.
2. Samples: The Architect reserves the right to call for samples of any item of material offered in substitution, together with a sample of the specified material, when, in the Architect's opinion, the quality of the material and/or

the appearance is involved and it is deemed that an evaluation of the two materials may be better made by visual inspection. This shall be limited to lighting fixtures, wiring devices, and similar items and shall not be applicable to major manufacturers' items of equipment.

3. Transportation: The Contractor shall be responsible for transportation of his materials to and on the job, and shall be responsible for the storage and protection of these materials and work until the final acceptance of the job.
4. Appurtenances: The Contractor shall furnish all necessary scaffolding, tackle, tools and appurtenances of all kinds, and all labor required for the safe and expeditious execution of his contract.
5. Workmanship: The workmanship shall in all respects be of the highest grade and all construction shall be done according to the best practice of the trade.

I. PROTECTION OF APPARATUS:

1. General: The Contractor shall at all times take such precautions as may be necessary to properly protect his new apparatus from damage. This shall include the erection of all required temporary shelters to adequately protect any apparatus stored in the open on the site, the cribbing of any apparatus above the floor of the construction, and the covering of apparatus in the uncompleted building with tarpaulins or other protective covering. Failure on the part of the Contractor to comply with the above to the entire satisfaction of the Architect will be sufficient cause for the rejection of the pieces of apparatus in question.

J. PERMITS, FEE, ETC.:

1. General: The Contractor under each section of these Specifications shall arrange for a permit from the local authority. The Contractor shall arrange for all utility services, including electric services. If any charges are made by any of the utility companies due to the work on this project, the Contractor shall pay these charges, including charges for metering, connection, street cutting, etc. The Contractor shall pay for any inspection fees or other fees and charges required by ordinance, law, codes and these Specifications.

K. TESTING:

1. General: The Contractor under each division shall at his own expense perform the various tests as specified and required by the Architect and as required by the State and local authorities. The Contractor shall furnish all fuel and materials necessary for making tests.

L. LAWS, CODES AND ORDINANCES:

1. General: All work shall be executed in strict accordance with all local, state and national codes, ordinances and regulations governing the particular class of work involved, as interpreted by the inspecting authority. The Contractor shall be responsible for the final execution of the work under this heading to suit those requirements. Where these Specifications and the accompanying drawings conflict with these requirements, the Contractor shall report the matter to the Architect, shall prepare any supplemental drawings required illustrating how the work may be installed so as to comply and, on approval, make the changes at no cost to the Owner. On

completion of the various portions of the work the installation shall be tested by the constituted authorities, approved and, on completion of the work, the Contractor shall obtain and deliver to the Owner a final certificate of acceptance.

M. TERMINOLOGY:

1. "Furnish, Provide, Install": Whenever the words "furnish", "provide", "furnish and install," "provide and install', and/or similar phrases occur, it is the intent that the materials and equipment described be furnished, installed and connected under this Division of the Specifications, complete for operation unless specifically noted to the contrary.
2. Materials: Where a material is described in detail, listed by catalogue number or otherwise called for, it shall be the Contractor's responsibility to furnish and install the material.
3. "Shall": The use of the word "shall" conveys a mandatory condition to the contract.
4. "Section": "This section" always refers to the section in which the statement occurs.
5. "Project": "The project" includes all work in progress during the construction period.
6. Multiple Items: In describing the various items of equipment, in general, each item will be described singularly, even though there may be a multiplicity of identical or similar items.

N. COOPERATION:

1. General: The contractor for the work under each section of these Specifications shall coordinate his work with the work described in all other sections of the Specifications to the end that, as a whole, the job shall be a finished one of its kind, and shall carry on his work in such a manner that none of the work under any section of these Specifications shall be handicapped, hindered or delayed at any time.

O. COORDINATION OF TRADES:

1. General: The Contractor shall be responsible for resolving all coordination required between trades. For example, items furnished under Division 15 which require electrical connections shall be coordinated with Division 16 for:
   a) Voltage
   b) Phase
   c) Ampacity
   d) No. and size of wires
   e) Wiring diagrams
   f) Starter size, details and location
   g) Control devices and details
2. Ceiling Mounted Items: Items installed in/on finished ceilings shall be coordinated with the ceiling construction. The Contractor under each section shall conform to the reflected ceiling plan and shall secure details and/or samples of the ceiling materials as necessary to insure compatibility. Any device not conforming to this requirement shall be replaced by the Contractor at his expense.

3. Electrical Items: All items specified under Divisions 16 shall be installed tight, plumb, level, square and symmetrically placed in relation to the work of other trades.

P. CUTTING AND PATCHING:

1. General: The Contractor for work specified under each section shall perform all structural and general construction modifications and cut all openings through either roof, walls, floors or ceilings required to install all work specified under that section or to repair any defects that appear up to the expiration of the guarantee. All of this cutting shall be done under the supervision of the Architect and the Contractor shall exercise due diligence to avoid cutting openings larger than required or in wrong locations. Contractor shall notify roofing contractor before making any openings in roof and shall not proceed with cutting any roof openings without Architect's permission.
2. Structural Members: No cutting shall be done to any of the structural members that would tend to lessen their strength, unless specific permission is granted by the Architect to do such cutting.
3. Patching: The Contractor for work under each section shall be responsible for the patching of all openings cut to install the work covered by that section and to repair the damage resulting from the failure of any part of the work installed hereunder.
4. Coordination: Before bidding, the Contractor shall review and coordinate the cutting and patching required with all trades.
5. Existing Surfaces: In all spaces where new work under Division 16 is installed and no other alteration or refinishing work is shown or called for, existing floors, walls and ceilings shall be restored to match existing conditions. Workmen skilled in the affected trade shall do all cutting and patching.
6. Masonry Walls: Where openings are cut through masonry walls, the Contractor under each respective section shall provide and install lintels or other structural supports to protect the remaining masonry and adequate support shall be provided during the cutting operation to prevent any damage to the masonry occasioned by the operation. All structural members, supports, etc. shall be of the size, shape, and installed as directed by the Architect.

Q. PAINTING:

1. General: Painting for Division 16 shall be as follows:
   a) If the factory finish on any apparatus or equipment is marred, it shall be touched up and then given one coat of half-flat-half-enamel, followed by a coat of machinery enamel of a color to match the original. Paint factory primed surfaces.
   b) Paint all exposed conduit, boxes, cabinets, hangers and supports, and miscellaneous metal.
   c) Generally, painting is required on all surfaces such that no exposed bare metal is visible.

R. LARGE APPARATUS:

1. General: Any large piece of apparatus which is to be installed in any space in the building, and which is too large to permit access through windows, doorways or shafts, shall be brought to the job by the Contractor involved and placed in the space before the enclosing structure is completed.

S. INSTALLATION DRAWINGS:

1. General: It shall be incumbent upon the Contractor to prepare special drawings as called for elsewhere herein or as directed by the Architect to coordinate the work under each section, to illustrate changes in his work, to facilitate its concealment in finished spaces to avoid obstructions or to illustrate the adaptability of any item of equipment which he proposes to use. These drawings shall be used in the field for the actual installation of the work. Unless otherwise directed, they shall not be submitted for approval but three copies shall be provided to the Architect for his information.

T. RECORD DRAWINGS ("As-Builts"):

Comply with the following:

1. Submit to Architect two set(s) of marked-up Record Prints, two set(s) of Record CAD Drawing files, two set(s) of Record CAD Drawing plots, and three copies printed from record CAD plots. Plot and print each Drawing, whether or not changes and additional information were recorded.
2. All CAD files shall be provided in either AutoCad Version 2012 or AutoCad LT2012.
3. Electronic Media: CD-R.
4. Record Product Data: Submit one copy of each Product Data submittal. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

U. ROUGH-IN AND MAKE FINAL CONNECTION FOR EQUIPMENT:

1. General: The shop drawings for all equipment are hereby made a part of these Specifications. The Contractor under each section of the Specifications shall rough-in for the exact item to be furnished on the job, whether in another section of the Specifications or by the Owner. The Contractor shall refer to all drawings and other sections of the Specifications for the scope of work involved for the new equipment, and by actual site examination determine the scope of the required equipment connections for the Owner furnished equipment.
2. Discrepancies: Should any of the equipment furnished require connections of a nature different from that shown on the drawings, report the matter to the Architect and finally connect as directed by the Architect. Minor differences in the equipment furnished and that indicated on the drawings will not constitute ground for additional payment to the Contractor.

V. TEMPORARY POWER AND LIGHTING

1. General: Engage the appropriate local utility company to install temporary service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
2. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
3. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
4. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
5. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Architect. Neither the Owner nor Architect will accept cost or use charges as a basis of claims for Change Orders.
6. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnects, automatic ground-fault interrupters, and main distribution switch gear. All temporary power for construction will be provided by Contractor. Owner will pay bills when submitted for payment.
7. Install electric power service underground, except where overhead service must be used.
8. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage. Where permitted, power wiring circuits not exceeding 125 Volts, ac 20 Ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance. All circuits must be ground-fault circuit interrupter protected.
9. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment. Provide four gang outlets, spaced so 100 foot cords can reach any areas. Provide separate 120 VAC, 20 amp GFCI circuit for each four gang outlet.
10. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
11. Temporary Lighting: When overhead floor or roof deck has been installed, provide temporary lighting with local switching:
    a) Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.
12. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.

13. Provide five 100-W incandescent lamps per 500 sq. ft. (45 sq. m), uniformly distributed, for general lighting, or equivalent illumination.
14. Provide three 100-W incandescent lamps every 50 feet (15 m) in traffic areas.
15. Install exterior-yard site lighting that will provide adequate illumination for construction operations, traffic conditions, and signage visibility when the work is being performed.

END OF SECTION

SECTION 16020 - ELECTRICAL DEMOLITION FOR RENOVATIONS

PART 1 - GENERAL

A. RELATED DOCUMENTS:
   1. General: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to the work of this section.

PART 2 - PRODUCTS

A. MATERIALS AND EQUIPMENT:
   1. Materials and equipment for patching and extending work: As specified in individual Sections.

PART 3 - EXECUTION

A. EXAMINATION:
   1. Field Measurements: Verify field measurements and circuiting arrangements are as shown on Drawings.
   2. Abandoned Circuits: Verify that abandoned wiring and equipment serve only abandoned facilities.
   3. Field Conditions: Demolition Drawings are based on casual field observation and existing record documents. Report discrepancies to Owner and Architect/Engineer before disturbing existing installation.
   4. Existing Conditions: Beginning of demolition means installer accepts existing conditions.

B. PREPARATION:
   1. Demolition: Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.
   2. Utility Coordination: Coordinate utility service outages with Utility Company.
   3. Temporary Wiring: Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
   4. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Obtain permission from Owner at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.
   5. Existing Telephone System: Maintain existing system in service until new system is accepted. All new devices, components, etc. shall match existing unless directed otherwise by Owner. Disable system only to make switchovers and connections. Notify Owner and Telephone Utility Company at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

6. Existing Data/Computer Network System: Maintain existing system in service until new system is accepted. All new devices, components, etc. shall match existing unless directed otherwise by Owner. Disable system only to make switchovers and connections. Notify Owner at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.
7. Existing Fire Alarm/P.A./Intercom/Clock & Bell System: Maintain existing systems in service until new systems are accepted. All new devices, components, etc. shall match existing unless directed otherwise by Owner. Disable systems only to make switchovers and connections. Notify Owner at least 72 hours before partially or completely disabling systems. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

C. DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK:
1. General: Demolish and extend existing electrical work under provisions of the Drawings, General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections.
2. New Construction: Remove, relocate, and extend existing installations to accommodate new construction.
3. Abandoned Wiring: Remove abandoned wiring to source of supply.
4. Exposed Conduit: Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
5. Abandoned Devices: Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets, which are not removed.
6. Abandoned Panelboards: Disconnect and remove abandoned panelboards and distribution equipment.
7. Abandoned Equipment: Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
8. Abandoned Lighting Fixtures: Disconnect and remove abandoned lighting fixtures. Remove brackets, stems, hangers, and other accessories.
9. Adjacent Construction: Repair adjacent construction and finishes damaged during demolition and extension work.
10. Existing wiring to remain active: Maintain access to existing electrical installations, which remain active. Modify installation or provide access panel as appropriate.
11. Extension of existing wiring: Extend existing installations using materials and methods compatible with existing electrical installations, as specified.

D. CLEANING AND REPAIR:
1. Existing Materials: Clean and repair existing materials and equipment that remain or are to be reused.
2. Panelboards: Where indicated on the drawings clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

3. Lighting Fixtures: Where indicated on the drawings remove existing lighting fixtures for cleaning. Use mild detergent to clean all exterior and interior surfaces, rinse with clean water and wipe dry. Replace lamps and broken electrical parts.
4. Ballasts: Where indicated on the drawings replace the ballasts in all existing lighting fixtures with new ballasts as specified under Section 16511 – INTERIOR LIGHTING.
5. Lamps: Where indicated on the drawings replace the lamps in all existing lighting fixtures with new lamps as specified under Section 16511 – INTERIOR LIGHTING.

E. INSTALLATION:
1. Relocated Materials: Install relocated materials and equipment under the provisions of Division 1 of the Specifications.

END OF SECTION

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section includes the following:

1. Electrical equipment coordination and installation.
2. Sleeves for raceways and cables.
3. Sleeve seals.
4. Common electrical installation requirements.

1.03 DEFINITIONS

A. ATS: Acceptance Testing Specifications.

B. EPDM: Ethylene-propylene-diene terpolymer rubber.

C. NBR: Acrylonitrile-butadiene rubber.

1.04 SUBMITTALS

A. Product Data: For each type of product indicated.

1.05 QUALITY ASSURANCE

A. Test Equipment Suitability and Calibration: Comply with NETA ATS, "Suitability of Test Equipment" and "Test Instrument Calibration."

1.06 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
3. To allow right of way for piping and conduit installed at required slope.

4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Access doors and panels are specified in Division 8 Section "Access Doors and Frames."

D. Coordinate electrical testing of electrical, mechanical, and architectural items, so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.02 SLEEVES FOR RACEWAYS AND CABLES

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 7 Section "Through-Penetration Firestop Systems."

E. All wall sleeves shall have bushings installed to protect cables, etc.

2.03 SLEEVE SEALS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Manufacturers:

a. Advance Products & Systems, Inc.

b. Calpico, Inc.
c. Metraflex Co.
d. Pipeline Seal and Insulator, Inc.

2. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
3. Pressure Plates: Plastic. Include two for each sealing element.
4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

PART 3 - EXECUTION

3.01 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

E. Right of Way: Give to raceways and piping systems installed at a required slope.

3.02 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.

B. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 7 Section "Through-Penetration Firestop Systems."

C. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

D. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

E. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve cross-section rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 0.052 inch.
2. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.

F. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

G. Extend sleeves installed in floors 2 inches above finished floor level.

H. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Refer to Division 7 Section "Joint Sealants" for materials and installation.

K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with Division 7 Section "Through-Penetration Firestop Systems."

L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

M. Underground, Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

3.03 SLEEVE-SEAL INSTALLATION

A. Install to seal underground, exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.04 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 7 Section "Through-Penetration Firestop Systems."

3.05 FIELD QUALITY CONTROL

A. Inspect installed sleeve and sleeve-seal installations and associated firestopping for damage and faulty work.

END OF SECTION

SECTION 16060 - GROUNDING AND BONDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes methods and materials for grounding systems and equipment.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Other Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in Part 3 "Field Quality Control" Article, including the following:

1. Ground rods.
2. Grounding arrangements and connections for separately derived systems.
3. Grounding for sensitive electronic equipment.

C. Qualification Data: For testing agency and testing agency's field supervisor.

D. Field quality-control test reports.

E. Operation and Maintenance Data: For grounding to include the following in emergency, operation, and maintenance manuals:

1. Instructions for periodic testing and inspection of grounding features at grounding connections for separately derived systems based on NFPA 70B.

a. Tests shall be to determine if ground resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if they do not.
b. Include recommended testing intervals.

1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as

defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association to supervise on-site testing specified in Part 3.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

C. Bare Grounding Conductor and Conductor Protector for Wood Poles:

1. No. 4 AWG minimum, soft-drawn copper.
2. Conductor Protector: Half-round PVC or wood molding. If wood, use pressure-treated fir or cypress or cedar.

D. Grounding Bus: Rectangular bars of annealed copper, 1/4 by 2 inches in cross section by 24 inches, unless otherwise indicated; with insulators.

2.2 CONNECTORS

A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.

1. Pipe Connectors: Clamp type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by10 feet in diameter.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.

B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.
2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct-bank installation.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

D. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Install bus on insulated spacers 1 inch, minimum, from wall 6 inches above finished floor, unless otherwise indicated.
2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, down to specified height above floor, and connect to horizontal bus.

E. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors, except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.
7. Armored and metal-clad cable runs.
8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
9. Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.

B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

D. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.

E. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.

F. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.

1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch grounding bus.
2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

G. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade, unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.

D. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building only when metal water line extends more than five feet from the building. Refer to National Electrical Code for additional requirements. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

E. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install tinned bonding jumper to bond across flexible duct connections to achieve continuity.

F. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet apart.

3.4 FIELD QUALITY CONTROL

A. Perform the following tests and inspections and prepare test reports:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at individual ground rods. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    b. Perform tests by fall-of-potential method according to IEEE 81.

3. Prepare dimensioned drawings locating each test well, ground rod and ground rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

B. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity 500 kVA and Less: 10 ohms.
2. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm(s).

C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION

SECTION 16072 - ELECTRICAL SUPPORTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Hangers and supports for electrical equipment and systems.
2. Seismic restraints for electrical equipment and systems.
3. Construction requirements for concrete bases.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. IBC: International Building Code.

C. IMC: Intermediate metal conduit.

D. NBC: National Building Code.

E. OSHPD: Office of Statewide Health Planning and Development.

F. RMC: Rigid metal conduit.

G. SBC: Standard Building Code.

H. Seismic Restraint: A structural support element such as a metal framing member, a cable, an anchor bolt or stud, a fastening device, or an assembly of these items used to transmit seismic forces from an item of equipment or system to building structure and to limit movement of item during a seismic event.

I. UBC: Uniform Building Code.

1.4 SUBMITTALS

A. Product Data: Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of electrical support and seismic-restraint component used.

1. Tabulate types and sizes of seismic restraints, complete with report numbers and rated strength in tension and shear as evaluated by an agency acceptable to authorities having jurisdiction.
2. Annotate to indicate application of each product submitted and compliance with requirements.

B. Shop Drawings: Indicate materials and dimensions and identify hardware, including attachment and anchorage devices, signed and sealed by a qualified professional engineer. Professional engineer qualification requirements are specified in Division 1 Section "Quality Requirements." Include the following:

1. Fabricated Supports: Representations of field-fabricated supports not detailed on Drawings.
2. Seismic Restraints: Detail anchorage and bracing not defined by details or charts on Drawings. Include the following:

a. Design Analysis: To support selection and arrangement of seismic restraints. Include calculations of combined tensile and shear loads.
b. Details: Detail fabrication and arrangement. Detail attachments of restraints to the restrained items and to the structure. Show attachment locations, methods, and spacings. Identify components, list their strengths, and indicate directions and values of forces transmitted to the structure during seismic events.
c. Preapproval and Evaluation Documentation: By an agency acceptable to authorities having jurisdiction, showing maximum ratings of restraint items and the basis for approval (tests or calculations).

C. Coordination Drawings: Show coordination of seismic bracing for electrical components with other systems and equipment in the vicinity, including other supports and seismic restraints.

D. Welding certificates.

E. Field quality-control test reports.

1.5 QUALITY ASSURANCE

A. Comply with seismic-restraint requirements in the UBC unless requirements in this Section are more stringent.

B. Testing of Seismic Anchorage Devices: Comply with testing requirements in Part 3 and in Division 16 Section "Electrical Supports and Seismic Restraints."

C. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed under this Project, with a minimum structural safety factor of five times the applied force.

B. Steel Slotted Support Systems: Comply with MFMA-3, factory-fabricated components for field assembly.

1. Manufacturers:

a. Cooper B-Line; a division of Cooper Industries.
b. ERICO International Corporation.
c. Allied Support Systems; Power-Strut Unit.
d. GS Metals Corp.
e. Michigan Hanger Co., Inc.; O-Strut Div.
f. National Pipe Hanger Corp.
g. Thomas & Betts Corporation.
h. Unistrut; Tyco International, Ltd.
i. Wesanco, Inc.

2. Finishes:

a. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-3.
b. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-3.
c. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-3.

3. Channel Dimensions: Selected for structural loading and applicable seismic forces.

C. Raceway and Cable Supports: As described in NECA 1.

D. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

E. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

F. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

G. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

    a. Manufacturers:

        1) Hilti, Inc.
        2) ITW Construction Products.
        3) MKT Fastening, LLC.
        4) Simpson Strong-Tie Co. Inc.

2. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

    a. Manufacturers:

        1) Cooper B-Line; a division of Cooper Industries.
        2) Empire Tool and Manufacturing Co., Inc
        3) Hilti, Inc.
        4) ITW Construction Products.
        5) MKT Fastening, LLC.
        6) Powers Fasteners.

3. Concrete Inserts: Steel or malleable-iron slotted-support-system units similar to MSS Type 18; complying with MFMA-3 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.3 SEISMIC-RESTRAINT COMPONENTS

A. Rated Strength, Features, and Application Requirements for Restraint Components: As defined in reports by [an agency acceptable to authorities having jurisdiction].

1. Structural Safety Factor: Strength in tension, shear, and pullout force of components used shall be at least five times the maximum seismic forces to which they will be subjected.

B. Angle and Channel-Type Brace Assemblies: Steel angles or steel slotted-support-system components; with accessories for attachment to braced component at one end and to building structure at the other end.

C. Cable Restraints: ASTM A 603, zinc-coated, steel wire rope attached to steel or stainless-steel thimbles, brackets, swivels, and bolts designed for restraining cable service.

1. Manufacturers:

a. Amber/Booth Company, Inc.
b. Loos & Co., Inc.
c. Mason Industries, Inc.

2. Seismic Mountings, Anchors, and Attachments: Devices as specified in Part 2 "Support, Anchorage, and Attachment Components" Article, selected to resist seismic forces.
3. Hanger Rod Stiffener: Reinforcing steel angle clamped to hanger rod, of design recognized by an agency acceptable to authorities having jurisdiction.
4. Bushings for Floor-Mounted Equipment Anchors: Neoprene units designed for seismically rated rigid equipment mountings, and matched to type and size of anchor bolts and studs used.
5. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for seismically rated rigid equipment mountings, and matched to type and size of attachment devices used.

2.4 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Division 5 Section "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 for application of hangers and supports for electrical equipment and systems, except if requirements in this Section are stricter.

B. All electrical conduit/raceways shall be supported independently of piping and/or mechanical supports and racks. Shared pipe supports shall not be acceptable.

C. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

D. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.

E. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT AND SEISMIC-RESTRAINT INSTALLATION

A. Comply with NECA 1 for installation requirements, except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Install seismic-restraint components using methods approved by the evaluation service providing required submittals for component.

D. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static and seismic loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

E. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.

8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

F. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Division 5 Section "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and seismic criteria at Project.

B. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so expansion anchors will be a minimum of 10 bolt diameters from edge of the base.

1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around full perimeter of the base.
2. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
3. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
4. Install anchor bolts to elevations required for proper attachment to supported equipment.
5. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
6. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 3 Section "Cast-in-Place Concrete."

3.5 INSTALLATION OF SEISMIC-RESTRAINT COMPONENTS

A. Install bushing assemblies for anchor bolts for floor-mounted equipment, arranged to provide resilient media between anchor bolt and mounting hole in concrete base.

B. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.

C. Restraint Cables: Provide slack within maximums recommended by manufacturer.

D. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, upper truss chords of bar joists, or at concrete members.

3.6 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

A. Make flexible connections in runs of raceways, cables, wireways, cable trays, and busways where they cross expansion and seismic-control joints, where adjacent sections or branches are supported by different structural elements, and where they terminate with connection to electrical equipment that is anchored to a different structural element from the one supporting them as they approach equipment.

3.7 FIELD QUALITY CONTROL

A. Testing: Test pullout resistance of seismic anchorage devices.

1. Provide evidence of recent calibration of test equipment by a testing agency acceptable to authorities having jurisdiction.
2. Schedule test with Owner, through Architect, before connecting anchorage device to restrained component (unless postconnection testing has been approved), and with at least seven days' advance notice.
3. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members.
4. Test at least four of each type and size of installed anchors and fasteners selected by Architect.
5. Test to 90 percent of rated proof load of device.
6. If a device fails test, modify all installations of same type and retest until satisfactory results are achieved.

B. Record test results.

END OF SECTION

SECTION 16075 - ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Identification for raceway and metal-clad cable.
2. Identification for conductors and communication and control cable.
3. Underground-line warning tape.
4. Warning labels and signs.
5. Instruction signs.
6. Equipment identification labels.
7. Miscellaneous identification products.

1.3 SUBMITTALS

A. Product Data: For each electrical identification product indicated.

B. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.

C. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

1.4 QUALITY ASSURANCE

A. Comply with ANSI A13.1 and ANSI C2.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.145.

1.5 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by

codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 RACEWAY AND METAL-CLAD CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.

B. Color for Printed Legend:

1. Power Circuits: Black letters on an orange field.
2. Legend: Indicate system or service and voltage, if applicable.

C. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches wide; compounded for outdoor use.

2.2 CONDUCTOR AND COMMUNICATION- AND CONTROL-CABLE IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

B. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

C. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking nylon tie fastener.

2.3 UNDERGROUND-LINE WARNING TAPE

A. Description: Permanent, bright-colored, continuous-printed, polyethylene tape.

1. Not less than 6 inches wide by 4 mils thick.
2. Compounded for permanent direct-burial service.
3. Embedded continuous metallic strip or core.
4. Printed legend shall indicate type of underground line.

2.4 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Metal-Backed, Butyrate Warning Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 10 by 14 inches.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.5 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. in. and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.6 EQUIPMENT IDENTIFICATION LABELS

A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.7 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Cable Ties: Fungus-inert, self-extinguishing, 1-piece, self-locking, Type 6/6 nylon cable ties.

1. Minimum Width: 3/16 inch.
2. Tensile Strength: 50 lb, minimum.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: Black, except where used for color-coding.

B. Paint: Paint materials and application requirements are specified in Division 9 painting Sections.

C. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 APPLICATION

A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A: Identify with orange self-adhesive vinyl tape applied in bands.

B. Accessible Raceways and Cables of Auxiliary Systems: Identify the following systems with color-coded, self-adhesive vinyl tape applied in bands or spray painted:

1. Fire Alarm System: Red.
2. Fire-Suppression Supervisory and Control System: Red and yellow.
3. Combined Fire Alarm and Security System: Red and blue.
4. Telecommunication System: Green and yellow.
5. Control Wiring: Green and red.

C. Power-Circuit Conductor Identification: For primary and secondary conductors No. 1/0 AWG and larger in vaults, pull and junction boxes, manholes, and handholes use color-coding conductor tape. Identify source and circuit number of each set of conductors. For single conductor cables, identify phase in addition to the above.

D. Branch-Circuit Conductor Identification: Where there are conductors for more than three branch circuits in same junction or pull box, use color-coding conductor tape. Identify each ungrounded conductor according to source and circuit number.

E. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source and circuit number.

F. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, signal, sound, intercommunications, voice, and data connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and Operation and Maintenance Manual.

G. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable. Install underground-line warning tape for both direct-buried cables and cables in raceway.

H. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Comply with 29 CFR 1910.145 and apply self-adhesive warning labels. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access.

1. Equipment with Multiple Power or Control Sources: Apply to door or cover of equipment including, but not limited to, the following:

    a. Power transfer switches.
    b. Controls with external control power connections.

2. Equipment Requiring Workspace Clearance According to NFPA 70: Unless otherwise indicated, apply to door or cover of equipment but not on flush panelboards and similar equipment in finished spaces.

I. Instruction Signs:

1. Operating Instructions: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

J. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

    a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where 2 lines of text are required, use labels 2 inches high.
    b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
    c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
    d. Self-adhesive labels will not be acceptable. All labels shall be secured with the appropriate screws or rivots designed for the application.

2. Equipment to Be Labeled:

    a. Panelboards, electrical cabinets, and enclosures.
    b. Access doors and panels for concealed electrical items.
    c. Electrical switchgear and switchboards.
    d. Transformers.
    e. Emergency system boxes and enclosures.
    f. Motor-control centers.
    g. Disconnect switches.
    h. Enclosed circuit breakers.
    i. Motor starters.
    j. Push-button stations.
    k. Contactors.
    l. Remote-controlled switches, dimmer modules, and control devices.
    m. Voice and data cable terminal equipment.

n. Master clock and program equipment.
o. Intercommunication and call system master and staff stations.
p. Television/audio components, racks, and controls.
q. Fire-alarm control panel and annunciators.
r. Security and intrusion-detection control stations, control panels, terminal cabinets, and racks.
s. Monitoring and control equipment.
t. Uninterruptible power supply equipment.
u. Terminals, racks, and patch panels for voice and data communication and for signal and control functions.

3.2 INSTALLATION

A. At all roof mounted HVAC equipment the contractor shall label the disconnect switch serving the equipment with the electrical panel and circuit designation feeding the equipment and the actual room number that the respective roof equipment serves., i.e. – "RTU #1; Panel "HA-1,3,5"; Classroom 101".

B. Verify identity of each item before installing identification products.

C. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

D. Apply identification devices to surfaces that require finish after completing finish work.

E. Attach nonadhesive signs and plastic labels with screws and auxiliary hardware appropriate to the location and substrate.

F. System Identification Color Banding for Raceways and Cables: Each color band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

G. Color-Coding for Phase and Voltage Level Identification, 600 V and Less: Use the colors listed below for ungrounded service, feeder, and branch-circuit conductors.

1. Color shall be factory applied or, for sizes larger than No. 10 AWG if authorities having jurisdiction permit, field applied.
2. Colors for 208/120-V Circuits:

a. Phase A: Black.
b. Phase B: Red.
c. Phase C: Blue.

3. Colors for 480/277-V Circuits:

a. Phase A: Brown.
b. Phase B: Orange.
c. Phase C: Yellow.

4. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

H. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.

I. Painted Identification: Prepare surface and apply paint according to Division 9 painting Sections.

END OF SECTION

SECTION 16120 - CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.
3. Sleeves and sleeve seals for cables.

1.3 DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.

B. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Qualification Data: For testing agency.

C. Field quality-control test reports.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with NFPA 70.

1.6 COORDINATION

A. Set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Alcan Products Corporation; Alcan Cable Division.
2. American Insulated Wire Corp.; a Leviton Company.
3. General Cable Corporation.
4. Senator Wire & Cable Company.
5. Southwire Company.

B. Copper Conductors: Comply with NEMA WC 70.

C. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN.

D. Multiconductor Cable: Comply with NEMA WC 70 for armored cable, Type AC metal-clad cable with ground wire and Type MC with ground wire. For use as light fixture whips only with length not to exceed 6 feet per location. Not for branch circuit or feeder use.

2.2 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AFC Cable Systems, Inc.
2. Hubbell Power Systems, Inc.
3. O-Z/Gedney; EGS Electrical Group LLC.
4. 3M; Electrical Products Division.
5. Tyco Electronics Corp.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated. No butt splices will be allowed.

2.3 SLEEVES FOR CABLES

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 7 Section "Through-Penetration Firestop Systems."

2.4 SLEEVE SEALS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Advance Products & Systems, Inc.
2. Calpico, Inc.
3. Metraflex Co.
4. Pipeline Seal and Insulator, Inc.

B. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.

1. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
2. Pressure Plates: Plastic. Include two for each sealing element.
3. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type THHN-THWN, single conductors in raceway.

B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.

C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-THWN, single conductors in raceway.

D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.

E. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-THWN, single conductors in raceway.

F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.

G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.

H. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

I. Class 1 Control Circuits: Type THHN-THWN, in raceway.

J. Class 2 Control Circuits: Type THHN-THWN, in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

E. Support cables according to Division 16 Section "Electrical Supports and Seismic Restraints."

F. Identify and color-code conductors and cables according to Division 16 Section "Electrical Identification."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 7 Section "Through-Penetration Firestop Systems."

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves for all wall cable penetrations unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 0.052 inch.
2. For sleeve rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Extend sleeves installed in floors 2 inches above finished floor level.

G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.

H. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and cable, using joint sealant appropriate for size, depth, and location of joint according to Division 7 Section "Joint Sealants."

J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at cable penetrations. Install sleeves and seal with firestop materials according to Division 7 Section "Through-Penetration Firestop Systems."

K. Roof-Penetration Sleeves: Coordinate roof penetrations with Architect and roofing contractor. Refer to Architectural for exact requirements.

L. Aboveground Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeves to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

M. Underground Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between cable and sleeve for installing mechanical sleeve seals.

3.6 SLEEVE-SEAL INSTALLATION

A. Install to seal underground exterior-wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for cable material and size. Position cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Division 7 Section "Through-Penetration Firestop Systems."

3.8 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

B. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test (Meg Ohm) service entrance and feeder conductors for compliance with requirements.
2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

C. Test Reports: Prepare a written report to record the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

D. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION

SECTION 16130 - RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. ENT: Electrical nonmetallic tubing.

C. EPDM: Ethylene-propylene-diene terpolymer rubber.

D. FMC: Flexible metal conduit.

E. IMC: Intermediate metal conduit.

F. LFMC: Liquidtight flexible metal conduit.

G. LFNC: Liquidtight flexible nonmetallic conduit.

H. NBR: Acrylonitrile-butadiene rubber.

I. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For the following raceway components. Include plans, elevations, sections, details, and attachments to other work.

1. Custom enclosures and cabinets.
2. For handholes and boxes for underground wiring, including the following:

a. Duct entry provisions, including locations and duct sizes.
b. Frame and cover design.

c. Grounding details.
d. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.
e. Joint details.

C. Samples for Initial Selection: For wireways, nonmetallic wireways and surface raceways with factory-applied texture and color finishes.

D. Samples for Verification: For each type of exposed finish required for wireways, nonmetallic wireways and surface raceways, prepared on Samples of size indicated below.

E. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:

1. Structural members in the paths of conduit groups with common supports.
2. HVAC and plumbing items and architectural features in the paths of conduit groups with common supports.

F. Manufacturer Seismic Qualification Certification: Submit certification that enclosures and cabinets and their mounting provisions, including those for internal components, will withstand seismic forces defined in Division 16 Section "Electrical Supports and Seismic Restraints." Include the following:

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

a. The term "withstand" means "the cabinet or enclosure will remain in place without separation of any parts when subjected to the seismic forces specified."

2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

G. Qualification Data: For professional engineer and testing agency.

H. Source quality-control test reports.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AFC Cable Systems, Inc.
2. Alflex Inc.
3. Allied Tube & Conduit; a Tyco International Ltd. Co.
4. Anamet Electrical, Inc.; Anaconda Metal Hose.
5. Electri-Flex Co.
6. Manhattan/CDT/Cole-Flex.
7. Maverick Tube Corporation.
8. O-Z Gedney; a unit of General Signal.
9. Wheatland Tube Company.

B. Rigid Steel Conduit: ANSI C80.1.

C. IMC: ANSI C80.6.

D. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.

1. Comply with NEMA RN 1.
2. Coating Thickness: 0.040 inch, minimum.

E. EMT: ANSI C80.3.

F. FMC: Zinc-coated steel.

G. LFMC: Flexible steel conduit with PVC jacket.

H. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.
2. Fittings for EMT: Steel, set-screw or compression type.
3. Coating for Fittings for PVC-Coated Conduit: Minimum thickness, 0.040 inch, with overlapping sleeves protecting threaded joints.

I. Joint Compound for Rigid Steel Conduit or IMC: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

2.2 NONMETALLIC CONDUIT AND TUBING

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AFC Cable Systems, Inc.
2. Anamet Electrical, Inc.; Anaconda Metal Hose.
3. Arnco Corporation.
4. CANTEX Inc.
5. CertainTeed Corp.; Pipe & Plastics Group.
6. Condux International, Inc.
7. ElecSYS, Inc.
8. Electri-Flex Co.
9. Lamson & Sessions; Carlon Electrical Products.
10. Manhattan/CDT/Cole-Flex.
11. RACO; a Hubbell Company.
12. Thomas & Betts Corporation.

B. ENT: NEMA TC 13.

C. RNC: NEMA TC 2, Type EPC-40-PVC, unless otherwise indicated.

D. LFNC: UL 1660.

E. Fittings for ENT and RNC: NEMA TC 3; match to conduit or tubing type and material.

F. Fittings for LFNC: UL 514B.

2.3 OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Arnco Corporation.
2. Endot Industries Inc.
3. IPEX Inc.
4. Lamson & Sessions; Carlon Electrical Products.

B. Description: Comply with UL 2024; flexible type, approved for plenum installation.

2.4 METAL WIREWAYS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper B-Line, Inc.
2. Hoffman.
3. Square D; Schneider Electric.

B. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 1, unless otherwise indicated.

C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Wireway Covers: Screw-cover type.

E. Finish: Manufacturer's standard enamel finish.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. EGS/Appleton Electric.
3. Erickson Electrical Equipment Company.
4. Hoffman.
5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
6. O-Z/Gedney; a unit of General Signal.
7. RACO; a Hubbell Company.
8. Robroy Industries, Inc.; Enclosure Division.
9. Scott Fetzer Co.; Adalet Division.
10. Spring City Electrical Manufacturing Company.
11. Thomas & Betts Corporation.
12. Walker Systems, Inc.; Wiremold Company (The).
13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

D. Metal Floor Boxes: Cast metal, fully adjustable, rectangular.

E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

F. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, galvanized, cast iron with gasketed cover.

G. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.

H. Cabinets:

1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

2.6 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. Description: Comply with SCTE 77.

1. Color of Frame and Cover: Gray.
2. Configuration: Units shall be designed for flush burial and have open bottom, unless otherwise indicated.
3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
5. Cover Legend: Molded lettering, "ELECTRIC."
6. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
7. Handholes 12 inches wide by 24 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

B. Fiberglass Handholes and Boxes with Polymer-Concrete Frame and Cover: Sheet-molded, fiberglass-reinforced, polyester-resin enclosure joined to polymer-concrete top ring or frame.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Armorcast Products Company.
b. Carson Industries LLC.
c. Christy Concrete Products.
d. Synertech Moulded Products, Inc.; a division of Oldcastle Precast.

2.7 SLEEVES FOR RACEWAYS

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 7 Section "Through-Penetration Firestop Systems."

E. All wall sleeves shall have bushings installed to protect cables, etc. Sleeves shall extend a minimum of 2” beyond the wall.

2.8 SLEEVE SEALS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Advance Products & Systems, Inc.
2. Calpico, Inc.
3. Metraflex Co.
4. Pipeline Seal and Insulator, Inc.

B. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.

1. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
2. Pressure Plates: Plastic. Include two for each sealing element.
3. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.9 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by a independent testing agency.
2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:

1. Exposed Conduit: Rigid steel conduit.
2. Concealed Conduit, Aboveground: EMT.
3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
6. Application of Handholes and Boxes for Underground Wiring:

    a. Handholes and Pull Boxes in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Fiberglass enclosures with polymer-concrete frame and cover, SCTE 77, Tier 15 structural load rating.
    b. Handholes and Pull Boxes in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Heavy-duty fiberglass units

with polymer-concrete frame and cover, SCTE 77, Tier 8 structural load rating.

c. Handholes and Pull Boxes Subject to Light-Duty Pedestrian Traffic Only: Fiberglass-reinforced polyester resin, structurally tested according to SCTE 77 with 3000-lbf vertical loading.

B. Comply with the following indoor applications, unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: Rigid steel conduit.
2. Exposed, Not Subject to Severe Physical Damage: Rigid steel conduit.
3. Exposed and Subject to Severe Physical Damage: Rigid steel conduit. Includes raceways in the following locations:

   a. Loading dock.
   b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
   c. Mechanical rooms.
   d. Roofs.

4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
6. Damp or Wet Locations: Rigid steel conduit.
7. Raceways for Optical Fiber or Communications Cable in Spaces Used for Environmental Air: Plenum-type, optical fiber/communications cable raceway or EMT.
8. Raceways for Optical Fiber or Communications Cable Risers in Vertical Shafts: Riser-type, optical fiber/communications cable raceway or EMT.
9. Raceways for Concealed General Purpose Distribution of Optical Fiber or Communications Cable: General-use, optical fiber/communications cable raceway or EMT.
10. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, stainless steel in damp or wet locations.

C. Minimum Raceway Size: 1/2-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

3.2 INSTALLATION

A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Support raceways as specified in Division 16 Section "Electrical Supports and Seismic Restraints."

E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.

G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated. All conduits shall be concealed. Surface mounted conduits and/or raceways will not be allowed unless authorized by the Architect and Owner.

H. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
3. Change from ENT to RNC, Type EPC-40-PVC, rigid steel conduit, or IMC before rising above the floor.

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.

K. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.

L. Raceways for Optical Fiber and Communications Cable: Install raceways, metallic and nonmetallic, rigid and flexible, as follows:

1. 3/4-Inch Trade Size and Smaller: Install raceways in maximum lengths of 50 feet.

2. 1-Inch Trade Size and Larger: Install raceways in maximum lengths of 75 feet.

3. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.

M. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where otherwise required by NFPA 70.

N. Expansion-Joint Fittings for RNC: Install in each run of aboveground conduit that is located where environmental temperature change may exceed 30 deg F, and that has straight-run length that exceeds 25 feet.

1. Install expansion-joint fittings for each of the following locations, and provide type and quantity of fittings that accommodate temperature change listed for location:

    a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
    b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
    c. Indoor Spaces: Connected with the Outdoors without Physical Separation: 125 deg F temperature change.
    d. Attics: 135 deg F temperature change.

2. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change.
3. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at the time of installation.

O. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit for recessed and semirecessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

P. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.

Q. Set metal floor boxes level and flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 2 Section "Earthwork" for pipe less than 6 inches in nominal diameter.
2. Install backfill as specified in Division 2 Section "Earthwork."
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled

backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 2 Section "Earthwork."

4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
    b. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.

6. Warning Tape: Bury warning tape approximately 12 inches above direct-buried conduits along the centerline of conduit.

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install handholes and boxes with bottom below the frost line, 18” below grade.

E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in the enclosure.

F. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 7 Section "Through-Penetration Firestop Systems."

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve cross-section rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 0.052 inch.
2. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Extend sleeves installed in floors 2 inches above finished floor level.

G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway unless sleeve seal is to be installed or unless seismic criteria require different clearance.

H. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway, using joint sealant appropriate for size, depth, and location of joint. Refer to Division 7 Section "Joint Sealants" for materials and installation.

J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway penetrations. Install sleeves and seal with firestop materials. Comply with Division 7 Section "Through-Penetration Firestop Systems."

K. Roof-Penetration Sleeves: Coordinate with Architect and roofing contractor. Refer to Architectural for requirements..

L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

M. Underground, Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between raceway and sleeve for installing mechanical sleeve seals.

3.6 SLEEVE-SEAL INSTALLATION

A. Install to seal underground, exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway material and size. Position raceway in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 7 Section "Through-Penetration Firestop Systems."

3.8 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION

SECTION 16140 - WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Twist-locking receptacles.
3. Hospital grade receptacles
4. Snap switches.
5. Wall-switches.
6. Pendant cord-connector devices.
7. Cord and plug sets.

1.3 DEFINITIONS

A. EMI: Electromagnetic interference.

B. GFCI: Ground-fault circuit interrupter.

C. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

D. RFI: Radio-frequency interference.

E. UTP: Unshielded twisted pair.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

C. Samples: One for each type of device and wall plate specified, in each color specified.

D. Field quality-control test reports.

E. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing label warnings and instruction manuals that include labeling conditions.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of wiring device and associated wall plate through one source from a single manufacturer. Insofar as they are available, obtain all wiring devices and associated wall plates from a single manufacturer and one source.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with NFPA 70.

1.6 COORDINATION

A. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1. Cord and Plug Sets: Match equipment requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names may be used in other Part 2 articles. Only these manufacturers' shall be acceptable:
1. Leviton Mfg. Company Inc. (Leviton).
2. Cooper Wiring Devices; a division of Cooper Industries, Inc. (Cooper).
3. Pass & Seymour/Legrand; Wiring Devices & Accessories (Pass & Seymour).

2.2 STRAIGHT BLADE RECEPTACLES

A. Heavy Duty Industrial Grade Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.

1. Products: Subject to compliance with requirements:
a. Leviton; 5362A (duplex).

B. Hospital-Grade, Duplex Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498 Supplement SD. All receptacles installed in corridors shall be hospital grade.
1. Products: Subject to compliance with requirements:
a. Leviton; 8300 (duplex).

C. Isolated-Ground, Duplex Convenience Receptacles:
1. Products: Subject to compliance with requirements:
a. Leviton; 5380-IG.

2. Description: Straight blade, 125 V, 20 A; NEMA WD 6 configuration 5-20R. Equipment grounding contacts shall be connected only to the green grounding screw terminal of the device and with inherent electrical isolation from mounting strap. Isolation shall be integral to receptacle construction and not dependent on removable parts.

D. Tamper-Resistant Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.
1. Products: Subject to compliance with requirements:
a. Leviton; 8300-SGG.

2.3 GFCI RECEPTACLES

A. General Description: Straight blade, industrial grade, non-feed-through type. Comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 943, Class A, and include indicator light that is lighted when device is tripped.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Products: Subject to compliance with requirements:
a. Leviton; 6899.

2.4 PENDANT CORD-CONNECTOR DEVICES

A. Description: Matching, locking-type plug and receptacle body connector; NEMA WD 6 configurations L5-20P and L5-20R, heavy-duty grade.

1. Body: Nylon with screw-open cable-gripping jaws and provision for attaching external cable grip.
2. External Cable Grip: Woven wire-mesh type made of high-strength galvanized-steel wire strand, matched to cable diameter, and with attachment provision designed for corresponding connector.

2.5 CORD AND PLUG SETS

A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.

1. Cord: Rubber-insulated, stranded-copper conductors, with Type SOW-A jacket; with green-insulated grounding conductor and equipment-rating ampacity plus a minimum of 30 percent.
2. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

2.6 SNAP SWITCHES

A. Comply with NEMA WD 1 and UL 20.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements:
   a. Leviton; 1221-2 (single pole), 1222-2 (two pole), 1223-2 (three way), 1224-2 (four way).

C. Pilot Light Switches, 20 A:

1. Products: Subject to compliance with requirements:
   a. Leviton; 1221-PLR for 120 V, 1221-7PLR for 277 V.

2. Description: Single pole, with neon-lighted handle, illuminated when switch is "ON."

2.7 WALL PLATES

A. Single and combination types to match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Smooth, high- impact thermoplastic (non-breakable).
3. Material for Unfinished Spaces: Smooth, high-impact thermoplastic (non-breakable).
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in "wet locations."

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with type 3R weather-resistant, die-cast aluminum with lockable cover.

2.8 FINISHES

A. Color: Wiring device catalog numbers in Section Text do not designate device color.

1. Wiring Devices Connected to Normal Power System: Light Almond, unless otherwise indicated or required by NFPA 70 or device listing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.

B. Coordination with Other Trades:

1. Take steps to insure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.

2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:

    a. Cut back and pigtail, or replace all damaged conductors.
    b. Straighten conductors that remain and remove corrosion and foreign matter.
    c. Pigtailing existing conductors is permitted provided the outlet box is large enough.

D. Device Installation:

1. Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, 2/3 to 3/4 of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by the manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2 IDENTIFICATION

A. Comply with Division 16 Section "Electrical Identification."

1. Receptacles: Identify panelboard and circuit number from which served. Use durable wire markers or tags inside outlet boxes.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated LED indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is not acceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. The tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

END OF SECTION

SECTION 16410 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following individually mounted, enclosed switches and circuit breakers:

1. Fusible switches.
2. Nonfusible switches.
3. Molded-case circuit breakers.
4. Molded-case switches.
5. Enclosures.

1.3 DEFINITIONS

A. GD: General duty.

B. GFCI: Ground-fault circuit interrupter.

C. HD: Heavy duty.

D. RMS: Root mean square.

E. SPDT: Single pole, double throw.

1.4 SUBMITTALS

A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

1. Enclosure types and details for types other than NEMA 250, Type 1.
2. Current and voltage ratings.
3. Short-circuit current rating.
4. UL listing for series rating of installed devices.
5. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.

B. Shop Drawings: Diagram power, signal, and control wiring.

C. Manufacturer Seismic Qualification Certification: Submit certification that enclosed switches and circuit breakers, accessories, and components will withstand seismic forces defined in Division 16 Section "Electrical Supports and Seismic Restraints." Include the following:

1. Basis of Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

    a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
    b. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Qualification Data: For testing agency.

E. Field quality-control test reports including the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

F. Manufacturer's field service report.

G. Operation and Maintenance Data: For enclosed switches and circuit breakers to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 1 Section " Operation and Maintenance Data," include the following:

1. Manufacturer's written instructions for testing and adjusting enclosed switches and circuit breakers.
2. Time-current curves, including selectable ranges for each type of circuit breaker.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with NFPA 70.

D. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Rate equipment for continuous operation under the following conditions, unless otherwise indicated:

1. Ambient Temperature: Not less than minus 22 deg F and not exceeding 104 deg F.
2. Altitude: Not exceeding 6600 feet.

1.7 COORDINATION

A. Coordinate layout and installation of switches, circuit breakers, and components with other construction, including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 FUSIBLE AND NONFUSIBLE SWITCHES

A. Manufacturers:
1. General Electric (GE).
2. Square D/Group Schneider (Square D).
3. Cutler-Hammer (Eaton).
4. Siemens Industrial (Siemens).

B. Fusible Switch, 1200 A and Smaller: NEMA KS 1, Type HD, with clips or bolt pads to accommodate specified fuses, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.

C. Nonfusible Switch, 1200 A and Smaller: NEMA KS 1, Type HD, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.

D. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded, and bonded; and labeled for copper and aluminum neutral conductors.
3. Auxiliary Contact Kit: Auxiliary set of contacts arranged to open before switch blades open.

2.3 MOLDED-CASE CIRCUIT BREAKERS AND SWITCHES

A. Manufacturers:
1. General Electric (GE).
2. Square D/Group Schneider (Square D).
3. Cutler-Hammer (Eaton).
4. Siemens Industrial (Siemens).

B. Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. GFCI Circuit Breakers: Single- and two-pole configurations with 30-mA trip sensitivity.

C. Electronic Trip Circuit Breakers: Field-replaceable rating plug, rms sensing, with the following field-adjustable settings:

1. Instantaneous trip.
2. Long- and short-time pickup levels.
3. Long- and short-time time adjustments.
4. Ground-fault pickup level, time delay, and I^2t response.

D. Molded-Case Circuit-Breaker Features and Accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Mechanical style suitable for number, size, trip ratings, and conductor material.
3. Application Listing: Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
4. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.

E. Molded-Case Switches: Molded-case circuit breaker with fixed, high-set instantaneous trip only, and short-circuit withstand rating equal to equivalent breaker frame size interrupting rating.

F. Molded-Case Switch Accessories:

1. Lugs: Mechanical style suitable for number, size, trip ratings, and material of conductors.
2. Application Listing: Type HACR for heating, air-conditioning, and refrigerating equipment.

2.4 ENCLOSURES

A. NEMA AB 1 and NEMA KS 1 to meet environmental conditions of installed location.

1. Outdoor Locations: NEMA 250, Type 3R.
2. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
3. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
4. Hazardous Areas Indicated on Drawings: NEMA 250, Type 7C.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with applicable portions of NECA 1, NEMA PB 1.1, and NEMA PB 2.1 for installation of enclosed switches and circuit breakers.

B. Mount individual wall-mounting switches and circuit breakers with tops at uniform height, unless otherwise indicated. Anchor floor-mounting switches to concrete base.

C. Comply with mounting and anchoring requirements specified in Division 16 Section "Electrical Supports and Seismic Restraints."

3.3 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 16 Section "Electrical Identification."

B. Enclosure Nameplates: Label each enclosure with engraved metal or laminated-plastic nameplate as specified in Division 16 Section "Electrical Identification."

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.

B. Prepare for acceptance testing as follows:

1. Inspect mechanical and electrical connections.
2. Verify switch and relay type and labeling verification.
3. Verify rating of installed fuses.
4. Inspect proper installation of type, size, quantity, and arrangement of mounting or anchorage devices complying with manufacturer's certification.

C. Perform the following field tests and inspections and prepare test reports:

1. Test mounting and anchorage devices according to requirements in Division 16 Section "Electrical Supports and Seismic Restraints."
2. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
3. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

3.5 ADJUSTING

A. Set field-adjustable switches and circuit-breaker trip ranges as directed by manufacturer.

B. The switchgear manufacturer shall be responsible for recommending the trip settings on all solid state circuit breakers.

3.6 CLEANING

A. On completion of installation, vacuum dirt and debris from interiors; do not use compressed air to assist in cleaning.

B. Inspect exposed surfaces and repair damaged finishes.

END OF SECTION

SECTION 16511 - INTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Interior lighting fixtures, lamps, and ballasts.
2. Emergency lighting units.
3. Exit signs.
4. Lighting fixture supports.

1.3 DEFINITIONS

A. BF: Ballast factor.

B. CRI: Color-rendering index.

C. CU: Coefficient of utilization.

D. HID: High-intensity discharge.

E. LER: Luminaire efficacy rating.

F. Luminaire: Complete lighting fixture, including ballast housing if provided.

G. RCR: Room cavity ratio.

1.4 SUBMITTALS

A. Product Data: For each type of lighting fixture, arranged in order of fixture designation. Include data on features, accessories, finishes, and the following:

1. Physical description of lighting fixture including dimensions.
2. Emergency lighting units including battery and charger.
3. Ballast.
4. Energy-efficiency data.
5. Air and Thermal Performance Data: For air-handling lighting fixtures. Furnish data required in "Submittals" Article in Division 15 Section "Diffusers, Registers, and Grilles."

6. Sound Performance Data: For air-handling lighting fixtures. Indicate sound power level and sound transmission class in test reports certified according to standards specified in Division 15 Section "Diffusers, Registers, and Grilles."
7. Life, output, and energy-efficiency data for lamps.
8. Photometric data, in IESNA format, based on laboratory tests of each lighting fixture type, outfitted with lamps, ballasts, and accessories identical to those indicated for the lighting fixture as applied in this Project.

    a. For indicated fixtures, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining fixtures shall be certified by the manufacturer.
    b. Photometric data shall be certified by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program (NVLAP) for Energy Efficient Lighting Products.

B. Shop Drawings: Show details of nonstandard or custom lighting fixtures. Indicate dimensions, weights, methods of field assembly, components, features, and accessories.

    1. Wiring Diagrams: Power and control wiring.

C. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:

    1. Lighting fixtures.
    2. Suspended ceiling components.
    3. Structural members to which suspension systems for lighting fixtures will be attached.
    4. Other items in finished ceiling including the following:

        a. Air outlets and inlets.
        b. Speakers.
        c. Sprinklers.
        d. Smoke and fire detectors.
        e. Occupancy sensors.
        f. Access panels.

    5. Perimeter moldings.

D. Samples for Verification: Interior/exterior lighting fixtures may be designated for sample submission by Engineer. When requested each sample shall include the following:

    1. Lamps: Specified units installed.
    2. Accessories: Cords and plugs.

E. Product Certificates: For each type of ballast for bi-level and dimmer-controlled fixtures, signed by product manufacturer.

F. Qualification Data: For agencies providing photometric data for lighting fixtures.

G. Field quality-control test reports.

H. Operation and Maintenance Data: For lighting equipment and fixtures to include in emergency, operation, and maintenance manuals.

I. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with NFPA 70.

D. FMG Compliance: Lighting fixtures for hazardous locations shall be listed and labeled for indicated class and division of hazard by FMG.

E. Mockups: Provide interior lighting fixtures for room or module mockups, complete with power and control connections.

1. Obtain Architect's approval of fixtures for mockups before starting installations.
2. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
3. Approved fixtures in mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 COORDINATION

A. Coordinate layout and installation of lighting fixtures and suspension system with other construction that penetrates ceilings or is supported by them, including HVAC equipment, fire-suppression system, and partition assemblies.

1.7 WARRANTY

A. Special Warranty for Emergency Lighting Batteries: Manufacturer's standard form in which manufacturer of battery-powered emergency lighting unit agrees to repair or replace components of rechargeable batteries that fail in materials or workmanship within specified warranty period.

1. Warranty Period for Emergency Lighting Unit Batteries: 10 years from date of Substantial Completion. Full warranty shall apply for first year, and prorated warranty for the remaining nine years.
2. Warranty Period for Emergency Fluorescent Ballast and Self-Powered Exit Sign Batteries: Seven years from date of Substantial Completion. Full warranty shall apply for first year, and prorated warranty for the remaining six years.

B. Special Warranty for Ballasts: Manufacturer's standard form in which ballast manufacturer agrees to repair or replace ballasts that fail in materials or workmanship within specified warranty period.

1. Warranty Period for Electronic Ballasts: Five years from date of Substantial Completion.
2. Warranty Period for Electromagnetic Ballasts: Three years from date of Substantial Completion.

C. Special Warranty for T8 Fluorescent Lamps: Manufacturer's standard form, made out to Owner and signed by lamp manufacturer agreeing to replace lamps that fail in materials or workmanship, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

1. Warranty Period: One year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In Interior Lighting Fixture Schedule where titles below are column or row headings that introduce lists, the following requirements apply to product selection:

1. Basis-of-Design Product: The design for each lighting fixture is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product by one of the other manufacturers specified. Substitute lighting manufacturers shall submit lighting fixtures submittal data to the engineer for review and approval ten (10) calendar days prior to the bid date.

2.2 LIGHTING FIXTURES AND COMPONENTS, GENERAL REQUIREMENTS

A. Recessed Fixtures: Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures.

B. Fluorescent Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5 and NEMA LE 5A as applicable.

C. Metal Parts: Free of burrs and sharp corners and edges.

D. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Reflecting surfaces shall have minimum reflectance as follows, unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.
4. Laminated Silver Metallized Film: 90 percent.

G. Plastic Diffusers, Covers, and Globes:

1. Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.

   a. Lens Thickness: At least 0.156 inch minimum unless different thickness is indicated.
   b. UV stabilized.

2. Glass: Annealed crystal glass, unless otherwise indicated.

2.3 LED LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. NRTL Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by an NRTL.

C. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.

D. Recessed Fixtures: Comply with NEMA LE 4.

E. CRI of 80 (minimum) with CCT of 4000 K.

F. Rated lamp life of 50,000 hours (minimum).

G. Lamps dimmable from 100 percent to 1 percent of maximum light output.

H. Internal driver.

I. Nominal Operating Voltage: 120 V ac / 277 V ac.

1. Lens Thickness: At least 0.156 inch minimum unless otherwise indicated.

J. Housings:

1. Extruded-aluminum housing and heat sink.
2. Powder-coat finish.

2.4 BALLASTS FOR LINEAR FLUORESCENT LAMPS

A. Electronic Ballasts: Comply with ANSI C82.11; instant-start type, unless otherwise indicated, and designed for type and quantity of lamps served. Ballasts shall be designed for full light output unless dimmer or bi-level control is indicated.

1. Sound Rating: A.
2. Total Harmonic Distortion Rating: Less than 10 percent.
3. Transient Voltage Protection: IEEE C62.41, Category A or better.
4. Operating Frequency: 20 kHz or higher.
5. Lamp Current Crest Factor: 1.7 or less.
6. BF: 0.85 or higher.
7. Power Factor: 0.98 or higher.
8. Parallel Lamp Circuits: Multiple lamp ballasts shall comply with ANSI C 82.11 and shall be connected to maintain full light output on surviving lamps if one or more lamps fail.

B. Single Ballasts for Multiple Lighting Fixtures: Factory-wired with ballast arrangements and bundled extension wiring to suit final installation conditions without modification or rewiring in the field.

C. Ballasts for Low-Temperature Environments:

1. Temperatures 0 Deg F and Higher: Electronic type rated for 0 deg F starting and operating temperature with indicated lamp types.
2. Temperatures Minus 20 Deg F and Higher: Electromagnetic type designed for use with indicated lamp types.

D. Ballasts for Low Electromagnetic-Interference Environments: Comply with 47 CFR, Chapter 1, Part 18, Subpart C, for limitations on electromagnetic and radio-frequency interference for consumer equipment.

E. Ballasts for Bi-Level Controlled Lighting Fixtures: Electronic type.

1. Operating Modes: Ballast circuit and leads provide for remote control of the light output of the associated lamp between high- and low-level and off.

   a. High-Level Operation: 100 percent of rated lamp lumens.
   b. Low-Level Operation: 30 percent of rated lamp lumens.

2. Ballast shall provide equal current to each lamp in each operating mode.
3. Compatibility: Certified by manufacturer for use with specific bi-level control system and lamp type indicated.

2.5 EMERGENCY FLUORESCENT POWER UNIT

A. Internal Type: Self-contained, modular, battery-inverter unit, factory mounted within lighting fixture body and compatible with ballast. Comply with UL 924.

1. Emergency Connection: Operate 1 fluorescent lamp(s) continuously at an output of 1100 lumens each. Connect unswitched circuit to battery-inverter unit and switched circuit to fixture ballast.
2. Night-Light Connection: Operate one fluorescent lamp continuously.
3. Test Push Button and Indicator Light: Visible and accessible without opening fixture or entering ceiling space.

    a. Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
    b. Indicator Light: LED indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.

4. Battery: Sealed, maintenance-free, nickel-cadmium type.
5. Charger: Fully automatic, solid-state, constant-current type with sealed power transfer relay.
6. Remote Test: Switch in hand-held remote device aimed in direction of tested unit initiates coded infrared signal. Signal reception by factory-installed infrared receiver in tested unit triggers simulation of loss of its normal power supply, providing visual confirmation of either proper or failed emergency response.
7. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and flashing red LED.

2.6 EXIT SIGNS

A. Description: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.

B. Internally Lighted Signs:

1. Lamps for AC Operation: LEDs, 70,000 hours minimum rated lamp life.
2. Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.

    a. Battery: Sealed, maintenance-free, nickel-cadmium type.
    b. Charger: Fully automatic, solid-state type with sealed transfer relay.
    c. Operation: Relay automatically energizes lamp from battery when circuit voltage drops to 80 percent of nominal voltage or below. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
    d. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
    e. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
    f. Remote Test: Switch in hand-held remote device aimed in direction of tested unit initiates coded infrared signal. Signal reception by factory-installed infrared receiver in tested unit triggers simulation of loss of its normal power supply, providing visual confirmation of either proper or failed emergency response.

g. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and flashing red LED.

2.7 FLUORESCENT LAMPS

A. Low-Mercury Lamps: Comply with EPA's toxicity characteristic leaching procedure test; shall yield less than 0.2 mg of mercury per liter when tested according to NEMA LL 1.

B. T8 rapid-start low-mercury lamps, rated 32 W maximum, nominal length of 48 inches, 2950 initial lumens (minimum), CRI 82 (minimum), color temperature 4100 K, and average rated life 20,000 hours, unless otherwise indicated.

2.8 LIGHTING FIXTURE SUPPORT COMPONENTS

A. Comply with Division 16 Section "Electrical Supports and Seismic Restraints" for channel- and angle-iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as fixture.

C. Twin-Stem Hangers: Two, 1/2-inch steel tubes with single canopy designed to mount a single fixture. Finish same as fixture.

D. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage.

E. Wires for Humid Spaces: ASTM A 580/A 580M, Composition 302 or 304, annealed stainless steel, 12 gage.

F. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

G. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Lighting fixtures: Set level, plumb, and square with ceilings and walls. Install lamps in each fixture.

B. Support for Lighting Fixtures in or on Grid-Type Suspended Ceilings: Use grid as a support element.

1. Install a minimum of two ceiling support system rods or wires for each fixture. Locate not more than 6 inches from lighting fixture corners.
2. Support Clips: Fasten to lighting fixtures and to ceiling grid members at or near each fixture corner with clips that are UL listed for the application.

3. Fixtures of Sizes Less Than Ceiling Grid: Install as indicated on reflected ceiling plans or center in acoustical panel, and support fixtures independently with at least two 3/4-inch metal channels spanning and secured to ceiling tees.
4. Install at least one independent support rod or wire from structure to a tab on lighting fixture. Wire or rod shall have breaking strength of the weight of fixture at a safety factor of 3.

C. Suspended Lighting Fixture Support:

1. Pendants and Rods: Where longer than 48 inches, brace to limit swinging.
2. Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers.
3. Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of fixture chassis, including one at each end.

D. Air-Handling Lighting Fixtures: Install with dampers closed and ready for adjustment.

E. Adjust aimable lighting fixtures to provide required light intensities.

F. Connect wiring according to Division 16 Section "Conductors and Cables." All fixtures shall be wired independently of other fixtures thru J-boxes. The “daisy chaining” of light fixture wiring together shall not be allowed.

3.2 FIELD QUALITY CONTROL

A. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery and retransfer to normal.

B. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

END OF SECTION