STATE OF NORTH CAROLINA
STANDARD FORM OF CONTRACT
AND GENERAL CONDITIONS

FOR

Cleveland Community College - Student Affairs Renovation
WR/MG No. 23-813.1, CCC No. 89-20241011

SCOPE OF WORK

Interior renovation of a portion of Level 02 of the Student Activity Center.

NOTICE TO BIDDERS

Sealed bid for this work will be received by:

Mr. Lance Ashley, Purchasing Coordinator
Cleveland Community College
137 S. Post Road, Shelby, NC 28152
704-669-4092

up to 3:00 pm, on Thursday, October 31 and immediately thereafter publicly opened and read aloud.

Contractors are hereby notified that they must have proper license under the State laws governing their respective trades and that North Carolina General Statute 87 will be observed in receiving and awarding contracts. General Contractors must have general license classification for General Contractor see state's requirement .

No bid may be withdrawn after the opening of bids for a period of 30 days. The Owner reserves the right to reject any or all bids and waive informalities. Bids shall be made only on the BID/ACEPTANCE form provided herein with all blank spaces for bids properly filled in and all signatures properly executed.

Please note on the envelope – **Bid: Attn**: Mr. Lance Ashley

Cleveland Community College – Student Affairs Renovation
October 31, 2024
(Contractor)
(License Number)

Mandatory Pre-Bid meeting October 17th, 2024 @ 3:00PM in the Jack Hunt Campus Center, Schenck Board Room 2086, 137 South Post Road, Shelby, NC 28152

BID/ACCEPTANCE FORM

for

Cleveland Community College - Student Affairs
Renovation WR/MG No. 23-813.1, CCC No.89-20241011

We are in receipt of Addendum _____1_____2 _____3 _____4

The undersigned, as bidder, proposes and agrees if this bid is accepted to contract with the **State of North Carolina** through **Cleveland Community College** for the furnishing of all materials, equipment, and labor necessary to complete the construction of the work described in these documents in full and complete accordance with plans, specifications, and contract documents, and to the full and entire satisfaction of the **State of North Carolina** and **Cleveland Community College** for the sum of:

BASE BID: _____ Dollars $ _____

Respectively submitted this _____day of_____202__

_____
(Contractor's Name)

Federal ID#:_____ By:_____

Witness:_____ Title:_____
(*Owner, partner, corp. Pres. Or Vice President)*

_____ Address:_____
(Proprietorship or Partnership)

Attest: *(corporation)* Email Address:_____

(***Corporate Seal**)*

By:_____ License #:_____

Title:_____
(Corporation, Secretary/Ass't Secretary.)

ACCEPTED by the STATE OF NORTH CAROLINA

Through Cleveland Community College

Total amount of accepted by the owner, included base bid and bid alternates: _____

BY:_____TITLE:_____

Date: _____

G E N E R A L C O N D I T I O N S

1. GENERAL

It is understood and agreed that by submitting a bid that the Contractor has examined these contract documents, drawings and specifications and has visited the site of the Work and has satisfied himself relative to the Work to be performed.

2. DEFINITIONS

Owner: "Owner" shall mean, The State of North Carolina through **Cleveland Community College**

Contractor: "Contractor" shall mean the entity that will provide the services for the Owner.

Designer: The **designer(s)** are those referred to within this contract, or their authorized representatives. The Designer(s), as referred to herein, shall mean architect and/or engineer responsible for preparing the project plans and specifications. They will be referred to hereinafter as if each were of the singular number, masculine gender.

Contract Documents: "Contract Documents" shall consist of the Notice to Bidders; General Conditions of the Contract; special conditions if applicable; Supplementary General Conditions; the drawing and specifications, including all bulletins, addenda or other modifications of the drawings and specifications incorporated into the documents prior to their execution; the bid; the contract; the performance bond if applicable; and insurance certificates. All of these items together form the contract.

INTENT AND EXECUTION OF DOCUMENTS

The drawings and specifications are complementary, one to the other. That which is shown on the drawings or called for in the specifications shall be as binding as if it were both called for and shown. The intent of the drawings and specifications is to establish the scope of all labor, materials, transportation, equipment, and any and all other things necessary to provide a complete job. In case of discrepancy or disagreement in the Contract Documents, the order of precedence shall be Form of Contract, specifications, large-scale detail drawings, small-scale drawings.

In such cases where the nature of the work requires clarification by the Designer/ Owner, the Designer/ Owner shall furnish such clarification. Clarifications and drawings shall be consistent with the intent of the Contract Documents and shall become a part thereof.

4. AS-BUILT MARKED-UP CONSTRUCTION DOCUMENTS

Contractor shall provide one complete set of legible "as-built" marked-up construction drawings and specifications recording any and all changes made to the original design during the course of construction. In the event no changes occurred, submit construction drawings and specifications set with notation "No Changes." The Designer/Owner must receive "As-built" marked-up construction drawings and specifications before the final pay request can be processed.

5. SUBMITTAL DATA

The Contractor awarded the contract shall submit all specified submittals to the Owner/Designer. A minimum number of copies as specified by the owner, of all required submittal data pertaining to construction, performance and general dimensional criteria of the components listed in the technical specifications shall be submitted. No material or equipment shall be ordered or installed prior to written approval of the submittals by the Designer/Owner. Failure to provide submittal data for review on equipment listed in the technical specifications will result in removal of equipment by the Contractor at his expense if the equipment is not in compliance with the specifications.

6. SUBSTITUTIONS

In accordance with the provisions of G.S. 133-3, material, product, or equipment substitutions proposed by the bidders to those specified herein can only be considered during the bidding phase until five (5) days prior to the receipt of bids or by the date specified in the pre bid conference, when submitted to the Designer with sufficient data to confirm material, product, or equipment equality. Proposed substitutions submitted after this time will be considered only as potential change order.

Submittals for proposed substitutions shall include the following information:

a. Name, address, and telephone number of manufacturer and supplier as appropriate.

b. Trade name, model or catalog designation.

c. Product data including performance and test data, reference standards, and technical descriptions of material, product, or equipment. Include color samples and samples of available finishes as appropriate.

d. Detailed comparison with specified products including performance capabilities, warranties, and test results.

e. Other pertinent data including data requested by the Designer to confirm product equality.

If a proposed material, product, or equipment substitution is deemed equal by the Designer to those specified, all bidders of record will be notified by Addendum.

7. WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE

The contractor shall maintain, in readable condition at his job site one complete set of working drawings and specifications for his work including all shop drawings. Such drawings and specifications shall be available for use by the owner, designer or his authorized representative.

The contractor shall maintain at the job site, a day-to-day record of work-in-place that is at variance with the contract documents. Such variations shall be fully noted on project drawings by the contractor and submitted to the designer upon project completion and no later than 30 days after acceptance of the project.

8. MATERIALS, EQUIPMENT, EMPLOYEES

a. The contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, fuel, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of his work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.

b. All materials shall be new and of quality specified, except where reclaimed material is authorized herein and approved for use. Workmanship shall at all times be of a grade accepted as the best practice of the particular trade involved, and as stipulated in written standards of recognized organizations or institutes of the respective trades except as exceeded or qualified by the specifications.

c. Upon notice, the contractor shall furnish evidence as to quality of materials.

d. Products are generally specified by ASTM or other reference standard and/or by manufacturer's name and model number or trade name. When specified only by reference standard, the Contractor may select any product meeting this standard, by any manufacturer. When several products or manufacturers are specified as being equally acceptable, the Contractor has the option of using any product and manufacturer combination listed. However, the contractor shall be aware that the cited examples are used only to denote the quality standard of product desired and that they do not restrict bidders to a specific brand, make, manufacturer or specific name; that they are used only to set forth

and convey to bidders the general style, type, character and quality of product desired; and that equivalent products will be acceptable. Request for substitution of materials, items, or equipment shall be submitted to the designer for approval or disapproval; the designer prior to the opening of bids shall make such approval or disapproval. Alternate materials may be requested after the award if it can clearly be demonstrated that it is an added benefit to the owner and the designer and owner approves.

e. The designer is the judge of equality for proposed substitution of products, materials or equipment.

f. If at any time during the construction and completion of the work covered by these contract documents, the language, conduct, or attire of any workman of the various crafts be adjudged a nuisance to the owner or designer, or if any workman be considered detrimental to the work, the contractor shall order such parties removed immediately from grounds.

g. The Contractor shall cooperate with the designer and the owner in coordinating construction activities.

h. The Contractor shall maintain qualified personnel and effective supervision at the site at all times during the project and exercise the appropriate quality control program to ensure compliance with the project drawings and specifications. The designer is responsible for determining compliance with the drawings and specifications.

9. CODES, PERMITS, AND INSPECTIONS

The Contractor shall obtain the required permits, if required, give all notices, and comply with all laws, ordinances, codes, rules and regulations bearing on the conduct of the work under this contract. If the Contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the Designer in writing. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules and regulations, and without such notice to the Owner, he shall bear all cost arising there from.

All work under this contract shall conform to the current North Carolina Building Code and other state and national codes as are applicable.

Projects constructed by the State of North Carolina or by any agency or institution of the State are not subject to county or municipal building codes and may* not be subject to inspection by county or municipal authorities. Where appropriate, the Contractor shall, cooperate with the county or municipal authorities by obtaining building permits. The contractor at no cost may obtain permits to the owner.

All fire alarm work shall be in accordance with the latest State Construction Office (SCO) *Guidelines for Fire Alarm Installation* (NFPA72). Where the contract documents are in conflict with the SCO guidelines, the SCO guidelines shall govern. The Contractor shall be responsible for all the costs for the correction of the work where he installs it in conflict with the latest edition of the SCO *Guidelines for Fire Alarm Installation*.

*****Inspection and certification of compliance by local authorities is necessary if an architect or engineer was <u>not</u> employed on the project, or if the plans and specifications were not approved and the construction inspected by the State Construction Office.

10. PROTECTION OF WORK, PROPERTY, THE PUBLIC AND SAFETY

a. The contractors shall be jointly responsible for the entire site and the building or construction of the same and provide all the necessary protections, as required by the owner or designer, and by laws or ordinances governing such conditions. They shall be responsible for any damage to the owner's property or of that of others on the job, by them, their personnel, or their subcontractors, and shall make good such damages. They shall be responsible for and pay for any damages caused to the owner. All contractors shall have access to the project at all times, except as indicated in the Supplemental General Conditions.

b. The contractor shall provide cover and protect all portions of the structure when the work is not in progress, provide and set all temporary roofs, covers for doorways, sash and windows, and all other

materials necessary to protect all the work on the building, whether set by him, or any of the subcontractors. Any work damaged through the lack of proper protection or from any other cause, shall be repaired or replaced without extra cost to the owner.

c. No fires of any kind will be allowed inside or around the operations during the course of construction without special permission from the designer and owner.

d. The contractor shall protect all trees and shrubs designated to remain in the vicinity of the operations by building substantial boxes around it. He shall barricade all walks, roads, etc., as directed by the designer to keep the public away from the construction. All trenches, excavations or other hazards in the vicinity of the work shall be well barricaded and properly lighted at night.

e. The contractor shall provide all necessary safety measures for the protection of all persons on the job, including the requirements of the A.G.C. *Accident Prevention Manual in Construction*, as amended, and shall fully comply with all state laws or regulations and North Carolina State Building Code requirements to prevent accident or injury to persons on or about the location of the work. He shall clearly mark or post signs warning of hazards existing, and shall barricade excavations, elevator shafts, stairwells and similar hazards. He shall protect against damage or injury resulting from falling materials and he shall maintain all protective devices and signs throughout the progress of the work.

f. The contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, Code of Federal Regulations, Part 1926, published in Volume 39, Number 122, Part II, June 24, 1974, *Federal Register*), and revisions thereto as adopted by General Statutes of North Carolina 95-126 through 155.

i. In the event of emergency affecting the safety of life, the protection of work, or the safety of adjoining properties, the contractor is hereby authorized to act at his own discretion, without further authorization from anyone, to prevent such threatened injury or damage. Any compensation claimed by the contractor on account of such action shall be determined as provided for under Article 13(b).

j. Any and all costs associated with correcting damage caused to adjacent properties of the construction site or staging area shall be borne by the contractor. These costs shall include but not be limited to flooding, mud, sand, stone, debris, and discharging of waste products.

11. SUBCONTRACTS AND SUBCONTRACTORS

The Contractor is and remains fully responsible for his own acts or omissions as well as those of any subcontractor or of any employee of either. The Contractor agrees that no contractual relationship exists between the subcontractor and the Owner in regard to the contract, and that the subcontractor acts on this work as an agent or employee of the Contractor.

12. CONTRACTOR-SUBCONTRACTOR RELATIONSHIPS

The Contractor agrees that the terms of these Contract Documents shall apply equally to each Subcontractor as to the Contractor, and the Contractor agrees to take such action as may be necessary to bind each Subcontractor to these terms. The Contractor further agrees to conform to the Code of Ethical Conduct as adopted by the Associated General Contractors of America, Inc., with respect to Contractor-Subcontractor relationships. The Owner reserves the right to limit the amount of portions of work to be subcontracted as hereinafter specified.

13. CHANGES IN THE WORK AND CLAIMS FOR EXTRA COST

a. The owner may have changes made in the work covered by the contract. These changes will not invalidate and will not relieve or release the contractor from any guarantee given by him pertinent to the contract provisions. These changes will not affect the validity of the guarantee bond and will not relieve the surety or sureties of said bond. All extra work shall be executed under conditions of the original contract.

b. Except in an emergency endangering life or property, no change shall be made by the contractor except upon receipt of approved change order from the designer, countersigned by the owner

authorizing such change. No claim for adjustments of the contract price shall be valid unless this procedure is followed. Should a claim for extra compensation by the contractor be denied by the designer or the owner, the contractor may pursue his claim in accordance with G.S. 143-135.3.

In the event of emergency endangering life or property, the contractor may be directed to proceed on a time and material basis whereupon the contractor shall proceed and keep accurately on such form as specified by the designer or owner, a correct account of costs together with all proper invoices, payrolls and supporting data. Upon completion of the work the change order will be prepared as outlined under either Method "c(1)" or Method "c(2)" or both.

c. In determining the values of changes, either additive or deductive, contractors are restricted to the use of the following methods:

1. Where the extra work involved is covered by unit prices quoted in the proposal, or subsequently agreed to by the Contractor, Designer, Owner and State Construction Office the value of the change shall be computed by application of unit prices based on quantities, estimated or actual as agreed of the items involved, except is such cases where a quantity exceeds the estimated quantity allowance in the contract by one hundred percent (100%) or more. In such cases, either party may elect to proceed under subparagraph c (2) herein. If neither party elects to proceed under c (2), then unit prices shall apply.

2. The contracting parties shall negotiate and agree upon the equitable value of the change prior to issuance of the change order, and the change order shall stipulate the corresponding lump sum adjustment to the contract price.

d. Under Paragraph “b” and Methods "c(2)" above, the allowances for overhead and profit combined shall be as follows: all contractors (the single contracting entity (prime), his subcontractors(1st tier subs), or their sub-subcontractors (2nd tier subs, 3rd tier subs, etc.) shall be allowed a maximum of 10% on work they each self-perform; the prime contractor shall be allowed a maximum of 5% on contracted work of his 1st tier sub; 1st tier, 2nd tier, 3rd tier, etc. contractors shall be allowed a maximum of 2.5% on the contracted work of their subs. ; Under Method "c(1)", no additional allowances shall be made for overhead and profit. In the case of deductible change orders, under Method "c(2)" and Paragraph (b) above, the contractor shall include no less than five percent (5%***)*** profit, but no allowances for overhead.

e. The term "net cost" as used herein shall mean the difference between all proper cost additions and deductions. The "cost" as used herein shall be limited to the following:

1. The actual costs of materials and supplies incorporated or consumed as part of the work;

2. The actual costs of labor expended on the project site; labor expended in coordination, change order negotiation, record document maintenance, shop drawing revision or other tasks necessary to the administration of the project are considered overhead whether they take place in an office or on the project site.

3. The actual costs of labor burden, limited to the costs of social security (FICA) and Medicare/Medicaid taxes; unemployment insurance costs; health/dental/vision insurance premiums; paid employee leave for holidays, vacation, sick leave, and/or petty leave, not to exceed a total of 30 days per year; retirement contributions; worker’s compensation insurance premiums; and the costs of general liability insurance when premiums are computed based on payroll amounts; the total of which shall not exceed thirty percent (30%) of the actual costs of labor;

4. The actual costs of rental for tools, excluding hand tools; equipment; machinery; and temporary facilities required for the work;

5. The actual costs of premiums for bonds, insurance, permit fees and sales or use taxes related to the work.

Overtime and extra pay for holidays and weekends may be a cost item only to the extent approved by the owner.

f. Should concealed conditions be encountered in the performance of the work below grade or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the contract documents, the contract sum and time for completion may be equitably adjusted by change order upon claim by either party made within thirty (30) days after the condition has been identified. The cost of such change shall be arrived at by one of the foregoing methods. All change orders shall be supported by a unit cost breakdown showing method of arriving at net cost as defined above.

g. Change orders shall be submitted by the contractor in writing to the owner/designer for review and approval. The contractor will provide such proposal and supporting data in suitable format. The designer shall verify correctness. Delay in the processing of the change order due to lack of proper submittal by the contractor of all required supporting data shall not constitute grounds for a time extension or basis of a claim. Within fourteen (14) days after receipt of the contractor's accepted proposal including all supporting documentation required by the designer**,** the designer shall prepare the change order and forward to the contractor for his signature or otherwise respond, in writing, to the contractor's proposal. Within seven (7) days after receipt of the change order executed by the contractor, the designer shall, certify the change order by his signature, and forward the change order and all supporting data to the owner for the owner's signature. The owner shall execute the change order**,** within seven (7) days of receipt.

At the time of signing a change order, the contractor shall be required to certify as follows:

"I certify that my bonding company will be notified forthwith that my contract has been changed by the amount of this change order, and that a copy of the approved change order will be mailed upon receipt by me to my surety."

h. A change order, when issued, shall be full compensation, or credit, for the work included, omitted or substituted. It shall show on its face the adjustment in time for completion of the project as a result of the change in the work.

i. If, during the progress of the work, the owner requests a change order and the contractor's terms are unacceptable, the owner**,** may require the contractor to perform such work on a time and material basis whereupon the contractor shall proceed and keep accurately on such form as specified by the Designer or owner, a correct account of cost together with all proper invoices, payrolls and supporting data. Upon completion of the work a change order will be prepared with allowances for overhead and profit per paragraph d. above and "net cost" and "cost" per paragraph e. above. Without prejudice, nothing in this paragraph shall preclude the owner from performing or to have performed that portion of the work requested in the change order.

14. ANNULMENT OF CONTRACT

If the contractor fails to begin the work under the contract within the time specified, or the progress of the work is not maintained on schedule, or the work is not completed within the time specified, or fails to perform the work with sufficient workmen and equipment or with sufficient materials to ensure the prompt completion of said work, or shall perform the work unsuitably or shall discontinue the prosecution of the work, or if the contractor shall become insolvent or be declared bankrupt or commit any act of bankruptcy or insolvency, or allow any final judgment to stand against him unsatisfied for a period of forty-eight (48) hours, or shall make an assignment for the benefit of creditors, or for any other cause whatsoever shall not carry on the work in an acceptable manner, the owner may give notice in writing, sent by certified mail, return receipt requested, to the contractor and his surety (if applicable) of such delay, neglect or default, specifying the same, and if the contractor within a period of seven (7) days after such notice shall not proceed in accordance therewith, then the owner shall, declare this contract in default, and, thereupon, the surety shall promptly take over the work and complete the performance of this contract in the manner and within the time frame specified. In the event the contractor, or the surety (if applicable) shall fail to take over the work to be done under this contract within seven (7) days after being so notified and notify the owner in writing, sent by certified mail, return receipt requested, that he is taking the same over and stating that he will diligently pursue and complete the same, the owner shall have full power and authority, without violating the contract, to take the prosecution of the work out of the hands of said contractor, to appropriate or use any or all

contract materials and equipment on the grounds as may be suitable and acceptable and may enter into an agreement, either by public letting or negotiation, for the completion of said contract according to the terms and provisions thereof or use such other methods as in his opinion shall be required for the completion of said contract in an acceptable manner. All costs and charges incurred by the owner, together with the costs of completing the work under contract, shall be deducted from any monies due or which may become due said contractor and surety (if applicable). In case the expense so incurred by the owner shall be less than the sum which would have been payable under the contract, if it had been completed by said contractor, then the said contractor and surety (if applicable) shall be entitled to receive the difference, but in case such expense shall exceed the sum which would have been payable under the contract, then the contractor and the surety (if applicable) shall be liable and shall pay to the owner the amount of said excess.

15. TERMINATION FOR CONVENIENCE

a. Owner may at any time and for any reason terminate Contractor's services and work at Owner's convenience, after notification to the contractor in writing via certified mail. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

b. Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by Contractor as approved by Owner; (3) plus ten percent (10%) of the cost of the balance of the work to be completed for overhead and profit. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. Contractor shall not be entitled to any claim or claim of lien against Owner for any additional compensation or damages in the event of such termination and payment.

16. OWNER'S RIGHT TO DO WORK

If, during the progress of the work or during the period of guarantee, the contractor fails to prosecute the work properly or to perform any provision of the contract, the owner, after seven (7) days' written notice sent by certified mail, return receipt requested, to the contractor from the designer, may perform or have performed that portion of the work. The cost of the work may be deducted from any amounts due or to become due to the contractor, such action and cost of same having been first approved by the designer. Should the cost of such action of the owner exceed the amount due or to become due the contractor, then the contractor or his surety, or both, shall be liable for and shall pay to the owner the amount of said excess.

17. REQUESTS FOR PAYMENT

Contractor shall refer to the Supplemental General Conditions for specific directions on payment schedule, procedures and the name and address where to send applications for payments for this project. It is imperative that invoices be sent only to the above address in order to assure proper and timely delivery and handling.

The Designer/Owner will process all Contractor pay requests as the project progresses. The Contractor shall receive payment within thirty (30) consecutive days after Designer/Owner's approval of each pay request. Payment will only be made for work performed as determined by the Designer/Owner.

Retainage:

a. Retainage withheld will not exceed 5% at any time.
b. The same terms apply to general contractor and subcontractors alike.
c. Following 50% completion of the project no further retainage will be withheld if the contractor/subcontractor has performed their work satisfactorily.
d. Exceptions:
    1. Owner/Contractor can reinstate retainage if the contractor/subcontractor does not continue to perform satisfactorily.

2. Following 50% completion of the project, the owner is authorized to withhold additional retainage from a subsequent periodic payment if the amount of retainage withheld falls below 2.5%.

Final payment will be made within forty-five (45) consecutive days after acceptance of the work, receipt of marked-up “as-built” drawings and specifications and the submission both of notarized Contractor's affidavit and final pay request. All pay requests shall be submitted to the Designer/Owner for approval.

THE CONTRACTOR'S FINAL PAYMENT AFFIDAVIT SHALL STATE: "THIS IS TO CERTIFY THAT ALL COSTS OF MATERIALS, EQUIPMENT, LABOR, SUBCONTRACTED WORK, AND ALL ELSE ENTERING INTO THE ACCOMPLISHMENT OF THIS CONTRACT, INCLUDING PAYROLLS, HAVE BEEN PAID IN FULL."

18. PAYMENTS WITHHELD

The designer with the approval of the Owner may withhold payment for the following reasons:

a. Faulty work not corrected.

b. The unpaid balance on the contract is insufficient to complete the work in the judgment of the designer.

c. To provide for sufficient contract balance to cover liquidated damages that will be assessed.

d. The secretary of the Department of Administration may authorize the withholding of payment for the following reasons:

i. Claims filed against the contractor or evidence that a claim will be filed.

ii. Evidence that subcontractors have not been paid.

When grounds for withholding payments have been removed, payment will be released. Delay of payment due the contractor without cause will make owner liable for payment of interest to the contractor as provided in G.S. 143-134.**1.** As provided in G.S. 143-134.1(e), the owner shall not be liable for interest on payments withheld by the owner for unsatisfactory job progress, defective construction not remedied, disputed work, or third-party claims filed against the owner or reasonable evidence that a third-party claim will be filed.

19. MINIMUM INSURANCE REQUIREMENTS

The work under this contract shall not commence until the contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the owner. These certificates shall document that coverages afforded under the policies will not be cancelled, reduced in amount or coverages eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the owner of such alteration or cancellation. If endorsements are needed to comply with the notification or other requirements of this article copies of the endorsements shall be submitted with the certificates.

a. **Worker’s Compensation and Employer's Liability**

The contractor shall provide and maintain, until final acceptance, workmen's compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of $100,000.

b. **Public Liability and Property Damage**

The contractor shall provide and maintain, until final acceptance, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily 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 the

contractor or by any subcontractor, or by anyone directly or indirectly employed by either of them and the minimum limits of such insurance shall be as follows:

Bodily Injury:	$500,000 per occurrence
Property Damage:	$100,000 per occurrence / $300,000 aggregate

In lieu of limits listed above, a $500,000 combined single limit shall satisfy both conditions.

Such coverage for completed operations must be maintained for at least two (2) years following final acceptance of the work performed under the contract.

c. **Property Insurance (Builder's Risk/Installation Floater)**

The contractor shall purchase and maintain property insurance until final acceptance, upon the entire work at the site to the full insurable value thereof. This insurance shall include the interests of the owner, the contractor, the subcontractors and sub-subcontractors in the work and shall insure against the perils of fire, wind, rain, flood, extended coverage, and vandalism and malicious mischief. If the owner is damaged by failure of the contractor to purchase or maintain such insurance, then the contractor shall bear all reasonable costs properly attributable thereto; the contractor shall affect and maintain similar property insurance on portions of the work stored off the site when request for payment per articles so includes such portions.

d. **Deductible**

Any deductible, if applicable to loss covered by insurance provided, is to be borne by the contractor.

e. **Other Insurance**

The contractor shall obtain such additional insurance as may be required by the owner or by the General Statutes of North Carolina including motor vehicle insurance, in amounts not less than the statutory limits.

f. **Proof of Carriage**

The contractor shall furnish the owner with satisfactory proof of carriage of the insurance required before written approval is granted by the owner.

20. ASSIGNMENT

No assignment of the Contractor's obligations or the Contractor's right to receive payment hereunder shall be permitted. However, upon written request approved by the Owner and solely as a convenience to the Contractor, the Owner may: (1) forward the Contractor's payment check directly to any person or entity designated by the Contractor, and (2) include any person or entity designated by Contractor as a joint payee on the Contractor's payment check. In no event shall such approval and action obligate the Owner to anyone other than the Contractor, and the Contractor shall remain responsible for fulfillment of all contract obligations.

21. CLEANING UP AND RESTORATION OF SITE

The Contractor shall keep the sites and surrounding area reasonably free from rubbish at all times and shall remove debris from the site from time to time or when directed to do so by the Owner. Before final inspection and acceptance of the project, the Contractor shall thoroughly clean the sites, and completely prepare the project and site for use by the Owner.

At the end of construction, the contractor shall oversee and implement the restoration of the construction site to its original state. Restoration includes but not limited to walks, drives, lawns, trees and shrubs, corridors, stairs and other elements shall be repaired, cleaned or otherwise restored to their original state.

22. GUARANTEE

The contractor shall unconditionally guarantee materials and workmanship against patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve (12) months following the final acceptance of the work and shall replace such defective materials or workmanship without cost to the owner.

Where items of equipment or material carry a manufacturer's warranty for any period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that particular piece of equipment or material. The contractor shall replace such defective equipment or materials, without cost to the owner, within the manufacturer's warranty period.

Additionally, the owner may bring an action for latent defects caused by the negligence of the contractor, which is hidden or not readily apparent to the owner at the time of beneficial occupancy or final acceptance, whichever occurred first, in accordance with applicable law.

Guarantees for roofing workmanship and materials shall be stipulated in the specifications sections governing such roof, equipment, materials, or supplies.

23. STANDARDS

All manufactured items and/or fabricated assemblies subject to operation under pressure, operation by connection to an electric source, or operation involving a connection to a manufactured, natural, or LP gas source shall be constructed and approved in a manner acceptable to the appropriate State inspector which customarily requires the label or re-examination listing or identification marking of appropriate safety standard organization, such as the American Society of Mechanical Engineers for pressure vessels; the Underwriters Laboratories and/or National Electrical Manufacturers Association for electrically operated assemblies; or the American Gas Association for gas operated assemblies, where such approvals of listings have been established for the type of device offered and furnished. Further, all items furnished shall meet all requirements of the Occupational Safety and Health Act (OSHA), and State and federal requirements relating to clean air and water pollution.

All equipment and products must be independent third party tested and labeled (UL, FM, or CTS) before final connections to Owner services or utilities.

24. TAXES

a. Federal excise taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3442(3)).

b. Federal transportation taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3475(b) as amended).

c. North Carolina sales tax and use tax, as required by law, do apply to materials entering into state work and such costs shall be included in the bid proposal and contract sum.

d. Local option sales and use taxes, as required by law, do apply to materials entering into state work as applicable and such costs shall be included in the bid proposal and contract sum.

e. **Accounting Procedures for Refund of County Sales & Use Tax**

Amount of county sales and use tax paid per contractor's statements:

Contractors performing contracts for state agencies shall give the state agency for whose project the property was purchased a signed statement containing the information listed in G.S. 105-164.14(e).

The Department of Revenue has agreed that in lieu of obtaining copies of sales receipts from contractors, an agency may obtain a certified statement as of April 1, 1991 from the contractor setting forth the date, the type of property and the cost of the property purchased from each vendor, the county in which the vendor made the sale and the amount of local sales and use taxes paid thereon. If the property was purchased out-of-state, the county in which the property was

delivered should be listed. The contractor should also be notified that the certified statement may be subject to audit.

In the event the contractors make several purchases from the same vendor, such certified statement must indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices, the counties, and the county sales and use taxes paid thereon.

Name of taxing county: The position of a sale is the retailer's place of business located within a taxing county where the vendor becomes contractually obligated to make the sale. Therefore, it is important that the county tax be reported for the county of sale rather than the county of use.

When property is purchased from out-of-state vendors and the county tax is charged, the county should be identified where delivery is made when reporting the county tax.

Such statement must also include the cost of any tangible personal property withdrawn from the contractor's warehouse stock and the amount of county sales or use tax paid thereon by the contractor.

Similar certified statements by his subcontractors must be obtained by the general contractor and furnished to the claimant.

Contractors are not to include any tax paid on supplies, tools and equipment which they use to perform their contracts and should include only those building materials, supplies, fixtures and equipment which actually become a part of or annexed to the building or structure.

25. EQUAL OPPORTUNITY CLAUSE

The non-discrimination clause contained in Section 202 (Federal) Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex or national origin, and the implementing rules and regulations prescribed by the secretary of Labor, are incorporated herein.

The contractor(s) agree not to discriminate against any employee or applicant for employment because of physical or mental disabilities in regard to any position for which the employee or applicant is qualified. The contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified individuals with such disabilities without discrimination based upon their physical or mental disability in all employment practices.

26. MINORITY BUSINESS PARTICIPATION

GS 143-128.2 establishes a ten percent (10%) goal for participation by minority business in total value of work for each State building project.

For construction contracts with a value of less than $300,000, the Owner has the responsibility to make a good faith effort to solicit minority bids and to attain the goal. The contractor shall include with his bid a completed Identification of HUB Certified/Minority Business Participation form. Contractor shall submit completed Appendix E MBE Documentation for Contract Payments form with final payment request.

For construction contracts with a value of $300,000 or greater, the contractor shall comply with the document *Guidelines for* Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts including Identification of Minority Business Participation, Affidavits A, B, C, and D, and Appendix E. These forms provided herein are hereby incorporated and made a part of this contract.

27. ACCESS TO PERSONS AND RECORDS

The State Auditor shall have access to persons and records as a result of all contracts or grants entered into by the Owner in accordance with General Statute 147-64.7. The Owner’s internal auditors shall also have the right to access and copy the Contractor’s records relating to the Contract and Project during the term of the Contract and within two years following the completion of the Project/close-out of the Contract to verify accounts, accuracy, information, calculations and/or data affecting and/or relating to Contractor’s requests for payment, requests for

change orders, change orders, claims for extra work, requests for time extensions and related claims for delay/extended general conditions costs, claims for lost productivity, claims for lost efficiency, claims for idle equipment or labor, claims for price/cost escalation, pass-through claims of subcontractors and/or suppliers, and/or any other type of claim for payment or damages from Owner and/or its project representatives.

28. GOVERNING LAWS

This contract is made under and shall be governed by and construed in accordance with the laws of the State of North Carolina. The Contractor shall comply with all applicable federal, State and local laws, statutes, ordinances and regulations including, but not limited to, the Omnibus Transportation Act of 1991 and its implementing regulations.

29. CONTRACTOR EVALUATION

The contractor's overall work performance on the project shall be fairly evaluated in accordance with the State Building Commission policy and procedures, for determining qualifications to bid on future State projects. In addition to final evaluation, an interim evaluation may be prepared during the progress of project. The owner may request the contractor's comments to evaluate the designer.

SUPPLEMENTARY GENERAL CONDITIONS

TIME OF COMPLETION

The Contractor shall commence work to be performed under this Contract on a date to be specified in written order from the Designer/Owner and shall fully complete all work hereunder within (_____) consecutive calendar days from the Notice to Proceed (Owner may elect to insert here a specific completion date in lieu of a specific number of calendar days). For each day in excess of the above number of days, the Contractor shall pay the Owner the amount of_____Dollars ($_____) as liquidated damages reasonably estimated in advance to cover the losses to be incurred by the Owner should the Contractor fail to complete the Work within the time specified.

If the Contractor is delayed at anytime in the progress of his work by any act or negligence of the Owner, his employees or his separate contractor, by changes ordered in the work; by abnormal weather conditions; by any causes beyond the Contractor's control or by other causes deemed justifiable by Owner, then the contract time may be reasonably extended in a written order from the Owner upon written request from the contractor within ten days following the cause for delay. Time extensions for weather delays, acts of God, labor disputes, fire, delays in transportation, unavoidable casualties or other delays which are beyond the control of the Owner do not entitle the Contractor to compensable damages for delays. Any contractor claim for compensable damages for delays is limited to delays caused solely by the owner or its agents.

CONTRUCTION SCHEDULE:
Owner to insert specific schedule requirements.

PAYMENTS
Owner to insert specific information regarding payments (number of payments, invoice format, where to send invoices, for example).

UTILITIES
Owner may provide certain utilities such as power or water with connections and extensions by the Contractor. Use of existing toilets, parking, access, etc. may be described.

SECURITY
Some state schools have specific rules and requirements relative to security, storage, etc.

USE OF SITE
May be restricted. Work hours may be limited. Parking permits may be required.

NO SMOKING POLICY
Owner to insert specific language.

PERFORMANCE AND PAYMENT BONDS
Contractor shall furnish a Performance Bond and Payment Bond executed by a surety company authorized to do business in North Carolina. The bonds shall be in the full contract amount. Bonds shall be executed in the form bound with these specifications (Forms 307 & 308). An authorized agent of the bonding company who is licensed to do business in North Carolina shall countersign all bonds.

MINORITY BUSINESS PARTICIPATION
Owner to insert specific additional requirements.

FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS THAT _____ _____ as principal, and _____, as surety, who is duly licensed to act as surety in North Carolina, are held and firmly bound unto **Cleveland Community College** through _____ as obligee, in the penal sum of _____ DOLLARS, lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this ____ day of _____ 202__

WHEREAS, the said principal is herewith submitting proposal for and the principal desires to file this bid bond in lieu of making the cash deposit as required by G.S. 143-129.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such, that if the principal shall be awarded the contract for which the bid is submitted and shall execute the contract and give bond for the faithful performance thereof within ten days after the award of same to the principal, then this obligation shall be null and void; but if the principal fails to so execute such contract and give performance bond as required by G.S. 143-129, the surety shall, upon demand, forthwith pay to the obligee the amount set forth in the first paragraph hereof. Provided further, that the bid may be withdrawn as provided by G.S. 143-129.1

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN STATE CONSTRUCTION CONTRACTS

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods, on State construction projects in the amount of $300,000 or more. The legislation provides that the State shall have a verifiable ten percent (10%) goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These requirements are published to accomplish that end.

SECTION A: INTENT

It is the intent of these guidelines that the State of North Carolina, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded shall cooperate and in good faith do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

SECTION B: DEFINITIONS

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
   a. Black, that is, a person having origins in any of the black racial groups in Africa;
   b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
   c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
   d. American Indian, that is, a person having origins in any of the original peoples of North America; or
   e. Female

2. Minority Business - means a business:
   a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
   b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.

3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".

4. Public Entity - means State and all public subdivisions and local governmental units.

5. Owner - The State of North Carolina, through the Agency/Institution named in the contract.

6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.

7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.

9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.

10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

SECTION C: RESPONSIBILITIES

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:

a. Identify those areas of work for which there are minority businesses, as requested.
b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
c. Assist in the determination of technical assistance needed by minority business contractors.

In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:

(1) Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
(2) Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the State Construction Office and other public entities.
(3) Inform minority businesses of the contracting and subcontracting process for public construction building projects.
(4) Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in the State construction projects.
(5) The HUB Office also oversees the minority business program by:
    a. Monitoring compliance with the program requirements.
    b. Assisting in the implementation of training and technical assistance programs.
    c. Identifying and implementing outreach efforts to increase the utilization of minority businesses.
    d. Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General Assembly.

~~2. State Construction Office~~
~~The State Construction Office will be responsible for the following:~~

~~a. Furnish to the HUB Office a minimum of twenty-one days prior to the bid opening the following:~~
~~(1) Project description and location;~~
~~(2) Locations where bidding documents may be reviewed;~~
~~(3) Name of a representative of the owner who can be contacted during the advertising period to advise who the prospective bidders are;~~
~~(4) Date, time and location of the bid opening.~~
~~(5) Date, time and location of prebid conference, if scheduled.~~

~~b. Attending scheduled prebid conference, if necessary, to clarify requirements of the general statutes regarding minority business participation, including the bidders' responsibilities.~~

c. ~~Reviewing the apparent low bidders' statutory compliance with the requirements listed in the proposal, that must be complied with, if the bid is to be considered as responsive, prior to award of contracts. The State reserves the right to reject any or all bids and to waive informalities.~~
d. ~~Reviewing of minority business requirements at Preconstruction conference.~~
e. ~~Monitoring of contractors' compliance with minority business requirements in the contract documents during construction.~~
f. ~~Provide statistical data and required reports to the HUB Office.~~
g. ~~Resolve any protest and disputes arising after implementation of the plan, in conjunction with the HUB Office.~~

3. Owner
Before awarding a contract, owner shall do the following:

a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and non-minority businesses.
b. Attend the scheduled prebid conference.
c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the public entity for public construction or repair work and minority businesses that otherwise indicated to the Office for Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
    1. A description of the work for which the bid is being solicited.
    2. The date, time, and location where bids are to be submitted.
    3. The name of the individual within the owner's organization who will be available to answer questions about the project.
    4. Where bid documents may be reviewed.
    5. Any special requirements that may exist.
d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.
e. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing good faith efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award to the State Construction Office.
g. Evaluate documentation to determine good faith effort has been achieved for minority business utilization prior to recommendation of award to State Construction Office.
h. Review prime contractors' pay applications for compliance with minority business utilization commitments prior to payment.
i. Make documentation showing evidence of implementation of Owner's responsibilities available for review by State Construction Office and HUB Office, upon request

4. Designer
Under the single-prime bidding, separate prime bidding, construction manager at risk, or alternative contracting method, the designer will:

a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with

corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.

e. During construction phase of the project, review "MBE Documentation for Contract Payment" – (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the owner and forward copies to the State Construction Office.

f. Make documentation showing evidence of implementation of Designer's responsibilities available for review by State Construction Office and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors

Under the single-prime bidding, the separate-prime biding, construction manager at risk and alternative contracting methods, contractor(s) will:

a. Attend the scheduled prebid conference.

b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.

c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
   (1) A description of the work for which the subbid is being solicited.
   (2) The date, time and location where subbids are to be submitted.
   (3) The name of the individual within the company who will be available to answer questions about the project.
   (4) Where bid documents may be reviewed.
   (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

   If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.

d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.

e. Identify on the bid**,** the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by ~~State Construction Office and~~ HUB Office, upon request.

g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.

h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.

i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), "MBE Documentation for Contract Payment" – (Appendix E), for designer's review.

j. During the construction of a project, at any time**,** if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, ~~State Construction Office,~~ and the Director of the HUB Office in writing**,** of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.

k. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit subbids from minority businesses.
l. It is the intent of these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on state projects.

6. Minority Business Responsibilities
While minority businesses are not required to become certified in order to participate in the State construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

SECTION 4: DISPUTE PROCEDURES
It is the policy of this state that disputes that involves a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

SECTION 5: These guidelines shall apply upon promulgation on state construction projects. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: www.nc-sco.com

SECTION 6: In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing minority business participation in the state construction program.

MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts** are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: http://www.nc-sco.com

MINORITY BUSINESS SUBCONTRACT GOALS:

The goals for participation by minority firms as subcontractors on this project have been set at 10%.

The bidder must identify on its bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts **or** affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal.

OR

Provide Affidavit D, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, **with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.**

OR

Provide Affidavit B, which includes sufficient information for the State to determine that the bidder does not customarily subcontract work on this type project.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

MINIMUM COMPLIANCE REQUIREMENTS:

All written statements, affidavits or intentions made by the Bidder shall become a part of the agreement between the Contractor and the State for performance of this contract. Failure to comply with any of these statements, affidavits or intentions, or with the minority business Guidelines shall constitute a breach of the contract. A finding by the State that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the State whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the State will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Good Faith Efforts include:

(1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.

(2) Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.

(3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.

(4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.

(5) Attending any prebid meetings scheduled by the public owner.

(6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.

(7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.

(8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.

(9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.

(10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* INDICATE TYPE OF MBE	AMOUNT PAID THIS MONTH	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Social and Economically Disadvantage (D)

Date: _____ Approved/Certified By: _____
Name

_____
Title

_____
Signature

SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT

(Revised on 3/14/2003)

Identification of HUB Certified/ Minority Business Participation

I,_____,
(Name of Bidder)
do hereby certify that on this project, we will use the following HUB Certified/ minority business as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work Type	*Minority Category	**HUB Certified (Y/N)

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

The total value of minority business contracting will be ($)_____.

State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

(Name of Bidder)

Affidavit of_____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- ❑ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ❑ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- ❑ **3** – **(15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ❑ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ❑ **5** – **(10 pts)** Attended prebid meetings scheduled by the public owner.
- ❑ **6** – **(20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ❑ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ❑ **8** – **(25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ❑ **9** – **(20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ❑ **10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of_____, County of_____

Subscribed and sworn to before me this _____day of _____20____

Notary Public_____

My commission expires _____

State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of _____

Affidavit of _____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____ contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20___

Notary Public _____

My commission expires _____

State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by HUB Certified/Minority Businesses

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by HUB certified/minority businesses as defined in GS143-128.2(g) and 128.4(a),(b),(e) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit.
This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

SEAL

Signature:_____

Title:_____

State of _____, County of _____
Subscribed and sworn to before me this _____day of _____20____
Notary Public_____
My commission expires_____

State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 10% participation by HUB Certified/ minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with HUB certified/ minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

B. Copies of quotes or responses received from each firm responding to the solicitation.

C. A telephone log of follow-up calls to each firm sent a solicitation.

D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____day of _____20____

Notary Public_____

My commission expires _____

STATE OF NORTH CAROLINA
COUNTY SALES AND USE TAX REPORT
SUMMARY TOTALS AND CERTIFICATION

CONTRACTOR: _____ Page __1____ of _____

PROJECT: _____ FOR PERIOD: _____

	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL ALL COUNTIES
CONTRACTOR							
SUBCONTRACTOR(S)*							
COUNTY TOTAL							

* Attach subcontractor(s) report(s)
** Must balance with Detail Sheet(s)

I certify that the above figures do not include any tax paid on supplies, tools and equipment which were used to perform this contract and only includes those building materials, supplies, fixtures and equipment which actually became a part of or annexed to the building or structure. I certify that, to the best of my knowledge, the information provided here is true, correct, and complete.

Sworn to and subscribed before me,

This the _____ day of _____, 20____

_____
Signed

_____
Notary Public

_____
Print or Type Name of Above

My Commission Expires: _____

Seal

NOTE:
This certified statement may be subject to audit.

STATE OF NORTH CAROLINA
SALES AND USE TAX REPORT DETAIL

CONTRACTOR: _____

SUBCONTRACTOR _____ FOR PERIOD: _____

PROJECT: _____

PURCHASE DATE	VENDOR NAME	INVOICE NUMBER	TYPE OF PROPERTY	INVOICE TOTAL	COUNTY TAX PAID	COUNTY OF SALE *
				$	$	
				TOTAL:	$	

* If this is an out-of-state vendor, the County of Sale should be the county to which the merchandise was shipped.

SECTION 01 11 00
SUMMARY OF THE WORK

1.1 LOCATION OF SITE:

_____

1.2 SCOPE OF THE WORK:

A. The work described in the Contract Documents includes the furnishing of all labor, materials, equipment, and services necessary for the complete construction of the Project titled

Cleveland Community College – Student Affairs Renovation

All work of this Project shall comply with the International Building Code with North Carolina Amendments.

B. Work Done by Owner: The Owner will furnish and install the following work, generally. This itemization is not totally inclusive.

1. Furniture
2. Data cabling
3. Access control cabling
4. Disconnection of existing cabling from the rack
5. Toilet accessories

C. Work Furnished by Owner and Installed by General Contractor:

1. TV and monitors
2. Kitchen appliances

D. Testing:

1. The Owner will employ an independent testing laboratory for testing required by these Specifications. The Contractor shall notify the testing laboratory a minimum of 24 hours in advance of performing work requiring specified testing.
2. If proper notice is not given to the testing laboratory prior to beginning work, the Contractor shall cease such work until the laboratory can properly staff the Project.
3. If the testing laboratory, after having been given the proper 24-hour notice, fails to arrive at the site at the scheduled time, the Contractor shall immediately contact the Architect for further instructions. Do not begin work to be tested prior to discussing the absence of the testing lab with the Architect.

1.3 SINGLE PRIME CONTRACT:

A. The Owner will execute a single agreement with the successful General Contractor Bidder only and his work will include general construction, plumbing, HVAC, electrical, and all other work required by the Contract Documents.

END OF SECTION

SECTION 01 12 00
OWNER OCCUPANCY DURING CONSTRUCTION

1.1 OWNER OCCUPANCY DURING CONSTRUCTION:

A. The Owner will occupy the building and the rest of the third floor while the work is being done.

B. The Contractor is to coordinate with the Owner and provide temporary protection and incorporate work procedures and schedules as required to minimize disruption to the Owner such that his normal activities can continue without interruption.

C. See Section 02 22 10 Selective Demolition. Requirements included in that Section regarding Owner occupancy during construction shall be applicable to new construction as well as selective demolition.

END OF SECTION

SECTION 01 20 00
ALTERNATES

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements governing alternates, allowances, and unit prices.

1.3 BID ALTERNATES:

A. Definition: A bid alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that will be added to or deducted from the Base Bid amount if the Owner decides to accept the Bid Alternate.

B. Bidders are required to submit bid alternate prices in the spaces provided on the Bid Form for Bid Alternates listed below. Each proposal shall state in the space provided on the Bid Form the lump sum amount, which includes all necessary material, plus the cost for delivery, installation, insurance, overhead, profit, applicable taxes, and all other expenses associated with the work. This price will be added to or deducted from the Base Bid for each of the items of alternate construction described below if such alternate is accepted by the Owner.

C. It is intended that each separate Bid Alternate shall be completely independent of each other Bid Alternate.

D. Bid Alternates: (Note that the word provide shall mean to furnish and install.)

Note: In area shown on Sheet AD 1.02 to receive work above ceiling only, the base bid includes removing the existing ceiling grid and ceiling tile without damage, storing the materials during work above ceiling, and reinstalling existing ceiling grid and ceiling tile without damage. Replacement of ceiling tiles damaged during removal and reinstallation is also included in the base bid. When reinstalling old vs new ceiling tiles, keep like with like in rooms and view sheds for aesthetic reasons.

1. **Add Alternate No. 1: Replace all ceiling tile in existing grid in area shown on Sheet AD 1.02 to receive work above ceiling only.**

2. **Add Alternate No. 2: Replace all ceiling grid and ceiling tile in area shown on Sheet AD 1.02 to receive work above ceiling only.**

END OF SECTION

SECTION 01 31 00
PROJECT MEETINGS

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section specifies administrative and procedural requirements for project meetings, including but not limited to, the following:

- Preconstruction Conference
- Preinstallation Meetings
- Project Construction Meetings

1.3 PRECONSTRUCTION CONFERENCE:

A. Shortly after the notification of an award for the construction of this Project, the Owner will schedule a Preconstruction Conference. This conference shall be attended by representatives of the Successful Contractor and major subcontractors.

B. The Architect and his Consultants will be represented at this meeting along with the Owner's and Architect's field representatives.

C. The purpose of this meeting will be to introduce the various personnel to be involved in the construction and to review the various scheduling and Project requirements.

D. The General Contractor shall present a Contractor’s Construction Schedule for the entire Project including all major phases of construction for review by the Architect and Owner during this meeting.

E. The General Contractor shall submit a list of dates anticipated for the installation of "Owner-Furnished/Contractor-Installed" materials and equipment (see Section 01 11 00), as part of the Contractor’s Construction Schedule.

1.4 PREINSTALLATION MEETINGS:

A. Preinstallation meetings will be required for all major components of the Project, including, but not limited to, concrete, masonry, windows, curtainwall, roofing, and finishes. The Contractor is to schedule meetings. Minutes are to be kept by the Contractor and distributed to all parties concerned. Architect and Engineer will be present. See individual specification sections for additional requirements.

B. Do not proceed with the installation if the meeting cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to the performance of Work and reconvene the meeting at the earliest feasible date.

1.5 PROJECT CONSTRUCTION MEETINGS:

A. During the course of construction, the Contractor shall schedule weekly meetings, to be handled by the Contractor, to review the progress of the Project. (These meetings may be waived in the early phases of construction if the Architect agrees that such a meeting is not necessary). Minutes shall be kept by the Contractor and distributed to all parties concerned.

B. During the course of construction, the Designer shall schedule and conduct Monthly Progress Meetings as described in Article 14, Paragraph d., of the General Conditions. Attendance at these meetings is mandatory for each Contractor's Superintendent and Project Manager, regardless of whether the Contractor has current work on-going. The meeting will be scheduled in coordination with the field representative from the State Construction Office.

C. The purpose of these meetings will be to review the progress of the project, problems, and decisions required (and by whom).

D. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time. Update Contractor's Construction Schedule as necessary to keep the current status of the Project available to the Owner and the Architect. Distribute updates to all parties concerned.

END OF SECTION

SECTION 01 35 50
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General product requirements.

PART 2 PRODUCTS

2.1 PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. Do not use products having any of the following characteristics:

1. Made outside the United States, its territories, Canada, or Mexico.

2. Made using or containing CFC's or HCFC's.

3. Made of wood from newly cut old-growth timber.

C. Where all other criteria are met, Contractor shall give preference to products that:

1. Are extracted, harvested, and/or manufactured closer to the location of the project.

2. Have a longer documented life span under normal use.

3. Result in less construction waste.

D. Regionally Sourced Products:

1. Overall Project Requirement: Provide materials amounting to a minimum of 20 percent of the total value of all materials (excluding plumbing, HVAC, electrical, elevators, and other equipment) that have been extracted, harvested, or recovered, as well as manufactured, within a radius of 500 miles from the project site.

E. Products with Recycled Content:

1. Overall Project Requirement: Provide products with recycled content such that the sum of post-consumer recycled content plus one-half of the post-industrial recycled content constitutes at least 20 percent of the total value of all products installed, except mechanical and electrical components.

2. Calculations: Determine percentage of post-consumer and post-industrial content separately.

a. Previously used, reused, refurbished, and salvaged products are not considered recycled.

b. Wood fabricated from timber abandoned in transit to the original mill is considered reused, not recycled.

c. Determine the percentage of recycled content of any item by dividing the weight of recycled content in the item by the total weight of all material in the item.

d. Determine the value of recycled content of each item separately, by

multiplying the content percentage by the value of the item.

F. Sustainably Harvested Wood:

1. Definition: Wood-based materials include but are not limited to structural framing, dimension lumber, flooring, wood doors, finishes, and furnishings that are permanently installed in the project. Wood and wood-based products not permanently installed in the project are not included in the definition.

2. Overall Project Requirement: Provide a minimum of 50 percent of all wood-based materials made of sustainably harvested wood.

3. Certification: Provide wood certified or labeled by an organization accredited by The Forest Stewardship Council.

G. Urea-Formaldehyde Prohibition:

1. Overall Project Requirement: Provide composite wood and agrifiber products having no added urea-formaldehyde resins.

a. Require each installer to certify compliance and submit product data showing product content.

H. Flooring Systems:

1. Flooring elements installed in the interior of the building must meet the testing and product requirements of CAL (VOC).

a. Require each installer to certify compliance and submit product data showing product content.

I. Adhesives and Joint Sealants:

1. Definition: This provision applies to gunnable, trowelable, and liquid-applied adhesives, sealants, and sealant primers used anywhere on the interior of the building inside the weather barrier, including duct sealers.

2. Provide only products having lower volatile organic compound (VOC) content then required by South Coast Air Quality Management District Rule No.1168.

a. Require each installer to certify compliance and submit product data showing product content.

J. Aerosol Adhesives:

1. Provide only products having a lower volatile organic compound (VOC) content than required by GreenSeal GS-36.

a. Require each installer to certify compliance and submit product data showing product content.

K. Paints and Coatings - Volatile Organic Compound (VOC) Content:

1. Provide paints, coatings, and primers applied to interior walls and ceilings that do not exceed the VOC limitations established in Green Seal Standard GS-11:

a. Flats: 50 g/L, maximum.

b. Nonflats: 150 g/L, maximum.

2. Provide anti-corrosive and anti-rust paints applied to interior ferrous metal substrates that do not exceed the VOC limitations established by Green Seal Standard GC-03:

   a. Opaque, High Gloss: 150 g/L, maximum.

3. Provide clear wood finishes, floor coatings, stains, and shellacs applied to interior elements that do not exceed the VOC limitations established in South Coast Air Quality Management District (SCAQMD) Rule No. 1113:

   a. Clear Wood Finishes: Varnish: 350 g/L, maximum, Lacquer: 550 g/L, maximum.

   b. Floor Coatings: 100 g/L, maximum.

   c. Shellacs: Clear: 730 g/L, maximum, Pigmented: 550 g/L, maximum.

   d. Sealers: Waterproofing Sealers: 250 g/L, maximum, Sanding Sealers: 275 g/L, maximum; All Other Sealers: 200 g/L, maximum.

   e. Stains: 250 g/L, maximum.

4. Comply with architectural coatings VOC limits of the State of North Carolina, if more stringent than requirements specified above.

5. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

L. VOC Limits Throughout:

1. Wood Glues: 30 g/L.
2. Metal to Metal Adhesives: 30 g/L.
3. Adhesives for Porous Materials (Except Wood): 50 g/L.
4. Subfloor Adhesives: 50 g/L.
5. Plastic Foam Adhesives: 50 g/L.
6. Carpet Adhesives: 50 g/L.
7. Carpet Pad Adhesives: 50 g/L.
8. VCT and Asphalt Tile Adhesives: 50 g/L.
9. Cove Base Adhesives: 50 g/L.
10. Gypsum Board and Panel Adhesives: 50 g/L.
11. Rubber Floor Adhesives: 60 g/L.
12. Ceramic Tile Adhesives: 65 g/L.
13. Multipurpose Construction Adhesives: 70 g/L.
14. Fiberglass Adhesives: 80 g/L.
15. Contact Adhesive: 80 g/L.
16. Structural Glazing Adhesives: 100 g/L.
17. Wood Flooring Adhesive: 100 g/L.
18. Structural Wood Member Adhesive: 140 g/L.
19. Special Purpose Contact Adhesive (contact adhesive that is used to bond melamine covered board, metal, unsupported vinyl, Teflon, ultra-high molecular weight polyethylene, rubber, or wood veneer 1/16 inch or less in thickness to any surface): 250 g/L.
20. Top and Trim Adhesive: 250 g/L.
21. Plastic Cement Welding Compounds: 250 g/L.
22. ABS Welding Compounds: 325 g/L.
23. CPVC Welding Compounds: 490 g/L.
24. PVC Welding Compounds: 510 g/L.
25. Adhesive Primer for Plastic: 550 g/L.

26. Sheet Applied Rubber Lining Adhesive: 850 g/L.
27. Aerosol Adhesive, General Purpose Mist Spray: 65 percent by weight.
28. Aerosol Adhesive, General Purpose Web Spray: 55 percent by weight.
29. Special Purpose Aerosol Adhesive (All Types): 70 percent by weight.
30. Other Adhesives: 250 g/L.
31. Architectural Sealants: 250 g/L.
32. Nonmembrane Roof Sealants: 300 g/L.
33. Single-Ply Roof Membrane Sealants: 450 g/L.
34. Other Sealants: 420 g/L.
35. Sealant Primers for Nonporous Substrates: 250 g/L.
36. Sealant Primers for Porous Substrates: 775 g/L.
37. Modified Bituminous Sealant Primers: 500 g/L.
38. Other Sealant Primers: 750 g/L.

39. Flat Paints, Coatings, and Primers: VOC not more than 50 g/L.
40. Nonflat Paints, Coatings, and Primers: VOC not more than 50 g/L.
41. Anticorrosive and Antirust Paint Applied to Ferrous Metals: VOC not more than 100 g/L.
42. Clear Wood Finishes, Varnishes: VOC not more than 275 g/L.
43. Clear Wood Finishes, Lacquers: VOC not more than 275 g/L.
44. Floor Coatings: VOC not more than 50 g/L.
45. Shellacs, Clear: VOC not more than 730 g/L.
46. Shellacs, Pigmented: VOC not more than 550 g/L.
47. Stains: VOC not more than 100 g/L.

2.2 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

PART 3 EXECUTION

3.1 OWNER-SUPPLIED PRODUCTS

A. See Section 01 11 00 - Summary for identification of Owner-supplied products.

B. Owner's Responsibilities:

1. Arrange and pay for product delivery to the site.

2. Submit claims for transportation damage and replace damaged, defective, or deficient items.

C. Contractor's Responsibilities:

1. Receive and unload products at the site; inspect for completeness or damage port any damage to Owner.

2. Handle, store, install, and finish products.

3. Provide installation inspections where required by the manufacturer.

4. Repair or replace items damaged after receipt.

END OF SECTION

SECTION 01 42 00
REFERENCE STANDARDS & LAYOUT WORK

1.1 REFERENCE TO INDUSTRY STANDARDS:

A. Whenever reference is made to codes, standard specifications, or other data published by regulating agencies or accepted organizations, it shall be understood that such reference is made to the latest edition (including addenda) published prior to the date of the Contract Documents, except as noted specifically otherwise by date in the Contract Documents.

B. Requirements included in referenced standards are included in the Contract Documents by reference thereto and are an integral part of the Contract Documents as much so as if included verbatim.

C. Among those frequently used in the Contract Documents are the following (with the respective abbreviations used):

- American Society for Testing and Materials (ASTM)
- U. S. Department of Commerce
- Commercial Standards (CS)
- Product Standards (PS)
- Federal Specifications (FS)
- American National Standards Institute (ANSI)
- National Electric Code (NEC)
- North Carolina State Building Code (Code)
- Underwriter's Laboratories Inc. (UL)
- Architectural Woodwork Institute (AWI)
- American Architectural Manufacturer's Association (AAMA)
- American Concrete Institute (ACI)
- American Iron and Steel Institute (AISI)
- American Welding Society (AWS)
- Prestressed Concrete Institute (PCI)
- Steel Joist Institute (SJI)
- Steel Deck Institute (SDI)

1.2 LAYOUT WORK:

A. Lines and Levels: The Owner will establish lot lines, restrictions, and a benchmark. General Contractor shall establish benchmarks in not less than 2 widely separated places. As work progresses, General Contractor shall establish benchmarks at each floor level, giving exact levels of various floors. As work progresses, General Contractor shall lay out exact location of all partitions as a guide to all trades. All other grades, lines, levels, and benchmarks shall be established and maintained by the Contract requiring them, and they shall be responsible for same.

B. Construction Tolerances:

1. Variation from Plumb: For vertical lines and surfaces of columns, walls and arises do not exceed 1/4" in 10', or 3/8" in a story height not to exceed 20', nor 1/2" in 40' or more. For external corners, expansion joints, control joints, and other conspicuous lines do not exceed 1/4" in any story or 20' maximum, nor 1/2" in 40' or more.

2. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other horizontal lines, do not exceed 1/4" in any bay of 20' maximum, nor 1/2" in 40' or more. For top surface of bearing walls do not exceed 1/8" between adjacent floor elements in 10' of 1/16" within width of a single unit.

3. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls, and partitions, do not exceed 1/2" in any bay of 20' maximum, nor 3/4" in 40' or more.

4. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4" nor plus 1/2".

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This section includes requirements for temporary facilities, including temporary utilities, support facilities, and security and protection.

1.3 DEFINITION:

A. Where the word "Contractor" is used in this Section, reference is to each Prime Contractor who has a direct contract with the Owner. Where "General Contractor" is used, reference is to the General Contractor only.

1.4 TEMPORARY UTILITIES:

A. Water Service: The General Contractor shall make the necessary arrangements and provide all water service and distribution piping of sizes and pressures adequate for the entire construction period.

B. Electric Power Service: The General Contractor shall make the necessary arrangements and provide all temporary electric service and lighting required by all trades during the entire construction period. The metered cost of electricity used shall be borne by the General Contractor.

C. Weather Protection, Temporary Heat, Ventilation, and Air Conditioning:

1. Extent: The General Contractor shall provide all-weather protection, temporary heat or cooling and fuel as necessary to carry on the work expeditiously during inclement weather, to protect all work and materials against injury from dampness and cold, to dry out the building and to provide suitable working conditions for the installation and curing of materials until final acceptance by the Owner. Unless otherwise required in the various Specification Sections, building interiors shall be maintained between 45° F. and 85° F. during installation of interior finish work.

2. Methods: The methods of heating or cooling and the type of fuel and equipment used shall be subject to approval by the Architect. After the building is completely enclosed, the General Contractor may utilize the permanent mechanical equipment with the qualifications herein stipulated; he shall, however, supply any additional equipment required. Any permanent equipment so used shall be turned over to the Owner in the condition and at the time required by the Specifications. The General Contractor's use of permanent equipment is hereby qualified as follows:

a. Permanent Equipment: The permanent equipment shall not be used for temporary heat or cooling unless and until all safety devices specified or required for the safe operation of the equipment are installed and operating properly.

b. Cost: The General Contractor shall pay all power and fuel costs required by the use of the permanent heating and cooling equipment. However, the HVAC Contractor shall be responsible for the readiness and maintenance

of the equipment during the period that it is used after the building is enclosed.

c. In using permanent equipment, the HVAC Contractor shall provide filters (in addition to filters required with equipment) at all points where air enters the system. Maintain such filters until the building is occupied. Failure to do so will result in the Owner employing an independent cleaning company to vacuum all supply and return ductwork and to clean all cooling and heating equipment. The cost of such a cleaning operation will be charged to the HVAC Contractor at no cost to the Owner.

d. In the event that the Contractor does use mechanical equipment provided under the Contract for heating and cooling purposes during the construction period, **the Contractor will still be required to provide the guarantees shown on Mechanical Drawings, for the length of time specified and with the time beginning at substantial completion of the facility.**

D. Temporary Toilet Facilities:

1. General Contractor shall provide and maintain an adequate number of temporary toilets with proper enclosures as necessary for use of all trades during construction. The location of the toilets shall be subject to approval of the Architect. Keep toilets clean and comply with all local and state health requirements and sanitary regulations.

2. Toilet facilities shall be the prefabricated chemical type. Remove temporary toilets at the completion of the work.

3. The toilet facilities in the buildings under construction or other existing buildings of the Owner shall not be used by the Contractor's personnel at any time.

1.5 SUPPORT FACILITIES:

A. Contractor's Temporary Field Office: General Contractor shall provide and maintain a suitable temporary field office at the Project Site for his own use and available to the Owner and Architect during normal working hours.

1. The office shall be painted, heated during cold weather, and provided with movable windows, doors, locks, and adequate lighting to facilitate reading of the documents and other paperwork and other functions normally required in a field office. Provide layout tables, chairs, drawing racks and other furniture and equipment normally required for this purpose.

2. Other Prime Contractors having a Contract with the Owner shall provide their own office or shall make arrangements with the General Contractor to provide office space for them.

3. The location of the temporary office shall be subject to approval by the Architect.

B. Temporary Sheds: The Contractor shall provide and maintain additional storage sheds and other temporary buildings, or trailers as required for proper storage of materials on the site. The location of sheds and trailers shall be subject to the approval of the Architect. Remove sheds when work is completed.

C. Project Sign: General Contractor shall furnish, erect and maintain a Project sign fabricated from preservative-treated lumber and exterior grade, 3/4" thick fir plywood, and as detailed on the Drawings.

1. The sign shall be mounted securely and rigidly on pressure-treated posts and shall be located where directed by the Architect.

2. No other signs will be allowed unless specifically approved by the Architect.

D. Temporary Construction Fence: Contractor is to provide a temporary galvanized chain link fence, minimum of 6'-0" height, with all required gates, locks and other components as necessary to isolate the construction area from the Owner's personnel and the general public and to provide security for construction materials and equipment.

1.6 PROTECTION: Protection shall consist (in general) of the following:

A. Plant Material: The Contractor shall protect all trees, shrubs, lawns, and all landscape work from damage, providing guards and covering. Any damaged work shall be repaired or replaced at Contractor's expense.

B. Streets and Walks: The Contractor shall protect all existing streets and walks and shall repair any damage during construction at his own expense.

C. Private Roads and Walks: The Contractor shall protect existing private roads and walks. He shall maintain them during course of work and shall repair all damages to same at his own expense.

D. Safety: The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work.

E. Heating Occupied Spaces Prior to Final Acceptance: Should a portion of the building be occupied by the Owner prior to substantial completion, the cost of fuel and operation of the heating system for the occupied portion will be borne by the Owner from time of occupancy until final acceptance.

F. Fire: Open fires will not be permitted.

END OF SECTION

SECTION 01 73 00
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for cutting and patching.

B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching.

C. Requirements of this Section apply to mechanical and electrical installation. Refer to Division 23 and Division 26 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

D. Contractor shall be responsible for the following, but not limited to, cutting, fitting, and patching requirements:

1. Make parts fit together properly, including interfaces with existing building elements.

2. Uncovering portions of the Work to provide for the installation of ill-timed work including inspections as required.

3. Removing and replacing work not conforming to requirements of Contract Documents.

4. Removing and replacing defective work.

5. Removing samples of installed work as specified for testing.

1.3 SUBMITTALS:

A. Cutting and patching proposal:

1. Submit a written proposal to the Architect at least ten days in advance of performing any cutting or alterations which affects the following:

a. Work of Owner or any separate contract.

b. Structural elements of the project.

c. Life expectancy, maintenance, efficiency or safety of operational elements.

d. Aesthetic qualities of visually exposed elements.

2. Include the following information in proposal:

a. Identification of Project.

b. Description of affected work.

c. The extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.

d. Anticipated results in terms of changes to construction, including changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.

e. Products proposed for use.

f. Firms or entities that will perform the Work.

g. Utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.

h. Alternative methods, if applicable.

i. Cost proposal, when applicable.

j. The written permission of any separate Contractors whose work will be affected.

k. Dates and times when cutting and patching work are to be performed.

3. Should conditions of the work or the schedule indicate a change of products from the original installation, the Contractor shall submit a request.

B. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Use materials identical to original installed materials. If identical materials cannot be used where exposed surfaces are involved, use materials that match original adjacent surfaces to the fullest extent possible with regard to the visual effect. Use materials whose installed performance will equal or surpass that of original materials installed. Comply with specification sections for type of work to be performed.

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Examine project conditions and surfaces to receive work including elements subject to damage or movement during cutting and patching operations. Take corrective action if unsafe or unsatisfactory conditions are encountered before proceeding with work.

B. Inspect conditions affecting the installation of products or performance of the work after uncovering or removal of work.

C. Inspect structural support elements that are concealed and exposed after removal for repairs or patching, for indications of loss of structural integrity, rot, rust, corrosion, or other similar conditions. Notify Architect if additional work or corrective measures are required.

D. Report unsatisfactory or questionable conditions to Architect in writing. Do not proceed with work until Architect has provided further instructions.

3.2 PREPARATION:

A. Temporary supports: Provide adequate temporary supports for work to be cut and, as necessary, to ensure the structural integrity of the affected portion of the work. Install temporary supports so as not to damage the work installed or existing construction.

B. Protection:

1. Protect adjacent construction during cutting and patching work to prevent damage.

2. Provide materials, devices, and methods as required to protect workers and adjacent surfaces.

3. Protect portions of the work exposed to the elements which may be exposed by cutting and patching work.

4. Maintain excavations free from water.

C. Avoid interference with the use of adjoining areas or interruption of free passage to adjoining areas.

D. Take precautions necessary to avoid cutting pipes, conduits, or ductwork serving the building including those scheduled to be removed or relocated until provisions have been made to bypass them.

3.3 WORKMANSHIP:

A. Employ skilled workmen to perform cutting and patching work.

B. Retain original installers or fabricators to the greatest extent possible to perform cutting and patching work for the following:

1. Waterproofed or moisture-resistant elements.

2. Visually exposed finished surfaces.

C. Perform demolition and cutting work by methods that will not damage adjacent construction and will provide proper surfaces for patching work.

D. Perform installation, fitting and adjustment of products to comply with the manufacturer's product data, its intended functions, specified tolerances and finishes.

E. Restore work which has been cut or removed; install new products to provide completed Work in accordance with requirements of Contract Documents.

F. Fit work tight around pipes, sleeves, ducts, conduits, and other penetrations through non-rated construction. Firestop penetrations using approved materials to cut-off and conceal draft openings in compliance with governing building codes.

G. Where cutting and patching is required on work of fire-resistive construction, perform work so as not to alter the fire-resistive integrity of the construction. Penetrations required through fire-resistive construction shall be fire stopped using a Through-Penetration Firestop System, Classified by Underwriters Laboratories or Factory Mutual Approved, tested in accordance with ASTM E814-88 and complying with requirements of the governing building

code. Obtain required inspections and approval of local building officials prior to covering or concealing the work performed.

H. Refinish surfaces to provide an even, uniform finish to match adjacent finishes and as follows:

1. For continuous surfaces: Refinish to the nearest intersection.

2. For an assembly: Refinish the entire unit.

3.4 CUTTING:

A. Perform cutting using methods least likely to damage elements to be retained on adjoining construction. Where possible review proposed procedures with the original installer; comply with original installer's recommendation.

B. Use hand or small power tools designed for sawing and grinding, not hammering and chopping, where cutting is required.

C. Cut holes and slots neat to sizes required with minimum disturbance to adjacent surfaces. Temporarily cover the opening when not in use.

D. Avoid marring finished surfaces, cut or drill from exposed or finished side into concealed surfaces.

E. Perform cutting through concrete or masonry using cutting machines designed for this purpose such as carborundum saws or diamond core drills.

F. Where utility services are required to be removed, relocated or abandoned, by-pass services such as pipes or conduits before cutting.

1. Cut-off pipes or conduits in walls or partitions to be removed.

2. Cap, valve, or plug and seal the remaining portion of the pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

3.5 PATCHING:

A. Patch with durable seams that are as invisible as possible.

B. Where possible, inspect and test patched areas to demonstrate the integrity of installation.

C. Restore exposed finishes of patched areas and areas extending into adjoining construction, including damaged surfaces and finishes, in a manner that will be indistinguishable in the finished work.

3.6 CLEANING:

A. Clean areas and spaces where cutting and patching is performed or used as access.

B. Remove excess paint mortar, oils, putty, and items of similar nature from patched work.

C. Clean pipes, conduits, and similar items before painting or other finishing is applied.

D. Restore damaged pipe covering to its original condition.

END OF SECTION

SECTION 01 78 00
CONTRACT/ PROJECT CLOSE-OUT

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for Project close-out including, but not limited to, the following:

- Inspection procedures
- Project record documents
- Operation and maintenance manuals
- Guarantees and warranties
- Affidavits
- Construction Completion Documentation
- Quantity allowances and cash allowances

1.3 INSPECTION PROCEDURES FOR SUBSTANTIAL COMPLETION AND FINAL COMPLETION:

A. Follow procedures as specified in Article 25 of the General Conditions.

1.4 RECORD DOCUMENTS:

A. Record Contract Drawings: Maintain and submit to Architect a clean, undamaged set of record Contract Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings

B. Record Shop Drawings: Maintain and submit to Architect a clean, undamaged set of record Shop Drawings. Mark the Shop Drawings to show the actual installation where the installation varies substantially from the Work as originally shown. Record a cross-reference at the corresponding location on the Contract Drawings.

C. Record Specifications: Maintain and submit to Architect one complete copy of the Project Manual, including addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction. Mark these Documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and Modifications.

D. Record Product Data: Maintain and submit to Architect one copy of each Product Data submittal. Note related Change Orders or any other modifications issued during construction. Mark these Documents to show significant variations in actual Work performed in comparison with information submitted.

E. Record Submittals: Maintain and submit to Architect one copy of all approved submittals.

1.5 OPERATION AND MAINTENANCE MANUALS:

A. Each Prime Contractor shall submit to Architect before final acceptance of the Project, 2 copies (except where required specifically otherwise elsewhere in the Contract Documents) of all installation, operating, and maintenance instructions on equipment and materials furnished under his Contract. Each set of copies shall be bound in a 3-ring loose-leaf binder

for 8 1/2" x 11" paper, with black vinyl covers. Label binder designating name of Project, name of Owner, which Prime Contract, and name of Prime Contractor.

B. The following is a list of Operation and Maintenance Manuals required to be delivered to the Architect for the Owner prior to final payment. The Contractor will be required to provide all operation and maintenance manuals specified in Divisions 1 through 33 of these Specifications, even if inadvertently left off of this list.

Operation and Maintenance Manuals:

1. Kitchen appliances
2. HVAC equipment
3. Electrical equipment
4. Plumbing equipment

1.6 GUARANTEES AND WARRANTIES:

A. Each Prime Contractor shall submit to Architect for the Owner before final acceptance 2 copies of all warranties, guarantees, and surety bonds on the work, as required under his contract. All such documents shall show name of Project, location, and name of Owner. All guarantees and warranties will begin at time of substantial completion.

B. Specific guarantees and warranties (in addition to the general 12-month warranty on the entire Project) include, but are not limited to, those listed below. The Contractor will be required to provide all guarantees and warranties specified in Divisions 1 through 33 of these Specifications, even if inadvertently left off of this list.

Guarantees and Warranties

1. Sealants.
2. Wood doors.
3. Carpet.
4. Kitchen appliances
5. See Drawings for guarantee requirements for mechanical and electrical work.

C. Equipment identification: Submit, in duplicate, diagram/ ledger/code for identifying the following:

1. HVAC major components.
2. Electrical switchgear.
3. Electrical panels and circuits.

1.7 AFFIDAVITS:

A. Submit to the Architect the following affidavits, in duplicate, properly executed:

1.	AIA G 706	Contractor's Affidavit of Payment of Debts and Claims.
2.	AIA G 706A	Contractor's Affidavit of Release of Liens.
3.	AIA G 707	Consent of Surety to Final Payment

1.8 QUANTITY ALLOWANCES AND CASH ALLOWANCES:

A. See Section 01 20 00 for quantity allowances and cash allowances included in the Contract.

B. Compare actual quantities and amounts versus the specified allowances and verify that the proper adjustments have been made by execution of change orders.

1.9 CERTIFICATE OF COMPLIANCE:

A. After completion of the installation, but prior to Substantial Completion of Project, submit statement of certification for all materials and equipment as specified in Division 2 through 33.

B. The certification shall be made only by the Owner, a Partner or a Corporate Officer, or other people duly authorized to sign binding agreements for the Contractor.

C. The certification shall be accompanied by a notarized letter of authorization from the Contractor naming the person duly authorized to sign for the Contractor.

D. The certification shall be on Contractor's letterhead and include the following information:

1. The undersigned hereby certifies that the installation of all materials/equipment complies in all respects, except as noted, with the requirements of the Contract Documents for (project name and location)

1.10 ASBESTOS AND POLYCHLORINATED BIPHENYLS (PCB) FREE CERTIFICATION:

A. After completion of the installation, but prior to Substantial Completion of Project, submit asbestos and polychlorinated biphenyls free certification for all materials and equipment as specified in Division 2 through 33.

B. The certification shall be made only by the Owner, a Partner or a Corporate Officer, or other people duly authorized to sign binding agreements for the Contractor.

C. The certification shall be accompanied by a notarized letter of authorization from the Contractor naming the person duly authorized to sign for the Contractor.

D. The certification shall be on Contractor's letterhead and include the following information:

The undersigned hereby certifies that all products and materials installed, and processes used, do not contain any asbestos or polychlorinated biphenyls (PCB).

(Contractor's Name) _____

Signed: _____

(Printed Name) _____

Position: _____

Date: _____

1.11 CONSTRUCTION COMPLETION DOCUMENTATION:

A. Contractor to submit to Architect, in duplicate, the following documentation:

- Contractor's Affidavit of Release of Liens (per Section 316 - N.C. Construction Manual or AIA G706 A)
- Contractor's Affidavit of Payment of Debts and Claims (per Section 317 - N.C. Construction Manual or AIA G706)
- Consent of Surety Company to Final Payment (per Section 318 - N.C. Construction Manual or AIA G707.)
- Builder's Risk Insurance Cancellation Notice

- Warranties, Guarantees, Equipment Identification & Manuals of Operating Instructions (as required by Divisions 1 through 33 of these Specifications)
- Original Record Contract Drawings and Record Shop Drawings (per Section 206.1 N.C. Construction Manual)

1.12 OTHER SUBMITTALS: Comply with submittal requirements specified in other Sections and parts of the Project Manual.

END OF SECTION

SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 DESCRIPTION OF WORK:

A. The extent of selective demolition work is indicated on the Drawings.

B. Types of Selective Demolition Work: Demolition requires the selective removal and subsequent offsite disposal of the following:

1. Portions of building structure indicated on the Drawings and as required to accommodate new construction.

2. Removal of interior partitions and other construction as indicated on the Drawings.

3. Removal of other items shown on the Drawings.

4. Removal of materials and items as required in order to properly install the new construction.

C. Removal Work Specified Elsewhere:

1. Cutting nonstructural floors and walls for piping, ducts, and conduit is included with the work of the respective mechanical and electrical sheets of the Drawings.

D. Related Work Specified Elsewhere:

1. Remodeling construction work and patching is included within the respective sections of specifications, including removal of materials for reuse and incorporated into remodeling or new construction.

2. Relocation of pipes, conduits, ducts, other mechanical and electrical work is specified by respective trades.

1.3 SUBMITTALS:

A. Progress Schedule: The Contractor's Progress Schedule is to show clearly the sequence of work, including dates for the beginning and ending of each sequence of work. The progress schedule is to be updated monthly and submitted with each payment request. The sequence of demolition work is to be included and shown on the Progress Schedule. Include coordination for shut-off, capping, and continuation of utility services as required, together with details for dust and noise control protection.

B. Provide a detailed sequence of demolition and removal work to ensure the uninterrupted progress of the Owner's on-site operations.

C. Coordinate with Owner's continuing occupation of portions of the existing building.

1.4 JOB CONDITIONS:

A. Occupancy: The Owner will be continuously occupying areas of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities which will severely impact Owner's normal operations.

B. Condition of Structures: The Owner assumes no responsibility for actual condition of items or structures to be demolished.

1. Conditions existing at the time of commencement of contract will be maintained by the Owner insofar as practicable. However, variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

C. Partial Demolition and Removal: Items indicated to be removed but of salvable value to the Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.

1. Storage or sale of removed items on-site will not be permitted.

D. Protections: Provide temporary barricades and other forms of protection as required to protect the Owner's personnel and general public from injury due to selective demolition work.

1. Provide protective measures as required to provide free and safe passage of Owner's personnel and the general public to and from occupied portions of building.

2. Provide shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished, and adjacent facilities or work to remain.

3. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.

4. Protect floors with suitable coverings when necessary.

5. Construct temporary solid dustproof partitions were required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks if required.

6. Provide temporary weather protection during the interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.

7. Remove protections at the completion of work.

E. Damages: Promptly repair damages caused to adjacent materials or facilities by demolition work at no cost to the Owner.

F. Traffic: Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

1. Do not close, block or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

G. Explosives: The use of explosives will not be permitted.

H. Utility Services: Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations.

1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

I. Environmental Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in the air to lowest practical level. Comply with governing regulations pertaining to environmental protection.

PART 2: (Not Applicable)

PART 3: EXECUTION

3.1 INSPECTION:

A. Prior to the commencement of selective demolition work, inspect areas in which work will be performed. Photograph existing conditions to structure, surfaces, equipment or surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Architect prior to starting work.

3.2 PREPARATION:

A. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement or collapse of structures to be demolished and adjacent facilities to remain.

1. Cease operations and notify the Architect immediately if the safety of the structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

B. Cover and protect furniture, equipment, and fixtures to remain from soiling or damage when demolition work is performed in rooms or areas from which such items have not been removed.

C. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.

1. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dust-proof partitions of minimum 4" studs, 5/8" drywall (joints taped) on occupied side, 1/2" fire-retardant plywood on demolition side, and fill partition cavity with sound-deadening insulation.

2. Provide weatherproof closures for exterior openings resulting from demolition work.

D. Locate, identity, stub off, and disconnect utility services that are not indicated to remain.

1. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shut-down of service is necessary during change-over.

3.3 DEMOLITION:

A. Perform selective demolition work in a systematic manner. Use such methods as required to complete work specified herein and indicated on Drawings in accordance with the demolition schedule and governing regulations.

1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.

2. Locate demolition equipment throughout the structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors or framing.

3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.

B. If unanticipated mechanical, electrical, or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Architect in written, accurate detail. Pending receipt of directive from Architect rearranges a selective demolition schedule as necessary to continue overall job progress without delay.

3.4 SALVAGE MATERIALS:

A. The Owner will remove materials and equipment that he desires to retain prior to the beginning of construction relative to each phase of construction.

B. During construction, all materials and equipment required to be demolished and removed shall become the property of the Contractor and he shall dispose of these off-sites.

3.5 DISPOSAL OF DEMOLISHED MATERIALS:

A. Remove debris, rubbish, and other materials resulting from demolition operations from the building site. Transport and legally dispose of materials off-site.

1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

2. Burning of removed materials is not permitted on the project site.

3.6 CLEAN-UP AND REPAIR:

A. Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.

B. Repair demolition performed more than that required. Return structures and surfaces to remain to the condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

SECTION 04 06 00
MASONRY MORTAR

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

A. Related Work Specified Elsewhere:

1. Fine and course grout for block fill (Section 03 30 00)
2. Unit masonry (Section 04 20 00)

B. Work Included This Section:

1. Mortar for masonry work and related work listed above and other work requiring the use of mortar.
2. All accessory materials and labor required for proper preparation and installation of mortar.

C. Mortar Requirements Specified Elsewhere: Mortar requirements specified in this Section apply generally to other Sections which require the use of mortar. However, mortar requirements included in other Sections shall take precedence over (for work of that particular section) any conflicting requirements of this Section.

1.3 INDUSTRY STANDARDS:

A. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

- American Concrete Institute (ACI)
- American Society of Civil Engineers (ASCE)
- The American Society for Testing and Materials (ASTM)

1.4 SUBMITTALS:

A. Manufacturer's Data:

1. Submit manufacturer's printed test reports on premixed masonry/ mortar cement. Tests shall have been performed and reports prepared by an independent testing laboratory.

2. Submit manufacturer's printed technical data and mixing data for premixed masonry/ mortar cements.

3. Submit certification that the masonry/ mortar cements meet the specified requirements of ASTM C 91 or ASTM C1329.

4. Submit certification that masonry/ mortar cement meets compressive strength requirements of ASTM C270.

1.5 PRODUCT HANDLING:

A. Delivery:

1. Materials shall be delivered to the Project Site in manufacturer's original, unopened containers with manufacturer's brand name clearly marked thereon.

2. Containers shall show formulation of the mixture.

B. Storage: Store materials under cover in a dry place. Cement, lime and air-setting mortars shall be stored in watertight sheds with elevated floors. Protect cement from dampness to minimize warehouse set.

C. Aggregate: Stockpile in a manner that will prevent segregation of sizes and the inclusion of dirt and other foreign material.

1.6 QUALITY ASSURANCE:

A. Comply with ACI 530.1/ASCE 6 "Specifications for Masonry Structures" and requirements herein. In case of contradiction, the more stringent requirement shall govern. See Section 04 20 00 for additional requirements.

B. Hot and Cold-Weather Masonry Procedures: See Section 04 20 00.

C. Sand:

1. A representative sample of the job sand may be obtained and tested by an independent testing laboratory employed and paid for by the Owner.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Subject to compliance with the Drawings and Specifications, provide products by one of the following manufacturers, or equal approved in writing by the Architect:

- Lafarge Cement / Holcim Inc.
- Lehigh Cement / Heidelberg Materials
- Roanoke Cement / Titan American

B. Source: Products for use on this Project shall be of one manufacturer unless noted specifically otherwise.

2.2 MATERIALS:

A. Prepackaged Materials:

1. Cement shall be Portland Cement, Type I or II, meeting Standard Specifications for Portland Cement (ASTM C-150).

2. Hydrated Lime shall meet the requirements of the Standard Specification for Hydrated Lime for Masonry Purposes (ASTM C-207), Type S.

3. Hydraulic Hydrated Lime shall meet the requirements of the Standard Specification for Hydraulic Hydrated Lime for Structural Purposes (ASTM C-141).

4. Air Entraining Admixtures may be utilized and shall conform to ASTM C-260.

5. Accelerating Admixture:

a. Do not use any accelerating admixture without written approval of the Architect. The use of antifreeze is strictly prohibited in all cases.

b. In order for a proposed accelerating admixture to be considered by the Architect it shall comply with the following requirements:

Shall contain no calcium chloride or added chloride ions.

Shall be non-corrosive to ferrous metal.

Shall not decrease compressive strength or bond strength of the mortar.

Shall not cause efflorescence.

Shall comply with ASTM C 494, Type E.

c. Contractor shall submit with his accelerating admixture proposal a detailed description of the cold weather procedures regarding mixing and placing of mortar and protection of installed masonry that will be employed if the proposed accelerating admixture is used. These cold weather procedures shall be in accordance with the written instructions of the accelerating admixture manufacturer and shall be approved in writing by the Architect before the accelerating admixture can be used.

B. Sand shall meet the requirements of Standard Specifications for Aggregate for Masonry Mortar (ASTM C-144).

C. Water shall be potable.

2.3 PREPACKAGED MASONRY/ MORTAR CEMENTS: The masonry/ mortar cement to be used on the Project shall be in accordance with ASTM C91 or ASTM 1329 and meet the following minimum requirements.

A. Type S Mortar: The mortar made from the masonry/ mortar cement shall have a compressive strength of 1800 psi minimum at 28 days when tested in accordance with ASTM C-270, with maximum air volume of 16% and shall comply with all requirements of ASTM C 270 for Type S mortar.

B. Type N Mortar: The mortar made from the masonry/ mortar cement shall have a compressive strength of 750 psi minimum at 28 days when tested in accordance with ASTM C-270 with maximum air volume of 16% and shall comply with all requirements of ASTM C 270 for Type N mortar.

C. Instructions for mixing the mortar made from masonry/ mortar cement shall be published and accompany all shipments. The instructions shall be volumetric measurements and shall be developed to show proper proportions of sand to one (1) bag of the prepackaged masonry/ mortar cement with volume of water to produce a flow of the proper consistency.

2.4 GROUT: Shall conform to ASTM C-476.

A. Fine Grout:

1 part Portland Cement
1/10 part hydrated lime
3 parts sand

B. Coarse Grout:

1 part Portland Cement
1/10 part hydrated lime
fine aggregate in the proportion of 2 1/4 to 3 times the sum of the volumes of cement and lime
coarse aggregate in the proportion of 1 to 2 times the sum of the volumes of cement and lime

2.5 MEASUREMENT AND MIXING:

A. The method of measuring materials shall be by volume and shall be such that the specified proportions of the mortar materials can be controlled and accurately maintained. A one cubic foot measuring device to make consistent volume measurements shall be used throughout the project. Measurement of sand by shovel shall not be permitted.

B. Mortar Mixer shall be a paddle-type mechanical mixer. It shall be of such design and size to accommodate the mix without overloading and be adequately powered to vigorously mix the ingredients.

C. The mortar mixer shall be charged in this order: add approximately one-half the water required, one-half the sand, the prepackaged masonry/ mortar cement, the remaining amount of sand, and then sufficient water to bring the mix to desired consistency. Mortar shall be mixed for a minimum of five minutes after all materials have been charged into the mixer with all batches being mixed to the same consistency.

D. After mortar has been placed on the mortar board it shall be retempered by adding water only one time prior to placing. After retempering one time, if the mortar becomes too stiff it shall be discarded. Mortar shall be used and placed in its final position within 1-1/2 hours after mixing. Mortar not used within 1-1/2 hours shall be discarded.

E. Admixtures:

1. Do not use any admixtures, including, air-entraining agents, accelerators, retarders, water repellent agents, anti-freeze compounds, or other admixtures, unless expressly specified in this Section of the Specifications and approved by the Architect or Engineer.

PART 3: EXECUTION

3.1 LOCATION:

A. The Contractor shall have the option of using Type S mortar at all locations if he so chooses rather than Type S and Type N at the specified locations.

1. Type S Mortar: For structurally reinforced or load bearing masonry.

3. Type N Mortar: Except where Type S is specified.

4. Fine Grout: Use in spaces less than 2” wide. See Section 03 30 00.

5. Coarse Grout: Use in spaces 2" or more wide. See Section 03 30 00.

3.2 INSTALLATION:

A. Install as specified under Section 04 20 00 - Unit Masonry and other Sections of the Specifications.

END OF SECTION

SECTION 04 20 00
UNIT MASONRY

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

A. Related Work Specified Elsewhere:

1. Masonry mortar (Section 04 06 00).
2. Sealant work (Section 07 90 00).

B. Work Included This Section: Masonry work as shown on Drawings and as specified herein including all supplementary materials and accessories required for complete and proper installation of the work.

1.3 SINGLE LUMP SUM MASONRY SUBCONTRACT:

A. The work of this Section shall be bid and provided as a Single Lump Sum Sub-contract. Square foot/unit pricing of masonry labor and General Contractor furnished materials is not permitted.

B. The masonry subcontractor shall be a firm who specializes in masonry construction and shall furnish all materials, equipment and labor required to complete the required masonry construction for this Project.

C. The masonry subcontractor shall be bonded and shall not function as a broker but shall perform the work of this Section with its own forces. General Contractor shall provide on his letterhead (included with his bid) certification of bonding from the masonry subcontractor to be used on the Project.

D. Coordinate and provide all masonry work under the above requirements.

1.4 INDUSTRY STANDARDS:

A. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

- American Concrete Institute (ACI)
- American Society of Civil Engineers (ASCE)
- The American Society for Testing and Materials (ASTM)
- Brick Industry Association (BIA)
- National Concrete Masonry Association (NCMA)

1.5 SUBMITTALS:

A. Submit certification specified hereinafter for concrete masonry units.

B. Submit certification by a nationally recognized testing lab that the brick to be provided complies with ASTM C 216 for the grade and type specified.

C. Masonry Cleaning Submittal: High pressure water or sandblasting may not be used to clean masonry.

1.6 PRE-INSTALLATION MASONRY MEETING:

A. Prior to installation of any masonry work, the Contractor, Masonry Subcontractor, Architect, Owner and other involved subcontractors and material manufacturers or suppliers shall meet at the site. The Contractor shall schedule and conduct the meeting and shall give the Architect at least one week notice of the meeting date and time.

B. The purpose of the meeting will be to verify that all requirements of the Contract Documents will be complied with and that the facility is ready and in proper condition to receive the masonry work.

C. No masonry work is to be installed until it is assured that the work will be installed in accordance with the Contract Documents.

1.7 PRODUCT HANDLING:

A. Storage of Materials:

1. Masonry Units: Stack masonry units at site and avoid chipping. Protect masonry units from freezing and thawing. Keep masonry units covered to prevent soaking by rain.

2. Protect masonry units from wetting, staining, soiling and physical damage.

3. Reinforcement: Provide cover for reinforcement prior to use. Remove any loose rust, scale, dirt or other coatings that will reduce the bond by wire brushing prior to placement.

4. Portland cement, lime, and/or prepackaged masonry cements shall be delivered to the site and stored in unbroken bags or other approved containers. These materials shall be stored in dry, weather-tight sheds or enclosures with elevated floors, which will prevent the inclusion of foreign materials and damage by water or dampness. Masonry sand shall be delivered and stored in a manner to prevent inclusion of foreign material therein. Brick shall be delivered and stored on the job site on platforms or timbers, clear of the ground. Bricks which are chipped, cracked, broken, or marred in any other manner shall not be used where exposed to view.

1.8 ENVIRONMENTAL CONDITIONS:

A. Contractor’s hot and cold weather procedures shall comply with ACI 530.1

1.9 QUALITY ASSURANCE:

A. Unit Masonry Standard: Comply with ACI 530.1/ASCE 6 "Specifications for Masonry Structures."

B. Inspecting Laboratory Qualifications: To qualify for employment in performing tests and inspection specified in this Section, an independent laboratory must demonstrate to Architect's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM C 1093, that it has the experience and capability to conduct satisfactorily the testing indicated without delaying the progress of the work.

C. Preconstruction Testing: Owner will employ and pay an independent testing laboratory to perform the following preconstruction testing indicated as well as other inspection and

testing services required by referenced unit masonry standard or indicated for source and field quality control:

1. Concrete Masonry unit Tests: For each different concrete masonry unit indicated, units will be tested for strength, absorption, and moisture content per ASTM C 140.

3. Prism Tests: For each type of wall construction indicated, masonry prisms will be tested per ASTM C1314.

4. Mortar properties will be tested per property specifications of ASTM C 270.

5. Mortar composition and properties will be evaluated per ASTM C 780.

6. Grout compressive strength will be tested per ASTM C 1019.

D. Field Testing: As specified in Part 3 - Execution of this Section,

E. Fire Performance Characteristics: Where indicated, provide materials and construction identical to those of assemblies whose fire resistance has been determined per ASTM E 119 by a testing and inspection organization, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.

F. Single Source Responsibility of Masonry Units: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.

1.10 QUALITY CONTROL PROGRAM:

A. The General Contractor will be required to establish a quality control program regarding all masonry work on the Project and shall designate a specific employee of the Contractor to administer the program and to prepare and make the required submittals. The designated employee will be subject to approval of the Architect.

B. At a minimum, this program shall require submittal of field reports by the Contractor to the Architect. These reports shall provide daily verification of material storage, usage, installation and general observations of the masonry work.

C. Weekly, submit these daily reports to the Architect for his review and information.

PART 2: PRODUCTS

2.1 MATERIALS:

A. Colored Smooth Face CMU:

1. Manufacturer:
   (a) **High Polish by Echelon** an Old Castle Company, or equal approved in writing by Architect. Color **4302 Off-White**, if not otherwise noted in the Drawings.

2. Provide hollow load-bearing normal weight units with smooth face texture on all surfaces exposed to view. Units shall be 7 5/8" X 15 5/8" face dimensions (unless shown otherwise on the Drawings) X thickness shown. Provide special shapes where shown and where required by construction conditions.

3. All other requirements specified for split-face CMU above shall be applicable to colored smooth face CMU, except the texture of surfaces exposed to view in the completed construction.

B. Regular Concrete Masonry Units:

1. Contractor shall submit test reports by an independent testing laboratory, certifying that the block to be provided complies with all requirements of ACI 216 for the fire resistance ratings noted on the Drawings or specified in this Project Manual.

2. Contractor shall submit certification from an independent testing laboratory that the block to be provided meets the weight requirements specified hereinafter in this Section and conforms in all respects to ASTM C 90.

3. No visible moisture shall be present in the unit and linear shrinkage does not exceed 0.065% when the unit is oven dried.

4. Units shall be 2 cells except where other shapes or solid masonry units are called for. Provide special shapes as shown on Drawings or required by construction conditions.

5. Light-weight aggregate shall be expanded clay, slate or shale produced by rotary kiln process and shall comply with ASTM C 331. No cinders, bottom ash or other materials that could cause staining or pop outs shall be allowed. Normal-weight fine aggregate shall be manufactured fines such as granite screenings and shall comply with ASTM C 33. Natural sand will not be allowed. Provided that the block can meet all requirements specified herein, (including certified fire ratings and weight requirements) blending of normal-weight fine aggregate will be permitted to a maximum of 20% of the block weight. See certification submittal requirements specified in this Section.

6. Concrete masonry units shall be at least 10 days old when delivered to the job. Units shall have a minimum average compressive strength of 1900 psi and a minimum individual block compressive strength of 1700 psi, based upon average net area. Units shall have a maximum water absorption of not more than 18 lbs. per cu. ft. of concrete.

7. See Drawings for required fire ratings.

8. Integral water repellent for CMU backup for face brick in exterior walls is specified in Paragraph titled "Integral Water Repellent" hereinafter.

   a. Every concrete masonry unit containing integral water repellent shall be identified by adding an adequate amount of color pigment to the concrete mix so that the units are easily distinguished from regular CMU units both before and after laying in the wall. The particular color can be agreed upon after the block supplier for the project has been identified.

9. Units shall be provided in sizes and thicknesses shown on the Drawings. Special sizes and shapes shall be provided as indicated on the Drawings and as required by construction conditions.

C. Ground Face Concrete Masonry Units:

1. Manufacturer:
   (a) **Ground Face by Echelon** an Old Castle Company, or equal approved in writing by the Architect. Manufactured with an integral water repellent that allows for use at or below grade.

2. Ground face concrete masonry units shall conform to the requirements of local building codes and to the requirements of the following specifications of the American Society for Testing and Materials:

   - Hollow Load Bearing Concrete Masonry Units - C90
   - Solid Load Bearing Concrete Masonry Units - C145
   - Concrete Aggregates for Concrete Masonry Units - C33
   - Lightweight Aggregates for Concrete Masonry Units - C331

3. Cementitious and possolanic (or siliceous) materials, admixtures, and aggregates shall conform to all pertinent ASTM specifications.

4. The manufacturer shall supply half units, corner units, half high units, and units of special size or shape, as well as multiple grinds such as two faces, ends, or any combination of grinds, as required by the Drawings or to meet job conditions.

5. Color, surface texture and aggregate exposure shall be uniform within a normal range as represented by approved sample panel erected at the jobsite.

6. All ground face masonry units shall be sound and free of cracks or other defects that would interfere with the proper placing of the units or impair the strength or performance of the construction. Minor cracks or defects incidental to the usual method of manufacture, or minor chipping resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection except that not more than 5 percent of a shipment shall contain chips larger than 1/4" from any edge or corner on the faces.

7. All exposed faces of units shall be treated with silicone applied under pressure by the manufacturer, prior to shipment, to resist staining from masonry mortar during construction.

8. Fire Resistance Ratings: Where ground face concrete masonry units are located in fire rated walls (such as at elevator hoistway) requirements specified below for regular CMU regarding required fire ratings and certification of required fire ratings shall apply to ground face CMU.

D. Horizontal Joint Reinforcement for CMU Walls (single wythe):

1. Manufacturer:
   (a) **120 Truss-Mesh or 220 Ladder-Mesh by Hohmann & Barnard**, **Series 200 Ladder Mesh by Wire-Bond**, or equal approved in writing by the Architect.

2. Joint reinforcement shall be 10' long sections of welded wire fabric, ladder or truss type. Reinforcement shall consist of 2 deformed longitudinal wires not lighter than 9 gauge and connected by cross wires not lighter than 9 gauge at intervals of not over 16", placed between longitudinal wires in the same plane. The width of the fabric shall be such as to engage the entire wall in which it is placed so that longitudinal wires will be located in the approximate center of the outer face shell mortar bed in hollow masonry units. Prefabricated corner and intersection pieces shall be of the same construction and fabric as the main fabric.

3. Provide prefabricated tees and corners.

4. Joint reinforcement shall be hot dip galvanized per ASTM A123.

E. Mortar Net:(Provide mortar net even if not shown on the Drawings)

1. Manufacturer:
   (a) **1" MortarBreak DT by Advanced Building Products**, or equal approved in writing by the Architect.

2. Provide mortar net in the wall cavity directly above the thru-wall flashing in masonry exterior walls.

3. Mortar net is to be 1" thick by 10" height by 5' long sections and manufactured of high-density polyethylene fibers woven into a 3-dimensional grid. Mortar net dovetail shape prevents mortar droppings from forming a continuous dam, and its shape in combination with its 90% open weave configuration allows air and water rapidly and easily to move through the material of the product itself to the weep holes in the wall. Include the 5" high continuous bottom strip (of same thickness, material and construction as the mortar net) below the 5' sections of mortar net.

4. Where the wall cavity is wider than the 1" thick mortar net, fill excess space behind the mortar net with rigid insulation board of appropriate size and thickness such that the top of the insulation board is at least 6" above the top of the mortar net and the mortar net is held snug against the inside surface of the exterior wythe of masonry.

5. Installation of the mortar net, the continuous bottom strip, the rigid board insulation and other installation accessories shall be in accordance with published instructions of the mortar net manufacturer for the subject wall construction.

PART 3: EXECUTION

3.1 LAYING MASONRY:

A. Cutting of Units: Where cutting is necessary, make all cuts with a motor-driven masonry saw. Units with chips or irregular cuts will not be accepted. Should the Contractor observe variances in the color or texture of the approved decorative CMU or facing brick during installation, he shall immediately stop work and notify the Architect. Failure to follow this procedure may necessitate the removal of individual defective units or entire areas at the Contractor's expense.

B. Coursing: Masonry work is laid out on a nominal 3/8" uniformly wide joint. Work shall course vertically out as follows:

1. Concrete Masonry Units: 2 courses in 1'-4".

C. Lay masonry tight to interior door frames.

D. Laying Decorative Concrete Unit Masonry:

1. Lay work plumb, level and true to line vertically and horizontally. Lay units in half bond.

2. Head joints and bed joints shall be filled completely.

3. Blend colored units to produce a uniform appearance over wall face.

4. Cut off mortar joints flush with face of unit and compress with a tool to produce a dense, flat joint.

E. Laying Concrete Masonry Units:

1. Unless shown specifically otherwise on Drawings, lay concrete block in regular running bond.

2. Use stretcher block in a running wall. Use square end block only at control/expansion joints, openings in the wall, and other conditions that specifically require a square end block. Do not mix stretcher and square end block in a running wall.

3. Lay out work so that no piece shorter than 4" will occur. Do not "tooth" abutting walls. Stack joint and rake out for caulking.

4. Lay concrete masonry units with face shells in mortar bedding, and with full head joints, plumb, level and true to line and properly jointed with other connecting work. Units with broken cells in wall will not be permitted. Make joints uniform, approximately 3/8" wide and cut flush. Exposed face joints shall be finished with metal tool to form a concave joint and to close hair line cracks and crevices.

5. Where concrete masonry units are to receive plaster, tile or cementitious coatings, provide flush struck joints on face to receive finish.

F. Masonry Joint Reinforcement:

1. See Drawings for details of reinforcement.

2. In addition to specific requirements, place masonry horizontal joint reinforcement in every other bed joint of concrete block construction. Lap reinforcement 8" at splices and ensure that wires are side by side and not one over the other. Use factory fabricated corners and tees. Use preformed tees or reinforcement at abutting walls; do not "tooth" interior intersecting partitions.

3. Build in wire anchor retainers to columns at proper spacing to engage anchor slots.

3.2 CONSTRUCTION TOLERANCES:

A. Variation from Plumb: For vertical lines and surfaces of columns, walls and arrises do not exceed 1/4" in 10', or 3/8" in a story height not to exceed 20', nor 1/2" in 40' or more. For external corners, expansion joints, control joints and other conspicuous lines, do not exceed 1/4" in any story or 20' maximum, nor 1/2" in 40' or more. For vertical alignment of head joints do not exceed plus or minus 1/4" in 10', 1/2" maximum.

B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, do not exceed 1/4" in any bay of 20' maximum, nor 1/2" in 40' or more. For top surface of bearing walls do not exceed 1/8" between adjacent floor elements in 10' or 1/16" within width of a single unit.

C. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls and partitions, do not exceed 1/2" in any bay of 20' maximum, nor 3/4" in 40' or more.

D. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4" nor plus 1/2".

E. Variation in Mortar Joint Thickness: Do not exceed bed joint thickness indicated by more than plus or minus 1/8", with a maximum thickness limited to 1/2". Do not exceed head joint thickness indicated by more than plus or minus 1/8".

3.3 BUILT-IN WORK:

A. Consult other trades in advance and make provisions for installation of their work in order to avoid cutting and patching. Build in work specified under other Sections of the Specifications as the work progresses.

B. Set lintels in beds of mortar.

3.4 POINTING OF MASONRY:

A. At the completion of the masonry work, all holes in the exposed masonry shall be pointed. Defective joints shall be cut out and tuckpointed solidly with mortar. Pointing and tuckpointing shall be done with a pre-hydrated mortar. The mortar cement shall be controlled so that after curing of the mortar, no unacceptable difference in texture or color exists with that of adjacent masonry.

3.5 FIELD TESTING:

A. The following testing will be performed by a testing laboratory employed and paid by the Owner and is applicable to reinforced structural walls and load bearing walls only and is not applicable to non-load bearing and unreinforced walls and masonry veneer.

1. Testing Frequency: Tests and evaluations listed in this article will be performed during construction for each 5000 sq. ft. of wall area or portion thereof.

a. Mortar composition and properties will be evaluated per ASTM C 780.

b. Grout compressive strength will be sampled and tested per ASTM C 1019.

2. Prism Test Method: For each type of wall construction indicated, masonry prisms will be tested per ASTM C1314.

a. Prepare one set of prisms for testing at 7 days and one set for testing at 28 days.

3. Evaluation of Quality Control Tests: In absence of other indications of noncompliance with requirements, masonry will be considered satisfactory if results from construction quality control tests comply with minimum requirements indicated.

3.6 MASONRY CLEANING:

A. While laying the masonry, good workmanship and job housekeeping practices shall be used to minimize the need for cleaning the masonry. Protect the base of the wall from mortar droppings and protect the wall by setting scaffolds so that mortar is not deflected onto the wall. Use toe boards or plastic drapes as required.

B. The laying technique shall be such that mortar does not run down the face of the wall or smear the mortar onto the masonry face.

C. After the joints are tooled, cut off mortar tailings with the trowel and brush excess mortar burrs and dust from the face of masonry. Do not bag or sack the wall but use a masonry brush made with medium soft hair.

D. Remove all large mortar particles with a hardwood scraper.

E. No wet cleaning or sandblasting will be allowed.

F. Do not use acid, steel wool or other abrasives to clean masonry.

END OF SECTION

SECTION 05 50 00
MISCELLANEOUS METAL FABRICATIONS

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

A. Related Work Specified Elsewhere:

1. Anchors, Bolts, sleeves and supports required for installation of mechanical and electrical equipment (see Drawings).

B. Work Included This Section:

1. Work to be provided herein includes all metal fabrications expressly specified hereinafter. In addition, all miscellaneous framing, bracing, supports, and other items required for the proper conduct of the work are included under this Section even if not specifically shown on the Drawings or specified herein.

1.3 INDUSTRY STANDARDS:

A. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard reference.

- The American Society for Testing and Materials (ASTM)
- Aluminum Association (AA)
- American Iron and Steel Institute (AISI)
- American Welding Society (AWS)

1.4 SUBMITTALS:

A. Shop Drawings: Submit shop drawings for all shop fabricated work of this Section. Show layout, location, arrangement, details, sizes, materials, connections, finishes, and relation to adjacent work.

1. Provide templates for anchors and bolts specified for installation under other Sections.

B. Welding Certificates: Copies of certificates for welding procedures and personnel

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm experienced in producing metal fabrications similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

Welding: Qualify procedures and personnel according to the following:

- AWS D1.1, "Structural Welding Code--Steel."
- AWS D1.2, "Structural Welding Code--Aluminum."

- AWS D1.3, "Structural Welding Code--Sheet Steel."

Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.6 PROJECT CONDITIONS

A. Field Measurements: Where metal fabrications are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.7 COORDINATION

A. Coordinate the installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to the Project site in time for installation.

PART 2: PRODUCTS

2.1 MATERIALS: Except as required specifically otherwise elsewhere in the Contract Documents, the following material requirements shall apply to this Section:

A. Ferrous Metals:

1. Metal Surfaces, General: For fabrication of miscellaneous metalwork which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

2. Steel Plates, Shapes, and Bars: ASTM A 36.

3. Steel Bar Grating: ASTM A 569 or ASTM A 36.

4. Steel Tubing: Cold-formed, ASTM A 500; or hot-formed, ASTM A 501.

5. Steel Sheet: Hot-rolled, ASTM A 570; or cold-rolled, ASTM A 611, Class 1; of grade required for design loading.

6. Galvanized Steel Sheet: ASTM A 653, of grade required for design loading. Coating designation as indicated, or if not indicated, G90.

7. Steel Pipe: ASTM A 53; type and grade (if applicable) as selected by the fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (Schedule 40), unless otherwise indicated.

8. Gray Iron Castings: ASTM A 48, Class 30.

9. Malleable Iron Castings: ASTM A 47, grade as selected by the fabricator.

10. Brackets, Flanges, and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

11. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers, and shims as required, hot-dip galvanized, ASTM A 153.

B. Aluminum Metals:

1. For extruded aluminum, AA Alloy No. 6063-T5.

2. Fasteners for Aluminum: Use fasteners made of the same basic metal as fastened metal except use galvanized fasteners complying with ASTM A 153 for exterior aluminum units unless otherwise indicated. Do not use metals that are corrosive or incompatible with metals joined.

C. Stainless Steel:

1. Provide austenitic stainless steel in the form indicated complying with the following requirements:

   a. Tubing: ASTM A 554, Grades MT 301, MT 302, or MT 304, as standard with the manufacturer.

   b. Pipe: ASTM A 312, Grade TP 304.

   c. Castings: ASTM A 743, Grade CF 8 or CF 20.

   d. Plate: ASTM A 167, Type 301, 302, or 304.

2. Finish for all stainless steel exposed to view is to be AISI #8 polished finish.

D. Grout:

1. Non-Shrink Non-Metallic Grout: Pre-mixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with CE CRD-C621. Provide grout specifically recommended by the manufacturer for interior and exterior applications of type specified in this Section.

E. Fasteners:

1. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.

2. Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A.

3. Lag Bolts: Squarehead type, ASME B18.2.1 (ASME B18.2.3.8M).

4. Machine Screws: Cadmium plated steel, ASME B186.6 (ASME B18.6.7M).

5. Wood Screws: Flathead carbon steel, ASME B18.6.1.

6. Plain Washers: Round, carbon steel, ASME B18.22.1 (ASME B18.21.2M).

7. Masonry and Concrete Anchorage Devices: Wedge type expansion anchor such as Hilti-Kwik II, Phillips Wedge, Wej-It, or equal approved in writing by the Architect.

8. Toggle Bolts: Tumble-wing type, class, and style as required.

9. Lock Washers: Helical spring-type carbon steel, ASME B18.21.1 (ASME B18.21.2M).

F. Shop Paint:

1. Non-Galvanized Surfaces: PPG Speedhide Inhibitive Red Primer 6-208, or approved equal.

2. Galvanized Surfaces: PPG Speedhide Galvanized Steel Primer 6-209, or approved equal.

2.2 FABRICATION:

A. Work shall be well-formed to shape and size, with sharp lines and angles. Shearing and punching shall leave clean, true lines and surfaces. Weld or rivet permanent connections. Do not use screws or bolts where they can be avoided; but where used, heads shall be countersunk, screwed uptight and threads nicked to prevent loosening. Curved work shall be evenly sprung.

B. Castings shall be sound and free from warp, holes and other defects that impair their strength or appearance. Exposed surfaces shall have a smooth finish and sharp, well-defined lines and arrises. Machined joints, where required, shall be milled to a close fit. Provide necessary rabbets, lugs, and brackets so that work can be assembled in a neat, substantial manner.

C. Fastenings shall be concealed where possible. The thickness of metal, and details of assembly and supports, shall have ample strength and thickness. Joints exposed to weather shall be formed to exclude water. Provide holes and connections for the work of other trades.

D. At the proper time, deliver and set in place items of metal work to be built into adjoining construction.

2.3 WELDING:

A. All welding shall be done by experienced welders certified by an accredited testing laboratory for the welding involved in accordance with the rules of the American Welding Society.

B. All welds shall be power tool cleaned and the weld and surrounding area where the paint or galvanized coating has been burned away shall be painted with the type of paint specified hereinbefore for the galvanized or non-galvanized surface as applicable.

2.4 PAINTING AND GALVANIZING:

A. Clean metal (to receive paint) with cleaner specified under Section 09910 for use with specific metal.

B. Except as required specifically otherwise in the Contract Documents, apply primer on ferrous metalwork as specified herein.

C. Where hot-dipped galvanized or zinc-coated metal is required, it shall not be shop primed unless specifically called for, but all damaged places and weldings shall be touched up with zinc-rich primer where shop priming is not called for. Where hot-dipped galvanizing or hot-zinc coating is specified, it shall be done in accordance with the Standard Specifications of the American Hot Dip Galvanizers Association.

D. Galvanizing:

1. Hot-dip galvanizing or zinc coatings applied on fabricated steel products shall comply with ASTM A 123.

2. Galvanized surfaces for which a shop coat of paint is specified shall be chemically treated to provide a bond for the paint.

3. Vent and drain holes in items to be hot-dip galvanized shall be drilled and not burned so that holes are precise and neat. Holes that are visible and detract from the attractiveness of the installed item shall be plugged as directed by the Architect.

2.5 MISCELLANEOUS REINFORCING AND BRACING:

A. Provide miscellaneous metal shapes as detailed on Drawings for bracing and support of related work were not required specifically elsewhere in the Contract Documents.

B. Shop paint ferrous metal.

2.6 MISCELLANEOUS LINTELS:

A. Provide angle lintels where required in masonry openings not provided for on the Drawings.

B. In nonload bearing walls, provide one 3 1/2" x 4" x 5/16" for each 4" thickness of masonry for openings up to 6'-0" wide. Pairs of lintels shall be bolted or welded together. Field paint as required.

C. Lintels are to be galvanized in accordance with ASTM A 123.

2.7 METAL DOOR GRILLES:

A. See Door Schedule on Drawings for location and size.

B. Model GOV (unframed), Type V core without indents; Finish No. 8 (baked medium birch tan enamel); as mfd. by Barber-Colman Co., Rockford, IL.

2.8 OVERHEAD SUPPORT: For miscellaneous interior systems shall be as detailed on the Drawings including hanger and bracing devices.

PART 3: EXECUTION

3.1 PREPARATION:

A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate the delivery of such items to project site.

B. Center nosings on tread widths with noses flush with riser faces and tread surfaces.

C. Set sleeves in concrete with tops flush with finish surface elevations; protect sleeves from water and concrete entry.

3.2 INSTALLATION - GENERAL:

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners were necessary for securing miscellaneous metal fabrications to in-place construction; include

threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installation of miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.

D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

E. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance, and quality of welds made, methods used in correcting welding work, and the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.

F. Corrosion Protection: Coat concealed surfaces of aluminum that will meet grout, concrete, masonry, wood or dissimilar metals with a heavy coat of bituminous paint or zinc chromate primer.

3.3 SETTING LOOSE PLATES:

A. Clean concrete and masonry bearing surfaces of any bond-reducing materials, and roughen to improve bond to surfaces. The clean bottom surface of bearing plates.

B. Set loose leveling and bearing plates on wedges, or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.

1. Use metallic nonshrink grout in concealed locations where not exposed to moisture; use nonmetallic nonshrink grout in exposed locations, unless otherwise indicated.

2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 ADJUSTING AND CLEANING:

A. Touch-Up Painting: Cleaning and touch-up painting of field welds, bolted connections, and abraded areas of the shop painted on miscellaneous metal are specified in Division 9 Section PAINTING of these Specifications.

B. For galvanized surfaces, clean welds bolted connections and abraded areas and apply galvanizing repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

A. Related Work Specified Elsewhere:

1. Architectural woodwork (Section 06 40 00).

B. Work Included This Section:

1. Rough carpentry work as shown on Drawings and as specified herein. Include wood nailers, blocking, furring, grounds, sheathing, rough hardware, framing, shoring, bracing, scaffolding, and barriers required for installation of the work shown on the Drawings.

2. Rough carpentry work generally includes carpentry work provided on the job that is concealed from view in the completed work.

1.3 SUBMITTALS:

A. Certificates:

1. Submit certificates from applicator of preservative treatment, stating the type of treatment, manufacturer of treating chemical material, degree of treatment of wood members processed for this Project. A certificate shall be signed by an officer of the company.

2. Submit certificates certifying that flame spread, fuel contributed and smoke developed rating of the fire retardant treated wood meets or is below limits required by applicable codes and requirements of this Section. Include manufacturer's literature describing the type of treatment, manufacturer, and description of treating chemical material and degree of treatment of wood members processed for this Project.

1.4 PRODUCT HANDLING:

A. Materials that are delivered to the Project Site in a wet condition shall be rejected, removed from the Project Site, and replaced with new and dry materials without additional cost to the Owner. Stack materials in dry storage that furnish proper ventilation, drainage, and protection from the elements. Stack in such a way that it will prevent warpage.

B. See moisture content requirements hereinafter.

1.5 INDUSTRY STANDARDS:

A. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard reference.

- American Lumber Standards Committee (ALSC)
- American Plywood Association (APA)
- American Wood Preservative Association (AWPA)
- Underwriter's Laboratories Inc. (UL)
- U. S. Department of Commerce
- Product Standards (PS)

PART 2: PRODUCTS

2.1 MATERIALS:

A. Moisture Content: Solid wood and plywood preservative-treated and fire retardant treated shall be dried to a maximum moisture content of 19%. Untreated solid wood and plywood shall also be dried to a maximum moisture content of 19%.

B. Grade and Trademark: Grade and trademark shall be on each piece of lumber (or bundle in bundled stock). Use only the recognized official marks of the Association under whose rules it is graded.

C. Quality: Lumber shall be sound, thoroughly seasoned, well manufactured, and free from warp that cannot be corrected in process of bridging or nailing.

D. Grades and Species of Solid Wood: Grades and species of lumber shall be as follows:

1. Grounds, Blocking, Nailers, Furring, and Miscellaneous Uses: No. 2 Southern Yellow Pine.

E. Plywood:

1. Fir or pine plywood conforming to PS 1 of the U. S. Dept. of Commerce, and mfd. by a member of the American Plywood Assn. Provide interior plywood with exterior glue, (except for roofing or exterior wall work and elsewhere as noted on the Drawings, provide exterior grade plywood with exterior glue) of thicknesses shown on the Drawings and grades as follows:

   a. Provide C-D face veneers where concealed from view. If exposed to view in the finished work, provide A Grade on the exposed face.

F. Rough Hardware:

1. Except as specifically required otherwise in the Contract Documents, furnish and install all rough carpentry hardware and metal fasteners as shown on the Drawings specified herein or required for proper installation of carpentry. Nails, spikes, screws, bolts, and similar items shall be of sizes and types to rigidly secure members in place.

G. Preservative Treatment:

1. Where lumber or plywood is required to be preservative treated, comply with applicable requirements of AWPA C2 (lumber) and AWPA C9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.

2. For exposed items indicated to receive stain finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.

3. Pressure treat aboveground items with waterborne preservatives to minimum retention of .25 lb/cu ft. (4.0 kg/cu. m)

4. Pressure-treated wood members in contact with ground or freshwater with waterborne preservatives to minimum retention of .40 lb/ cu. ft. (6.4 kg/ cu. m.)

5. Treated material showing delamination, cracking or other structural defects shall be rejected.

H. Fire Retardant Treatment:

1. Where fire-retardant-treated wood is required, comply with applicable requirements of AWPA C20 (lumber), and AWPA C27 (plywood). Identify fire-retardant-treated wood with appropriate classifications marking of UL; US Testing Timber Products Inspection, Inc; or another testing and inspecting agency acceptable to authorities having jurisdiction. The label or stamp shall be such as to further designate that there is no change in the listed classification when the material has been subjected to the standard Underwriter's Laboratories rain test.

2. Treatment shall not in any way adversely affect roofing materials nor products containing gypsum, pitch, petroleum, and petroleum by-products.

I. Ply Clips:

1. H-shaped aluminum clips, minimum 1/16" thickness, for securing and spacing adjacent edges of plywood roof sheathing. Use clips at all edges of plywood panels, including edges nailed to the top chord of roof truss and unsupported edges.

PART 3: EXECUTION

3.1 INSTALLATION:

A. Framing:

1. Wood framing shall be cut square on bearing surface, closely fitted, set plumb, true and square to required lines and levels, and rigidly secured in place. Do not use shims for leveling on wood or metal bearings. Slate or tile shims with full bearing may be sued for leveling on masonry.

2. Fasten framing with nails, spikes, and bolts to provide the stable, thoroughly braced frame with a minimum of shrinkage for system indicated. Fasten sub-flooring and underlayment at all bearings. Use annular ring nails on underlayment to prevent backing out of nails.

3. Install cross bridging of 1" x 3" (or solid bridging of same lumber as joists) in the center of joists exceeding a span of 8'-0", but less than 12'-0". Install an additional row of bridging for each additional 6'-0" span.

4. Provide framing members of sizes and on spacings shown, and frame openings as shown, or if not shown in compliance with the North Carolina State Building Code, Volume 1.

5. Anchor and nail as shown and specified and to comply with the "Recommended Nailing Schedule" of "National Design Specifications for Wood Construction" published by NFPA.

6. Provide stud framing where shown. Unless otherwise indicated, use 2" x 4 wood studs spaced 16" o.c. with 4" face perpendicular to the direction of wall or partition.

Provide single bottom plate and double-top plates 2" thick by the width of studs; except single top plate may be sued for non-load-bearing partitions. Nail or anchor plates to supporting construction.

7. Construct corners and intersections with not less than 3 studs. Provide miscellaneous blocking and framing as shown and as required for support of facing materials, fixtures, specialty items, and trim.

B. Wood Grounds, Blocking, Nailers, Curbs, Furring and Other Miscellaneous Uses:

1. Provide wood grounds, blocking, nailers, curbs, furring, etc. of size and shape required for bringing materials to a true surface, for securing wood trim and were required to secure other work or equipment in place. All work shall be accurately set in place, plumb, true, even, in perfect alignment, and securely fastened. Accurately and carefully fit, cut, finish flush, straight and true. Wood blocking or nailers on steel framing shall be bolted thereto.

2. Install wood furring as shown on Drawings. Secure to substrate with appropriate fasteners to provide rigid, permanent connections. Shim furring out as necessary to bring furring to true planes.

3. Install nailers at roof perimeters and at all penetrations of roofing for securing work and flashing in place. Secure nailers to roofing deck and make flush with insulation or as shown otherwise on the Drawings. Anchor wood nailers to resist a force of 75 lbs/LF in any direction. The thickness of the nailer shall be such that the top of the nailer is flush with the surface to which the roofing membrane is to be applied as shown on the membrane manufacturer's approved details and approved shop drawings.

C. Locations of Treated Wood:

1. Use preservative-treated wood where noted on the Drawings, where wood is in contact with masonry or concrete, for blocking and nailers used in roof construction and wherever used in exterior walls. If the wood is in a location requiring fire retardant treatment, then the wood shall be fire retardant treated rather than preservative treated.

2. Use fire retardant treated wood at the following locations:

a. Return air plenums.

b. Where located in fire-rated walls, ceilings, floors, or other fire-rated construction.

c. Where shown on the Drawings.

d. Where required by the North Carolina State Building Code or other prevailing codes.

END OF SECTION

SECTION 06 40 00
ARCHITECTURAL WOODWORK

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. Work Included this Section:

1. Wood cabinets.
2. Laminate clad cabinets.
3. Cabinet tops and counters.
4. Shelving.
5. Other work of a similar nature indicated or specified.

B. Related Work Specified Elsewhere: The following sections contain requirements that relate to this section.

1. Division 6 Section "Rough Carpentry" for furring, blocking, grounds, nailers, and other carpentry work that is not exposed to view.

2. Division 9 Section "Painting" for field finishing of installed architectural woodwork.

1.3 SUBMITTALS:

A. General: Submit the following per Conditions of Contract and Division 1 Specification Sections.

1. Product data for each type of product and process specified in this section and incorporated into items of architectural woodwork during fabrication, finishing, and installation.

2. Shop drawings showing the location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

3. Samples for initial selection purposes of the following in form of manufacturer's color charts consisting of actual units or sections of units showing the full range of colors, textures, and patterns available for each type of material indicated.

a. Plastic laminate.

4. Samples for verification purposes of the following:

a. Laminate clad panel products, 8 1/2", by 11" for each type, color, pattern, and surface finish, with separate samples of unfaced panel products used for the core.

b. Cabinet hardware, one unit of each type, and finish.

5. Product certificates signed by woodwork manufacturer certifying that products comply with specified requirements.

6. Qualification data for firms and persons specified in the "Quality Assurance" article to demonstrate their capabilities and experience. Include a list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.

1.4 QUALITY ASSURANCE:

A. Manufacturer Qualifications: Firm experienced in successfully producing architectural woodwork similar to that indicated for this Project, with sufficient production capacity to produce required units without delay in the Work.

B. Single-Source Responsibility: Arrange for production by a single firm of architectural woodwork with matched wood veneers.

C. Installer Qualifications: Arrange for installation of architectural woodwork by a firm that can demonstrate successful experience in installing architectural woodwork items similar in type and quality to those required for this project.

D. AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI) except as otherwise indicated.

1.5 DELIVERY, STORAGE, AND HANDLING:

A. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration.

B. Do not deliver woodwork until painting, wet work, grinding and similar operations that could damage, soil, or deteriorate woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions."

1.6 PROJECT CONDITIONS:

A. Environmental Conditions: Obtain and comply with Woodwork Manufacturer's and Installer's coordinated advice for optimum temperature and humidity conditions for woodwork during its storage and installation. Do not install woodwork until these conditions have been attained and stabilized so that woodwork is within plus or minus 1.0% of optimum moisture content from the date of installation through the remainder of the construction period.

B. Field Measurements: Where woodwork is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing woodwork; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of work.

1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with the manufacture of construction to ensure that actual dimensions correspond to guaranteed dimensions.

PART 2 - PRODUCTS

2.1 HIGH-PRESSURE DECORATIVE LAMINATE:

A. Acceptable Manufacturer's: Subject to compliance with requirements provide high-pressure decorative laminates of one of the following, or equal approved in writing by the Architect:

- Formica Corp.

- Nevamar Corp.
- Wilsonart Corp.

B. Provide color through the body type laminate such as Formica Color Core at locations shown on the Drawings.

2.2 MATERIALS:

A. General: Provide materials that comply with requirements of the AWI woodworking standard for each type of woodwork and quality grade indicated and, where the following products are part of the woodwork, with requirements of the referenced product standards, that apply to product characteristics indicated:

1. Hardboard: ANSI/AHA A135.4.

2. High-Pressure Laminate: NEMA LD 3.

3. Medium Density Fiberboard: ANSI A208.2.

4. Particleboard: ANSI A208.1.

5. Softwood Plywood: PS 1.

6. Formaldehyde Emission Levels: Comply with formaldehyde emission requirements of each voluntary standard referenced below:

a. Particleboard: NPA 8.

b. Medium Density Fiberboard: NPA 9.

c. Hardwood Plywood: HPMA FE.

2.3 FABRICATION, GENERAL:

A. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of wood with relative humidity conditions existing during the time of fabrication and in installation areas.

B. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:

1. Corners of cabinets and edges of solid wood (lumber) members less than 1" in nominal thickness: 1/16".

2. Edges of rails and similar members more than 1" in nominal thickness: 1/8".

C. Complete fabrication, including assembly, finishing, and hardware application, before shipment to the project site to the maximum extent possible. Disassemble components only as necessary for fitting at the site, provide ample allowance for scribing, trimming, and fitting.

D. Factory-cut openings, to the maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and, were located in countertops and similar exposures, seal edges of cutouts with a water-resistant coating.

2.4 LAMINATE CLAD CABINETS:

A. Quality Standard: Comply with AWI Section 400 and its Division 400B "Laminate Clad Cabinets."

B. Grade: Custom.

C. AWI Type of Cabinet Construction: Reveal overlay.

D. Laminate Cladding: High-pressure decorative laminate complying with specifications hereinbefore and the following requirements:

1. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

2. If selection is included in Finish and Color Schedules, provide the indicated selection. If selection is not indicated, provide selections made by Architect from laminate manufacturer's full range of standard colors and finishes in the following categories:

- Solid colors.
- Wood grains.
- Patterns.

3. Laminate Grade for Exposed Surfaces: Provide laminate cladding complying with the following requirements for the type of surface and grade.

a. Horizontal Surfaces Other Than Tops: GP-50 (0.050" nominal thickness).

b. Post formed Surfaces: PF-42 (0.042" nominal thickness).

c. Vertical Surfaces: GP-50 (0.050" nominal thickness).

d. Edges: GP-50 (0.050" nominal thickness).

e. Semi-exposed Surfaces: Provide surface material indicated below except backs and bottoms of doors and shelves shall have the same laminate as on the exposed face.

f. High-Pressure Laminate CL-20.

2.5 CABINET HARDWARE AND ACCESSORY MATERIALS:

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.

B. Samples: See Paragraph "Submittals" in Part 1 of this Section for requirements regarding submittals of samples. Do not purchase or install any hardware before approval by the Architect of samples.

C. Cabinet Hardware:

1. To describe the type and quality of hardware required, items specified below are manufactured by the company listed. Similar and equal hardware by Stanley, Mepla, Knape and Vogt, Adams Rite, or Blum will be acceptable when the specified submittals are approved in writing by the Architect.

a. Hinges to be Mepla (ANSI Tested), or equal:

(1) Function 61 - 170 degrees (institutional)

b. Magnetic catches to be Stanley #41, or equal.

c. Pulls to be Stanley #4483, Mepla #3032, aluminum, satin anodized, or equal.

d. Drawer slides to be Mepla #MR 1702, or equal.

e. Cabinet shelving standards to be K&V #80A Satin Anochrome with 346NP clips or cabinets lines bored to include Mepla #7035 shelf supports, or equal.

f. Other required hardware to comply with ANSI.BHMA A156.9.

g. Door locks BHMA A156.11, E07121

h. Drawer locks BHMA A156.11, E07041

D. Shelving Standards and Brackets:

1. Knape & Vogt No. 96ANO double slotted standard, 1 1/4" wide x 1" deep.

2. Knape & Vogt chrome-plated steel brackets designed to snap into both rows of slots. Provide length required for the shelving shown on the Drawings.

2.6 CABINET TOPS AND COUNTERS:

A. Quality Standard: Comply with AWI Section 400 and its Division 400c.

B. Type of Top: High-pressure decorative laminate complying with the following:

1. Grade: Custom.

2. Laminate Cladding for Horizontal Surface: High-pressure decorative laminate as follows:

a. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

b. If selection is included in Finish and Color Schedules, provide the indicated selection. If selection is not indicated, provide selections made by Architect from manufacturer's full range of standard colors and finishes in the following categories:

(1) Solid colors.
(2) Wood grains.
(3) Patterns.

c. Grade: GP-50 (0.050" nominal thickness).

d. Edge Treatment: Same as laminate cladding on horizontal surfaces.

2.7 SHELVING:

A. Quality Standard: Comply with AWI Section 600.

B. Grade: Custom.

C. Lumber Species: Any species acceptable in the reference woodworking standard for the subject application and grade of work.

2.8 FASTENERS AND ANCHORS:

A. Screws: Select material, type, size, and finish required for each use. comply with FS FF-S-111 for applicable requirements.

B. Nails: Select material, type, size, and finish required for each use. Comply with FS FF-N-105 for applicable requirements.

C. Anchors: Select material, type, size, and finish required by each substrate for secure anchorage. Provide nonferrous metal or hot-dip galvanized anchors and inserts on inside of exterior walls and elsewhere as required for corrosion resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts and anchors, as required, to be set into concrete or masonry work for subsequent woodwork anchorage.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Condition woodwork to average prevailing humidity conditions in installation areas before installing.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including back priming and removal of packing.

3.2 INSTALLATION:

A. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this section for the type of woodwork involved.

B. Install woodwork plumb, level, true and straight with no distortions. Shim as required with concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level (including tops) and with no variations in flushness of adjoining surfaces.

C. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.

D. Anchor woodwork to anchors or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners, and blind nailing as required for a complete installation. Where face nailing is allowed by the Specifications and the referenced AWI quality standard, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork and matching final finish where the transparent finish is indicated.

E. Cabinets: Install without distortion so that doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated. Maintain veneer matching as specified of cabinets with a transparent finish.

F. Tops: Anchor securely to base units and other support systems as indicated and specified.

G. Refer to Section 09 91 00 - Painting for field finishing of installed architectural woodwork.

3.3 ADJUSTMENT AND CLEANING:

A. Repair damaged and defective woodwork where possible to eliminate defects functionally and visually; where not possible to repair, replace woodwork. Adjust joinery for a uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semi-exposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.4 PROTECTION:

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensures that woodwork is being without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 066116
SOLID SURFACING FABRICATIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid surfacing countertops and desktops.

B. Related Sections:

1. Division 00: Procurement and Contracting Requirements

2. Division 01: Administrative, procedural, and temporary work requirements.

3. Section 07 92 00 - Joint Sealers.

C. Refer to Drawings for color selections.

1.2 REFERENCES

A. ASTM International (ASTM) E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Submittals for Review:

1. Shop Drawings: Indicate dimensions, component sizes, fabrication details, attachment provisions and coordination requirements with adjacent work.

2. Product Data: Indicate product description, fabrication information and compliance with specified performance requirements.

3. Samples: 6 x 6 inch samples in each color.

B. Closeout Submittals:

1. Maintenance Data: Include recommended cleaning materials and procedures and damage repair.

1.4 QUALITY ASSURANCE

A. Fabricator Qualifications: Minimum 2 years documented experience in work of this Section.

B. Fire Hazard Classification: Class A flame spread/smoke developed rating, tested to ASTM E84.

C. Mockup:

1. Size: One full size countertop.

2. Show: Countertop, splash, apron, sink, and trim.

3. Locate where directed.

4. Approved mockup may remain as part of the Work.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers – Solid Surface:

1. Tower Industries

2. Dupont Corian

3. Dupont Zodiaq

2.2 MATERIALS

A. Solid Surfacing:

1. Material: Homogenous sheet material composed of resins, filler materials, and coloring agents.

2. Color: To be selected from manufacturer's full color range.

3. Surface finish: Satin.

B. Sinks: Same material as solid surfacing, under-counter mounted (undermount).

2.3 ACCESSORIES

A. Adhesive:

1. Type recommended by solid surfacing manufacturer.

2. Maximum volatile organic compound (VOC) content: 70 grams per liter.

B. Joint Sealer: Specified in Section 07 92 00.

2.4 FABRICATION

A. Fabricate components in shop to sizes and shapes indicated, in accordance with manufacturer's instructions and approved Shop Drawings.

B. Countertops:

1. Fabricate splashes and skirts from solid surfacing in color to match countertops.

2. Form joints to be inconspicuous in appearance and without voids. Join pieces with adhesive.

3. Provide holes and cutouts for mounting of trim, and accessories.

4. Finish exposed edges to smooth, uniform bullnose profile.

C. Allowable Tolerances:

1. Maximum variation in size: 1/8 inch.

2. Maximum variation in location of openings: 1/8 inch from indicated location.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved Shop Drawings.

B. Set plumb, level, and rigid.

C. Adhere with beads of adhesive.

D. Seal perimeter with joint sealer as specified in Section 07 92 00. Finish smooth and flush.

3.2 ADJUSTING

A. Sand out minor scratches and abrasions.

3.3 PROTECTION

A. Protect surfaces from damage with non-staining coverings.

END OF SECTION

SECTION 07 21 16
FLEXIBLE INSULATION

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

A. Related Work Specified Elsewhere:

1. GWB work (Section 09 29 00).

B. Work Included This Section:

1. Thermal fiberglass batt insulation and mineral wool insulation.
2. All supplementary materials and accessories required for a complete and proper installation.

1.3 SUBMITTALS:

A. Manufacturer's Literature and Installation Instructions: Submit manufacturer's literature completely describing each type of insulation and including thermal resistances and acoustical ratings for the various thicknesses indicated to be installed in this Project. Also, submit the manufacturer's written installation instructions for each type of installation required on this Project.

PART 2: PRODUCTS

2.1 MATERIALS:

A. Flexible Batt Insulation:

1. Insulation shall be fiberglass type as manufactured by Owens Corning, Certainteed/St.Gobain, Johns Manville, or equal approved in writing by the Architect. Insulation shall have a vapor-barrier on one side of aluminum foil at all exterior walls and ceilings.

2. Foil-faced insulation shall comply with ASTM C 665, Type II, Class B.

3. Provide thickness as shown on Drawings. Insulation shall provide the following minimum thermal resistance ratings (R-values) for the various thicknesses listed.

- 3 1/2" thick R-11
- 3 5/8" thick R-13
- 6" thick R-19
- 9" thick R-30

4. Insulation to be installed in metal stud construction shall be "full width" (16" or 24"). Do not use residential width (15" or 23") in metal stud walls.

B. Mineral Wool: High-density, noncombustible fibers.

C. Installation Accessories: Impaling clips, adhesives, tape, and other required accessories shall either be furnished by or a type recommended in writing by the insulation manufacturer.

PART 3: EXECUTION

3.1 LOCATIONS: Install insulation at locations shown on Drawings.

3.2 INSTALLATION:

A. Install faced insulation with a vapor barrier facing toward the interior of the building.

B. Follow written recommendations of the manufacturer of insulation and of fasteners for a method of attaching insulation... In addition to the manufacturer's recommendations, comply with the following procedure to prevent insulation in walls from sagging and leaving an uninsulated space at top of the wall: Lap edges of insulation over metal studs. Tape the first lap to the metal stud and tape the second lap to the first lap.

C. Butt ends and edges of insulation batts together and tape for continuous sealed installation. Split and cut the insulation to fit around the pipe, boxes, etc. Where possible, make continuous behind such objects by overlapping insulation.

D. Provide impaling clips, wire lattice or UL approved plastic netting to support insulation in a vertical or horizontal position if necessary to prevent tearing or sagging. Also, comply with the requirement specified in Paragraph 3.2 b. above to prevent insulation in walls from sagging and leaving an uninsulated space at top of the wall.

END OF SECTION

SECTION 07 90 00
SEALANTS

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Unit masonry (Section 04 20 00).
2. Hollow metal frames (Section 08 11 00).
3. Aluminum storefront, curtainwall and windows (Division 8 Sections).
4. Glazing (Section 08 80 00).

b. Work Included This Section: Caulking and sealant work as shown on Drawings, as specified and as required for a watertight facility. Include all supplementary materials and installation accessories required for a complete and proper installation.

1.3 INDUSTRY STANDARDS:

a. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

American Society for Testing and Materials (ASTM)
American National Standards Institute (ANSI)

1.4 SUBMITTALS:

a. Installation Instructions: Submit duplicate copies of manufacturer's written instructions for installation of sealants specified.

b. Manufacturer's Data: Submit manufacturers printed data for the sealants specified. Data shall show test results of the physical properties of the materials. Submit all data regarding joint design bringing to the Architect's attention any conditions shown on the Drawings under which the specified material cannot be satisfactorily installed.

c. Samples: Submit samples of the full range of manufacturer's colors for selection of project colors by the Architect. As specified in Part 2 of this Section, custom colors may be required at no additional cost to the Owner.

d. Schedule of Colors: Submit schedule showing where selected colors of sealant are to be installed for approval by the Architect.

e. Guarantee-Warranty:

1. Submit guarantee-warranty on products and execution of sealant work required by this Section. Guarantee-warranty shall be submitted on applicator's company letterhead and shall be signed by an officer of the company. Guarantee-warranty shall be countersigned by the General Contractor.

2. Warranty shall state that work complies with requirements of the Contract Documents.

3. Guarantee shall state that work of this Section shall be repaired or replaced in case of failure and that any materials or finishes of the building damaged by failure of work of the Section will be repaired or replaced. The guarantee period shall be 24 months following date of final acceptance. Repair or replacement shall be performed at no additional cost to the Owner.

f. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.

2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

1.5 QUALIFICATIONS:

a. Source: Products for use on this Project shall be of one manufacturer unless noted specifically otherwise herein.

b. Applicators: Submit letter from manufacturer of sealant materials stating that applicator is approved by the manufacturer for application of the materials specified for the Project. Letter shall certify that the applicator has satisfactorily applied the types of materials specified on projects which have been completed for at least 5 years. Letter shall be on manufacturer's letterhead and shall be signed by an officer of the company.

1.6 PRODUCT HANDLING:

a. Delivery of Materials: Materials shall be delivered to the project site in manufacturer's original, unopened containers with manufacturer's brand name clearly marked thereon.

b. Storage: Store containers in dry conditioned space.

1.7 ENVIRONMENTAL CONDITIONS:

a. Do not apply sealant to materials whose surfaces are damp, wet or exceed the temperature requirements stated herein or recommended by the sealant manufacturer.

b. Weather: No sealant materials shall be applied in wet weather nor when the threat of rain exists within 12 hours.

c. Temperature: Shall be 40 degrees F. and rising or above with no chance of freezing until the sealant materials have had a chance to properly set up and dry. No sealant materials shall be applied when the air temperature is below 40 degrees F. unless surfaces are heated and dried by approved means.

PART 2: PRODUCTS

2.1 MATERIALS: Note that the words "Sealant" and "Caulking" are used interchangeably. Comply with locations specified for the various types of materials.

a. Use the following sealants for general sealing and caulking work at locations other than specific locations itemized in Paragraph b. hereinafter. See Part 3 of this Section for required locations for the various types of sealants.

1. Urethane Sealant:

   (a) Compound shall be a multi-component non-sag urethane sealant. Compound shall meet ASTM C 920. Color will be selected by the Architect to match adjacent materials and shall be a custom color at no additional cost to the Owner.

   (c) Compound shall be one of the following, or equal approved in writing by the Architect:

   "Dynatrol II" as mfd. by Pecora Corp.

   "Sikaflex-2C NS EZ Mix+" by Sika Corporation

2. Silicone Based Sealant:

   (a) To be used where sealant will be installed in an exterior location exposed to UV.

   (b) Compound shall be a one-part, silicon-based sealant compound which meets the requirements of ASTM C 920. **Color will be selected by the Architect to match adjacent materials and shall be a custom color at no additional cost to the Owner.**

   (c) Compound shall be one of the following, or equal approved in writing by the Architect:

   "790 Building Sealant" as mfd. by DOWSIL

   "795 Building Sealant" as mfd. by DOWSIL

   "864 Silicone" as mfd. by Pecora

   "890 Silicone" as mfd. by Pecora

   "Spectrum 2" as mfd. by Tremco

   “Sikasil WS-305 AM” as mfd. by Sika

   “Sikasil WS-395” as mfd. by Sika

3. Latex Caulking Compound:

   (a) Caulking shall be an acrylic-latex compound and shall be one of the following, or equal approved in writing by the Architect. Color will be selected by the Architect to match adjacent materials and shall be a custom color at no additional cost to the Owner.

   “AC-20 + Silicone” as mfd. by Pecora Corp.

   "Tremflex 834" as mfd. by Tremco.

b. Primer: Provide primer recommended by sealant manufacturer.

c. Joint Sealant Backing:

1. General: Provide sealant backings of material and type which are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

2. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonwaxing, nonextruding strips of flexible, nongassing plastic material described below, non-absorbant to water or gas, and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

(a) Either open-cell polyurethane foam or closed-cell polyethylene foam, unless otherwise indicated, subject to approval of sealant manufacturer, for cold-applied sealants only.

3. Elastomeric Tubing Joint Fillers: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, capable of remaining resilient at temperatures down to -26 deg F (-15 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

4. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

PART 3: EXECUTION

3.1 PROJECT INSPECTION:

a. Prior to the application of any sealant compound, a manufacturer's representative shall visit the project site with the Contractor and the Architect and shall instruct the Contractor's applicator in the proper procedures of handling and applying their product to the materials involved. After application, the manufacturer's representative shall inspect the sealant work and shall notify the Architect in writing of his findings.

b. Prime all surfaces prior to applying sealant.

3.2 LOCATIONS OF SEALANTS:

a. Seal all joints of materials on the exterior of the building and where otherwise shown or required to provide a watertight installation. Seal interior joints as shown and specified. Install interior sealant and caulking work as shown and specified and in accordance with established standards of the trade.

b. Unless otherwise specifically shown on the Drawings, the following types of caulking and sealant compounds shall be used in the following locations:

1. Interior General Use - Latex Caulking Compound.

2. Vertical or Horizontal Expansion or Control Joints in Walls - Urethane Sealant.

3. Aluminum Storefront - Silicone Sealant.

4. Metal, Glass and Other Nonporous Surfaces - Silicon Sealant.

5. Masonry, Concrete and Other Porous Surfaces - Urethane Sealant.

3.3 JOINTS:

a. Joint tolerances and design shall be as recommended by the sealant manufacturer. Where joint dimensions and tolerances recommended by the sealant manufacturer are more restrictive than those specified herein, the manufacturer's requirements shall govern.

b. Joints to receive silicone based sealants shall not be less than 1/4" in width nor greater than 5/8" in width. Sealant shall be installed to a thickness of 1/8" minimum and /8" maximum. Sealant shall be installed so that it adheres and bonds only to the sides of the joint and not to joint backing.

c. Joints to receive urethane based sealants shall not be less than 1/4" nor more than /4" in width. Joint depth for joint widths up to 1/2" shall be the same as the joint width. For joints over 1/2" wide, joint depth shall be approximately 1/2 the width but not more than 1/2".

d. Interior caulking shall be installed only where shown on the Drawings or specified under the various Sections of these Specifications. Caulking of material joints to close construction errors or joints not shown on the Drawings shall be permitted only upon written approval by the Architect.

e. Where shown on the Drawings or called for in the Specifications, latex caulking joints shall not be less than 1/4" nor greater than 1/2" with a depth of 1/2 the face width and with caulking material installed the full depth of the joint.

f. Where joint depth exceeds that specified herein, fill with filler rod specified for specific sealant to provide proper depth.

3.4 PREPARATORY WORK:

a. Clean all joints of all contaminants and impurities. Concrete form release agents, water repellents, concrete laitance, and other surface treatments and protective coatings are examples of materials which must be removed from the joint surfaces to obtain proper sealant adhesion.

b. Porous substrates shall be cleaned where necessary by grinding, saw cutting, blast cleaning (sand or water), mechanical abrading or a combination of these methods as required to provide a sound clean surface for sealant application. Dust, loose particles, etc. shall be blown out of joints with oil-free compressed air or vacuum cleaned.

c. Metal and glass surfaces shall be cleaned by wiping a solvent saturated clean cloth over only those surfaces to which sealant will be applied. A dry, clean cloth shall be used to remove the cleaning solvent from the surface.

d. For plastic, painted and other coated surfaces, the manufacturer shall be consulted to determine the proper cleaning solvent.

e. Greases, protective films and coatings, dust, oil, water, surface dirt and rust are examples of contaminants which must be removed.

f. Cleaning of all surfaces shall be done on the same day in which the sealant is installed.

3.5 PRIMING:

a. In addition to the recommended surface preparation steps, it may be necessary to prime concrete, masonry or other porous surfaces due to the extreme surface variability

encountered on a job-to-job basis. If, in the opinion of the sealant manufacturer, joint surfaces are weak or contaminated, he shall recommend a primer for use with his sealant product to be applied on this Project.

b. Apply primer only in accordance with each sealant manufacturer's printed recommendations.

3.6 APPLICATION OF JOINT FILLER:

a. Joints where a backstop has not been provided shall be packed with a joint filler rod to within 1/2" of the surface.

b. Install a breaker-strip of polyethylene film at back of joint where filler rod cannot be used to prevent bond of caulking or sealant compound to back of joint.

3.7 APPLICATION OF SEALANT:

a. Install in strict accordance with manufacturer's printed instructions.

b. Apply sealant compound with gun having proper size nozzle or with knife as required.

c. See requirements of other Sections of these Specifications.

d. Use sufficient pressure to fill all voids and joints solid and to engage compound to sides of joint. A superficial skin or fillet bead will not be acceptable.

e. Remove excess compound and leave surfaces neat, smooth and clean. Joints shall be even and uniform in appearance and shall be watertight. Tool surface to produce good contact, to increase density and to improve appearance. Use masking tape to insure a neat appearance where required; mask only the protected area and remove before sealant begins to cure.

f. Apply sealant compound in a continuous operation, horizontally in one direction and vertically from the bottom to the top. At framed openings, apply continuously around turns and corners to completely fill corners.

g. At completion, all sealed or caulked surfaces shall present a neat appearance and all surrounding surfaces shall be left in a clean condition.

h. All control joints shall be sealed. Seal control joints with traffic bearing sealant with a shore hardness of d40 and a minimum movement capacity of 20%. Sealant must be compatible with floor finishes. Where self-leveling sealant compound is used, the edges of the joint shall be protected by a non-staining, easily removed tape. After joint is filled with sealant compound, the tape shall be removed.

3.8 CLEAN-UP:

a. Upon completion of work, remove all boxes, cartridges and other debris. Clean sealant spillage from all adjacent surfaces.

END OF SECTION

SECTION 08 11 00
HOLLOW METAL DOORS AND FRAMES

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Sealants (Section 07 90 00)
2. Door and frame schedule (See Drawings).
3. Aluminum storefront (Section 08 41 00).
4. Door hardware (Section 08 71 00).
5. Glass and Glazing (Section 08 80 00)
6. Field painting of doors and frames (Section 09 91 00).

b. Work Included This Section:

1. Hollow metal doors and frames as shown on Drawings and as specified. See Drawings and schedules for types, sizes, design and location of hollow metal doors, frames and accessories.

(a) Work of this Section includes field application of bituminous paint to inside of frames to height of 6” from floor, as specified in Part 2 of this Section.

2. Fire rated doors and frames with smoke seals.

3. Include all supplementary materials and installation accessories required for a complete and proper installation.

1.3 INDUSTRY STANDARDS:

a. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

American National Standards Institute (ANSI)
American Society for Testing and Materials (ASTM)
Underwriter's Laboratories Inc. (UL)
Steel Door Institute (SDI)
National Fire Protection Association (NFPA)

1.4 QUALITY ASSURANCE:

a. Steel Door & Frame Standard: Provide doors and frames complying with American National Standard Institute “Recommended Specifications Standard Steel Doors and Frames" (ANSI 250.8), (formerly SDI 100) except where

requirements specified are more stringent.

b. Fire Rated Door Assemblies: Assemblies complying with NFPA 80 and (UL) UL 10C-98 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction.

1.5 QUALIFICATIONS:

a. Source: Products for use on this Project shall be of one manufacturer for each function unless noted specifically otherwise.

1.6 SUBMITTALS:

a. Shop Drawings: Show typical construction and arrangement of all items. Show conditions at doors and frames in various wall thicknesses and materials. Show hardware reinforcement, anchors and sill clips. Show thicknesses of all metal. Include a schedule listing the location in the building of each item.

b. Product Data: For each type of door and frame indicated.

1.7 PRODUCT HANDLING:

a. Storage:

1. Stack and store frames properly to prevent warpage and other damage. Store doors in vertical position, spaced by blocking to permit circulation of air.

2. Upon delivery, touch up damaged areas of finish with rust inhibitive metal primer specified in Section 09910 for specific exposure of door in final location.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS: Subject to compliance with the Drawings and Specifications, provide product by one of the following, or equal approved in writing by the Architect:

Amweld Building Products Inc.
Ceco Door Products
Curries Co.
Fleming
Metal Products Inc.
Republic Builders Products
Steelcraft/Div. American Standard Co.

2.2 MATERIALS:

a. Steel:

1. Cold-Rolled Steel Sheets: ASTM A 366, Commercial Steel (CS), or ASTM A 620, Drawing Steel (DS), Type B.

2. Metallic Coated Steel Sheets: ASTM A 653, Commercial Steel (CS), Type B, with A60 zinc-iron-alloy coating.

3. Steel for face sheets of hollow metal doors and for frame faces shall be stretcher leveled.

b. Shop Coating:

1. After fabrication, apply rust-inhibiting enamel or paint, either air-drying or baked, suitable for the substrate and as a base for the specified field applied finish paint, complying with ANSI A250.10, “Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.”

2.3 DOORS:

a. General: Provide door sizes, thicknesses, and designs indicated.

b. Interior Doors: Provide doors complying with requirements indicated below by referencing ANSI 250.8 for level and model and ANSI A 250.4 for physical endurance level:

1. Heavy Duty.

2.4 FRAMES:

a. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A 250.8 and with details indicated for type and profile Conceal fastenings, unless otherwise indicated.

b. Frames of 16-gauge steel sheet for:

1. Level 2 steel doors.

c. Frames of 14-gauge steel sheet for:

1. Level 3 steel doors.

d. Door Silencers: Except on weather stripped frames, drill stops to receive 3 rubber silencers on strike jambs of single door frames and 2 silencers on heads of double swing frames.

e. Plaster Guard: Provide minimum 26-gauge galvanized plaster guards or mortar boxes to close off interior of openings; place at back of hardware cutouts where mortar or other materials might obstruct hardware operations.

f. Supports and Anchors: Fabricated from not less than 18-gauge electrolytic zinc-coated or metallic coated steel sheet.

g. Inserts, Bolts, and Fasteners: Manufacturer’s standard units. Where zinc coated items are to be built into exterior walls, comply with ASTM A 153, Class C or D as applicable.

2.5 FABRICATION:

a. General: Fabricate steel door and frame units to comply with ANSI 250.8 and to be rigid and free from defects including warp and buckle.

b. Hollow Metal Frames:

1. Fabricate frames generally to dimensions and profiles shown on the Drawings except that it shall be the Contractor's responsibility to verify all hollow metal frame throat sizes based upon the partition or wall types and thicknesses shown on the Drawings. Frames for sidelights, transoms and fixed glass windows shall conform to the requirements for door frames specified.

2. Frames shall be manufactured from cold rolled steel. Fabricate frames from 16-gauge steel for interior locations.

3. Corner joints shall have contact edges closed tight. Miter face. Cope backbend, rabbet and stops. **Continuously weld backbend, face, stop and rabbets.** Frames shall be fully welded. Knock down type frames will not be acceptable. Grind exposed welds smooth and with no depressions.

4. At hardware locations, install reinforcing plates of the following minimum gauges:

   (a) Hinge and pivot reinforcements: 10-gauge (1 1/4" x 10" minimum size).

   (b) All other mortised and surface mounted hardware: 14-gauge.

5. Weld reinforcement plates to inner surface of frame with a minimum of 6 welds per plate.

6. At fully templated hardware, mortise, reinforce, drill and tap frames to receive hardware in accordance with hardware manufacturer's templates. Install reinforcements furnished by hardware supplier in accordance with hardware manufacturer's templates furnished with reinforcement, except as modified.

7. Reinforce head of frames (for openings more than 3' 6" wide) where installed in partitions with masonry continuing over frame. Reinforce with angle or channel stiffener fabricated from not less than 12-gauge steel. Weld reinforcing into head in shop. Such reinforcing shall not replace required lintels or load carrying members specified in other Sections of the Specifications or shown on the Drawings.

8. Provide a minimum of 3 anchors in each jamb. For frames over 7’-2" in height, provide an additional anchor for each 2' of height. Fabricate anchors from minimum 14-gauge steel. Anchors shall be appropriate type for wall material.

9. Provide floor clips of not less than minimum 16-gauge steel for frames. Fasten to bottom of frame for anchoring frame to floor construction.

10. Before shipment, install a temporary spreader at bottom of frames. Do not remove until frames are secured in place.

11. After fabrication, apply shop coats as follows:

(a) Interior frames shall be fabricated from non-galvanized sheet. Apply shop primer finish equal to type specified.

(b) Finished surfaces shall be smooth and free of irregularities.

12. Field Applied Bitumastic Paint: Field apply a heavy coat of bitumastic paint to a height of 6" from floor on the inside of all frames to prevent rusting of this surface during the construction period. Apply this paint as soon as possible after receipt of frames at the site.

13. Door Numbers on Frames: Frames shall have the door number (shown on the Architectural Floor Plans of the Drawings) permanently marked on a center hinge reinforcement.

14. **All frames scheduled to receive heavy weight hinges shall have high frequency hinge straps welded at top and bottom of each hinge reinforcement.**

15. **Where smoke seals, sound seals, or weatherstripping are called for, furnish kerfed type frame profile with gasketing suited to the required condition.**

c. Hollow Metal Doors:

1. Doors shall be flush type, 1 3/4" thick, formed of stretcher leveled, cold rolled steel sheets with core as specified, 18-gauge for interior doors.

2. Interior doors shall be fabricated from non-galvanized sheet.

3. Finished work shall be free from warpage, bulge or buckle. Corner bends shall be true, straight and sharp. Doors shall have no visible seams or joints on faces or stile edges.

4. Core: Use one of the following core materials that produces a door complying with SDI standards.

(a) Honeycomb Core: A honeycomb core consisting of a resin impregnated Kraft paper cellular structure shall be laminated to the inside of both face sheets with an adhesive. The honeycomb material shall have a crushing strength of not less than 4000 lbs. per sq. ft. (psf) and the lamination shall withstand not less than 1100 psf in shear.

(1) All hollow metal doors are to have this honeycomb core except where the polystyrene core is specified below and where fire rated doors are required.

(b) Polystyrene Core: A rigid core of polystyrene foam board shall be bonded to face sheets with an adhesive. Compressive strength of core shall not be less than 1500 psf and a shear strength of not less than 18 psi. The strength of the bond between the polystyrene and the steel face sheets shall exceed the strength of the polystyrene, so that delamination does not occur under any operating conditions.

(1) All exterior hollow metal doors and all hollow metal doors scheduled to receive acoustical seals (see Door

Schedule on Drawings and Section 08710 - Finish Hardware) are to have this polystyrene core.

(c) Core for Fire Rated Doors: See Paragraph "Fire Rated Doors and Frames."

5. Join faces at stile edges by a continuous weld extending full height of door. Welds shall be ground, filled and dressed smooth to make them invisible and to provide a smooth, flush surface.

6. Close top and bottom edges of interior doors with a continuous, recessed steel channel of not less than 16-gauge sheet steel. Close top and bottom edges of exterior doors flush (not recessed) as integral part of door construction or by addition of minimum 16-gauge inverted steel channels. Extend channels full width of door and spot weld to both faces. Space holes in bottom closure of exterior doors to permit escape of entrapped moisture.

7. Provide profiles on both stiles of door as follows:

(a) Single Acting Swing Doors: Beveled 1/8" in 2".

8. Mortise, reinforce, drill and tap doors at factory for fully templated hardware in accordance with approved hardware schedule and with templates supplied by the hardware supplier. Reinforcements shall be welded within door. Where surface mounted hardware is to be applied, provide only reinforcing plates in door. Drilling and tapping for hardware will be done during installation of such hardware in the field, unless noted specifically otherwise in the Contract Documents.

9. Provide reinforcing plates for hardware of the following minimum gauges:

(a) Hinges and pivot reinforcement: 10-gauge

(b) Reinforcement for lock face, flush bolts, concealed holders, concealed and surface mounted closers and other hardware: 14-gauge

(c) Reinforcement for push, pull and kick plates: 16-gauge

10. **Hinge and lock stiles shall be a continuous 14 gauge (minimum) integral channel used to form reinforcements.**

11. Factory Finish: Treat all surfaces chemically to insure cleaning and maximum adhesion of finish. Install shop coat of primer complying with ANSI 250.10 for acceptable criteria and equal to types specified for galvanized, galvannealed or non-galvanized surfaces

c. Door Louvers:

1. Louvers built into doors shall be thickness of door, with inverted "V" blades fabricated from minimum 16 gauge cold rolled steel sheet. Door faces shall frame louver blades. Seal at edges to prevent penetration of water.

2. Where required, provide insect screen installed over inside face of

louvers and in a removable channel frame. Screen shall be 16 x 18 mesh aluminum screen with black paint finish.

d. Fire Rated Doors and Frames: Where fire rated doors and frames are indicated or required, provide fire rated door and frame assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed, and labeled in accordance with ASTM E 2074, by Underwriter's Laboratories or other nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction. Doors and frames shall bear the required label permanently attached on the hinge side. Door core shall be type standard with the door manufacturer and as tested and certified to bear the required UL label.

PART 3: EXECUTION

3.1 COORDINATION:

a. Coordinate the installation of metal doors and frames with the work of other trades. Coordinate operating hardware templates to ensure that doors and frames are properly reinforced in the factory to receive the specified hardware. Verify specific location and type of hardware as required in Section 087100 and Door Schedule on Drawings.

3.2 INSTALLATION:

a. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer’s data, and as specified.

b. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Install frames plumb, rigid and in true alignment and in accordance with the manufacturer's written instructions and shop drawings approved by the Architect. Brace properly until built into wall.

1. Inspect frames for plumbness and correct positioning before being anchored into wall. Frames installed out of correct position shall be torn out and replaced.

2. Secure door frames to floor with a countersunk expansion device at each jamb. Build anchors into walls as the work progresses.

3. Frames installed in masonry or concrete walls shall be filled tight with masonry mortar. Install silencers prior to filling frame.

4. Interior frames shall be installed tight against adjacent construction and shall be caulked around the entire perimeter to fill minor spaces between the frame and wall.

5. Install fire-rated frames according to NFPA 80.

c. Door Installation: Comply with ANSI 250.8. Hang metal doors plumb and true, with doors making uniform contact with metal frame stops on all sides. Metal doors that cannot be hung to fit evenly on all sides shall be removed and replaced.

1. Install fire-rated doors within clearances as specified in NFPA 80.

2. Doors designated on door shop drawings to be undercut are specified to be factory undercut. Only the minimum amount of job fitting and machining shall be allowed on doors. All doors shall be accurately fitted to their opening and accurately machined for their hardware. In addition, pairs of doors shall have a gap at meeting stiles not exceeding 1/8" at closest point of bevel. Slope of bevel shall not exceed 1/8" in 2".

3. All hardware is furnished under Section 08710. Application of hardware to doors and frames is specified under this Section. The requirements of Section 087100 shall apply to the installation of the door hardware.

4. Receive, store, and be responsible for the door hardware to be installed under this Section. Properly tag, index, and file all keys until turned over to the Owner.

5. Apply hardware in accordance with templates and manufacturer's instructions; mortise and fit accurately, apply securely, and adjust carefully. Exercise care not to injure work when applying hardware. Where butt hinges are applied to wood doors, the door shall be predrilled for a full threaded No. 12 wood screw. Coordinate with shop drawings and Contract Drawings for proper location.

6. Doors shall be finished under Section 099100. Colors to be selected by the Architect, it is the intention for the frames and doors to match adjacent surface colors. Remove doors so they may have their bottoms and tops sealed and finished and then rehang. Cover door hardware until painting is completed. Prior to completion of building, examine doors and hardware, adjust as required, and leave hardware in proper working order, free from defect.

7. ADA Adjustments: The maximum force for pushing or pulling open a door shall be as follows:

   a. Fire doors shall have the minimum opening force allowable by the appropriate administrative authority.

   b. Other doors.

      interior hinged doors: 5 lbf (22.2N)

3.3 ADJUSTING AND CLEANING:

a. Prime Coat Touch-up: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

b. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION

SECTION 08 33 10
ROLLING COUNTER SHUTTERS

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Miscellaneous metal fabrications (Section 05 50 00).
2. Door and frame schedule (See Drawings).
3. Cylinders for locks (Section 08 71 00).
4. Field painting (Section 09 91 00).

b. Work Included This Section:

1. Provide aluminum rolling counter shutters as shown on Drawings and as specified, including all supplementary items and installation accessories required for a complete and proper installation, ready for use.

1.3 INDUSTRY STANDARDS:

a. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

1.4 SUBMITTALS:

a. Shop Drawings: Show location, arrangement, dimension, materials, finishes, hardware, connections, anchorage and relation to adjacent work.

b. Manufacturer's Data: Submit (in duplicate) manufacturer's printed literature completely describing the rolling counter shutters and including installation instructions.

c. Guarantee: Submit 1-year manufacturer's guarantee on materials and workmanship. Guarantee shall be on the manufacturer's letterhead.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

a. Subject to compliance with the Drawings and Specifications and approval by the Architect of the specified submittals, products by the following manufacturers will be acceptable for the Project:

CornellCookson
Wayne Dalton Corp.

b. Distributor and Installer:

1. Doors shall be supplied and installed by a distributor that maintains fulltime installation and service crews within 250 miles of the project site. The distributor shall maintain a sufficient stock of parts for emergency service and shall warrant that service can be provided within 24 hours after notification.

2.2 MATERIALS:

a. Rolling Counter Shutters:

1. Provide Rolling Counter Doors, **CornellCookson Counter Fire Door**, or approved equal.

2. Curtain, hood, and bottom bar: 22-gauge galvanized steel

3. Finish: To be selected by Architect.

6. Mounting: See Drawings.

7. Counterbalance: Helical torsion springs housed in a steel tube or pipe barrel.

8. Brackets: Steel plate to support curtain, counterbalance, and hood.

9. Operation: Crank

10. Guides: Stainless steel

11. Lock: Interior slide bolt and cylinder lock.
(a) Cylinder locks master keyed. Coordinate with requirements of Section 08 71 00.

PART 3: EXECUTION

3.1 INSTALLATION:

a. Shutters shall be installed by skilled mechanics experienced in the installation of the materials and equipment specified.

b. Install shutters in accordance with the Drawings, these Specifications, the manufacturer's printed instructions and approved shop drawings.

c. Shutters shall operate quietly and freely without binding and wracking.

d. Include all supplementary components and installation accessories required for a complete and proper installation, ready for use.

END OF SECTION

SECTION 08 41 10
METAL STOREFRONT FRAMING

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Caulking and sealants (Section 07 90 00).
2. Glass and glazing (Section 08 80 00).

b. Work Included This Section:

1. Fire rated storefront framing as shown on the Drawings and specified herein.

2. Supplementary components and installation accessories required for a complete and proper installation.

3. Glass and glazing for storefront system and doors shall be furnished and installed under this Section and is specified in Section 08 80 00.

4. Sealing of storefront system shall be furnished and installed under this Section and is specified under Section 07 90 00.

1.3 INDUSTRY STANDARDS:

a. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

Architectural Aluminum Manufacturers Association (AAMA)
American National Standard Institute (ANSI)
The American Society for Testing and Materials (ASTM)
Federal Specifications (FS)
The Aluminum Association (AA)

1.4 QUALIFICATIONS:

a. Source: Products for use on this Project shall be of one manufacturer unless noted specifically otherwise herein.

b. Installer: Metal framing and doors shall be installed by qualified installer approved in writing by the manufacturer.

1.5 SUBMITTALS:

a. Shop Drawings: Include complete elevations of the storefront system, details and method of anchorage, door frame reinforcement, size, shape and thickness of materials, joints and connections, details of joining with other work and relation to adjacent work. Indicate all glass types to be furnished.

b. Samples: Samples of finish shall be submitted to the Architect for approval. All materials installed shall fall within the range of the approved samples. Submit samples of each type of glass to be furnished. Samples shall be clearly identified as to Project and type of finish.

c. Manufacturer's Data: Submit copies of manufacturer's technical and performance data.

d. Guarantee: The Contractor shall submit duplicate original copies of the written guarantee for the complete system specified herein. This guarantee shall state all work furnished and installed under this Section is in accordance with the Contract Documents and shall guarantee an airtight and watertight installation for a period of two (2) years from the date of final acceptance by the Owner. It shall further state that during the guarantee period any defective workmanship or material shall be repaired or replaced, at the direction of the Architect, at no additional cost to the Owner. In addition to the above guarantee, the storefront contractor shall submit a separate guarantee for the glazing included herein and specified under Section 08 80 00.

1.6 PRODUCT HANDLING:

a. Delivery and Storage: All storefront members shall be handled and stored in such a way as to prevent damage to finishes. All members with scratches or other defects will be rejected. Deliver doors in heavy wrapping. Store in a manner to prevent physical damage to door and finish.

PART 2: PRODUCTS

2.1. ACCEPTABLE MANUFACTURERS: Subject to compliance with the Drawings and Specifications, provide the following product, or equal approved in writing by the Architect:

a. Product: **Ray-Bar Fire Rated Window Frame** System.

2.3 FRAMING SYSTEM:

a. Performance: Fire Rating: 45 minutes.

b. Finish: To be selected by Architect.

2.4 GLAZING:

a. 3/16” Firelite-NT.

2.5 CAULKING AND SEALING:

a. Furnish and install all caulking and sealing necessary to weatherproof and seal juncture of aluminum framing and other materials. Also furnish and install structural silicone sealant for the butt-glazed glass. Material and application shall be as specified in Section 07 90 00.

PART 3: EXECUTION

3.1 INSTALLATION:

a. Install work under this Section in accordance with the Contract Drawings, these Specifications, approved shop drawings and manufacturer's printed instructions using mechanics skilled in storefront workmanship.

b. Items of storefront construction shall be set in their correct location as shown by Contract Drawings and shop drawing details; and shall be level, plumb, square and at their proper elevation and in alignment with all adjacent work.

c. Where moldings are jointed at corners, they shall be cut accurately and neatly fitted to result in a tightly closed miter or the joint shall be covered with a molding cap mitered and welded at the factory.

d. Install with concealed fastenings.

e. Gaskets shall be installed under compression according to dimensions recommended by the manufacturer. All joints shall be flush.

f. After erection, protect exposed portions of the work from damage by welding, polishing machines, plaster, lime, acid, cement and other harmful compounds.

g. Material shall be handled carefully and protected before and after erection.

h. Insulate metal framing from dissimilar metals. Use black asphaltum where concealed. Use neoprene sheet where visible.

i. Install glass and glazing as specified in Section 08 80 00.

j. Install sealants as specified in Section 07 90 00.

k. All splice covers shall be set in non-drying mastic. Joint sleeves shall be sealed to adjacent members with a skinning type elastic sealant. Aluminum heads, sills and jambs shall be sealed to surround with a skinning type sealant on inside and outside perimeter joints to block through metal conduction.

l. All exposed flashing used in conjunction with the storefront system shall be furnished and installed by the storefront installer and shall be aluminum flashing with same finish as specified for the storefront system.

m. Upon completion of the installation and prior to final acceptance, completely clean all storefront members with manufacturer's recommended cleaner.

END OF SECTION

SECTION 08 58 20
PASS WINDOWS

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Finish carpentry (Section 06 20 00).
2. Gypsum drywall (Section 09 25 00).

b. Work Included This Section:

1. Pass window as shown on Drawings and as specified herein.

1.3 SUBMITTALS:

a. Manufacturer's Data: Submit (in duplicate) manufacturer's data and installation instructions.

PART 2: PRODUCTS

2.1 MATERIALS:

a. Pass window shall be **Covenant Security Equipment QS-STW-4848**, or equal approved in writing by the Architect.

PART 3: EXECUTION

3.1 COORDINATION:

a. Coordinate the installation of special windows with the work of other trades.

3.2 INSTALLATION:

a. Install in accordance with manufacturer's printed instructions.

b. Attach frame to wall by concealed screws through channel walls.

c. Work shall be plumb, level, rigid and secure.

END OF SECTION

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 "General Requirements" sections for Allowances, Alternates, Owner Furnished Contractor Installed, Project Management and Coordination.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
   a. "Metal Doors and Frames"
   b. "Flush Wood Doors"
   c. "Stile and Rail Wood Doors"
   d. "Interior Aluminum Doors and Frames"
   e. "Aluminum-Framed Entrances and Storefronts"
   f. "Stainless Steel Doors and Frames"
   g. "Special Function Doors"
   h. "Entrances"
6. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
7. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
   a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
   b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
   a. Wiring Diagrams: For power, signal, and control wiring and including:
      1) Details of interface of electrified door hardware and building safety and security systems.
      2) Schematic diagram of systems that interface with electrified door hardware.
      3) Point-to-point wiring.
      4) Risers.

3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
    a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

4. Door Hardware Schedule:
    a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
    b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
    c. Indicate complete designations of each item required for each opening, include:
        1) Door Index: door number, heading number, and Architect's hardware set number.
        2) Quantity, type, style, function, size, and finish of each hardware item.
        3) Name and manufacturer of each item.
        4) Fastenings and other pertinent information.
        5) Location of each hardware set cross-referenced to indications on Drawings.
        6) Explanation of all abbreviations, symbols, and codes contained in schedule.
        7) Mounting locations for hardware.
        8) Door and frame sizes and materials.
        9) Degree of door swing and handing.
        10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.

5. Key Schedule:
    a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
    b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
    c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
    d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
    e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
    f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
    a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
    b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
   a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
   b. Catalog pages for each product.
   c. Final approved hardware schedule edited to reflect conditions as installed.
   d. Final keying schedule
   e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
   f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
   a. Fire door assemblies, in compliance with NFPA 80.
   b. Required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project′s vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
   a. For door hardware: DHI certified AHC or DHC.
   b. Can provide installation and technical data to Architect and other related subcontractors.
   c. Can inspect and verify components are in working order upon completion of installation.
   d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.

4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:
   a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.

b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

2. Smoke and Draft Control Door Assemblies:
   a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
   b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

3. Electrified Door Hardware
   a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.

4. Accessibility Requirements:
   a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

C. Pre-Installation Meetings

1. Keying Conference
   a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
      1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
      2) Preliminary key system schematic diagram.
      3) Requirements for key control system.
      4) Requirements for access control.
      5) Address for delivery of keys.

2. Pre-installation Conference
   a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   b. Inspect and discuss preparatory work performed by other trades.
   c. Inspect and discuss electrical roughing-in for electrified door hardware.
   d. Review sequence of operation for each type of electrified door hardware.
   e. Review required testing, inspecting, and certifying procedures.
   f. Review questions or concerns related to proper installation and adjustment of door hardware.

3. Electrified Hardware Coordination Conference:
   a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping.

B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.

C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.

D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.

B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

1.07 WARRANTY

A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.

1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.

1.08 MAINTENANCE

A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."

1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.

B. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 01 25 00.

C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.

D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fabrication

1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer’s recognized installation standards for application intended.
2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with “Metal Doors and Frames”, “Flush Wood Doors”, “Stile and Rail Wood Doors” to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

C. Cable and Connectors:

1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.

3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Ives 5BB series

2. Acceptable Manufacturers and Products:
   a. As approved by owner

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
   a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
   b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high

4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
   a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high

5. 2 inches or thicker doors:
   a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high

6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
   a. Steel Hinges: Steel pins
   b. Non-Ferrous Hinges: Stainless steel pins
   c. Out-Swinging Exterior Doors: Non-removable pins
   d. Out-Swinging Interior Lockable Doors: Non-removable pins
   e. Interior Non-lockable Doors: Non-rising pins

9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.04 ELECTRIC POWER TRANSFER

A. Manufacturers:

1. Scheduled Manufacturer and Product:
   a. Von Duprin EPT-10

2. Acceptable Manufacturers and Products:
   a. As approved by owner

B. Requirements:

1. Provide power transfer with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
2. Locate electric power transfer per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.

2.05 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage ND series

2. Acceptable Manufacturers and Products:
   a. As approved by owner

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide escutcheon with lock status indicator window on top of lockset rose:
   a. Escutcheon height (including rose) 6.05 inches high by 3.68 inches wide.
   b. Indicator window measuring a minimum 3.52-inch by .60 inch with 1.92 square-inches of front facing viewing area and 180-degree visibility with a total of .236 square-inches of total viewable area.
   c. Provide snap-in serviceable window to prevent tampering. Lock must function if indicator is compromised.
   d. Provide messages color-coded with full text and symbol, as scheduled, for easy visibility.
   e. Unlocked and Unoccupied message will display on white background, and Locked and Occupied message will display on red background.
3. Cylinders: Refer to "KEYING" article, herein.
4. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
5. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
6. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
8. Provide electrified options as scheduled in the hardware sets.
9. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.
   a. Lever Design: Rhodes (RHO)

2.06 POWER SUPPLIES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage/Von Duprin PS900 Series

2. Acceptable Manufacturers and Products:
   a. As approved by owner

B. Requirements:

1. Provide power supplies approved by manufacturer of supplied electrified hardware.
2. Provide appropriate quantity of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
3. Provide regulated and filtered 24 VDC power supply, and UL class 2 listed.
4. Provide power supplies with the following features:
   a. 12/24 VDC Output, field selectable.
   b. Class 2 Rated power limited output.
   c. Universal 120-240 VAC input.
   d. Low voltage DC, regulated and filtered.
   e. Polarized connector for distribution boards.
   f. Fused primary input.
   g. AC input and DC output monitoring circuit w/LED indicators.
   h. Cover mounted AC Input indication.
   i. Tested and certified to meet UL294.
   j. NEMA 1 enclosure.
   k. Hinged cover w/lock down screws.
   l. High voltage protective cover.

2.07 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer and Product:
   a. Corbin Russwin LFIC

2. Acceptable Manufacturers and Products:
   a. No Substitute

B. Requirements:

1. Provide cylinders/cores to match Owner’s existing key system, compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset, manufacturer’s series as indicated. Refer to “KEYING” article, herein.

2.08 KEYING

A. Scheduled System:

1. Existing factory registered system:
   a. Provide cylinders/cores keyed into Owner’s existing factory registered keying system. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Construction Keying:
   a. Replaceable Construction Cores.
      1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
         a) 3 construction control keys
         b) 12 construction change (day) keys.
      2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.

2. Permanent Keying:
   a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
      1) Master Keying system as directed by the Owner.
   b. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
   c. Provide keys with the following features:
      1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
      2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
   d. Identification:
      1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
      2) Identification stamping provisions must be approved by the Architect and Owner.
      3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
      4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
      5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
   e. Quantity: Furnish in the following quantities.
      1) Permanent Control Keys: 3.
      2) Master Keys: 6.
      3) Change (Day) Keys: 3 per cylinder/core that is keyed differently
      4) Key Blanks: Quantity as determined in the keying meeting.

2.09 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Telkee

2. Acceptable Manufacturers:
   a. HPC
   b. Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
   a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
   b. Provide hinged-panel type cabinet for wall mounting.

2.10 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. LCN 4040XP series

2. Acceptable Manufacturers and Products:
   a. As approved by owner

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter piston with 5/8-inch (16 mm) diameter double heat-treated pinion journal. QR code with a direct link to maintenance instructions.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards. Provide snap-on cover clip, with plastic covers, that secures cover to spring tube.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck. Provide graphically labelled instructions on the closer body adjacent to each adjustment valve. Provide positive stop on reg valve that prevents reg screw from being backed out.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.
11. Closers shall be capable of being upgraded by adding modular mechanical or electronic components in the field.

2.11 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Elmes
   b. Burns

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.12 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.13 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
   a. Glynn-Johnson

2. Acceptable Manufacturers:
   a. Rixson
   b. ABH

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.

2.14 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.15 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Zero International

2. Acceptable Manufacturers:
   a. Reese
   b. Legacy

B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.16 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.17 COAT HOOKS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. ABH

B. Provide coat hooks as specified.

2.18 FINISHES

A. Refer to hardware sets

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.

B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

C. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
4. Installation Guide for Doors and Hardware: DHI TDH-007-20

B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.

C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.

D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.

I. Lock Cylinders:

1. Install construction cores to secure building and areas during construction period.
2. Replace construction cores with permanent cores as indicated in keying section.

J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:

1. Conduit, junction boxes and wire pulls.
2. Connections to and from power supplies to electrified hardware.
3. Connections to fire/smoke alarm system and smoke evacuation system.
4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
5. Connections to panel interface modules, controllers, and gateways.
6. Testing and labeling wires with Architect's opening number.

K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

L. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.

M. Overhead Stops/Holders: Mount overhead stops/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

N. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.

O. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.

P. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

Q. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

R. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.03 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.04 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items per manufacturer's instructions to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.05 DOOR HARDWARE SCHEDULE

A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.

C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.

D. Hardware Sets:

119811 X-109303 Version 1

Legend:
Link to catalog cut sheet
Electrified Opening

Hardware Group No. 01 - SINGLE, CR, RECEPTION

For use on Door #(s):
2149A 2149BA

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5			652	IVE
1	EA	POWER TRANSFER	EPT10 CON		✓	689	VON
1	EA	EU STOREROOM LOCK	ND80JCO6DEU RHO RX CON 12V/24V DC		✓	626	SCH
1	EA	PERMANENT CORE KWY AS REQUIRED BY OWNER	CR8000 981 KWY			626	RUS
1	EA	CONSTRUCTION CORE	CR8000 X CT-6R RED			626	RUS
1	EA	SURFACE CLOSER	4040XP TBWMS			689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS			630	IVE
1	EA	WALL STOP	WS401/402CCV			626	IVE
1	EA	GASKETING	488SBK			BK	ZER
1	EA	WIRE HARNESS	CON-XXX (LOCK/EXIT TO HINGE FRAME)				VON
1	EA	WIRE HARNESS	CON-XXP (FRAME TO POWER SUPPLY)				VON
1	EA	DESK MOUNT BUTTON	660-PB		✓	628	SCE
1	EA	POWER SUPPLY	PS902 FA900 KL900 120/240 VAC		✓	LGR	SCE
1	EA	DOOR CONTACT	BY SECURITY CONTRACTOR		✓		
1		CARD READER	BY SECURITY CONTRACTOR				
1		WIRING DIAGRAM	FACTORY POINT TO POINT WIRING DIAGRAM (PER ELECTRIFIED APPLICATION)				

OPERATIONAL DESCRIPTION: DOOR NORMALLY CLOSED AND LOCKED. ENTRY BY KEY OR VALID CREDENTIAL. PRESENTING CREDENTIAL TO CARD READER MOMENTARILY UNLOCKS THE DOOR ALLOWING ENTRY. DOOR CONTACT MONITORS OPENING STATUS. RX SHUNTS DOOR CONTACT UPON VALID EXIT. FREE EGRESS AT ALL TIMES. DOOR FAILS SECURE (LOCKS) UPON POWER LOSS. OR FIRE ALARM ACTIVATION.

Hardware Group No. 01A - SINGLE, CR, CORRIDOR

For use on Door #(s):
2149D

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	POWER TRANSFER	EPT10 CON		689	VON
1	EA	EU STOREROOM LOCK	ND80JCO6DEU RHO RX CON 12V/24V DC		626	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS401/402CCV		626	IVE
3	EA	SILENCER	SR64/SR65 AS REQ'D		GRY	IVE
1	EA	WIRE HARNESS	CON-XXX (LOCK/EXIT TO HINGE FRAME)			VON
1	EA	WIRE HARNESS	CON-XXP (FRAME TO POWER SUPPLY)			VON
1	EA	POWER SUPPLY	PS902 FA900 KL900 120/240 VAC		LGR	SCE
1	EA	DOOR CONTACT	BY SECURITY CONTRACTOR			
1		CARD READER	BY SECURITY CONTRACTOR			
1		WIRING DIAGRAM	FACTORY POINT TO POINT WIRING DIAGRAM (PER ELECTRIFIED APPLICATION)			

OPERATIONAL DESCRIPTION: DOOR NORMALLY CLOSED AND LOCKED. ENTRY BY KEY OR VALID CREDENTIAL. PRESENTING CREDENTIAL TO CARD READER MOMENTARILY UNLOCKS THE DOOR ALLOWING ENTRY. DOOR CONTACT MONITORS OPENING STATUS. RX SHUNTS DOOR CONTACT UPON VALID EXIT. FREE EGRESS AT ALL TIMES. DOOR FAILS SAFE (UNLOCKS) UPON POWER LOSS OR FIRE ALARM ACTIVATION.

Hardware Group No. 02 - SINGLE, I/S, OFFICE

For use on Door #(s):

2130	2131	2134	2135	2136	2137
2138	2139	2140	2141	2143	2189

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ENTRANCE/OFFICE LOCK	ND50JCO6D RHO	626	SCH
1	EA	PERMANENT CORE KWY AS REQUIRED BY OWNER	CR8000 981 KWY	626	RUS
1	EA	CONSTRUCTION CORE	CR8000 X CT-6R RED	626	RUS
1	EA	WALL STOP	WS401/402CCV	626	IVE
1	EA	COAT AND HAT HOOK	582	626	IVE
3	EA	SILENCER	SR64/SR65 AS REQ'D	GRY	IVE

Hardware Group No. 03 - SINGLE, STORAGE/DATA

For use on Door #(s):
2132 2133 2142 2146A 2149C

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80JCO6D RHO		626	SCH
1	EA	PERMANENT CORE KWY AS REQUIRED BY OWNER	CR8000 981 KWY		626	RUS
1	EA	CONSTRUCTION CORE	CR8000 X CT-6R RED		626	RUS
1	EA	OH STOP & HOLDER	90H		630	GLY
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS401/402CCV		626	IVE
3	EA	SILENCER	SR64/SR65 AS REQ'D		GRY	IVE

Hardware Group No. 04 - SINGLE, I/S, MEETING ROOM

For use on Door #(s):
2145A 2145B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PASSAGE SET	ND10S RHO		626	SCH
1	EA	WALL STOP	WS401/402CCV		626	IVE
3	EA	SILENCER	SR64/SR65 AS REQ'D		GRY	IVE

Hardware Group No. 05 - SINGLE, I/S, RESTROOM

For use on Door #(s):
2147

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S RHO OS-OCC		626	SCH
1	EA	SURFACE CLOSER	4040XP TBWMS		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS		630	IVE
1	EA	WALL STOP	WS401/402CCV		626	IVE
1	EA	GASKETING	488SBK		BK	ZER
1	EA	COAT AND HAT HOOK	582		626	IVE

Hardware Group No. 06 - ALL HARDWARE BY OVERHEAD DOOR MFG.

For use on Door #(s):
2149BB

END OF SECTION

SECTION 08 80 00
GLASS AND GLAZING

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Sealants (Section 07 90 00).
2. Hollow metal doors (Section 08 11 00).
3. Aluminum storefront system (Section 08 41 10).
4. Pass windows (Section 08 58 20).

b. Work Included This Section:

1. Glass and glazing as shown and specified.
2. All glass and glazing not specifically included in other Sections of the Specifications.
3. All accessory materials required for a complete and proper installation.

1.3 INDUSTRY STANDARDS:

a. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

Underwriter's Laboratories Inc. (UL)
Flat Glass Marketing Association (FGMA)
National Bureau of Standards (NBS)
American Architectural Manufacturers Assn. (AAMA)

1.4 QUALIFICATIONS:

a. Manufacturers:

1. Standard: For purposes of designating type and quality for the work under this Section, Drawings and Specifications are based on products manufactured or furnished by manufacturers listed for specific products. Equal products by other manufacturers will be acceptable when approved in writing by the Architect.

2. Source: Products for use on this Project shall be one manufacturer for the same function unless noted specifically otherwise herein.

1.5 PRODUCT HANDLING:

a. Glazing compounds and accessories shall be delivered to the site in unopened containers, labeled plainly with the manufacturer's names and brands.

b. Glass and setting materials shall be stored in safe, dry locations and shall not be unpacked until needed for installation. Handling and installation of materials shall be in a manner that will protect them from damage.

1.6 ENVIRONMENTAL CONDITIONS:

a. Glazing work shall not be started until the outdoor temperature is above 40° F. on a rising thermometer, unless approved provisions are made to warm the glass and rabbet surfaces. Sufficient ventilation shall be provided to prevent condensation of moisture on glazing work during installation.

b. Glazing work shall not be performed during damp or rainy weather.

c. Glazing in gasket construction shall be governed by the requirements of the gasket manufacturer.

1.7 SUBMITTALS:

a. Shop Drawings: Show glazing with proposed setting systems for various glass framing and types of glass. Show relation to adjacent work. Show installation techniques and materials with large scale detail drawings.

b. Manufacturer's Data: Submit (in duplicate) manufacturer's printed data and installation instructions for each of the glass types specified hereinafter for approval before work is started.

c. Samples: Submit 12" x 12" factory labeled samples of each type of glass specified and representative samples of glazing materials and accessories specified or proposed to be used.

d. Guarantees:

1. Submit a 10-year guarantee on all glass specified in this Section. The guarantee shall include, but not be limited to, the following:

(a) Breakage due to faulty installation or thermal failures.
(b) Delamination of glass and coating.
(c) Spontaneous breakage of tempered glass and all other glass types.
(d) Loose or faulty installation.
(e) Noncompliance with ANSI Standard Z97.1
(f) Labels or identification in exposed to view areas, except for those required by code or governing authorities.
(g) Failure to meet performance requirements of Specification.

2. Insulating glass units shall be guaranteed not to develop material obstruction to vision as a result of dust or condensation in the air space area or any other failure of the hermetic seal, other than through glass breakage, within a 10-year period following installation. Any units failing to comply with terms of this guarantee shall be replaced at no additional cost to the Owner. Submit guarantee bearing name of Owner, project, installer and date of final acceptance.

e. Internal Stress Calculations: For each type of glass used on the exterior of the building, submit calculations by the glass manufacturer or fabricator showing internal stresses to be expected in the glass under direct sunlight, instantaneous differential shading, and other stressful environmental conditions that will exist after completion of the building. These calculations should illustrate that the glass, when installed as shown and specified, will not develop internal stresses of such magnitude that spontaneous breakage will occur. If the Contractor fails to notify the Architect, in writing with this submittal, that spontaneous breakage due to internal stresses is likely to occur if the glass is installed as shown and specified, then the Contractor will be responsible in the event that spontaneous breakage does occur.

PART 2: PRODUCTS

2.1 MATERIALS:

a. Types of Glass: See Paragraph "Locations of Glazing Types" in Part 3 of this Section for locations of glass types specified below.

1. Clear Tempered Float Glass:

(a) Tempered, 1/4" thick, clear, float glass, ASTM C 1048, Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select), Kind FT (fully tempered). One of the following manufacturers, or equal approved in writing by the Architect:

AFG Industries
AFGD Inc.
Guardian Industries
HGP & Affiliates Inc.
Interpane Glass Co.
Pilkington
Viracon
Vitro Architectural Glass

2. Fire-Rated Glass: 3/16" thick, clear (no wires allowed), UL rated for 45 minutes for 1296 sq. in. maximum area and 3 hours for 100 sq. in. maximum area. Fire-rated glass is to be "Fire-Lite" glass distributed by Technical Glass Products, Kirkland, WA (206-822-4514). "Fire-Lite" glass shall be glazed with "Metacaulk", a Warnock Hersey and UL listed glazing compound furnished by the glass distributer.

b. Elastomeric Glazing Sealants and Preformed Glazing Tapes:

1. General: Provide products of type indicated and complying with the following requirements:

(a) Compatibility: Select glazing sealants and tapes of proven compatibility with other materials with which they will come into contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.

(b) Suitability: Comply with recommendations of sealant and glass manufacturers for selection of glazing sealants and tapes which have performance characteristics suitable for applications indicated and conditions at time of installation.

(c) Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.

(d) Colors: Provide color of exposed sealants indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.

2. Preformed Butyl-Polyisobutylene Glazing Tape: Provide manufacturer's standard solvent-free butyl-polyisobutylene formulation with a solids content of 100 percent; complying with AAMA A 804.1; in extruded tape form; non-staining and

non-migrating in contact with nonporous surfaces; packaged on rolls with a release paper on one side; with or without continuous spacer rod as recommended by manufacturers of tape and glass for application indicated.

c. Glazing Gaskets:

1. Lock-Strip Gaskets: Neoprene extrusions of size and shape indicated, fabricated into frames with molded corner units and zipper lock strips, complying with ASTM C 542; black.

2. Dense Elastomeric Compression Seal Gaskets: Molded or extruded gaskets of material indicated below, complying with ASTM C 864, of profile and hardness required to maintain watertight seal:

Neoprene
EPDM
Thermoplastic polyolefin rubber
Any material indicated above

3. Cellular Elastomeric Preformed Gaskets: Extruded or molded closed cell, integral-skinned neoprene of profile and hardness required to maintain watertight seal; complying with ASTM C 509, Type II; black.

d. Miscellaneous Glazing Materials:

1. Compatibility: Provide materials with proven record of compatibility with surfaces contacted in installation.

2. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.

3. Setting Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealants, 80 to 90 shore A durometer hardness.

4. Spacers: Neoprene, EPDM or silicone blocks, or continuous extrusions, as required for compatibility with glazing sealant, of size, shape and hardness recommended by glass and sealant manufacturers for application indicated.

5. Edge Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealant, of size and hardness required to limit lateral movement (side-walking) of glass.

6. Compressible Filler Rods: Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, flexible and resilient, with 5-10 psi compression strength for 25 percent deflection.

e. Manufacturer's Labels:

1. Labels showing strength, grade, thickness, type and quality will be required on each piece of glass. Labels must remain on glass until it has been set and inspected.

2. When glass is not cut to size by the manufacturer and it is furnished unlabeled from local stock, the Contractor shall submit an affidavit stating the quality, thickness, type and manufacturer of the glass furnished.

PART 3: EXECUTION

3.1 INSTALLATION:

a. Glazed Openings - General:

1. Do not set glass until rabbets of metal and wood have been primed nor until prime coat is dry.

2. Remove greases, lacquers and other organic protective finishes from surfaces of aluminum receiving glazing compound.

3. All glazing shall be done in accordance with the "Glazing Manual" and "Sealant Manual" of the Flat Glass Marketing Association. Use setting blocks. Observe clearance requirements of manufacturer of tempered, tinted and insulating glass and as recommended in the FGMA Glazing Manual.

4. Where resilient gaskets are furnished with the doors or framing members, install glass in accordance with written instructions of manufacturer of glazing section.

5. Install glazing materials and accessories in accordance with printed installation instructions of manufacturer.

6. Glass sizes shall be field measured to provide the required edge clearances for the type of glass to be installed.

7. Glazing work shall produce sealed weathertight installation. At completion of work, leave glass clean, tightly placed, whole and free from cracks and rattles.

8. Unless recommended otherwise in writing by the glass manufacturer, glazing detailed with butted vertical joints shall have a 1/8" wide vertical joint filled with the sealant specified in Section 07 90 00. Sealant shall be slightly regressed from radiused ground edge.

9. In other Sections of the Project Manual where glazing is specified to be furnished and installed under those Sections, more stringent installation requirements may be specified and shall govern the glazing installation within that Section.

b. Storefront Glazing:

1. Install glazing units on 2 resilient neoprene setting blocks spaced at quarter points of sill and of sufficient length to support glazing. Height of setting blocks must be adjusted for proper perimeter clearance.

2. Install with glazing gasket provided by storefront manufacturer and in strict accordance with glazing and storefront manufacturer's written instructions.

3. Unless recommended otherwise in writing by the glass manufacturer, butted vertical glass joints shall be fitted to within 1/16" and sealed with silicone sealant the entire height and thickness of the joint.

d. Interior Glazing:

1. Install glass in frames not having glazing gaskets, using glazing compound or glazing tape and setting blocks. Install in accordance with manufacturer's printed instructions. Glazing shall not be installed against bare metal surfaces.

3.2 LOCATION OF GLAZING TYPES:

a. Install the various glazing types in the following general locations. See Drawings for specific locations of glazing types. Glass types locations are shown on the Drawings, however if a glass type shown conflicts with the requirements of the NC State Building Code, the more stringent requirement shall be used.

1. Tempered – Door Panels

2. Fire Rated - Storefront

3.3 CLEANING:

a. Upon approval of Architect, remove all labels and thoroughly clean all glass.

b. Remove glazing materials from adjacent surfaces with cleaner recommended by the manufacturer for each specific material.

END OF SECTION

SECTION 09 29 00
GYPSUM DRYWALL

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Wood framing, furring, and blocking (Section 06 10 00).
2. Flexible insulation including acoustical (Section 07 21 16).
3. Painting (Section 09 91 00).
4. Compressible filler at top of non-fire-rated and fire-rated walls (Sections 07 21 16).

b. Work Included This Section:

1. Metal framing and furring for GWB ceilings and non-load-bearing interior GWB partitions.

2. Gypsum wallboard partitions and elsewhere as indicated or specified.

3. All trim work and other accessories required for a complete and finished installation.

1.3 SUBMITTALS:

a. Manufacturer's Data: Submit in duplicate.

1. Manufacturer's technical data on materials and instructions for installing gypsum wallboard partitions and ceilings including light gauge metal framing.

1.4 PRODUCT HANDLING:

a. Delivery and Storage:

1. Deliver products in original wrapping and containers with labels intact.

2. Store gypsum products as recommended by manufacturer to prevent damage and wetting.

3. Store metal items in a dry location free from physical abuse.

PART 2: PRODUCTS

2.1 MANUFACTURERS: To identify type and quality of materials and workmanship intended, specifications are based on the products of manufacturers listed. Products and systems as manufactured by the listed companies will be acceptable when submittals specified hereinafter are approved by Architect in writing.

a. Gypsum Board and Related Products:

Gypsum Division of Georgia-Pacific
National Gypsum Company
United States Gypsum Company (USG)
American Gypsum
Pabco Gypsum
CertainTeed

b. Steel Framing, Furring and Related Products:

Studco Building Systems
ClarkDietrich Building Systems
SCAFCO Steel Stud Company
Marino/Ware Industries Inc.
Super Stud Building Products Inc.
Steel-Con Steel Construction Systems
Mill Steel Framing
Cemco
MBA Metal Framing

2.2 MATERIALS:

a. Lightweight Framing:

1. Steel Studs for Non-Load-Bearing Interior Partitions: Cold-rolled from 20-gauge galvanized steel and designed for screw attachment of wallboard. Note UL gauges listed on the drawings are a minimum requirement, heavier gauge is required by this Specification. Studs at all door jambs and jambs at any wall opening over 3'-0" wide shall be doubled. Provide floor and ceiling runners of same gauge material as studs. See Drawings for stud sizes and shapes.

(a) Studs for shaft wall systems shall be 20-gauge galvanized USG Steel C-H Studs, or approved equal, with overall width shown on the Drawings or if not shown the manufacturer's standard width suitable for the indicated construction conditions. J-Runners, jamb struts and other required framing members shall be same gauge and finish as the studs.

(b) Where required, provide pony wall supports by one of the following, or equal approved in writing by the Architect:

- ClarkDietrich Building Systems (Pony Wall Heavy)
- SCAFCO Steel Stud Company
- Steel-Con Steel Construction Systems

b. Gypsum Wallboard: Provide thicknesses shown on the Drawings. For locations of the various types, see paragraph titled "Locations" in Part 3 of this Section.

1. Standard Wallboard: USG Sheetrock SW, with tapered edges.

2. Water Resistant Wallboard: USG Sheetrock W/R Gypsum Panels.

3. Fire Rated Wallboard: USG Sheetrock Firecode Type X per ASTM C 1396.

4. Gypsum Wallboard with Vapor Barrier: Aluminum Foil-Back USG Sheetrock with vapor permeability not to exceed 0.06 perm per ASTM C 355.

5. Shaft Wall Liner Panels: 1" thick USG Gypsum Liner Panels complying with ASTM C 1396.

6. Cement Board: USG Durock Interior Cement Board, Wonder-Board by Modulars Inc., or equal approved in writing by the Architect.

c. Screws:

1. Wallboard: As recommended by manufacturer for specific application.

2. Steel Framing: Pan-head sheet metal screws, steel, cadmium-plated.

d. Metal Trim: No. 200A or 200B as shown.

e. Corner Bead: Dur-A-Bead No. 103.

f. Control Joint: Control Joint No. 093.

g. Joint Compound:

1. For Cementing Tape: Durabond 90.

2. For Fill Coats: Ready Mixed Joint-Compound All-Purpose.

h. Joint Tape: Perf-A-Tape.

i. Wallboard Adhesive: Durabond 90 for double layer wallboard application.

j. Caulking Compound/ Acoustical Sealant: USG Acoustical Sealant.

k. USG Metal Z Furring Channel shall be of galvanized steel and of depth shown to allow thickness of rigid wall insulation or air space shown on Drawings.

l. No. 15 Asphalt Saturated Organic Felt: ASTM D 226 asphalt saturated organic fiber roofing felt, weighing approximately 13 lbs. per 100 sq. ft.

m. Acoustical Angle Bracket: Model AB-716 Angle Brace by Mason Industries Inc., or similar and equal type by Industrial Acoustics Co. or Peabody Noise Control Inc., when approved by the Architect. Angle to be 1 1/2" x 2" x manufacturer's standard thickness with 3/8" thick sponge adhered to outside of the 2" leg and with prepunched holes in the 1 1/2" leg.

n. Resilient Channel: Type RC-1 by U.S. Gypsum Company or approved equal, of 25-gauge galvanized steel.

PART 3: EXECUTION

3.1 PRE-INSTALLATION MEETING:

a. Approximately one week prior to commencement of work, Contractor is to schedule a pre-installation meeting.

b. Meet at the site with drywall installer, Architect, Owner and other representatives directly concerned with performance of the work.

c. Contractor is to conduct the meeting with input from Architect and Consultants.

d. Inspect and discuss condition of substrate and other preparatory work performed by other trades.

e. Contractor to record discussions of conference, including decisions and agreements (or disagreements) reached, and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.

f. Contractor to distribute minutes to all parties concerned.

3.2 INSTALLATION GENERAL:

a. Follow manufacturer's printed instructions and recommendations of the USG's Gypsum Construction Handbook (latest edition).

3.3 INSTALLATION OF LIGHTWEIGHT FRAMING AND FURRING:

a. Follow manufacturer's printed instructions and recommendations of the USG's Gypsum Construction Handbook (latest edition). Observe details on Drawings. Framing shall be secure, rigid and with connections sufficiently strong to carry applied loads with a 2-to-1 safety factor.

b. Wall stud bridging shall be attached in a manner to prevent stud rotation. Bridging rows shall be spaced according to the following schedule. Walls up to 8'-0" height, one row at mid-height. Wall exceeding 10'-0" height, bridging rows spaced not to exceed 4'-6" o.c.

c. Partial walls shall be reinforced with the tallest pony wall supports available for height of wall. Install pony wall supports inside light gauge metal framing track. Anchor studs to both flanges of the pony wall support. Install pony wall supports no more than 24" oc.

d. Work shall be plumb, level and true to line within a tolerance of plus or minus 1/8" in 10'-0" and with no abrupt deviations.

e. Unless otherwise detailed on the Drawings, where GWB partitions are extended to the underside of the building structure above, the metal framing shall be held down 1/2" from the structure to allow for deflection of the structure. The space shall be filled with batt insulation specified in Section 07211 for non-fire-rated walls and fire stopping specified in Section 07840 for fire-rated walls and sealed as specified or shown for the particular wall type.

3.4 GENERAL REQUIREMENTS FOR INSTALLATION OF GYPSUM WALLBOARD:

a. Minimum temperature in space shall be 50 deg. F. and building shall be enclosed with all exterior doors and windows in place before beginning GWB work.

b. All ends and edges of all gypsum wallboard shall occur over supporting members. To minimize end joints, use wallboard of maximum practical lengths. Boards shall be brought into contact but shall not be forced into place. Where ends or edges abut they shall be neatly fitted.

c. End joints on vertical surfaces shall be staggered. Joints on opposite sides of partitions shall be arranged so as to occur on different studs. Joint layout at openings shall be made so that no end joints will align with edges of opening. Joints in multi-layer work shall be staggered so that joints in one layer will not occur over joints in second layer.

d. For acoustical walls containing sound absorbing insulation between studs, install caulking at floor, ceiling, partition perimeters and where partitions abut different material. Install caulking around openings cut in wallboard partitions for doors, windows, ducts, electrical boxes or others. Install caulking as recommended by manufacturer of wallboard.

e. Apply metal trim at exposed edges of wallboard, at exposed external corners and edges abutting dissimilar materials.

f. Openings cut in wallboard to fit electrical outlets, plumbing, piping, etc., shall fit snugly and shall be small enough to be covered by standard size plates and escutcheons. Both face and back paper shall be cut for all cutouts which are not made by use of a saw.

g. Where wallboard is shown on the Drawings to be extended to building structure above, it shall follow the profile of the structure and the joints shall be bedded and taped. Sanding of joints above ceiling is not required.

3.5 FURRING CHANNELS:

a. Screw clip hat-shaped channel furring to supports. Space furring channels at 1'-4" o.c. unless shown otherwise on the Drawings. Overlap splices of furring channels 5 1/2". Secure with 2 double strand ties. Minimum end clearances at walls for furring channels shall be 3/8".

3.7 APPLICATION OF FIRE RATED WALLBOARD:

a. Where the Drawings show fire rated wallboard and reference a specific UL Design Number, the application of wallboard to the substrate shall be exactly as specified in the UL or other publication for the referenced Design Number, including the types and spacing of all anchors.

3.8 APPLICATION OF WALLBOARD ON FURRING CHANNELS:

a. Attach wallboard with long dimension at right angles to main furring channels. Secure wallboard to furring channels with screws at 8" at perimeters and 12" in the field of the panels.

b. All screws shall be power-driven with an electric screw driver. Screw heads shall provide a slight depression below surface of board without cutting paper.

3.9 APPLICATION OF WALLBOARD ON STEEL STUDS:

a. Provide single-layer vertical application of gypsum panels and space screws 12" o.c. in field of panels and 8" o.c. staggered along vertical abutting edges.

b. For double-layer laminated construction, attach base layer with 1" Type S screws spaced 8" o.c. at joint edges and 12" o.c. in field. Apply face layer vertically with adhesive on back side, joints staggered approximately 12" and fastened to base layer with 1 1/2" Type G screws. Drive screws approximately 2' from ends and 4' o.c. in field of panel, 1' from ends and 3' o.c. along a line 2" from vertical edges. Temporary shoring or support installed 16" to 24" o.c. until adhesive is dry may be used in place of screws.

1. In lieu of using adhesive, both layers may be screw attached as follows: attach the base layer with screws at 12" o.c. both at the perimeter and field of the panel and then attach the face layer with screws 12" o.c. both at the perimeter and field of the panel.

3.10 INSTALLATION OF SHAFT WALL SYSTEMS:

a. Examination:

1. Examine substrates which gypsum board shaft wall construction attaches to or abuts including preset hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of shaft wall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

b. Preparation:

1. Before sprayed-on fireproofing is applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed-on fireproofing. Where offset anchor plates are required, provide continuous units fastened to building structure not more than 24 inches o.c. and to ceiling runners.

2. After sprayed-on fireproofing has been applied, remove only as much fireproofing as needed to complete installation of shaft wall systems. Protect fireproofing that remains from damage. Comply with shaft wall manufacturers requirements for replacement of fireproofing as required to re-establish its continuity.

c. Installation of Gypsum Board Shaft Wall Systems:

1. General: Install gypsum board shaft wall systems to comply with performance and other requirements indicated as well as with manufacturer's installation instructions and the following:

(a) ASTM C 754 for installation of steel framing.

(b) Comply with requirements specified elsewhere in this Section for application and finishing of shaft wall liner panels and gypsum wallboard.

2. Do not bridge building expansion joints with shaft wall system, frame both sides of joints with furring and other support as indicated or as recommended by the shaft wall system manufacturer.

3. Install supplementary framing, blocking and bracing to support gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings and similar work which cannot be adequately supported directly by regular framing of gypsum board shaft wall system.

4. At penetrations in shaft wall, maintain fire resistance rating of entire shaft wall assembly by installing supplementary fire protection behind boxes containing wiring devices, elevator call buttons, elevator floor indicators, and similar items.

7. Isolate shaft wall system from transfer of structural loading to system, both horizontally and vertically. Provide slip or cushioned type joints to attain lateral support and avoid axial loading. Comply with details shown and with manufacturer's instructions.

8. Seal gypsum board shaft walls at perimeter of each section which abuts other work and at joints and penetrations within each section. Install acoustical sealant to withstand dislocation by air pressure differential between shaft and external spaces; comply with manufacturer's instructions and ASTM C 919.

d. Protection:

1. Provide final protection and maintain conditions in a manner acceptable to installer, which ensures gypsum board shaft wall system construction being without damage or deterioration at time of Substantial Completion.

3.13 METAL TRIM AND CORNER BEADS: Installation of trim and corner beads shall be straight, plumb and uniformly spaced along adjacent work. Fasten securely as recommended by manufacturer of trim.

a. At outside corners, embed one layer of joint tape in joint compound at each leg of the corner bead, in addition to the normal application of joint compound, to prevent a concave area on each side of the corner bead when the joint compound dries and cures.

3.14 FINISHING:

a. Joint Treatment: Embed tape in cementing compound. Cover with 3 applications of fill coat in accordance with the Gypsum Association Level 4 Gypsum Board Finish Requirements. (use Level 5 under critical lighting conditions or when glossy paint is used) Install materials in accordance with manufacturer's printed instructions to produce smooth, inconspicuous joints and well filled to prevent ridging. Avoid raising nap on wallboard when sanding down fill coats.

b. Metal Trim and Corner Beads: Extend embedded tape to face of edge or corner ground and terminate. Finish like wallboard joints.

c. Wallboard Face Repair: Repair and finish all attachment heads, depressions and minor wallboard face imperfections with material and as recommended by the manufacturer.

3.15 CONTROL JOINTS:

a. Provide control joints at locations shown on the Drawings and if not shown at maximum spacing given in table titled "Max. Spacing USG Control Joints" included in the U. S. Gypsum Construction Handbook, latest edition.

3.16 REVEAL MOLDINGS: Install at locations specified and where shown on the Drawings. Install in accordance with manufacturer's instructions.

3.17 NO. 15 FELT: Install on gypsum sheathing at locations shown on the Drawings. Lap joints not less than 2". Install to provide a continuous water barrier to protect the gypsum sheathing. Where gypsum sheathing abuts water impermeable materials such as concrete, masonry or steel, Contractor will have the option of continuing the felt across these materials or terminating the felt at these materials with a watertight joint such as termination bar and sealant. Where gypsum sheathing abuts water permeable materials such as plywood, etc., the felt is to be continued across these materials.

3.18 LOCATIONS: Unless shown otherwise on the Drawings, use the specified materials in the following general locations:

a. Standard Wallboard: At locations not specified otherwise.

b. Water Resistant Wallboard: Substrate for ceramic tile.

c. Fire Rated Wallboard: as shown on the Drawings.

d. Gypsum Wallboard with Vapor Barrier: All exterior walls and GWB ceilings with unheated space above.

e. Shaft Wall Liner Panels: Walls at mechanical chases and elsewhere as shown on the Drawings.

END OF SECTION

SECTION 09 30 00
PORCELAIN TILE

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Toilet accessories (Section 10 81 00).
3. Floor drains (See Drawings).
4. Water-resistant gypsum board substrates for ceramic tile (Section 09 29 00).
5. Sealants (Section 07 90 00)

b. Work Included This Section:

1. Porcelain tile as shown on Drawings, and as specified and all accessories and supplementary materials required for a complete and proper installation.

1.3 INDUSTRY STANDARDS:

a. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

Tile Council of America (TCA)
American National Standards Institute Inc. (ANSI)
The American Society for Testing and Materials (ASTM)

1.4 PERFORMANCE REQUIREMENT:

a. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028.

1. Level surfaces: Minimum 0.6

1.5 SUBMITTALS:

a. Samples: Submit the following samples.

1. Samples for Verifications:

(a) Panels of not less than 4 tiles, including grout, for each color and type of tile selected for the Project.

(b) Full size units of each type of trim and accessory for each color selected for the Project.

(c) Stone thresholds in 6-inch lengths for each color selected for the Project.

b. Manufacturer's Data:

1. Submit (in duplicate) manufacturer’s product data for each type of tile, mortar, grout, and other products specified.

2. Submit (in duplicate) manufacturer's printed installation instructions for the types of tile installation specified hereinafter in this Section.

c. Certificates: Furnish Master Grade Certificate bearing Certification Mark of Tile Council of America, signed by manufacturer and tile subcontractor stating type and quality of material furnished for the Project.

1.6 QUALITY ASSURANCE:

a. Installer Qualifications: Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.7 PRODUCT HANDLING:

a. Delivery: Deliver materials to Project Site in manufacturer's original packages and with seals unbroken. Only tile which bears Certification Mark of Tile Council of America on each carton will be permitted. Maintain package seals until time for installation.

b. Storage:

1. Store cementitious material in a dry building, on platforms, off floor and in an area free from wetting.

2. Store tile and accessory materials in a clean, dry, covered area to prevent wetting or staining.

1.8 ENVIRONMENTAL CONDITIONS:

a. Temperature: Mortar shall not be applied to surfaces that contain frost. Minimum temperature for installation of tile shall be 40° F. and rising.

b. Ventilation: Movement of air shall be controlled to prevent rapid evaporation of moisture for mortar in place.

1.9 PROTECTION:

a. Traffic Restrictions: Spaces in which tile is being installed shall be closed to traffic and other work during installation and for at least 48 hours after completion of tile work.

b. Protect installed tile work with suitable covering during construction period to prevent staining, damage, and wear.

PART 2: PRODUCTS

2.1 ACCEPTABLE TILE MANUFACTURERS: Subject to compliance with the Drawings and Specifications and written approval by the Architect of the specified submittals, products by the following manufacturers will be acceptable for the Project:

American Olean Tile Company
Dal-Tile Corp.
Mannington Ceramic Tile

Quarry Tile Company
Summitville Tiles Inc.

a. Acceptable Setting and Grouting Manufacturers: Subject to compliance with the Drawings and Specifications and written approval by the Architect of the specified submittals, products by the following manufacturers will be acceptable for the Project:

American Olean Tile Company
Boiardi Products Corporation
Dal-Tile Corporation
Laticrete International, Inc.
Mapei Corporation
Southern Grouts and Mortars
Summitville Tiles Inc.
TEC Incorporated
WR Bonsal Company

b. Source: Products for use on this Project shall be of one manufacturer for the same function unless noted specifically otherwise herein.

2.2 MATERIALS:

a. Portland Cement: ASTM C 150, Type I, gray or white as required.

b. Lime: Hydrated lime conforming to ASTM C 207, Type S.

c. Sand: Clean, conforming to ASTM C 144. Fine aggregate (where required) shall pass 100% through a 16-mesh screen.

d. Latex Additive: Laticrete Liquid No. 3642, as mfd. by Laticrete International Inc. or equal. (used with job-mixed Portland cement mortar only)

e. Water: Potable.

f. Reinforcing: 2" x 2" x 16/16-gauge welded wire mesh, galvanized.

g. Bond Coat: Portland cement paste on a plastic bed, or dry-set mortar or latex Portland cement mortar on a cured bed.

h. Organic Adhesive: ANSI A136.1, Type I.

i. Metal Wall Lath: Shall be flat rib lath, 3.4 lbs. per sq. yd.

k. Dry-Set/ Thin Set Portland Cement Mortar:

1. Mortar shall comply with requirements of ANSI Standard A118.4

2. Mortar shall be factory prepared mixture of Portland cement; dry redispersible, latex additive; and other ingredients to which only water needs to be added at Project site.

3. Mortar shall be manufactured by one of the companies listed as “Acceptable Setting and Grouting Manufacturers” in Part 1 of this Section, or equal approved in writing by the Architect.

l. Grouting Material:

1. Grout shall comply with ANSI Standard A118.6.

2. Grout shall be factory-prepared mixture of Portland cement; dry redispersible, latex additive; and other ingredients to produce the following:

(a) Unsanded grout mixture for joints 1/8” and narrower.

(b) Sanded grout mixture for joints wider than 1/8”

3. Grout shall be manufactured by one of the companies listed as “Acceptable Setting and Grouting Manufacturers” in Part 1 of this Section, or equal approved in writing by the Architect.

4. Color shall be as selected by Architect.

m. General Requirements for Tile:

1. Tile shall be as manufactured by companies listed below, or other manufacturer listed in Paragraph "Acceptable Tile Manufacturers" hereinbefore in this Section, or equal approved in writing by the Architect, and shall be "Quality Certified" by the Tile Council of America Inc. to equal or exceed the Standard Grade requirements of ANSI Standard A137.1. Only tile which bears Certification Mark of the Tile Council of America on each carton will be permitted.

2. See Drawings for tile manufacturers, models, colors, locations, and details.

n. Stone Saddle: Amco White as produced by Georgia Marble Co., or equal approved in writing by the Architect, by other acceptable manufacturers listed hereinbefore in this Section. Profiles as shown on Drawings.

2.3 MIXING MORTARS AND GROUTS:

a. Mixing Liquid: Add water to latex additive only as recommended by manufacturer's printed instructions.

b. Portland Cement Mortar Setting Bed for Floors: One (1) part Portland cement to five (5) parts dry sand and 1/10-part hydrated lime (lime is optional), by volume. Add mixing liquid to obtain a consistency or workability to promote maximum density as evidenced by a smooth, slickened appearance when stroked with a trowel.

c. Portland Cement Setting Bed for Vertical Surfaces:

1. Scratch Coat:

(a) One-part Portland cement, 3 to 5 parts sand, hydrated lime not to exceed 20% of volume of the amount of Portland cement.

(b) Liquid shall be 1-part latex additive to 2 parts water.

(c) Add liquid to obtain a consistency or workability to promote maximum density as evidenced by a smooth, slickened appearance when stroked by a trowel.

2. Brown Coat:

(a) One-part Portland cement, 3 to 5 parts sand, hydrated lime not to exceed 50% of the amount of Portland cement.

(b) Add water to obtain a consistency or workability to promote maximum density as evidenced by a smooth, slickened appearance when stroked with a trowel.

d. Dry-Set/ Thin Set Mortar: Mix in strict accordance with written instructions of mortar manufacturer.

e. Grout for Tile: Mix in strict accordance with manufacturer's written instructions.

2.4 WATERPROOF MEMBRANE:

a. Provide products that comply with ANSI A118.10.

b. All installations, where required in Part 3 of this Section by the Tile Council of America's (TCA) Handbook for Ceramic Tile Installation written instructions, shall have waterproof membrane.

c. Provide Hydroment-Ultra-Set by Bostik, or equal approved in writing by the Architect. This product is to be used as a waterproofing membrane only, and not to be used as a tile setting adhesive.

d. Waterproof membrane is to be turned up walls nominal 3" height.

e. See flood testing requirement included in Part 3 of this Section.

2.5 ANTI-FRACTURE MEMBRANE / CLEAVAGE MEMBRANE:

a. As required for isolating the installation from cracking due to minor substrate movement and normal structural deflections as specified in ANSI A108.17 and complying with ANSI A118.12.

b. Anti-fracture membrane shall be one of the following:

Mapeguard 2, by Mapei
ECB Anti-fracture Membrane System, by NAC Products
NobleSeal CIS Crack Isolation Membrane, by Noble Company

PART 3: EXECUTION

3.1 CONDITION OF SURFACES:

a. Examine surfaces to receive tile. Work shall not be started until defects have been corrected that will adversely affect tile work.

b. Surfaces to receive tile shall be dry, clean, free of oily or waxy films, firm, level and plumb.

c. Work shall not be started until work of other trades which goes in or behind tile has been completed.

d. In areas to receive thin set tile, substrate shall not vary more than 1/8" in 8'-0" from true plane.

3.2 WATERPROOFING MEMBRANE:

a. Installation to comply with waterproofing membrane manufacturer's written instructions to produce a waterproof membrane of uniform thickness bonded securely to substrate.

b. Flood Test: Do not start tile installation until waterproof membrane has been installed and successfully passed flood test. The fluid applied waterproofing membrane shall be installed in accordance with requirements of the manufacturer. Flood test shall consist of sealing off area, stopping drains and flooding with 2" to 3" of water. Waterproofing system must retain water depth for a period of 8 hours. If leakage occurs, drain area, repair leaks and repeat flood test until no leaks appear in an 8-hour period.

3.3 INSTALLATION OF TILE:

a. General Requirements for Installation of Tile:

1. Comply with parts of ANSI A108 series of tile installation standards in "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated for tile installation.

2. Comply with Tile Council of America's "Handbook for Ceramic Tile Installation" , methods indicated for tile installation.

3. Fitting: Cut and drill tile for proper fitting around work projecting through wall so that escutcheons and collars will overlap cuts. Rub exposed, cut edges.

4. Pattern: Lay out tile lengthwise on walls so that no tile of less than half size occurs.

5. Base: Floor level at wall shall be at a constant elevation all around room such that wall base will be level and joint between base and floor will be of a uniform width.

6. Lines: Install tile to true, straight lines, with uniform joints, both vertically and horizontally.

7. Joints: Joints between floor tile and wall base or wall tile shall align exactly. Staggered joints between floor tile and tile on walls will not be accepted.

8. Spacing of Joints: Joint widths of wall tile shall be controlled by lugs on the sides of tile.

9. Finish surface of tilework shall be true to plane within 1/8" in any 8' length.

10. Set in place all floor drains, furnished under Division 15, in a watertight manner. Set drains in locations shown on the Drawings; align drain to tile joints. Where tile must be cut to accommodate drain, cut symmetrically around drain face.

3.4 INSTALLATION OF WALL SETTING BED:

a. Scratch Coat: Apply plaster to masonry or metal lath with sufficient force to adhere firmly and to key pores of masonry and lath rib. When scratch coat has set, scratch with a nail float.

b. Leveling Coat:

1. Saturate wall surface or scratch coat evenly but leave no surface water.

2. Provide a true mortar surface to within 1/4" in any 8'.

3. Thickness shall allow for tile thickness to bring face of tile to plane shown on Drawings. Damp cure for 3 days.

3.5 INSTALLATION OF WALL TILE AND BASE:

a. Install wall tile in accordance with Method W243 (GWB substrate) or Method W202 (masonry/ CMU substrate) of the Tile Council of America using thin-set mortar bond coat. Comply with the following general requirements:

1. Float dry-set mortar over substrate with pressure and over an area no greater than can be covered with tile while mortar remains plastic. Cover evenly with no bare spots. Thickness shall not be less than 3/32".

2. Apply mortar with notched trowel within 10 minutes before applying tile.

3. Do not apply tile to skinned-over mortar.

4. Provide a plumb and true mortar surface at the correct distance back from the finished wall line.

5. Do not soak tile.

6. Press tile firmly into freshly notched mortar. Tap and beat to a true surface.

7. Determine joint width by spacers on tile or by strings or pegs where tile is cut.

8. Press and beat tile into place to obtain at least 80% coverage by mortar on back of each tile.

9. Adjust tile before initial set of mortar takes place.

3.6 INSTALLATION OF FLOOR TILE:

a. Install floor tile in accordance with Method F121 of the Tile Council of America including waterproofing membrane, wire mesh reinforced mortar bed and bond coat. Comply with the following general requirements:

1. Waterproofing membrane to be installed in accordance with requirements of the membrane manufacturer.

2. Install mortar setting bed to thickness shown on the Drawings, or 1 1/2” if thickness is not shown on Drawings, and to slope to floor drains. Locate wire mesh reinforcing at mid-depth of the setting bed.

3. Float mortar bond coat with pressure over area no greater than can be covered with tile while mortar remains plastic. Cover evenly with no bare spots. Thickness shall not be less than 3/32".

4. Comb mortar with notched trowel within 10 minutes before applying tile.

5. Do not apply tile to skinned-over mortar.

6. Press tile firmly into mortar. Align tiles immediately and beat to a true surface. Space joints between tiles to match across field of the tile.

7. Joints in wall, base and floor tile within a given space, shall align exactly in all directions.

8. Press and beat tile into place to obtain at least 80% coverage by mortar on back of each tile.

9. Adjust tiles which are out of line or level.

3.7 STONE THRESHOLDS: Install stone thresholds at locations indicated, set in same type of setting bed as abutting field tile, unless otherwise indicated.

3.8 EXPANSION JOINTS:

a. Provide, as work of this Section, expansion joints in accordance with requirements of TCA EJ 171 unless specifically shown or specified otherwise. Furnish and install, as work of this Section, backer rod, sealant and other accessory materials. Materials and installation shall be in accordance with TCA EJ 171 and Section 07 90 00 - Sealants.

3.9 GROUTING:

a. If strings were used to space the tile, remove before grouting but not until after the bond of the tile to the walls is complete.

b. Follow grout manufacturer's directions as to whether tile joints are to be soaked prior to applying grout.

c. Follow grout manufacturer's directions strictly and explicitly.

d. For cushion-edge tile, strike or tool joints to depth of cushion before grout sets. For square edge tile, fill joints flush with tile surface. Fill all gaps and skips.

e. Do not allow dark cement to show through grouted white joints.

3.10 CLEANING:

a. Sponge and wash tile thoroughly, diagonally across joints. Finally polish with clean, dry cloths.

b. The use of acid or acid cleaners to clean ceramic tile is strictly prohibited.

c. Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.

3.11 CURING:

a. After installation, damp cure for at least 3 days.

END OF SECTION

SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Gypsum wallboard work (Section 09 29 00).
2. Unit masonry work (Section 04 20 00).
3. Mechanical items located in ceiling (see Drawings).
4. Electrical items located in ceiling (see Drawings).
5. Finish schedule (see Drawings).

b. Work Included This Section:

1. Exposed grid suspension system and acoustical lay-in panels.
2. All trim and supplementary components and materials required for a complete and finished installation.

1.3 INDUSTRY STANDARDS:

a. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

The American Society for Testing and Materials (ASTM)
Underwriter's Laboratories Inc. (UL)

1.4 REQUIREMENTS OF REGULATING AGENCIES:

a. Underwriter's Laboratories Inc.: Acoustical ceiling material shall carry on the package the UL Fire Hazard Classification specified herein or shown on the Drawings.

1.5 SUBMITTALS:

a. Shop Drawings: Indicate the following:

1. Reflected ceiling layouts for all areas to receive acoustical ceilings.

2. Details of special area treatment, details of changes in level and all connections to work of other trades.

3. Submit typical layout showing size and spacing of grid members, access units and hangers as related to structural framing.

b. Samples: Submit samples of all acoustical units, suspension systems and accessories.

c. Manufacturer's Data: Submit manufacturer's printed technical literature and installation instructions for suspension system and acoustical units.

1.6 PRODUCT HANDLING:

a. Delivery: Deliver acoustical ceiling units to the Project Site in manufacturer's original packages with seals unbroken, with manufacturer's name and contents legibly marked thereon.

b. Storage: Store materials in enclosed areas with the same temperature and humidity conditions as the areas in which the material is to be installed.

1.7 ENVIRONMENTAL CONDITIONS:

a. Building Conditions: Install acoustical materials only when normal temperature and humidity conditions approximate the interior conditions that will exist when the building is occupied. The building shall not be cold and damp or hot and dry.

b. Glazing: Shall be in place and all exterior openings closed. All concrete, drywall and other wet work shall be completed and dry.

c. Heat and Ventilation: Shall be provided to maintain proper conditions before, during and after acoustical work is performed.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

a. Subject to compliance with the Drawings and Specifications and approval by the Architect of the specified submittals, products by the following manufacturers will be acceptable for the Project.

1. Suspension System: Armstrong or equal, see Finish Schedule on Drawings for models.

2. Acoustical Panels: Armstrong or equal, see Finish Schedule on Drawings for models.

b. Source: Products for use on this Project shall be of one manufacturer for each function unless noted specifically otherwise herein.

2.2 HANGERS:

a. Wire: No. 12 gauge galvanized steel wire.

b. Power Actuated Stud: As recommended by the grid system manufacturer.

2.3 SUSPENSION SYSTEMS:

a. Exposed Tee Suspension System, regular and fire rated:

1. Material: Hot dipped galvanized steel.

2. Surface Finish: Baked polyester paint or powder-coated paint.

3. ASTM Standard: Manufactured and tested in accordance with ASTM C635.

4. Finish Color: Blizzard White.

5. Face Dimension: 9/16”

6. Profile: Exposed tee

7. Cross Tee / Main Beam Interface: Override

8. End Detail: Main Beam: Staked on Clip; Cross Tee: Staked on Clip

9. Duty Classification: Intermediate or Heavy-duty. Conforming to ASTM C635 requirements for “Intermediate Duty” rating.

10. System shall provide 2'-0" x 2'-0" exposed grid.

    (a) Space main tee runners 48" o.c. Suspend from the structure above with wire hangers spaced not to exceed 4'-0" o.c.

    (b) Space cross tees 24" o.c. at right angles to main tee runners for 24" square pattern.

11. Components: System shall consist of main support tees, cross tees, splice clips, wall angles, hold-down clips, trim, and all accessory items required for a complete installation.

12. Design Loads: Suspension system shall be designed to support respective lay-in units and electrical and mechanical fixtures, with deflection of suspension members not to exceed 1/360 of span of member.

13. Grid Members:

    (a) Exposed grid system consisting of 1 11/16" deep main tees and cross tees with 9/16" exposed flange.

    (b) Wall molding shall be cold rolled steel, channel shaped, with 1" exposed face of same finish as exposed tee surfaces.

14. Hold-Down Clips: Provide 2 hold-down clips of manufacturer's standard design for each lay-in unit.

2.4 ACOUSTICAL PANELS AND TILE:

a. For purposes of describing type and quality of ceilings required, the Drawings and Specifications are based upon products manufactured by Armstrong World Industries Inc. See Paragraph “Acceptable Manufacturers" for products by other manufacturers.

1. Regular lay-in panels shall incorporate the following properties.

   (a) Rating: Acoustical material shall be mineral fiber and shall meet UL Fire Hazard Classification as follows: Flame spread - Class 1, 25 or under.

   (b) Weight: Units shall weigh a minimum of 0.63 lbs. per sq. ft.

   (c) Properties: Units shall have the following properties: NRC shall be between 0.50 and 0.60; STC shall be between 35 and 39; light reflectance shall be LF-1 (75% or over).

   (d) Edge Design: Units shall have tegular edges.

   (e) Finish: Shall be the manufacturer's standard white paint finish.

2. Panels for fire-rated ceilings shall be Armstrong Second Look II Fire Guard Panels, 24" x 48" with 1" wide scoring to simulate 24" x 24" panel, 3/4" thick as mfd. by Armstrong Company, or approved equal, and shall incorporate the following properties.

   (a) Rating: Acoustical material shall be mineral fiber and shall meet UL Fire Hazard Classification as follows: Flame spread - Class 1, 24 or under, and shall bear the UL Fire Resistive Label.

   (b) Properties: Units shall have the following properties: NRC shall be between 0.50 and 0.60; STC shall be between 35 and 39; light reflectance shall be LR-1 (75% or over).

   (c) Edge Design: Units shall have tegular edges.

   (d) Finish: Shall be manufacturer's standard white paint finish.

3. Moisture-Resistant Lay-In Panels:

   (a) Shall be Armstrong Armashield Panels with perforated classic design, 24" x 24" (nominal), 5/8" thick as mfd. by Armstrong Company, or approved equal.

   (b) Rating: Acoustical material shall be mineral fiber and shall exceed UL Fire Hazard Classification as follows: Flame spread - Class 1 (0-25); UL Class A rated.

   (c) Weight: Units shall weigh a minimum of 1.1 lbs. per sq. ft.

   (d) Properties: Units shall have the following properties: NRC shall be between 0.55 and 0.65; STC shall be between 40 and 44; light reflectance shall be LR-1 (75% or over).

   (e) Edge Design: Square edge.

   (f) Finish: Panels are to be finished with a tough polyvinyl chloride coating with a high degree of scrubbability and moisture resistance, equal to finish on Armstrong Armashield panels.

b. Adhesive: At locations where panels are adhered to GWB substrate, the adhesive shall either be furnished by or a type recommended by the panel manufacturer.

PART 3: EXECUTION

3.1 INSTALLATION:

a. General Requirements for Installation:

1. Pattern, Layout and Types:

   (a) Install acoustical ceiling in pattern and types indicated on reflected ceiling plans.

   (b) Treat each space surrounded by permanent-type partitions as a unit, without borders. Field shall be continuous without regard to movable partitions.

(c) Unless indicated otherwise or on the Drawings, ceilings shall be laid out symmetrically in each space with equal width of panels at opposite walls. However, perimeter tile is to be no less than half a tile, without written approval from the Architect.

2. Installation of acoustical panels and suspension systems shall be in strict accordance with manufacturer's written instructions.

3. Installation of acoustical panels and suspension systems shall be made by experienced mechanics and mechanics approved by the manufacturer of materials used.

4. Fit parts neatly and accurately, true to line and plane.

b. General Requirements for Suspension System:

1. Install suspension system in accordance with approved shop drawings, the manufacturer's written instructions, and in accordance with:

(a ASTM C 636, "Recommended Practice for Installation of Metal Ceiling Suspension System for Acoustical Tile and Lay-In Panels".

(b) ASTME 580 - Application of Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels in Areas Requiring Seismic Restraint.

(c) Current International Building Code with NC Amendments.

2. Install wall mold around area perimeter at proper level for finished ceiling height.

3. Hangers shall not be more than 3" out of plumb in length of hanger. If it is unavoidable for hangers to be out of plumb, they shall be out of plumb in off-setting directions such that the ceiling hangs true and without pushing to any side.

4. Where hangers fall at structural members, secure hanger wire to structural member. Where hangers fall between structural members, provide miscellaneous metal angles or channels between structural members to support hanger wires.

5. Suspension system, including wall mold, shall be level to within 1/8" in 12' with ceiling panels in place.

6. Exposed grid members shall be straight and in alignment. All exposed surfaces shall be flush and level.

7. Provide additional hangers to grid members at each corner of light fixtures.

(a) See Electrical Drawings and Specifications for requirements for the Electrical Trade to clip the light fixtures to the ceiling grid or, if authorities having jurisdiction require, to hang the light fixtures from the structure above separately from the ceiling grid.

c. General Requirements for Acoustical Panels:

1. Scribe acoustical units neatly to abutting surfaces and to penetrations or protrusions.

2. Exercise care to prevent soiling of ceiling boards during installation. Leave entire system neatly and accurately fitted. The finish surface of the tile installed with concealed suspension system shall be flush and tightly fitted.

3. Chipped, discolored or damaged tile shall be removed at no additional cost to the Owner.

d. Panels Adhered to GWB Substrate:

1. Type of adhesive, application of adhesive and application of the panels shall be in accordance with both the panel and adhesive manufacturers' written recommendations.

2. The installed panels shall be installed such that joints are tightly abutted with no more than 1/16" gap at any point.

3.2 CLEANING: Following installation, clean all soiled and discolored surfaces. Remove and replace units which are damaged or improperly installed.

3.3 EXTRA STOCK: Furnish maintenance material matching products installed, packaged with protective covering for storage and identified with appropriate labels.

a. Acoustical Ceiling Units: Furnish quantity of full size units equal to 2.0% of amount installed.

b. Exposed Suspension Components: Furnish quantity of each exposed component required for actual installation equal to 2.0% of amount installed.

END OF SECTION

SECTION 09 65 00
RESILIENT FLOORING

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Gypsum drywall walls (Section 09 29 00).
2. Masonry walls (Section 04 20 00).

b. Work Included This Section:

1. Primer and adhesive.
2. Floor leveler.
3. Vinyl composition floor tile.
4. Resilient wall base.
5. Edge strips and all required accessories.

1.3 INDUSTRY STANDARDS:

a. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

American National Standards Institute Inc. (ANSI)
The American Society for Testing and Materials (ASTM)

1.4 SUBMITTALS:

a. Shop Drawings: Submit manufacturer's technical literature and installation instructions for each type of flooring specified hereinafter.

b. Samples:

1. Submit the following samples of each type, color, and pattern of resilient flooring selected by the Architect, showing full range of color and pattern variations.

Full size tile samples.
6" long sample of wall base.

c. Prior to floor installation, provide letter from floor installer that a certified testing agency has tested the concrete slab for pH and vapor emissions. Letter shall state the vapor emissions and pH level are within the flooring manufacturer’s acceptable range to receive the finish floor. Include copies of test reports with the letter.

1.5 PRODUCT HANDLING:

a. Store resilient flooring materials as packaged by the manufacturer in an undamaged condition and with manufacturer's seals and labels intact. Care shall be taken to prevent damage and freezing during delivery, handling and storage. Store materials at the Project

Site at least 24 hours prior to their installation. Stack tile boxes in accordance with manufacturer's written instructions.

1.6 ENVIRONMENTAL CONDITIONS:

a. Temperature: Materials and the area in which materials are to be installed shall be maintained at the following temperatures:

1. Store tile in rooms in which they are to be installed for 24 hours prior to laying tile at the specified temperature.

2. For at least 24 hours before installation of material and continuing for at least 48 hours after installation, maintain temperature at not less than 70° F. to not more than 90° F.

3. Maintain a minimum temperature of 55° F. after flooring is installed.

1.7 PROTECTION:

a. Close spaces to traffic in which resilient flooring is being set and to other work until flooring is firmly set. Where solvent-based adhesives are used, provide safety spark-proof fans and operate when natural ventilation is inadequate. Smoking shall be prohibited.

1.8 MAINTENANCE MANUALS: Provide 2 copies of maintenance manuals for resilient flooring describing maintenance procedures.

1.9 EXTRA STOCK:

a. Tile: Upon completion of the tile installation, furnish Owner with extra tiles of each type, color and pattern from the same lot as installed. Furnish 1 box of each type of resilient tile installed. Extra tile shall be in unopened original factory boxes.

b. Wall Base: Furnish 5% of quantity installed of each color selected.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS: Products of the following manufacturers equivalent to those specified herein will be acceptable for use on the Project when the specified submittals are approved (in writing) by the Architect:

a. Standard: For purposes of designating type and quality for the work under this Section, Drawings and Specifications are based on products by the manufacturers hereinafter specified.

1. Vinyl Composition Tile:

Armstrong Flooring
Flexco Flooring
Mannington Commercial/Burke
Roppe Corp.
Tarkett/Johnsonite

b. Source: Products for use on this Project shall be of one manufacturer for each function unless noted specifically otherwise herein.

2.2 PRIMER: Primer, where required for concrete subfloors, shall be as recommended by the adhesive and flooring manufacturer.

2.3 LEVELER: As recommended by the flooring manufacturer.

2.4 ADHESIVES:

a. Adhesive for cementing resilient flooring materials to subfloors shall be water-resistant type recommended by the flooring manufacturer.

b. Adhesive for wall base shall be as recommended by the base manufacturer.

2.5 RESILIENT FLOORING:

a. General Requirements for Resilient Flooring:

1. Resilient flooring of each color and pattern selected in any one area shall be from the same lot.

2. Colors will be selected from the manufacturer's standard colors and patterns of the series specified.

3. Pattern shall extend through thickness of flooring and shall not be at surface only.

4. See Finish Schedule on Drawings for manufacturers, models, patterns, colors, and locations.

b. Vinyl Composition Tile:

1. For purposes of describing type and quality of products required, the Drawings and Specifications are based upon materials of manufacturers listed below. See Paragraph "Acceptable Manufacturers" for other acceptable manufacturers.

2. Vinyl composition tile shall comply with Federal Specification FS SS-T-312, Type IV, Composition 1 (asbestos free).

2.6 RESILIENT BASE:

a. See Finish Schedule on Drawings for manufacturers, models, patterns, colors, and locations.

b. Provide straight-bottom type for carpet.

d. Provide set-on cove type for remaining.

e. Provide corners from standard base sections as specified hereinafter in Part 3 of this Section.

f. See Drawings for type and location.

g. In addition to the resilient base shown on the Finish Schedule, provide resilient base around wood cabinetwork and elsewhere as shown on the Drawings.

2.7 EDGE STRIP: Vinyl, thickness to match resilient flooring, not less than 1" wide, with beveled edge, color as selected by Architect, and furnished by the flooring manufacturer.

2.8 ACCESSORIES: Furnished by or type recommended by the resilient flooring manufacturer.

2.9 ASBESTOS: All flooring, wall base, adhesive, leveler and primer products, and other materials used shall be asbestos free.

PART 3: EXECUTION

3.1 CONDITION OF SURFACES:

a. Manufacturer's Requirements: Surfaces to receive resilient flooring shall meet the minimum requirements established by the manufacturer of the flooring and adhesive. Work shall not be started until defects have been corrected.

b. Tolerances: Subfloor surface shall not vary more than ± 1/8" in any 10' dimension. Neither shall they vary at a rate greater than 1/16" per running foot. No abrupt deviations from a smooth surface will be permitted. Defective areas shall be corrected by the trades involved.

3.2 PREPARATION OF SURFACES:

a. Remove debris, dirt, grease and all other foreign matter from surfaces to receive flooring and base.

b. Inspect surfaces for holes, cracks and smoothness. Do not proceed with flooring installation until surfaces are level and smooth with holes and cracks filled with an approved filler. Depressions shall be filled, and high spots ground down to the specified tolerance.

3.3 APPLICATION OF PRIMER: Apply primer to cover substrate completely. Apply at rate recommended by manufacturer of resilient flooring.

3.4 INSTALLATION OF LEVELER: Install in accordance with printed instructions of the manufacturer of the floor leveler. Top surface of finished underlayment shall be level and smooth within the tolerances specified.

3.5 APPLICATION OF ADHESIVE:

a. Bond and Moisture Test: Perform bond and moisture test per manufacturer’s written recommendations.

b. Mix and apply adhesive in accordance with the adhesive manufacturer's directions. Cover surface evenly with adhesive. Area covered by one application of adhesive shall not exceed the maximum working area recommended by the manufacturer. Install resilient flooring within the time limits recommended by the manufacturer. If adhesive films over or dries, it shall be removed, and the area shall be cleaned and recoated.

3.6 INSTALLATION OF RESILIENT FLOORING:

a. Lay resilient flooring true, level and with tight, flush aligned joints. Joint treatment shall be in accordance with published instructions of the flooring manufacturer. Roll flooring in accordance with the manufacturer's installation instructions to assure intimate contact and proper adhesion. Accurately cut resilient flooring to and around permanent cabinets and fixtures to provide a close fit; seal joint with sealant recommended by the flooring manufacturer.

b. Unless shown otherwise on the Drawings, align joints with room axis. Center tile work between walls.

c. Lay tile so that cut tile at walls will be minimum of 1/2 tile. Where it is necessary to lay tile less than 1/2 tile, minimum shall be 3".

d. Floor tile shall be laid with random pattern.

e. Lay out special patterns in accordance with approved shop drawings.

f. Install edge strip where resilient flooring terminates at exposed concrete.

g. Where shown on finish schedule, lay tile on concrete filled metal stairs tight and flush with edge of safety nosing and scribe tight to sides of stringer and face of riser.

3.7 INSTALLATION OF RESILIENT BASE:

a. Install base level, true and tight against supporting surface. No joints in base shall occur within 12" of a corner.

b. Corners shall be made by scoring, mitering and heating standard base sections prior to bending around corner and adhering.

c. Cement base firmly to wall. Joints shall be tight. Base (throughout its entire length) shall have top and bottom edges in firm contact with walls and finish floors. Scribe base accurately to trim.

3.8 CLEANING AND WAXING:

a. Immediately upon completion of resilient flooring in a room or area, dry-clean floors and adjacent surfaces with a cleaner approved by manufacturer of resilient flooring. Remove surplus adhesive and other soiling.

b. Floors shall not be washed for at least 5 days after installation. Wash floors with non-alkaline cleaning solution approved by manufacturer of resilient flooring. Rinse thoroughly with clean, cold water.

c. Wax flooring with 2 coats of water-emulsion wax as recommended by manufacturer of resilient flooring. Buff floor after each coat of wax to an even luster. Buff floors with an electric polishing machine.

d. Do not wax base; clean and rub to high gloss.

3.9 PROTECTION: Allow no traffic on finished floors unless they are protected with heavy paper.

END OF SECTION

SECTION 09 68 10
CARPET TILE

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Resilient wall base (Section 09 65 00).

2. Electrical outlets and cover plates located in floor (see Drawings).

b. Work Included This Section:

1. Carpet tiles adhered to substrate.

2. All carpet accessories required for a complete and proper installation.

1.3 SUBMITTALS:

a. Shop Drawings:

1. Shop drawings shall show plan of areas to receive carpet, locations of all seams and joints, and locations and details of edging.

2. Submit manufacturer's technical data including all properties specified for carpet and detailed installation instructions.

b. Samples: Samples of each carpet selected shall be submitted for Architect's approval. Carpet samples shall be full size tiles.

c. Certificate: A certificate on the manufacturer's letterhead signed by an authorized representative of the carpet manufacturer shall be submitted (with the samples and manufacturer's specifications) and shall state that proposed material meets or exceeds the requirements of these Specifications.

d. Test Reports: Submit (in duplicate) report of test by an independent laboratory of Fire Tests specified hereinafter.

e. Guarantee-Warranty:

1. Contractor shall furnish a written guarantee against defects in materials or workmanship, subject to correction at no cost to the Owner, provided the Contractor is notified in writing of all defects within a period of 2 years from the date of acceptance.

2. Submit manufacturer's ten-year replacement wear and anti-static warranty.

f. Manufacturer's Data:

1. Test Reports: Submit (in duplicate) reports of tests performed by independent testing laboratory in accordance with requirements of this Section.

2. Installation Instructions: Submit (in duplicate) manufacturer's printed installation instructions for carpet and adhesive.

1.4 DELIVERY AND STORAGE: Deliver materials to the Project Site in manufacturer's original, unopened packaging clearly marked as to the contents, size and dye lot. Store materials in a secure, safe area and protect against damage, deterioration and contamination.

1.5 EXTRA STOCK: Deliver to Project, 5% overrun based on installed yardage of each type of carpet. Provide required overrun exclusive of carpet needed for proper installation and waste.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS: Products that meet these Specifications and manufactured by the following companies will be acceptable for use on the Project when submittals specified hereinafter are approved (in writing) by the Architect.

Interface Flooring Systems Inc.
Milliken Contract Carpets
or equal

a. Standard: For purposes of designating type and quality for the work under this Section, Drawings and Specifications are based on products manufactured or furnished by the manufacturers specified for the product.

b. Source: Products for use on this Project shall be of one manufacturer unless noted specifically otherwise herein.

c. Applicator: Submit letter from carpet manufacturer stating that carpet installer is approved by the manufacturer for application of the type and size project specified. Letter shall certify that installer has satisfactorily applied the type of installation specified. Letter shall be on manufacturer's letterhead and shall be signed by an officer of the company.

2.2 GENERAL REQUIREMENTS FOR CARPET:

a. Fire Tests:

1. Carpet shall pass Methenamine Pill Test as performed in accordance with ASTM D 2859 (self-extinguishing).

2. Flammability: When tested in accordance with ASTM E 648, carpet shall have a critical radiant flux rating not lower than 0.45 watts per sq. cm. (Class I)

b. Static Resistance:

1. Each type of carpet shall have a static resistance rating of not more than 1.5 KV when tested at 20% R.H. and 70° F. by Test Method AATCC 134.

2.3 CARPET:

a. See Finish Schedule on Drawings for manufacturers, models, patterns, colors, locations, and details.

2.4 FLOOR SEALER: Floors to receive carpet shall be sealed with Kure-N-Seal by Sonneborn, Masterseal by Master Builders, or approved equal.

2.5 ADHESIVE: Releasable type adhesive either furnished by the carpet manufacturer or recommended by him.

2.6 ACCESSORIES: Provide edge strips fabricated from extruded vinyl in color approved by the Architect. Also provide any other accessory materials required for a complete and finished installation.

PART 3: EXECUTION

3.1 FLOOR PREPARATION:

a. The floor shall be free from all foreign matter, grease, paint, wax, oil, dirt, non-compatible adhesive, or other contaminants. Cracks, holes and depressions shall be filled with a latex patching compound. Sweep or vacuum floor thoroughly.

b. Protruding objects shall be removed, and concrete floors shall be sealed with the specified sealer.

c. Floor temperature shall be a minimum of 60° F. Concrete pH shall be no more than 10.0 (acid etch if greater than 10.0). Carpet modules shall be conditioned at 60° F minimum 90° F maximum for 24 hours prior to installing. The presence of any moisture will interfere with the curing performance of the adhesive.

3.2 INSTALLATION:

a. Install in accordance with the Drawings, Specifications, approved shop drawings, the manufacturer's printed instructions and the following general instructions.

1. Adhesive grid lines shall be applied using a long nap (1") paint roller or a 1/32" x 1/32" x 1/16" notched trowel. Center grid lines shall be 3" wide. All other grid lines shall be a minimum of 9" wide. Perimeter glue shall extend a minimum of 2' in from all walls.

2. A full spread of adhesive using a paint roller shall be used in all areas where concentrated rolling traffic is expected.

3. Adhesive shall be applied under any cut modules throughout the installation.

4. Allow releasable adhesive to dry completely. A releasable adhesive is ready when it does not transfer to a finger or module placed on it.

5. Starting point and working lines shall be determined and laid out in strict accordance with the carpet tile manufacturer's printed instructions.

6. Careful attention shall be paid to edge and corner alignment. Modules out of alignment by more than 1/16" shall not be installed. If the edges become misaligned and this misalignment continues to increase, this indicates an out of square condition. The problem shall be immediately determined and corrected.

7. Always slide each module into position from the side to prevent trapped yarn. Set each module by firmly rubbing both joints.

8. Modules shall be tight but not compressed. Peaking will occur when modules are too tight. Too loose an installation can slip and crate obvious gaps with use.

9. Tiles shall be laid with pile direction running in one direction or shown on approved shop drawings and if not shown on shop drawings as directed by the Architect.

10. Plywood or masonite shall be positioned on carpet when heavy furniture or supplies are moved. This is particularly critical immediately following installation.

3.3 CLEANING: Spots and smears of floor covering adhesive and seam cement shall be removed immediately with solvent as recommended by the carpet manufacturer. Area shall be vacuumed clean and carpet protected from soiling and damage as recommended by the manufacturer during remainder of the work.

END OF SECTION

SECTION 09 91 00
FIELD PAINTING

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Related Work Specified Elsewhere:

1. Shop priming and factory finishing of certain materials and equipment are specified in other sections of the Specifications.

b. Work Included This Section:

1. All field painting on the entire Project, including new and existing materials and equipment specified in other Sections and plumbing, mechanical and electrical materials and equipment, is specified as work of this Section 09 91 00, with the following exception:

(a) Painting of plumbing, mechanical and electrical materials and equipment located inside Equipment Rooms is specified on the Drawings and to be provided by the plumbing, mechanical and electrical trades.

2. Paint all surfaces exposed to view in the completed work, both exterior and interior, unless specifically enumerated not to be painted.

3. Work includes field painting of exposed bare and covered pipes, conduit and ducts (including color coding), and of hangers, exposed steel conduit and iron work, miscellaneous metal items and primed metal surfaces of materials and equipment installed under plumbing, mechanical and electrical work.

4. Work includes stenciling "Fire and Smoke Barrier - Protect All Openings”, or similar wording as required by authorities having jurisdiction, signs above ceilings on both sides of all fire rated walls.

5. Except where natural finish of material is specifically noted as a surface not to be painted, paint exposed surfaces whether or not designated in finish schedules. Where items or surfaces are not specifically mentioned, paint the same as similar adjacent materials or areas. If color or finish is not designated, Architect will select these from standard colors or finishes available.

6. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

7. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.

c. Surfaces Not to Be Painted:

1. Unless otherwise indicated, painting is not required for surfaces for which the natural finish of the material is obviously the final finish, such as (for example only)

glass, plastic laminate, ceramic tile and other such items that traditionally and obviously are not painted.

2. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer-finishing is specified for such items as (for example only) pre-finished partition systems, acoustic materials, and pre-finished mechanical and electrical equipment, including light fixtures, switchgear and distribution cabinets.

3. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as (for example only) walls or ceilings in concealed areas and generally inaccessible areas, furred areas, pipe spaces, and duct shafts.

4. Finished Metal Surfaces: Unless otherwise indicated, metal surfaces of (for example only) anodized aluminum, stainless steel, chromium plate, and similar finished materials will not require finish painting. Note that galvanized steel does not fall into this category and is required to be painted.

5. Operating Parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting.

6. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates. An exception to this is that embossed or etched fire rating labels on hollow metal frames may be painted over provided that they are cleaned and properly prepared so that paint will adhere tightly to the label.

7. Finish Schedule: Painting is not required for walls, floors and ceilings that are specifically scheduled not to be painted in the Finish Schedule.

1.3 QUALITY CONTROL:

a. Color Samples: Submit samples of colors selected by the Architect in duplicate for final approval. Samples shall be approximately 8" x 10" size and on wood when finish is to be on wood; on gypsum wallboard when finish is to be on gypsum wallboard, masonry, or concrete; and on sheet steel when finish is to be on metal. Sample shall be finished as specified in "Schedule of Paint Systems."

1.4 INDUSTRY STANDARDS:

a. Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used). Reference is to the latest edition of the standard referenced.

The American Society for Testing and Materials (ASTM)

1.5 PRODUCT HANDLING:

a. Delivery and Storage:

1. All materials shall be delivered to the site in the manufacturer's sealed packages with labels intact and seals unbroken.

2. A space will be designated for the storage of paint materials and tools. Whenever it may be necessary to change the location of this storage space, promptly move to the newly designated place. Protect the storage space floor from damage.

3. Cover all paints at all times. Take all safeguards to prevent fire.

PART 2: PRODUCTS

2.1 MATERIALS:

a. Painting Materials:

1. In order to describe type and quality of materials intended, painting materials specified are products of Sherwin Williams. Paint products of Benjamin Moore, PPG, Pratt and Lambert, or others may be used when the following is approved in writing by the Architect.

(a) Submit to the Architect a schedule of painting based on the format hereinafter used to specify paint systems for the various surfaces, stating the brand name, trade name and manufacturer's number of each of the materials proposed.

(b) Include manufacturer's data sheet for each type of paint proposed.

(c) Receive from the Architect written approval of these submittals before beginning work.

2. Tinting of colorants shall be as recommended by manufacturer of finishing materials and shall be those supplied by the finish manufacturer. All colors shall be non-fading under exposure to which they will be normally subjected.

3. Additives to Finishing Materials: Add only those ingredients required or recommended by the manufacturer of the finishing material. Source of such additives shall be as recommended by the manufacturer of finishing material.

4. Thinner: Shall be type and product recommended by manufacturer of finishing material.

(a) Turpentine: Pure gum spirits of turpentine, conforming to ASTM D 13.

b. Metal Cleaners: As recommended by the paint manufacturer.

2.2 FIRE AND SMOKE BARRIER SIGNS:

a. Fire rated walls shall be effectively and permanently identified with stenciled signs provided in accordance with the 2002 International Building Code with North Carolina Amendments and other authorities having jurisdiction. Such signs shall be located above any decorative ceiling and in concealed spaces, on both sides of the wall and shall read "Fire And Smoke Barrier - Protect All Openings". or similar wording as required by authorities having jurisdiction. Color shall be white background with red letters.

b. Stenciled letters shall be 2" high and signs shall be located 20'-0" on centers maximum.

2.3 SCHEDULE OF PAINT SYSTEMS:

a. Except as required otherwise in the Contract Documents for specific areas or surfaces, the following materials, or approved equal, shall be used on the surfaces scheduled:

b. Review the entire Drawings and Specifications for description of materials and equipment therein to be painted under this Section. See Paragraph "1.2 Scope" for additional information and requirements regarding work included in this Section.

1. INTERIOR PAINT SYSTEMS: Provide the following paint systems for various substrates, as indicated:

(a) INTERIOR FERROUS METAL:

SYSTEM	Latex Semi Gloss
PRIMER	All Surface Latex Enamel Primer
FINISH	2 coats Pro Mar 200 Latex Semi-Gloss

(b) INTERIOR GALVANIZED METAL:

SYSTEM	Latex Semi Gloss
PRIMER	All Surface Latex Enamel Primer
FINISH	2 coats Pro Mar 200 Latex Semi-Gloss

(c) INTERIOR ALUMINUM:

SYSTEM	Alkyd Base, Semi Gloss
PRIMER	1 coat Galvite HS Primer
FINISH	2 coats Pro Mar 200 Interior Alkyd Semi-Gloss

(d) INTERIOR CMU:

SYSTEM	Latex, Semi Gloss
PRIMER	1 coat Block Filler – B25W25
FINISH	2 coats Pro-Mar Latex Semi-Gloss

(e) INTERIOR CONCRETE:

SYSTEM	Latex Semi Gloss
PRIMER	1 coat Block Filler B25W25
FINISH	2 coats Pro Mar Latex Semi-Gloss

(f) INTERIOR GYPSUM WALLBOARD: (Eggshell)

SYSTEM	Latex, Eggshell
PRIMER	1 coat Preprite Classic Primer
FINISH	2 coats Pro Mar Latex Eg-shel

(g) INTERIOR WOOD - PAINTED:

SYSTEM	Latex Semi Gloss
PRIMER	1 coat Wall & Wood Primer
FINISH	2 coats Pro Mar Latex Semi-Gloss

(h) PIPE AND EQUIPMENT INSULATED COVERING:

SYSTEM	Enamel, Semi Gloss
PRIMER	1 coat All Surface Enamel Primer A41W210
FINISH	2 coats Pro Mar 400 Latex Semi-Gloss

(i) PLASTIC SURFACES:

SYSTEM	Latex, Semi Gloss

PREPARATION	Scuff-sand all plastic surfaces prior to application of primer
PRIMER	1 coat Preprite Bonding Primer (test for adhesion)
FINISH	2 coats Pro Mar Latex Semi-Gloss

PART 3: EXECUTION

3.1 COLORS:

a. Before any work is done, the Architect will furnish the Contractor with a color schedule showing where the various colors shall go. The Contractor shall then submit samples and prepare samples at the job as specified in Paragraph "Submittals".

3.2 GENERAL REQUIREMENTS:

a. A pre-installation meeting is required for all painting. Meeting shall be attended by Owner, Architect, Contractor, and other representatives directly concerned with performance of the work. The Contractor will conduct the meeting.

b. All painting procedures, including surface preparation and application of materials shall be in strict accordance with the manufacturer's published instructions and recommendations.

c. The commencing of work, or the absence of notification in writing to the contrary, shall be construed as acceptance of the surfaces to be finished as satisfactory to receive the finishes and to produce the results required.

d. All spaces shall be broom clean before painting is started.

e. Surfaces to be finished shall be clean, dry, smooth and adequately protected from dampness.

f. Provide ample protection for, and take particular care to protect adjoining surfaces, fixtures and materials of all kinds. Repair any damage caused by the work of this Section. If necessary to accomplish this, remove and protect hardware, accessories, device plates, lighting fixtures, factory finished work and similar items. Upon completion of each space, carefully replace all removed items. Use only skilled mechanics for removal, replacement and protection.

g. Remove doors to finish top and bottom after doors have been fitted.

h. Remove electrical panel box cover and door before painting wall. Paint separately and reinstall after all paint is dry.

i. No work shall be done under conditions which are unsuitable for the production of good results. Do not apply paint when temperature is below 50^{o} F. Do not apply finishes on surfaces so hot as to prevent proper application and drying. Do not apply finishes in spaces where dust is being generated that would speck the finish.

j. Before painting concrete, (including CMU) test surfaces with a moisture testing device. No paint or sealer shall be applied on concrete when moisture is tested to be over 5.5%. Provide manufacturer’s approval letter as specified in Part 1 of this Section.

3.3 PREPARATION OF SURFACES:

a. Existing Surfaces: All existing surfaces shall be prepped, as necessary, to receive the 3-coat paint system specified, including, but not limited to, removal of existing paint systems, patching, and sanding.

b. CMU: Properly clean and prep to produce and satisfactory surface for painting.

c. Gypsum Drywall: Follow the USG Handbook (latest edition) for cleaning and prepping surface.

d. Wood: Sandpaper to smooth and even surface and then dust off. Knots, sap and pitch streaks in lumber to be painted shall be given a brush coat of thin shellac before priming coat is applied.

f. Steel and Iron:

1. Remove grease, rust, scale and dust. Except as noted otherwise, sandpaper as required to produce a satisfactory surface for painting.

g. Galvanized Metal: Thoroughly clean with metal cleaner according to cleaner manufacturer's directions; rinse and wipe dry. Galvanized steel manufacturer and paint manufacturer must approve the use of the cleaner prior to use.

3.4 PRIMING:

a. See the other Sections of these Specifications for shop priming requirements specifically related to materials and items therein specified.

b. The shop coat is not to be considered this Contractor's prime coat. Apply primer as specified.

c. All coats required in the schedule of painting shall be applied, including all scheduled prime coats and finish coats. Surfaces of factory primed items shall be sanded if necessary and otherwise properly prepared and all scheduled prime coats and finish coats shall be applied.

3.5 APPLICATION:

a. All paint materials shall be stirred or agitated thoroughly until the ingredients are completely mixed.

b. Surface to be stained or painted shall be adequately protected from dampness.

c. Each coat of paint shall be well applied, worked out evenly and allowed to dry (at least 24 hours) before subsequent coat is applied.

d. Sand between coats to produce an even, smooth finish.

e. Suction or hot spots in concrete which are noticeable through the first coat shall be touched up before applying the second coat to produce an even result in the finish coat.

f. Where only one coat of the finish material is required by the schedule of painting, the undercoat shall be tinted to match the finish coat.

g. Finished work shall be uniform, of approved color, and free from runs, sags, defective brushing, clogging or excessive flooding. Make edges of paint adjoining other materials or colors sharp, straight, clean and without overlapping.

h. At completion, touch up and restore finish where damaged and leave in good condition.

i. Should any coat of paint be adjudged unsatisfactory by the Architect, it shall be sandpapered or removed and additional coats applied as necessary until satisfactory finish is achieved.

3.6 CLEANING:

a. All cloths and cotton waste that might constitute a fire hazard shall be placed in metal containers or destroyed at end of each working day.

b. At the completion of this work, all staging, scaffolding, containers, debris, etc., shall be removed from the premises.

c. Painted surfaces shall be left in a clean condition. Remove paint spots, oil or stains from adjacent surfaces.

d. Unstick all doors and repair any damaged areas of paint.

END OF SECTION

SECTION 10 57 23 - SHELVING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Adjustable Wood Mount Shelving.

1.2 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry.

B. Section 09 29 00 - Gypsum Board Assemblies.

C. Section 04 20.00 – Unit Masonry Walls.

1.3 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including Preparation instructions and recommendations, Storage and handling requirements and recommendations, and Installation methods.

C. Shop Drawings: Prepared specifically for this project; show dimensions of shelving and interface with other products.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum ten years documented experience of the same type and scope as specified.

B. Installer Qualifications: Company specializing in the installation of the products specified in this section with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Finish areas designated by Architect.

2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

3. Refinish mock-up area as required to produce acceptable work.

1.5 WARRANTY

A. At project closeout, provide to Owner or Owner's Representative an executed copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: ClosetMaid LLC., or equal approved in writing by the Architect.

B. Provide all storage shelving and accessories from a single manufacturer.

2.2 MATERIALS

A. Solid Melamine Wood Shelving System

B. Thickness 5/8 Melamine wood shelving

1. Depth: 16 in depth

2. Width: Maximum length, minimum cuts

3. Color: White

4. Pre-finished on three sides.

a. PVC edge banding.

C. Hang Track: Hot-rolled sheet metal, Grade C-1008/C-1010; epoxy-coated 1 – 9 mils. Scratch resistant

D. Standards: Sheet metal, Grade C-1006; epoxy coated 1 – 9 mils Scratch resistant.

2.3 ADJUSTABLE SHELFTRACK EVO HARDWARE SYSTEM

A. Hang Track, Standards and Brackets:

1. Hang Track: Use to hang standards. Creates one step leveling and eliminates the need to install each standard separately.

2. Standard: Attaches to hang track. Provides adjustable height options for hanging shelving. Space standards no more than 24 inches apart and no more than 4 inches from each end of shelf.

3. Bracket: Attaches to standard to support shelving. Epoxy coated. White.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Verification of Conditions:

1. Prepared spaces are sized and located in accordance with shop drawings.

2. Framing, reinforcement, and anchoring devices are correct type and are located in accordance with shop drawings.

D. Installer's Examination:

1. Examine conditions under which installation is to be performed; submit written notification if such conditions are unacceptable.

2. Installation activities started before unacceptable conditions have been corrected is prohibited.

3. Installation indicates installer's acceptance of conditions.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with approved shop drawings and manufacturer's printed instructions.

B. Cut shelves 1/2 inch to 1-3/8 inches (12.7 to 35 mm) shorter than actual wall measurements; cap all exposed ends.

C. Install shelving plumb and level at heights indicated in accordance with shop drawings and manufacturer's printed installation instructions.

D. Drill holes where required using sharp bit; do not punch.

3.4 CLEANING

A. As work proceeds, maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris related to this work.

B. Upon completion of installation, clean all surfaces that have become soiled during installation.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 10 81 00
TOILET ACCESSORIES

PART 1: GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SCOPE:

a. Work Included in This Section:

1. Toilet room accessories as shown on Drawings and as specified herein, including all installation accessories required for a complete and proper installation, ready for use.

1.3 INDUSTRY STANDARDS:

a. References: Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used):

The American Society for Testing and Materials (ASTM)
American Iron and Steel Institute (AISI)
Aluminum Association (AA)

1.4 SUBMITTALS:

a. Shop Drawings: Indicate location, arrangement, dimensions, mounting heights, anchorage, materials, finishes, hardware and relation to adjacent work.

b. Manufacturer's Data: Submit (in duplicate) manufacturer's illustrations and technical data giving materials, dimensions, thickness of parts, function, installation instructions and operating and maintenance instructions.

c. Guarantee: Submit (in duplicate) manufacturer's ten (10) year mirror guarantee against silver spoilage. Guarantee shall show name of Project, name of Owner, location and date of final acceptance.

d. Samples: Furnish samples of each item in finish specified for Architect's review. Samples will be returned and may be installed in the Project and will be used as a basis for comparing other like material items.

e. Cut-out Templates: Furnish templates to other trades for items recessed into finish materials.

1.5 PROTECTION:

a. Protect toilet accessories from physical damage until final acceptance of the Project.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS: Subject to compliance with the Drawings and Specifications, provide product by one of the following, or equal approved in writing by the Architect:

American Specialties Inc.
Bobrick Washroom Equipment Inc.
Bradley

2.2 MATERIALS:

a. Stainless Steel: AISI Alloy Type 304 with #4 satin finish.

b. Aluminum Extrusions: AA Alloy 6063-T6, except as specified otherwise.

c. Exposed faces shall not have any embossed or applied names.

2.3 ACCESSORIES:

a. See the Drawings for the Schedule of Toilet Accessories required.

PART 3: EXECUTION

3.1 INSTALLATION:

a. Install toilet accessories after the completion of tile, painting, and plumbing work.

b. Protect room and material finishes from damage. Damaged finishes and materials shall be replaced at no additional cost to the Owner.

c. Install toilet accessories in accordance with manufacturer's printed instructions. Mount securely, plumb and level. Mount symmetrically to plumbing fixtures, unless shown otherwise elsewhere in the Contract Documents or on approved Shop Drawings. Mount multiple units in a true, level line and uniformly spaced. Flanges of recessed units shall be snug to adjacent surfaces.

3.2 CLEAN-UP:

a. Upon completion of installation, remove all debris and broom clean floors.

b. Clean and polish all toilet accessories.

END OF SECTION

SECTION 12 30 40
LAMINATE CLAD CASEWORK

PART 1: GENERAL

1.00 RELATED DOCUMENTS:

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

1.1 WORK INCLUDED:

a. The extent of manufactured casework systems as shown on Drawings, schedules, and specified herein. Where specific materials, finishes, construction details, and hardware are specified herein, the casework contractor shall be held in strict accordance. All items shall be as provided, and publicly cataloged, by one manufacturer to assure physical and dimensional integrity of the system and ready access to additional systems components for a minimum of ten (10) years after completion of this contract. Product from companies not meeting this requirement will not be accepted.

b. The work includes the fabrication and installation of built-in laminate clad casework, countertops, and related items specified herein.

c. All cabinetwork, casework, counterwork, shelving, mailboxes, and other work of this nature that is shown on the Drawings as plastic laminate clad is to be included as work of this Section.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

a. Sinks and service fixtures, service and waste lines and all connections, vents, electrical service fixtures, hoods and ducting within or adjacent to casework, or otherwise required: Furnished and installed under Mechanical and Electrical, see Drawings.

b. Base molding: Furnished and installed under Finishes Division 9.

c. Locks master keyed to room doors. Appliances, unless specifically noted on plans as included in this section. Blocking within walls where indicated.

d. General millwork and /or custom cabinetry not included as work of this Section is specified in Section 06 40 00 – Architectural Woodwork.

1.3 SYSTEM DESCRIPTION:

a. All manufactured casework shall be pre-engineered, and cataloged, to rigid modular-matrix sizing allowing for future interchange of components, or entire units. Manufacturers submitting for approval must provide printed catalog information documenting this performance feature: no exceptions will be allowed.

1.04 QUALITY ASSURANCE:

a. Provide manufactured casework system, countertops and related items furnished by the same supplier for single responsibility, and integration with other building trades.

b. Manufacturer shall show evidence of a minimum of five (5) years experience in providing manufactured casework systems for similar types of projects.

c. Manufacturer shall produce evidence of adequate facilities and personnel required to perform on this project. Financial stability of manufacturer shall be evidenced by readily providing a material performance bond if required.

d. Manufactured casework systems must conform to design, quality of materials, workmanship and function as shown on drawings and specified herein. In the absence of a printed specification, minimum quality standards shall be in accordance with AWI Section 1600B, Sixth Edition, Version 1.1, no exceptions will be permitted: additional requirements shall be as specified herein.

1.5 SUBMITTALS:

a. Product Data:

1. In addition to the general conditions as relates to prior approvals, submittals of manufacturer's data, installation instructions, and samples are required upon architect's request.

b. Samples:

1. Submit samples of casework manufacturer's standard decorative laminate colors, patterns, and textures for exposed and semi-exposed materials for architect's selection. Samples of other materials or hardware shall be made available if requested.

2. Architect may request representative full-size samples for evaluation prior to approval. Samples may be impounded by architect/owner until completion of project to ensure compliance with specifications.

c. Production Drawings:

1. Submit production drawings for casework systems and countertops showing layout, elevations, ends, cross-sections, face modular values, service run spaces and location of services.

2. Include layout of units with relation to surrounding walls, doors, windows, and other building components.

3. Coordinate production drawings with other work involved.

1.6 PRODUCT HANDLING:

a. Deliver laminate clad casework and countertops only after wet operations in building are completed.

b. Store completed laminate clad casework and countertops in a ventilated place, protected from the weather, with relative humidity range of 20% to 50%.

c. Protect finished surfaces from soiling and damage during handling and installation. Keep covered with a protective covering.

1.7 JOB CONDITIONS:

a. Humidity and Temperature Controls:

1. Advise contractor of requirements for maintaining heating, cooling, and ventilation in installation areas as required to reach relative humidity necessary to maintain optimum moisture content.

1.8 WARRANTY:

a. All materials and workmanship covered by this section will carry a three (3) year warranty from date of acceptance.

1.9 RELATIONSHIP OF DRAWINGS AND SPECIFICATIONS:

a. Where details on the Drawings differ from the Specifications regarding materials and construction, the Specifications shall govern.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS AND PRODUCT:

a. Manufacturer and Product Type:

1. For purpose of determining minimum performance and quality standards this specification is based upon casework systems manufactured by TMI Systems Design Corporation, 50 South Third Avenue West, Dickinson, North Dakota, 58601.

2. Construction and features are to be in accordance with TMI cataloged TRIMLINE built-in storage system, that is fully modular and dimensionally integrated to allow owner interchange of doors, drawers, and interior components.

b. Substitutions:

1. It is the intent of this specification to establish performance and quality criteria consistent with pre-established standards of design and function herein described. Casework systems not meeting these minimum standards will not be accepted.

2. Where specific materials, finish options, construction details, modularity, hardware and test data are specified herein, the casework storage system will be held in strict compliance. Substitutions will be considered prior to bid date provided request is submitted to the architect, in writing, no later than ten (10) days prior to bid date; substitution request shall list any and all deviations from the specified system. Requests later than ten (10) days prior to bid will not be considered. Acceptable substitutions will be identified in addenda issued by the Architect.

c. Other Acceptable Manufacturers:

1. Subject to compliance with the Drawings and Specifications, the following are also acceptable manufacturers of Laminate Clad Casework. Manufacturers included as "Other Acceptable Manufacturers" are required to comply with the Drawings and Specifications and are required to modify their product if necessary in order to comply:

Stevens Industries Inc., Teutopolis, IL

2.2 DEFINITIONS AND MATERIALS: Listed are definitions and materials commonly used in defining decorative laminate clad casework. Refer to FABRICATION section for those items selected for use on this project.

a. Definitions: Identification of casework parts by surface visibility.

1. Open Interiors: Any open storage unit without solid door or drawer fronts and units with full glass doors.

2. Closed Interiors: Any closed storage unit behind solid door or drawer fronts, glass insert doors, sliding solid doors, and/or acrylic doors.

3. Exposed Ends: Any storage unit exterior side surface that is visible after installation.

4. Other Exposed Surfaces: Faces of doors and drawers when closed, tops of cabinets less than 72" above finished floor.

5. Semi-Exposed Surfaces: Interior surfaces which are visible, bottoms of wall cabinets and tops of cabinets 72" or more above finished floor.

6. Concealed Surfaces: Any surface not normally visible after installation.

b. Core Materials:

1. Particleboard: Medium density 45-50 pound western particleboard of fir or pine meeting or exceeding ANSI A 208. 1-1993, M-3 requirements. Thicknesses used are 1/4", 1/2", 3/4", and 1".

2. Hardboard: Prefinished hardboard in 1/4" thickness meeting or exceeding commercial standards CS-251.

c. Decorative Laminates/Veneer Where Applicable:

1. High pressure decorative laminate GP28 (.028), NEMA Test LD-3-1995.

2. High pressure decorative laminate GP50 (.050), NEMA Test LD-3-1995.

3. High pressure decorative laminate PF42 (.042), NEMA Test LD-3-1995.

4. High Pressure cabinet liner CL20 (.020), NEMA Test LD-3-1995.

5. Melamine laminate tested to meet NEMA Test LD-3-1995.

6. High pressure backer BK20 (.020).

d. Laminate Color Selection:

1. Basic cabinet body color:

a. To include surfaces of all components, including drawer boxes, to be covered with melamine laminate as a minimum requirement; drawer boxes not matching basic color will be rejected.

b. Melamine laminate shall be available in manufacturer's standard dove grey, frosty white, or light beige color. One color only per project.

c. See Finish Schedule on Drawings for Plastic Laminate colors.

e. Edging Materials / Colors:

1. 1mm PVC banding, machine applied with waterproof hot melt adhesive.

2. 3mm PVC banding, machine applied with waterproof hot melt adhesive with external edges and outside corners of door and drawer fronts, and countertops, machine profiled to 1/8" radius for safety.

3. PVC banding shall be available in black, dark grey, light gray, light beige, and white. All selections color matched to laminates. Colors will be selected by the Architect from the manufacturer's standard colors.

4. Barbed T-edging or laminate self edge on cabinet components will not be acceptable.

2.3 SPECIALTY ITEMS:

a. Metal Parts:

1. Countertop support brackets, undercounter support frames, legs and miscellaneous metal parts shall be furniture steel, welded, degreased, cleaned, treated and epoxy powder painted in light grey, white or light beige to match basic cabinet body color, or in a contrasting dark grey or black color.

2.4 CABINET HARDWARE:

a. Hinges:

1. Shall be five knuckle, institutional grade, 2 3/4" overlay type with hospital tip. Steel shall be minimum .095" thick and have minimum of nine (9) edge and leaf fastenings. Hinges shall pass ANSI-BHMA standard A156.9, Grade 1 requirement for both vertical and horizontal set and sag (pair of hinges will hold minimum of 310 pounds); copy of test result shall be provided upon request. Casework manufacturer shall use specifically engineered screws for attachment of hinges; wood screws shall not be permitted. Doors 48" and over in height shall have three (3) hinges per door. Available in epoxy finish, color to be black, clear teal, dawn, dove grey, frosty white, hollyberry, larkspur, light beige, slate grey, wildrose, or brushed chrome. Provide magnetic door catch with minimum seven (7) pound pull, attached with screws and slotted for adjustment.

b. Pulls:

1. Door and drawer front pull shall be epoxy finished metal wire style, 96mm spacing on fasteners. Available in epoxy finish, color to be black, light grey, white, light beige, dark grey, or brushed chrome. Pull design shall be compatible with Americans with Disability Act (ADA), Federal Register Volume 56, No. 144, specifically paragraph 4.27.4. Other pulls may be acceptable pending architect approval. Colors will be selected by the Architect from the manufacturer's standard colors.

c. Drawer Slides:

1. Standard use and kneespace drawers shall be Blum Style No. BS230M with epoxy finish. Slides will have a 100-pound load rating at full extension and a built-in, positive stop both directions, with self closing feature. Slides shall have a lifetime warranty as offered by the slide manufacturer.

2. Pencil drawers shall be equipped with Blum No. 320 for undercounter or support frame mounting.

d. Adjustable Shelf Supports:

1. Shall be injection molded polycarbonate, clear color to blend with selected interior finish, friction fit into cabinet end panels and vertical dividers, readily adjustable on 32mm (approximately 1-1/4") centers. Each shelf support shall have two (2) integral support pins, 5mm diameter, to interface pre-drilled holes, and to prevent accidental rotation of support. The supports shall be automatically adaptable to 3/4" or 1" thick shelving and shall provide non-tip feature for shelving. Supports are designed to readily permit field fixing of shelf if desired. Structural load testing shall show loading to 1,040 pounds (260 pounds per support) without failure.

e. Locks:

1. For doors and drawers as shown on Drawings shall be National Lock #M47054C, removable core, disc tumbler, cam style lock with strike. Each lock shall be furnished with two (2) keys.

f. Undercounter Support Frame:

1. Welded steel countertop support frames shall be provided at all kneespaces. Frames shall be available in 3" increments to clear span 24" to 60" width. Frames shall readily accept pencil and kneespace drawers and shall be designed to interface undercounter support brackets. Available in dove grey, frosty white or light beige to match basic cabinet body color or in contrasting slate grey or black color.

2.5 FABRICATION:

a. Fabricate casework to dimensions, profiles, and details shown.

b. Cabinet Body Construction:

1. Tops and bottoms shall be joined to cabinet ends and internal cabinet components such as fixed horizontals, rails and verticals shall be joined using 10mm diameter industrial grade hardwood dowels, laterally fluted with chamfered ends, securely glued and clamped under pressure during assembly to secure joints and cabinet squareness. Use minimum of six (6) dowels at each joint for 24" deep cabinets and minimum of four (4) dowels at each joint for 12" deep cabinets.

2. Unless specifically indicated, core shall be 3/4" thick particleboard. Edging and surface finishes as indicated herein.

3. Unit backs shall be 1/4" thick prefinished hardboard, color matched to cabinet interior. Exposed back on fixed or movable cabinets to be 3/4" particleboard, color matched to cabinet interior, exterior surface GP28 laminate as selected.

4. All fixed undercounter and tall units shall have an integral base created by extending end panels to floor and factory applied blocking between sides. Provide 96mm (nominal 4") high toe base unless otherwise indicated on the drawings.

5. All undercounter units except sink base units, shall be provided with full sub-top. Sink base units shall be provided with open top, front welded steel/epoxy painted sink rail full width at top front edge concealed behind face rail/doors, split back removable access panels and bottom panel to have CL20 high pressure cabinet liner both faces, color to match interior color. No exceptions will be permitted.

6. All end panels and vertical dividers, except sink base units, shall be prepared to receive adjustable shelf hardware at 32mm (approximately 1-1/4") centers. Door hinges, drawer slides and pull-out shelves shall mount online boring to maintain vertical alignment of components and provide for future relocation of doors, drawers, shelves and/or pull-out shelves.

7. All exposed and semi exposed edges of basic cabinet components shall be factory edged with PVC banding, machine applied with waterproof hot melt adhesive.

    a. Edging shall be 1mm PVC, available in choice of black, clear teal, dawn, dove grey, frosty white, hollyberry, larkspur, light beige, slate grey, or wildrose.

8. Adjustable shelf core shall be 3/4" thick particleboard up to 30" wide, 1" thick particleboard over 30" wide.

    a. Front edge shall have factory applied 3mm PVC, available in black, clear teal, dawn, dove grey, frosty white, hollyberry, larkspur, light beige, slate grey, or wildrose to match door/drawer front edge color.

9. Interior Finish, Units with Open Interiors:

    a. Sides, top, bottom, horizontal, and vertical members, and adjustable shelving faced with high pressure decorative laminate GP28 (.028), color from casework manufacturer's full range offering of at least 120 colors.

10. Interior Finish, Units with Closed Interiors:

    a. Sides, top, bottom, horizontal, and vertical members, and adjustable shelving faced with melamine laminate with matching prefinished back. Available in dove grey, frosty white, or light beige color.

11. Exposed Ends:

    a. Shall be faced with high pressure decorative laminate GP28 (.028) color from casework manufacturer's full range offering of at least 120 colors.

12. Wall Unit Bottom:

    a. Shall be faced with melamine laminate in dove grey, frosty white or light beige to create monocolor body.

13. Wall and Tall Unit Tops:

    a. The top edge of all wall and tall unit end panels shall be factory edged with 1mm PVC to match basic cabinet body color; raw edges at top of wall and tall end panels will not be permitted.

    b. Top surface will be laminated with melamine in dove grey, frosty white or light beige to match basic cabinet body color.

14. Balanced construction of all laminated panels is mandatory. Unfinished core stock, even on concealed surfaces, will not be permitted. No exceptions.

c. Drawers:

1. Sides, back and sub front shall be particleboard, 1/2" thick, laminated with melamine in dove grey, frosty white or light beige to match basic cabinet body color. The back and sub front are doweled and glued into the sides. Dowels shall be fluted, with chamfered ends and a minimum diameter of 8mm. Top edge is banded with 1mm PVC edging in a matching color.

2. Drawer bottom shall be particleboard. 1/2" thick, laminated with melamine in dove grey, frosty white or light beige to match basic cabinet body color, screwed directly to the bottom edges of the drawer box. Drawer bottom less them 1/2" thick will not be permitted.

3. Paper storage drawers are constructed similar except retaining hood shall be included at the rear of each drawer.

4. Painted finishes on drawer sides and/or bottom will not be permitted.

d. Door/Drawer Fronts:

1. Core for all doors and applied drawer fronts shall be 3/4" thick particleboard. All edges shall be finished as indicated herein.

2. Double doors shall be used on all cabinets more than 24" wide.

3. Exterior faces shall be laminated with high pressure decorative laminate GP28, color as selected. Interior face shall be high pressure cabinet liner CL20.

4. All edges shall be finished with 3mm PVC available in black, clear teal, dawn, dove grey, frosty white, hollyberry, larkspur, light beige, slate grey, or wildrose. External edges and outside corners shall be machine profiled to 1/8" radius.

2.6 DECORATIVE LAMINATE COUNTERTOPS:

a. All nominal 1" thick laminate clad countertops shown on Drawings shall be constructed with fir or pine plywood conforming to PS 1, B/C grade face veneers, interior type with exterior glue, laminated top face with GP50 (.050) high pressure decorative laminate, with BK20 backer underside. Provide tight joint fasteners where needed. All exposed edges, including edges of backsplash where used, shall have 3mm PVC banding, machine applied with waterproof hot melt adhesive. Exposed edges and corners shall be machine profiled to 1/8" radius for safety. Edging shall be available in light grey, white or light beige to match basic cabinet body color or in contrasting dark grey. Colors will be selected by the Architect from the manufacturer's standard colors.

PART 3: EXECUTION

3.1 INSPECTION:

a. The installer must examine the job site and the conditions under which the work under this section is to be performed and notify the contractor in writing of unsatisfactory conditions. Do not proceed with work under this section until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.2 PREPARATION:

a. Condition casework to average prevailing humidity conditions in installation areas prior to installing.

3.3 INSTALLATION:

a. Install casework with factory-trained supervision authorized by manufacturer. Erect casework, plumb, level, true and straight with no distortions. Shim as required. Where laminate clad casework abuts other finished work, scribe and cut to accurate fit.

b. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

3.4 CLEANING AND PROTECTION:

a. Repair or remove and replace defective work as directed upon completion of installation.

b. Clean plastic surfaces; repair minor damage per plastic laminate manufacturer's recommendations. Replace other damaged parts or units.

c. Advise contractor of procedures and precautions for protection of casework and tops from damage by other trades until acceptance of the work by the owner.

END OF SECTION