SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 WORK INCLUDED

A. Work of this Section includes the following descriptions:

1. Contractor's duties.

2. Codes.

3. Abbreviations and symbols.

4. Color schedule.

1.3 CONTRACTOR'S DUTIES

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

1. Labor, materials and equipment.

2. Tools, construction equipment and machinery.

3. Other facilities and services necessary for proper execution and completion of the work.

B. Pay required sales, consumer and use taxes, except as specifically excluded by the Supplementary Conditions.

C. Secure and pay for, as necessary for proper execution and completion of work, and as applicable at time of Contract Award.

1. Permits.

2. Government fees.

3. Licenses.

D. Give required notices.

E. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of work.

F. Promptly submit written notice to Architect of observed variance of Contract Documents from the Building Code and other requirements of Public Authorities having jurisdiction.

1.4 APPLICABLE CODES

A. All references to codes, specifications, and standards referred to in the Specification Sections and on the Drawings shall mean, and are intended to be, the latest edition, amendment, and/or revision of such reference standard in effect as of the date of these Contract Documents.

1.5 ABBREVIATIONS AND SYMBOLS

A. Reference to a technical society, institution, association, or governmental authority is made in the Specifications in accordance with the following abbreviations.

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ACI	American Concrete Institute
ACRI	Air Conditioning and Refrigeration Institute
ADC	Air Diffusion Council
AFI	Air Filter Institute
AGI	American Gas Institute
AGCA	Associated General Contractors of America, Inc.
AGMA	American Gear Manufacturers Association
AIA	American Institute of Architects
AIA	American Insurance Association
AIMA	Acoustical and Insulating Materials Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALS	American Lumber Standards
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
AREA	American Railway Engineering Association
ARI	Air Conditioning and Refrigeration Institute
ASAHC	American Society of Architectural Hardware Consultants
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATI	Asphalt Tile Institute
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Waterworks Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Institute of America
BRI	Building Research Institute

CABRA	Copper and Brass Research Association
CAGI	Compressed Air and Gas Institute
CE	Corps of Engineers (Army)
CRSI	Concrete Reinforcing Steel Institute
CS	U.S. Commercial Standard
CSI	Construction Specification Institute
CTI	Cooling Tower Institute
DFPA	Douglas Fir Plywood Association
ETL	Electrical Testing Laboratories
FGMA	Flat Glass Marketing Association
FHA	Federal Housing Administration
FIA	Factory Insurance Association
FM	Factory Mutual Engineering Division Association of Factory Mutual Fire Insurance Companies
FPL	Forest Products Laboratories
FS	Federal Specifications
FSIWA	Federation of Sewage and Industrial Waste Association
FTI	Facing Tile Institute
GA	Gypsum Association
GTA	Glass Tempering Association
HPMA	Hardwood Plywood Manufacturers Association
IBRM	Institute of Boiler and Radiator Manufacturers
IEEE	Institute of Electrical and Electronics Engineering
IES	Illuminating Engineering Society
IPCEA	Insulated Power Cable Engineers Association
JAN	Joint Army-Navy Specifications
MAC	Masonry Advisory Council
MIA	Marble Institute of America
MLMA	Metal Lath Manufacturers Association
MS	Military Specifications
MSS	Manufacturers Standardization Society of the Valves and Fittings Industries
MSTD	Military Standard
NAAMM	National Association of Architectural Metal Manufacturers
NAFM	National Association of Fan Manufacturers
NAPM	National Association of Plastic Manufacturers
NBHA	National Builders Hardware Association
NBS	National Bureau of Standards
NCMA	National Concrete Masonry Association
NEC	National Electric Code (NFPA Pamphlet No.)
NELMA	Northeastern Lumber Manufacturers Association, Inc.
NEMA	National Electric Manufacturers Association
NEMI	National Elevator Manufacturing Industry, Inc.

NFC	National Fire Code
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NHLA	National Hardwood Lumber Association
NHPMA	Northern Hardwood and Pine Manufacturers Association
NPA	National Particleboard Association
NPCA	National Paint and Coatings Association
NRMCA	National Ready Mixed Concrete Association
NSC	National Safety Council
NSF	National Sanitation Foundation
NSSEA	National School Supplies and Equipment Association
NTMA	The National Terrazzo and Mosaic Association, Inc.
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PEI	Porcelain Enamel Institute, Inc.
PS	Product Standard, U.S. Department of Commerce
RIS	Redwood Inspection Service
RTI	Resilient Tile Institute
SAE	Society of Automotive Engineers
SBI	Steel Boiler Institute
SCMA	Southern Cypress Manufacturers Association
SDI	Steel Deck Institute
SDI	Steel Door Institute
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SMFMA	Sprayed Mineral Fiber Manufacturers Association, Inc.
SPIB	Southern Pine Inspection Bureau
SPR	Simplified Practice Recommendations, U.S. Department of Commerce
SSPC	Steel Structures Painting Council
SWFPA	Structural Wood Fiber Products Association
TCA	Tile Council of America
TEMA	Tubular Exchange Manufacturing Association
TIMA	Thermal Insulation Manufacturers Association
TPI	Truss Plate Institute
UL	Underwriter's Laboratories, Inc.
UPC	Uniform Plumbing Code
USCGS	U.S. Coast and Geodesic Survey
WCLIB	West Coast Lumber Inspection Bureau
WRI	Wire Reinforcement Institute
WWPA	Western Wood Products Association

1.6 COLOR SCHEDULE

A. A color schedule will be issued by the Architect. The Contractor, his subcontractors, and material suppliers shall cooperate in furnishing required color samples to aid in the final selection. Where special colors are selected by the Architect, furnish accurate reproductions for these colors, on actual material to be furnished to the project, for review.

PART 2 PRODUCTS

(Not Applicable)

PART 3 EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01015
CONSTRUCTION & DEMOLITION WASTE MANAGEMENT

Waste Management Plan

Sequence of Waste Removal

- Waste will be carted out of the building by mini containers. The containers will be set at the curb side for pickup by the carting company. At the time of pickup, the driver/operator will record the number of containers, and the type of construction waste. The construction waste will be conducted to the carting company's sorting facility.
- Pickup schedule shall be at discretion of the GC, to maintain a clean and orderly job site.

Sorting Method

- All job site construction waste will be conducted from the job site using a "Single stream, Co-mingled" concept. This means pickups from the Church Street waste site will utilize a vehicle making pickups from other job sites, including Church Street.
- Co-mingling is dictated by space limitations on the project site. On-site separation is not possible for this project.
- All projects on the carting company's pickup route shall be LEED compliant.
- Upon delivery to the carting company's sorting facility, the material will be weighed.
- The facility will then sort wood, concrete, metals and residue, and record tonnage in each category.
- Reports will document the estimated tonnage for the Church Street Project, coordinated to the container manifest. The monthly report will document the total tonnage, material distribution for categories noted above, and the overall landfill diversion rate for the project.

Waste Management Goal

- To divert a minimum of 75% of total construction waste from landfill disposal.

Reuse and Salvage Items

- Cardboard shipping materials and wood delivery palettes shall be recovered by the respective subcontractors/suppliers from the job site for re-use.
- Reuse and salvage items noted above shall be exempt from the waste management weight and diversion reports.

Communication Plan

- Waste prevention and recycling activities shall be integrated into construction meetings.

END OF SECTION

STUDIO MAESTRO (Exhibit "A")
CONTRACTOR C&D WASTE MANAGEMENT FORM
For Waste Generated On-Site

Company: _____
Contact: _____
Phone: _____

Date	Material Description (Include packaging waste if applicable)	Ticket #	Total Weight	% Reused on-site	% Recycled off-site	% Sent to landfill	Material Recipient

SECTION 01040

COORDINATION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this section, as shown or specified, shall be in accordance with the requirements of the contract documents.

1.2 WORK INCLUDED

A. Work of this section includes all labor, materials, equipment and services necessary to complete the project coordination as specified herein, including but not limited to, the following:

1. General project coordination procedures.

2. Conservation.

3. Coordination drawings.

4. Administrative and supervisory personnel.

5. Cleaning and protection.

1.3 RELATED WORK

A. Project meetings - Section 01202.

B. Submittals - Section 01300.

C. Materials and equipment - Section 01600.

D. Contract closeout - Section 01700.

1.4 COORDINATION

A. Coordinate construction operations included in various sections of these specifications to assure efficient and orderly installation of each part of the work. Coordinate construction operations included under different sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in the sequence required to obtain the best results where installation of one part of the work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.

3. Make provisions to accommodate items scheduled for later installation.

B. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

1. Prepare similar memoranda for the owner and separate contractors where coordination of their work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly progress of the work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.

2. Installation and removal of temporary facilities.

3. Delivery and processing of submittals.

4. Progress meetings.

5. Project closeout activities.

D. Conservation: Coordinate construction operations to assure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the work.

1.5 SUBMITTALS

A. Coordination Drawings: Prepare coordination drawings where careful coordination is needed for installation of products and materials fabricated by separate entities. Prepare coordination drawings where limited space availability necessitates maximum utilization of space for efficient installation of different components.

1. Show the relationship of components shown on separate shop drawings.

2. Indicate required installation sequences.

3. Comply with requirements contained in section "submittals".

B. Staff names: Within 15 days of commencement of construction operations, submit a list of the contractor's principal staff assignments, including the superintendent and other personnel in attendance at the project site. Identify individuals and their duties and responsibilities. List their addresses and telephone numbers.

1. Post copies of the list in the project meeting room, the temporary field office, and each temporary telephone.

PART 2 PRODUCTS

(Not Applicable)

PART 3 EXECUTION

3.1 GENERAL COORDINATION PROVISIONS

A. Inspection of conditions: Require the installer of each major component to inspect both the substrate and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

3.2 CLEANING AND PROTECTION

A. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at substantial completion.

B. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.

C. Limiting exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Air contamination or pollution.
7. Water or ice.
8. Solvents.
9. Chemicals.
10. Light.
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.
15. Soiling, staining, and corrosion.

16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. Electrical current.
20. High-speed operation.
21. Improper lubrication.
22. Unusual wear or other misuse.
23. Contact between incompatible materials.
24. Destructive testing.
25. Misalignment.
26. Excessive weathering.
27. Unprotected storage.
28. Improper shipping or handling.
29. Theft.
30. Vandalism.

END OF SECTION

SECTION 01115: VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS

PART 1 - GENERAL

Summary
This Section includes requirements for volatile organic compound (VOC) content in adhesives and sealants used for the project. The criteria are included as part of the requirements for the project.

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

1. All sections in the Specifications with Interior adhesive or sealant

2. Division 1, Section 01515: "Construction IAQ Management", for requirements for the Construction IAQ Management Plan.

1.1 GENERAL REQUIREMENTS

A. Implement practices and procedures to meet the project's environmental goals. Specific project goals which may impact this and the other sections of this specification include: use of recycled-content materials; use of locally-manufactured materials; use of low-emitting materials; use of certified wood products; construction waste recycling; and the implementation of a construction indoor air quality management plan. Ensure that the requirements related to these goals, as defined in this Section and other Sections of the contract documents, are implemented to the fullest extent. Substitutions or other changes to the work shall not be allowed if such changes substantially compromise the stated criteria.

REFERENCES

A. Rule 1168 – "Adhesive and Sealant Applications", amended 7 January 2005: South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov
B. GreenSeal Standard 36 (GS-36) for Commercial Adhesives, effective date October 19, 2000.
C. GreenSeal Standard 11 (GS-11), First Edition, May 20, 1993
D. GreenSeal Standard 03 (GS-03), Anti-Corrosive Paints, Second Edition, January 7, 1997
E. Rule 1113 – "Architectural Coatings". Rule in effect January 1, 2004. South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov

VOC REQUIREMENTS FOR INTERIOR ADHESIVES AND SEALANTS

The volatile organic compound (VOC) content of interior adhesives and sealants used in this project shall not exceed the limits defined in Rule 1168 – "Adhesive and Sealant Applications" of the South Coast Air Quality Management District (SCAQMD), of the State of California.

The VOC limits defined by SCAQMD are as follows. All VOC limits are defined in grams per liter, less water and less exempt compounds.

General:
Unless otherwise specified below, the VOC content of all adhesives and sealants shall not be in excess of **250 grams per liter.**

For specified building construction related applications, the allowable VOC content is as follows:

Adhesive VOC Limits

Architectural Applications:	
Indoor carpet adhesive	50
Carpet pad adhesive	50
Wood Flooring adhesive	100
Rubber floor adhesive	60
Subfloor adhesive	50
Ceramic tile adhesive	65
VCT and asphalt tile adhesive	50
Drywall and panel adhesive	50
Cove base adhesive	50
Multipurpose construction adhesive	70
Structural glazing adhesive	100

Specialty Applications:	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	250
Contact Adhesive	80
Special Purpose Contact Adhesive	250
Adhesive Primer for Traffic Marking Tape	150
Structural Wood Member Adhesive	140
Sheet Applied Rubber Lining Operations	850
Top and Trim Adhesive	250

Substrate Specific Applications:	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

Sealant VOC Limits:

Architectural	**250**	
Single Ply Roof Material Installation/Repair	450	
Nonmembrane Roof Installation/Repair		300
420		

Sealant Primer:	
Architectural – Nonporous	250
Architectural – Porous	775
Other	750

VOC LIMTS FOR PAINTS AND COATINGS

The volatile organic compound (VOC) content of interior paints, primers, and coatings used in this project shall not exceed the limits below as defined in GreenSeal Standard 11 (GS-11), First Edition, May 20, 1993.

Paints, Primers, and Coatings:	
Flat Finishes	50
Non-Flat Finishes (i.e. satin, gloss)	150

The volatile organic compound (VOC) content of interior anti-corrosive and anti-rust paints used in this project shall not exceed the limits defined in GreenSeal Standard 03 (GS-03), Anti-Corrosive Paints, Second Edition, January 7, 1997

Anti-Corrosive Paint Finishes	250

The volatile organic compound (VOC) content of interior Clear wood finishes, floor coatings, stains, sealers, and shellacs used in this project shall not exceed the limits defined in Rule 1113 – "Architectural Coatings". Rule in effect January 1, 2004. South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov

Architectural Coatings:	
Clear Wood Finish: Varnish	350
Clear Wood Finish: Laquer	550
Stains	250
Floor Coatings	100
Water Proofing Sealers	250
Sanding Sealers	275
All Other Sealers	200
Shellac: Clear	730
Shellac: Pigmented	550

END OF SECTION

SECTION 01202

PROGRESS MEETINGS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this section, as shown or specified, shall be in accordance with the requirements of the contract documents.

1.2 WORK INCLUDED

A. To enable orderly review of progress during construction and to provide for systematic discussions of problems, the architect will conduct project meetings throughout the construction period.

B. In general, project meetings will be held weekly at the job site in accordance with a mutually acceptable schedule.

C. The purpose of the project meetings is analysis of problems that might arise between the owner and the contractor relative to execution of the work.

1.3 RELATED WORK

A. The Contractor's relations with his subcontractors and materials suppliers, and discussions relative thereto, are the Contractor's responsibility as described in the general conditions and are not part of project meetings content.

1.4 QUALITY ASSURANCE

A. Persons designated by the Contractor to attend and participate in project meetings shall have all required authority to commit the contractor to solutions as agreed upon in the project meetings.

1.5 SUBMITTALS

A. Agenda Items: To the maximum extent possible, advise the architect at least 24 hours in advance of the project meeting regarding all items to be added to the agenda.

B. Minimum agenda

1. Review work progress since last meeting.

2. Note field observations, problems and decisions.

3. Identify problems which impede planned progress.

4. Review off-site fabrication problems.

5. Develop corrective measures and procedures to regain schedule.

6. Coordinate projected progress with other prime contractors.

7. Review submittal schedules, expedite as required to maintain schedule.

C. Minutes: The Contractor will compile minutes of each project meeting and will distribute copies to the Owner and the Architect. The Contractor shall make and distribute such other copies as he wishes.

PART 2 PRODUCTS

(Not Applicable)

PART 3 EXECUTION

3.1 MEETING SCHEDULE

A. Coordinate with the architect as required to establish a mutually acceptable schedule for project meetings.

3.2 MEETING LOCATION

A. To the maximum extent practicable, project meetings shall be held at the job site. Provide adequate space and facility including table, chairs, and lighting for proper conduct of meeting.

3.3 ATTENDANCE

A. To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout the construction period. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspects of the work are involved.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 WORK INCLUDED

A. Work of this Section includes all labor, materials, equipment and services necessary to complete submittal requirements as specified herein, including, but not limited to, the following:

1. Survey data.

2. Shop drawings and samples.

3. Integrated drawings.

1.3 RELATED WORK

A. Substitution requirements - Section 01600.

B. General submittal requirements - General Conditions.

PART 2 PRODUCTS

2.1 SHOP DRAWINGS AND SAMPLES

A. General

1. The Contractor shall be responsible for coordinating the schedule for submittal of shop drawings and samples with his progress schedule and the requirements of the Contract Schedule, and submit a coordinated schedule of submission of all shop drawings and samples to the Architect.

2. Failure of the Contractor to schedule and submit shop drawings and samples in ample time for checking, correction, and rechecking will not justify any delay in the Contract Schedule. Allow ample time for items to be tested, including time for retesting if the tests or mock-ups fail.

3. Samples, shop drawings, manufacturers' literature, and other required information shall be submitted in sufficient time to permit proper consideration and action on same before any materials and items are delivered on the work. Stagger submissions so that the Architect can review the documents in an orderly and timely manner. All samples of materials requiring laboratory tests shall be submitted to the laboratory for testing not less than 90 days before such materials are required to be used in the work. All other

samples, manufacturers' literature, and other sample information shall be submitted for approval not less than 30 days before such materials are required to be used in the work.

4. Shop drawings for each Section of the work shall be numbered consecutively, and the numbering system shall be retained throughout all revisions. Each drawings shall have a clear space for the stamps of the Contractor, Architect, and one of the Architect's consultants.

5. All shop drawings shall be thoroughly checked by the Contractor for compliance with the Contract Documents before submitting them to the Architect and shall bear the Contractor's stamp of approval certifying that they have been so checked. Any shop drawings submitted without this stamp of approval and certification, and shop drawings which, in the Architect's opinion, are incomplete, contains errors or have not been checked, or only checked superficially, will be returned unchecked by the Architect for re-submission by the Contractor.

6. In checking shop drawings, the Contractor shall verify all dimensions and field conditions and shall check and coordinate the shop drawings of any Section or trade with the requirements of all other Sections or trades whose work is related thereto, as required for proper and complete installation of the work. The Architect will review shop drawings. The Architect's acceptance of shop drawings is for design only and not method of assembly or erection. Acceptance shall in no way be construed as (1) permitting any departure whatsoever from the Contract Documents; (2) relieving the Contractor of full responsibility for any error in details, dimensions, omissions, or otherwise that may exist; (3) relieving the Contractor of full responsibility for adequate field connections, erection techniques, bracing, or deficiencies in strength; (4) relieving the Contractor of full responsibility for satisfactory performance of all work and coordination with the work of all subcontractors and other contractors; or (5) permitting departure from additional details or instructions previously furnished by the Architect. Acceptance of such drawings shall not be construed as a complete check, nor shall it relieve the Contractor from responsibility for proper fitting of the work, nor from the necessity of furnishing any work which may not be indicated on shop drawings when approved. The Contractor shall be solely responsible for any quantities which may be shown on the shop drawings.

7. No work shall be fabricated, manufactured, or installed from shop drawings stamped "Shop drawing does not comply with the Contract Documents. Resubmit shop drawing", and such shop drawings shall be corrected and resubmitted by the Contractor until accepted by the Architect. At least one complete set of "Fabrication, manufacture or construction may proceed as per notations. If Contractor cannot comply with notations, resubmit shop drawings" shop drawings shall be kept at the site in the Contractor's field office for reference at all times. "Revise and Resubmit" or "Rejected" shop drawings shall not be permitted at the site.

8. Marked "Fabrication, manufacture or construction may proceed":

   a. Submittals which require no corrections by the Architect will be marked "Fabrication, manufacture or construction may proceed."

9. Submittals marked "Fabrication, manufacture or construction may proceed as per notations. If Contractor cannot comply with notations, resubmit shop drawings":

    a. Submittals which require only a minor amount of correcting shall be marked "Fabrication, manufacture or construction may proceed as per notations. If Contractor cannot comply with notations, resubmit shop drawings". This mark shall mean that checking is complete and all corrections are obvious without ambiguity. Fabrication will be allowed on work "Fabrication, manufacture or construction may proceed as per notations. If Contractor cannot comply with notations, resubmit shop drawings", provided such action will expedite construction and noted corrections are adhered to. If fabrication is not made strictly in accordance with corrections noted, the item shall be rejected in the field, and the Contractor will be required to replace such work in accordance with corrected submittals.

10. Submittals marked "Shop drawing does not comply with the Contract Documents. Resubmit shop drawing":

    a. When submittals are contrary to contract requirements or too many corrections are required, they shall be marked "Shop drawing does not comply with the Contract Documents. Resubmit shop drawing". No work shall be fabricated under this mark. The Architect shall list his reasons for rejection on the submittals or in the transmittal letter accompanying their return. The submittals must be corrected and resubmitted for approval.

11. All shop drawings and samples shall be identified as follows:

    a. Date of submittal.
    b. Title of project.
    c. Name of Contractor and date of his approval.
    d. Name of subcontractor or supplier and date of submittal to Contractor.
    e. Number of submission.
    f. Any qualification, departure, or deviation from the requirements of the Contract.
    g. Federal Specification or ASTM number where required.
    h. Such additional information as may be required by the Specifications for the particular material being furnished.

12. If the Contractor wishes to deviate from the materials or details as shown in Specifications or Drawings, he shall submit the proposed deviation with shop drawings and/or samples stating the extent and the materials or details being replaced. The Contractor shall also submit information on the allowed credit or extra cost required for the proposed deviation, and also all information relating to the work of other Sections revised by the proposed deviation.

13. The Architect will review and approve shop drawings and samples for approval with reasonable promptness, but only for conformance with the design concept of the work and with information contained in the Contract Documents.

14. Incomplete shop drawings will be returned without checking for proper submission, and this shall not be considered as cause for delay of the work or extra compensation to the Contractor.

15. The Contractor shall submit appropriate transmittal forms with every submittal of shop drawings, manufacturer's literature, and samples. All sepia reproducibles shall be rolled on cardboard tubes for resubmittal. The Contractor shall submit all required shop drawings, manufacturer's literature and samples in accordance with the following procedures:

16. Unless otherwise specifically directed by the Architect, make all shop drawings accurately to a scale sufficiently large to show all pertinent features of the item and its method of connection to the work.

17. The Contractor shall submit one copy of each standard referred to in the Specifications (ASTM, Fed. Spec., etc.) with the submission of each respective shop drawing, sample, or literature.

B. Submission of Shop Drawings

1. Architectural Work: Submit two (2) vellum reproducible and two (2) black line prints of each shop drawing to the Architect for approval. If approved, the Architect will return one (1) sepia stamped "Fabrication, manufacture or construction may proceed" or "Fabrication, manufacture or construction may proceed as per notations. If Contractor cannot comply with the notations resubmit shop drawings", and the Contractor shall print the required number of copies. In the event the Architect returns one (1) sepia stamped "Shop drawing does not comply with the Contract Documents. Resubmit shop drawings", the Contractor shall make indicated changes and resubmit one (1) vellum reproducible and two (2) black line prints to the Architect.

2. Structural Work and Mechanical Work: Submit two (2) vellum reproducible and two (2) black line prints of each shop drawing to the Engineer, with one (1) black line print (for first submissions only) and copy of the transmittal to the Architect. If accepted, the Architect shall return one (1) sepia stamped "Fabrication, manufacture or construction may proceed" or "Fabrication, manufacture or construction may proceed as per notations. If Contractor cannot comply with the notations resubmit shop drawings", and the Contractor shall print the required number of copies. In the event the Architect returns one (1) sepia stamped "Shop drawing does not comply with the Contract Documents. Resubmit shop drawings", the Contractor shall make indicated changes and resubmit one (1) sepia reproducible and two (2) black line prints to the Engineer, with a copy of the transmittal form to the Architect.

3. Prints: The Contractor shall provide all prints or shop drawings as reasonably required by subcontractors, material suppliers, superintendents, inspectors, and others as required for the work, or as directed by the Architect. The Contractor shall pay all costs in connection with printing and distribution of shop drawings.

C. Submission of Manufacturer's Literature, Including Catalog, Catalog Cuts, Brochures, Charts, Test Data, and Similar Information

1. Manufacturer's literature will receive consideration only when accompanied by the transmittal form properly filled out, as indicated, and listing each item of literature, as well as the Specification Section and paragraph numbers describing such materials. Any deviations from contract requirements shall be stated on the above form or attached to it.

2. Architectural Work: Submit six (6) copies of manufacturer's literature to the Architect for acceptance. If accepted, the Architect will return four (4) copies stamped "Fabrication, manufacture or construction may proceed" or "Fabrication, manufacture or construction may proceed as per notations. If Contractor cannot comply with the notations resubmit shop drawings". In the event the Architect returns the literature stamped "Shop drawing does not comply with the Contract Documents. Resubmit shop drawings", he will return two (2) copies only. The Contractor shall resubmit six (6) copies of correct or corrected literature of all submissions stamped "Shop drawing does not comply with the Contract Documents. Resubmit shop drawings", with one (1) copy of correct or corrected literature with copy of the transmittal form to the Architect.

3. Structural Work and Mechanical Work: Submit six (6) copies of manufacturer's literature to the Engineer, with one (1) copy of the literature and copy of the transmittal form to the Architect. If accepted, the Architect will return four (4) copies stamped ""Fabrication, manufacture or construction may proceed" or "Fabrication, manufacture or construction may proceed as per notations. If Contractor cannot comply with the notations resubmit shop drawings". In the event the Architect stamps the literature "Shop drawing does not comply with the Contract Documents. Resubmit shop drawings", he will return two (2) copies only. The Contractor shall resubmit six (6) copies of correct or corrected literature to the Engineer for all submissions stamped "Shop drawing does not comply with the Contract Documents. Resubmit shop drawings", with one (1) copy of correct or corrected literature with copy of the transmittal for to the Architect.

4. All copies of manufacturer's literature required to be resubmitted hereunder shall be original printed material. Reproductions of printed material will not receive consideration.

D. Submissions of Samples

1. All samples shall be submitted in triplicate unless otherwise indicated in the Specifications.

2. Samples will receive consideration only when accompanied by the transmittal form properly filled out, as indicated, and listing each sample, as well as the listing of any ASTM, Federal or other standard references specified or applicable and such additional information as may be required by the Specifications for the materials being submitted. Any deviation from the contract requirements shall be so stated on the above form or attached to it.

3. The Architect shall have the right to require submission of samples of any materials, whether or not specifically indicated in the various Sections of the Specifications.

4. Unless otherwise specified, samples of sufficient size to indicate general visual effect shall be submitted. Where samples must show a range of color, texture, finish, graining, or other similar property, the Contractor shall submit sets of pairs illustrating the full scope of the range.

5. One (1) sample of each submission will be returned to the Contractor. Samples stamped "Shop drawing does not comply with the Contract Documents. Resubmit shop drawings" by the Architect shall be resubmitted in triplicate by the Contractor.

6. All samples stamped ""Fabrication, manufacture or construction may proceed" or "Fabrication, manufacture or construction may proceed as per notations. If Contractor cannot comply with the notations resubmit shop drawings" shall be kept at the site in the Contractor's field office facilities for reference at all times. "Shop drawing does not comply with the Contract Documents. Resubmit shop drawings" samples shall not be kept at the site.

2.2 INTEGRATED DRAWINGS

A. The HVAC subcontractor shall prepare a Drawing or Drawings showing duct work, heating and sprinkler piping. This Drawing shall include location of grilles, registers, etc., and access doors in hung ceilings. Locations shall be fixed by elevations and dimensions from column center lines and/or walls.

B. The HVAC subcontractor shall prepare and distribute to the Plumbing and Electrical subcontractors, the General Contractor, and to the Architect a sepia of the above.

C. The HVAC subcontractor shall lay out on his sepia the reflected ceiling plan, beam soffit elevations, ceiling heights, roof openings, etc.

D. The Plumbing subcontractor shall lay out on his sepia the piping, valves, clean-outs, etc., indicating locations and elevations and shall indicate the necessary access doors.

E. The Electrical subcontractor shall indicate on his sepia the fixtures, large conduit runs, clearances, pull boxes, junction boxes, sound system speakers, etc.

F. The General Contractor shall indicate on his sepia any structural framing, ceiling hangers, etc.

G. The General Contractor shall call as many meetings with the subcontractors as are necessary to resolve any conflicts that become apparent. He will call on the services of the Consultant Engineer or Architect where necessary. The General Contractor is responsible for the coordination of the Drawing or Drawings.

H. On resolution of the conflicts, each subcontractor shall enter his own work on the HVAC subcontractor's sepia, which shall become the master or integrated Drawings. The master sepia shall be signed by each contributing subcontractor to indicate his acceptance of the arrangement of the work.

I. A reproducible copy of the master integrated Drawing will be prepared by the HVAC subcontractor. The General Contractor will make distribution.

J. Each subcontractor shall prepare his Shop Drawings in accordance with the integrated Drawings. No work will be permitted without approved Shop Drawings. It is therefore essential that this procedure be instituted as quickly as possible.

PART 3 EXECUTION

3.1 COORDINATION OF SUBMITTALS

A. Prior to submittal for Architect's review, use all means necessary to fully coordinate all material, including the following procedures:

1. Determine and verify all field dimensions and conditions, materials, catalog numbers and similar data.

2. Coordinate as required with all trades and with public agencies involved.

3. Secure all necessary approvals from public agencies and others and signify by stamp, or other means, that they have been secured.

4. Clearly indicate all deviations from the Contract Documents.

B. Unless otherwise specifically permitted by the Architect, make all submittals in groups containing all associated items; the Architect may reject partial submittals as not complying with the provisions of the Contract Documents.

END OF SECTION

SECTION 01310

PROGRESS SCHEDULE

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 WORK INCLUDED

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the progress schedule as specified herein, including, but not limited to, the following:

1. Format.

2. Content.

3. Revisions to schedules.

4. Submittals.

1.3 RELATED WORK

A. Summary of work - Section 01010.

B. Submittals - Section 01300.

1.4 FORMAT

A. Prepare network analysis system using the critical path method, as outlined in The Associated General Contractors of America (AGC) publication "The Use of CPM in Construction - A Manual for General Contractors".

B. Sequence of Listings: The chronological order of the start of each item of Work.

C. Scale and Spacing: To provide space for notations and revisions.

1.5 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

B. Identify each item by Specification section number.

C. Identify work of separate stages and other logically grouped activities.

D. Provide sub-schedules to define critical portions of the entire Schedule.

E. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

F. Provide separate schedule of submittal dates for shop drawings, product data, and samples, including Owner furnished products and Products identified under Allowances, and dates reviewed submittals will be required from Architect. Indicate decision data for selection of finishes.

G. Indicate delivery dates for Owner furnished products and Products identified under Allowances.

1.6 REVISIONS TO SCHEDULES

A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.

B. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.

C. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect including the effect of changes on schedules of separate contractors.

1.7 SUBMITTALS

A. Submit initial Schedules within 30 days after date of Owner-Contractor Agreement. After review, resubmit required revised data within ten days.

B. Submit revised Progress Schedule with each Application for Payment.

C. Submit one opaque reproduction and one reproducible transparency.

1.8 DISTRIBUTION

A. Distribute copies of reviewed Schedules to project site file, Subcontractors, suppliers, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in Schedules.

PART 2 PRODUCTS

(Not Applicable)

PART 3 EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01351

SELECTIVE DEMOLITION AND ALTERATION WORK

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the selective demolition and alteration work as shown on the drawings and/or specified herein, including but not limited to the following:

1. Alterations, selective demolition and removals as noted on drawings and as required to accommodate new construction.

2. Removal of debris.

3. Protection of existing building and spaces to remain, and shoring of the structure as required for structural integrity and personal safety.

4. Protection of existing curbs and sidewalks.

5. Temporary coverage passageways.

6. Alterations, selective demolition and removals of exterior facade where noted.

7. Patching and refinishing of existing surfaces damaged as a result of this work.

8. Protection.

1.3 QUALITY ASSURANCE

A. Comply with the requirements of all applicable Federal, State and local safety and health regulations regarding the demolition of structures including ANSI/NFPD 241-Building Construction and Demolition Operations.

B. Assume responsibility for damage to any adjacent structures or buildings to remain.

C. Qualifications: Qualifications of Contractor for work of this Section shall not be less than 10 years of field experience in work of this nature.

D. Professional Engineering: Retain the services of a Professional Engineer licensed in the State of New York, who shall design and supervise installation of all underpinning and shoring.

1.4 RELATED SECTIONS

A. Alteration and removal requirements for mechanical and electrical work - Mechanical and Electrical Sections.

1.5 SUBMITTALS

A. Schedule of Demolition Operations: Submit demolition procedures and operational sequence for Architect's review prior to start of work. Submit a written request to Architect well in advance of executing any cutting or alteration which affects:

1. The work of tying in or connecting to operational systems of the building, including electrical, mechanical and security systems.

2. The work of the Owner or any separate Contractor.

3. The structural value or integrity of any element of the project or of adjacent structures.

4. The integrity or effectiveness of weather-exposed and moisture-resistant elements or systems.

5. The efficiency, operational life, maintenance, or safety of operational elements or systems.

B. Notice of Differing Conditions: Submit a written notification if, during the work of demolition and cutting, conditions are discovered which significantly vary from those shown on the drawings. Do not commence work until approval of Architect.

C. Shop Drawings: Submit the following prior to starting work:

1. Submit for Architect's information shop drawings indicating location and typical construction details of temporary dustproof and weatherproof partitions.

2. Submit drawings of temporary structural shoring, bracing, framing or support, for the information of the Architect. Such drawings will be reviewed by the Structural Engineer for the effects of such temporary members on the structural elements to remain. These drawings shall include the reason for such temporary members, the location, the direction and magnitude of design reaction forces on existing structure, and details showing how these reaction forces will be applied to the existing structure.

   a. Shop drawings shall be submitted with the Seal of the P.E. engaged by Contractor; P.E. must be licensed in the State of New York.
   b. The Architect will receive acknowledgment for concepts shown. Such acknowledgments shall be of the concept only and not of actual capacities or structural design and shall not in any way diminish or limit the Contractor's responsibility for the quality and performance of the work and for protecting existing structures and facilities.

1.6 JOB CONDITIONS

A. Condition of Structure

1. The Contractor for the work of this Section shall be held to have visited the site, examined the premises, determined for himself the existing conditions, character of equipment and facilities needed for the performance of the work, and all matters which may in any way affect the work before submitting a bid.

a. Information regarding existing construction or conditions is based on available record drawings which may or may not truly reflect existing conditions. Such information is included on the assumption that it may be of interest to the Contractor, but the Architect, Owner and their consultants do not assume responsibility for its accuracy or completeness.
b. Notify the Architect if, during the course of demolition, conditions are discovered which significantly vary from those shown on the drawings. Do not proceed until authorized by Architect.

2. The Contractor shall accept the condition of the site and structures as found. The Architect and Owner assume no responsibility for condition of site or structures nor the continuation of the condition existing at time of bidding or thereafter.

B. Areas of building to be demolished or altered will be vacated and discontinued in use prior to the start of the work.

1. Surrounding areas of the building shall remain operational by the Owner.

C. Partial Removal

1. Items of savable value to the Contractor may be removed from the structure as the work progresses. Salvaged items must be transported from the site as they are removed.

2. Storage or sale of removed items on the site will not be permitted.

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

E. Traffic

1. Conduct demolition operations and the removal of debris to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities.

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

F. Utilities

1. Refer to Division 15 and 16 of the specifications for special requirements concerning utilities and services.

2. Maintain any existing utilities required to remain; keep in service and protect against damage during demolition operations.

3. 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 the governing authorities.

4. Disconnect and seal any abandoned utilities before starting demolition operations. Coordinate all work with local utility companies having jurisdiction.

1.7 SCHEDULING

A. Before commencing any alteration or demolition work, submit for review by the Architect, and approval of the Owner, a schedule showing the commencement, the order, and the completion dates for the various parts of this work.

B. Before starting any work relating to existing utilities (electrical, sewer, water, heat, gas, fire lines, etc.) that will temporarily discontinue or disrupt service to the structures to remain, notify the Architect and the Owner 7 days in advance and obtain the Owner's approval in writing before proceeding with this phase of the work.

PART 2 PRODUCTS

Refer to Part 3 - Execution, for Product Requirements

PART 3 EXECUTION

3.1 PROTECTION

A. Take full precautions to protect workmen, passersby or any other persons from falling debris and other hazards of demolition operations.

B. Execute demolition work to insure protection of existing portions of building to remain against damages which might occur from falling debris or other cause. Do not interfere with use of adjacent occupied buildings and areas. Maintain free, safe passage to and from occupied adjacent buildings.

C. Materials Placement: Do not load structure with weight that will endanger, overload or cause excessive deflection of the existing structure, or that will damage finished surfaces adjacent to and/or supported by the existing structure, except portions being removed.

D. Construction Operations: Do not employ any construction operation, equipment or vehicles that will endanger, overload or cause excessive deflection of the existing structure, or that will damage finished surfaces adjacent to and/or supported by the existing structure, except portions being removed.

E. Take precautions to guard against movement, settlement, damage, or collapse of any part of building, sidewalks, adjacent property or street passages; be liable for any such movement, settlement or collapse. If such damage does accidentally occur, Contractor shall repair promptly at no cost to Owner.

F. Provide the necessary safeguards to prevent accidents, to avoid all necessary hazards and protect the public, the work and property at all times, including Saturdays, Sundays, and holidays.

G. Be responsible for any and all damages which may arise or occur to any party whatsoever by reason of the neglect in providing proper lights, guards, barriers, or any other safeguards to prevent damage to property, life and limb.

H. Make such explorations and probes as are necessary to ascertain any required protective measures before proceeding with demolition and removal. Give particular attention to shoring and bracing requirements so as to prevent any damage to existing construction.

1. Provide interior and exterior shoring, bracing, or support to prevent movement or settlement or collapse of structures to be demolished and adjacent facilities to remain. The Contractor's Professional Engineer shall advise on bracing, shoring, underpinning, or other structural requirements. The Contractor shall bear all responsibility for prevention of movement or other structural fault.

2. The Contractor shall restore, by repair or otherwise, the portions of structure or their contents altered by the Contractor in furtherance of his underpinning and support operations. Restoration shall be completed to the conditions which existed prior to the start of the work. Any damage caused by inadequate support shall also be restored by the Contractor at no cost to the Owner.

I. Provide, erect and maintain catch platforms, lights, barriers, weather protection, warning signs, and other items as required for proper protection of the workmen engaged in demolition and alteration operations, occupants of the building, public and adjacent property. Any damage caused by the Contractor's operations shall be promptly repaired by the Contractor at no cost to the Owner.

J. Provide and maintain temporary protection of the existing structure designated to remain where demolition, removal, and new work are being done, connections made, materials handled, or equipment moved.

K. Take necessary precautions to prevent dust and dirt from rising. Protect unaltered portions of the existing building affected by the operations under this Section by dustproof partitions and other adequate means.

L. Provide adequate fire protection in accordance with local Fire Department requirements.

M. Do not close or obstruct walkways, passageways, or stairways. Do not store or place materials in passageways, stairs, or other means of egress. Conduct operations with minimum traffic interference.

N. Assume responsibility for any damage to the existing structure or contents by reason of the insufficiency of protection provided.

O. Erect temporary covered passageways at street level as required by authorities having jurisdiction.

P. Promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.

Q. Provide and maintain weather protection at exterior openings so as to fully protect the interior premises against damage from the elements until such openings are closed by new construction.

3.2 INSPECTION

A. Verify that areas of demolition work are protected and temporary dustproof partitions have been installed.

B. Verify that construction to be removed is not load bearing or has been properly braced, framed or supported.

C. Inspect existing conditions of the project, including elements subject to damage or to movement during demolition and cutting.

D. After uncovering work, inspect the conditions affecting the installation or performance of the work.

1. Report differing or questionable conditions to the Architect in writing; do not proceed with the work until the Architect has provided further instructions.

3.3 PREPARATION

A. Provide adequate temporary support as necessary to assure the structural value or integrity of the affected portion of the work

B. Provide devices and methods to protect other portions of the project from damage.

C. Pollution Controls

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

a. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

2. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations. Return adjacent areas to condition existing prior to the start of the work.

3. Provide drainage for temporary water use.

3.4 DEMOLITION AND CUTTING

A. Selectively demolish existing construction in conformance with the drawings and these specifications.

1. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surface to receive installation of work by others and patching of finish surfaces.

2. Do all cutting or removal so as to leave neat, true, plumb and square edges, at edges to remain. Use carborundum or diamond saw equipment for cutting masonry, concrete and stone work, where edges or surfaces are to remain.

3. Do not cut or remove construction which might weaken or impair the structural integrity or strength of the structural framing or support systems which are to remain.

4. Demolish and remove materials as shown on the drawings without damage to the remaining parts of the structure or mechanical/electrical/utility systems.

5. Remove materials so as to not impose excessive loads in supporting walls, floors or framing and so as not to damage remaining undemolished portions of the structure.

6. Where portions of structures are to be removed, remaining portions shall be protected from damage and prepared to fit new construction. Damage to portions of structures to remain shall be repaired.

7. Reinforcing steel in existing structures shall be left in place, cleaned and aligned to provide tie with new work.

8. Existing waterproofing systems and flashings shall be carefully exposed and protected to maintain workable conditions of fitting new work with existing construction.

9. Proceed with demolition in a systematic manner.

10. Demolish concrete and masonry in small sections.

11. Remove structural framing members and lower to ground by means of hoists, derricks, or other suitable methods.

B. Shoring

1. Design, provide, erect and maintain necessary temporary shoring, bracing, framing, or support where load bearing structural or supporting members are removed or weakened by cuts or openings or are subject to damage from demolition operations, and otherwise as required for safety or to protect finish surfaces from damage.

2. Construction and adequacy of the shoring shall be the entire responsibility of the Contractor. Any damage caused by the inadequacy of the shoring or other support shall be the responsibility of the Contractor to remedy at no additional expense to the Owner.

3. Shoring and bracing shall remain until new structural framing and/or supports are installed. Coordinate operations fully with other trades.

4. Be ready at any time to promptly provide, add to, or strengthen temporary shoring, bracing, or support for existing work, in case existing construction begins to show signs of structural stress.

3.5 WORKMANSHIP STANDARDS FOR ALTERATION AND REMOVAL WORK

A. Cut, remove, alter, temporarily remove and replace, or relocate existing work as required for performance of the work. Perform such work required with due care, including shoring and bracing.

B. Coordinate patching involving the various trades whether or not specifically mentioned in the respective specification Sections.

C. Materials or items demolished and not designated to become the property of the Owner or to be reinstalled shall become the property of the Contractor and shall be removed from the Owner's property.

D. Execute the work in a careful and orderly manner, with the least possible disturbance to the public and to the occupants of the adjacent buildings.

E. In general, demolish masonry in small sections. Where necessary to prevent collapse of any construction, install temporary shores, struts, or bracing.

F. Materials to be removed by existing elevators shall be put in enclosed containers.

G. Where existing equipment and/or fixtures are indicated to be reused, repair such equipment and/or fixtures and refinish to put in perfect working order. Refinish as directed.

H. Cut out embedded anchorage and attachment items as required to properly provide for patching and repair of the respective finishes.

I. Confine cutting of existing roof areas designated to remain to the limits required for the proper installation of the new work. Cut and fold back existing roofing. Cut and remove insulation and related items. Provide temporary weathertight protection as required until new roofing and flashings are installed. Consult the Owner to ascertain if existing guarantee bonds are in force and execute the work so as not to invalidate such bonds.

J. Where utilities are removed, relocated or abandoned, cap, valve, plug, or by-pass to make complete and working installation.

K. Restore existing pipe and duct coverings damaged by work under this Contract to original undamaged condition.

L. Immediately restore to service and repair any damage caused by Contractor's workmen to existing pipe and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems which are not scheduled for discontinuance or abandonment.

M. Upon completion of contract, deliver work complete. Damage that may be caused by Contractor or Contractor's workmen to existing structures designated to remain, grounds, and utilities shall be repaired by Contractor and left in as good condition as existed prior to damaging.

N. Restore finish work of floors, walls, and ceilings remaining in place but damaged or defaced because of demolition or alteration work to condition equal that which existed at beginning of work under this Contract.

O. Where alteration or removals expose damaged or unfinished surfaces or materials, refinish such surfaces or materials, or remove them and provide new or salvaged materials to make continuous surfaces uniform.

P. Perform new work and restore and refinish existing work in conformance with applicable requirements of the specifications, except as follows:

1. Materials for use in repair of existing surfaces, but not otherwise specified, shall conform to the highest standards of the trade involved, and be in accordance with approved industry standards, and shall be as required to match existing surfaces.

2. Workmanship for repair of existing materials shall, unless otherwise specified, be equal to similar workmanship existing in or adjacent to the space where the work is being done.

3. Installation of salvaged items where no similar items exist shall be done in accordance with the highest standards of the trade involved and in accordance with approved shop drawings.

Q. Materials or items designated to become the property of the Owner shall be as shown on the drawings. Remove such items with care and store them in a location at the site to be designated by the Owner.

R. Materials or items designated to be reinstalled shall be as shown on the drawings. Remove such items with care under the supervision of the trade responsible for reinstallation; protect and store until required. Replace materials or items damaged in their removal with similar new material.

S. The existing building shall not be used as a work shop. Neither shall the furnishings or equipment in any room be used as work benches. Should any damage occur during the progress of the work to any furniture, fixtures, equipment, or appurtenances therein, such damage shall be repaired, replaced or made good by the Contractor without extra cost to the Owner.

T. Where removing existing floor finish and base, remove all adhesive and leave floors and walls smooth and flush, ready to receive new finish.

U. Finish new and adjacent existing surfaces as specified for new work. Clean existing surfaces of dirt, grease and loose paint before refinishing.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General

1. Remove from the site debris, rubbish and other materials resulting from work of this Section.

2. Burning of removed materials from demolished structures will not be permitted on the site.

B. Removal: Transport materials removed from demolished structures and legally dispose of off site. Pay any and all fees associated with disposal work. Leave the site in an orderly condition to the approval of the Architect.

3.7 CLEANING UP

A. Remove debris as the work progresses. Maintain existing premises in a neat and clean condition.

END OF SECTION

SECTION 01400

TESTING AND INSPECTION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 WORK INCLUDED

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the testing and inspection requirements as specified herein.

1.3 RELATED WORK

A. Requirements for testing and inspection shall be described in various Sections of these Specifications. Where no testing and inspection requirements are described but the Owner decides that it is required, the Owner may require additional testing and inspection to be performed at his own expense.

B. Work Not Included

1. Unless otherwise noted in this Section or other Section of work, the Owner will select a pre-qualified independent testing laboratory and inspection professional.

2. Unless otherwise noted in this Section or other Sections of work, the Owner will pay for all initial services of the testing laboratory and inspection professionals as further described in Article 2.1 of this Section of these Specifications.

1.4 QUALITY ASSURANCE

A. The testing laboratory will be qualified to the Owner's approval in accordance with ASTM E 329 "Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction".

B. Testing, when required, will be in accordance with all pertinent codes and regulations and with selected ASTM standards.

1.5 PRODUCT HANDLING

A. Promptly process and distribute all required copies of test reports and related instructions to ensure all necessary retesting and/or replacement of materials with the least possible delay in progress of the work.

PART 2 PRODUCTS

2.1 PAYMENTS FOR TESTING AND INSPECTION SERVICES

A. Initial Services: The Owner will pay for all initial testing and inspection services.

B. Retesting: When initial tests and inspections indicate non-compliance with local Codes and the Contract Documents, all subsequent retesting occasioned by the non-compliance shall be performed by the same testing laboratory and inspectors and the costs thereof will be deducted by the Owner from the Contract Sum.

2.2 CODE COMPLIANCE TESTING AND INSPECTION

A. Inspections and tests required by Codes or Ordinances, or by a plan approval authority, shall be paid by for by the Owner unless otherwise noted in this Section or other Sections of work. Retesting or inspection as required shall conform to the requirements of Article 2.1 B of this Section.

2.3 CONTRACTOR'S TESTING

A. Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

B. Where operating tests are specified, the Contractor shall test his work as it progresses, on his own account, and shall make satisfactory preliminary tests in all cases before applying for official tests.

C. Tests shall be made in the manner specified, for the different branches of the work. Each test shall be made on the entire system for which such test is required, wherever practical. In case it is necessary to test portions of the work independently, the Contractor shall do so without extra compensation. The Contractor shall furnish all labor, material and apparatus, make connections and conduct the official test. The test will be conducted in the presence of a representative of the Architect.

D. All parts of the mechanical and electrical work and associated equipment shall be tested and adjusted to work properly and be left in perfect operating condition. All defects disclosed by these tests shall be corrected to the satisfaction of the Architect and Engineer without any additional cost to the Owner. Tests shall be repeated on this repaired or replaced work if deemed necessary by the Architect. The Architect shall be notified at least 48 hours in advance of all test, and shall be represented at tests that he deems necessary. The Contractor shall furnish all necessary instruments, other equipment, and personnel required for such tests.

E. Required certificates of inspection, testing or approval shall be secured by the Contractor and promptly delivered by him to the Architect.

F. If the Architect or Engineer is to observe the inspections, tests or approvals required by the Contract Documents, he will endeavor to do so promptly and, where practicable, at the source of supply.

PART 3 EXECUTION

3.1 COOPERATION WITH TESTING LABORATORY AND INSPECTORS

A. Representatives of the testing laboratory and inspectors shall have access to the work at all times. Provide facilities for such access in order that they may properly perform their functions.

3.2 SCHEDULES

A. Establishing Schedule

1. By advance discussions with the inspection service and testing laboratory selected by the Owner, determine the time required to perform inspections and tests and to issue each of its findings.

2. Provide all required time within the construction schedule.

B. Revising Schedule: When changes of construction schedule are necessary during construction, coordinate all such changes of schedule with the inspectors and testing laboratory as required.

C. Adherence to Schedule: When the testing laboratory is ready to test according to the determined schedule but is prevented from testing or taking specimens due to incompleteness of the work, all extra costs for testing attributable to the delay will be back-charged to the Contractor.

3.3 TAKING SPECIMENS

A. All specimens and samples for testing, unless otherwise provided in these Contract Documents, will be taken by the testing laboratory; all sampling equipment and personnel will be provided by the testing laboratory; and all deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the construction facilities and temporary controls as shown on the drawings and/or specified herein, including but not limited to, the following:

1. Field office.
2. Fire protection.
3. Temporary utilities.
4. Temporary partitions.
5. Temporary toilets.
6. Environmental controls.
7. Stairs, ladders, sidewalk bridging.

1.3 RELATED SECTIONS

A. Materials and equipment - Section 01600.

PART 2 PRODUCTS

2.1 GENERAL

A. Arrange for temporary facilities and controls as specified herein and as required for the proper and expeditious prosecution of the work. The Contractor shall pay all costs, except as otherwise specified, until final acceptance of the work unless the Owner makes arrangements for the use of completed portions of the work after substantial completion.

B. Provide clear entry to the in-use portions of the building at all times.

2.2 TEMPORARY FIELD OFFICE

A. Provide a temporary office within the construction area in location designated by the Architect. Provide a telephone and fax and pay all charges for installation and calls, including long distance calls.

2.3 FIRE PROTECTION

A. Provide and maintain adequate fire protection, ready for instant use, distributed around the project.

B. Make arrangements for periodical inspection by New York City fire protection authorities and insurance underwriters inspections. Cooperate with said authorities and promptly carry out their recommendations.

C. Open fire will not be permitted within the building enclosure or on the project site.

2.4 TEMPORARY PARTITIONS

A. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.

1. Construct dustproof partitions with 2 layers of 3-mil polyethylene sheet on each side. Cover floor with 2 layers of 3-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant plywood.

2. Insulate partitions to provide noise protection to occupied areas.

3. Weather strip openings.

4. Provide walk-off mats at each entrance through temporary partition.

B. Coordinate locations of temporary walls with Owner and Architect in order not to disrupt occupied retail spaces and 5th floor during roofing work.

2.5 TEMPORARY LIGHT AND POWER

A. Existing permanent electrical power may be used for temporary power for construction purposes, provided that the Contractor (1) assumes full responsibility for the entire power and lighting system, and (2) pays costs for operations, maintenance, temporary lights as necessary, and restoration of the system. Cost of power consumed shall be paid for by the Owner.

2.6 TEMPORARY TOILETS

A. Existing toilet rooms, as designated by the Owner, may be used during construction operations provided they are kept in a sanitary condition throughout the construction period. Comply with Sanitation Department requirements. Furnish full stock of paper towels and toilet tissue.

2.7 TEMPORARY WATER SERVICE

A. Contractor may use existing water service in the building; cost of water consumed will be paid for by the Owner. The Contractor must provide his own hoses, buckets, etc. as needed.

2.8 ENVIRONMENTAL CONTROLS

A. Comply with all applicable Federal, State and local laws, regulations, ordinances, codes and standards concerning environment control. Particular attention shall be given, without limitations, to:

1. Minimization of dust, containment of chemical vapors and control of smoke from temporary heaters.

2. Proper storage of fuels and other potential contaminants.

3. Minimization of noise levels.

4. Proper and legal disposal, off-site unless otherwise provided, of waste and spoil resulting from construction activities.

2.9 TEMPORARY STAIRS, LADDERS, RAMPS, AND RUNWAYS

A. Provide and maintain all equipment such as temporary stairs, ladders, sidewalk bridging, and chutes as required for the proper execution of the work.

B. All such apparatus, equipment, and construction shall meet all requirements of the Labor Law and other state or local laws applicable thereto.

C. Covered Walkway: Erect a structurally adequate, protective, covered walkway for passage of persons along adjacent public street. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.

PART 3 EXECUTION

3.2 REMOVAL

A. Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the work. Remove all such temporary facilities and controls as rapidly as progress of the work will permit or as directed by the Architect.

END OF SECTION

SECTION 01505

CLEANING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 WORK INCLUDED

A. Throughout the construction period, maintain the building and site in a standard of cleanliness as described in this Section.

1.3 QUALITY ASSURANCE

A. Inspection: Conduct daily inspection, and more often if necessary, to verify that requirements of cleanliness are being met.

PART 2 PRODUCTS

2.1 CLEANING MATERIALS AND EQUIPMENT

A. Provide all required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.2 COMPATIBILITY

A. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART 3 EXECUTION

3.1 PROGRESS CLEANING

A. General

1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.

2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.

3. At least twice each week, and more often if directed by the Architect, completely remove all scrap, debris, and waste material from the job site.

4. Provide adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection and protection of the ecology.

B. Site

1. Daily inspect the site and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.

2. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site; restack, tidy, or otherwise service all arrangements to meet the requirements noted herein.

3. Maintain the site in a neat and orderly condition at all times to the approval of the Architect.

C. Structures

1. Twice a week, and more often if directed by the Architect, inspect the structures and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.

2. Twice a week, and more often if directed by the Architect, sweep all interior spaces clean. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by reasonable diligence using a hand-held broom.

3. As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.

4. Following the installation of finish floor materials, clean the finish floor daily at all times while work is being performed in the space in which finish materials have been installed. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from all foreign material which may be injurious to the finish floor material.

3.2 FINAL CLEANING

A. Definition: Except as otherwise specifically provided, "clean" (for the purpose of this Article) shall be interpreted as meaning the level of cleanliness generally provided by commercial building maintenance subcontractors using commercial quality building maintenance equipment and materials.

B. General: Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in Article 3.1 above.

C. Site: Unless otherwise specifically directed by the Architect, hose down all paved areas on the site and all public sidewalks directly adjacent to the site. Completely remove all resultant debris.

D. Structures

1. Exterior: Visually inspect all exterior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. If necessary to achieve a uniform

degree of exterior cleanliness, hose down the exterior of the structure. In the event of stubborn stains not removable with water, use other methods as recommended by the material manufacturer.

2. Interior: Visually inspect all interior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. Remove all paint droppings, spots, stains, and dirt from finished surfaces. Use only the specified cleaning materials and equipment.

3. Glass: Clean all glass inside and outside.

4. Polished Surfaces: To all surfaces requiring the routine application of buffed polish, apply the specified polish as recommended by the manufacturer of the material being polished.

E. Timing: Schedule final cleaning as approved by the Architect to enable the Owner to accept a completely clean project.

3.3 CLEANING DURING OWNER'S OCCUPANCY

A. Should the Owner occupy the Work of any portion thereof prior to its completion by the contractor and acceptance by the Owner, responsibilities for interim and final cleaning of the occupied spaces shall be as determined by the Architect in accordance with the General Conditions of the Contract.

END OF SECTION

SECTION 01515
Indoor Air Quality Plan During Construction

Introduction
Construction projects present a variety of situations which may release contaminants and pollutants that can impact the indoor air quality (IAQ) of a building. These contaminants may be transported to other areas via the heating, ventilation and air conditioning systems and subsequently affect populations beyond the immediate work area. Advance planning by the project team, material review and selection processes, and effective control strategies combined with proactive communication efforts can successfully control pollutant levels, allay concerns, and maintain worker comfort during construction.

While there are currently no enforceable IAQ standards, workers are certain to consider exposure to nuisance dusts and odors from a construction unacceptable. Indoor air pollutants are typically complex mixtures of low level contaminants which are difficult to measure. Rather than attempting to quantify levels of contamination which may be present in indoor air, it is more realistic to subjectively approach the issue and attempt to maintain an environment which is perceived to be clean, well ventilated, odor free, and comfortable in terms of temperature.

The following information and recommendations are presented as an overview, in an effort to maintain acceptable indoor air quality during construction. The intent of this guidance document is to increase awareness and to encourage all parties to participate in improving working conditions through the entire project. Construction activities will meet or exceed the Design Approaches of the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) IAQ Guidelines for Occupied Buildings Under Construction, 1995, Chapter 3.

Source Removal
Materials – Specify and select materials with low toxicity levels, or none at all. Screening materials prior to their use greatly improves the general comfort level for every construction worker working on the project. Sequence the installation of absorptive materials, such as insulation, carpeting, ceiling tile and gypsum wall board, to avoid contamination.
Physical Sources - Identify a source of contamination and relocate it so that it will not impact the IAQ. For example, do not locate a diesel generator or a roofing kettle near a building air intake. Avoid exhaust fumes from idling vehicles and gasoline fueled tools.

Source Encapsulation
Create a barrier around the source and isolate it from other areas of the building so that there is no recirculation of air from the work area into occupied spaces. This may include physically isolating a section of the building with polyethylene sheeting or other barriers, as well as isolating the space from the general ventilation system by blocking return air grilles. Keep doors closed and seal stairwells so that they do not act as conduits for contaminants. If possible, ventilate using 100% outside air to exhaust contaminated air directly to the outside during installation of VOC-emitting materials.

Ventilation
Utilize either dilution ventilation or local exhaust ventilation in conjunction with isolation techniques to reduce contaminant levels. Dilution ventilation increases the amount of outside air passing through an area to dilute and flush out low levels of contaminants. If air handlers must be used during construction, filtration media with a minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grill, as determined by AHRAE 52.2-1999. If the building

ventilation system will be in contact with the work area, consider installing additional filters to keep particulates out of the ductwork. Replace all filtration media immediately prior to occupancy. When strong odors and higher contaminant levels are expected, the area should be encapsulated and placed under negative pressure. This technique isolates the work area from the building ventilation system and uses exhaust fans to directly remove contaminants to the outside.

Exposure Control
It may be unrealistic to attempt to completely eliminate airborne contaminants during a construction project, but it is possible to minimize occupant exposure to those contaminants by carefully scheduling the work during periods of low occupancy, evenings and weekends. In addition, allow for a "flush out" period of ventilation prior to reoccupying the work area.

Housekeeping
Good housekeeping practices will go a long way toward containing dusts and construction debris, and allowing building occupants to feel confident that the project is well managed. Use a HEPA filtered vacuum cleaner to minimize recirculation of contaminants. Suppress dust with wet methods. Quickly clean up spilled materials. Protect porous materials such as insulation from exposure to moisture and contaminants. Protect stored on-site and installed absorptive materials from moisture damage.

Notification / Communication
Proactive communication and advance notification of all affected parties can prevent IAQ issues from developing and escalating. Develop a list of contacts who can disseminate project details and schedules to all construction workers. Signage might be posted to provide a phone number for concerned visitors seeking information. Provide accurate information about chemical products which will be used, noises, dusts, odors, and disruptions to the normal routine well in advance of the planned work. Explain that the least toxic materials available have been selected, and provide Material Safety Data Sheets for review. Listen to workers concerns and discuss control strategies which will be implemented to minimize contaminants. Make allowances for individuals with special concerns or sensitivities. Keep actual health risks in proper perspective.

Example Projects:

1. Flooring
Review the manufacturer specifications for carpet and vinyl flooring and select those with low emission data. New products which are opened and unrolled at the contractors' facility will emit fewer VOCs upon installation. More importantly, consult the approved products listing and select a low emitting adhesive for flooring installation. Always follow the manufacturer recommendations for use and ventilation. Maintain a copy of the MSDS on site. Minimize the amount of chemical product stored at the construction site, and ensure that containers not in use are kept sealed. Select the most appropriate flooring material for the space. Carpeting used in areas subject to moisture will promote microbial growth contributing to IAQ problems in the future. Implement some combination of the source management techniques to control contaminant levels generated during and after construction.

2. Painting
Select a low VOC emitting paint that is free of lead and mercury. Minimize worker exposure to interior painting by scheduling it sensibly, isolating the space, and ventilating the area well both during and after the painting is completed.

Construction Indoor Air Quality Management Plan

On completion of construction prior to occupancy, conduct a one-week minimum flush out with new MERV 13 filtration media. Replace all base building mechanical system filtration media with minimum efficiency reporting value of 13 (MERV 13) filters in accordance with ASHRAE52.2 – 1999 immediately prior to occupancy. On completion of construction and within 30 days of occupancy, conduct an IAQ test. Test indoor air quality at random sampling points for every 20,000 sf, or by each floor if smaller, or by each ventilation zone, in accordance with recognized national standards, to achieve an air quality profile at time of occupancy which satisfies the specific minimums for carbon dioxide, carbon monoxide, formaldehyde, volatile organic compounds, particulates and radon.

End Of Section

SECTION 01570

TRAFFIC REGULATIONS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 WORK INCLUDED

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the traffic regulations as specified herein, as follows:

1. Flagmen.
2. Flares and Lights.
3. Haul Routes.
4. Traffic Signs and Signals.
5. Removal.

1.3 RELATED WORK

A. Construction facilities and temporary controls - Section 01500.

1.4 SIGNS, SIGNALS, AND DEVICES

A. Post Mounted and Wall Mounted Traffic Control and Information Signs.

B. Traffic Control Signals: As approved by local jurisdictions.

C. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.

D. Flagmen Equipment: As approved by local jurisdictions.

1.5 FLAGMEN

A. Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

1.6 FLARES AND LIGHTS

A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

1.7 HAUL ROUTES

A. Consult with authority having jurisdiction in establishing public thoroughfares to be used for haul routes and site access.

B. Confine construction traffic to designated haul routes.

C. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

1.8 TRAFFIC SIGNS AND SIGNALS

A. At approaches to site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.

B. Install and operate traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control, and areas affected by Contractor's operations.

C. Relocate as Work progresses, to maintain effective traffic control.

1.9 REMOVAL

A. Remove equipment and devices when no longer required.

B. Repair damage caused by installation.

PART 2 PRODUCTS

(Not Applicable)

PART 3 EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01600

MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 WORK INCLUDED

A. Work of this Section includes all labor, materials, equipment and services necessary to complete materials, and equipment requirements as specified herein, including but not limited to, the following:

1. Transportation and handling.
2. Storage and protection.
3. Installation requirements.
4. Identifying markings.
5. Product approval standards.
6. Substitution requirements.
7. Temporary use of equipment.
8. General standards.

1.3 RELATED WORK

A. General Conditions.

1.4 TRANSPORTATION AND HANDLING

A. Materials, products, and equipment shall be properly containerized, packaged, boxed, and protected to prevent damage during transportation and handling.

B. More detailed requirements for transportation and handling are specified under the technical Sections.

1.5 STORAGE AND PROTECTION

A. Provide suitable temporary weathertight storage facilities as may be required for materials that will be damaged by storage in the open.

B. Available storage space at the job site is limited to the area permitted by the Architect. Allocate such space for storage purposes. Any additional off-site space required is the responsibility of the Contractor.

C. Allocate the available storage areas and coordinate their use by the trades on the job. Maintain a current layout of all storage facilities.

D. Store and protect materials delivered at the site from damage. Do not use damaged material on the work.

1.6 INSTALLATION REQUIREMENTS

A. Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the respective manufacturers, unless otherwise specified.

1.7 IDENTIFYING MARKINGS

A. Name plates and other identifying markings shall not be affixed on exposed surfaces of manufactured items installed in finished spaces.

1.8 PRODUCT APPROVAL STANDARDS

A. Where the words "or approved equal" or other synonymous terms are used, it is expressly understood that they shall mean that the approval of any such submission is vested in the Architect, whose decision shall be final and binding upon all concerned. All submissions are subject to such approval.

B. The intent of this article is to encourage and permit competition on qualified products by reputable and qualified Contractors, suppliers and manufacturers, whose products, reputation and performance warrant approval for the conditions, intent of design and performance considerations.

C. When descriptive catalog designations including manufacturer's name, product brand name, or model number are referred to in the contract documents, such designations shall be considered as being those found in industry publications of current issue at date of first invitation to bid.

D. When standards of the Federal Government, trade societies, or trade associations are referred to in the contract documents by specific date of issue, these shall be considered a part of this contract. When such references do not bear a date of issue, the current published edition at date of first invitation to bid shall be considered as part of this contract. Suppliers need not be a member of such trade societies or associations referred to in the Specifications.

E. Whenever any product is specified or shown by describing proprietary items, model numbers, catalog numbers, manufacturer, trade names or similar reference, the bidder obligates himself to submit proposals and accept awards of contract based upon the use of such products. Use of such reference is intended to establish the measure of quality which the Architect has determined as requisite and necessary for this project. Where two or more products are shown or specified, the bidder has his option of which to use, provided the product used meets all requirements of specifications and design criteria. The right is reserved to approve or disapprove proposed deviations of design, function, construction or similar differences which will affect the design intent.

1.9 ACCEPTANCE OF NON-SPECIFIED PRODUCTS PRIOR TO BID DATE

A. For approval of products other than those specified, Bidders shall submit a request in writing at least 10 days prior to bid date and hour. Requests received after this time will not be reviewed or considered regardless of cause. Requests shall clearly define and describe the product for which approval is requested. Requests shall be accompanied by manufacturer's literature, specifications, drawings, cuts, performance data, list of reference or other information necessary to completely describe the item. Approval by the Architect will be in the form of an addendum to the specifications issued to all prospective bidders of record. The addendum will indicate the additional products which are approved for this project.

1.10 SUBSTITUTION AFTER AWARD OF CONTRACT

A. After the contract has been executed, the Architect will consider a formal request for the substitution of products in place of those specified, under the following conditions:

1. The request is accompanied by complete data on the proposed substitution substantiating compliance with the Contract Documents including product identification and description, performance and test date, references and samples where applicable, and an itemized comparison of the proposed substitution with the products specified or named by Addenda, with data relating to Contract time schedule, design and artistic effect where applicable, and its relationship to separate contracts.

2. The request is accompanied by accurate cost data on the proposed substitution in comparison with the product specified, whether or not modification of the Contract Sum is to be a consideration.

B. Requests for substitution based on Para (1) above, when forwarded by the Contractor to the Architect for review are understood to mean that the Contractor:

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

2. will provide the same guarantee for the substitution that he would for that specified;

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

4. will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects, at no additional cost to the Owner and at no extension of the contract completion date.

C. Substitutions will not be considered if:

1. they are indicated or implied on shop drawings submissions without the formal request required in Para (1) above; or

2. for their implementation they require a substantial revision of the Contract Documents in order to accommodate their use.

3. The Architect will examine, with reasonable promptness, such substitution submittals, and return of submittals to the Contractor shall not relieve the Contractor from responsibility for deviations and alternatives from the contract plans and specifications, nor shall it relieve him from responsibility for errors in the submittals. A failure by the Contractor to identify in his letter of transmittal material deviations from the plans and specifications shall void the submittals and any action taken thereon by the Architect. When specifically requested by the Architect, the Contractor shall resubmit such shop drawings, descriptive data and samples as may be required to evaluate substitutions.

D. If any mechanical, electrical, structural, or other changes are required for the proper installation and fit of alternative materials, articles, or equipment, or because of deviations from the contract plans and specifications, such changes shall not be made without the consent of the Architect and shall be made without additional cost to the Owner.

1.11 TEMPORARY USE OF EQUIPMENT

A. No equipment intended for permanent installation shall be operated for temporary purposes without the written permission of the Architect.

B. The temporary or trial usage by the Owner of any mechanical device, machinery, apparatus, equipment or any work or materials supplied under this Contract before final completion and written acceptance by the Architect, shall not be construed as evidence of the acceptance of same by the Owner. The Owner shall have the privilege of such temporary and trial usage, for such reasonable length of time as and when the Architect shall deem to be proper for making a complete and thorough test of same and no claim for damage shall be made by the Contractor for the injury to or breaking of parts of such work which may be caused by weakness of inaccuracy of structural parts or by defective material or workmanship. If the Contractor so elects, he may at his own expense, place a competent person or persons to make such trial usage; such trial usage shall be under the supervision of the Contractor.

1.12 GENERAL REQUIREMENTS

A. In the event that it is necessary for the Contractor to store any materials offsite, he shall first obtain the approval of the Architect. The Contractor shall be responsible for insurance and warehousing charges of any materials stored offsite. The Contractor shall also be responsible for the cost of delivery to the job site of any materials that has been stored offsite.

B. Materials delivered to the job site shall be carefully stored and protected from damage. Damaged material shall not be used in the work. The Contractor shall provide, where directed temporary storage facilities as may be required for the storage of all materials which might be damaged by weather.

C. Manufactured articles, materials and equipment shall be applied installed, connected, erected, used, cleaned and conditioned as directed by the representative manufacturers, unless otherwise specified.

D. Equipment, plant, and appliances, such as hoists, centering, concrete lifts, construction elevators, cranes, rigging, towers, derricks, walks, ramps, chutes, scaffolding, implements, transportation, cartage and other things necessary and required for the adequate execution of the work and as required by law and applicable Union rules shall be provided and shall be maintained in good and safe mechanical working order, be responsible for their safe use, and remove them when no longer required. Applicable requirements of OSHA shall become and form a part of this document.

E. During handling and installation of work at project site clean and protect work in progress and adjoining work on a basis of perpetual maintenance. Apply suitable protective covering on newly installed work where reasonably required to ensure freedom from damage or deterioration at time of substantial completion; otherwise, clean and perform maintenance on newly installed work as frequently as necessary through remainder of construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

F. To extent possible through reasonable control and protection methods, supervise performance of work in a manner and by means which will ensure that none of the work whether completed or in progress, will be subjected to harmful, dangerous, damaging, or otherwise deleterious exposures during construction period. Such exposures include (where applicable, but not by way of limitation) static loading, dynamic loading, internal pressures, external pressures, high or low temperatures, thermal shock, high or low humidity, air contamination or pollution, water, ice, solvents, chemicals, light, radiation, puncture, abrasion, heavy traffic, soiling, bacteria, insect infestation, combustion, electrical current, high speed operation, improper lubrication, unusual wear, misuse, incompatible interface, destructive testing, misalignment, excessive weathering, unprotected storage, improper shipping/handling, theft and vandalism.

G. Require installer of each major unit of work to inspect substrate to receive the work, and conditions under which the work will be performed, and to report (in writing to Contractor) unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

H. Where installations include manufactured products, comply with manufacturer's applicable instructions and recommendations for installation to whatever extent these are more explicit or more stringent than applicable requirements indicated in the Contract Documents.

I. Inspect each item of materials or equipment immediately prior to installation and reject damaged and defective items.

J. Provide attachment and connection devices and methods for securing work properly as it is installed; true to line and level, and within recognized industry tolerance if not otherwise indicated. Allow for expansions and building movements. Provide uniform joint widths in exposed work, organized for best possible visual effect. Refer questionable visual-effect choices to Architect for final decision.

K. Recheck measurements and dimensions of the work as an integral step of starting each installation.

L. Install work during conditions of temperature, humidity, exposure, forecasted weather, and status of project completion which will ensure best possible results for each unit of work in coordination with entire work. Isolate each unit of work from non-compatible work, as required to prevent deterioration.

M. Coordinate enclosure (closing-in) of work with required inspections and tests, so as to avoid necessity of uncovering work for that purpose.

N. Mounting Heights: Except as otherwise indicated, mount individual units of work at industry-recognized standard mounting heights, for applications indicated. Refer questionable mounting height choices to Architect for final decision.

END OF SECTION

SECTION 01700

CONTRACT CLOSE-OUT

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 WORK INCLUDED

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the contract close-out, including but not limited to, the following:

1. Punch list.
2. Keys and maintenance kits.
3. Warranties and guarantees.
4. Operating and maintenance instructions.
5. Project record documents.
6. Certificate of Occupancy.
7. Equipment system demonstration.

1.3 RELATED WORK

A. Submittals - Section 01300.

B. General Conditions.

1.4 PUNCH LIST

A. Contractor

1. Submit written declaration to Architect that project is substantially complete.
2. Submit list of items to be completed and corrected (punch list).

B. Owner, Architect and Contractor will make preliminary inspection after receipt of Contractor's declaration and punch list.

C. Should Owner and Architect consider that work is substantially complete:

1. Architect will add to the punch list items to be completed or corrected, in addition to those items listed by the Contractor, as determined by the inspection.

2. Architect will prepare and issue a Certificate of Substantial Completion, containing:

   a. Date of substantial completion.
   b. Punch list of items to be completed or corrected.
   c. The time within which Contractor shall complete or correct work of listed items.
   d. Date or time Owner will assume possession of work or designated portion thereof.

D. Contractor: Complete work listed for completion or correction, within designated time.

1.5 FINAL INSPECTION

A. Contractor shall submit written declaration to Owner and Architect that:

   1. All aspects of Contract Documents have been complied with.

   2. All items on substantial completion punch list have been completed.

   3. All tools, construction equipment, and surplus materials have been removed from site.

B. The Owner, Architect and Contractor will make final inspection to ensure completion of all contract requirements.

C. When the Architect considers that work is finally complete in accordance with Contract Document requirements, the Architect will process close-out documents prior to issuance of final Certificate of Payment.

1.6 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Three bound sets of operating and maintenance instructions covering completely the operation and maintenance of all equipment furnished under the Contract shall be delivered to the Owner. These shall include operating sequence and flow diagrams of all systems. Three sets of lubricating charts and manuals for each item of equipment shall be furnished.

B. Upon completion of the work and at a time designated, a competent engineer shall be provided for a sufficient period to instruct representatives of the Owner in the operation and maintenance of each piece of equipment and of equipment and of each system as a whole.

C. In addition, furnish to the Owner in three sets of 8-1/2" x 11" loose leaf binder, typed sheets, which shall include, for each piece of operating equipment (electric or otherwise powered), the name, address, and telephone number of the firm or organization who are authorized by the manufacturer of the installed equipment, to service and maintain the equipment as the need may arise within 24 hours when summoned by the Owner.

1.7 PROJECT RECORD DOCUMENTS

A. As the work progresses, keep a complete and accurate record of changes or deviations from the Contract Documents and the shop drawings, indicating the work as actually installed.

1. Changes shall be neatly and correctly shown on the respective portions of the affected document, using black line prints of the drawings affected, or the specifications, with appropriate supplementary notes.

2. The records above shall be arranged in order, in accordance with the various sections of the Specifications, and properly indexed.

3. This record set of drawings, shop drawings, and specifications shall be kept at the job site for inspection by the Architect and Owner.

B. At the completion of the work, certify that each of the revised prints of the drawings and Specifications is complete and accurate.

C. Prior to application for final payment, and as a condition to its approval by the Architect and Owner, deliver the record drawings and specifications, arranged in proper order, indexed, and certified as herein before specified. Provide suitable transfer cases and deliver the records therein, indexed and marked for each division of the Work.

D. No review or receipt of such records by the Architect or Owner shall be a waiver of any deviation from the Contract Documents or the shop drawings, or in any way relieve the Contractor from his responsibility to perform the work in accordance with the Contract Documents and the shop drawings to the extent that they are in accordance with the Contract Documents.

1.8 GUARANTEES AND WARRANTIES

A. In addition to the Contractor's warranties and guarantees, Contractor shall submit manufacturer's guarantees, warrantees, service or maintenance and similar contracts, where required by the Contract Documents, with direct obligations running from the manufacturer to the Owner. Such guarantees or warranties, as applicable, shall be subject to the approval of the Owner.

B. Guarantees, service policies and warranties for individual pieces of equipment or portions of the work shall also date from final acceptance by the Architect, except that where the Owner requests and obtains temporary use of such facilities prior to final acceptance, the earlier date shall apply.

C. Certain guarantees longer than one year's duration are required under various sections of these specifications. At the completion of the work all such guarantees covering material, workmanship, maintenance, etc., as specified, shall be procured by the Contractor, who shall forward them in duplicate to the Architect together with a letter addressed to the Owner giving a summary of guarantees attached, stating:

1. Character of Work.

2. Name of Contractor.

3. Period of Guaranty.

4. Condition of Guarantee.

D. The guarantees shall cover any and all work done under this contract, either by the Contractor or Subcontractors. All guarantees shall bear the endorsement of Contractor in writing.

E. The correction of such work shall include without additional charge, all additional expenses and damages in connection with such removal, replacement of any, or part, of the work which may be damaged or disturbed thereby.

F. Form of Guarantee: The Contractor shall use the form found at the end of this Section for presentation of their guarantees.

1.9 KEYS AND MAINTENANCE KITS

A. All keys, maintenance kits or stock, replacement parts of materials, spare construction material, and equipment required under the contract shall be stored in the completed building in specific areas as designated by the Owner.

1.10 PROJECT CLOSE-OUT DOCUMENTATION

A. Prior to final payment, the Contractor shall submit to the Architect the following documents in an original and one copy unless otherwise noted:

1. A complete listing of all trade Subcontractors, business addresses and items supplied by such trade Subcontractor.

2. A listing of manufacturers of major materials, equipment and systems installed in the work.

3. Payment of Debts and Claims and Consent of Surety: Adequate evidence that he has paid all obligations arising out of the Construction Contract. He shall submit AIA Document No. G-706, Contractor's Affidavit of Payment of Debts and Claims, together with AIA Document G-707, Consent of Surety, indicating written consent of the surety to final payment.

4. Release of Liens: Each Contractor shall also submit AIA Document G-706-A, Contractor's Affidavit of Release Liens, indicating that the release for waivers submitted are complete to the best of his knowledge, information and belief and, if there are any exceptions that they be so stated specifically in this form. Contractor and all Subcontractors and suppliers shall in addition submit any other release documentation required by the Owner.

5. Test Data: A copy of all test data taken.

6. All warranties, guarantees, maintenance agreements and similar provisions of the contract documents.

7. Final progress photographs.

8. A complete punch list signed off by the General Contractor as being completed.

9. Operating and maintenance instructions, keys, and maintenance kits.

10. Project record documents as described herein.

1.11 CERTIFICATE OF OCCUPANCY

A. The Contractor shall obtain and pay for a Certificate of Occupancy and deliver it to the Owner.

1.12 EQUIPMENT SYSTEMS DEMONSTRATION

A. Upon completion of the work and tests, instruct the Owner's representative in the operation, adjustment and maintenance of systems and equipment furnished.

B. The Owner will determine date of starting the instruction. The respective Subcontractor shall provide instructions for each system installed.

1.13 BUILDING DEPARTMENT APPROVED DRAWINGS AND CERTIFICATES

A. All Building Department Approved Plans and Certificates which were maintained at the job site shall be delivered to the Owner after Building Department approval of the project and prior to final inspection.

END OF SECTION

(See Form on following page)

_____
(Date)

TO: (Owner's Name)

ATTENTION OF: _____

RE: (Work Covered in Guarantee) _____

NAME OF CONTRACTOR: _____

ADDRESS OF CONTRACTOR: _____

Gentlemen:

The undersigned guarantees to the Owner that he will be responsible for faulty or defective materials, equipment and workmanship, in the above referenced work and that he will remedy any defects due thereto and pay for all damage to the work resulting therefrom which shall appear within a period of ____ year(s) from the date of which substantial completion of the entire work is certified by the Architect.

(Add additional conditions of guarantee as noted in various technical sections of the specifications.)

During this period upon written notice from Owner to do so, the undersigned shall proceed with due diligence at the undersigned's expense to replace properly any defective materials, equipment or perform any labor necessary to correct any defect in the work. In case that undersigned fails, upon reasonable notice to remedy such defects, then the Owner may furnish such materials or labor as are necessary to bring the work up to the standard called for, and the undersigned agrees to reimburse the Owner fully and promptly.

Witness:

Signed: *_____

Date:

Signed: *_____

*Signatures must be notarized.

SECTION 01730

OPERATING AND MAINTENANCE DATA

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 WORK INCLUDED

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the operating and maintenance data as specified herein.

1.3 RELATED WORK

A. Submittals - Section 01300.

B. Contract closeout - Section 01700.

1.4 GENERAL

A. Construction Manager shall compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract.

1. Trade Contractors shall prepare operating and maintenance data as specified in this Section and as referenced in other pertinent sections of Specifications.

1.5 FORM OF SUBMITTALS

A. Construction Manager shall prepare data in the form of an instructional manual for use by Owner's personnel.

B. Format

1. Size: 8-1/2 x 11 in.

2. Paper: 20 pound minimum, white for typed pages.

3. Text: Manufacturer's printed data, or neatly typewritten.

4. Drawings

a. Provide reinforced punched binder tab, bind in with text.
b. Fold larger drawings to the size of the test pages.

5. Provide fly-leaf for each separate product, or each piece of operating equipment.

a. Provide typed description of product, and major component parts of equipment.

b. Provide indexed tabs.

6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS'. List:

a. Title of Project.
b. Identity of separate structure as applicable.
c. Identity of general subject matter covered in the manual.

C. Binders

1. Commercial quality three-ring binders with durable and cleanable plastic covers.

2. Maximum ring size: 1 inch.

3. When multiple binders are used, correlate the data into related consistent groupings.

1.6 MANUAL FOR MATERIALS AND FINISHES

A. Submit two copies of complete manual in final form.

B. Content, for architectural products, applied materials and finishes

1. Manufacturer's data, giving full information on products.

a. Catalog number, size, composition.
b. Color and texture designations.
c. Information required for re-ordering special-manufactured products.

2. Instructions for care and maintenance.

a. Manufacturer's recommendation for types of cleaning agents and methods.
b. Cautions against cleaning agents and methods which are detrimental to the product.
c. Recommended schedule for cleaning and maintenance.

C. Content, for moisture-protection and weather-exposed products

1. Manufacturer's data, giving full information on products.

a. Applicable standards.
b. Chemical composition.
c. Details of installation.

2. Instructions for inspection, maintenance, and repair.

1.7 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Submit three copies of complete manual in final form.

B. Content, for each unit of equipment and system, as appropriate.

1. Description of unit and component parts.

    a. Function, normal operating characteristics, and limiting conditions.
    b. Performance curves, engineering data and tests.
    c. Complete nomenclature and commercial number of all replaceable parts.

2. Operating procedures

    a. Start-up, break-in, routine and normal operating instructions.
    b. Regulation, control, stopping, shut-down and emergency instructions.
    c. Summer and winter operating instructions.
    d. Special operating instructions.

3. Maintenance procedures

    a. Routine operations.
    b. Guide to "trouble-shooting".
    c. Disassembly, repair and reassembly.
    d. Alignment, adjusting and checking.

4. Servicing and lubrication schedule.

    a. List of lubricants required.

5. Manufacturer's printed operating and maintenance instructions.

6. Description of sequence of operation by control manufacturer.

7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.

    a. Predicted life of parts subject to wear.
    b. Items recommended to be stocked as spare parts.

8. As-installed control diagrams by controls manufacturer.

9. Each contractor's coordination drawings.

    a. As-installed color coded piping diagrams.

10. Charts of valve tag numbers, with the location and function of each valve.

11. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

12. Other data as required under pertinent sections of specifications.

C. Content, for each electric and electronic system, as appropriate

1. Description of system and component parts.

    a. Function, normal operating characteristics, and limiting condition.
    b. Performance curves, engineering data and tests.
    c. Complete nomenclature and commercial number of replaceable parts.

2. Circuit directories of panel boards.

    a. Electrical service.
    b. Controls.
    c. Communications.

3. As-installed color coded wiring diagrams.

4. Operating procedures

    a. Routine and normal operating instructions.
    b. Sequences required.
    c. Special operating instructions.

5. Maintenance procedures

    a. Routine operations.
    b. Guide to "trouble-shooting".
    c. Disassembly, repair and reassembly.
    d. Adjustment and checking.

6. Manufacturer's printed operating and maintenance instructions.

7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

8. Other data as required under pertinent sections of specifications.

D. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.

E. Additional requirements for operating and maintenance data: Refer to respective sections of Specifications.

END OF SECTION

SECTION 01731

CUTTING AND PATCHING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

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

1.3 RELATED SECTIONS

A. Refer to Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 15 and 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.4 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.5 SUBMITTALS

A. Cutting and Patching: Submit a method describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.

2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.

3. Products: List products to be used and firms or entities that will perform the Work.

4. Dates: Indicate when cutting and patching will be performed.

5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.

6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.

7. Architect's Approval: Obtain approval of cutting and patching before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.6 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

1. Provide a list of additional elements that are structural elements and that require Architect's or Construction Manager's approval of a cutting and patching proposal.

B. Operational Elements: Do not cut and patch the following operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

1. Primary operational systems and equipment.

2. Air or smoke barriers.

3. Fire-protection systems.

4. Control systems.

5. Communication systems.

6. Conveying systems.

7. Electrical wiring systems.

C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

1. Water, moisture, or vapor barriers.

2. Membranes and flashings.

3. Exterior curtain-wall construction.

4. Equipment supports.

5. Piping, ductwork, vessels, and equipment.

6. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.7 WARRANTY

A. Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void warranties.

PART 2 PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.

B. In-Place Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. In-Place Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.

3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.

5. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION

SECTION 03500

CEMENT LEVELING COMPOUND

PART 1 GENERAL

1.1 DESCRIPTION

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the cement leveling compound as shown on the drawings and/or specified herein, including but not necessarily limited to the following:

1. Self-leveling cement compound applied over existing concrete substrates,

1.3 RELATED SECTIONS

A. Concrete work - Existing.

1.4 QUALITY ASSURANCE

A. Applicator: Company specializing in performing the work of this Section with a minimum of 3 years experience and approved by the manufacturer of the product used.

1.5 SUBMITTALS

A. Submit catalog information and product data for material to be used.

B. Submit approval letter as required by Article 3.1, para. B. herein.

1.6 PRODUCT HANDLING

A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.7 REGULATORY REQUIREMENTS

A. Conform to New York City Building Code for combustibility or flame spread requirements.

1.8 JOB REQUIREMENTS

A. Do not install leveling compound until floor penetrations and peripheral work are complete.

B. Maintain minimum ambient temperatures of 50 degrees F for 24 hours before, during, and 72 hours after installation of underlayment.

C. During the curing process, ventilate spaces to remove excess moisture and until underlayment is dry, allow a minimum of 7 days.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Provide Dexotex A81, or approved equal.

2.2 MATERIALS

A. Water: Potable and not detrimental to underlayment mix materials.

B. Primer: Manufacturer's recommended type.

C. Joint and Crack Filler: Latex based.

2.3 MIXING

A. Site mix materials in accordance with manufacturer's instructions.

B. Mix to achieve following characteristics:

1. Tensile Strength: 800 psi in accordance with ASTM C 109.

2. Compressive Strength: 6,1400 psi minimum in accordance with ASTM C 109.

3. Fire Hazard Classification: Flame/Smoke rating of 0/0 in accordance with ASTM E 286.

C. Mix to self-leveling consistency.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where cement leveling compounds are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

B. Manufacturer's representative must inspect surfaces to receive cement leveling compound and approve those surfaces in writing to the Architect prior to start of application.

3.2 PREPARATION

A. Vacuum clean surfaces; remove any material (curing compounds, film, dirt) that would be detrimental to bond of cement leveling compound.

B. Prime substrate in accordance with manufacturer's instructions. Allow to dry.

C. Close floor openings.

3.3 APPLICATION

A. Install underlayment in accordance with manufacturer's instructions.

B. Transition to existing floor; use stiff mix to slope to align with existing adjacent floor.

3.4 CURING

A. Air cure in accordance with manufacturer's instructions.

3.5 APPLICATION TOLERANCE

A. Top Surface: Level to 1/8" in 10 ft.

3.6 PROTECTION OF FINISHED WORK

A. Do not permit traffic over unprotected floor underlayment surfaces and until underlayment is completely dry.

END OF SECTION

SECTION 04800

UNIT MASONRY

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the unit masonry work as shown on the drawings and/or specified herein, including but not necessarily limited to the following:

1. Interior concrete block construction at ramps and stairs.

2. Metal joint reinforcing, anchors, ties, closures and related accessories for masonry.

3. Grouting in of metal items built into masonry work.

1.3 RELATED SECTIONS

A. Miscellaneous metals - Section 05500.

B. Firestops and smokeseals - Section 07840.

C. Painting - Section 09900.

1.4 SUBMITTALS

A. Shop Drawings: Submit for:

1. Anchoring details.

2. Control and expansion joint locations and details.

B. Samples: Submit the following:

1. Joint reinforcing, each type, width and proposed location.

2. Anchors, wedges and ties, each type, width and proposed location.

3. Joint filler, each type.

C. Manufacturer's Literature: Submit technical and installation information for:

1. Mortar materials.

2. Certification of mortar mix.

3. Concrete block, joint reinforcing, anchors, ties and joint filler; submit manufacturer's technical and descriptive literature.

4. Block manufacturer shall submit certifications of compliance with ASTM C 90, C 331 and UL 618 prior to any job site delivery. Field sampling of concrete block may be tested by an Independent Testing Laboratory retained by the Owner according to the requirements of ASTM C 140.

1.5 QUALITY ASSURANCE

A. Work of this Section shall conform to the requirements of the following:

1. 1999 ACI 530/ASCE 5/TMS 402 Building Code Requirements for Masonry Structures.

2. 1999 ACI 530-1/ASCE 6/TMS 602 Specifications for Masonry Structures.

1.6 PRODUCT HANDLING

A. General: Deliver, store, handle and protect all materials from damage, moisture, dirt and intrusion of foreign matter. Store all masonry units and mortar materials on raised platforms and under ventilated and waterproof cover. Store packaged materials in manufacturer's unopened containers, marked with manufacturer's name and product brand name. Immediately reseal containers after partial use. Remove and replace damaged materials.

B. Masonry Units: Pack, deliver and store to prevent breakage, cracking, chipping, spalling or other damage. Store, protect and ventilate units at project site.

C. Aggregate: Store with provisions for good drainage.

D. Reinforcement and Anchors: Store and protect so that when placed, joint reinforcement and anchors will be free of soil, dirt, ice, loose rust, scale, or other coatings which would destroy or reduce bond with mortar, and will not be disfigured or bent out of shape.

1.7 CODE REQUIREMENTS

A. Work of this Section shall conform to all applicable requirements of the State of New York Building Code.

PART 2 PRODUCTS

2.1 MATERIALS

A. Concrete Block

1. Portland cement, ASTM C 150, Type 1, one source.

2. Aggregates, ASTM C 331, lightweight expanded shale, clay or slate aggregates, manufactured by the rotary kiln process equal to "Solite," "Norlite" or "Haydite."

3. Concrete Masonry Units: Hollow load bearing lightweight aggregate concrete masonry units conforming to the requirements of ASTM C 90.

4. Sizes and Shapes: Nominal face size 8" x 16" by thickness as indicated on drawings, with stretcher units, jamb units, header units, square corner units (at ends and corners of exposed or painted work), sash units (at control joints within masonry wall), lintel units and other special shapes and sizes required to complete the work.

5. Finish: For exposed or painted block surfaces, in addition to ASTM requirements, block shall have uniformly dense, flat, fine grain texture, with no cracks, chips, spalls, or other defects which would impair appearance. For concealed CMU, surfaces shall be free from deleterious materials that would stain plaster or corrode metal.

6. Curing: All concrete block shall be steam cured, and air dried for not less than 30 days before delivery.

7. Density of concrete block shall not exceed 105 lbs. per cubic foot.

8. Shrinkage: Shrinkage of concrete blocks shall not exceed 0.065% when tested in accordance with ASTM C 426.

9. Water Content

   a. At the time of delivery to the job site, concrete masonry units shall have a value, in weight of contained water, of not more than 30 percent of the fully saturated content for the unit tested.
   b. Ship all units from the factory, and store at the job site, with all necessary protection to prevent increase of water content from rain and other sources.

B. Joint Reinforcing for Masonry Construction

1. Provide standard reinforcing fabricated of 9 gauge side and cross rods, truss or ladder design, no ties, spaced every other block course. Provide prefabricated pieces at corners and intersections of walls or partitions. Reinforcing shall be mill galvanized conforming to ASTM A 641, Class B-1, applied after fabrication.

2. Wire used in assemblies noted above shall be cold drawn steel wire conforming to ASTM A 82.

3. Approved Joint Reinforcing Manufacturers: Hohmann & Barnard, Dur-O-Wal, Heckman Building Products, National Wire Products Industries, Inc.

C. Anchors and Ties

1. Wire Mesh: Galvanized 16 gauge steel wire, 1/4" square mesh, width 1/2" less than wall thickness, by length to suit condition.

2. Dovetail Anchor Slots: Galvanized steel equal to No. 305 anchor slot made by Hohmann & Barnard or approved equal by manufacturer noted above.

3. Flexible Metal Ties for Dovetail Anchor Slots: Galvanized steel, 16 gauge by 1" wide.

D. Reinforcing Bars and Rods: ASTM A 615, Grade 60. See Drawings for size.

E. Control and Expansion Joint Fillers: Extruded high grade neoprene rubber, cross shape, for use with concrete masonry sash units, which shall provide a force fit in the grooves of the sash block, and shall have 1/2" diameter tubular ends (compressed 25% when installed in 3/8" wide joint).

1. Provide the following sizes:

a. 2-5/8" wide control joint fillers for 4" block walls.
b. 4-5/8" wide for 6" block walls.
c. 6-5/8" wide for 8", 10" and 12" block walls.

2. Provide backer rod and sealant joint over joint filler as per drawings and Section 07900 of these specifications.

2.2 MORTAR MATERIALS

A. Portland Cement: ASTM C 150, Type 1, standard color, one source.

B. Hydrated Lime: ASTM C 207, Type S, as manufactured by Corsons, or approved equal.

C. Sand: Clean, washed, buff colored sand, graded per ASTM C 144.

D. Water: Clean, fresh and suitable for drinking.

2.3 MORTAR MIX

A. Mortar: Provide Portland cement/lime mortar as noted above conforming to ASTM C 270, Type N.

B. Grout for Unit Masonry: Comply with ASTM C 476 for grout for use in construction of unit masonry. Use grout of consistency (fine or coarse) at time of placement which will completely fill all spaces intended to receive grout.

PART 3 EXECUTION

3.1 COORDINATION

A. Carefully coordinate with all other trades to ensure proper and adequate interface of the work of other trades with the work of this Section.

3.2 INSTALLATION

A. General

1. Do not wet concrete block units.

2. Build chases and recesses as shown or required for the work of other trades.

3. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to properly locate openings, movement type joints, returns and off-sets. Avoid the use of less than half size units at corners, jambs and wherever possible.

4. Lay up walls plumb and true with courses level, accurately spaced and coordinated with other work.

5. Pattern Bond: Lay concrete block in running bond.

6. Lay concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on exterior walls and in all courses of piers, columns and pilasters, where solid CMU is used and where adjacent to cells or cavities to be reinforced or filled with concrete or grout.

7. Lay masonry walls with 3/8" joints unless otherwise shown on drawings.

8. Tool exposed joints slightly concave. Concealed joints shall be struck flush.

9. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners at jambs to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.

B. Built-In Work

1. As the work progresses, build in items specified under this and other Sections of these specifications. Fill in solidly with masonry around built-in items.

2. Mortar in frames, access doors, and other metal items embedded or built into masonry work solidly with mortar.

3. Grout under steel bearing on masonry with solid bed grout.

4. Sleeves, pipes, ducts and all other items which pass through masonry construction shall be caulked with interior grade sealant meeting requirements of Section 07900, so as to be air tight and prevent air leakage. Refer to Section 07840 for packing of voids in rated masonry walls.

5. Fill vertical cells of masonry units solid with grout which have anchoring, reinforcing rods, supporting or hanging devices embedded in the cell including stone anchors and window or curtain wall anchors.

6. Fill vertical cells of masonry units solid with mortar on each side of door frames to 16" beyond.

7. Place wire mesh in horizontal joint below masonry unit cells to be filled with mortar, to prevent mortar from dropping into unfilled cells below.

8. Reinforced masonry shall have all voids filled solid with grout. Grout shall be consolidated in place by vibration or other methods which insure complete filling of cells. When the least clear dimension of the grouted cell is less than 2", the maximum height of grout pour shall not exceed 12". When the least clear dimension is 2" or more, maximum height of grout pour shall not exceed 48". When grouting is stopped for one hour or longer, the grout pour shall be

stopped 1-1/2" below the top of a masonry unit. Vertical bar reinforcing shall be accurately placed and held in position while being grouted, and shall be in place before grouting starts. All such reinforcing shall have a minimum clear cover of 5/8". Lap all bars a minimum of 40 bar diameters and provide steel spacer ties (not to exceed 192 bar diameter) to secure and position all vertical steel and prevent displacement during grouting. Provide continuous horizontal reinforcement embedded in mortar joints every second course.

C. Cutting and Patching

1. All exposed masonry which requires cutting or fitting shall be cut accurately to size with motorized carborundum or diamond saw, producing cut edges.

2. Do not saw cut any masonry openings in face brick construction without Architect's approval and after a procedure has been reviewed and approved.

3. Holes made in exposed masonry units for attachment of handrail brackets and similar items shall be neatly drilled to proper size.

4. All masonry which requires patching in exposed work, if approved by Architect, shall be patched neatly with mortar to match appearance of masonry as closely as possible and to the Architect's satisfaction. Rake back joints and use pointing mortar to match as required.

D. Ties and Anchors for Masonry Construction: Provide ties and anchors as shown or specified, but not less than one metal tie, spaced not to exceed 16" o.c. horizontally and/or vertically. Provide additional ties within 1'- 0" of all openings and spaced not more than 24" apart around perimeter of openings.

E. Control and Expansion Joints

1. Provide vertical expansion, control and isolation joints in masonry as shown. Build in related items as the masonry work progresses.

2. CMU Control Joint Spacing: If location of control joints is not shown, place vertical joints spaced not to exceed 20'-0" o.c., unless otherwise directed by the Architect.

3.3 CLEANING, PROTECTION, ADJUSTMENT

A. Clean-Up: Upon completion, all exposed masonry shall be thoroughly cleaned following recommendations of the NEMA Technical Notes.

1. Wipe excess mortar off the masonry surfaces as the work progresses.

B. Pointing: Point any defective joint with mortar identical with that specified for that joint.

END OF SECTION

SECTION 05500

MISCELLANEOUS METALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the miscellaneous metal work as indicated on the drawings and/or specified herein, including but not limited to, the following:

1. Rough hardware.

2. Loose steel lintels.

3. Light steel framing and supports, not included as part of work of other trades.

4. Miscellaneous steel trim, angle guards and channels.

5. Steel framing, bracing, supports, anchors, bolts, shims, fastenings, and all other supplementary parts indicated on drawings or as required to complete each item of work of this Section.

6. Prime painting, touch-up painting, galvanizing and separation of dissimilar metals for work of this Section.

7. Cutting, fitting, drilling and tapping work of this Section to accommodate work of other Sections and of concrete, masonry or other materials as required for attaching and installing work of this Section.

1.3 RELATED SECTIONS

A. Steel stairs - Section 05510.

B. Painting - Section 09900.

1.4 QUALITY ASSURANCE

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

B. Shop Assembly: Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.

C. Reference Standards: The work is subject to requirements of applicable portions of the following standards:

1. "Manual of Steel Construction," American Institute of Steel Construction.

2. AWS D1-1 "Structural Welding Code," American Welding Society.

3. SSPC SP-3 "Surface Preparation Specification No. 3, Power Tool Cleaning," Steel Structures Painting Council.

4. SSPC PA-1 "Painting Application Specification," Steel Structures Painting Council.

5. "Handbook on Bolt, Nut and Rivet Standards," Industrial Fasteners Institute.

D. Steel Materials: For steel to be hot dip-galvanized, provide steel chemically suitable for metal coatings complying with the following requirements: carbon below 0.25 percent, silicon below 0.24 percent, phosphorous below 0.05 percent, and manganese below 1.35 percent. Notify galvanizer if steel does not comply with these requirements to determine suitability for processing.

1.5 SUBMITTALS

A. Manufacturer's Literature: Submit manufacturer's specifications, load tables, dimension diagrams, anchor details and installation instructions for products to be used in the fabrication of miscellaneous metal work, including paint products.

B. Shop Drawings: Shop drawings for the fabrication and erection of all assemblies of miscellaneous iron work which are not completely shown by manufacturer's data sheets. Include plans and elevations at not less than 1" to 1'-0" scale, and include details of sections and connections at not less than 3" to 1'-0" scale. Show anchorage and accessory items.

C. Welding shall be indicated on shop drawings using AWS symbols and showing length, size and spacing (if not continuous). Auxiliary views shall be shown to clarify all welding. Notes such as 1/4" weld, weld and tack weld are not acceptable.

PART 2 PRODUCTS

2.1 MATERIALS

A. Metals

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

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

3. Steel Tubing: Cold formed, ASTM A 500; or hot rolled, ASTM A 501.

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

5. Galvanized Structural Steel Sheet: ASTM A 924, of grade required for design loading. Coating designation G90.

6. Gray Iron Castings: ASTM A 48, Class 30, unless another class is indicated or required by structural loads.

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

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

9. 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. Grout: Non-shrink, non-metallic grout conforming to the requirements of Section 03300.

C. 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. Anchor Bolts: ASTM F 1554, Grade 36.

4. Lag Bolts: ASME B18.2.1.

5. Machine Screws: ASME B18.6.3.

6. Plain Washers: Round, carbon steel, ASME B18.22.1.

7. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.

8. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.

9. Lock Washers: Helical spring type carbon steel, ASME B18.21.1.

D. Shop Paint: Shop prime all non-galvanized miscellaneous metal items using Series 88 Azeron Primer made by Tnemec or approved equal.

E. Bituminous Paint: Cold applied asphalt emulsion complying with ASTM D 1187.

F. Galvanize Repair Coating: For touching up galvanized surfaces after erection, provide repair coating conforming to ASTM A 870 equal to Z.R.C. Cold Galvanizing Compound made by Z.R.C. Chemical Products Co. or approved equal.

2.2 PRIME PAINTING

A. Scope: All ferrous metal (except galvanized steel) shall be cleaned and shop painted with one coat of specified ferrous metal primer. No shop prime paint required on galvanized steel or aluminum work.

B. Cleaning: Conform to Steel Structures Painting Council Surface Preparation Specification SP 3 (latest edition) "Power Tool Cleaning" for cleaning of ferrous metals which are to receive shop prime coat.

C. Application

1. Apply shop prime coat immediately after cleaning metal. Apply paint in dry weather or under cover. Metal surfaces shall be free from frost or moisture when painted. Paint all metal surfaces including edges, joints, holes, corners, etc.

2. Paint surfaces which will be concealed after shop assembly prior to such assembly. Apply paint in accordance with approved paint manufacturer's printed instructions, and the use of any thinners, adulterants or admixtures shall be only as stated in said instructions.

3. Paint shall uniformly and completely cover the metal surfaces, 2.0 mils minimum dry film thickness. No work shall be shipped until the shop prime coat thereon has dried.

D. Touch-Up: In the shop, after assembly and in the field, after installation of work of this Section, touch-up damaged or abraded portions of shop prime paint with specified ferrous metal primer.

E. Apply one shop coat to fabricated metal items, except apply 2 coats of paint to surfaces inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

2.3 PROTECTIVE COATINGS

A. Whenever dissimilar metals will be in contact, separate contact surfaces by coating each contact surface prior to assembly or installation with one coat of specified bituminous paint, which shall be in addition to the specified shop prime paint. Mask off those surfaces not required to receive protective coating.

2.4 WORKMANSHIP

A. General

1. Miscellaneous metal work shall be fabricated by an experienced fabricator or manufacturer and installed by an experienced tradesman.

2. Materials, methods of fabrication, fitting, assembly, bracing, supporting, fastening, operating devices, and erection shall be in accordance with drawings and specifications, approved shop drawings, and best practices of the industry, using new and clean materials as specified, having structural properties sufficient to safely sustain or withstand stresses and strains to which materials and assembled work will be subjected.

3. All work shall be accurately and neatly fabricated, assembled and erected.

B. Shop Assembly: Insofar as practicable, fitting and assembly of work shall be done in shop. Shop assemble work in largest practical sizes to minimize field work. It is the responsibility of the miscellaneous metal subcontractor to assure himself that the

shop-fabricated miscellaneous metal items will properly fit the field condition. In the event that shop-fabricated miscellaneous metal items do not fit the field condition, the item shall be returned to the shop for correction.

C. Cutting: Cut metal by sawing, shearing, or blanking. Flame cutting will be permitted only if cut edges are ground back to clean, smooth edges. Make cuts accurate, clean, sharp and free of burrs, without deforming adjacent surfaces or metals.

D. Holes: Drill or cleanly punch holes; do not burn.

E. Connections: Make connections with tight joints, capable of developing full strength of member, flush unless indicated otherwise, formed to exclude water where exposed to weather. Locate joints where least conspicuous. Unless indicated otherwise, weld or bolt shop connections; bolt or screw field connections. Provide expansion and contraction joints to allow for thermal movement of metal at locations and by methods approved by Architect.

1. Welding

    a. Shall be in accordance with "Standard Code for Welding in Building Construction" of the American Welding Society, and shall be done with electrodes and/or methods recommended by the manufacturer of the metals being welded.
    b. Welds shall be continuous, except where spot welding is specifically permitted. Welds exposed to view shall be ground flush and dressed smooth with and to match finish of adjoining surfaces; undercut metal edges where welds are required to be flush.
    c. All welds on or behind surfaces which will be exposed to view shall be done so as to prevent distortion of finished surface. Remove weld spatter and welding oxides from all welded surfaces.

2. Bolts and Screws: Make threaded connections tight with threads entirely concealed. Use lock nuts. Bolts and screw heads exposed to view shall be flat and countersunk. Cut off projecting ends of exposed bolts and screws flush with nuts or adjacent metal.

F. Operating Mechanism: Operating devices (i.e. pivots, hinges, etc.) mechanism and hardware used in connection with this work shall be fabricated, assembled, installed and adjusted after installation so that they will operate smoothly, freely, noiselessly and without excessive friction.

G. Built-In Work: Furnish anchor bolts, inserts, plates and any other anchorage devices, and all other items specified under this Section of the Specifications to be built into concrete, masonry or work of other trades, with necessary templates and instructions, and in ample time to facilitate proper placing and installation.

H. Supplementary Parts: Provide as necessary to complete each item of work, even though such supplementary parts are not shown or specified.

I. Coordination: Accurately cut, fit, drill and tap work of this Section to accommodate and fit work of other trades. Furnish or obtain, as applicable, templates and drawings to or from applicable trades for proper coordination of this work.

J. Exposed Work

1. In addition to requirements specified herein and shown on drawings, all surfaces exposed to view shall be clean and free from dirt, stains, grease, scratches, distortions, waves, dents, buckles, tool marks, burrs, and other defects which mar appearance of finished work.

2. Metal work exposed to view shall be straight and true to line or curve, smooth arrises and angles as sharp as practicable, miters formed in true alignment, profiles accurately intersecting, and with joints carefully matched to produce continuity of line and design.

3. Exposed fastenings, where permitted, shall be of the same material, color and finish as the metal to which applied, unless otherwise indicated, and shall be of the smallest practicable size.

2.5 MISCELLANEOUS METALS ITEMS

A. Rough Hardware

1. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Sections.

2. Fabricate items to sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts which bear on wood connections; elsewhere, furnish steel washers.

B. Loose Steel Lintels

1. Provide loose structural steel lintels for openings and recesses in masonry work as shown. Weld adjoining members together to form a single unit where indicated. Provide not less than 8" bearing at each side of openings, unless otherwise indicated.

2. At columns or vertical surfaces where lintels cannot bear on masonry, provide clip angles sized for structural capacity of lintel.

C. Miscellaneous Light Steel Framing

1. Light steel framing, bracing, supports, framing, clip angles, shelf angles, plates, etc., shall be of such shapes and sizes as indicated on the drawings and details or as required to suit the condition and shall be provided with all necessary supports and reinforcing such as hangers, braces, struts, clip angles, anchors, bolts, nuts, welds, etc., as required to properly support and rigidly fasten and anchor same in place and to steel, concrete, masonry and all other connecting and adjoining work.

2. All light steel framing steel shall be furnished and erected in accordance with the applicable requirements of the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" by the American Institute of Steel Construction and as specified herein.

D. Miscellaneous Steel Trim: Provide shapes and sizes for profiles shown. Except as otherwise indicated, fabricate units from structural steel shapes and plates and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other work.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where miscellaneous metal is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 ERECTION

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including threaded fasteners for concrete and masonry inserts, toggle bolts, 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 work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry, or similar construction.

C. Fitting Connections: Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot dip galvanized after fabrication, and are intended for bolted or screwed field connections.

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

E. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.

F. Field Touch-Up of Galvanized Surfaces: Touch-up shop applied galvanized coatings damaged during handling and installation. Use galvanizing repair coating specified herein for galvanized surfaces.

END OF SECTION

SECTION 06200

CARPENTRY

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the carpentry work as shown on the drawings and/or specified herein, including but not limited to, the following:

1. Blocking and miscellaneous wood, including plywood wall lining for telephone and electric closets.

2. Rough hardware.

3. Installation only of finish hardware.

4. Installation only of doors and hollow metal frames.

5. Temporary controls furnished by Carpentry trades.

1.3 RELATED SECTIONS

A. Cabinetry and millwork - Section 06220.

B. Steel doors and frames - Section 08100.

C. Wood doors - Section 08200.

D. Finish hardware - Section 08700.

1.4 QUALITY ASSURANCE

A. Lumber Standard: Comply with PS 20.

B. Plywood Standard: Comply with PS 1 and American Plywood Association (APA).

C. Shop fabricate carpentry work to the extent feasible and where shop fabrication will result in better workmanship than feasible for on-site fabrication.

D. Grade Marks: Identify lumber and plywood by official grade mark.

1. Lumber: Grade stamp to contain symbol of grading agency certified by Board of Review, American Lumber Standards Committee, mill number or name, grade of

lumber, species grouping or combination designation, rules under which graded where applicable, and condition of seasoning at time of manufacture.

a. S-Dry: Maximum 19 percent moisture content as per ASTM D 2016.
b. MC-15 or KD: Maximum of 15 percent moisture content.

1.5 SUBMITTALS

A. Pressure Treatment: Include certification by treating plant stating chemicals and process used, net amount of salts retained and conformance with applicable standards.

B. Fire-Retardant Treatment: Include certification by treating plant that treatment material complies with governing ordinances and that treatment will not bleed through finished surfaces.

1.6 PRODUCT HANDLING

A. Deliver carpentry materials to the site ready to use with each piece of lumber clearly marked as to grade, type and mill, and place in an area protected from the elements.

B. Deliver rough hardware in sealed kegs and/or other containers which shall bear labels as to type and kind.

C. Pile lumber for rough usage, when delivered to the site in stacks to insure drainage and with a minimum clearance of 6" above grade. Cover stacks with tarpaulins or other watertight coverings. Store grounds and similar small sized lumber inside the building as soon as possible after delivery.

D. Do not store seasoned lumber in wet or damp portions of the building.

E. Protect fire retardant treated materials against high humidity and moisture during storage and erection.

F. Remove delivered materials which do not conform to specified grading rules or are otherwise not suitable for installation from the job site and replace with acceptable materials.

G. All items specified in Section 08700 of this specification entitled "Finish Hardware" shall be received, accounted for, stored and applied under this Section.

H. Hardware shall be sorted and stored in space assigned by Contractor and shall be kept at all times under lock and key. The safety and preservation of all items delivered will be the responsibility of the Contractor.

1.7 JOB CONDITIONS

A. Installer must examine the substrates and supporting structure and the conditions under which the carpentry work is to be installed, and notify the Contractor in writing of conditions detrimental to the work. Do not proceed with the installation until unsatisfactory conditions have been corrected in a manner acceptable to the Installer and the Architect.

B. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow proper attachment of other work.

PART 2 PRODUCTS

2.1 WOOD MATERIAL

A. General

1. All wood shall be sound, flat, straight, well seasoned, thoroughly dry and free from all defects. Warped or twisted wood shall not be used.

2. For miscellaneous wood blocking, grounds, furring as required, use Utility Grade Coastal Douglas Fir or Southern Pine, free from knots, shakes, rot or other defects, straight, square edges and straight grain, air seasoned with maximum moisture content of 19 percent. Wood shall be S4S, S-Dry, complying with PS-20.

3. Plywood and rough carpentry for telephone and electric closets, provide 3/4" thick C-D EXT-APA plywood, fire retardant treated as specified herein.

B. Wood Treatment

1. All interior wood material specified herein shall be fire retardant treated to comply with the AWPA standards (C20 for lumber, C27 for plywood) for pressure impregnation with fire retardant chemical to achieve a flame spread rating of not more than 25 (UL Class "FR-S") when tested in accordance with UL Test 723 or ASTM E 84. The fire retardant chemicals used to treat the lumber must comply with FR-1 of AWPA Standard P17 and be free of halogens, sulfates and ammonium phosphate.

   a. After treatment, kiln dry to a moisture content of 15 percent; if wood is to be painted or finished, kiln dry to a moisture content of 12 percent. Treatment shall be equal to "Dricon" made by Arch Wood Protection Inc. or approved equal. Provide UL approved identification on treated materials.

2. For exterior blocking at roofing work, pressure treat wood with copper azole, Type A (CBA-A); ammoniacal copper quat (ACQ) or similar preservative product that contains no arsenic or chromium. Preservative shall comply with AWPA Standard C-2 for lumber and C-9 for plywood, (0.25 lbs./cubic foot of chemical in wood).

   a. After treatment, kiln dry to a maximum moisture content of 15 percent. Treatment shall be equal to "Wolmanized Natural Select" made by Arch Wood Protection Inc., or approved equal.

3. Treated wood which is cut or otherwise damaged shall be further treated in accordance with the AWPA Standard M-4.

2.2 HARDWARE

A. Rough Hardware for Treated Woods and Exterior Use: Hot-dipped galvanized or Type 304 stainless steel.

B. Nails: Common steel wire, untreated for interior work as per ASTM F1667.

C. Bolts: Standard mild steel, square head machine bolts with square nuts and malleable iron or steel plate washers or carriage bolts with square nuts and cut washers conforming to the following:

1. Bolts: ASTM A 307, Grade A.

2. Nuts: ASTM A 563.

3. Lag Screws and Bolts: ASME B 18.2.1.

D. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2; use stainless steel for treated woods and exterior use.

E. Wood Screws: ASME B 18.6.1.

F. Concrete and Masonry Anchors: Standard expansion-shield self-drilling type concrete anchors where so shown or noted on the drawings, or where approved by the Architect.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where carpentry is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION OF FINISH HARDWARE

A. All finishing hardware specified in Section 08700 of this specification entitled "Finish Hardware" shall be received, accounted for, stored and applied under this Section.

B. Hardware shall be sorted and stored in space assigned by Contractor and shall be kept at all times under lock and key. The safety and preservation of all items delivered will be the responsibility of the Contractor.

C. Hardware shall be carefully fitted and securely attached, in accordance with these specifications and the instructions of the various manufacturers.

D. Unless otherwise noted, mount hardware units at heights established in Section 08100.

E. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, install each item completely and then remove and store in a secure place during the finish application. After completion of the finishes, re-install each item. Do not install surface-mounted items until finishes have been completed on the substrate.

F. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

G. Drill and countersink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

H. Cut and fit threshold and floor covers to profile of door frames, with mitered corners and hair-line joints. Join units with concealed welds or concealed mechanical joints. Cut smooth openings for spindles, bolts and similar items, if any.

I. All keys used shall be construction keys which are to be tagged with fiber discs as approved, clearly labeled with identifying inscriptions and then neatly arranged in a temporary cabinet. All construction keys shall be returned to the Owner.

J. Adjusting and Cleaning

1. Adjust and check each operating item of hardware and each door, to ensure proper operation and function of every unit. Lubricate moving parts with type lubrication recommended by manufacturer (graphite type if no other recommended). Replace units which cannot be adjusted and lubricated to operate freely and smoothly as intended for the application made.

2. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make a final check and adjustment of all hardware items in such space or area. Clean and re-lubricate operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

3.3 INSTALLATION OF DOORS AND FRAMES

A. Preparation

1. Remove welded-in shipping spreaders installed at factory.

2. Prior to installation and with installation spreaders in place, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:

a. Squareness: Plus or minus 1/16", measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
b. Alignment: Plus or minus 1/16", measured at jambs on a horizontal line parallel to plane of wall.
c. Twist: Plus or minus 1/16", measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
d. Plumbness: Plus or minus 1/16", measured at jambs on a perpendicular line from head to floor.

3. Drill and tap doors and frames to receive non-templated mortised and surface-mounted door hardware.

B. Installation

1. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install standard steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

2. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

a. Install frames in accordance with ANSI 250.11-2001, Recommended Erection Instructions for Steel Frames, unless more stringent requirements are specified herein.
b. At fire-protection-rated openings, install frames according to NFPA 80.
c. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
d. Install frames with removable glazing stops located on secure side of opening.
e. Frames set in masonry walls shall have door silencers installed in frames before grouting.
f. Remove temporary braces necessary for installation only after frames have been properly set and secured.
g. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.

3. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with post-installed expansion anchors.

a. Floor anchors may be set with powder-actuated fasteners instead of post-installed expansion anchors if so indicated and approved on Shop Drawings.

4. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.

5. In-Place Concrete or Masonry Construction: Secure frames in place with post-installed expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.

6. Ceiling Struts: Extend struts vertically from top of frame at each jamb to supporting construction above, unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction above. Provide adjustable wedged or bolted anchorage to frame jamb members.

7. Installation Tolerances: Adjust steel door frames for squareness, alignment, twist, and plumb to the following tolerances:

   a. Squareness: Plus or minus 1/16", measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
   b. Alignment: Plus or minus 1/16", measured at jambs on a horizontal line parallel to plane of wall.
   c. Twist: Plus or minus 1/16", measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
   d. Plumbness: Plus or minus 1/16", measured at jambs at floor.

8. Steel Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

   a. Non-Fire-Rated Standard Steel Doors:
      1). Jambs and Head: 1/8" plus or minus 1/16".
      2). Between Edges of Pairs of Doors: 1/8" plus or minus 1/16".
      3). Between Bottom of Door and Top of Threshold: Maximum 3/8".
      4). Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4".
   b. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

9. Glazing: Comply with installation requirements in Division 8 Section "Glazing" and with standard steel door and frame manufacturer's written instructions.

   a. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c., and not more than 2" o.c. from each corner.

C. Wood Doors

1. Condition doors to average prevailing humidity in installation area prior to hanging.

2. Install doors in accordance with manufacturer's instructions.

3. Fit door to frames and machine for hardware to whatever extent not previously worked at factory as required for proper fit and uniform clearance at each edge.

4. Clearances: Install doors to meet clearance requirements specified in Section 08200.

5. Fire-Rated Doors: Install in corresponding fire-rated frames in accordance with the requirements of NFPA No. 80. Provide clearances complying with the limitations of the authority having jurisdiction.

D. Adjustments: Check and readjust operating finish hardware items just prior to final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including doors or frames which are warped, bowed or otherwise unacceptable.

3.4 BLOCKING AND MISCELLANEOUS WOOD

A. General

1. Erect rough carpentry true to line, levels and dimensions required; squared, aligned, plumbed, and securely fastened in place.

2. Shim where required to true up furring, blocking and the like. Use wood or metal shims only.

3. Do all cutting, fitting, drilling and tapping of other work as required to secure work in place and to perform the work included herein. Do all the cutting and fitting of carpentry work, for the work of other trades as required.

B. Blocking and Miscellaneous Wood

1. Furnish and install all wood grounds, furring, blocking, curbs, bucks, nailers, etc., that may be necessary and required in connection with the carpentry and with the work described for any other trades and including required carpentry for electrical fixtures. All blocking and nailers shall be continuous wherever required, whether or not so indicated.

2. Blocking shall be as required for the proper installation of the finished work and for items in mechanical sections as required. Blocking, edgings, stops, nailing strips, etc., shall be continuous, unless distinctly noted otherwise. Provide blocking as required to install all equipment. Provide blocking and nailers where shown or required to fasten interior sheet metal work.

3. Fastening for wood grounds, furring and blocking shall be of metal and of type and spacing as best suited to conditions. Hardened steel nails, expansion screws, toggle bolts, self-clinching nails, metal plugs, inserts or similar fastenings shall be used, of suitable type and size to draw the members into place and securely hold same.

C. Rough Lumber for Roofing Work

1. Furnish and install all wood nailing strips and wood blocking required in connection with roofing work, using preservative treated wood as herein before specified.

2. Wood blocking shall be of sizes and shapes as indicated on the drawings and/or designed for the reception of curb flashings for new roof-mounted mechanical equipment and similar items.

3. All nailing strips and blocking shall be carried out in accordance with the printed installation instructions, and/or recommendations of the accepted manufacturer of

the roofing materials, and in coordination and cooperation with the sheet metal work trades.

4. All blocking and nailing strips shall be firmly secured in place using counter bored bolt and nut fastenings, or secured by any other proposed flush surfaced fastenings.

3.5 TELEPHONE AND ELECTRIC EQUIPMENT MOUNTING BOARDS

A. Furnish and install 3/4" thick plywood panels to the walls of the telephone and electric equipment rooms in accordance with the requirements of the local utility company.

B. Secure to wall using proper devices for substrates encountered, spaced 12" o.c., maximum around the edges, 1-1/2" from corners, and in 3 rows of 3 each in the field. Recess fastening devices flush with the plywood surface. Adjacent panels shall be butted with 1/16" space between without lapping.

3.6 ROUGH HARDWARE

A. Securely fasten rough carpentry together. Nail, spike, lag screw or bolt as required by conditions encountered in the field and the Contract Documents.

B. Provide rough or framing hardware, such as nails, screws, bolts, anchors, hangers, clips, inserts, miscellaneous fastenings, and similar items of the best quality and of the proper size and kind to adequately secure the work together and in place, in a rigid and substantial manner.

C. Secure rough carpentry to masonry with countersunk bolts in expansion sleeves or other acceptable manner, with fastenings not more than 16" apart. Secure woodwork to hollow masonry with toggle bolts spaced not more than 16" apart.

D. Countersink bolts in nailers and other rough woodwork and include washers and nuts. Cut bolts off flush with surfaces and peen as may be required to receive finished work.

E. Inserts to secure wood nailers to concrete shall be malleable iron threaded inserts with 3/8" diameter bolts of length to allow for countersinking. Locate at end of each nailer and at intervals not exceeding 30" o.c.

F. Furnish to the mason for building into the work, or attaching the work which is to be built in, anchors, bolts, wall plates bolted to masonry, corrugated wall plugs, nailing blocks, etc., which are required for the proper fastening and installation for the work or other items as called for in this Section.

G. Detailed instructions with sketches of necessary requirements, shall be given to the masonry trade showing the location and other details of such nailing devices.

3.7 TEMPORARY PROTECTION BY CARPENTER

A. General: Provide temporary protection as follows:

1. Temporary wood doors at exterior entrances and at interior door openings, as required.

2. Temporary protection and enclosures at stairs and other shafts, at openings in floor and roof.

3. Temporary sills at door thresholds and other openings.

4. Temporary stair handrails continuously from top to bottom of each stair.

B. Stair Protection: Provide wood protection for stairs: cover finished treads. Protect platforms, treads and risers with dressed planking full stair width; hold in place with continuous edge strips. Erect required handrails and railings for closing in open wells and open sides of stairs. Protect railing from damage. Protect door sills and saddles.

C. Openings in Floors and Roofs: Protect openings in floors and roof slabs with adequate wood railings, substantially framed, braced and nailed. Cover openings not required to be kept open with not less than 2" thick planking, cleat together, brace; make sufficiently strong and secure. Protect openings in floors and roofs immediately after forms are removed.

D. Exterior Openings: Provide temporary enclosures for exterior openings where required, properly secured and maintained until finished work is in place. Provide a sufficient number of temporary doors to give access to the building, all provided with hardware, locks and keys.

E. Maintenance: Maintain all temporary protection in good repair during the construction period. Remove when no longer required.

F. Temporary Locks: Provide temporary locks, including keys, for temporary doors. Use of permanent building hardware in connection with temporary doors is prohibited.

3.8 CLEANING UP

A. General: Keep the premises in a neat, safe and orderly condition at all times during execution of this portion of the work, free from accumulation of sawdust, cut-ends and debris.

B. Sweeping

1. At the end of each working day, or more often if necessary, thoroughly sweep all surfaces where refuse from this portion of the work has settled.

2. Remove the refuse to the area of the job site set aside for its storage.

3. Upon completion of this portion of the work, thoroughly broom clean all surfaces.

END OF SECTION

SECTION 07840

FIRESTOPS AND SMOKESEALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the firestops and smokeseals as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Penetrations through fire-resistance-rated floor construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

2. Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

3. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.

4. Sealant joints in fire-resistance-rated construction.

5. Penetrations at each floor level in shafts and/or stairwells.

6. Construction joints, including those between top of fire rated walls and underside of floors above.

1.3 RELATED SECTIONS

A. Joint sealers - Section 07900.

B. Drywall - Section 09250.

C. Ducts and piping penetrations - Division 15.

D. Cable and conduit penetrations - Division 16.

1.4 REFERENCES

A. ASTM E 814 "Standard Method of Fire Tests of Through-Penetration Firestops."

B. UL 1479, UBC 7-5 (Both are same as A. above).

C. ASTM E 119 "Standard Method of Fire Tests of Building Construction and Materials."

D. UL 263, UBC 7-1 (Both are same as C. above).

E. UL 2079 "Tests For Fire Resistance of Building Joint Systems."

F. ASTM E 1399 "Test For Dynamic Movement Conditions."

G. ASTM E 1966 (Same as E. above).

H. Published Through-Penetration Systems by recognized independent testing agencies.

1. UL Fire Resistance Directory, Volume II of current year.

2. Warnock Hersey Certification Listings, current year.

3. Omega Point Laboratories, current year.

I. Material must have BSA and/or MEA approval for use in New York City.

1.5 SUBMITTALS

A. Submit manufacturer's product literature for each type of firestop material to be installed. Literature shall indicate product characteristics, typical uses, performance, limitation criteria, test data and indication that products comply with specified requirements.

B. Submit shop drawings detailing materials, installation methods, and relationships to adjoining construction for each firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspection agency evidencing compliance with requirements for each condition indicated.

1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop configuration for construction and penetrating items.

C. Material Safety Data Sheets: Submit MSDS for each firestop product.

D. Submit qualifications of firestop installer, including letter from firestop manufacturer of products proposed to be installed, wherein manufacturer approves or recognizes as trained/ or certifies installer for installation of that manufacturer's products.

E. Manufacturer's Letters: For installations or configurations not covered by a UL or Warnock Hersey design number, a recommendation shall be obtained from the manufacturer, in writing, for the specific application.

1.6 QUALITY ASSURANCE

A. General: Provide firestopping systems that are produced and installed to resist the spread of fire, and the passage of smoke and other gases.

B. Firestopping materials shall conform to Flame (F) and Temperature (T) ratings as required by local building code and as tested by nationally accepted test agencies per ASTM E 814 or UL 1479. The F rating must be a minimum of one hour but not less than the fire resistance rating of the assembly being penetrated. T rating, when required by code authority, shall be based on measurement of the temperature rise on the penetrating item(s). The fire test shall be conducted with a minimum positive pressure differential of 0.01 inches of water column.

C. Firestopping products shall be asbestos free and free of any PCBs.

D. Do not use any product containing solvents or that requires hazardous waste disposal.

E. Do not use firestop products which after curing, dissolve in water.

F. Do not use firestop products that contain ceramic fibers.

G. Firestopping Installer Qualifications: Firestop application shall be performed by a single firestopping contractor who specializes in the installation of firestop systems, whose personnel to be utilized have received specific training and certification or approval from the proposed respective firestop manufacturer, and firestop installer shall have a minimum of three years experience (under present company name) installing firestop systems of the type herein specified.

H. Mock-Up: Prepare job site mock-ups of each typical Firestop System proposed for use in the project. Approved mock-ups will be left in place as part of the finished project and will constitute the quality standard for the remaining work.

I. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.

1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.

2. For floor penetrations with annular spaces exceeding 4 inches or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or by other means.

3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original unopened containers with manufacturer's name, product identification, lot numbers, UL or Warnock Hersey labels, and mixing and installation instructions, as applicable.

B. Store materials in the original, unopened containers or packages, and under conditions recommended by manufacturer.

C. All firestop materials shall be installed prior to expiration of shelf life.

1.8 PROJECT CONDITIONS

A. Verify existing conditions and substrates before starting work

B. Do not use materials that contain solvents, show sign of damage or are beyond their shelf life.

C. During installation, provide masking and drop cloths as needed to prevent firestopping products from contaminating any adjacent surfaces.

D. Conform to ventilation requirements if required by manufacturer's installation instructions or Material Safety Data Sheet.

E. Weather Conditions: Do not proceed with installation of firestop products when temperatures are in excess or below the manufacturer's recommendations.

F. Schedule installation of firestop products after completion of penetrating item installation but prior to covering or concealing of openings.

G. Coordinate this work as required with work of other trades.

1.9 SEQUENCING AND SCHEDULING

A. Pre-Installation Conference: Convene a pre-installation conference to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

B. Sequence: Perform work of this and other sections in proper sequence to prevent damage to the firestop systems and to ensure that their installation will occur prior to enclosing or concealing work.

C. Install all firestop systems after voids and joints are prepared sufficiently to accept the applicable firestop system.

D. Do not cover firestop systems until they have been properly inspected and accepted by the authority having jurisdiction.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

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

1. Tremco
2. Bio-Fireshield
3. 3M
4. Specified Technologies Inc.
5. U.S. Gypsum Co.
6. Nelson

7. Hilti, Inc.

8. Grace Flame Safe

2.2 FIRESTOPPING, GENERAL

A. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.

B. Accessories: Provide components for each firestopping system that are needed to install fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:

1. Permanent forming/damming/backing materials including the following:

a. Semirefractory fiber (mineral wool) insulation.
b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.
c. Fire-rated form board.
d. Joint fillers for joint sealants.

2. Temporary forming materials.

3. Substrate primers.

4. Collars.

5. Steel sleeves.

C. Applications: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.

D. Smokeseals at top of partitions shall be flexible to allow for partition deflection.

2.3 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

A. Endothermic, Latex Compound Sealant: Single-component, endothermic, latex formulation.

B. Intumescent, Latex Sealant: Single-component, Intumescent, latex formulation.

C. Intumescent Putty: Non-hardening, dielectric, water-resistant putty containing no solvents, inorganic fibers, or silicone compounds.

D. Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum or polyethelene foil on one side.

E. Job-Mixed Vinyl Compound: Prepackaged vinyl-based powder product for mixing with water at Project site to produce a paintable compound, passing ASTM E 136, with flame-spread and smoke-developed ratings of zero per ASTM E 84.

F. Mortar: Prepackaged dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking, homogeneous mortar.

G. Pillows/Bags: Re-usable, heat-expanding pillows/bags composed of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.

H. Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, non-shrinking foam.

I. Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below:

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless firestop system limits use to non-sag grade for both opening conditions.

2.4 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated that complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this Section applicable to fire-resistive joint sealants.

1. Sealant Colors: Color of exposed joint sealants as selected by the Architect.

B. Single-Component, Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, G, A, and (as applicable to joint substrates indicated) O.

1. Additional Movement Capability: Provide sealant with the capability to withstand 33 percent movement in both extension and compression for a total of 66 percent movement.

C. Multi-Component, Non-Sag, Urethane Sealant: Type M; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, A, and (as applicable to joint substrates indicated) O.

1. Additional Movement Capability: Provide sealant with the capability to withstand 40 percent movement in extension and 25 percent in compression for a total of 65 percent movement in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, and remain in compliance with other requirements of ASTM C 920 for uses indicated.

D. Single-Component, Non-Sag, Urethane Sealant: Type S; Grade NS; Class 25; and Uses NT, M, A, and (as applicable to joint substrates indicated) O.

2.5 MINERAL FIBER/CERAMIC WOOL NON-COMBUSTIBLE INSULATION (FIRE SAFING)

A. Provide min. 4 pcf Thermafiber as manufactured by Thermafiber Co., min. 4 pcf FBX Safing Insulation as manufactured by Fibrex, or approved equal to suit conditions and to comply with fire resistance and firestop manufacturer's requirements.

B. Material shall be classified non-combustible per ASTM E 119.

2.6 MIXING

A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Installer present, for compliance with requirements for opening configuration, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:

1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.

2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.

3. Remove laitance and form release agents from concrete.

B. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing seal of firestopping with substrates.

3.3 CONDITIONS REQUIRING FIRESTOPPING

A. Building Exterior Perimeters

1. Where new exterior construction is continuous past a structural floor, and a space (i.e. construction joint) would otherwise remain open between the inner face of the wall construction and the outer perimeter edge of the structural floor, provide firestopping to equal the fire resistance of the floor assembly.

    a. If mineral wool is part of firestop system, the mineral wool must be completely covered by appropriate thickness of UL or Warnock Hersey listed firestop sealant or spray.
    b. Refer to Article 3.6 herein for description of fire safing insulation.

2. Firestopping shall be provided whether or not there are any clips, angles, plates, or other members bridging or interconnecting the facing and floor systems, and whether or not such items are continuous.

3. Where an exterior wall passes a perimeter structural member, such as a girder, beam, or spandrel, and the finish on the interior wall face does not continue up to close with the underside of the structural floor above, thus interrupting the fire-resistive integrity of the wall system, and a space would otherwise remain open between the interior face of the wall and the structural member, provide firestopping to continuously fill such open space.

B. Interior Walls and Partitions

1. Construction joints between top of fire rated walls and underside of floors above, shall be firestopped.

2. Firestop system installed shall have been tested by either UL or Omega Point, including exposure to hose stream test and including for use with steel fluted deck floor assemblies.

3. Firestop system used shall allow for deflection of floor above.

C. Penetrations

1. Penetrations include conduit, cable, wire, pipe, duct, or other elements which pass through one or both outer surfaces of a fire rated floor, wall, or partition.

2. Except for floors on grade, where a penetration occurs through a structural floor or roof and a space would otherwise remain open between the surfaces of the penetration and the edge of the adjoining structural floor or roof, provide firestopping to fill such spaces in accordance with ASTM E 814.

3. These requirements for penetrations shall apply whether or not sleeves have been provided, and whether or not penetrations are to be equipped with escutcheons or other trim. If penetrations are sleeved, firestop annular space, if any, between sleeve and wall of opening.

D. Provide firestopping to fill miscellaneous voids and openings in fire rated construction in a manner essentially the same as specified herein before.

3.4 INSTALLING THROUGH PENETRATION FIRESTOPS

A. General: Comply with the through penetrations firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

C. Install fill materials for through penetration firestop systems by proven techniques to produce the following results:

1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.

2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.

3. For fill materials that will remain exposed after completing work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.5 INSTALLING FIRE RESISTIVE JOINT SEALANTS

A. General: Comply with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install joint fillers to provide support of sealants during application and at position required to produce the cross sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire resistance rating required.

C. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.

D. Tool no sag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.6 INSTALLING FIRESAFING INSULATION

A. Install fire safing insulation utilizing welded or screw applied galvanized steel impaling pins and retaining clips; space clips or pins 24" o.c. maximum.

B. Completely fill voids in areas where safing insulation is required. Depth of insulation top to bottom shall be at least 4".

C. Cover top of all safing insulation with firestop sealant or spray.

3.7 FIELD QUALITY CONTROL

A. Inspecting agency employed and paid by the Owner will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.

B. Inspecting agency will report observations promptly and in writing to Contractor, Owner and Architect.

C. Do not proceed to enclose firestopping with other construction until reports of examinations are issued.

D. Where deficiencies are found, Contractor must repair or replace firestopping so that it complies with requirements.

3.8 CLEANING

A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.

B. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to product firestopping complying with specified requirements.

END OF SECTION

SECTION 07900

JOINT SEALERS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the joint sealers work as shown on the drawings and/or specified herein, including but not necessarily limited to the following:

1. Exterior wall joints at aluminum entrances and storefronts and other new work.

2. Interior wall joints not specified to be sealed in other Sections of work, including caulking to fill between architectural woodwork and any wall, floor and/or ceiling imperfections.

3. Joints at wall penetrations.

4. Joints between items of equipment and other construction.

5. All other joints required to be sealed to provide a positive barrier against penetration of air and moisture.

1.3 RELATED SECTIONS

A. Roofing work - Section 07500.

B. Firestop sealants - Section 07840.

C. Glazing sealants - Section 08800.

D. Sealant within drywall construction - Section 09250.

E. Sealant at tile work - Section 09310.

1.4 QUALITY ASSURANCE

A. Qualification of Installers: Use only personnel who are thoroughly familiar, skilled and specially trained in the techniques of sealant work, and who are completely familiar with the published recommendations of the sealant manufacturer.

B. Pre-Construction Field Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to project joint substrates according to the method in ASTM C 794 and C 1521 that is appropriate for the types of Project joints.

C. Perform testing per ASTM C 1248 on interior and exterior sealants to determine if sealants or primers will stain adjacent surfaces. No sealant work shall start until

results of these tests have been submitted to the Architect and he has given his written approval to proceed with the work.

1.5 SUBMITTALS

A. Shop Drawings: Submit shop drawings showing all joint conditions, indicating relation of adjacent materials, all sealant materials (sealant, bond breakers, backing, primers, etc.), and method of installation.

1. Submit joint sizing calculations certifying that movement capability of sealant is not being exceeded.

B. Samples: Submit the following:

1. Color samples of sealants.

2. Sealant bond breaker and joint backing.

C. Product Data: Submit manufacturer's technical information and installation instructions for:

1. Sealant materials, indicating that material meets standards specified herein.

2. Backing rods.

D. Submit manufacturer's certification as required by Article 1.6 herein.

E. Submit results of testing required in Article 1.4 herein.

1.6 MANUFACTURER'S RESPONSIBILITY AND CERTIFICATION

A. Contractor shall require sealant manufacturer to review the Project joint conditions and details for this Section of the work. Submit written certification from the sealant manufacturer that joints are of the proper size and design, that the materials supplied are compatible with adjacent materials and backing, that the materials will properly perform to provide permanent watertight, airtight or vaportight seals (as applicable), and that materials supplied meet specified performance requirements.

1.7 ENVIRONMENTAL CONDITIONS

A. Temperature: Install all work of this Section when air temperature is above 40 degrees F. and below 80 degrees F., unless manufacturer submits written instructions permitting sealant use outside of this temperature range.

B. Moisture: Do not apply work of this Section on surfaces which are wet, damp, or have frost.

1.8 PRODUCT HANDLING

A. Protection: Use all means necessary to protect the materials of this Section, before, during and after installation and to protect the installed work and materials of all other trades.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

C. Storage

1. Store sealant materials and equipment under conditions recommended by their manufacturer.

2. Do not use materials stored for a period of time exceeding the maximum recommended shelf life of the material.

1.9 GUARANTEE

A. Provide a written, notarized guarantee from the manufacturer and the applicator stating that the applied sealants shall remain watertight for a period of 10 years.

B. Guarantee shall be in a form acceptable to the Owner and executed by an authorized individual.

C. Guarantee shall further state that installed sealant is guaranteed against:

1. Adhesive or cohesive failure of sealant joints.

2. Crazing greater than 3 mils in depth developing on surface of material.

3. Staining of surfaces adjacent to joints by sealants or primer by migration through building materials in contact with them.

4. Chalking, or visible color change on surface of cured sealant.

5. Increase or decrease of "Shore A" durometer hardness (5 second reading) of sealant of more than 30 percent of 7 day value of "Shore A" durometer hardness of sealant.

D. Include in guarantee provision, agreement to repair and/or replace, at Contractor's expense, sealant defects which develop during guarantee period, because of faulty labor and/or materials.

PART 2 PRODUCTS

2.1 SEALANT MATERIALS

A. Exterior Wall Sealant: Provide one part non-sag sealant equal to No. 790 or 795 made by Dow Corning, "Silpruf SCS 2000" or "LM SCS 2700" made by G.E. or "Spectrem 1" or "Spectrem 3" made by Tremco or "Sonolastic 150" by Sonneborn conforming to the minimum standards of ASTM C 920, Type S, Grade NS, Class 50.

B. Interior Sealant: Provide a one part acrylic based sealant conforming to ASTM C 834, equal to "AC-20+ Silicone" made by Pecora or equal made by Tremco.

C. Colors: Custom colors of sealants as selected by the Architect.

2.2 MISCELLANEOUS MATERIALS

A. Back-Up Materials: Provide back-up materials and preformed joint fillers, non-staining, non-absorbent, compatible with sealant and primer, and of a resilient nature, equal to "Sof-Rod" made by Nomaco Inc. or approved equal, 25 percent

wider than joint width. Materials impregnated with oil, bitumen or similar materials shall not be used. Provide back-up materials only as recommended by sealant manufacturer in writing.

B. Provide bond breakers, where required, of polyethylene tape as recommended by manufacturer of sealant.

C. Provide primers recommended by the sealant manufacturer for each material to receive sealant. Note that each exterior joint must be primed prior to sealing.

D. Provide solvent, cleaning agents and other accessory materials as recommended by the sealant manufacturer.

E. Materials shall be delivered to the job in sealed containers with manufacturer's original labels attached. Materials shall be used per manufacturer's printed instructions.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where joint sealers are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions required by this Project where more stringent installation requirements are specified herein, such requirements shall apply.

B. Sample Section of Sealant

1. During sealant installation work in exterior wall, complete a section of the wall (used as "control section") for Architect's review and approval.

2. Accepted control section shall be standard to which all other sealant work must conform.

C. Apply sealant under pressure with a hand or power actuated gun or other appropriate means. Gun shall have nozzle of proper size and provide sufficient pressure to completely fill joints as detailed. Neatly point or tool joint to provide the contour as indicated on the drawings.

D. Preparation and Application

1. Thoroughly clean all joints, removing all foreign matter such as dust, oil, grease, water, surface dirt and frost. Sealant must be applied to the base surface. Previously applied film must be entirely removed.

2. Stone, masonry and concrete surfaces to receive sealant shall be cleaned where necessary by grinding, water blast cleaning, mechanical abrading, or

combination of these methods as required to provide a clean, sound base surface for sealant adhesion.

a. Do not use any acid or other material which might stain surfaces.
b. Remove laitance by grinding or mechanical abrading.
c. Remove loose particles present or resulting from grinding, abrading, or blast cleaning by blowing out joints with compressed air, oil and water free, or vacuuming joints prior to application of primer or sealant.

3. Clean non-porous surfaces such as metal and glass chemically. Remove protective coatings on metallic surfaces by solvent that leaves no residue and is compatible with sealant. Use solvent and wipe dry with clean, dry lint free paper towels. Do not allow solvent to air dry without wiping. Clean joint areas protected with masking tape or strippable films as above after removal of tape film.

4. Do not seal joints until they are in compliance with drawings, or meet with the control section standard.

5. Joint Size and Sealant Size: Joints to receive sealant shall be at least 1/4" wide. In joint 1/4" to 3/8" wide, sealant shall be 1/4" deep. In joints wider than 3/8" and up to 1" wide, sealant depth shall be one half the joint width. For joints wider than 1", sealant depth shall be as recommended by the sealant manufacturer. Depth of joint is defined as distance from outside face of joint to closest point of the filler.

6. Primer: Thoroughly clean joints and apply primer to all surfaces that will receive sealant. Apply primer on clean, dry surfaces, and prior to installation of joint backing. Completely wet both inner faces of the joint with primer. Mask adjacent surfaces of joint with non-staining masking tape prior to priming.

7. Joint Backing: In joints where depth of joint exceeds required depth of sealant, install joint backing (after primer is dry) in joints to provide backing and proper joint shape for sealant. Proper shape for sealant is a very slight "hourglass" shape, with back and front face having slight concave curvature. Use special blunt T-shaped tool or roller to install joint backing to the proper and uniform depth required for the sealant. Joint backing shall be installed with approximately 25 percent compressions. Do not stretch, twist, braid, puncture, or tear joint backing. Butt joint backing at intersections.

8. Bond Breaker: Install bond breaker smoothly over joint backing so that sealant adheres only to the sides of the joint and not backing.

9. Sealant Application: Apply sealant in accordance with the manufacturer's application manual and manufacturer's instructions, using hand guns or pressure equipment, on clean, dry, properly prepared substrates, completely filling joints to eliminate air pockets and voids. Mask adjacent surfaces of joint with non-staining masking tape. Force sealant into joint in front of the tip of the "caulking gun" (not pulled after it) and force sealant against sides to make uniform contact with sides of joint and to prevent entrapped air or pulling of sealant off of sides. Fill sealant space solid with sealant.

10. Tooling: Tool exposed joints to form smooth and uniform beds, with slightly concave surface conforming to joint configuration per Figure 5A in ASTM C 1193. Finished joints shall be straight, uniform, smooth and neatly finished. Remove masking tape immediately after tooling of sealant and before sealant face starts to "skin" over. Neatly remove any excess sealant from adjacent surfaces of joint, leaving the work in a neat, clean condition.

11. Replace sealant which is damaged during construction process.

END OF SECTION

SECTION 08100

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the steel doors and frames work as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Interior hollow metal doors and frames for fire rated and unrated door openings.

2. Interior glazed hollow metal framing.

3. Preparation of metal doors and frames to receive finish hardware, including reinforcements, drilling and tapping necessary.

4. Preparation of hollow metal doors to receive glazing where required.

5. Steel louvers for hollow metal doors.

6. Furnishing anchors for building into drywall.

7. Factory prime painting of work of this Section.

1.3 RELATED SECTIONS

A. Installation of doors and frames - Section 06200.

B. Finish hardware - Section 08700.

C. Glass and glazing - Section 08800.

D. Gypsum drywall – Section 09250.

E. Painting - Section 09900.

1.4 SUBMITTALS

A. Product Data: Include construction details, material descriptions, core descriptions, label compliance, compliance with standards referenced herein, sound and fire-resistance ratings, and finishes for each type of door and frame specified.

B. Shop Drawings: Show fabrication and installation of doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of

construction, reinforcement for surface applied hardware, dimensions of profiles and hardware preparation, location and installation requirements of door and frame hardware and reinforcements, and details of joints and connections. Show anchorage and accessories.

C. Door Schedule: Submit schedule of doors and frames using same reference numbers for details and openings as those on Drawings.

1. Coordinate glazing frames and stops with glass and glazing requirements.

D. Oversize Construction Certification: For door assemblies required to be fire rated and exceeding limitations of labeled assemblies, submit certification of a testing agency acceptable to authorities having jurisdiction that each door and frame assembly has been constructed to comply with design, materials, and construction equivalent to requirements for labeled construction.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing custom steel doors and frames 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.

B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.

C. Source Limitations: Obtain custom steel doors and frames through one source from a single manufacturer.

D. Fire-Rated Door and Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated.

1. Test Pressure: Test according to NFPA 252 or UL 10C. After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40" or less above the sill.

2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors comply with standard construction requirements for tested and labeled fire-protection-rated door assemblies except for size.

E. Smoke-Control Door Assemblies: Comply with NFPA 105 or UL 1784.

F. For projects located in New York City, fire rated assemblies must have M.E.A. approval with UL label.

G. Work of this Section must meet the minimum standards of ANSI 250.4 and SDI-100; where more stringent requirements are specified herein, such requirements shall apply.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames palleted, wrapped, or crated to provide protection during transit and Project site storage. Do not use nonvented plastic.

B. Inspect doors and frames, on delivery, for damage. Minor damage may be repaired provided refinished items match new work and are approved by Architect; otherwise, remove and replace damaged items as directed.

C. Store doors and frames under cover at building site. Conform to the requirements of ANSI A 250-11-2001 for site storage unless more stringent requirements are noted herein. Place units on minimum 4" high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4" spaces between stacked doors to permit air circulation.

PART 2 PRODUCTS

2.1 FABRICATION - GENERAL

A. Fabricate hollow metal units to be rigid, neat in appearance and free from defects, warp or buckle. Accurately form metal to required sizes and profiles. Weld exposed joints continuously, grind, dress, and make smooth, flush and invisible. Metallic filler to conceal manufacturing defects is not acceptable.

B. Unless otherwise indicated, provide countersunk flat Phillips or Jackson heads for exposed screws and bolts.

C. Prepare hollow metal units to receive finish hardware, including cutouts, reinforcing, drilling and tapping in accordance with Finish Hardware Schedule and templates provided by hardware suppliers. Comply with applicable requirements of ANSI A115 "Specifications for Door and Frame Preparation for Hardware."

D. Locate finish hardware as shown on final shop drawings in accordance with locations noted herein.

2.2 MANUFACTURERS

A. Provide products manufactured by Steelcraft, Curries, Ceco Door Products, or approved equal meeting these specifications.

1. Manufacturer must be a member of the Steel Door Institute.

2.3 FRAMES

A. Materials: Frames shall be either commercial grade cold-rolled steel conforming to ASTM A 1008, Type B or commercial grade hot-rolled steel conforming to ASTM A 1011, Commercial Steel, Type B. Metal thickness shall be not less than 16 gauge for frames in openings 4'-0" or less in width; not less than 14 gauge for frames in openings over 4'-0" in width.

B. Design and Construction

1. All frames shall be custom made welded units with integral trim, of the sizes and shapes shown on approved shop drawings. Knock-down frames will not be accepted.

2. All finished work shall be strong and rigid, neat in appearance, square, true and free of defects, warp or buckle. Molded members shall be clean cut, straight and of uniform profile throughout their lengths.

3. Jamb depths, trim, profile and backbends shall be as shown on drawings.

   a. Frames at drywall partitions shall be formed with double return backbends to prevent cutting into drywall surface.

4. Welded frames shall have corners mitered and reinforced and faces of welded frames shall be continuously back welded.

5. Minimum depth of stops shall be 5/8".

6. Frames for multiple or special openings shall have mullion and/or rail members which are closed tubular shapes having no visible seams or joints. All joints between faces of abutting members shall be securely welded and finished smooth.

   a. Mullions shall have 16 gauge internal steel stiffeners welded not less than 4" o.c.

7. Hardware Reinforcements

   a. Frames shall be mortised, reinforced, drilled and tapped at the factory for fully-templated mortised hardware only, in accordance with approved hardware schedule and templates provided by the hardware supplier. Where surface-mounted hardware is to be applied, frames shall have reinforcing plates.

   b. Minimum thickness of hardware reinforcing plates shall be as follows:
      1). Hinge and pivot reinforcements - 7 gauge, 1-1/4" x 10" minimum size.
      2). Strike reinforcements - 12 gauge
      3). Flush bolt reinforcements - 12 gauge
      4). Closer reinforcements - 12 gauge
      5). Reinforcements for surface mounted hardware - 12 gauge.

8. Floor Anchors

   a. Provide adjustable floor anchors, providing not less than 2" height adjustment.
   b. Minimum thickness of floor anchors shall be 14 gauge.

9. Jamb Anchors: Frames for installation in stud partitions shall be provided with steel anchors of suitable design, not less than 18 gauge thickness, securely welded inside each jamb. Provide a minimum of 4 anchors on each jamb.

10. Dust cover boxes (or mortar guards) of not thinner than 26 gauge steel shall be provided at all hardware mortises on frames to be set in masonry or plaster partitions.

11. Ceiling Struts: Minimum 3/8" thick x 2" wide steel.

12. All frames shall be provided with a steel spreader temporarily attached to the feet of both jambs to serve as a brace during shipping and handling.

13. Loose glazing stops shall be of cold rolled steel, not less than 20 gauge thickness, butted at corner joints and secured to the frame with countersunk cadmium-or zinc-plated screws. Frames may be provided with snap-on glazing stops.

14. Drill stops to receive 3 silencers on strike jambs of single door frames and 2 silencers on heads of double-door frames.

C. Finish: After fabrication, all tool marks and surface imperfections shall be removed, and exposed faces of all welded joints shall be dressed smooth. Frames shall then be chemically treated to insure maximum paint adhesion and shall be coated on all surfaces with one coat of rust-inhibitive baked-on alkyd primer standard with the manufacturer which is fully cured before shipment to a dry film thickness of 2.0 mils.

2.4 HOLLOW METAL DOORS

A. Materials: Doors shall be made of commercial quality, level, cold rolled steel conforming to ASTM A 1008, Commercial Steel, Type B and free of scale, pitting or other surface defects. Face sheets shall be not less than 18 gauge.

B. Design and Construction

1. All doors shall be custom made, of the types and sizes shown on the approved shop drawings, and shall be fully welded seamless construction with no visible seams or joints on their faces or vertical edges. Minimum door thickness shall be 1-3/4".

2. All doors shall be strong, rigid and neat in appearance, free from warpage or buckles. Corner bends shall be true and straight and of minimum radius for the gauge of metal used.

3. Core Construction: Resin impregnated Kraft paper with maximum 1" cells; fastened to face sheets with waterproof adhesive.

   a. Fire Rated Door Core: As required to provide fire-protection and temperature rise ratings indicated.

4. Door faces shall be joined at their vertical edges by a continuous weld extending the full height of the door. All such welds shall be ground, filled and dressed smooth to make them invisible and provide a smooth flush surface.

5. Top and bottom edges of all doors shall be closed with a continuous recessed steel channel not less than 14 gauge, extending the full width of the door and spot welded to both faces.

6. Edge profiles shall be provided on both vertical edges of doors as follows:

   a. Single-acting swing doors - beveled 1/8" in 2".
   b. Double acting swing doors - rounded on 2-1/8" radius.
   c. No square edge doors permitted.

7. Hardware Reinforcements

   a. Doors shall be mortised, reinforced, drilled and tapped at the factory for fully templated hardware only in accord with the approved hardware schedule and templates provided by the hardware supplier. Where surface-mounted hardware (or hardware, the interrelation of which is to be adjusted upon installation - such as top and bottom pivots, floor closers, etc.) is to be applied, doors shall have reinforcing plates.
   b. Minimum gauges for hardware reinforcing plates shall be as follows:
      1). Hinge and pivot reinforcement - 7 gauge.
      2). Reinforcement for lock face, flush bolts, concealed holders, concealed or surface mounted closers - 12 gauge.
      3). Reinforcements for all other surface mounted hardware - 16 gauge.

8. Glass Moldings and Stops

   a. Where specified or scheduled, doors shall be provided with hollow metal moldings to secure glazing by others in accordance with glass opening sizes shown on drawings.
   b. Fixed moldings shall be securely welded to the door on the security side.
   c. Loose stops shall be not less than 20 gauge steel, with mitered corner joints, secured to the framed opening by cadmium or zinc-coated countersunk screws spaced 8" o.c. Snap-on attachments will not be permitted. Stops shall be flush with face of door.

9. Louvers shall be 16 gauge sheet steel, stationary type, closely spaced inverted "V" blade design, flush with face sheets of door, integral with and welded to door. 50 percent free area, unless indicated otherwise on drawings.

C. Finish: After fabrication, all tool marks and surface imperfections shall be dressed, filled and sanded as required to make all faces and vertical edges smooth, level and free of all irregularities. Doors shall then be chemically treated to insure maximum paint adhesion and shall be coated, on all exposed surfaces, with manufacturer's standard rust-inhibitive alkyd primer as specified for frames which shall be fully cured before shipment.

D. Flatness: Doors shall maintain a flatness tolerance of 1/16" maximum, in any direction, including in a diagonal direction.

2.5 LABELED DOORS AND FRAMES

A. Labeled doors and frames shall be provided for those openings requiring fire protection ratings as scheduled on drawings. Such doors and frames shall be labeled by Underwriters' Laboratories or other nationally recognized agency having a factory inspection service.

B. If any door or frame specified by the Architect to be fire-rated cannot qualify for appropriate labeling because of its design, size, hardware or any other reason, the Architect shall be so advised before fabricating work on that item is started.

2.6 HARDWARE LOCATIONS

A. The location of hardware on doors and frames shall be as follows unless otherwise required by prevailing Handicap Codes:

1. Hinges: Top 5" from head of frame to top of hinge; bottom 10" ± 1" from finish floor to bottom of hinge; intermediate centered between top and bottom hinges.

2. Unit and Integral Type Locks and Latches: 38" to centerline of knob.

3. Deadlocks: 48" to centerline of cylinder.

4. Panic Hardware: 40-5/16" to centerline of cross bar.

5. Door Pulls: 42" to center of grip.

6. Push-Pull Bars: 42" to centerline of bar.

7. Push Plates: 48" to centerline of plate.

8. Roller Latches: 45" to centerline.

*All of the above dimensions are from finished floor.

2.7 CLEARANCES

A. Fabricate doors and frames to meet edge clearances as follows:

1. Jambs and Head: 1/8" plus or minus 1/16".

2. Meeting Edges, Pairs of Doors: 1/8" Plus or minus 1/16".

3. Bottom: 3/4", if no threshold.

4. Bottom: 3/8", at threshold.

B. Fire rated doors shall have clearances as required by NFPA 80.

2.8 MANUFACTURING TOLERANCES

A. Manufacturing tolerance shall be maintained within the following limits:

1. Frames for Single Door or Pair of Doors

a. Width, Measured Between Rabbets at the Head: Nominal opening width +1/16", -1/32"
b. Height (total length of jamb rabbet): Nominal opening height + 3/64"
c. Cross Sectional Profile Dimensions
1). Face: + 1/32"
2). Stop: + 1/32"

3). Rabbet: + 1/64"
4). Depth: + 1/32"
5). Throat: + 1/16". Frames overlapping walls to have throat dimension 1/8" greater than dimensioned wall thickness to accommodate irregularities in wall construction.

2. Doors

a. Width: + 3/64"
b. Height: + 3/64"
c. Thickness: + 1/16"
d. Hardware Cutout Dimensions: Template dimensions +0.015", -0"
e. Hardware Location: + 1/32"

2.9 PREPARATION FOR FINISH HARDWARE

A. Prepare door and frames to receive hardware:

1. Hardware supplier shall furnish hollow metal manufacturer approved hardware schedule, hardware templates, and samples of physical hardware where necessary to insure correct fitting and installation.

2. Preparation includes sinkages and cut-outs for mortise and concealed hardware.

B. Provide reinforcements for both concealed and surface applied hardware:

1. Drill and tap mortise reinforcements at factory, using templates.

2. Install reinforcements with concealed connections designed to develop full strength of reinforcements.

2.10 REJECTION

A. Hollow metal frames or doors which are defective, have hardware cutouts of improper size or location, or which prevent proper installation of doors, hardware or work of other trades, shall be removed and replaced with new at no cost.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where steel doors and frames are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

A. Refer to Section 06200 for installation procedures for all work of this Section.

END OF SECTION

SECTION 08200

WOOD DOORS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the wood doors as shown on the drawings and/or specified herein, including but not limited to, the following:

1. Solid core flush wood doors.

1.3 RELATED SECTIONS

A. Installation of wood doors - Section 06200.

B. Hollow metal frames - Section 08100.

C. Finish hardware - Section 08700.

D. Field painting - Section 09900.

1.4 SUBMITTALS

A. Product Data: Submit door manufacturer's product data, specifications and installation instructions for each type of wood door.

1. Include details of core and edge construction and trim for openings.

2. Include factory finish specifications.

3. Include certifications to show compliance with specifications.

4. Include certification to show compliance with WDMA TM-7 test for 1 million slams.

B. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, requirements for finishing and other pertinent data.

1. Include requirements for veneer matching.

C. Submit samples of factory finishes applied to actual door face materials, approximately 8 by 10 inches for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.

B. Quality Standard: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated"; latest edition "Premium" grade.

1. Only manufacturers that are certified and listed by AWI to be QCP qualified are acceptable for this project.

2. Provide letter of licensing for Project indicating that doors comply with requirements of grade specified.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in plastic bags or cardboard cartons.

C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.7 PROJECT CONDITIONS

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

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) in excess of permitted standard noted in Article 2.5 herein, or show telegraphing of core construction in face veneers.

1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.

2. Warranty shall be in effect for the life of the installation, commencing from date of Substantial Completion:

PART 2 PRODUCTS

2.1 SOLID CORE FLUSH WOOD DOORS

A. Provide AWI PC-5 Premium Grade hot pressed 5-ply solid core particleboard doors, 1-3/4" thick, conforming to standards specified herein. Subject to meeting standards specified herein, the following manufacturers are acceptable: Marshfield Door Systems, Inc., Algoma Hardwoods Inc., or Eggers Hardwood Products Corp.

1. Core shall consist of a formed flat panel consisting of wood particles bonded together with synthetic resins or other added binder, with an average density of 30 to 32 lbs. per cubic foot. The material shall meet or exceed the requirements of ANSI A208.1, Grade 1-LD-2 covering mat formed particleboard with face screw holding of 124 lbs., modulus of rupture of minimum 700 psi and modulus of elasticity of not less than 148,000 psi.

2. Core shall be capable of satisfying this WDMA TM-7 cycle slam test for 1 million slams for surface mounted hardware. Where the manufacturer's core does not meet this criteria, stiles and rails must measure a minimum of 5-1/2" and must be fabricated of hardwood.

    a. Surface mounted hardware must be installed with 1-1/4" screw penetrations using threaded to the head screws; coordinate with Section 08700.

B. Cross Bands: Shall be 1/16" thick hardwood extending full width of door and laid with grain at right angles to face veneers. Cross bands and faces shall be laminated to the core with Type I MF or PVA glue.

C. Stiles, Rails: Stile edge bands shall be a minimum of 1-3/8" solid hardwood or structural composite lumber (after trimming) laminated to the core. Stiles and rails must be securely glued to the core with no voids allowed.

D. Doors with transparent finish to have center balanced, slip matched, quarter sliced, Select veneer of species selected by the Architect. Veneer to conform to AWI, "AA" grade veneer with 3" wide leaf. Minimum veneer thickness shall be not less than 1/50" after sanding.

E. Where glass lites are noted, factory cut openings. Trim openings with solid hardwood moldings of same type of wood as face veneer. Lite openings in 20 minute rated doors shall have manufacturer's 20 minute approved hardwood system.

F. Doors to be field painted shall have MDO or hardboard face.

2.2 SHOP FINISH

A. Transparent Finish: Finish in the shop with clear satin catalyzed polyurethane finish conforming to AWI System "Catalyzed Polyurethane Transparent".

B. Opaque Finish: For doors to be field painted, shop prime on all surfaces with one coat of alkyd wood primer applied to a dry film thickness of 1.5 mils.

2.3 FABRICATION

A. Prefit and premachine wood doors at the factory.

B. Comply with the tolerance requirements specified herein. Machine doors for hardware requiring cutting of doors. Comply with final hardware scheduled and door frame shop drawings, and with hardware templates and other essential information required to ensure proper fit of doors and hardware.

C. Take accurate field measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with machining in the factory.

D. Doors shall be factory sized to door opening so that trimming and fitting are not required in the field.

E. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances unless otherwise indicated.

1. Three degree bevel or bevel to suit frame sizes indicated, with 3/16" prefit in width, +0/-1/32" tolerances. Prefit top of door 1/8" + 1/16"/-0" and undercut as required by floor condition. Undercut shall not exceed 1/8" from bottom of door to top of finished floor; where threshold occurs undercut shall not exceed 1/8" from bottom of door to top of threshold.

F. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3 unless otherwise noted. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.

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

G. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kinds of doors required.

2.4 SOURCE QUALITY CONTROL

A. Once installed, maximum allowable warp, bow, cut or twist in doors shall be 1/16" as measured by the 1/16 inch feeler gauge and a straight-edge extending from corner to corner of the door face at stiles, top and bottom rails and along both diagonals.

PART 3 EXECUTION

3.1 INSTALLATION

A. Refer to Section 06200 for installation of wood doors.

END OF SECTION