

SPECIFICATIONS

FOR

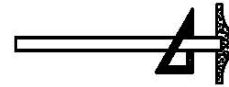
**UNITED BROTHERHOOD OF CARPENTERS LOCAL 133
3050 SOUTH 6TH STREET
TERRE HAUTE, INDIANA 47802**

NEW OFFICE BUILDING

MICHAEL R. WALDBIESER



ENGINEERING & CONSULTING, INC.
STRUCTURAL, PLUMBING, MECHANICAL, & ELECTRICAL DESIGN



SYCAMORE BUILDING
19 SOUTH 6th STREET, SUITE 804
TERRE HAUTE, INDIANA 47807

PHONE: (812) 232-6510
FAX: (812) 232-7098



Michael R. Waldbieser

SET NO. _____

April 01, 2016

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NOTICE TO BIDDERS
UNITED BROTHERHOOD OF CARPENTERS LOCAL 133
NEW OFFICE BUILDING
3050 SOUTH 6TH STREET, TERRE HAUTE, INDIANA 47802

Notice is hereby given that sealed bids will be received

By: United Brotherhood of Carpenters Local 133
3050 South 6th Street
Terre Haute, Indiana 47802

For: United Brotherhood of Carpenters Local 133
New Office Building
3050 South 6th Street
Terre Haute, Indiana 47802

At: Michael R. Waldbieser Engineering & Consulting, Inc.
19 South 6th Street
Suite 804
Terre Haute, Indiana 47807

Until: 2:00 p.m. local time
Tuesday April 19, 2016
Bids received after that time will be returned unopened.

Bid opening: Bids will be privately opened.

Bid Documents: Bid documents will be available for distribution on
April 01, 2016

The Owner will receive sealed bids for bid packages as listed in the contract documents.

Bids shall be executed on the forms provided. Bids shall be delivered in a sealed opaque envelope showing the Bidder's name, address, and marked :

United Brotherhood of Carpenters Local 133
New Office Building
3050 South 6th Street
Terre Haute, Indiana 47802

NOTICE TO BIDDERS
UNITED BROTHERHOOD OF CARPENTERS LOCAL 133
NEW OFFICE BUILDING
3050 SOUTH 6TH STREET, TERRE HAUTE, INDIANA 47802

Each bid proposal shall include all labor, material, and services necessary to complete the portion of the project in the indicated bid package in strict accordance with the drawings and specifications as prepared and on file in the offices of:

The Engineer: Michael R. Waldbieser
Engineering and Consulting, Inc.
Sycamore Building
19 S. Sixth Street, Suite 804
Terre Haute, Indiana 47807
Phone: (812) 232-6510

Plan Room: Rapid Reproductions, Inc.
129 South 11th Street
Terre Haute, Indiana 47807
Phone: (812) 238-1681
Copies may be purchased from Rapid Reproductions.

Electronic copies of the bidding documents, in pdf format, may be obtained by contacting Mr. Michael R. Waldbieser at (812) 232-6510. Copies may be purchased from Rapid Reproductions, Inc. (812) 238-1681.

Bidder shall provide pricing for base and alternate scopes of work as identified in project specifications and construction drawings for the construction of the New Office Building, located at 3050 South 6th Street, Terre Haute, Indiana 47802.

Bids shall be properly and completely executed in accordance with the instructions and supplementary instructions to bidders and shall be submitted on the attached Bid Form contained in the bidding documents.

Bid Bond is not required.

Performance & Payment Bond is required on this project.

Certified Payroll is not required on this project.

Other required documents to be submitted with the bid include the following:

Section 00300 – Bid Form attached to Bid Documents

Section 00500 – Sub-Contractors Listing

NOTICE TO BIDDERS
UNITED BROTHERHOOD OF CARPENTERS LOCAL 133
NEW OFFICE BUILDING
3050 SOUTH 6TH STREET, TERRE HAUTE, INDIANA 47802

Pending approval of the project by United Brotherhood of Carpenters Local 133, it is the intent of the United Brotherhood of Carpenters Local 133 to award the contract based on the bid prices received and the funds available for the project. However, the Owner may accept the lowest responsible and responsive bid; accept the lowest responsible and responsive bid for the base bid plus any or all alternate(s), or reject all bids. The contract will not necessarily be awarded to the lowest responsible and responsive bidder on the base bid alone.

The successful bidder will be required to furnish insurance covering Workmen's Compensation, Public Liability, and Property Damage and any other which may be required, before the contract can be signed and issued.

Indiana State Gross Retail and Use Tax is **NOT** to be included in the Bid Price, as United Brotherhood of Carpenters Local 133 is tax **exempt**. The provision shall apply both to transactions between United Brotherhood of Carpenters Local 133 and the Contractor, the Contractor and any Subcontractors, and to transactions between the material suppliers and the Contractor.

The Owner reserves the right to waive any and all formalities and informalities or to reject any and all bids. The Owner shall accept bids which, in his judgement, are in his own best interests. Bids received after the time set to receive bids shall be returned unopened.

United Brotherhood of Carpenters Local 133 is committed to equal opportunity employment without regard to race, religion, physical or mental disability, age, veteran status, color, creed, national origin, or sex. Contractor participation in a MBE/WBE program is encouraged by the Owner.

Prospective Bidders may visit the site during normal business hours. Questions during the bidding period should be directed to Michael R. Waldbieser (812) 232-6510.

Each Bidder submitting a Bid represents that he has read and understands the Bidding Documents and Scope of Work. Each Contractor represents that he has visited the site and has adequately familiarized himself with the existing conditions. No additional cost to the Owner will be allowed due to the Contractor's failure to avail him of a complete and thorough on-site inspection of existing conditions.

NOTICE TO BIDDERS
UNITED BROTHERHOOD OF CARPENTERS LOCAL 133
NEW OFFICE BUILDING
3050 SOUTH 6TH STREET, TERRE HAUTE, INDIANA 47802

Whenever products or materials are specified as "Standards" or they are otherwise named, approval of other equal quality products shall be obtained by requesting in writing and presenting for evaluation such product or material to the Engineer no later than 2:00 p.m., April 14th, 2016. Submittals circumventing the above time frame will not be processed. Substitutions will be considered from Bidders only:

1. If approval is granted, product or material will be added by addendum.
2. No direct reply will be made to any requests for changes, but any requested changes approved by the Engineer will be stated in an addendum issued to all Bidders.
3. Addendums and clarifications to bidding/construction documents shall be distributed via email or faxed to bidders not later than April 15th, 2016.

The construction hereby contemplated is to be governed, at all times, by applicable provisions of the Indiana and Federal Law(s), including, but not limited to, the latest Amendments of the following:

- 1) Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596.
- 2) Part 1910 - Occupational Safety and Health Standards, Chapter VIII of Title 29, Code of Federal Regulations.
- 3) Part 1926 - Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.

It is to be understood by all Contractors that the construction work covered by these documents shall be contracted to contractors and sub-contractors who agree to pay the "prevailing wage" existing in Vigo County, Indiana and that this project shall be bound by the terms of Collective Bargaining Agreements with the Local Unions existing in Vigo County, Indiana as determined and interpreted by the "TRUSTEES".

End of Section

INFORMATION FOR BIDDERS

1. RECEIPT AND OPENING OF BIDS.

United Brotherhood of Carpenters Local 133 (herein called the owner), invites bids on the attached Bid Form with Non-Collusion Affidavit with all blanks of which must be appropriately filled in. Bids will be received at the office of Michael R. Waldbieser Engineering & Consulting, Inc., 19 South 6th Street, Suite 804, Terre Haute, Indiana 47807 until the date and time indicated in the "Instructions to Bidders" portion of these written specifications. The bids will be a privately opened by the Owner.

2. QUALIFICATION OF BIDDER.

The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidders shall furnish to the Owner, all such information and data for this purpose as the Owner may request. 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 obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

3. CONDITIONS OF WORK.

Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor therein. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract.

4. ADDENDA AND INTERPRETATIONS.

No interpretation of the meaning of the plans, specifications, or other pre-bid documents will be made to the bidder orally. Every request for such interpretation should be in writing, addressed to Michael R. Waldbieser Engineering & Consulting Inc., 19 South 6th Street, Suite 804, Terre Haute, Indiana 47807 and addressed to Mr. Michael Waldbieser for consideration, must be received as directed in the "Notice to Bidders". Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be distributed as directed in the "Notice to Bidders". Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. Addenda so issued shall become part of the contract documents.

5. OBLIGATION OF BIDDER.

At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure of omission of any bidder to examine any form, instrument or document, shall in no way relieve any bidder from any obligation in respect to this bid.

6. TIME OF COMPLETION.

Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" from the Owner and to fully complete the project in a time frame agreed to with the Owner. Provide preliminary schedule with the bid for time of completion for the project.

INSTRUCTIONS TO BIDDERS

PROJECT: United Brotherhood of Carpenters Local 133
New Office Building
3050 South 6th Street
Terre Haute, Indiana 47802

OWNER: United Brotherhood of Carpenters Local 133
3050 South 6th Street
Terre Haute, Indiana 47802

CONTACT: Mr. Greg Tucker

BIDS: Due by: Tuesday April 19th, 2016 at 2:00 PM Local Time
At Offices: Michael R. Waldbieser Engineering & Consulting, Inc.
3050 South 6th Street
Terre Haute, Indiana 47807

Sealed Bids

Bid on attached form - Bid Form with Non-Collusion Affidavit

Bid Bond - Not Required

Performance & Payment Bond - Required

Mark Envelope - United Brotherhood of Carpenters of Local 133
New Office Building
3050 South 6th Street
Terre Haute, Indiana 47802

Start Date - As soon as Owner awards Contract.

Bids to be good for 60 days from date which bid are due.

Finish Date - Coordinated with Owner

Contract - Contract to be prepared by the Owner.

DOCUMENTS:

Engineers Drawings

Engineers Specifications

Instructions to Bidders

AIA A201-2007 General Conditions of the Contract for Construction

Supplemental General Conditions

Electronic copies of the bidding documents, in pdf format, may be obtained by contacting Mr. Michael R. Waldbieser at (812) 232-6510.

Copies may be purchased from Rapid Reproductions, Inc. (812) 238-1681.

Rapid Reproductions Inc.
129 South 11th Street
Terre Haute, Indiana 47807.
Phone 238-1681.

After bidding, it is requested that the unsuccessful Contractors return their set of drawings to the Owner.

CONTRACTORS RESPONSIBILITY:

- A. Direct questions to the Engineer.
- B. Contractor shall visit the site and familiarize himself with the work.
- C. The Contractor shall leave the site in as clean condition as before the construction.
- D. General Contractor shall obtain the Vigo County Construction Permit. Trade specific permits, tap fees, connection fees, etc. by Contractor/Bidder.
- E. State approvals will be obtained by Engineer.
- F. The Contractor shall coordinate with the Owner when work is to begin.
- G. The Owner is **Not** subject to Indiana Sales Tax and such tax should **Not** be Included in the bids.
- H. If the Contractors discover any discrepancy on the drawings or in the specifications, they shall report the same to the Engineer before proceeding with any work affected by the discrepancy, and shall be held responsible for the results should he fail to make such report.
- I. Refer to Section 1010 SUMMARY OF WORK for work included in this contract.

GENERAL CONDITIONS:

- A. The drawings are for reference only. The Contractors shall verify all existing site conditions.
- B. The Owner is to have access to the site at all times.
- C. The Contractors shall provide all barricades and traffic control devices.
- D. The Contractors shall provide directional signs for pedestrians and place as directed by the Owner.
- E. Explosives are prohibited on this project.
- F. The Contractors shall clean roadways and surroundings on a daily basis.
- G. The staging of materials shall be approved by the Owner.
- H. Any sidewalks damaged during construction shall be replaced by the General Contractor at no charge to the Owner.

MAINTENANCE:

- A. The Contractors shall maintain the grounds within the project.
- B. The Contractors shall protect all existing walls, glass, and existing buildings. Damaged areas are to be brought back to original condition.

DEMOLITION:

- A. The Contractors are to remove and dispose of all debris in a legal manner.
- B. The Contractors shall maintain dust control at all times.
- C. Remove all existing construction shown on the drawings and referred to in the specifications.
- D. Remove all materials associated with the demolition work from the site.

SCOPE OF WORK: (ADDITIONAL ITEMS MAY APPLY)

- A. Install all safety barricades.
- B. Remove existing construction as necessary and as stated on the drawings in order to install the new work under this contract.
- C. Construct new building as shown on the drawings and site work shown on the Bid Documents.

**CONTRACTOR'S BID
PART I**

(To be completed for all bids. Please type or print)

Bidder (Firm): _____

Address: _____ P.O. Box _____

City/State/Zip: _____

Telephone Number: _____ Fax Number: _____

Federal ID Number: _____

E-Mail Address: _____

Person to contact regarding this bid (printed): _____

Pursuant to notices given, the undersigned offers to furnish labor and/or material necessary to complete the project of "United Brotherhood of Carpenters Local 133 – New Office Building" in accordance with plans and specifications prepared by Michael R. Waldbieser Engineering & Consulting, Inc. in Terre Haute, Indiana for the sum of:

BASE BID AMOUNT

_____ Dollars (_____)
(Sum in Words) (Sum in Figures)

ALTERNATE #1 BID AMOUNT – Addition of Cabinetry shown in Detail 2/3.0

_____ Dollars (_____)
(Sum in Words) (Sum in Figures)

ALTERNATE #2 BID AMOUNT – Addition of Cabinetry shown in Detail 7/3.0 & 8/3.0

_____ Dollars (_____)
(Sum in Words) (Sum in Figures)

ALTERNATE #3 BID AMOUNT – Delete Directionally Boring of Utility's – Remove and Replace Asphalt Paving as shown.

_____ Dollars (_____)
(Sum in Words) (Sum in Figures)

BID BOND

Bid Bond is not required on this project.

PERFORMANCE & PAYMENT BOND

Performance & Payment Bond is required on this project.

PROPOSAL TIME

Provide the Owner the number of weeks to complete the project.

Number of weeks to finish project _____.

ADDENDUM ACKNOWLEDGEMENT

The undersigned acknowledges receipt of the following Addenda:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

SUB-CONTRACTORS LISTING

For: United Brotherhood of Carpenters Local 133
New Office Building
3050 South 6th Street
Terre Haute, Indiana 47802

Owner: United Brotherhood of Carpenters Local 133
3050 South 6th Street
Terre Haute, Indiana 47802

Engineer: Michael R. Waldbieser
Engineering & Consulting, Inc.
Sycamore Building
19 South 6th Street, Suite 804
Terre Haute, Indiana 47807

List of Sub-Contractors:

Excavating/Site Contractor: _____

Concrete Contractor: _____

Masonry Contractor: _____

Floor Finish Contractor: _____

Gypsum Board Contractor: _____

Rough Framing Contractor: _____

Insulation Contractor: _____

Painting Contractor: _____

Plumbing Contractor: _____

HVAC Contractor: _____

Electrical Contractor: _____

Note: All Contractors and Sub Contractors shall participate in the Collective Bargaining Agreements with Local Unions for all work performed on this project.

AIA Document A201-2007 General Conditions of the Contract for Construction

The following 39 pages in the specification book is AIA Document A201-2007 General Conditions of the Contract for Construction. Wherever the word “Architect” is used, replace with the word “Engineer”.

SUPPLEMENTAL GENERAL CONDITIONS

1. COPIES OF DOCUMENTS:

Contract Documents may be purchased as directed in the "Notice to Bidders".

2. BONDS AND INSURANCE:

A. The Contractor shall not commence work under this contract until he has obtained all insurance required by these specifications and until such insurance has been approved by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been obtained and approved. Policies expiring on a fixed date before final acceptance of the project must be renewed and evidence of such renewal submitted to the Owner before such date.

B. The Contractor shall furnish the Owner with satisfactory evidence of the insurance required.

C. The Owner will obtain the "Builders Risk Insurance" coverage for the entire project.

D. All policies and/or policy certificates shall contain the following clauses:

1. **Worker's Compensation Insurance:** The Contractor shall maintain during the life of this contract Worker's Compensation Insurance for all his employees employed at the site of the project, and, in case any work is sublet, the Contractor must require the Subcontractor similarly to provide Worker's Compensation Insurance for all of his employees engaged in work under this contract at the site of the project. The Contractor shall provide insurance coverage equal to that provided under the Worker's Compensation Act, for the protection of his employees not otherwise protected. Employers liability coverage must be maintained in amounts not less than 100,000/500,000/100,000.

2. **Public Liability Property Damage:** The Contractor shall maintain during the life of this contract Commercial General Liability Insurance. Such coverage shall protect him and any Subcontractor performing work covered by this contract, from claims for damages for personal injury, including accidental death, as well as from claims for property damages, which may arise from operations under this contract, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by either of them and the amounts of such insurance shall be as follows:

Commercial General Liability insurance in an amount not less than \$1,000,000 per occurrence for Bodily Injury, Property Damage, Personal and Advertising Injury with a \$1,000,000 general aggregate and a \$1,000,000 Products and Completed Operations aggregate.

The Contractor shall require all of its Subcontractors, if not protected under Contractor's insurance policies, to effect and maintain, at their own expense during the entire period of performance and until completion of the subcontract, Commercial General Liability Insurance with a company or companies to the satisfaction of the Owner, as follows:

- a. Commercial General Liability Insurance in an amount not less than \$1,000,000 per occurrence for Bodily Injury, Property Damage, or accidental death with a \$1,000,000 general aggregate and a \$1,000,000 Products and Completed Operations aggregate.
 - b. Special hazards not covered under the Commercial General Liability Insurance must be covered on a policy within the amounts as required above.
3. Business Auto Insurance: The Contractor and all Subcontractors shall at all times during the life of this contract, and any other subcontracts, maintain at their own expense, respectively, business auto insurance covering all liability and claims arising from the use and operation, anywhere in the United States, in connection with the performance of the Contract of Subcontracts of automobiles, whether such are owner, hired, or non-owned by the Contractor or Subcontractors. Such auto insurance shall be written with a limit of not less than \$1,000,000 per occurrence as a combined single limit for Bodily Injury and Property Damage coverage.
4. Umbrella Liability: The Contractor and all Subcontractors shall maintain during the life of this contract, Umbrella Liability Insurance providing excess coverage over the above specified primary insurance in an amount not less than:
 - a. \$1,000,000 for contracts UNDER \$100,000.00.
 - b. \$2,000,000 for contracts OVER \$100,000.00.
5. Additional Insurance Requirements: The Contractor and all Subcontractors in connection with the above mentioned Worker's Compensation Insurance shall furnish to the Owner a duly executed certificate of compliance, as prescribed by the Indiana Worker's Compensation Board showing that such insurance is in full force and effect.

With regard to the above mentioned General Liability Insurance, if in the event of any major change or cancellation of such policy, the Contractor and all Subcontractors shall give 30-day advance notice to the Owner.

Also, the Contractor and all Sub-contractors shall make the Owner, as stated in the "Instructions to Bidders", additional insured on their Business Auto and General Liability policies with regard to this Contract.

The Contractor and all Subcontractors shall be required to furnish to the Owner duly executed certificates of insurance showing that all insurance policies required under this contract have been issued and are in full force and effect at all times during the life of this contract and have named the Owner, as stated in the "Instructions to bidders", additional Insured. These certificates are to include General Liability, including contractual coverage, Business Auto and Umbrella Liability.

The “Contractor” will name the “Owner”, and any other parties specified, as an “Additional Insured” under the Commercial General Liability Policy. This “Additional Insured” coverage shall be on Form CG2010, or its equivalent, including “completed operations” coverage. The “Additional Insured” coverage provided to the Owner shall be primary coverage, and non-contributory as respects the Owners Liability policy.

6. Loss or Damage: The Owner will obtain all Builders Risk Insurance Policies for this Project.
7. Indemnification: To the fullest extent permitted by law, the Subcontractor expressly agrees to defend (at Subcontractor’s expense and with counsel acceptable to the Contractor), indemnify, and hold harmless Owner, Contractor, Architect, Architect’s Consultants, Engineer, Construction Manager, Lender, and any other parties which Contractor has agreed to indemnify as named or referenced in the project contract documents as attached to and made a part of this Subcontract, and their respective Officers, Directors, Shareholders, Employees, Agents, Successors, Affiliates, and Assigns from and against any and all claims, suits, losses, causes of action, damages, liabilities, fines, penalties and expenses of an kind whatsoever, including without limitation arbitration or court costs and attorney’s fees, arising on account of or in connection with injuries to or the death of any person, or any and all damages to property including loss of use, from or in any manner connected with the work performed by or for the Subcontractor under this Subcontract, caused in whole or in part by the presence of the person or property or the negligent acts or omissions of the Subcontractor or any of its Employees, Agents, Representatives, Sub-Subcontractors, or suppliers or anyone for whose acts they may be liable, including without limitation such claims, damage, loss of expense caused in part by the negligent acts or omissions of a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph.

The defense and Indemnification obligations under this Subcontract agreement shall not be restricted in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Subcontractor under workers’ compensation acts, disability benefits acts, or other employee benefits acts, and shall extend to and include any actions brought by or in the name of any employee of the Subcontractor or any third party to whom Subcontractor may subcontract a part or all of the work.

SUBCONTRACTORS:

- A. Prior to the awarding of the Contract, the contractor shall submit to the Owner, in writing, the names of the proposed Subcontractors and major material vendors. The Contractor shall furnish the Owner with full information concerning the proposed Subcontractor's ability and qualifications at the time such Subcontractor is submitted for approval.
- B. The Contractor shall be responsible for the acts and omissions of his Subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.
- C. Nothing contained in the Contract shall create any contractual relationship between any Subcontractor and the Owner, and no Subcontractor will be recognized as a party to the Contract.

3. TAXES:

The Contractor shall pay all unemployment, social security, and other such taxes imposed by local, state, or federal government.

The Owner is **NOT** subject to Indiana Retail Sales Tax and Federal Excise Tax, these taxes should **NOT** be included in the Contractor's bid.

4. SAFETY AND PROTECTION:

OCCUPATIONAL SAFETY AND HEALTH ACTS:

These construction documents, and the joint and several phases of construction hereby contemplated are to be governed at all times by the applicable provisions of the state and federal laws included, but not limited to, the latest amendments of the following:

- 1. Indiana Occupational Safety and Health Act.
- 2. Williams-Steiger Occupational Safety and Health Act of 1970 Public Law 81-596; Part 1910-Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations; Part 1518-Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.
- 3. The REMOVAL of all asbestos associated with this project shall be in conformance with all Governing Codes for removal.

The Contractor shall assume full responsibility for health and safety at the construction site, including, but not limited to, the above mentioned laws and regulations.

5. PAYMENTS TO CONTRACTOR AND COMPLETION:

Progress payments will be made monthly based on an approved Application for Payment, and will include work completed, as well as payment on material and equipment delivered and suitably stored at the site, less retainer of 10% of the amount of each, less the aggregate of previous payments in each case. Contractor must include with application, proof of purchase and delivery of materials and equipment stored.

6. SHOP DRAWINGS AND SAMPLES:

See Section 01300 Submittals and Section 01340 Shop Drawings, Product Data, & Samples for information on these items.

No material shall be delivered to the project until final approved shop drawings are in the hands of the Owner and Engineer and no shop drawings shall be used on the project that do not bear the Engineer's stamp of approval.

7. EQUAL EMPLOYMENT OPPORTUNITY:

Attention of Bidders is particularly called to the requirement for ensuring that employees and applicants for employment are not discriminated against because of their race, creed, color, sex or national origin.

Attention of Bidders is also particularly called to the requirements for ensuring that, to the greatest extent feasible, in connection with work covered by this contract, opportunities for training and employment be made available to lower income residents of the project area and that contract work shall be awarded to business concerns which are located in or owned substantially by residents of the Project Area.

SECTION 01000 - GOVERNING CODES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

The work on this project is to comply with all of the governing codes stated herein.

1.2 GOVERNING CODES

1. All work shall be performed in accordance with the 2012 International Building Code as adopted by the State of Indiana and called the 2014 Indiana Building Code.
2. Additional codes adopted with amendments are the following:
 - A. 2008 National Electrical Code as adopted by the State of Indiana and called the 2009 Indiana Electrical Code.
 - B. 2012 International Mechanical Code as adopted by the State of Indiana and called the 2014 Indiana Mechanical Code.
 - C. 2006 International Plumbing Code as adopted by the State of Indiana and called the 2012 Indiana Plumbing Code.
 - D. 2012 International Fire Code as adopted by the State of Indiana and called the 2014 Indiana Fire Code.
 - E. ASHRAE 90.1-2007 as adopted by the State of Indiana and called the 2010 Indiana Energy Conservation Code.
3. All work shall also be performed according to any city and county regulations or codes.
4. All trenching and excavations shall be properly designed by the Excavator in accordance with OSHA and IOSHA excavation regulations.
5. Job safety shall be adhered to by all Contractors on the project in accordance with OSHA and all governing bodies.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01005 - SUMMARY, ALLOWANCES, AND ALTERNATES

PART 1-GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification sections, apply to work of this section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Project consists of the new office building located at the existing site owned by:
United Brotherhood of Carpenters Local 133
3050 South 6th Street
Terre Haute, Indiana 47802

Project Location:

United Brotherhood of Carpenters Local 133
3050 South 6th Street
Terre Haute, Indiana 47802

- B. Contract documents dated April 01, 2016 were prepared by:

Michael R. Waldbieser
Engineering & Consulting, Inc.
19 South 6th Street, Suite 804
Terre Haute, Indiana 47807

- C. The Work includes all labor, material, equipment, tools, and services required for the new office building on South 6th Street as defined by the Contract Documents. A listing of the major products and systems included in the Work is indicated by the Index in the Project Manual.
- D. The Work will be completed under a single prime contract.

1.3 COORDINATION

- A. General: The Contract includes coordination of entire work of project including preparation of general coordination drawings/diagrams/schedules, and control of site utilization; from the beginning of activity, through the project close-out and warranty periods.
- B. The Owner will be occupying other portions of the building during construction. The contractor shall coordinate his activities during the term of the contract so as not to inconvenience the Owner and his operations any more than is necessary.

1.4 ALTERNATES

- A. Definitions: Alternates are defined as alternate products, materials, equipment or systems for the work, which may, at Owner's option and under terms established by Instructions to Bidders, be selected and recorded in (Owner-Contractor Agreement) to either supplement or displace corresponding basic requirements of contract documents. Alternates may or may not substantially change scope and general character of the work; and must not be confused with "allowances", "unit prices", "change orders", "substitutions", and other similar provisions.
- B. General Provisions: A "Schedule of Alternates" is included at end of this section. Each alternate is defined by abbreviated language, recognizing that drawings and specification sections document the requirements. Coordination of related work is required to ensure that work effected by each selected alternate is complete and properly interfaced with work of alternates.

1.5 ALLOWANCES

- A. General: A "Schedule of Allowances", showing amounts included in each prime Contract Sum, is included at end of this section. Coordinate allowance work with related work, to ensure that each selection is completely integrated and interfaced with related work. Requirements for work of allowance are shown and specified to extent established by date of contract documents; additional requirements are established by change order. At earliest possible date, advise Architect/Engineer of date each final allowance selection must be completed. Submit proposals for allowance work as directed, and in a manner specified for change orders. Indicate quantities, unit costs, total purchase amounts, taxes, delivery charges and trade discounts. Where requested, furnish detailed breakdown of quantity survey. Contractor mark-up on overrun of allowance purchases will be permitted where purchase amount exceeds established allowance by more than 15%; otherwise, and except as otherwise indicated, amount of change order on each allowance will be difference between purchase amount and allowance. Deliver excess materials of allowance work to Owner's storage space, or dispose of by other means as directed.
- B. Unit-Cost Allowances: Change Order amount will be difference between unit purchase amount and unit-cost allowance, multiplied by final measure or count of work-in-place, including reasonable margins for applicable cutting losses, tolerances, mixing wastes, product imperfections and similar margins. Owner reserves right to establish final measure or count of work-in-place by independent quantity surveyor.

1.6 CUTTING AND PATCHING

- A. Definition: Includes cutting and patching of both previously existing work and nominally completed portions of Contract work. Excludes shop fabrication of work, and normal installation procedures including the drilling of holes to install fasteners. Excludes special categories, grading, planting, cleaning, removal/replacement of noncomplying work and similar activities; although some of these activities may require cutting and patching.
- B. General: Specific requirements and limitations for cutting and patching are shown and specified for certain types of work, and specified in other sections of Division I as required quality control procedures for general application to performance of the work.

1.7 PERFORMANCE REQUIREMENTS FOR COMPLETED WORK

- A. General: The contract documents indicate intended occupancy and utilization of building or site and its individual systems and facilities. Compliance with governing regulations is intended and required, for the work and for Owner's occupancy and utilization.

1.8 DISPOSAL OF WASTE MATERIAL

- A. All waste material and debris resulting from Work of this Contract shall be removed from the site by Contractor and disposed of in a legal manner.

1.9 SCHEDULING/LIQUIDATED DAMAGES

- A. Construction shall commence within 10 calendar days of Notice to Proceed, and be completed within the time frame agreed upon by the Owner.
- B. No liquidated damages on this project.

1.10 SCHEDULE OF ALTERNATES

- A. Alternate #1 – Install cabinetry as shown in Detail 2/3.0.
- B. Alternate #2 – Install cabinetry as shown in Detail 7/3.0 and 8/3.0.
- C. Alternate #3 – Delete directionally boring of utility's – Remove and replace asphalt paving as shown.

1.11 SCHEDULE OF ALLOWANCES

- A. None

END OF SECTION

SECTION 01010 - SUMMARY OF WORK

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 WORK AND DEFINITION OF PARTIES

A. The work described herein and illustrated on the accompanying drawings is to comprise all materials and labor for the General Construction and Demolition work as shown on the drawings and specified herein for this project.

B. Wherever the word "Owner" is used herein, it refers to:

United Brotherhood of Carpenters Local 133
3050 South 6th Street
Terre Haute, Indiana 47802

C. Wherever the word "Engineer" is used herein, it refers to Michael R. Waldbieser Engineering & Consulting, Inc., 19 South 6th Street, Suite 804, Terre Haute, Indiana 47807.

D. Wherever the word "Contractor" is used herein, it refers to the Contractor or Contractors for any part or parts of the work covered by these specifications and the accompanying drawings. The work will be completed under separate prime contracts as directed by the Owner.

1.2 SCOPE OF GENERAL CONDITIONS AND ALL CONTRACT DOCUMENTS

A. The General Conditions and all contract Documents shall govern in any subcontract made for any part or parts of the General Construction and Demolition work in this project.

1.3 COORDINATION

A. General: The Contract includes coordination of entire work of project including preparation of general coordination drawings/diagrams/schedules, and control of site utilization; from the beginning of activity, through the project close-out and warranty periods.

1.4 DUPLICATING

A. It is understood that work not indicated on a part of the drawings but reasonably implied to be similar to that shown at corresponding places on other drawings, is to be repeated.

1.5 CUTTING, PATCHING AND DIGGING

A. Each Prime Contractor shall do all cutting, fittings, or patching of his work that may be required to make its several parts come together properly and fit to work with other Contractors, as shown or reasonably implied by the drawings and specifications, or as the Engineer and Owner may direct.

B. Any cost of defective or ill-time work shall be borne by the party responsible therefore.

- C. Contractor shall not endanger any work cutting, digging, or otherwise and shall not cut or alter the work of any Contractor except with the consent of the Engineer and Owner.

1.6 DIVISION OF WORK

- A. All mechanical, ventilating, electrical "rough-in", and final connection for equipment, shall be done by the respective Contractor for that work from drawings furnished, unless otherwise specifically noted.

1.7 VERIFYING MEASUREMENTS

- A. The Contractor shall verify all measurements and be responsible for mistakes he may make and their result. If the Contractor discovers any discrepancy, in figures on the drawings, he shall report same to the Engineer before proceeding with any work affected by the discrepancy, and shall be held responsible for results should he fail to make such report.

1.8 PERFORMANCE REQUIREMENTS FOR COMPLETED WORK

- A. General: The contract documents indicate intended occupancy and utilization of building or site and its individual systems and facilities. Compliance with governing regulations is intended and required, for the work and for Owner's occupancy and utilization.

1.9 DISPOSAL OF WASTE MATERIAL

- A. All waste material and debris resulting from Work of this Contract shall be removed from the site by Contractor and disposed of in a legal manner.

1.10 SCHEDULING/LIQUIDATED DAMAGES

- A. Construction shall commence within the time frame presented by the Owner.

1.11 WORK IN THIS CONTRACT

- A. It is the intent of this Section to outline the main work items included in this Contract, not all work items, so the Contractor can have an overview of the scope of the project.
- B. Construct the new building shown in the drawings and as referenced in the specifications at the site shown on the site plan.
- C. Exterior drainage installation and grading to properly remove surface water as shown on the site plan.
- D. Install site work as shown on the drawings.

1.12 DEMOLITION

- A. All demolition work shall be done in a workman like manner in order cause no more disturbance to operations than absolutely necessary. Coordinate demolition with the Contact.
- B. All debris to be removed from site by contractor except for those items stated on the drawings which are to be removed and taken to a designated area for storage and remain the property of the owner.
- C. Refer to "Instructions to Bidders" for additional information.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01030 - ALLOWANCES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

- A. Include in the Contract Sum all allowances stated in the Contract Documents.

1.2 ALLOWANCES FOR PRODUCTS

- A. The amount of each allowance includes:
 - 1. The cost of the product to the Contractor, less any applicable trade discounts.
 - 2. Labor required under the allowance, only when labor is specified to be included in the allowance.
- B. In addition to the amount of each allowance, include in the Contract Sum the Contractor's cost for:
 - 1. Delivery to the site, if freight is not included in the allowance.
 - 2. Handling at the site; including unloading, uncrating, and storage.
 - 3. Protection from the elements and from damage.
 - 4. Labor for installation and finishing, except where labor is specified to be a part of the allowance.
 - 5. Applicable taxes, if taxes are not included in allowance.
 - 6. Other expenses required to complete the installation.
 - 7. Contractor's and sub-contractor's overhead and profit.
- C. If taxes and freight are included in an allowance, it will be so stated.

None on this project.

SECTION 01068 - REFERENCE STANDARDS AND DEFINITIONS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

- A. General: Basic Contract definitions are included in the General and Supplementary Conditions and other Division I Specification sections; apply to work of this section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the General Conditions.
- B. Indicated: The term "indicated" refers to graphic representatives, notes, or schedules on the Drawings, other Paragraphs of Schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown", "noted", "scheduled" are used, it is to help the reader locate the reference; no limitation on location is intended.
- C. Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted", mean "directed by the Engineer", "requested by the Engineer", and similar phrases.
- D. Approved: The term "approved", where used in conjunction with the Engineer's action on the Contractor's submittals, applications, and requests, is limited to the Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- E. Or an Approved Equal: The phrase "or an approved equal" means a product or material for which a request for approval was made and for which the Engineer's approval was granted prior to receipt of bids.
- F. Regulations: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- G. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."
- H. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
- I. Provide: The term "provide" means "to furnish and install, complete and ready for intended use."
- J. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. The term "experienced" when used with the term "Installer" means having a minimum of five previous project similar in size and scope to this project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.
 2. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
 3. Assignment of Specialist: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.
 - a. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the work. It is also not intended to interfere with local trade union jurisdiction settlements and similar conventions.
- K. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work as part of the project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the project is to be built.
- L. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, whether at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division Format and MASTERFORMAT numbering system.
1. Abbreviated Language: Language used in Specifications and other Contract Documents is the abbreviated type. Words that are implied, but not stated shall be interpolated as the sense required. Singular words interpreted as singular where applicable and the content of the Contract Documents so indicates.
 2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
 - a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

1.4 *INDUSTRY STANDARDS*

- A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with the standard in effect as of the date of the Contract Documents.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the Engineer for a decision before proceeding.
 - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the content of the requirements. Refer uncertainties to the Engineer for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction on the project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

1.5 *GOVERNING REGULATIONS/AUTHORITIES*

- A. The Engineer has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on the work.

1.6 *SUBMITTALS*

- A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the work.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

A. The types of submittal requirements specified in this section include shop drawings, product data, samples and miscellaneous work-related submittals. Individual submittal requirements are specified in applicable sections for each unit of work. Refer to other Division I sections and other contract documents for requirements of administrative submittals.

B. Definitions: Work-related submittals of this section are categorized for convenience as follows:

1.Shop drawings include specially-prepared technical data for this project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to a range of similar projects.

2.Product data include standard printed information on materials, products and systems; not specially-prepared for this project, other than the designation of selections from among available choices printed herein.

3.Samples include both fabricated and unfabricated physical examples of materials, products and units of work; both as complete units and as smaller portions of units of work; either for limited visual inspection or (where indicated) for more detailed testing and analysis.

4.Mock-ups are a special form of samples, which are too large or otherwise inconvenient for handling in specified manner for transmittal of sample submittals.

5.Miscellaneous submittals related directly to the work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the work and not processed as shop drawings, product data or samples.

1.3 GENERAL SUBMITTAL REQUIREMENTS

A. Timing of Submittals: All required submittals shall be made in a timely manner so that as not to delay the progress of the project, but in no case shall they be made more than 30 days after award of the contract.

- B. Preparation of Submittals: Provide permanent marking on each submittal to identify project, date, Contractor, subcontractor, submittal name and similar information to distinguish it from other submittals. Show Contractor's executed review and approval marking and provide space for Architect's/Engineer's "Action" marking. Package each submittal appropriately for transmittal and handling. Submittals which are received from sources other than through Contractor's office will be returned by A/E "without action".

Transmittal Form: Contractor's standard transmittal form.

Provide Contractor's certification on form, ready for execution, stating that information submitted complies with requirements of contract documents.

1.4 SPECIFIC-CATEGORY SUBMITTAL REQUIREMENTS

- A. General: Except as otherwise indicated in individual work sections, comply with requirements specified herein for each indicated category of submittal. Provide and process intermediate submittals, where required between initial and final, similar to initial submittals.
- B. Shop Drawings: Provide newly-prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated), with name of preparer indicated (firm name). Show dimensions and note which are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards, and special coordination requirements. Do not allow shop drawing copies without appropriate final "Action" markings by Engineer to be used in connection with the work.
 - 1. Initial Submittal: One correctable translucent reproducible print and one blueline or black-line print; reproducible will be returned.
- C. Product Data: Collect required data into one submittal for each unit of work or system; and mark each copy to show which choices and options are applicable to project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements. Maintain one set of product data (for each submittal) at project site, available for reference by Architect/Engineer and others.
 - 1. Submittals: Do not submit product data, or allow its use on the project, until compliance with requirements of contract documents has been confirmed by Contractor. Submittal is for information and record, unless otherwise indicated. Initial submittal is final submittal unless returned promptly by Architect/Engineer, marked with an "Action" which indicates an observed non compliance. Submit 5 copies, 3 copies will be returned for contractor's use and where required for maintenance manuals.
- D. Samples: Provide units identical with final condition of proposed materials or products for the work. Include "range" samples (not less than 3 units) where unavoidable variations must be expected, and describe or identify variations between units of each set. Provide full set of optional samples where Architect's/Engineers selection is required. Prepare samples to match Architect's/Engineer's sample where so indicated. Include information with each sample to show generic description, source or product

name and manufacturer, limitations, and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by Architect/Engineer. Architect/Engineer will not "test" samples (except as otherwise indicated) for compliance with other requirements, which are therefore the exclusive responsibility of Contractor.

1. Submittal: Provide submittal of 3 sets of samples for Architect's/Engineer's review and "Action". Two sets will be returned. Maintain one set of samples at the job site.
- E. Mock-Ups: Mock-ups and similar submittal of 3 sets of samples for Architect's/Engineer's review and "Action". Two sets will be returned. Maintain one set of samples at the job site.
- F. Inspection and Test Reports: Classify each as either "shop drawing" or "product data", depending upon whether report is uniquely prepared for project or a standard publication of workmanship control testing at point of production; process accordingly.
- G. Warranties: Refer to "Products" section for specific general requirements on warranties, product/workmanship bonds, and maintenance agreements. In addition to copies desired for Contractor's use, furnish 2 executed copies, except furnish 2 additional (conformed) copies where required for maintenance manuals. Refer to Mechanical and Electrical Sections.
- H. Closeout Submittals: Refer to individual work sections and to "closeout" sections for specific requirements on submittal of closeout information, materials, tools and similar items.

Record Document Copies: Furnish one set.

Maintenance/Operating Manuals: Furnish 2 bound copies.

1. Materials and Tools: Refer to individual work sections for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar physical units to be submitted.
- I. General Distribution: Provide additional distribution of submittals (not included in foregoing copy submittal requirements) to subcontractors, suppliers, fabricators, installers, governing authorities and others as necessary for proper performance of the work. Include such additional copies in transmittal to Architect/Engineer where required to receive "Action" marking before final distribution. Record distributions on transmittal forms.

1.5 ACTION ON SUBMITTALS

- A. Except for submittals for the record or for information, where action and return of submittals is required, the Architect or Engineer will review each submittal, mark to indicate the action taken, and return.
1. Do not permit submittals marked "Revise and resubmit" or "Rejected" to be used in the Work.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01310 - COORDINATION AND EXPEDITING

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 MEETINGS

It shall be an obligation of the Contractors to attend a meeting with the Owner and Engineer as directed by Engineer, during the entire life of the project for the purpose of expediting the work and considering other matters pertaining thereto. Notice of said meetings to originate in the office of the Engineer. Contractor to require his principal Subcontractors to attend.

1.2 PROGRESS SCHEDULE

After award of contract, prime contractors cooperatively shall submit for approval a progress schedule. This schedule shall be worked out and agreed upon by the prime contractors and is intended to act as a means of obtaining closer cooperation and coordination between all contractors involved. The schedule shall be based on work days. It should be remembered that time must be allotted for shop drawings and decisions involving Engineer and Owner.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01340 - SHOP DRAWINGS, PRODUCT DATA, & SAMPLES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittal of Shop Drawings Product Data and Samples.

1.3 SUBMITTAL PROCEDURES

- A. Contractor Reviews: The Contractor shall review and approve all submittals before transmitting them to the Architect/Engineer. Each submittal shall bear the approval stamp of the Contractor or they will be returned by the Architect/Engineer unchecked.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal to the Architect/Engineer sufficiently in advance of scheduled performance of related construction activities to avoid delay. The Architect/Engineer will then review the submittals or send them on to the appropriate consulting Engineer for review.
 - 1. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for re-submittals
 - 2. Submit only the shop drawings, product data, and samples called for in the technical Sections. Any other shop drawings, product data, or samples submitted will be returned unchecked.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal to the Architect/Engineer and to other destinations by use of a transmittal form. The Architect/Engineer will return submittals received from sources other than the Contractor.
 - 1. Record relevant information and requests for data on the transmittal form. On the form, or an attached separate sheet, record deviations from requirements of the Contract Documents, including minor variations and limitations.
 - 2. Include the Contractor's certification stating that information submitted complies with requirements of the Contract Documents.

1.4 SHOP DRAWINGS

- A. Submit newly prepared information, drawn accurately to scale. Do not reproduce Contract Documents or copy standard printed information as the basis of Shop Drawings.
1. Include the following information on Shop Drawings:
 - a. Dimensions.
 - b. Identification of products and materials included.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements
 - e. Notation of dimensions established by field measurement.
 2. Submit Coordination Drawings where required for integration of different construction elements. Show construction sequences and relationships of separate components where necessary to avoid conflicts in utilization of the space available.
 3. Highlight, encircle, or otherwise indicate deviations from the Contract Documents on the Shop Drawings.
 4. Do not allow Shop Drawing copies that do not contain an appropriate final stamp or other marking indicating the action taken by the Architect or Engineer to be used in construction.
 5. Submittal: Submit 1 reproducible copy and 2 additional blue line or black line prints of each shop drawing. The 2 prints marked with the action taken by the Architect or Engineer will be retained and the reproducible copy will be returned to the Contractor. The Contractor should then make copies from the reproducible that bears the action stamp as suits his needs, including a copy required for Project Record Documents.

1.5 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Mark each copy to show which choices and options are applicable to the Project.
1. Include the following information in Product Data:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with recognized trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
- B. Submittals: Submit 5 copies of each required Product Data submittal. Two copies marked with the action taken by the Architect or Engineer will be retained, and the balance will be returned to the Contractor.

1.6 SAMPLES

- A. Submit 12" x 12", fully fabricated Samples, cured and finished in the manner specified, and physically identical with the material or product proposed for use.
 - 1. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented by a Sample, submit at least 3 multiple units that show approximate limits of the variations.
- B. Submittals: Except for Samples intended to illustrate assembly details, workmanship, fabrication techniques, connections, operation, and other characteristics, submit 3 sets of Samples. One set will be returned marked with the action taken.

1.7 ARCHITECT'S/ENGINEER'S ACTION

- A. Except for submittals for the record or for information, where action and return of submittals is required. The Architect or Engineer will review each submittal, mark to indicate the action taken, and return.
 - 1. Do not permit submittals marked "Revise and resubmit" or "Rejected" to be used in the Work.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES AND PROTECTION

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

- A. Definitions: Specific administrative and procedural minimum actions are specified in this section, as extension of provisions in General Conditions and other documents. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by Architect or Engineer that such temporary activity is not required for successful completion of the work and compliance with requirements of contract documents. Provisions of this section are applicable to, but not by way of limitation, utility services, construction facilities, security/protection provisions, and support facilities.

1.3 QUALITY ASSURANCE

- A. General: In addition to compliance with governing regulations and rules/recommendations of franchised utility companies, comply with specific requirements indicated and with applicable local industry standards for construction work (published recommendations by local consensus "building councils").
- B. OSHA: Contractors shall comply with Williams-Steiger, Occupational Safety & Health Act of 1970, Part 1926 (Formerly 1518), Safety & Health Regulations for Construction, Subpart H1926.250 and as amended thereafter.

Comply with Subpart E, 1926.100 through 1926.107 (1518.100 through 1518.107) Subpart H, 1926.251 (1518.251), Subpart I 1926.300 through 1926.305 (1518.300 through 1518.305) Subpart L 1926.450 through 1926.452 (1518.450 through 1518.452) Subpart N 1926.550 through 1926.555 (1518.550 through 1518.555) Subpart O 1926.600 through 1926.606 (1518.600 through 1518.606) of Safety & Health Regulations.

1.4 JOB CONDITIONS

- A. Conditions of Use: Install, operate, maintain and protect temporary facilities in a manner and at locations which will be safe, non-hazardous, sanitary and protective of persons and property, and free of deleterious effects.
- B. Each Contractor shall supply all tools, machinery, centers, hoists, derricks, etc. as required for the complete and satisfactory execution of his work. Each contractor shall provide all guys and anchorage for such apparatus and structures and shall be responsible for any unsafe work in connection with the same.

1.5 TEMPORARY UTILITY SERVICES

- A. The types of services required include, but not by way of limitation, water, electrical power and telephone. Contact local utilities for required services during construction.
- B. Potable Water: To be supplied by the General Contractor or Sub Contractors as required. All cost associated with obtaining required potable water on the project will be included in the bid amount on this project. No cost to the Owner.
- C. Temporary Power: Provided and paid for by the General Contractor. All tools, extension cords, and equipment provided by the General Contractor. Each contractor and/or subcontractor shall furnish any necessary wiring and extension cords to reach from the nearest outlet to his point of operation.

If any contractor requires additional power for use of tools, it will be their responsibility to make these arrangements with the Electrical Contractor.

All elements of the temporary service shall conform to the regulations of the National Electric Code, the National Electric Safety Code and the Safety Code for the Construction Industry, and Part 1926 Safety & Health Regulations for Construction and as amended thereafter.

No permanent power from permanent sources shall be used without the Owner's written permission indicating the conditions whereby it may be used. Consideration will not be given for the use of lights, wiring devices, or other electric equipment until the building is in the finishing stages, or unless it is in the Owner's interests.

1.6 TEMPORARY CONSTRUCTION FACILITIES

- A. The types of temporary construction facilities required include, but not by way of limitation, water distribution, heat, ventilation, and electrical power distribution. Provide facilities reasonable required to perform construction operations properly and adequately.
- B. Lighting: Provide sufficient temporary lighting to ensure proper workmanship everywhere by combined use of daylight and portable plug-in task lighting. Provide general lighting with local switching which will enable energy conservation during periods varying activity (work-in-progress, traffic only, security check, lock-up, etc.).

1.7 SECURITY/PROTECTION PROVISIONS

- A. The types of temporary security and protection provisions required include, but not by way of limitation, fire protection, barricades, warning signs/lights, building enclosure/lockup, personnel security program (theft prevention), environmental protection, and similar provisions intended to minimize property losses, personal injuries and claims for damages at project site.
- B. Fire Extinguishers: Provide types, sizes, numbers and locations as would be reasonably effective in extinguishing fires during early stages, by personnel at project site. Provide Type A Extinguishers at locations of low-potential for either electrical or grease-oil-flammable liquids fires; provide Type ABC dry chemical extinguishers at other locations; comply with recommendations of NFPA No. 10. Post warning and quick instructions at each extinguisher location, and instruct personnel at project site, at time of their first arrival, on proper use of extinguishers

and other available facilities at project site.

- C. Non-Working Hours: All temporary facilities or equipment which would permit unauthorized persons access to the construction area, or building, or roof shall be removed from the site or shall be secured to be unusable during periods when work is not in progress.
- D. Protection of Work: The General Contractor shall well in advance of lathing, plastering, painting and finishing operations, provide cloth or plastic covered frames for window openings and hinged plywood or batten doors with locks to maintain temperatures necessary to perform the work.

The General Contractor shall provide protection against all kinds of weather so that the building and materials will not be damaged. During cold weather, he shall provide protection at door and window openings.

The work of any Contractor damaged because of failure of the General Contractor to provide the protection above required shall be removed and replaced with new work at the General Contractor's expense.

Each Prime Contractor shall protect his excavations, trenches and structures from damage from rain water, ground water, backing-up of drains and sewers, and from all other water. Provide pumps, equipment and enclosures to provide protection for his own work.

1.8 TEMPORARY SUPPORT FACILITIES

- A. The types of temporary support facilities required include, but not by way of limitation, storage sheds, fabrication sheds first aid facilities, signs, clean-up facilities waste disposal service, rodent/pest control and similar miscellaneous general services, all as may be reasonably required for proficient performance of the work and accommodation of persons, at the site including Owner's and Architect's/Engineer's personnel. Discontinue and remove temporary support facilities, and make incidental similar use of permanent work of the project, only when and in manner authorized by Architect/Engineer; and, if not otherwise indicated, immediately before time of substantial completion. Locate temporary support facilities for convenience of users, and for minimum interference with construction activities.
- B. Contractor's Field Office: Contractor's temporary field office is not required. If one is provided, locate as directed by Owner.
 - 1. Contractor shall provide telephones for emergency calls by either providing an office equipped with a telephone or providing a mobile telephone.
- C. Temporary Sheds: Contractor shall provide any temporary sheds he needs for storage, fabrication and similar purposes. Locate as directed by Owner.
- D. Sanitary Facilities: Contractor shall provide toilets he needs for sanitation. (Single occupant self-contained chemical toilet units, properly vented and fully enclosed with fiber reinforced polyester shell or similar non-absorbent material.) Provide separate toilet facilities for male and female construction personnel when both sexes are employed on site.
- E. Cleaning and Trash Removal: Contractor shall provide waste containers sufficient

for the deposit of non-hazardous/non-toxic waste materials. Remove such waste materials from the project site at least twice weekly during mild and warm weather (daily high temperatures above 50 degrees F). Remove not less than weekly during periods when daily high temperatures are at or below 50 degrees F.

- F. Temporary Walks, Stairs, Ladders, Ramps, and Runways: General Contractor shall furnish and maintain all equipment such as temporary stairs, ramps, chutes, etc. as required for proper execution of the work by all trades, except where specifically mentioned that above is to be furnished and maintained under divisions or sections of contract as hereinafter specified. All above shall comply with Subpart L, 1926.450 through 1926.452 (1518.450 through 1518.452) & Subpart M, 1926.500 through 1926.502 (1518.500 through 1518.502) of Safety & Health Regulations for Construction.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01605 - PRODUCTS AND SUBSTITUTIONS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

- A. Definitions: "Products" is defined to include purchased items for incorporation into the work, regardless of whether specifically purchased for project or taken from Contractor's stock of previously purchased products. "Materials", is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed, installed or applied to form units of work. "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, etc.). Definitions in this paragraph are not intended to negate the meaning of other terms used in contract documents, including "specialties", "systems", "structure", "finishes", "accessories", "furnishings", "special construction", and similar terms, which are self-explanatory and have recognized meanings in the construction industry.
- B. Substitutions: The requirements for substitutions do not apply to specified Contractor options on products and construction methods. Revisions to contract documents, where requested by Owner, Architect or Engineer, are "changes" not "substitutions". Requested substitutions during bidding period, which have been accepted prior to Contract Date, are included in contract document and are not subject to requirements for substitutions as specified herein. Contractor's determination of and compliance with governing regulations and orders issued by governing authorities do not constitute "substitutions"; and do not constitute a basis for change orders, except as provided for in contract documents. Otherwise, Contractor's requests for changes in products, materials and methods of construction required by contract documents are considered requests for "substitutions", and are subject to requirements hereof.
- C. Standards: Refer to Division I section "Definitions and Standards" for applicability of industry standards to products of project, and for acronyms used in text of specification sections.

1.3 QUALITY ASSURANCE

- A. Source Limitations: To the greatest extent possible for each unit of work, provide products, materials or equipment of a singular generic kind from a single source.
- B. Finish Materials: Finish materials installed within a single room or area or within contiguous areas, or on the exterior, shall be from a single production run to assure color/pattern/finish consistency. Color, pattern, or finish variations, not represented by the approved samples and judged by the Architect/Engineer to be objectionable will result in rejection of the material, without regard for whether the variations are caused by inter-mixing of materials from more than one production run, or by Installer not

following manufacturer's instructions for blending of material from a single production rim. This paragraph relates to both exterior and interior finish materials.

- C. Compatibility of Options: Where more than one choice is available as options for Contractor's selection of a product or material, select an option which is compatible with other products and materials already selected (which may have been from among options for those other products and materials). Compatibility is a basic general requirement of product/material selections.
- D. Approved or Acceptable Manufacturers: The specification sections may identify acceptable or approved manufacturers with a paragraph which states the following, or words of the same effect:

Subject to compliance with requirements, provide products of one of the following:

The manufacturers listed are those that are believed to provide products of acceptable and comparable quality and which satisfy the requirements of the specifications. Since manufacturers, from time to time, change the quality of their products, some manufacturer's products may not conform to the requirements of the specifications. Those manufacturers are hereby advised that specification requirements will not be waived to accept their products simply because they were named as an acceptable or approved manufacturer.

1.4 SUBMITTALS

- A. Requests for Substitutions: Submit 3 copies, fully described for product or method being replaced by substitution, including related specification section and drawings number(s), and fully documented to show compliance with requirements for substitutions. Include product data/drawings, description of methods, samples where applicable, Contractor's detailed comparison of significant qualities between specified item and proposed substitution, statement of effect of construction time and coordination with other affected work, cost information or proposal, and Contractor's statement to the effect that proposed substitution will result in overall work equal-to-or-better-than work originally indicated.

1.5 PRODUCT DELIVERY-STORAGE-HANDLING

- A. General: Deliver, handle and store products in accordance with manufacturer's recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Control delivery schedules to minimize long term storage of products at site and overcrowding of construction spaces. In particular, provide deliver/installation coordination to ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damage, or sensitive to deterioration, theft and other sources of loss.

1.6 WARRANTIES (GUARANTEES)

- A. Categories of Specific Warranties: Warranties on the work are in several categories, including those of General Conditions, and including (but not necessarily limited to) the following specific categories related to individual units of work specified in sections of Divisions 2 through 16 of these specifications:

1. Special Project Warranty (Guarantee): A warranty specifically written and signed by Contractor for a defined portion of the work; and, where required, countersigned by subcontractor, installer, manufacturer or other entity engaged by Contractor.
 2. Specified Product Warranty: A warranty which is required by contract documents, to be provided for a manufactured product incorporated into the work; regardless of whether manufacturer has published a similar warranty without regard for specific incorporation of product into the work, or has written and executed a special project warranty as a direct result of contract documents requirements.
 3. Coincidental Product Warranty: A warranty which is not specifically required by contract documents (other than as specified in this Section); but which is available on a product incorporated into the work, by virtue of the fact that manufacturer of product has published warranty in connection with purchases and uses of product without regard for specific applications except as otherwise limited by terms of warranty.
- B. Refer to individual sections of Divisions 2 through 16 for the determination of units of work which are required to be specifically or individually warranted, and for the specific requirements and terms of those warranties (or guarantees).
- C. General Limitations: It is recognized that specific warranties are intended primarily to protect Owner against failure of the work to perform as required, and against deficient, defective and faulty materials and workmanship, regardless of sources. Except as otherwise indicated, specific warranties do not cover failures in the work which result from: 1) Unusual and abnormal phenomena of the elements, 2) The Owner's misuse, maltreatment or improper maintenance of the work, 3) Vandalism after time of substantial completion, or 4) Insurrection or acts of aggression including war.
- D. Related Damages and Losses: In connection with Contractor's correction of warranted work which has failed, remove and replace other work on project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of warranted work.
1. Consequential Damages: Except as otherwise indicated or required by governing regulations, special project warranties and product warranties are not extended to cover damage to building contents (other than work of Contract) which occurs as a result of failure of warranted work.
- E. Reinstatement of Warranty Period: Except as otherwise indicated, when work covered by a special project warranty or product warranty has failed and has been corrected by replacement or restoration, reinstate warranty by written endorsement for the following time period, stating on date of acceptance of replaced or restored work.
1. A period of time equal to original warranty period of time.

- F. Replacement Cost, Obligations: Except as otherwise indicated, costs of replacing or restoring failing warranted units or products is Contractor's obligation, without regard for whether Owner has already benefited from use through a portion of anticipated useful services lives.
- G. Contractor's Procurement Obligations: Do not purchase, subcontract for, or allow others to purchase or subcontract for material or units of work for project where a special project warranty, specified product warranty, certification or similar commitment is required, until it has been determined that entities required to countersign such commitments are willing to do so.
- H. Specific Warranty Forms: Where a special project warranty (guarantee) or specified product warranty is required, prepare a written document to contain terms and appropriate identification, ready for execution (through Architect/Engineer) for approval prior to final executions.

PART 2: PRODUCTS

2.1 GENERAL PRODUCT COMPLIANCES

- A. General: The compliance requirements, for individual products as indicated in contract documents, are multiple in nature and may include generic, descriptive, proprietary, performance, prescriptive, compliance with standards, compliance with codes, conformance with graphic details and other similar forms and methods of indicating requirements, all of which must be complied with. Also "allowances" and similar provisions of contract documents will have a bearing on selection process.
- B. Procedures for Selecting Products: Contractor's options for selecting products are limited by contract document requirements, and governing regulations, and are not controlled by industry traditions or procedures experienced by Contractor on previous construction projects. Required procedures include, but are not necessarily limited to, the following for various indicated methods of specifying:
 - 1. Single Product/Manufacturer Name: Provide product indicated, except advise Architect/Engineer before proceeding, where known that named product is not a feasible or acceptable selection.
 - 2. Two or More Product/Manufacturer Names: Provide one of the named products, at Contractor's option; but excluding products which do not comply with requirements. Do not provide or offer to provide an unnamed product, except where none of named products comply with requirements or are a feasible selection; advise Architect/Engineer before proceeding.
 - 3. "Or Equal": Where named products in specifications text are accompanied by the term "or equal", or other language of similar effect, comply with those contract document provisions concerning "substitutions" for obtaining Architect's/Engineer's approval (by change order) to provide an unnamed product.

4. Standards, Codes and Regulations: Where only compliance with an imposed standard, Code or regulation is required, selection from among products which comply with requirements including those standards, codes and regulations, is Contractor's option.
5. Performance Requirements: Provide products which comply with specific performances indicated, and which are recommended by manufacturer (in published product literature or by individual certification) for application indicated. Overall performance of a product is implied where product is specified with only certain specific performance requirements.
6. Prescriptive Requirements: Provide products which have been produced in accordance with prescriptive requirements, using specified ingredients and components, and complying with specified requirements for mixing, fabricating, curing, finishing, testing, and similar operations in manufacturing process.
7. Visual Matching: Where matching with an established sample is required, final judgment of whether a product proposed by Contractor matches sample satisfactorily is Architects/Engineers judgment. Where no product within specified cost category is available, which matches sample satisfactorily and complies with requirements, comply with contract documents provisions concerning, "substitutions" and "change orders" for selection of a matching product outside established cost category or, of a product not complying with requirements.
8. Visual Selection: Except as otherwise indicated, where specified product requirements include "...as selected from manufacturer's standard colors, patterns, textures..." or words of similar effect, the selection of manufacturer and basic product (complying with requirements) is Contractor's option, and subsequent selection of color, pattern and texture is Architects/Engineers selection.

2.2 *SUBSTITUTIONS*

- A. Conditions: Contractor's request for substitution will be received and considered when extensive revisions to contract documents are not required and changes are in keeping with general intent of contract documents; when timely, fully documented and properly submitted; and when one or more of the following conditions is satisfied, all as judged by Architect/Engineer. Otherwise, requests will be returned without action except to record non-compliance with these requirements.
 1. Where required product, material or method cannot be provided within Contract Time, but not as a result of Contractor's failure to pursue the work promptly or to coordinate various activities properly.
 2. Where required product, material or method cannot be provided in a manner which is compatible with other materials of the work, or cannot be properly coordinated therewith, or cannot be warranted as required, or cannot be used without adversely affecting Owner's insurance coverage on completed work, or will encounter other substantial non-compliances which are not possible to otherwise overcome except by making requested substitution, which

Contractor thereby certifies to overcome such non-compatibility, non coordination, non-warranty, non-insurability or other non-compliance as claimed.

3. Where required product, material or method cannot receive required approval by a governing authority, and requested substitution can be so approved.
 - a. Submit within 10 days of Notice To Proceed, any proposed substitutions with reason for the substitution as outlined above.
- B. Work-Related Submittals: Contractor's submittal of, and Architect's/Engineer's approval of, shop drawings, product data or samples which relate to work not complying with requirements of contract documents, does not constitute an acceptable or valid request for a substitution, nor approval thereof.

2.3 *GENERAL PRODUCT REQUIREMENTS*

- A. General: Provide products which comply with requirements, and which are undamaged and unused at time of installation, and which are complete with accessories, trim, finish, safety guards, and other devices and details needed for complete installation and for intended use and effect.
- B. Nameplates: Except as otherwise indicated for required approval labels, and operating data, do not permanently attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view either in occupied spaces or on exterior of the work.
 1. Labels: Locate required labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface which, in occupied spaces, is not conspicuous.
 2. Equipment Nameplates: Provide permanent nameplate on each item of service-connected or power operated equipment. Indicate manufacturer, product name, model number, serial number, capacity, speed, ratings and similar essential number, capacity, speed, ratings and similar essential operating data. Locate nameplates on an easily accessed surface which, in occupied spaces, is not conspicuous.

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01700 - PROJECT CLOSEOUT

PART 1-GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

- A. Definitions: Closeout is hereby defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Division 2 through 16. Time of closeout is directly related to "Substantial Completion", and therefore may be either a single time period for entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates. That time variation (if any) shall be applicable to other provisions of this section.

1.3 PREREQUISITES TO SUBSTANTIAL COMPLETION

- A. General: Prior to requesting Architect' s/Engineer's inspection for certification of substantial completion (for either entire work or portions thereof), complete the following and list known exceptions in request:
 - 1 . In progress payment request, coincident with or first following date claimed, show either 100% completion for portion of work claimed as "substantially complete", or list incomplete items, value of incompleteness, and reasons for being incomplete.
 - 2. Include supporting documentation for completion as indicated in these contract documents.
 - 3. Submit statement showing accounting of changes to Contract Sum.
 - 4. Advise Owner of pending insurance change-over requirements.
 - 5. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.
 - 6. Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including (where required) occupancy permits, operating certificates, and similar releases.
 - 7. Deliver tools, spare parts, extra stocks of materials, and similar physical items to Owner.

8. Complete start-up testing of systems, and instructions of Owner's operating/maintenance personnel. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.
 9. Complete final cleaning up requirements, including touch-up painting of marred surfaces.
- B. Inspection Procedures: Upon receipt of Contractor's request, Architect/Engineer will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Architect/Engineer will either prepare certificate of substantial completion, or advise Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that work has been substantially completed. Results of completed inspection will form initial "punchlist" for final acceptance.

1.4 PREREQUISITES TO FINAL ACCEPTANCE

- A. General: Prior to requesting Architect's/Engineer's final inspection for certification of final acceptance and final payment, as required by General Conditions, complete the following and list known exceptions (if any) in request:
1. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 2. Submit updated final statement, accounting for additional (final) changes to Contract Sum.
 3. Submit certified copy of Architect's/Engineer's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Architect/Engineer.
 4. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of time of substantial completion or when Owner took possession of and responsibility for corresponding elements of the work.
 5. Submit consent of surety and waiver of liens.
 6. Submit final liquidated damages settlement statement, acceptable to Owner.
 7. Revise and submit evidence of final, continuing insurance coverage complying with requirements.
- B. Re-inspection Procedure: Upon receipt of Contractor's notice that the work has been completed, including punch list items resulting from earlier inspections, and excepting incomplete items delayed because of acceptable circumstances, Architect/Engineer will re-inspect the work. Upon completion of re-inspection, Architect/Engineer will either prepare certificate of final acceptance or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated.

1.5 RECORD DOCUMENT SUBMITTALS

- A. General: Specific requirements for record documents are indicated in individual sections of these specifications. Other requirements are indicated in General Conditions. General submittal requirements are indicated in "submittals" section. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for Architect's/Engineer's reference during normal working hours.
- B. Record Drawings: Maintain a white-print set (blue-line or black-line) of contract drawings and shop drawings in clean, undamaged condition, with mark-up of actual installations which vary substantially from the work as originally shown. Mark whichever drawing is most capable of showing "field" condition fully and accurately; however, where shop drawings are used for mark-up, record a cross reference at corresponding location on working drawings. Mark with red erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work. Mark-up new information which is recognized to be of importance to Owner, but was for some reason not shown on either contract drawings or shop drawings. Give particular attention to concealed work, which would be difficult to measure and record at later date. Note: relate change order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on cover of each set.
- C. Record Specifications: Maintain one copy of specifications, including addenda, change orders and similar modifications issued in printed form during construction, and mark-up variations (of substance) in actual work in comparison with text of specifications and modifications as issued. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable. Upon completion of mark-up, submit to Architect/Engineer for Owner's records.
- D. Maintenance Manual: Organize maintenance-and-operating manual information into suitable sets of manageable size, and bind into individual binders properly identified and indexed (thumb-tabbed). Include emergency instructions, spare parts listing, copies of warranties, wiring diagrams, recommended "turn-around" cycles, inspection procedures, shop drawing, product data, and similar applicable information. Bind each manual of each set in a heavy-duty 2", 3-ring vinyl covered binder, and include pocket folders for folded sheet information. Mark identification on both front and spine of each binder.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

- A. General Operating/Maintenance Instructions: Arrange for each installer of work requiring continuing maintenance or operation, to meet with Owner's personnel, at project site, to provide basic instructions needed for proper operation and maintenance of entire work. Include instructions by manufacturer's

representatives where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate startup, shutdown, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, energy effectiveness, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain, bonds, and similar continuing commitments.

3.2 FINAL CLEANING

- A. General: Special cleaning for specific units of work is specified in sections of Divisions 2 through 16. General cleaning during progress of work is specified in General Conditions and as temporary services in "Temporary Facilities" section of this Division. Provide final cleaning of the work, at time indicated, consisting of cleaning each surface or unit of work to normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturer's instructions for cleaning operations. The following are examples, but not by way of limitation, of cleaning levels required:
1. Remove labels which are not required as permanent labels.
 2. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substrates which are noticeable as vision obscuring materials. Replace broken glass and damaged transparent materials.
 3. Clean exposed exterior and interior hard-surfaced finishes, to a dirt-free condition, free of dust, stains, films and similar noticeable distracting substrate. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.
 4. Remove debris and surface dust from limited access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.
 5. Vacuum clean carpeted surfaces and similar soft surfaces.
 6. Clean project site (yard and grounds), including landscape development areas, of litter and foreign substances. Sweep paved areas to a broom clean condition; remove stains, petro-chemical spills and other foreign deposits. Rake grounds which are neither planted nor paved, to a smooth, even-textured surface.
 7. Lubricant properly and completely all machinery in this contract.
 8. The windows furnished for this project are a finished product and shall be treated as such by all trades. The General Contractor shall see that these windows are not mistreated or abused. The masonry and plaster Contractor shall be sure that mortar or plaster spots are not allowed to stay on aluminum surfaces for more than 12 hours. Windows shall not be used as supports for scaffolding or any other purpose that will damage them. The General Contractor shall provide the

necessary protection of all windows from misuse or damage during the course of erection and shall clean all plaster, mortar or other foreign materials from the windows after installation and glazing. All glass in windows, exterior and interior, shall be cleaned with glass cleaner.

- B. Restoration of Site: At completion of Project and before leaving job site, Contractor shall be responsible for restoring the site to the original state in which he found it at the start of the Project. This will include repair of grass areas used for storage of materials or stockpiling of debris, and repair of any other areas on property which the Contractor has damaged in the course of his work.
- C. Removal of Protection: Except as otherwise indicated or requested by Architect/Engineer, remove temporary protection devices and facilities which were installed during course of the work to protect previously completed work during remainder of construction period.
- D. Compliances: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at site, or bury debris or excess materials on Owner's property, or discharge volatile or other harmful or dangerous materials into drainage systems; remove waste materials from site and dispose of in a lawful manner.

END OF SECTION

SECTION 01710 - CLEANING

PART 1: GENERAL. The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 GENERAL WORK BY EACH CONTRACTOR

Remove from glass, all stains, labels, and paint and then wash. Do not remove labels until Engineer notifies Contractor that he has checked same for grading. Before final acceptance, General Contractor shall wash and clean all windows, interior and exterior.

Remove all marks, stains, fingerprints, and other soil and dirt from painted work.

Clean and polish, removing all stains, dust, dirt, paint, etc. from hardware.

Clean off all ink, stains dirt, dust, oil, paint, etc., from fixtures and equipment.

Clean and polish all floors. All carpeting shall be vacuumed clean.

Lubricant properly and completely all machinery in this contract.

Remove all foreign materials from roof.

Remove all foreign materials from lawn and site area.

All pavement and sidewalk areas shall be left broom clean.

The windows furnished for this project are a finished product and shall be treated as such by all trades. The General Contractor shall see that these windows are not mistreated or abused. The masonry and plaster Contractor shall be sure that mortar or plaster spots are not allowed to stay on aluminum surfaces for more than 12 hours. Windows shall not be used as supports for scaffolding or any other purpose that will damage them. The General Contractor shall provide the necessary protection of all windows from misuse or damage during the course of erection and shall clean all plaster, mortar or other foreign materials from the windows after installation and glazing.

1.2 MECHANICAL AND ELECTRICAL CONTRACTOR

The Mechanical Contractor and Electrical Contractor shall lubricate properly and completely, all machinery. (See Mechanical and Electrical Sections for required items of cleaning.)

1.3 ALL CONTRACTORS

During construction all contractors shall be responsible for removing debris left by his work at frequent intervals in order that no large accumulation of debris be left for any length of time. Each contractor shall remove all tools, scaffolding, waste materials caused by operations under his charge and at completion of job leave his work in cleaned condition satisfactory to the Owner and Engineer.

SECTION 01740 - WARRANTIES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

- 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

- 1. Division I Section "Contract Closeout" specifies contract closeout procedures.

- 2. Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.

- 3. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

- C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.3 DEFINITIONS

- A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

- B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
 - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

- A. Submit written warranties to the Architect/Engineer prior to the date certified for Substantial Completion. If the Architect's/Engineer's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect/Engineer.
 - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect/Engineer within 15 days of completion of that designated portion of the Work.
- B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect/Engineer, for approval prior to final execution.
- C. Form of Submittal: At Final Completion compile 2 copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

- D. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8 ½" X 11" paper.
 - 1. Provide tabbed divider for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
 - 2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES", Project title or name, and name of the Contractor.
 - 3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION

3.1 LIST OF WARRANTIES

- A. Provide warranties on products and installations as specified in Division 2 through 16 Sections.

END OF SECTION

SECTION 02050 - DEMOLITION

PART 1: GENERAL. The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 REMOVAL

This Section requires the removal and subsequent off-site disposal of the following:

- A. Removal of existing vegetation shown on the Site Plan as to be removed.
- B. Removal of concrete and asphalt paving as shown on the Site Plan.

1.2 CONDITION OF STRUCTURES

- A. The Owner assumes no responsibility for the actual condition of items that are to be removed, replaced, and or repaired. Field verify condition of existing structure prior to start of any work.

1.3 PROTECTIONS

- A. Provide temporary barricades and other forms of protection as required to protect the Owner's personnel and general public from injury due to demolition work.
- B. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to and from the site.
- C. Protect existing site utilities, which are to remain in use.

1.4 DAMAGES

- A. Promptly repair all damages caused to adjacent facilities by demolition work at no cost to the Owner.

1.5 TRAFFIC

- A. Conduct demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, lawns, and other adjacent occupied or used facilities.

1.6 UTILITY SERVICES

- A. Maintain existing utilities indicated to remain. Keep in service and protect against damage during demolition operations.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 02100 - CLEARING OF SITE

PART 1. GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 GENERAL CONTRACTORS WORK

- A. The Contractor shall take over the site in the condition existing at the time of the award of the contract and shall perform demolition as specified or required and shall remove trees, etc. which may interfere with the construction or his operations.
- B. Contractor shall demolish and remove all obstacles and take care that all new footings and foundations are carried to undisturbed earth below any fill. Any debris shall be removed from the premises and not used for backfill.
- C. Prospective bidders are required to visit the site and familiarize themselves with existing conditions before submitting their proposals and failure to do so shall not operate to relieve the successful bidder from performing such work as necessary to properly prepare the site to receive the work in accordance with the intent of the drawings and these specifications.
- D. All debris will be removed from the property immediately. Burning on the site will not be permitted. Care shall be taken to keep the nuisance of trash, noise, and dust at a minimum.
- E. Damage inflicted to areas, which are not to receive work, shall be repaired or replaced by the Contractor as required.
- F. The Contractors shall exercise special care to prevent damage to trees which are to remain on or near the site, during the progress of his operations. Trees which might be injured shall be protected in a manner satisfactory to the Engineer.
- G. When trees are shown to be removed, it shall mean grub out stumps and remove from property.
- H. All excavated and excess soil, cinders, gravel and debris shall be removed from the property.
- I. The mentioned items of work herein and on the drawings are in general to be used as a check list and are not intended to particularly mention all items of work to be performed. All work and materials required to bring the project area to an approved state of completeness shall be performed by the Contractor at no additional cost to the Owner.

1.2 SCOPE

- A. General Contractor shall furnish all materials and perform all services required for clearing of the site prior to excavation operations and shall include all items as indicated on the drawings and specified herein.

1.3 CLEARING AND STRIPPING

- A. Strip the entire project site of trees, cinders, fill debris, existing sidewalks, paving, etc., as required or indicated on the Drawings, including those shown on Mechanical and

Electrical Drawings, if indicated, as being by the General Contractor.

- B. Clearing shall consist of the removal and disposal of all encumbrances to a depth shown below finished grades, floor slabs, or pavement subgrades, whichever is used in the area under construction.

1.4 GRUBBING

- A. Grubbing shall consist of the removal of sod, trees, weeds and other vegetation, stones and rocks within the contract limits. Sod and topsoil shall be removed to a depth of at least twelve inches (12") below the existing grades and material stock piled for use in finish grading operation.
- B. Rubbish deposits, if encountered, shall be removed to their full depth under areas which are to be paved or have structures on them. Replace deposit with bank run gravel, compacted.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 02200 - SOIL CONDITIONS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 GENERAL SCOPE OF WORK

- A. Complete filling, backfilling, rough grading, finish grading, earth fill, all as required, indicated and specified herein.
- B. Excavate under the entire area of the building to the depth required for footings and slabs and such other excavations necessary for the installation of the work shown on the drawings and stated in this specifications for over excavation.
- B. All topsoil shall be removed under the building proper.
- D. Immediately under the floor slab shall be a 8 inch layer of compacted granular fill.
- E. All exterior concrete walk slabs shall have a 6 inch minimum layer of granular material immediately under the slab to aid soil drainage and avoid frost heaving.
- F. The bottom of all excavated trenches for footings shall be subjected to a minimum of two passes by a vibratory compactor. Densification of loose granular deposits shall be done in accordance with Section 1.6.

1.2 EXCAVATING

Excavate under the entire area of the building to the depth required for footings and slabs, and such other excavations necessary for the installation of work as shown on the drawings. Soil taken from excavations shall be used for backfill only. Any excess earth shall be removed from the site, or deposited in other locations on the site.

Excavations for walls shall be wide enough to permit the removal of forms, pointing up, etc. and at no point less than 24 inches from the face of the wall. Trenches for footings may be trimmed to exact size of the footings where earth is solid enough to hold it's shape during the placing of the footing.

Excavate to a depth at least 8" below bottom of concrete slabs on fill. All exterior slabs-on-grade shall have at least 8" of compacted granular fill for soil drainage purposes.

If made ground or pockets of soft loam are encountered in bottoms of any footing trenches, the Contractor shall immediately notify the Engineer in order that provisions may be made for carrying footings deeper at such points.

Excavations shall be properly shored and braced where necessary to prevent caving in and the Contractor shall do all necessary bailing or pumping required to keep the excavations free from water.

Any sewers, pipes, or conduits in active use, encountered during excavation are to be properly diverted, so as not to interfere with the construction, and are to be left in a working condition. Sewers, pipes, or conduits that have been abandoned, shall be cut off outside building line and securely plugged at ends. If such are encountered in course of excavation, it shall be the contractors duty to ascertain from the proper authorities whether they are in active use or have been abandoned, before proceeding as above specified.

Any piping, conduits, etc. encountered in excavating, unless required to be removed, shall be temporarily supported and maintained until permanent support has been restored. (See Mechanical - Division 15)

1.3 TESTING

The General Contractor shall include in his bid the cost associated to have a soil testing company provide soil testing on this project. Field density testing to be performed in accordance with ASTM D6938, nuclear gauge method, or ASTM 1566, sand cone method. The frequency of the testing should produce a minimum of one (1) field density test result per 2,500 square feet, per material lift, and as necessary to adequately represent the area and compaction effort.

1.4 FILLING AND BACKFILLING

After forms are removed and water proofing applied where necessary and allowed to dry, fill between exterior walls, and earth banks with earth removed from excavation of course pit run gravel to a point 24" below finish grade line.

Filling shall be placed in layers of about 8" carefully tamped and flooded. Under no circumstances shall rubbish or debris from the building be used for backfilling or grading. Compaction as stated in Section 1.6 for each layer.

If fill is to be provided on both sides of walls, fill on both sides at same time. When filling around piers, fill in equal layers around perimeter.

1.5 GRADINGS

Finish grades indicated on the drawings are finished topsoil elevations. Rough grading shall be done to within one foot of these elevations and shall consist of evenly grading the site to one foot below the finish grade contours, with clean earth fill removed from excavation or brought to site from other source, ready for topsoiling operations. Rough grading to slope away from walls to provide water shed. Take care during grading operations to protect all constructed items and repair if they are damaged.

1.6 SITE SOIL PREPARATION

In order to insure that the footing foundation system is founded on well compacted soil and the floor system is founded on well compacted soil, densification of loose granular deposits is to be undertaken by mechanical compaction in accordance with the following procedure:

- A. The bottom surface of the excavation is to be subjected to systematic compaction by means of a vibratory compactor. The compaction operations are to be continued until the material immediately below the bottom of the excavation has been compacted to a minimum of 100% of maximum density as determined in accordance with American Society for Testing and Materials D-698, Method "A" or Method "C" which ever is applicable.
No fewer than 6 passes are to be made in any event.
- B. Subsequent to, the bottom of the excavation compaction, systematic backfill operations are to be carried out on a lift-by-lift basis, employing clean granular material. Compaction of individual lifts is to be carried out by the previously referenced vibratory compaction device and material density within the backfill structure is to be verified at a minimum of 100% of maximum density. Backfill operations are to be carried to underside of floor slab.

For general area improvements such as pavements, drives, etc., the materials existing from subgrade elevation to minus 12 inches, must be compacted to exhibit an in-place density of not less than 95 percent of maximum density as determined in accordance with the requirements of American Society for Testing and Materials D-698, Method "A" or Method "C" whichever is applicable. Normal stripping operations of sod and vegetation shall supersede fill and compaction.

The General Contractor shall keep a log showing how many passes the compactor has made each day and the location in which this compaction took place. The log shall further show the location of all density tests and proctor tests. At the end of each working day, the log shall be filled out and a copy sent to the Structural Engineer.

1.7 FINISH GRADING

Finish grading, minimum depth 12" shall be done with top soil material stripped from site during preliminary work and stockpiled for this use or shall be clean top soil obtained from other source and hauled to site. Top soil shall be spread and rolled to the contours indicated and to satisfaction of the Engineer ready for seeding as specified.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 02280 - TERMITE PROTECTION

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Complete Termite Protection under the new building as indicated and specified herein.

1.2 QUALITY ASSURANCE

The applicator shall be registered or licensed where require by federal, state, county, or city jurisdiction.

1.3 GUARANTEE

Upon Completion of the soil treatment, as a condition of final acceptance, furnish the Owner with a written guarantee. The guarantee shall state that the application was made at the concentration, rates and methods, which comply with these specifications.

The effectiveness of the treatment shall be guaranteed for not less than five years, without additional cost to the Owner.

Re-treatment, upon evidence of subterranean termite activity, shall be at no change to the Owner, and in accordance with accepted trade practices.

Damage to the building caused by termites, shall be corrected without cost to the Owner.

The guarantee is non-cancellable by all parties to the contract except the Owner.

PART 2: PRODUCTS

2.1 MATERIALS

Provide termite protection with materials as approved by Governmental Agencies.

PART 3: EXECUTION

3.1 APPLICATION

- A. Treat the lower surfaces of all footing trenches prior to the pouring of concrete.
Do not interfere with pouring of concrete.
- B. Treat all foundation walls.
- C. Treat under all concrete slabs and in crawl space.
- D. Flood all hollow concrete block walls. Such application to be made in such a manner to wet the void surfaces thoroughly.

END OF SECTION

SECTION 03100 - CONCRETE FORM WORK

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Include all form work of any and all types and kinds, both temporary and permanent, as noted or indicated on drawings, specified herein or required to contain concrete during its curing period even though such forms may or may not be specifically called out or noted.

Forms for all reinforced concrete work shall be wood or metal.

1.2 DESIGN OF FORMS

Design and construction of safe and adequate forms, shores, diagonal bracing and foundation form work shall be the responsibility of the Contractor. In addition, the design of all form work shall be in accordance with recommendations of "ACI" Standard Recommended Practice for Concrete Form Work ACI-347. These recommendations shall serve as a minimum standard of design for all form work.

Forms shall be constructed to the shape, lines, grades and dimensions indicated or noted on drawings and shall be so maintained during the placing operation that when forms are removed the concrete work will be perfectly cast as intended by the Drawings with a maximum tolerance in either the vertical or Horizontal plane of 1/4" in 10 feet.

Forms shall be so designed and constructed that they may be removed without injury to the concrete.

PART 2: PRODUCTS

2.1 MATERIAL

For concrete exposed to view in the finished structure, forms shall be 5/8" or 3/4" 5-ply Douglas fir structural plywood of concrete form grade meeting the Bureau of Standards Commercial Standard CS-45 if the forms are unlined. 1/4" Douglas fir plywood of concrete form grade and 3/16" Masonite Presdwood shall be used for lined forms. Presdwood shall be thoroughly wet with water on the screen side at least 12 hours before use.

For exposed concrete form material may be selected at the Contractor's option provided it meets the requirements set out under "Form Construction".

2.2 FORM COATING

For exposed concrete shall be A.J.C. Horn Company "Form Film", "Chem-Masters Corporation, Creteban 30", Toch Brothers, Inc., "Form Coating", Sonneborn Building Products "Formsaver" or "as approved equal".

2.3 FORM TIES, INSERTS, ETC

Metal form ties shall be used for all wall forms and shall be Richmond Screw Anchor Co., Inc., "Snap-Tys" Type SBR or of a type approved by the Engineer. They shall be adjustable and act as a spreader and tie also. When ties are removed or broken off, no metal shall be left closer than one (1) inch from the surface of the wall. Form ties shall not be placed in exterior walls above finished grade. Wood separators and wire ties will not be acceptable.

Provide and install metal key slots in the face of any concrete work where brick facing or partitions occur and provide necessary number of keys for anchoring masonry thereto. Slots shall be 18" o.c. for masonry facing.

No pipes or sleeves of any size shall be placed through beams, columns or slabs; other than those located on drawings, without prior approval from the Engineer.

If built-in items, not detailed or noted on drawings are required, this Contractor shall see that they are provided by the trades involved and built-in.

Mechanical and Electrical Contractors shall furnish and set inserts incidental to their work. Concrete subcontractor shall keep them informed as to the progress of the work in order that the setting of their inserts, sleeves, piping, etc., may be timed to cause the least delay to the work.

Install inserts, weld plates, bolts, and other accessories as indicated, noted or detailed on drawings, specified, or noted on shop drawings.

PART 3: EXECUTION

3.1 CONSTRUCTION OF FORMS

Wood forms for floor slabs shall be straight and true. Bottom edges of all joints, beams, girders, and exposed edges of all columns shall be chamfered. Saw marks shall be removed from face of chamfer strips. Forms for beam and girder sides and slabs of suspended floor construction shall be of new plywood or used plywood approved by the Engineer and may be re-used only after they have been cleaned and approved.

Edges of vertical columns abutting concrete walls, and exposed interior wall, columns and beam surfaces shall be lined with nonabsorbent smooth-faced board, or constructed of plywood, applied in maximum sized sheets with all joints neatly fitted.

Forms shall be built mortar-tight and shall be maintained so as to prevent warping and the opening of joints due to shrinkage of the lumber.

Where shoring supporting forms rest on the ground, some means shall be provided for detecting and deflection of the forms while concrete is being placed. The Engineer may require the Contractor to employ screw jacks which the Contractor shall have on hand or hardwood wedges to take up any settlement in the false-work either before or during the placing of concrete.

All forms shall be set and maintained true to the line designated until the concrete is sufficiently hardened. The forms shall be securely tied together by approved means and braced in a substantial and unyielding manner and so designed and built that the finished concrete will conform to the proper dimensions and contours, with a maximum tolerance in either the vertical or horizontal plane of 1/4" in 10 feet.

All dust, sawdust, shavings, and other debris, shall be removed from within the forms before concreting begins. For narrow walls where the bottom of the forms is inaccessible, the lower form boards shall be left loose on the back side so that they may be removed for cleaning out extraneous material, immediately before placing the concrete.

The interior of the forms shall be treated with coatings specified herein before, placing the concrete to insure non-adhesion of the mortar. Angles of the forms shall be slightly sprayed in order that they may be readily removed without injury to the concrete.

The foregoing specifications for "Forms" as regards design, mortar tightness, fillet corners, leveled projections, bracing alignment, removal, reuse and coating, shall apply with equal force to metal forms. If metal forms are used, they shall be new. The metal used for forms shall be of such thickness that the forms will remain true to shape. All bolts and rivet heads shall be countersunk. Clamps, pins or other connecting devices, shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete. Metal forms which do not present a smooth surface or line up properly shall not be used. Special care shall be exercised to keep metal forms free from rust, grease, or other foreign matter which will discolor the concrete.

All shores supporting any concrete bridging, joints and beams, shall remain in place at least 15 days after placing of concrete.

3.2 WORK IN FORMS

After forms have been placed and approved, the Contractor shall see that all mechanics have been properly notified and are given sufficient time to complete the installation of their work. Placing of reinforcing steel shall proceed progressively with the work of the other mechanics and each shall arrange his working schedules so as to avoid disturbing or moving already installed by one trade to admit the work of another. Each trade shall be entirely responsible for the proper installation and securing of the work and each shall keep his work under observation during placing of the concrete.

3.3 FORMS REMOVAL

Forms shall remain in place for periods which will be determined as hereinafter specified or as directed by the Engineer.

All shores supporting any concrete bridging, joists, and beams, shall remain in place at least 15 days after placing of concrete.

No shores shall be removed without the express permission of the Engineer. The Engineer may require shores to be left in place for longer periods depending upon the temperature to which the concrete is subjected during the period of curing and upon the construction loads to be applied to the concrete after this 15 day period. Joist forms shall be so constructed that the forms can be removed without disturbing the shores under the bridging joist. Beam bottoms shall remain in place until shoring is removed. Joists shall be reshored between the beams and bridging joists immediately after the removal of the joist forms. Additional shores shall be placed under any points of concentrated loading. In warm weather, forms may be removed from walls in not less than 36 hours, and from any joists, sides of beams and columns in not less than 3 days. Removal of forms and shoring shall in any case be at the risk of the Contractor, but the Engineer may at any time refuse to permit their removal if in his judgment there might be resulting damage to the structure.

END OF SECTION

SECTION 03200 - CONCRETE REINFORCEMENT

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish all concrete reinforcing steel, welded wire mesh and necessary related items indicated, noted or detailed on drawings and specified herein.

1.2 SHOP DRAWINGS

Provide complete reinforcing steel shop drawings to the Engineer for this approval in accordance with paragraph "SHOP DRAWINGS" on the General Conditions and Supplemental General Conditions.

Shop drawings shall be prepared in strict accordance with the requirements of the current edition of the Manual of Standard Practice for Detailing Reinforced Concrete Structure as published by the American Concrete Institute, ACI-315.

PART 2: PRODUCTS

2.1 STEEL

In general, reinforcing rods for concrete work shall have the size, position and number shown on the structural drawings.

All reinforcing steel shall conform to ASTM A-615-68. Steel for stirrups and column ties shall be Grade 40. All steel for main reinforcing shall be Grade 60.

2.2 WIRE MESH

Where wire mesh is indicated for reinforcing, it shall be of size and gauge as shown on the drawings, and shall be made of best quality drawn steel wire, woven mechanically or electrically welded to form the mesh. ASTM A-185-70. All sidewalks and stoops shall have 6x6 10/10 unless noted otherwise.

2.3 FABRICATION

All fabrication, including bending shall be done at the mill or in the shop. No field bending will be permitted. All pieces shall be labeled and like pieces shall be bundled together.

All stirrups groups shall be wired in units convenient for handling and stable in forms.

PART 3: EXECUTION

3.1 PLACEMENT

All steel shall be free from flaky rust, grease, dirt, scale, or paint. All reinforcement shall be held in position by suitable metal devices which shall insure accurate spacing both horizontally and vertically.

Where not otherwise indicated, bars in foundations and retaining walls shall be placed so that extreme face of steel is not less than 3" from exterior face of concrete.

Concrete cover for reinforcing bars not shown in standard details or on other details throughout the drawings shall conform to the minimum requirements of the ACI Code, latest edition.

The Engineer shall be notified by the Contractor when steel placement for a concrete pour is nearing completion so that the work may be inspected. Sufficient time shall be allowed for the steel setter to make any necessary corrections so that all reinforcement, correct in quantity, size and position, will be wired in place when concreting is started.

Bars shall be in long lengths and splicing shall be made in an approved manner, lapped not less than 30 diameters, unless otherwise indicated, but no splice shall be located at point of maximum stress. Bars of 18S size in foundations may be spliced using a mechanical tension butt splicing unit such as Cadweld "T" Series, meeting ACI Code Requirements 318-63 Section 805(b) and 805(d). Steel must contain proper weld ability properties.

Reinforcing steel in slabs on earth shall be supported on metal rods or by concrete blocks not readily overturned.

All reinforcing steel shall be accurately located in the forms and firmly held in place before and during the placing of the concrete by means of supports adequate to prevent displacement during construction and to keep the steel at proper distance from the form.

Reinforcement shall have 3/4" of concrete covering in slabs and not less than 1-1/2" in beams unless otherwise specifically indicated on the drawings.

All rods shall be securely wired at intersection with No. 16 gauge annealed lacing wire. Reinforcing rods shall be bent or hooked as required, or as indicated by the drawings and shall be spliced only where necessary. All splices of rods shall be securely wired in a satisfactory manner.

Mesh reinforcement shall be well lapped at least 6" at ends and edges wired together at joints and supported on chairs as required for rods wherever conditions will admit of so doing.

END OF SECTION

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Provide all concrete and necessary related work indicated, noted or detailed on the drawings and specified herein.

1.2 STANDARD SPECIFICATIONS

The ACI publication, "Standards and Code Requirements for Concrete and Reinforced Concrete", latest edition, shall govern all concrete work for this project except where otherwise specified herein.

PART 2: PRODUCTS

2.1 MATERIALS AND STORAGE

All materials, unless otherwise indicated, noted or specified, shall conform to the latest edition of the standard specification of the American Society for Testing Materials covering the materials being used.

2.2 CEMENT

Cement shall be an approved blend of Portland Cement of a standard brand and subject to tests hereinafter specified. All cement shall be protected from the weather and from dampness. No cement shall be used which has absorbed sufficient moisture to become lumpy when dry. The cement used shall meet the requirements of standard specifications for Portland Cement adopted by ASTM, seal designation C-150-71, and each shipment shall be accompanied by a certificate of test which shall be kept on file by the Contractor.

2.3 AGGREGATE

All aggregate shall be washed gravel, clean and free from loose soft stone, vegetable matter, or other ingredients which would affect the strength of the concrete. ASTM C-33.

2.4 SAND

Sand shall be thoroughly washed and shall be free from loam, soft stone, or other ingredients which would affect the strength of concrete. Sand shall be well graded from coarse to fine with coarse particles predominating, but containing no grains which will not pass through a 1/4" mesh. ASTM C-33.

2.5 GRAVEL

Gravel for non-reinforced concrete shall be 1/4 to 1-1/2" in size and gravel for reinforced concrete shall be uniformly graded from 1/4" to 1" in size unless otherwise specified. ASTM C-33.

2.6 WATER

Water used shall be fresh, clean and fit to drink, free from oil, acid, alkali, salts or organic matter.

2.7 METHODS

The methods used in piling and handling aggregates shall be such that the fine and coarse aggregates shall be kept separate prior to their placing into the mixer. They shall be kept clean and free from foreign substances. No aggregates shall be used in the work which has not been stored on the project site for at least twenty-four hours.

Aggregates shall be stored so as to insure the preservation of their quality and fitness for the work. When considered necessary by the Engineer, they shall be placed on wooden platforms or other hard, clean surfaces and not on the ground, and shall be located so as to facilitate proper inspection.

No bank run gravel will be permitted on the work except for certain fill.

Air entraining agent shall be a neutralized vinsol resin type furnished in a water formulated solution meeting the requirements of ASTM C-260.

The use of hydrated lime or other admixtures to increase the fluidity, density, or to hasten the seasoning of the concrete will not be permitted unless approved by the Engineer.

Floor slab to receive curing/sealing/hardener compound. The product to be used shall be "Burke 1101 Acrylic Cure/Seal/Hardener", or equal on all floors and exterior concrete slabs-on-grade. Provide submittals for approval on the curing/sealing/hardener compound.

2.7 DESIGN OF MIX

The concrete mix shall be proportioned and designed to develop a minimum ultimate compressive strength of 3000 psi and 4000 psi at 28 days and shall be such as to produce concrete that will work readily into the corners and angles of the form and around the reinforcement without excessive spading and without permitting the materials to segregate or free water to collect on the surface.

A minimum of 5 sacks of cement per yard shall be used for 3000 psi concrete, 6 for 4000 psi concrete. All footing concrete shall be $F_c' = 3,000$ psi. All concrete above the footings, slabs on grade, and floor slabs shall be $F_c' = 4,000$ psi.

No more than 6-1/2 gallons of water per sack (94# cement) shall be used per batch. The water content of the concrete shall be the least that will produce uniformly dense concrete free from aggregate pockets or honeycombs.

Corrections shall be made for the amount of moisture contained in the aggregates and allowances shall be made for absorption of moisture by the aggregates during the period of mixing and handling.

The water-cement ratio, including free water in aggregate, shall not exceed that approved by the Engineer. Variations and corrections in slump shall be made by correcting the proportions and amount of aggregates used.

Cement mortar for topping and grouting shall be mixed in the proportions of one part cement to not more than two parts, clean, fine sand, unless otherwise noted.

The proportions herein specified for mixing of concrete shall not be varied except as may be found necessary to meet the test requirements herein specified and then only on the instructions of the Engineer.

All concrete exposed to weather, except slabs and flat work which are to receive trowel finish, shall be air-entrained with air content controlled at 5% +/- 1%, by volume.

Steel stair treads and platforms and certain areas, where indicated on the drawings, shall receive a fill of thickness indicated, composed of 1 part Portland Cement, 2-1/4 parts sand and not more than 3-1/2 parts pea gravel, struck off and steel trowelled to a smooth dense surface, using only such amount of dry mixture of 2 parts cement to 3 parts sand as necessary to prove workable.

Materials for concrete shall be measured separately by weight; proper provision shall be made, as approved by the Engineer for measuring of materials and water used in each batch.

2.9 MIXING

- A. PLANT MIX CONCRETE. If plant mix or mixed-in-transit concrete is used, each shipment shall be accompanied by duplicate certificates, showing analysis of the mix. It shall be produced in conformance with the standard specifications for "Ready Mixed Concrete" Serial Designation C94 of the American Society for Testing Materials within the limitations of materials composition, consistency, quality, inspecting and testing as provided therein.
- B. JOB MIX CONCRETE. If concrete is prepared at the site, it shall be mixed in a standard type of mechanical batch mixer that mixes one complete batch at a time, which is entirely discharged before another is introduced.

The concrete shall be mixed to the desired consistency and until the mass is uniform in color and homogeneous.

The mixing shall continue for at least one (1) minute after all ingredients are in the mixer.

During the period of mixing, the drum shall operate at the speed for which it was designed, except that peripheral speed of the drum shall not be less than 175 nor more than 225 foot per minute.

If this procedure does not effect a thorough mixing of the concrete, an additional number of turns at the same rate of speed shall be given until a thorough mixing of each batch of concrete is secured. The entire contents of the mixer shall be removed from the drum before material for the succeeding batch is placed therein and the mixer shall preferably be equipped with mechanical means for preventing the addition of aggregate or water after mixing has commenced.

The mixer shall be equipped with adequate water storage and a calibrated measuring device for accurately measuring the amount of water used in each batch. The mixer shall be equipped with a batch meter for accurately recording the time of mixing of each batch and also an attachment for automatically locking the discharge chute so as to prevent the emptying of the mixer until the materials have been mixed with the specified minimum time. No mixer shall be operated above it's rate capacity, or be used which has a rated capacity of less than one (1) sack batch, and batches requiring a fractional sack of cement shall not be mixed unless the cement is batched by weight.

The first batch of concrete materials placed in the mixer shall contain an additional quantity of cement, sand and water, sufficient to coat the inside surface of the drum without diminishing the mortar cement of the mix. Upon the cessation of mixing for any considerable length of time, the mixer shall be thoroughly cleaned.

Care shall be taken to secure the exact proportions at all times. The mixed concrete shall be, as stated hereinbefore, of plastic consistency that will flow into the form of trenches and about reinforcement where used for any reinforced work, but shall not be so wet as to cause separation of materials.

Concrete shall be mixed only as required for immediate use and shall be conveyed directly from the mixer and deposited in place. Concrete in which the initial set has occurred shall not be used.

A competent foreman shall be in attendance at the mixer to give account of each batch, which leaves the mixer.

PART 3: EXECUTION

3.1 PLACEMENT OF CONCRETE

Proper provisions shall be made before the concrete is placed to embed all inserts, including inserts to be provided by others.

It will be each subcontractor's responsibility to provide the Contractor with information regarding openings or chases he will require in the concrete work and to provide all his items which will be cast into, embedded in or will otherwise be monolithic with the concrete pour. The Contractor, prior to placing any concrete, shall give written notice to the Engineer and all subcontractors of his intention to place concrete and his schedule of placing.

Provide concrete curbs, sills, bases, etc. as detailed on drawings.

No concrete shall be placed until after the bearing soil has been inspected and approved by the Engineer. Concrete shall not be placed upon frozen ground. Dry soil shall be thoroughly dampened except in freezing weather or as otherwise directed. Forms shall be thoroughly cleaned out, wetted, oiled, or lacquered before concrete is placed.

No concrete shall be placed until the Engineer has inspected and approved the forms and placing of reinforcement. After inspection and approval of forms and reinforcements, Contractor shall proceed with the placing of concrete. All slabs shall be filled to the top surface in one continuous operation. If possible, the placing of concrete shall be carried on as a continuous operation until the completion of the section. If for any reason, placing of concrete has to be stopped before the completion of the part being poured, greatest care must be exercised to stop at a point where the joint will not weaken the construction. Such joint shall be at the point of minimum shear stress in the concrete.

The maximum pour for slabs shall be as noted in General Notes on the drawings.

Concrete shall be placed so as to avoid segregation of the materials and the displacement of the reinforcement. The use of long troughs and chutes for conveying concrete from the mixer to the forms shall be permitted only on authorization of the Engineer.

All chutes, troughs, etc. shall be kept clean and free from coatings of hardened concrete by flushing with water after each run; water used for flushing shall be discharged clear of the concrete already in place.

Concrete shall not be permitted to drop freely more than five (5) feet and it will not be permissible to allow concrete to run or be taken to fill each part of the form by depositing the concrete as near final position as possible. The coarse aggregates shall be worked back from the forms and the concrete forced around the reinforcement without displacing bars. Concrete shall not be permitted to flow under runways or other obstructions that makes spading impossible.

Concrete shall be spaded and puddled with proper tools into compact, homogeneous mass.

The concrete shall be placed as rapidly, continuously and in as large areas as possible, or until the unit of operation as previously approved has been compacted. In any given operation the batches shall be placed that each shall be installed and compacted before the preceding one has taken its initial set, so that perfect joining will be effected without marked indication on the finished faces of the concrete.

The Contractor shall keep a capable mechanic on the job during the placement of concrete to keep reinforcement in proper alignment and spacing.

Insert asphalt strips of sufficient width against all masonry where cement work is installed, to protect masonry while concrete is being placed.

3.2 MECHANICAL VIBRATION

The concrete shall be compacted by means of mechanical vibrator operated within the mass of concrete.

Vibration shall be supplemented by hand spading. The concrete shall be spaded by hand in all corners and angles of the forms and along all form faces as elsewhere herein specified. The concrete shall be vibrated with a frequency of not less than 7000 impulses per minute, the vibration shall be of sufficient intensity and duration to cause flow or settlement into place and complete compaction. Care must be exercised that concrete is not over-vibrated, particularly if it is of a relatively wet consistency exceeding 4" in slump and that vibrators are not used to transport concrete in the forms. Vibrators should be inserted and withdrawn at many points from 18" to 30" apart for short periods, usually from 5 to 15 seconds is sufficient, in preference to insertion for longer periods at wider intervals. Systematic spacing of insertions of the vibrator should be established to insure that no concrete is missed. Vibration shall be applied to the mass at the point of deposit and in the body of freshly deposited concrete.

The mechanical vibrator shall be of a type and design approved by the Engineer. It shall be adequately powered and capable of transmitting vibrations of the required frequency to the concrete.

The vibrator shall be applied to the concrete immediately after deposit and so manipulated that the concrete is reduced to a uniform plastic mass thoroughly compacted. It shall be thoroughly compacted around the reinforcement and worked into the corners and angles of the forms. The vibrators shall not be attached to the forms or the reinforcement nor shall it be placed on reinforcing steel.

Concrete shall be placed in layers of uniform thickness and the apparatus so operated that the vibrating element does not penetrate through the layers of fresh concrete and disturb partially hardened concrete in lower layers. Vibrators shall not be pushed into the mass of concrete too rapidly and should be withdrawn slowly.

3.3 TESTS

During the progress of the work, the general contractor shall make test cylinders from the run of the concrete mixer. These test cylinders shall be made in strict compliance with ASTM C-31 latest revision. All testing shall be included in the General Contractors bid for this project.

Four cylinders shall constitute a set of test cylinders. Separate tests will be required from each concrete pour for footings, walls, columns, and two sets from pours for concrete floor slabs in each story including roof.

These tests shall be made on 6" x 12" concrete cylinders loaded in compression at 7, 14, and 28 days. Fourth cylinder is to be kept as a spare. The Contractor shall cooperate in every way that in the end concrete of the desired quality be obtained.

All concrete shall contain the minimum properties of strength.

Air content of fresh concrete shall be determined according to ASTM designation C-231, latest edition. Test for air content shall be made at the point of delivery.

Slump tests made in accordance with ASTM C-143, latest revision, shall be made by the Contractor from the run of the mixer. The average slump of these samples shall constitute a test. The maximum average slump for footings and floors placed on ground shall not exceed 3 inches, and for reinforced work shall not exceed 5 inches. Should any set of samples show greater slump than hereinbefore specified, the proportions of the mix shall be varied until the proper slump is obtained, but under no conditions shall the amount of water specified per sack of cement be increased. Contractor shall provide hollow metal cones for making slump tests.

If for any reason, in the opinion of the Engineer, the testing of any section of the completed reinforced concrete structure is necessary, a superimposed load shall be applied by the Contractor and the test conducted in accordance with the current Building Rules and Regulations of the State of Indiana. In cases where failure is declared, the Engineer shall have the authority to order the defective construction removed. All expense of removing such defective construction and substituting new construction, including expense of removing and replacing the work of others, or protecting and repairing the work of others shall be borne by the Contractor.

3.4 JOINTS

Provide and install 1/2" expansion strips at edges of concrete slabs and floors around all columns and elsewhere where noted or specified.

Expansion joint material for these locations shall be preformed, non-extruding.

Provide and install expansion joints in exterior slabs where noted. These joints shall be between poured in place concrete top slabs and walls and wherever shown, shall be as detailed. This detail shall also apply at all waterproof slabs.

Control joints as detailed shall be provided where noted on drawings.

3.5 CONCRETE FINISHES

GENERAL The surfaces of all concrete shall be thoroughly worked during the operation of placing by spading as hereinbefore specified. The working shall be such as to force all coarse aggregate from the surface and thoroughly work the mortar against the forms to produce a smooth finish free from water and air pockets or honeycomb. All concrete surfaces shall be true and even, free from honeycombing stone pockets and excessive depressions, projections or air pockets.

FINISHING WALLS All interior exposed concrete shall have all fins and projections removed and the rough surface produced by this operation shall be rubbed smooth. All depressions shall be filled with mortar of the same proportions as the mortar used in the body of the concrete and this mortar shall be smoothed with a wooden float. This work shall be done closely following removal of the forms. All exposed surfaces in finished and unfinished rooms shall be left clean and smooth and shall present a neat and finished appearance.

Concrete which has a total area of honeycombed surfaces in excess of one (1) percent of the total surface area of the forms used for any member of the pour in which the honeycombing is present will not be accepted and must be entirely removed and new concrete substituted by the Contractor at his own expense. Work of other Contractors adjacent to or incorporated in the concrete to be removed shall be

removed, and replaced, protected, and repaired to the satisfaction of the Engineer at the General Contractor's expense.

Honeycomb surfaces, for the purpose of enforcing this specification, are hereby defined as the concrete surfaces, next to forms, in which there are voids between the particles of coarse aggregate.

The small amount of honeycomb permitted to remain shall be filled with mortar of the same consistency as the mortar used in the body of the concrete and smoothed with a wooden float, closely following removal of forms. The Engineer shall stop the removal of forms unless the requirements of this section are carried out. Tops of walls shall be floated smooth. The Contractor shall also perform any other operations in addition to those specified herein that may be required to produce the results specified.

All exterior exposed walls shall be given the following treatment: Prepare a grout of about the proportions of one part cement to one part fine sand. Grout shall be of the consistency that will permit its application to vertical surfaces with a stiff bristle brush.

The grout shall be brushed and floated on the previously dampened surfaces to fill completely all air bubbles and indentations in the concrete. Allow grout to remain on wall until the cement has partially set, then remove excess grout with a steel trowel. After drying for an hour or longer, depending on weather conditions, rub the wall vigorously with burlap to completely clean the grout from the surface leaving pits filled, but there shall not be a visible film of grout on the surface. To lighten up the surface, replace part of the grey cement with approximately 30% of white cement. Rubbing up a lather with a carborundum stone shall not be permitted.

FINISHING FLOORS Immediately following the pour, the concrete shall be screeded off to bring the top surface to proper contour and elevations. Floors, unless otherwise noted, shall be held perfectly level. Where drains occur or slope is indicated, they shall be pitched toward drains or in direction indicated on drawings.

Soon after screeding and while the concrete is still plastic, the surface shall be floated with wood or metal floats and brought to a true grade.

Floor shall be steel trowelled to a smooth and perfect surface after the concrete has hardened enough so that water and fine material are not worked to the surface.

Do not trowel while concrete is too soft or plastic, as this will result in a less wear-resistant surface.

No walking or wheeling shall be permitted on the concrete floors until concrete is thoroughly set.

Floors shall be protected until final completion of the job. Any rough places which develop shall be machine ground before any covering is applied.

Excess water shall be screeded off and the surfaces left clean and level.

In placing depressed slabs, forms shall be provided for forming the edges of depressed sections. These shall be accurately placed with breaks located as directed.

FINISHING EXTERIOR WORK Drive and walks shall have a broom finish which shall be done after the concrete is hard enough so that it will retain the scoring.

Concrete steps, concrete platforms, etc. shall be finished in the following manner.

As soon as water has risen to the surface of treads, it shall be brushed off and the surface sprinkled with dry cement approximately 1/16" thick, over which apply 1/2" of cement mortar topping trowelled to a smooth and perfect surface. As soon as concrete has set sufficiently to be firm, remove the forms from the riser and steps, and remove all fins, ridges, etc. from the surface.

Treads of all concrete steps which do not receive a covering shall have 1/4 lbs. sq. ft. non-ferrous abrasive material, as hereinbefore specified, trowelled into top coat to prevent surface from becoming slippery. In final trowelling do not buy the grit.

3.7 FLOOR HARDNER

Where schedule of interior finish indicates hardened concrete floors, material to be used shall be non-metallic hardner as specified hereinbefore, applied in strict accordance with manufacturers instructions.

3.8 CURING CONCRETE

Concrete surfaces exposed to conditions causing premature drying shall be protected within twenty-four (24) hours of placing. Horizontal surfaces shall be protected by covering with canvas, burlap, sand or other satisfactory material and shall be kept moist. Curing shall continue for a period of not less than five (5) days after placing the concrete, unless otherwise directed by the Engineer. Other precautions to insure the development of strength shall be as specified hereinbefore applied in strict accordance with manufacturers instructions.

3.9 CONCRETE PROTECTION IN COLD AND HOT WEATHER

Recommended Practice for hot weather concreting (ACI 305) Recommended Practice for winter concreting (ACI 306) Where temperature is below 40 degrees F. all water and aggregate used in concrete, shall be heated to a sufficient temperature to make the concrete not less than 60 degrees F. when deposited in place.

Ice and hoar frost shall be removed from the forms with steam jet immediately before concrete is placed. Gauging water shall be heated by a steam jet discharging directly into the water. Aggregate shall be heated by steam pipes properly placed under the aggregate in such manner as to distribute heat throughout the mass. Other methods of heating and aggregate shall not be used unless approved by the Engineer.

The use of salt or other chemicals to accelerate the hardening of concrete will not be permitted under any circumstances.

When, in the opinion of the Engineer, it is necessary, the foundation material on which the footing is to rest shall be protected from freezing.

Immediately after a pour is completed, the freshly poured concrete shall be housed in with tarpaulins or by lumber housing and the air within the enclosure shall be kept at a temperature above 70 degrees F. for a period of seventy-two (72) hours. If for any reason this temperature is not maintained the aging period shall be extended.

The Contractor shall supply such heating apparatus as stoves, salamanders or steam equipment and the necessary fuel. When dry heat is used, means of maintaining atmospheric moisture shall be provided. The aggregates may be heated by either steam or dry heat. The Contractor will be required to keep a watchman on the job at all times during the heating period to insure the maintenances of the proper temperature around the concrete and to see that the concrete is not damaged by fire.

Any concrete placed when the air temperature is at or below 35 degrees F., will be at the Contractor's risk and if such concrete becomes frozen or is inferior in any respect, it shall be removed and replaced at the Contractor's expense.

END OF SECITON

SECTION 04200 - MASONRY

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish all material and do all work including face brick work, common brick work, concrete block work, setting of iron and steel in masonry, etc. and such miscellaneous items of masonry work required to complete the building in accordance with the drawings and these specifications.

PART 2: PRODUCTS

2.1 FACE BRICK - ALLOWANCE ITEM

Brick facing of exposed surfaces of exterior walls and interiors where noted shall be best quality #1 hard-burned vitrified face brick conforming to ASTM C216 Grade SW. Exterior brick shall match existing work as close as possible.

2.2 COMMON BRICK

Where brick are required for backing up and miscellaneous work, etc. they shall be best quality hardburned common brick, free from any defects that will affect the strength of the wall. ASTM C62-66 with minimum compressive strength of 4500 psi.

2.3 CONCRETE MASONRY UNITS

- A. STANDARD. Furnish units complying with ASTM C90 of thickness shown on drawings where required.
Match existing as required on building additions and alterations.
- B. LIGHTWEIGHT UNITS. Units for interior partitions and backup of exterior walls where noted, shall be lightweight complying with current ASTM Standards. Cinder blocks will not be acceptable.
Match existing as required on building additions and alterations.
- C. SPLIT-FACED UNITS. Furnish units complying with ASTM C90 and ASTM C145, for grade N, Type 1 (moisture controlled) for load Bearing concrete masonry units.
Match existing as required on building additions and alterations.

Cracked, warped, chipped or unsound units will not be acceptable.

Furnish all special shapes required, including bullnose, if indicated, lintel blocks, etc.

2.4 MASON CEMENT

Material shall conform to ASTM C-91.

2.5 MORTAR COLOR

Match existing as required.

2.6 SAND

Material conform to ASTM C-144-77T, fine to coarse with no particles which will not pass through a 1/4" mesh.

2.7 LIME

(1) ASTM C-5-59 for quick lime, (2) ASTM C-207-49 for hydrated lime.

2.8 WATERPROOFING ADMIXTURE

Hydrocide Powder, by Sonneborn Building Products, Inc., Toxement I.W. by Toch Bros., Inc., or equal.

2.9 WATER

Clean and free from deleterious materials.

2.10 ANCHORS

Build in dovetail anchors at approximately 2'-0" spacing for attaching masonry to concrete.

2.11 MASONRY WALL REINFORCING

For horizontal reinforcing of solid type exterior walls -9 ga. knurled side rods and 9 ga. cross ties, triangular pattern, sizes to fit wall thickness. ASTM A82-62T.

2.12 CONTROL JOINTS

Cross shaped extrusions by Dur-O-Wall, or equal.

2.13 STORAGE

Protect all material off ground and under tarpaulins or shed, to prevent absorbing moisture.

PART 3: EXECUTION

All concrete blocks shall be dry units and units which exceed 30% of the total absorption of the units shall be dried before installation.

3.1 MORTARS MIXING

Below grade and for bearing under structural members, 1 part Portland cement, 1/4 hydrated lime or lime putty and three parts sand. All other mortar for brick and concrete block, unless otherwise specified, shall be mixed of one part Portland cement to two parts by measure of well slacked lime putty or hydrated lime and not more than three parts of clean sand to one part of the mixed cement and lime. Cement for mortar shall not be added until the mortar is ready for use. No retempering of mortar will be permitted in the work or prepared mortar as used for exterior work.

Sand for mortar shall range from fine to coarse with no particles which will not pass through a 1/4" mesh.

To mortar for all exterior face brick walls, add waterproofing admixture specified hereinbefore in the proportion of one pound for each sack of cement, and one pound for each cubic foot of lime putty in exact accordance with the directions of the manufacturer.

Prepared mortars, similar to Brixment, Carney, Lonestar, Alpha, or Kosmortar may be used, subject to approval. Waterproofing admixture shall be used at the rate of one pound for each cu. foot of prepared masonry mortar if integral waterproofing is not in prepared mortar.

Color for mortar will be selected later.

3.2 *LAYING MASONRY UNITS*

No masonry shall be started on any concrete work for at least 3 days after concrete is poured, and in no case until concrete has taken final set.

Units shall be laid with solid head and bed joints. All walls and piers must be build plumb, level and true. Line is to be used on all long stretches, and straight edge on all face brick work. Bed and head joints for brick and block masonry shall be approximately 3/8". Joints in walls of scored units shall match width of scoring.

All backing up shall be carried up with the face brick facing to permit anchoring of same. Face brick shall not be laid up more than six courses ahead of the backing. Face brick laid 3 course to 8".

The back of all exterior face brick shall be parged with no less than 3/8" of mortar specified for face brick.

Face brick shall be laid in running bond unless otherwise indicated on the drawings. All concrete block shall be laid with a running bond unless indicated otherwise on the drawings.

Mortar shall be spread on each wall section before wall ties are placed to provide a seal between the tie and the brick. No wall tie should be placed with a pitch towards the inner wall. Wall ties shall be placed within 3 in. of all wall openings, at the bottom of beams, joists or slabs that rest on wall.

Exterior face brick shall be laid in furrowed bed joints. Furrows shall be no deeper than necessary and sufficient mortar shall be used so that when brick are laid the furrows will be entirely filled.

The ends of each face and sides of face brick headers shall be fully covered with mortar from the mortar board before the brick is laid. The brick shall be shoved against the brick already laid causing the mortar on the end of the brick or side of header, being laid to be compressed between the two bricks. Sufficient mortar should be used to make a full head joint. Head joint requiring slush will not be acceptable. When head joints are not made full by shoving, the brick shall be removed from the wall and relaid.

Re-spacing of bricks will not be permitted except by taking up bricks and relaying them properly.

All common brick shall be laid on full mortar beds and shall be slid into place to produce full head and collar joints by shoving some of the bed mortar into the head and collar joints. The "pick and dip" system will be acceptable in order to accomplish this result. All joints not completely filled by shoving shall be slushed full.

The intent of this specification is to produce solid walls having no unfilled spaces whatever except the cavity in exterior walls.

All bed and head joints, except as noted hereinafter, in exterior and interior exposed brick, and block, shall be carefully tooled to produce concave joints with no holes or cracks. Head joints shall be tooled twice; once before the bed joints are tooled and again after the bed joints are tooled.

Split-Face exterior walls shall have raked joints on the split-face side. Match Existing.

Wall joints shall be thoroughly bonded together where possible where they meet with no block joints used.

The horizontal courses must be laid out with a story pole and vertical joints kept plumb.

Concrete block units shall be laid with cells vertical. Bed and head joints shall be about 3/8" thick with head joints carefully buttered. Block shall be laid to line, level, plumb and true.

Special care shall be taken in laying all exposed concrete block and all joints shall be tooled. All holes or chips shall be filled with mortar and struck off smooth so that wall presents an even, smooth surface suitable for finishing by painting. Mortar joints in face of wall to be plastered shall be struck off flush with the face of wall.

Build in window and door frames, steel lintels, conduits, pipes, cabinets, etc., of other contractors as the work progresses. Vertical chases shall in no case be closer than 1'-0" to jambs of windows or door. Leave chases and other openings for pipes, etc. as required by other trades and do necessary cutting of masonry walls for steel and iron work which is to be embedded in masonry.

Install flashing specified hereinafter in Division 7.

All cutting of exposed concrete block and glazed units on the job shall be done with a power driven saw.

Where metal door and window frames occur, the brick or block shall extend into the flanges of the frames and the entire space slushed full and solid with mortar.

Partitions shall extend to floor construction above and grouted.

Build in conduits, pipes, etc., of other contractors as directed. Area over door frames, which extend to ceiling line will be closed off with lintel blocks and concrete blocks to structure above.

Horizontal joints in brick walls where relieving angles occur shall be raked out clean and caulked in lieu of pointing with mortar.

All brick shall be wetted, but not soaked, before being laid unless otherwise directed. Concrete units shall not be wetted.

3.3 WALL TIES, BONDING AND REINFORCEMENT

All exterior masonry walls shall be reinforced with heavy duty hot dipped galvanized welded wire reinforcement installed in every second horizontal joint in concrete block or every ninth course of brick.

Solid type exterior walls of face brick and block backup shall be reinforced with welded wire reinforcement.

Prefabricated "corner" units shall be used on all corners and prefabricated units shall be used at all interior partitions intersections.

Reinforcing shall be continuous throughout. Where joints occur material shall be lapped 12".

Where face brick, common brick or concrete block passes concrete spandrels, columns, etc., brick shall be anchored to keyslots in concrete.

Partitions that intersect exterior walls shall be anchored at every other course, using 1/4" x 1-1/4" galvanized metal anchors with end turned up 2" and extending 4" into wall and not less than 8" into partitions.

Mortar shall be spread on each wall section before the reinforcing units are placed to provide a seal between the wire and the block.

Bearing walls shall be reinforced with vertical rods and voids completely filled if indicated on plans or detailed.

All interior blocks partitions shall be reinforced in every horizontal joint with mesh type galvanized masonry reinforcement.

3.4 CONTROL JOINTS

A. RUBBER CONTROL JOINTS

Rubber joints shall be employed on interior concrete block walls as indicated on drawings and/or as specified. All such joints will be constructed with "cross-shaped" rubber extrusions and standard metal sash block, as specified hereinbefore.

Control joints shall be as shown, or at a distance equal to twice the height of the wall or 30'-0" on center, whichever is less.

Joint reinforcing shall not extend through the control joint, rubber extrusions for the control joints shall not extend through the control joints.

B. PVC CONTROL JOINTS

PVC joints shall be employed on exterior concrete block walls as indicated on the drawings. The units shall be Dur-O-Wall Poly-Joints of size required for wall widths shown.

3.5 SEALED JOINTS

Joints in exterior brick walls shall be sealed joints. Sealant shall be as specified hereinafter in Section 7.

3.6 PROTECTION

During construction, except when work is actually under way on walls, tops of all walls shall be kept covered with waterproof cover, well secured.

Provide means to prevent water from running off of floor, decks or roof, on or down over walls.

Masonry shall be protected from freezing for at least 48 hours after being laid. If joints indicate any freezing, walls shall be taken down and re-laid.

No masonry work shall be permitted when temperature is less than 32 degrees F. or below 40 degrees F. and falling unless the following precautions are taken:

- A. Below 40 degrees F. but above 32 degrees F.: Heat mortar mixing water, but not above 160 degrees F. Mortar when placed shall be between 70 degrees F. and 100 degrees F.

Plastic sheet or tarps shall be placed over the newly laid walls.

- B. Below freezing, but above 0 degrees F.: In addition to preceding requirements, sand shall be heated, but not scorched. The working areas shall be enclosed with protective coverings and artificial heat provided. When the temperature falls below 20 degrees F. all masonry units shall be heated to at least 50 degrees F. at job site by contractor.
- C. Below 0 degrees F.: Construction shall be stopped unless enclosure is complete and tight. Observe all preceding requirement.
- D. Contractor may use an admixture for cold weather work (Trimix by Sonneborn or equal) if prior permission is obtained in writing, from the Engineer, and material is used strictly in accordance with manufacturers specifications.

No masonry shall be laid with or on frozen materials.

3.7 PROTECTION OF WORK IN PLACE

It shall be the responsibility of this contractor to protect all walls which have erected from wind, seismic, or lateral loads prior to completing the walls and having all the structural elements in place to properly support the walls. Lateral bracing shall be employed to hold the walls in place until the walls and all structural support elements are in place to make the system act as a unit.

3.8 POINTING AND CLEANING

When all work has been completed on the building, contractor shall clean down exposed masonry, both exterior and interior, removing all mortar, concrete, splashing, etc., with stiff brushes and water to which may be added soap powder and fine sand if necessary. The use of acid will not be permitted.

The mason shall go over all work throughout after it has been cleaned, and do all necessary pointing, etc., to put the work in first class condition to the satisfaction of the Engineer.

After all trades have completed their work, the mason shall fill all openings around pipes, conduits, etc., to the satisfaction of the Engineer.

3.9 FLASHING

Flashing shall be installed over window and door openings, in cavity wall construction, at relieving angles, spandrels, at base of cavity walls and wherever else details show it to be used.

Flashing shall be as specified in Section 7.

3.10 GROUTING (COLUMN BASE PLATES)

Grouting of steel column base plates shall be with a non-metallic material.

Material used shall be standard Portland cement, fine sand and "Sika Set" as manufactured by Sika Chemical Corporation.

Material shall be mixed using one (1) part Portland Cement, two (2) parts fine sand and Silka Set, diluted with 2 to 5 parts water depending on desired initial set.

END OF SECTION

SECTION 06100 - ROUGH CARPENTRY

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish all labor, materials, equipment, special tools, supervision and all services required to complete all rough carpentry work indicated, noted or detailed, or the drawings and specified herein.

Furnish all rough lumber, etc. and all labor necessary to install same. Any item or part required to complete the installation to that intended by the drawings shall be furnished and installed as though it were indicated, noted or specified.

Wood Grounds as required.

Wood nailing blocks as required.

Scaffolding.

All rough hardware of every description.

Boxing and guards necessary to protect pre-cast work, masonry, plumbing, fixtures, etc.

Wood vent curbs on roofs.

Miscellaneous shelving.

This also includes the temporary enclosing of the building and erection of barricade when required and the prompt performance upon request and without extra charge of all necessary cutting, framing, jobbing, etc. for other craftsmen on the building excepting only such as has been heretofore specified to be provided by them.

Read all other specifications for work by other trades and include all carpenter work and work in wood as part of the work under this Section.

Note that Specifications for wood from work required in connection with concrete is hereinbefore described in Division 3.

PART 2: MATERIALS

2.1 MATERIAL

Lumber:

1. Framing (Beams and Lintels): Southern Yellow Pine, #1 Grade.
2. Studs: Spruce, Pine, Fir #2 grade.
3. Grounds, blocking and nailers: standard or Utility Grade of above species.
4. All lumber shall be grade marked and trade marked.
5. Moisture Content: Kiln dried to maximum 15%.

Plywood:

1. Exterior Plywood: Medium density, trade marked EXT-DFPA, constructed of waterproof glue and grade marked A-C where one side is exposed, A-A where both sides are exposed and B-C where concealed.

2. Interior Plywood: Trade marked INT-DFPA or EXT-DFPA, constructed with moisture resistant glue, grade marked A-B where one side is exposed, A-A where both sides are exposed and B-D where concealed.

Treated Wood:

1. Conform to FS TT-W-571, Table 3.
2. All lumber in contact with masonry, concrete, or roof shall be redwood, cypress or preservative treated with water borne salt preservative, AWPI LP-2.
3. Brush all field cuts with preservative used in pressure treatment.
4. Lumber redried to maximum moisture content of 19%, marked DRY.
5. Fire Retardant Plywood: AWWA C 27.

Rough Hardware:

1. Bolts: FS-B-575.
2. Lag Screws and Bolts: FS FF-B-561.
3. Toggle Bolts, Expansion Shields: FS FF-B-588.
4. Wood Screws: FS FF-S-111.
5. Nails: FS FF-N-105.

2.2 STORAGE

All lumber shall be stored off the ground and kept covered and protected from the weather until used in the project.

PART 3: EXECUTION

3.1 PRELIMINARY AND ENCLOSING

Install studs at all entrance door openings and provide and hang temporary pattern doors fitted with hinges, lock and key. Provide temporary enclosures for all openings on the Ground Floor, or at ground level. Keep in proper repair until final doors and sash are installed.

3.2 LABOR

All labor employed shall be skilled and under the supervision of a competent foreman.

Furnish, set and maintain runways of ladders, leading from lowest level of the building to the roof, with proper landings at each floor for the general use of all workmen. Provide temporary 2 X 8 plank treads in metal pan stairs.

Build approved covers over sills, etc. exposed to falling materials or debris.

Protect all open well holes, shafts, etc. or other places in the building which are dangerous to life and limb with strong barricades.

3.3 GROUNDS

Furnish and set any grounds required. Grounds must be well secured in place, run true and plumb, and nailed to masonry by means of wall plugs.

3.4 NAILING PIECES

Carpenter shall provide wood furring, spot grounds of wood brick for insertion into walls where necessary and shall see that same are inserted into proper place during the construction of masonry.

3.5 *HARDWARE INSTALLATION*

Set all finishing hardware and protect same until building is accepted. Knobs and handles to be covered with flannel or similar material. All other hardware, such as nails, bolts, screws, and other rough hardware, shall be furnished by this contractor.

When finishing hardware is received at the building, the contractor shall check same, together with a representative of the hardware company, and he shall immediately report to the Engineers, any shortage or variation from the list furnished him. See specifications for finishing hardware.

3.6 *SETTING DOOR FRAMES*

Set all door frames and securely brace as approved.

3.7 *UTILITY SHELVING*

Furnish and install miscellaneous shelving in rooms wherever noted, scheduled or detailed. All shelving shall be 3/4" thick particle board "Novoply" or equal, and shall be supported on wood framing as detailed or wall cleats as detailed.

3.8 *WOOD CURBS FOR ROOF VENTS*

Vent curbs shall be as detailed and shall be constructed of pressure treated #1 yellow pine or Douglas Fir.

3.9 *INSULATION EDGING*

At edge of roofs install 6" wide X thickness indicated, wood nailers prior to installation of roof insulation specified in Division 7. Wood nailers at edges of gravel stops and fascias shall be untreated material. Nailers at edges of insulation that abut rising surfaces shall be pressure treated material.

3.10 *BLOCKING FOR GRAVEL STOPS*

Provide and install wood blocking cut to size and shape shown, bolted into walls or roof decks with staggered bolting as shown.

SECTION 06130 – WOOD TRUSSES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

- A. Work includes design and installation of all pre-engineered wood trusses shown on the drawings.
- B. Wood trusses shall be furnished and fabricated by a fabricator regularly engaged in the design and fabrication of wood trusses.

PART 2: MATERIAL

2.1 LUMBER

- A. Lumber shall be structural grade free of knots and other defects.

2.2 TRUSS DESIGN

- A. The wood trusses shall be designed by a registered licensed professional engineer with the design sealed in the State of Indiana.
- B. The truss design shall be submitted to Michael R. Waldbieser Engineering & Consulting, Inc. for approval prior to fabrication.
- C. Truss design loads are as stated on the drawings.
- D. Allowable deflections shall be $L/360$ for total load applied to the truss.

PART 3: EXECUTION

3.1 INSTALLATION

- A. Connection of trusses to bearing system shall be as stated on the drawings prepared by Michael R. Waldbieser Engineering & Consulting, Inc.
- B. Install all bracing shown on truss shop drawings.
- C. All connections for any hip and valley systems shall be complete by the truss mfg.

END OF SECTION

SECTION 07190 - VAPOR BARRIER

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Work includes vapor barrier to be installed under all concrete slabs.

1.2 GENERAL

- A. Dampproof all interiors slabs-on-grade with Polyethylene Film.
- B. Install between fill material and concrete slab.
- C. Fill shall be level.

PART 2: MATERIAL

2.1 POLETHYLENE FILM

- A. Slab Underlay Vapor Barrier.
- B. Thickness: .006" (6 Mil.)
- C. Manufacturer - Visqueen or equal..

PART 3: EXECUTION

3.1 INSTALLATION

- A. Lap all ends and edges minimum 6".
- B. Make all laps in direction of concrete pour.
- C. Seal laps with approved mastic.
- D. Cut carefully around all pipes and conduit.
- E. Seal cut openings with tape.
- F. Repair all punctures before pouring concrete.

END OF SECTION

SECTION 07200 - INSULATION

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Work includes installation of all insulation shown on the drawings.

1.2 SUBMITTALS

- A. Submit manufacturer's product literature and installation instructions for type of insulation required.
- B. Submit data showing physical properties of fasteners to be incorporated with this work, including test data from an independent testing laboratory showing pull-out resistance.

1.3 QUALITY ASSURANCE

- A. Installer: To be a regularly engaged in the installation of insulation work specified and shall have have proper experience to install the work specified.
- B. Manufacturer: The manufacturer shall be a company regularly engaged in the manufacturer of the insulation specified.

PART 2: MATERIAL

2.1 ROOF INSULATION (Not on this Project)

- A. The roof insulation shall be Polyisocyanurate of the thickness stated on the drawings.
- B. Thermal resistance: $R=7.1$ per inch thickness, conditioned

2.2 FIBERGLASS BATTEN WALL INSULATION

- A. Where specified, fiberglass wall insulation shall be of the thickness called for and shall be manufactured by Owens-Corning, or equal.
- B. Where called for, the insulation shall have an integral vapor barrier.

2.3 FOUNDATION PERIMETER INSULATION

- A. Foundation perimeter insulation shall be Owens Corning Foamular 250 Insulation, or equal, of the thickness stated on the drawings.
- B. Thermal Resistance: $R=5.0$ per inch thickness, conditioned.

2.4 *MASONRY FILL INSULATION (Not on this Project)*

- A. The exterior concrete masonry wall insulation shall be Cor-Fill 500 as manufactured by Tailored Chemical Products, Inc., or equal.
- B. Product to be installed by injection into all open cores or through drilled holes in mortar joints. All holes to be repaired to appear as before drilling.
- C. Thermal Resistance: R=20 for 12 inch block/60 lbs density.
R=14.2 for 8 inch block/60 lbs density.

PART 3: EXECUTION

3.1 *INSTALLATION*

All products to be installed in strict accordance with the manufacturer's installation specifications.

3.2 *TRAINING*

Where special training is required, the installer shall be trained in accordance with the manufacturer's training program and shall be experience in the installation of such work.

END OF SECITON

SECTION 7300 - ASPHALT ROOF SHINGLES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 GENERAL INFORMATION

The roofing system shall be a nailed in place asphalt roofing shingle system specified herein with a UL Class "A" fire rating.

1.2 QUALITY ASSURANCE

- A. Provide products of the manufacturer's listed under the various materials required.
- B. Applicator's Qualifications:
 - 1. The Contractor shall have been in business as a roofing Contractor for a period of not less than five (5) years.
- C. Industry Standards:
 - 1. Work specified by reference to the published specifications of a manufacturer, organization, or institute shall comply with the requirements of the specifications listed.
 - 2. Specifications or standards of the following are referred to in this SECTION by the following abbreviations:

Federal Specifications: FS
American Society for Testing and Materials: ASTM
Underwriters Laboratories, Inc.: UL
Factory Mutual: FM

1.3 SUBMITTALS

- A. Samples:
 - 1. Submit full size shingle samples for review by the Owner.
 - 2. If requested by the Engineer, other items required in the work for sampling and approval.
- B. Certifications requested in Section.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to Project Site in manufacturer's unopened original packaging with labels intact and legible.
 - 1. Store materials under cover in an area protected from construction damage.
 - 2. Assure that materials are kept clean and dry.
 - 3. Do not use materials damaged in handling or storage.

1.5 JOB AND ENVIRONMENTAL CONDITIONS

- A. Do not install materials on damp, wet, or frost covered surfaces.
- B. Do not overload the roof deck with storage of new materials.

1.6 WARRANTY AND GUARANTEE

A. Warranties:

- 1. Roofing Contractors Warranty: Provide roofing contractor's roofing warranty typical in form and content indicated by Midwest Roofing Contractor's Association, Inc. approved guarantee form No. 1987B, except 2-years instead of 1-year as indicated on form.
- 2. Manufacturer's Warranty: Provide shingle roofing manufacturer's standard guarantee for product performance and contractor and workman liability. Roofing Manufacturer's Basic Roofing Guarantee from date of Substantial Completion against leaks caused by defective materials or workmanship and against normal wear and tear.

PART 2: PRODUCTS

2.1 PRODUCTS – ASPHALT ROOFING SHINGLES

- 1. The asphalt shingles used on the building roof shall be "Oakridge Shingles – Artisian Colors" with one layer of 30# felt underlayment as mfg. by Owens Corning, or equal. 40 year warranty on Commercial Projects.
- 2. Shingles shall be Class "A" U.L. listed, fiberglass mat core, asphalt impregnated, laminated shingles, and coated with ceramic granule.
Size: 13 1/4" x 39 3/8" ASTM D 228
Exposure: 5 5/8" ASTM D 3018, Type 1
Shingles per Square: 64 ASTM D 3161
Bundles per Square: 3 ASTM D 3462
Coverage per Square: 98.8 ASTM E 108, Class A
130 mph wind resistance – this requires 6 nail installation and the use of Owens Corning Starter Shingles on all eaves and rakes.
- 3. Felt to be 30# asphalt-saturated felts, ASTM D226-75.
- 4. The installation shall be as per the manufacturers spec.
- 5. Color shall be as selected by the "Owner".
- 6. Roofing Contractors Warranty: Provide roofing contractor's roofing warranty typical in form and content indicated by Midwest Roofing Contractor's Association, Inc. approved guarantee form No. 1987B, except 2-years instead of 1-year as indicated on form.
- 7. Manufacturer's Warranty: Provide shingle roofing manufacturer's standard guarantee for product performance and contractor and workman liability. Roofing Manufacturer's Basic Roofing Guarantee from date of Substantial Completion against leaks caused by defective materials or workmanship and against normal wear and tear.
- 8. Ridge venting system shall be Owens Corning VentSure Rigid Strip Ridge Vent. Externally baffled, built-in end caps, and polypropylene construction with UV inhibitors.
- 9. Provide and install WeatherLock G Granulated waterproofing underlayment (36" wide) on all eaves overhangs, valleys, and locations shown on the drawings.
- 10. Provide Owens Corning Hip & Ridge shingles with sealant to match shingles specified.
- 11. All above items may be substituted with approved equals.
- 12. Match existing color on existing facilities.

PART 3: EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Workmanship: The highest standards of craftsmanship shall prevail from the start of the work to completion of the roofing system. These standards shall meet all the printed and published requirements and specifications of the roof materials manufacturer for the type of system detailed and specified.
- B. Inspection:
 - 1. Examine all surfaces which are to receive this work for any conditions detrimental to the proper or timely completion of this work. Do not proceed with this work until such conditions have been corrected and are acceptable.
- C. Compliance with Code:
 - 1. Products used and installation methods employed shall comply UL Class A Roof Covering System.
- D. Job Superintendent: This Contractor shall have a job superintendent on the project full time once the roofing application is started, who is known for his integrity and roof application expertise. He shall have not less than 5 years of field experience as a superintendent for the type of roofing system detailed and specified herein.

3.2 CORRECTION OF DEFECTIVE WORK

- A. All changes and corrections required to provide a warranty shall be made without any additional cost to the Owner.

END OF SECTION

SECTION 07400 – STEEL SIDING

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

This section shall include all materials, equipment, and labor necessary for the installation of sheet metal flashings on this project.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, installation instructions and general recommendations for each specified material and fabricated products.
- B. Submit 24" square samples of specified sheet materials to be exposed as finished surfaces.

1.3 JOB CONDITIONS

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

PART 2: PRODUCTS

2.1 STEEL SIDING

- A. Tru-Cedar siding as manufactured by Quality Edge.
Horizontal Pattern – 8" exposure in plain single board style.
Color selected by Owner from manufacturer's standard colors.
- B. Fasteners: Same metal as siding material or, other non-corrosive metal as recommended by sheet mfg.
- C. Metal Accessories: Provide sheet metal clips, straps, corner trim, edge trim, J-trim, and anchor devices and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size and gage required for performance.

PART 3: EXECUTION

3.1 INSTALLATION REQUIREMENTS

- A. General: Except as otherwise indicated, comply with mfg.'s installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual". Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints and seams which will be permanent watertight and weatherproof.
- B. Bed flanges of work in a thick coat of bituminous roofing cement where required for

3.2 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.
- B. Protection: Protect flashings and sheet metal work during construction, to ensure that work will be without damage and other deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION

SECTION 07600 - SHEET METAL FLASHING & SOFFITS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

This section shall include all materials, equipment, and labor necessary for the installation of sheet metal flashings on this project.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, installation instructions and general recommendations for each specified sheet material and fabricated products.
- B. Submit 8" square samples of specified sheet materials to be exposed as finished surfaces.

1.3 JOB CONDITIONS

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

PART 2: PRODUCTS

2.1 SHEET METAL FLASHING MATERIALS

- A. Full vented prefinished painted aluminum soffit panels.
Solid prefinished painted aluminum soffit panels at locations shown on the drawings.
Color selected by Owner.
Provide wood blocking or hat channels as required by the mfg. for installation.
- B. Fasteners: Same metal as sheet metal flashing material or, other non-corrosive metal as recommended by sheet mfg.
- C. Metal Accessories: Provide sheet metal clips, straps, anchor devices and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size and gage required for performance.

2.3 FABRICATED UNITS

- A. General Metal Fabrication:
 - 1. Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate and waterproof and weather-resistant performance; with expansion provision for running work, sufficient to permanently prevent leakage damage or deterioration of the work.
 - 2. Form work to fit substrates. Comply with material mfg. instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

- B. Seams: Fabricate non-moving seams in sheet metal with flat-lock seams.
- C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water / weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1" deep, filled with mastic sealant (concealed within joint).
- D. Sealant Joints: Where movable, non-expansive type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant in compliance with SMACNA standards.
- E. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
- F. Counter-flashing: Form top edge of wall counter-flashing to lock into mortar joint. Bend sections in middle to provide spring action against the wall.
- G. Preformed Vent Flashing: Provide preformed flexible cylindrical pipe boots at each pipe penetration of pitched roofs in the correct size. Base of unit shall be galv. steel.

PART 3: EXECUTION

3.1 *INSTALLATION REQUIREMENTS*

- A. General: Except as otherwise indicated, comply with mfg.'s installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual". Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints and seams which will be permanent watertight and weatherproof.
- B. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- C. Saw-cut new counter-flashing reglets at least 1 1/2" deep where new counter-flashing is indicated.
- D. Install counter-flashing in reglets either by snap-in seal arrangement or by wedging in place for anchorage for filling reglet with elastomeric sealant.

3.2 *CLEANING AND PROTECTION*

- A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.
- B. Protection: Protect flashings and sheet metal work during construction, to ensure that work will be without damage and other deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION

SECTION 07900 - JOINT SEALANTS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

This section shall include all materials, equipment, and labor necessary for the installation of joint sealants on the project.

- A. Qualified Applicator: Franchised by sealant manufacturer; at least three years experience in similar work with satisfactory results, subject to the Engineers' approval. Install materials using experienced workmen, skilled in this type application, with equipment approved by the manufacturer.

1.2 SUBMITTALS

- A. Submit manufacturer's specifications for the compounds; include methods of application and proposed color for each type of installation.
- B. Submit color samples.

1.3 ENVIRONMENTAL REQUIREMENTS

- A. Acceptable temperature range for sealant Application: 65 deg. to 90 deg.
- B. Stop exterior sealant work during inclement weather and do not restart until surfaces adjacent to the joint to be sealed are perfectly dry.

PART 2: PRODUCTS

2.1 MATERIALS

- A. Multi-Component Urethane Sealant, for non-sag applications:
 - 1. Non-modified, air-curing, elastomeric sealant complying with ASTM C 920-86 Type M, Grade NS, Class 25. Select from one of the following manufacturers and products, or equal:
 - a. Tremco, Dymeric.
 - b. Pecora, Dynatrol II.
 - c. Sonneborn Building Products, Sonolastic NP 2.
- B. Multi-Component Urethane Sealant, for self-leveling applications:
 - 1. Complying with Federal Specification TT-S-00227E, Class A, Type 1:
 - a. Tremco, THC-900.
 - b. Pecora, Urexpan NR-200.
 - c. Sonneborn Building Products, Sonolastic SL1.
- C. Acrylic Latex Sealant:
 - 1. Complying with ASTM C-834-86.
 - a. Tremco, Acrylic Latex 834.
 - b. Pecora, AC-20.
 - c. Sonneborn Building Products, Sonolac.
- D. Sanitary Silicone Rubber., one part, moisture cure.
 - 1. Complying with ASTM C-920, Type S, NX, Class 25.
 - a. Dow Corning, 786 Mildew Resistant Silicone Sealant.
 - b. General Electric Company, Sanitary 1700 Sealant.
 - c. Rhone-Poulenc Inc., Rhodorsil 6B.

- E. Primer: As recommended by manufacturer for the use intended.
- F. Primer (Silicone): As recommended by sealant manufacturer.
- G. Backer Rod: Expanded, closed cell polyethylene; as recommended by sealant manufacturer.
- H. Bond-Breaker: Polyethylene tape; as recommended by sealant manufacturer.

PART 3: EXECUTION

3.1 *CONDITION OF SURFACES*

- A. Examine all surfaces which are to receive this work for any conditions detrimental to the proper or timely completion of this work. Do not proceed with this work until such conditions have been corrected and are acceptable.

3.2 *JOINT DESIGN*

- A. Sealant joints shall conform to the following criteria.
 - 1. No joint less than 1/4 inch in width or depth.
 - 2. Joints up to 1/2 inch in width shall have equal depth.
 - 3. Joints over 1/2 inch in width shall have depth equal to 1/2 the width.
 - 4. Control joints in concrete slabs, 1/8 inch width.
- B. Provide backer rod as specified to limit depth of joints. In shallow joints where use of backer rod is restricted, provide bond-breaker tape.

3.3 *APPLICATION*

- A. Joints and spaces to be sealed shall be clean, dry and free from dust, loose mortar and other foreign materials.
- B. Clean ferrous metals of all rust, mill scale and coatings by wire brush, grinding or sandblasting. Remove oils and grease with solvent-based materials such as Zylol, toluol or methyl ketone. Do not use soap, detergent or water soluble cleaners.
- C. Mask adjacent surfaces with masking tape prior to priming and sealing. Remove tape after joint has been tooled.
- D. After joints have been completely filled, they shall be neatly tooled to a slightly concave surface.
- E. Immediately clean adjacent materials which have been soiled; leave work in a neat, clean condition.
- F. Repair and correct defects in work due to faulty materials, methods of workmanship. Make good any adjacent work damaged by such defects.

3.4 *DEFLECTIVE WORK.*

- A. The following types of failure will be adjudged defective work: breakage, cracking, crumbling, melting, shrinking, running, hardening or staining adjacent surfaces, adhesive failure and cohesive failure. Correct defective work.

3.5 *COLOR.*

- A. Sealant, Generally: Color of the adjacent material which lies in the same plane as the sealant. Sanitary silicone sealant shall be white.

3.6 *APPLICATION.*

- A. Use urethane type sealants as exterior where sealant is indicated or if not indicated, as required to provide a weather-tight joint between dissimilar materials.
- B. Use acrylic latex type sealant at interior locations where indicated or required to provide a seal between dissimilar materials.
- C. Use sanitary silicone sealant at interior locations between plumbing fixtures and building construction and between casework and wall construction.
- D. Use one-part nonsag urethane sealant or multi-part nonsag urethane sealant (NT) for expansion and control joints in masonry, other than stone.

END OF SECTION

SECTION 08110 - HOLLOW METAL STEEL DOORS & FRAMES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 WORK INCLUDED

- A. Furnish all items shown on drawings and as specified including, but not limited to, the following.
 - 1. Steel Doors.
 - 2. Steel Door Frames.
 - 3. Steel Sidelight, Borrowed lite & transom frames.

1.2 REFERENCES

- A. Steel Doors and Frames must meet the following standards:
 - 1. Door and Hardware Preparation ANSI 115.
 - 2. Life Safety Codes NFPA-101 (Latest Edition).
 - 3. Fire Doors and Windows NFPA-80 (Latest Edition).
 - 4. Steel Door Institute ANSI/SDI-100 (Latest Edition).

1.3 QUALITY ASSURANCE

- A. Provide Steel Doors and Frames manufactured by a single firm specializing in the production of this type of work.
- B. Provide Steel Doors and Frames complying with the Steel Door Institute recommended specifications for Standard Steel Doors and Frames ANSI/SDI 100 (Latest Edition), and as herein specified.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURES

- A. Doors to be steel flush leafs by "Republic Builders Products, Ceco Door Products, or equal.

2.2 HARDWARE LOCATIONS AND GENERAL REINFORCEMENTS

- A. Locate hardware on doors and frames in accordance with the manufacturers standard location.
- B. Hardware reinforcements to be in accordance with minimum standard gages as listed in SDI-100.

2.3 STEEL DOORS

- A. Material - Exterior Doors
 - 1. Face Sheets are to be made of commercial quality 18 gage hot dipped A60 zinc coated steel that complies with ASTM A525.
 - 2. Vertical edges shall join the face sheets by manufacturers standard weld pattern extending the full height of the door. Welds are to be ground, filled and dressed smooth to make invisible and provide a smooth flush surface.
 - 3. Hinge reinforcement shall be not less than 8 gage.
 - 4. Reinforce tops and bottoms of all doors with a continuous steel channel not less than 16 gage, extending the full width of the door and welded to the face sheet.

5. Door Cores - doors are to be completely filled with rigid polyurethane or polystyrene core chemically bonded to all interior surfaces.

B. Materials - Interior Doors

1. Face sheets are to be made of commercial quality 18 gage cold rolled steel that complies with ASTM A366 or 620.
2. Vertical edges shall be mechanically interlocked with a hairline edge scam.
3. Hinge reinforcement shall be not less than 8 gage.
4. Reinforce tops and bottoms of all doors with continuous steel channel not less than 16 gage, extending the full width of the door and welded to the face sheet.
5. Door Cores - Doors shall have a one piece resinimpregnated honeycomb core with sanded edges securely bonded to both face sheets.

2.4 *STEEL FRAMES*

A. Materials for all exterior frames.

1. Shall be 14 gage hot dipped A60 zinc coated steel that complies with ASTM designation A525.
2. All frames are to be assembled so that the face miter seam is closed and tight. Corners shall be welded.

B. Materials for all other frames.

1. Shall be 16 gage that complies with ASTM A366 or ASTM A568.
2. Frames to be assembled so that the face miter seam is closed tight. Frames shall be of "knock-down" construction.

C. Anchors.

1. Floor anchors at each jamb.
2. Anchors at masonry walls to be wire type not less than 0.156 inch diameter steel wire.
3. Anchors in stud partitions to be steel of suitable design, not less than 18 gage.
4. Except on weather strip doors, drill stop to receive 3 silencers on a single door frame and 2 silencers on a double door frame.

2.5 *PRIME FINISH*

- A. Doors and frames to be cleaned, chemically treated, and all exposed surfaces receive factory applied coat of rust inhibiting primer.

PART 3: EXECUTION

3.1 *INSPECTION*

- A. The G.C. shall make sure that all dimensions for openings are accurate.
B. The G.C. shall correct all scratches or disfigurements caused by shipping and handling.

3.2 *INSTALLATION*

- A. Install doors per SDI-105 "Recommended Erection Instructions for steel Frames" and SDI-110 "Standard Steel Door and Frame for modular masonry construction.

3.3 *ADJUST AND CLEAN*

- A. Check and re-adjust operating finish hardware items in hollow metal work just prior to final inspection. Leave work in complete and proper condition.
- B. Immediately after erection, sand smooth any damaged areas of primer paint and touch up with compatible primer.

END OF SECTION

SECTION 08211 – PRE-FINISHED SOLID WOOD INTERIOR DOORS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 WORK INCLUDED

- A. Furnish all items shown on drawings and as specified including, but not limited to, the following pre-finished solid wood interior doors.
- B. Standards for manufacturing, machining, finishing, and installation of wood doors unless more specifically described under another section.

1.2 RELATED WORK IN OTHER SECTIONS

- A. Section 06200: Carpentry
- B. Section 08100: Hollow Metal Frames
- C. Section 08700: Finish Hardware
- D. Section 08800: Glass & Glazing

1.3 QUALITY ASSURANCES

- A. Provide doors meeting or exceeding the minimum standards as set forth by the following organizations unless standards are modified or exceeded by this specification.
 - 1. WDMA IS 1A-Window and Door Manufacturers Association
 - 2. National Fire Protection Association (NFPA).
- B. All doors shall be the product of the same manufacturer to insure uniformity of quality and appearance throughout the project.
- C. Fire doors shall bear labels approved by Underwriters Laboratories, Inc or Intertek Testing (WHI). Any discrepancies between the architectural drawings and the procedures and limitations as set forth by the testing agencies shall be brought to the architect's attention.
- D. Provide each fire rated door with a label permanently attached to either the hinge stile or to the top rail, showing testing agency approval for classification scheduled.
- E. The top of each door shall bear a label from the manufacturer indicating the door construction, face veneer species, cut and grade. If the doors are factory finished the label shall also have the finishing information.
- F. The Door Manufacturer shall provide a letter, signed by an authorized company representative, to the Architect stating that the doors have been manufactured in compliance with this specification.

1.4 *SUBMITTALS*

- A. **Shop Drawings**
Submit schedules and elevations indicating door sizes, construction, swing, label, undercut, and applicable hardware locations.

Dimensions and detail openings for glass lites, louvers, and grilles.
- B. **Samples**
If doors are to be factory finished, manufacturer shall submit veneer samples of specified veneer with their standard finish colors at architect's request, or a color sample from the architect will be sent to the manufacturer for duplication. Samples are to be submitted representing the color selected on veneer typical of grain patterns and coloration for the specified specie and cut.
- C. **Product Information**
Submit manufacturer's product description showing compliance with specifications, along with finishing instructions, installation instructions, and any general recommendations manufacturer may have for the care and maintenance of each door type.

1.5 *COORDINATION*

Contractor shall be responsible for coordination and acquiring of all necessary information from hardware and metal frame manufacturers. Door manufacturer shall be responsible for coordinating all necessary information received by Contractor from hardware and metal frame manufacturers, in order that doors shall be properly prepared to receive hinges and hardware. Contractor shall provide his supplier with two copies of approved frame schedule, two copies of hardware schedule, and all necessary hardware templates. All the above information shall be in the possession of door supplier 120 days prior to desired delivery date of doors.

1.6 *DELIVERY, STORAGE, AND HANDLING*

- A. No doors shall be delivered to the building until weatherproof storage space is available. Store doors in a space having controlled temperature and humidity range between 30 and 60 percent. Stack doors flat and off the floor, supported to prevent warpage. Protect doors from damage and direct exposure to sunlight.
- B. Factory finished doors shall be individually wrapped in polybags to protect the finish from damage by contact with other doors.
- C. Do not walk or place other material on top of stacked doors. Do not drag doors across one another.
- D. Contractor shall use all means necessary to protect doors from damage prior to, during, and after installation. All damaged doors shall be repaired or replaced by the contractor at no cost to the owner.
- E. Doors shall be palletized at factory in stacks of no more than 30 doors per pallet. Door edges shall be protected with heavy corner guards.

1.7 WARRANTY

- A. All work in this Section shall be warranted by a FULL DOOR WARRANTY (from the date of installation) against defect in materials and workmanship, including the following:
 - 1. Delamination in any degree.
 - 2. Warp or twist of 1/4" or more in any 3'6" x 7'0" section of a door.
 - 3. Telegraphing of any part of core assembly through face to cause surface variation of 1/100" or more in a 3" span.
 - 4. Any defect which may, in any way, impair or affect performance of the door for the purpose which it is intended. Replacement under this warranty shall include hanging, installation of hardware, and finishing.
- B. Periods of warranty after date of installation:
 - 1. Interior solid core and mineral core Life of original installation.
- C. Doors must be stored, finished, hung and maintained per manufacturers recommendations set forth in their Full Door Warranty.

PART 2: PRODUCTS

2.1 MANUFACTURERS

Listed manufacturers are believed to conform to the criteria stated for material quality standards, function and appearance. Manufacturers are still subject to meeting the requirements for 5-ply hot-pressed (cold-pressed will not be accepted) door construction procedures and warranties set forth in this specification. Provide products by one of the following:

- 1. Marshfield
- 2. Eggers Hardwood Products Corporation
- 3. Oshkosh Architectural Door Company
- 4. Mohawk

2.2 MATERIAL AND COMPONENTS

All stile and rail dimensions given are minimum sizes allowed after trimming to book size or factory prefitting.

A. Cores

Particleboard Core -

Shall conform to ANSI A208.1 LD-2 32lb. density core. Stiles shall be 1" minimum laminated hardwood or structural composite lumber (SCL) veneered over with veneer matching face veneer. Rails will be 1 1/8" minimum mill option hardwood or structural composite lumber (SCL). Stiles and rails shall be securely bonded to the core then abrasively planed as an assembly before veneering.

Mineral Core -

Shall be asbestos free, noncombustible mineral composite with a minimum of 28 pounds per cubic foot density when testing in accordance with ASTM C303-82, with 10% maximum absorption by weight with core in equilibrium at 90% relative humidity and 70 degrees

Fahrenheit. Stiles and rails shall be manufacturers standard for specified label. Stile shall be reinforced to receive full mortise hinges. No salt treated components shall be used.

B. Faces and Crossbands

When veneer for transparent or opaque finish is specified, doors shall be 5 ply, made up of 2 face veneers and crossbands, all securely bonded to the core by the hot-press method in one operation, utilizing Type I water proof adhesive. The cold pressing of 2 or 3ply door skins to the core will not be accepted. Face veneers shall have minimum thickness of 1/50 after factory sanding and the individual pieces of veneer forming the face must be edge glued together. Crossbands shall extend the full width of the core assembly. When pairs of doors are scheduled for transparent finish doors shall be pair matched with a continuous grain pattern. When doors are scheduled with transom panels and transparent finish door and transom shall be matched and produced from a continuous sheet of veneer. Bottom rail of transom panel shall extend full width and be same specie as face except for birch, which may have a maple or beech rail.

1. Face veneers shall be of specie, cut and grade specified. Quality shall be governed by industry standards as set forth by ANSI/WDMA IS.1A Series.
 - a) Veneer Grade: "A" Grade
 - b) Veneer Species: Oak
 - c) Veneer Cut: Plain Sliced
 - d) Veneer Match: Book matched
 - e) Assembly of Veneer on door face: Running Match
2. Cross banding shall be thoroughly dried 1/16 thick hardwood or engineered wood product extending full width and height of door with grain at right angles to face.
3. Face veneer and crossband shall be pressed to the core in a hot-press with Type I water-proof glue.

C. View windows non-labeled doors:

1. Furnish manufactures standard flush wood glass stops to be same species as face veneer for transparent doors with the exception of Birch doors which will have hard maple or beech.

2.3 *LABELED FLUSH DOORS 45, 60, AND 90 MINUTE RATED UL10-C POSITIVE PRESSURE CATEGORY A.*

- A. Doors shall be manufactured by the previously specified manufacturers and subject to the requirements of the specifications hereinafter.
- B. Mineral core flush veneered doors, 5-ply shall be made up of face veneers, crossbanding and a core unit all securely bonded together utilizing Type I water-proof adhesive.

Manufacture doors where temperature and humidity controls will insure a state of equilibrium between all component parts of doors at all times.

- C. Face Veneer: Same as 2.2-B-1
- D. Crossbanding: Same as 2.2-B-2 and no salt treating allowed.
- E. Core Unit: Manufacturer's noncombustible mineral, monolithic, or in sections tightly fitted and glued. The density shall be minimum 28 lbs. per cubic foot (nominal).
- F. Rails: Top 15/16", bottom 1-7/8" rail (one of two piece) of flame resistant material salt free. Securely glue all rails to core.
- G. Stiles: Manufacturers standard for rating listed.
Stiles shall be bonded to the core and be salt free. Drill 5/32 pilot holes for all hinge screws at the factory prior to shipment for "B" and "C" label fire doors. Stiles must meet the following performance criteria:
 - 1. Split Resistance: Average of ten test samples shall be not less than 800 load pounds when tested in accordance with "Test Method to Determine Split Resistance of Hinge Edges of Composite Type Fire Doors".
 - 2. Direct Screw Withdrawal: Average of ten test samples shall be not less than 650 load pounds when tested for direct screw withdrawal in accordance with ASTM D-1037; using a No. 12 x 1 1/4" steel thread-to-the-head wood screw of the cadmium plated or rust-resistant type.
 - 3. Cycle/Slam: 200,000 cycles with no loose hinge screws or other visible signs of failure when tested in accordance with the requirements of ANSI A151.1, Section 2.5 (Note: Specific data regarding WHI listing features and mechanical test results shall be made available by the manufacturer upon request.)
- H. Blocking: All 45, 60, and 90 min. fire doors shall be supplied with salt free non-combustible internal solid blocking. Blocking shall be arranged in the door so that surface mounted hardware such as but not limited to closers, exit device, etc. May be secured to the door without a need for through bolts. A lock block, minimum size 5 x 10 shall be supplied for each bored, mortised or unit lock scheduled.
- I. Metal vision frames for door lites. Frames shall equal, UL or Intertek approved.
Metal vision frames to be primed for field painting
- J. Door manufacturer shall furnish metal edges only on pairs of fire doors with two surface mounted vertical rod exit devices. All other pairs will be furnished with metal edges and overlapping astragal.
Metal edges and astragals to be primed for field painting.

- K. Labeled doors shall be manufactured to the required size so as to provide proper clearances without field trimming. This procedure shall be followed so as to assure the full thickness of the edge bands.
- L. Doors shall be suitable for hanging on full mortised butt hinges using No. 12 x 1 ¼” steel threaded-to-the-head wood screws of the cadmium plated or rust resistant type. Coordinate with Hardware Section 08700 and 06200 for proper screws and installation. Half-surface hinges are not acceptable.

PART 3: EXECUTION

3.1 FABRICATION

- A. Fabricate all wood doors in strict accordance with the referenced standards specified herein.

3.2 MACHINING AND FITTING

All wood doors shall be machined by the manufacturer for cutouts, hinges, locks and all hardware requiring routing and mortising. Any required rabbeting to properly hang doors will be performed by the manufacturer prior to finishing. Doors shall be sized to allow 1/8” clearance at top and each side, and ¾” at bottom (unless specified otherwise.) Factory drilling of pilot holes is not required except for “B” & “C” label fire doors at mortise hinge locations.

3.3 INSTALLATION OF HARDWARE

- A. Contractor shall install hardware according to approved hardware schedule for proper locations.
- B. Install with full-threaded wood screws furnished by hardware manufacturer.
- C. Drill proper size pilot hole for all screws. (Full mortise hinges require 5/32” pilot holes.)
- D. Securely anchor hardware in correct position and alignment.
- E. Adjust hardware and door for proper function and smooth operation, proper latching, without force or excessive clearance.

3.4 INSTALLATION OF FIRE DOORS

Fire rated doors shall be installed in accordance with the requirements of the labeling agency and NFPA #80 and #101.

3.5 FACTORY FINISHING

Transparent Finish -

WDMA system TR6 catalyzed polyurethane finish for open grain finish. The sheen shall be satin of semi-gloss. Stain, if required, to be selected from manufacturers standard colors or custom matched to Architects sample. Doors to be individually enclosed in a polybag.

3.6 FACTORY GLAZING

3.7

All doors with vision kits to be factory glazed.

END OF SECTION

SECTION 08600 - EXTERIOR WINDOWS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Work includes providing and installation of all exterior windows and hardware on the project.

1.2 SUBMITTALS

- A. Submit manufacturer's product literature and installation instructions for type of exterior windows required.
- B. Submit data showing physical properties of the exterior windows along with the hardware and installation instructions.

1.3 QUALITY ASSURANCE

- A. Installer: To be a regularly engaged in the installation of window units specified and shall have proper experience to install the work specified.
- B. Manufacturer: The manufacturer shall be a company regularly engaged in the manufacturer of window units specified.

PART 2: MATERIAL

2.1 MATERIALS

- A. Window units shall be as stated on the drawings.

PART 3: EXECUTION

3.1 INSTALLATION

All products to be installed in strict accordance with the manufacturer's installation specifications. Where brick or concrete block is laid against an exterior window, back-up rods of thickness required by the manufacturer of the windows shall be used to obtain clearances around window unit. In load bearing wood construction, clearances shall be 1/8" on sides, 1/4 at head, and 3/8" at sill.

3.2 TRAINING

Where special training is required, the installer shall be trained in accordance with the manufacturer's training program and shall be experienced in the installation of such work.

END OF SECTION

SECTION 08710 - DOOR HARDWARE

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish all hardware as scheduled on the drawings and in this specification for a complete job. Provide additional hardware as required and not necessarily shown on the drawings to have a complete and operating job.

PART 2: PRODUCTS

The following manufacturers and products are approved for this project. No request for substitutions allowed. Manufacturers standard warranties apply. New masterkey system. Locks to be keyed in groups or individual as directed by owner. Supply 2 keys per lock. 2 control keys. 2 master keys. **Hardware supplier to install keyed cores after construction is complete.**

Exterior Continuous Hinges:

FM- Pemko

662- Stanley

MCK25- McKinney

224HD- Ives

Interior Hinges: 4 ½ x 4 ½

BB81 x 652 PBB

FBB179 x 652 Stanley

TB2714 x 652 McKinney

BB5000 x 652 Bommer

Locks: (Functions as listed in sets)

ND Series RHO trim. Schlage

5400LN Series AU trim. Yale Security

9K Series. 15D trim. Best

CL800 Series. LR trim. Dorma

7 Pin, SFIC Removable Cores:

Falcon

Dorma

Yale Security

Best

Exit Devices:

22 Series. Von Duprin

2100 Series. Yale Security

5100 Series. Precision

Closers: Interior

1450 Series. LCN
3500 Series. Yale Security
D-3551 Series. Stanley
8600 series. Dorma

Closers Exterior:

4050 Series. LCN
4400 Series. Yale Security
D- 4550 Series. Stanley
8900 Series. Dorma

Electric Strikes:

L6504 Series- RCI
5100 Series- Von Duprin
5200 Series- HES

Overhead Stops:

450 Series. Glynn Johnson
4420 Series. ABH
700 Series. Dorma
10 Series. Rixson

Flat Goods:

Ives
Rockwood
Trimco

Weatherstrip:

Reese
Pemko
Zero
National Guard

Set #1

Opening #1
1- Mortise/Rim cylinder as required. 626
1- CB807 SFIC Core 626
Balance of hardware by door and frame supplier.

Set #2

Opening #2
2- CFM83 Continuous Hinges 628
2- FB458 Manual Flushbolts 626
1- 2227NL Vertical Rod Exit Device 689
1- C987 x #5 Cam Mortise Cylinder 626
1- CB807 SFIC Core 626
1- 4050 x Parallel Arm Closer 689
2- 8400 x 8 x 35 Kick Plates 630

1- 807A7284 Weatherstrip	628
1- S426A72 Threshold	628
2- 353A36 Sweeps	628

Flat bar astragal supplied and mounted to door by hollow metal door supplier.

Set #3

Opening #3	
1- CFM83 Continuous Hinge	628
1- 22NL Rim Exit Device	689
1- C987 x #5 Cam Mortise Cylinder	626
1- CB807 SFIC Core	626
1- 4050 x Parallel Arm Closer	689
1- 8400 x 8 x 34 Kick Plate	630
1- 807A3684 Weatherstrip	628
1- S426A36 Threshold	628
1- 353A36 Sweep	628

Set #4

Opening #4	
3- BB81 Full Mortise Hinges	652
1- ND80BD x RHO Storeroom Lock	626
1- CB807 SFIC Core	626
1- L6504 Electric Strike	630
1- 1450 x Parallel Arm Closer	689
1- 8400 x 8 x 34 Kick Plate	630
1- WS407 Wall Stop	630
3- SR64 Silencers	Grey

Set #5

Opening #'s 1, 15	
3- BB81 Full Mortise Hinges	652
1- ND70BD x RHO Classroom Lock	626
1- CB807 SFIC Core	626
1- 1450 x Parallel Arm Closer	689
1- 8400 x 8 x 34 Kick Plate	630
1- WS407 Wall Stop	630
1- 797B17 Smoke Gasket	Brown

Set #6

Opening #'s 6, 7, 8, 9, 13	
3- BB81 Full Mortise Hinges	652
1- ND53BD x RHO Office Lock	626
1- CB807 SFIC Core	626
1- WS407 Wall Stop	630
3- SR64 Silencers	Grey

Set #7

Opening #10

3- BB81 Full Mortise Hinges	652
1- ND53BD x RHO Office Lock	626
1- CB807 SFIC Core	626
1- 1450 x Parallel Arm Closer	689
1- 8400 x 8 x 34 Kick Plate	630
1- WS407 Wall Stop	630
3- SR64 Silencers	Grey

Set #8

Opening #'s 8, 9

3- BB81 Full Mortise Hinges	652
1- ND40S x RHO Privacy Lock	626
1- 1450 x Regular Arm Closer	689
1- 8400 x 8 x 34 Kick Plate	630
1- WS407CCV Wall Stop	630
3- SR64 Silencers	Grey

Set #9

Opening #14

6- BB81 Full Mortise Hinges	652
2- FB458 Manual Flushbolts	626
1- DP2 Dust Proof Strike	626
1- ND53BD x RHO Office Lock	626
1- CB807 SFIC Core	626
2- 454S Overhead Stops	652

SECTION 08800 - GLASS & GLAZING

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish and install all plastic and glass and all glazing accessories indicated on the drawings and specified herein.

The sizes of all glass shall be verified by measurements taken at the building.

PART 2: MATERIALS

2.1 TYPE OF GLASS

- A. Insulating Glass: All insulating glass shall be units consisting of two lights of glass, Separated by a steel spacer filled with moisture absorbing desiccate. The units shall be hermetically sealed with a primary butyl rubber sealant a minimum of 1/4" wide on the spacer bearing surfaces with a secondary butyl rubber sealant completely covering the unit's edge. All four unit edges are to be maintained under compression by an edge protecting stainless steel channel. All such units shall carry a 20-year warranty and be glazed in accordance with manufacturers installation and Glazing Recommendations. All units on this project shall be tinted like PPG SolarBronze or equal with low e glass.

Type of glass and thickness of units shall be indicated on drawings.

Quality of glass for fabricating all above shall meet requirements of Fed. Spec. DD-G-451C.

Manufacturers shall be by Libby-Owens-Ford Glass Company, CE Glass, or PPG Industries.

2.2 ACCESSORIES

Furnish all required accessory and specialty items required to complete the glass installation such as shims, setting blocks, glazing beads. All such items shall be vinyl or neoprene.

- A. Glazing Compound: Conforming to Fed. Spec. TT-P-781a, Type I, color to match adjoining finish.
- B. Glazing Tape: Synthetic butyl rubber base reinforced with nylon fiber.
- C. Glazing Channels: Neoprene extruded sections.
- D. Gaskets: Neoprene material - ASTM C-542-65T.

Manufacturers shall be -Dicks-Armstrong Pontius, Concord, Pecora, Plastic Products, T.H. Maloney Co., Pawling Rubber Co., or approved equal.

2.3 *SAMPLES*

Provide one 6" x 12" samples of each type of glass to be used to the Engineer for approval.

PART 3: INSTALLATION

All glass shall be set by skilled glazers in strict accordance with the Flat Glass Jobbers Association Glazing Manual and frame manufacturer's recommendations.

All windows to be inside, bead glazed. Prime door rabbets before setting glass. Furnish all glazing clips, setting blocks and accessories. Metal glazing beads to be provided by frame manufacturer.

Remove and reset glazing beads to avoid marking or defacing of rebate, bead or setting screws. See that unit is clean and dry before starting work. Do not glaze when ambient temperature is below 40 degrees F.

Use plastic or Neoprene setting blocks at 1/4 points of glass or as required by manufacturer for all large sheets. Actual size of glass for installation must be measured at job, and contractor shall assume responsibility for same.

Apply thin layer of compound to rebate, set glass in compound, pressing until even bed is secured. Run layer of face compound, apply beads or stops and remove excess. Bed glass in compound so space between glass and adjoining metal is well filled and neatly tooled.

All interior glass panels in metal frames shall be installed, using either glazing tape or glazing pound.

Installation of glass with neoprene glazing gaskets shall be in accordance with manufacturers printed directions. All corners and joints of gaskets shall be injection molded and each corner shall incorporate the Secondary Lip Seal to provide water tightness. Filler strip shall be job-site molded and shall be 1/4" longer than gasket length to allow for installation of strip under compression. Gaskets shall carry the manufacturers five year guarantee.

3.1 *COMPLETION OF WORK*

Remove all rubbish and surplus materials resulting from this work.

3.2 *CERTIFICATION*

Labeling of glass shall be as directed by all enforceable codes.

3.3 *CLEANING*

At completion of work, the contractor shall carefully remove all excess glazing compound and point up any defects in his work, and shall have glass washed both sides to the satisfaction of the Engineers.

END OF SECITON

SECTION 09250 - GYPSUM WALLBOARD SYSTEMS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish labor, materials, equipment special tools, supervision and services to complete Gypsum Wallboard Systems indicated, noted, and detailed on drawings and specified herein, including wallboard and accessories.

1.2 RELATED WORK SPECIFIED ELSEWHERE

Section 8110 Hollow Metal Frames
Section 9900 Painting

1.3 INDUSTRY STANDARDS

A. Publications of the following institutes, associations, societies, and agencies are referred to in this Section.

1. American Society for Testing and Materials, ASTM.
2. Underwriters' Laboratories, Inc., UL.
3. Federal Specifications, FS.

1.4 PRODUCT HANDLING

A. Gypsum Wallboard materials shall be delivered and stored to prevent damage.
1. Storage area shall be dry, weather-tight, and well ventilated.

1.5 PRODUCT HANDLING

Uniform temperature in the range of 55 degrees to 70 degrees shall be maintained during the installation and finishing of Gypsum Wallboard Systems.

1.6 QUALITY ASSURANCE

A. Acceptable Manufacturer's and Products.
1. United States Gypsum Company.
2. National Gypsum Company.
3. Georgia-Pacific Gypsum Company.

PART 2: PRODUCTS

2.1 MATERIALS

A. Materials shall conform to the following requirements of the 2006 International Building Code as adopted by the State of Indiana.

B. Gypsum Wallboard, unless otherwise specified shall be the following types, shall be:

1. Regular Board, taper edge, furnished 5/8" thick.
2. Fire Rated Board, taper edge, furnished 5/8" thick.
3. Moisture Resistant Board, taper edge furnished 5/8" thick.
4. Wallboard shall be thickness indicated furnished in stock widths and stock lengths.

- C. Accessories, including corner beads, casing beads and trim, shall be furnished by the wallboard manufacturer as standard for the installed systems. Corner beads shall be screwed to wall, no crimp type.
- D. Fasteners shall be Type S, Bulge Head wallboard screws at lengths required by mfg. Nails shall not be used.

2.2 EXAMINATION

- A. Examine areas that are to receive drywall application.
 - 1. Check alignment of supports, spacing, size and report any unsatisfactory conditions to the Engineer. Do not proceed with drywall application until conditions have been corrected.
- B. Wallboard system shall be fastened to steel framing using power driven screws.
 - 1. Screws shall be spaced not less than 3/8" from edges and ends of wallboard, and shall be spaced 8" o.c. at joints and field.
 - 2. Joints in wallboard shall occur only at stud locations

PART 3: EXECUTION

3.1 INSTALLATION

- A. Drywall systems shall be complete, including supports, wallboard, and taping and spackling joints.
- B. Floor and ceiling tracks shall be channel shape cold formed of galvanized sheet steel of sufficient width to receive studs.
- C. Studs shall be spaced as shown on the drawings.
- D. Wallboard shall be taper edge boards installed with long dimension vertical. Install ceiling first.
 - 1. Fire Rated Boards shall be used for all walls indicated on the drawings as smoke or fire walls or as otherwise noted on the drawings.
 - 2. Moisture Resistant Wallboard shall be used in damp or wet areas.
 - 3. Moisture resistant wallboard shall be used for all walls to receive ceramic tile.
- E. Provide corner at all outside corners, heads of unframed openings and other unprotected outside corners. Crimp type of metal corners shall not be used unless screwed also.

3.2 JOINT TREATMENT

- A. All joints and internal corners shall be finished with joint tape and spackle as recommended by the wallboard manufacturer.
 - 1. Apply joint compound sufficiently thick to hide board surface at angles and joints. Cover nail heads and depressions with compound.
 - 2. Apply tape to angles and joints, squeeze out excess compound, and cover tape with compound.

When first coat has thoroughly dried, apply second coat and taper beyond edges of first coat. Apply thin-finish coat of compound tapered beyond edges of second coat and sand

to smooth surface, true to a plane.

3.3 *CLEANING*

Remove soil, stain, caused by installing of drywall materials. Clean and properly prepare drywall surfaces to receive finish, as specified.

END OF SECITON

SECTION 09650 - VINYL COMPOSITION TILE

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish and install all resilient tile and sheet flooring indicated, noted, detailed or scheduled on the drawings and specified herein, complete with vinyl base.

1.2 DESCRIPTION OF WORK

A. Extent of resilient flooring and accessories is shown on the drawings and in schedules and includes:

1. Vinyl Composition Tile.
2. Rubber Base.

1.3 QUALITY ASSURANCE

A. Manufacturer: Provide each type of resilient flooring and accessories as produced by a single manufacturer, including recommended primers, adhesives, sealants, and leveling compounds.

B. Fire Test Performance: Provide resilient flooring which complies with the following fire test performance criteria as determined by an independent testing laboratory acceptable to authorities having jurisdiction.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of resilient flooring and accessory.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURES

A. Manufacturer: Subject to compliance with requirements, provide products of one of the following, or equal.

1. Vinyl Composition Tile
 - a. Armstrong Commercial Flooring
 - b. Congoleum Commercial Flooring
2. Rubber Wall Base
 - a. Armstrong Commercial Flooring
 - b. Congoleum Commercial Flooring

2.2 MATERIALS:

A. Provide color and patterns as selected by the Engineer from the manufacturer's standards. Each room in which vinyl composition tile is indicated on the Finish Schedule shall have two colors. 80% of one color and 20% of another color. Pattern selected by Owner.

B. Vinyl Composition Tile Armstrong Imperial Texture 12" x 12" x 1/8".

C. Rubber Wall Base: Provide rubber base complying with ASTM 1861-98. With matching end shops and preformed or molded corner units.

1. Height: 4"
2. Thickness: 1/8"
3. Style: Standard top-set cove, and straight as indicated.
4. Finish: Matte.

D. Divider Strip. Provide and install divider strips at the intersections of flooring and other floor covering as required.

F. Adhesive. Shall be as manufactured and recommended by the tile manufacturer. For above, below or on grade installation.

G. Selection. Color and design selection for flooring and bases shall be made by the Engineer from any or all samples in the manufacturers complete line. Provide one complete box of samples of each tile and base available from which selection will be made.

H. Extra Material. Deliver to the Owner, for use in maintenance work, the following materials, matching that used in the project:

- | | | |
|---------------|-------------|---------------------|
| a. Vinyl Tile | 2 cartons | each color |
| b. Vinyl Base | 15 lin. ft. | each color, ea size |

2.3 PRE-INSTALLATION

Store tiles in room where they are to be installed for 24 hours with temperature maintained at 70 deg.

Clean and inspect sub-floors, patch small holes and uneven surfaces with Latex Under-layment applied with a steel trowel.

Test concrete sub-floors for moisture prior to priming.

PART 3: EXECUTION

3.1 INSTALLATION

All tile shall be laid in strict accordance with manufacturers specifications, and shall be laid and cemented with approved waterproof adhesive. Install tile starting at center axis, scribing and fitting neatly at walls, around columns, under cabinets and around door frames.

Install a divider strip at all doors.

Apply Vinyl Tile Bases Continuous to thoroughly dry walls and cabinet bases. Corners shall be field formed, skive front for internal corners and back for external corners. Heat base when forming and

hold to corner until set. Apply mastic and set in place.

3.2 *CLEANING*

Contractor shall clean the newly installed VCT tile floor with Armstrong S-485 Commercial Floor Cleaner, install one coat of Armstrong S-495 Commercial Floor Sealer, and two coats of Armstrong S-480 Commercial Floor Polish.

All cleaning, sealing, and polishing shall be done per mfg. standards.

Keep all traffic off finished floors after cleaning. Apply Kraft paper with taped joints as protection to cleaned floors as required.

An electric polishing machine shall be used to apply floor polish.

END OF SECTION

SECTION 09680 – CARPET

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Work includes providing and installation of all carpet on the project.

1.2 SUBMITTALS

- A. Submit manufacturer's product literature and installation instructions for the specified carpet.
- B. Submit samples showing the physical properties of the carpet for approval.

1.3 QUALITY ASSURANCE

- A. Installer: To be a regularly engaged in the installation of carpet installation and shall have have proper experience to install the work specified.
- B. Manufacturer: The manufacturer shall be a company regularly engaged in the manufacturer of carpet.

PART 2: PRODUCTS

2.1 MATERIALS

- A. Carpet: Carpet shall be Patchcraft PDQ Level 2 24"x24" modular carpet tiles.
Latex concrete floor as required.
- B. The final selection of colors will be by the owner.

PART 3: INSTALLATION

3.1 ADHESIVES

Adhesives shall be in accordance with the carpet manufacturer's recommendations and specifications. All products to be installed in strict accordance with the manufacturer's installation specifications.

END OF SECTION

SECTION 09900 - PAINT

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish all labor and materials required to complete all painting, enameling or finishing, indicated, noted, detailed or scheduled on the drawings and specified herein. It is the intent of this Section to require the painting subcontractor to finish all materials, equipment and items installed by all trades including Mechanical & Electrical. Painting Subcontractor shall also be responsible for the finishing of areas damaged or disturbed during construction time. Factory finished items will not require additional finishing.

PART 2: PRODUCTS

2.1 MATERIALS

This specification will make no attempt to define the composition or physical properties of the paints to be applied.

All paints shall be the maker's top professional brand, delivered to the site in the original unopened sealed containers.

Materials are specified under type of surface to be finished. Equal products by MAB or Porter may be used.

Vehicles shall be as recommended by the manufacturer of the particular product used. Thinning shall be done only in accordance with the manufacturer's recommendations using only thinning or reducing materials meeting manufacturer's approval.

No claim by the Contractor concerning the unsuitability of any material specified or his inability to produce first-class work with same will be entertained unless such claim is made in writing to the Engineer before the Contract is signed. Deliver materials in original sealed containers.

Painting contractor will submit name of material manufacturer and supply Engineer, through Prime Contractor, with color selection charts, chips, etc., if same are not available in Engineer's office, for all color selection.

No painting to be done until final samples are approved.

2.2 EXTERIOR PAINT SCHEDULE

A. Painted Galvanized Hollow Metal Steel Door and Frame:

1. Hand tool and solvent clean to remove any existing oils or failed primers.
2. Application by brush or roller on remaining items.
3. First Coat: Acrylic Primer
 - a. Sherwin Williams Galvite HS
4. Second and Third Coats: Urethane Alkyd Enamel
 - a. Sherwin Williams Pro Industrial Urethane Alkyd Enamel

2.3 INTERIOR PAINT SCHEDULE

A. Painted Gypsum Drywall:

1. Application by brush and roller.
2. First Coat: Latex Primer
 - a. Sherwin Williams ProMar 200 Interior Latex Primer
3. Second and Third Coats: Interior Latex Satin
 - a. Sherwin Williams SuperPaint Interior Latex Satin A87-100 Series

B. Painted Hollow Metal Steel Door and Frame:

1. Application by brush and roller.
2. First Coat: Pre-Primed by Mfg.
3. Second and Third Coats: Urethane Alkyd Enamel
 - a. Sherwin Williams Pro Industrial Urethane Alkyd Enamel

C. Interior Wood Trim

1. Stained rubbed finish: 3 finish coats over stain.
2. Sanding Sealer: Porter PP310 Wood Guardian Interior Quick Dry Sanding Sealer
3. Stain Coat: Porter PP300 Wood Guardian Interior Wood Stain
4. Finish Coat: Three applications of satin polyurethane Porter PP316 Guardian Satin Polyurethane

PART 3: EXECUTION

3.1 FINISH THICKNESS

All painting and finishing work done in this project shall have a minimum total dry film thickness (DFT) of not less than that noted hereinafter, with spreading rate noted.

3.2 WORKMANSHIP

The painting subcontractor shall be responsible for inspecting the work of others prior to the application of any paint or finishing material. If any surface to be finished cannot be put in proper condition for finishing by customary cleaning, sanding and putty operations, the painting subcontractor shall immediately notify the General Contractor in writing; or assume responsibility for and rectify any unsatisfactory finish resulting.

Backpriming will be required for all interior and exterior wood items.

Each coat of paint shall be slightly darker than preceding coat unless otherwise directed by Engineer or Owner. Undercoats shall be tinted similar to finish coats.

Prime coats will not be required on items delivered with prime or shop coats already applied. Touch-up primer or shop coats.

Field painting will not be required on items specified to be completely finished at factory or on aluminum copper, brass, bronze and other non-ferrous metal unless specifically designated.

Interior caulking will be painted.

3.3 STORAGE

All materials used on the job shall be stored in a single place designated by the General Contractor and approved by the Engineer and Owner. The storage area must be kept clean and neat. Floors shall be adequately protected from spillage with proper covers. Any oil rags, waste, etc., must be removed each night after being placed in a covered receptacle during the day.

All precautions against fire must be taken.

3.4 PREPARATION

All surfaces to be painted or finished shall be prepared carefully and inspected before starting the work. No paint or other finish shall be applied until the surfaces are absolutely clean, dry and in proper condition to receive the work.

END OF SECTION

SECTION 10800 – PRE-FINISHED WOOD CABINETS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Work includes installation of all pre-finished wood cabinets as detailed on the drawings.

PART 2: MATERIAL

2.1 CABINETS

- A. The cabinets shown on the drawings shall be Aristocraft Westbury Square in the Select cabinet construction method or equal.
- B. Finish color by Owner.

PART 3: EXECUTION

3.1 INSTALLATION

- A. Use screws as specified by the mfg. for connection of cabinets to studs.
- B. All products to be installed in strict accordance with the manufacturer's installation specifications.

END OF SECTION

SECTION 15000 - PROVISIONS COMMON TO DIVISIONS 15200, 15300, & 16000

PART 1: GENERAL The provisions of DIVISION 1 and DIVISION 2 preceding these specifications are part of these specifications and this Contractor is to consult them for instructions pertaining to the work under this heading. Note particularly the section on "Proposals ,and Alternates" preceding these specifications.

Where work covered by this specification connects to equipment furnished by others, this Contractor shall check the equipment in the field and will be held responsible for the proper connections to such equipment.

Wherever the phrase "this Contractor" is used in the Article, it refers to the specific contractor involved.

1.1 CONTRACTOR'S NOTE

Immediately upon awarding of the contract, the Contractor must confer with the General Contractor on the building and arrange for proper provisions to be made for the carrying on of all work provided in this specification.

The Contractor shall order all equipment immediately upon signing of contract or receipt of notice to proceed and upon approval of shop drawings. He shall notify the General Contractor of delivery dates and changes therein in writing with copy of written notice to the Engineer. He shall check accesses for equipment to insure doorways, hatches, etc., are sufficient to pass any equipment required. It will be the Contractor's responsibility to prevent any undue delay by reason of delayed or postponed shipment dates.

1.2 OPEN COMPETITION

Where manufacturer's names or trade names are mentioned throughout these Plumbing, Heating, Ventilating & Electrical Specifications, it is done for the express purpose of establishing quality or type of design and not for limiting competition. Other manufacturers' products may be used if, in the opinion of the Engineer, they are equal in all respects and meet the specifications as hereinafter described or shown on the drawings.

1.3 GUARANTEE

Each Contractor shall keep his entire portion of the work in repair, so far as defects in workmanship, apparatus, or material or construction are concerned, for one (1) year from date of final certificate, without further charge; but this clause shall not be interpreted as holding him responsible for making good any deterioration due to it's use or abuse.

Any equipment installed by this Contractor which fails to meet performance ratings specified and shown on drawings shall be removed and replaced by equipment which meets all specified requirements without additional cost to the Owner.

1.4 DRAWINGS

This Contractor shall have a set of General, Structural, Mechanical and Electrical drawings on the site, and before installing any of his work he shall see that it does not interfere with clearance required for foundations, finished columns, pilasters, partitions, wall, electrical outlets, etc., and structural members as shown on the General drawings and details. If work is so installed and it develops that interferences occur which have not been called to the Engineer's attention before it's installation, this Contractor, at his own expense, shall make such changes in his work as directed by the Engineer.

1.5 AS CONSTRUCTED DRAWINGS

In order that the Engineer may make corrections to contract drawings, this Contractor shall, during the progress of the work, furnish the Engineer with sketches or prints of drawings marked in colored pencil showing the exact, as installed, location of any concealed work which deviates in any way from the contract drawings.

1.6 SHOP DRAWINGS

Shop drawings shall be submitted as set forth by the GENERAL CONDITIONS.

1.7 OPERATING INSTRUCTIONS

At the termination of this Contractor's work, at the time the building is officially turned over to the Owner, this Contractor shall furnish to the Owner a complete portfolio containing shop drawings, operating instructions, etc., on all equipment furnished by him under this contract. Also, he shall furnish a competent instructor to advise the maintenance personnel as to the proper operation and servicing of any special equipment installed by him.

1.8 LEAK DAMAGE

This Contractor shall be responsible for damage to the work of other Contractors or to the building and its contents caused by leaks in any of the equipment installed by him or by disconnected pipes, fittings, overflows, freeze-ups, etc.

1.9 CLEANING OF PREMISES

This Contractor shall keep the premises clean of all debris caused by his work at all times, and shall keep his materials stored in such a manner so as not to interfere with the progress of the work of other contractors.

Remove all labels and clean all equipment before final inspection.

1.10 PAINTING

All painting of new work will be done by the General Contractor under his portion of the specification, but the Mechanical and Electrical Contractors shall clean all equipment, pipe, insulation, valves, conduit, boxes, etc., to be painted. All labels except those required by law shall be removed. All loose scale, dust and dirt shall be removed.

1.11 ADJUSTMENTS TO BUILDING CONDITIONS

The location and arrangement of the various parts of the installation are indicated on the drawings. Under no circumstances shall any sizes be decreased or radical changes in any part of the installation be made without the written consent of the Engineer.

When necessary to fit and center with tile, plaster and/or other paneling of wall space, this Contractor must, at his own expense, shift the fixture, grille, or other outlet as directed by the Engineer or his representative. Note that prior to installation of suspended tile ceilings the Mechanical and Electrical Contractors shall coordinate tile pattern with the General Contractor.

1.12 COORDINATION OF CONTRACTORS

All sub-contracts shall be made strictly subject to the approval of the Engineer.

Each bidder shall file with his proposal a list of sub-contractors proposed for the principal parts of the work he proposes to sub-let and receive Engineer's approval before any work is sub-let.

The Owner reserves the right to let other contracts in connection with this work. This Contractor shall extend to other contractors reasonable opportunity for the introduction and the storage of their materials and the execution of their work. This Contractor shall cooperate to the best of his ability with other contractors on the work and shall properly connect and coordinate his work with theirs.

In the interest of a properly coordinated and integrated Electrical System, the Electrical Contractor shall furnish and install all motor circuit wiring and control circuit wiring, together with connection to all electrical Drawings, or described in the Electrical Specifications. This will include standard starters, circuit breakers, cut-outs, separable attachment devices, control stations, etc., as indicated by symbol or description.

Other contractors whose equipment includes electrical components which require electrical accessories and wiring shall furnish the motor starters, controls, etc., which are ordinarily built into their equipment. The other contractors shall also furnish all externally mounted auxiliaries and electrical devices which are special accessories to their equipment. These include pressure, float, temperature, time liquid flow, and limit switches. Also, "T-stat", damper controls, relays, special devices and non-standard attachments.

Electrical services and connections to the other contractors' equipment, insofar as can reasonably be determined beforehand, are shown on the Electrical Drawings and shall be completed by the Electrical Contractor. Deviations, modifications and additions to the Electrical part of the other contractors work as described, however, shall be the responsibility of the other contractors.

Other contractors shall cooperate with the Electrical Contractor on the location of the outlet boxes, switches, controls, etc. They shall also be responsible for the correct locations of all the above items pertaining to their equipment and shall provide for all labor required to mount in place the various items of equipment except for the electrical hook-up.

All electrically operated or electrically controlled equipment which is furnished by other contractors shall have voltage, phase and frequency characteristics to match the system as described in the Electrical Specifications.

1.13 ERECTING

Each contractor shall do all erecting and installing work promptly, and as the work of other contractors progresses in such manner as not to cause delay to other contractors.

All wall sleeves in brick, concrete block, or concrete walls or slabs to receive piping shall be placed by this contractor as the structure is placed in order to avoid necessity for cutting through finished work. No cutting of finished work will be permitted except as approved by the Engineer. Should any cutting of finished work be necessary, all patching shall be done by this Contractor to match adjoining work and original paint finish shall be completed from wall to wall. No patch painting will be accepted.

1.14 WALL CHASES

Each contractor must superintend the building of chases for pipes in walls. He shall furnish the necessary information in this regard to the General and Masonry Contractors at the proper time, and he will be held responsible for the correct size and location of chases, as these may not be shown on the other contractors' drawings.

1.15 CUTTING AND PATCHING

Each contractor shall do all cutting, fitting, and patching necessary to properly install his work unless specifically noted otherwise in these specifications or on the drawings.

1.16 EXCAVATION

Each contractor shall do any and all excavation necessary in the construction of his particular part of the work as included in these specifications, and all sheathing and bracing with proper material which may, in the opinion of the Engineer, be necessary for the protection of foundations and walls of the building, and shall keep all excavations free from water by pumping or bailing during the progress of the work.

All surplus earth shall be removed from the premises or disposed of on the premises as directed by the Engineer and Owner.

Compaction of soil shall be as stated in the Section 2200 Soil Conditions for all trenching.

A line shall be used to mark out trenches for sewers, pipe, etc., and there shall be no variation from the drawings except by order of the Engineer.

1.17 STANDARDIZATION

Insofar as possible, materials shall be standardized, i.e., all steel pipe of one brand, all specialties of one make, all valves of one make, all panels of one make, all switches of one make, all starters of one make, etc.

1.18 MARKING OF VALVES AND EQUIPMENT

Each and every valve which controls supplies to fixtures or appliances which are not directly adjacent and fixable, including all valves in basement, shall be tagged by the contractor whose equipment is served, with a brass tag wired on with No. 10 copper wire

1.19 CODE BANDING

All pipes shall be code-banded or stenciled near each valve and branch take-off from main and at intervals of not less than every 50 feet on long exposed runs. This shall be done after final coat of paint is applied. The owner shall be consulted before applying code banding or stenciling and his code used when applicable.

1.20 ELECTRICAL MOTORS AND WIRING

All electric wiring for heating and ventilating and plumbing equipment will be done under the Electrical Specifications except as otherwise specified. The Electrical Contractor shall furnish combination line starters and push-button stations, unless they are specifically called for in the Mechanical Specifications. The Mechanical Contractor shall be responsible for the procurement of manufacturer's wiring diagrams

which will correlate the equipment to be furnished by the Electrical Contractor with the respective manufacturer's specialties.

The required voltage for each motor is given with each class of equipment. All motors shall conform to applicable NEMA Standards for quiet operation, standard frame size, permissible temperatures rise and suitable enclosure for the service intended.

1.21 CONCRETE

See Sections 3100 Concrete Form Work, Section 3200 Concrete Reinforcement, and Section 3300 Cast-In-Place Concrete for more information on concrete requirements.

1.22 FOUNDATIONS

All motor-driven equipment on basement floor and their accessories shall be installed on concrete foundations 4" high, unless otherwise specified or noted on the drawings. Note that certain foundations will be provided by the General Contractor; however, this Contractor shall furnish him the exact dimensions of the foundation required.

1.23 CLEANING OF PIPING AND DUCTWORK SYSTEMS

Each piping system shall be thoroughly cleaned by flushing out with water prior to turning over to the Owner.

Domestic water systems of plumbing shall be thoroughly flushed out and flushing water wasted to sewer for a period not less than 15 minutes. Mains shall be flushed first by flushing out the furthest branch lines and progressing backwards toward source, flushing each branch line. Valve discs shall be removed before flushing except branch shut-off valve.

Ductwork shall be kept clean as it is erected by vacuuming out or by wiping out dirt, grease and oil. Ductwork systems shall not be used for temporary ventilation unless the Contractor furnishes and maintains filters in all locations as seemed necessary to keep system clean. Filters shall be changed regularly every two weeks in order to keep system clean of construction dirt. Covers shall be placed over inlets and outlets not in temporary use during construction.