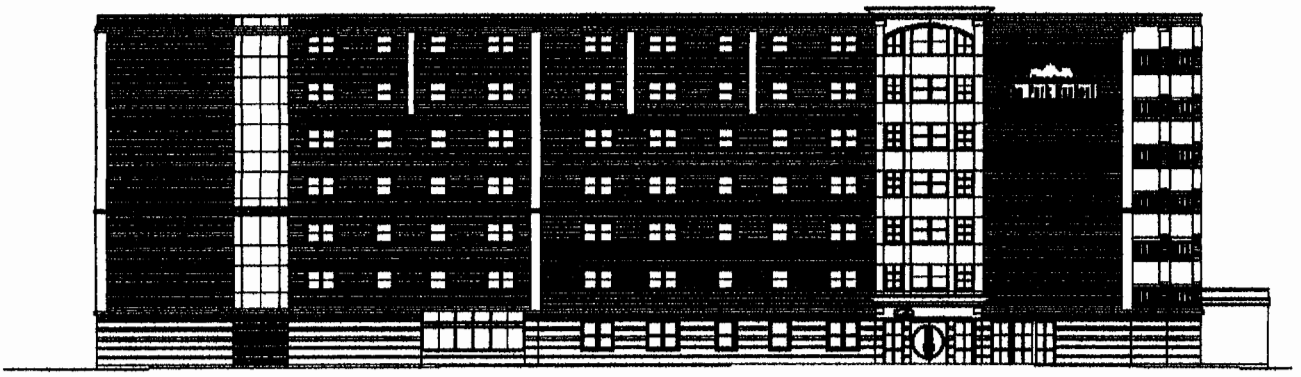
S P E C I F I C A T I O N S

for

The Park Danforth Renovations

777 Stevens Avenue
Portland ME



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_____
_____
_____

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DRAWINGS

SECTION 01001

BASIC REQUIREMENTS

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Summary of Work: Contract, work by owner, contractor use of premises, future work.

B. Contract Considerations: Cash allowances, contingency allowance, inspection and testing allowances, schedule of values, applications for payment, change procedures, alternates.

C. Coordination and Meetings: Coordination, field engineering, cutting and patching, meetings, progress meetings, equipment electrical characteristics and components, examination, preparation, cutting and patching.

D. Submittals: Submittal procedures, construction progress schedules, proposed products list, shop drawings, product data, samples, manufacturers' installation instructions, manufacturers' certificates.

E. Quality Control: Quality assurance - control of installation, Tolerances, References, Mock-ups, Inspection and testing laboratory services, Manufacturers' field services and reports.

F. Construction Facilities and Temporary Controls: Temporary electricity, temporary lighting for construction purposes, temporary heat, temporary ventilation, telephone service, temporary water service, temporary sanitary facilities, barriers and fencing, water control, exterior enclosures, interior enclosures, protection of installed work, security, access roads, parking, progress cleaning and waste removal, project identification, field offices and sheds, removal of utilities, facilities, and controls.

G. Material and Equipment: Products, transportation, handling, storage, and protection, products options, substitutions.

H. Starting of Systems: Starting systems, demonstration and instructions, testing, adjusting and balancing.

I. Contract Closeout: Contract closeout procedures, final cleaning, adjusting, project record documents, operation and maintenance data, spare parts and maintenance materials, warranties.

1.2 WORK BY OWNER

A. The Owner may award a contract(s) for supply and installation of building components which may commence before date of Substantial Completion. Work under these contract(s) may include, but is not limited to:

1. Furnishings: Supplying and installing window treatments in common areas and individual units.

1.3 CONTRACTOR USE OF PREMISES

A. Limit use of premises to allow:

1. Owner occupancy.
2. Work by others and work by owner.
3. Use of premises by public.

1.4 CONTINGENCY ALLOWANCE

A. Include in the Contract, a stipulated amount of $ T.B.D. for use at Owner's discretion. Upon completion of the project, any unused portion of the allowance will be returned to the Owner.

B. Contractor's costs for Products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit may be included in Change Orders authorized by the Owner for expenditure of funds from this Contingency Allowance.

1.5 ALTERNATES

A. Provide separate prices for the following alternates, which may be selected individually by Owner.

1. Provide new EIFS system over existing load bearing masonry at stair towers, Dryvit, or equal.
2. Remove existing roof of original building and provide complete new mechanically fastened or fully adhered 0.60" EPDM roof membrane system.
3. Provide new glass and steel wind screens at main entry.
4. Replace existing aluminum entrance doors and storefront with new entrance door and storefront system.

1.6 SCHEDULE OF VALUES

A. Submit schedule on AIA Form G703. Contractor's standard form or electronic media printout will be considered.

B. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement. .

1.7 APPLICATIONS FOR PAYMENT

A. Submit (5) five copies of each application on AIA Form G702 and G703.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Payment Period: Monthly.

1.8 CHANGE PROCEDURES

A. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's maximum price quotation or Contractor's request for a Change Order as approved by Architect.

B. Change Order Forms: AIA G701. Equivalent electronic form may be used.

1.9 COORDINATION

A. Coordinate scheduling, submittals, and Work of the various sections of specifications to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify utility requirement characteristics of operating equipment are compatible with building utilities.

C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable.

D. In finished areas, conceal pipes, ducts, and wiring within the construction.

1.10 FIELD ENGINEERING

A. Employ a Land Surveyor to locate a reference datum and protect survey control and reference points.

B. Establish elevations, lines, and levels and certify that elevations and locations of the Work conform with the Contract Documents.

C. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

1.11 PRECONSTRUCTION PREINSTALLATION MEETINGS

A. Owner will schedule a preconstruction meeting after Notice to Proceed for all affected parties.

B. When required in individual specification section, convene a preinstallation meeting at Project site prior to commencing work of the section.

1.12 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work on at least monthly intervals.

B. Preside at meetings, record minutes, and distribute copies within two days to those affected by decisions made.

1.13 EQUIPMENT ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Motors: NEMA MG1 Type; specific motor type is specified in individual specification sections.

B. Wiring Terminations: Terminal lugs to match branch circuit conductor; size terminal lugs to NFPA 70.

C. Cord and Plug: Minimum 6 foot cord and plug including grounding connector; cord of longer length is specified in individual sections.

1.14 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching new Work; restore Work with new Products.

B. Submit written request in advance of cutting or altering structural or building enclosure elements.

C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:

1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install or correct ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Cut masonry and concrete materials using masonry saw or core drill. Restore Work with new Products in accordance with requirements of Contract Documents.

E. Cut from finished side of surfaces to concealed side.

F. Fit Work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. Refinish patched surfaces to match adjacent finishes. Extend refinishing to entire contiguous surface containing patched area to completely conceal evidence of patching.

1.15 SUBMITTAL PROCEDURES

A. Submittal form to identify Project, Contractor, Subcontractor or supplier; and pertinent Contract Document references.

B. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

C. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

D. Revise and resubmit submittals as required; identify all changes made since previous submittal.

E. Distribute copies of approved submittals to job site, suppliers, subcontractors and others involved in the work as needed. Do not allow work to progress without copies of approved submittals.

1.16 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial progress schedule in duplicate within 15 days after date of Owner-Contractor Agreement for Architect review.

B. Submit revised schedules with each Application for Payment, identifying changes since previous version. Indicate estimated percentage of completion for each item of Work at each submission.

C. Submit a horizontal bar chart with separate line for each major section of Work or operation, identifying first workday of each week.

1.17 PROPOSED PRODUCTS LIST

A. Within 30 days after date of Owner-Contractor Agreement, submit list of major Products proposed for use, with name of manufacturer, trade name, and model number of each product.

1.18 PRODUCT DATA

A. Product Data For Review:

1. Submitted to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in CONTRACT CLOSEOUT.

B. Product Data For Information:

1. Submitted for the Architect's benefit as contract administrator or for the Owner.

C. Product Data For Project Close-out:

1. Submitted for the Owner's benefit during and after project completion.

D. Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Architect.

E. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this project.

1.19 SHOP DRAWINGS

A. Shop Drawings For Review:

1. Submitted to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
2. After review, produce copies and distribute in accordance with the SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.

B. Shop Drawings For Information:

1. Submitted for the Architect's benefit as contract administrator or for the Owner.

C. Shop Drawings For Project Close-out:

1. Submitted for the Owner's benefit during and after project completion.

D. Submit in the form of one reproducible transparency and three opaque reproductions which will be retained by Architect.

1.20 SAMPLES

A. Samples For Review:

1. Submitted to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
2. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in CONTRACT CLOSEOUT.

B. Samples For Information:

1. Submitted for the Architect's benefit as contract administrator or for the Owner.

C. Samples For Selection:

1. Submitted to Architect for aesthetic, color, or finish selection.
2. Submit samples of finishes from the full range of manufacturers' standard colors, in custom colors selected, textures, and patterns for Architect selection.
3. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in CONTRACT CLOSEOUT.

D. Submit samples to illustrate functional and aesthetic characteristics of the Product.

E. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect's selection.

1.21 MANUFACTURER INSTALLATION INSTRUCTIONS

A. For components of work in all individual specification sections, submit manufacturer printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing of all materials and Products, in quantities specified for Product Data.

1.22 MANUFACTURER CERTIFICATES

A. For components of work in all individual specification sections, submit certifications by manufacturer to Architect for all materials and Products, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.23 QUALITY ASSURANCE - CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality. Immediately notify Owner of any deviations from specified quality of Work as soon as they are identified.

B. Comply with manufacturers' instructions.

C. Comply with specified standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

D. Cost of correction of defective, rejected, or substandard quality Work shall be charged to Contractor.

1.24 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions and assumption of sole responsibility for results.

B. Verify that utility services are available, of the correct characteristics, and in the correct location.

1.25 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

1.26 TOLERANCES

A. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply fully with manufacturers' tolerances.

1.27 REFERENCES

A. Conform to reference standards by date of issue current as of date of Contract Documents.

B. Should specified reference standard conflict with Contract Documents, request clarification from Architect before proceeding.

C. Reference Standards have the same force and effect as if bound herein and include, but are not limited to, publications of the following:

1. American National Standards Institute (ANSI).
2. American Concrete Institute (ACI).
3. American Institute of Steel Construction (AISC).
4. American Plywood Association (APA).
5. American Society for Testing and Materials (ASTM).
6. American Society of Civil Engineers (ASCE).
7. American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc. (ASHRAE).
8. American Society of Mechanical Engineers (ASME).
9. Americans with Disabilities Act (ADA).
10. American Water Works Association (AWWA).
11. American Welding Society (AWS).
12. Building Officials and Code Administrators International Inc. (BOCA).
13. Consumer Product Safety Commission (CSPC).
14. Factory Mutual (FM).
15. National Electric Manufacturers Association (NEMA).
16. National Fire Protection Association (NFPA).
17. Underwriters Laboratories, Inc. (UL).

18. US Department of Commerce, National Bureau of Standards (NBS).
19. Federal, State and local codes and regulations.

1.28 CORRELATION AND INTENT

A. Contract Documents are complementary, and elements of the Work required by one shall be as binding as if required by all. The intent of the Documents is to include all items necessary for the proper execution and completion of the Work.

B. Contract Documents are based on information taken from the original contract documents and limited field investigations. Existing conditions indicated on the drawings reflect the original intent, and are assumed to be correct. Bids should be based on the information shown, but conditions in the field may vary from those indicated on drawings. If discrepancies are discovered between indicated and actual conditions, notify Architect before proceeding with Work.

C. Where discrepancies or conflicting requirements exist among the Contract Documents and/or applicable reference standards, the Contractor shall assume the greater quantity or quality level, normally the most costly. Refer conflicting requirements to the Architect/Engineer for interpretation before proceeding.

1.29 MOCK-UPS

A. Construct mock-ups as indicated in individual specification sections.

B. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.

C. Accepted mock-ups are representative of the quality required for the Work.

D. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.

1.30 INSPECTION AND TESTING LABORATORY SERVICES

A. Owner will appoint, employ, and pay for specified services of an independent firm to perform inspection and testing.

B. The independent firm will perform inspections, tests, and other services as required.

C. Cooperate with independent firm; furnish samples as requested.

D. Re-testing required because of non-conformance to specified requirements will be charged to the Contractor.

1.31 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions and to initiate instructions when necessary.

B. Report observations and site decisions or instructions that are supplemental or contrary to manufacturers' written instructions.

1.32 TEMPORARY ELECTRICITY

A. Cost: Contractor to provide and pay for power service required from source.

B. Provide power outlets for construction operations, branch wiring, distribution boxes, and flexible power cords as required.

1.33 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain temporary lighting for construction operations.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Permanent building lighting may be utilized during construction. Repair, clean, and replace lamps at end of construction.

1.34 TEMPORARY HEAT

A. Provide heating devices and heat as needed to maintain specified conditions for construction operations.

B. Pay cost of energy used.

C. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

D. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.35 TEMPORARY VENTILATION

A. Ventilate work areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

B. Take adequate measures to ensure that dust, fumes, vapors or gases do not enter occupied areas of building.

1.36 TELEPHONE SERVICE

A. Provide, maintain and pay for telephone and facsimile service to field office at time of project mobilization. Allow Architect and Owner incidental use.

1.37 TEMPORARY WATER SERVICE

A. Provide, maintain and pay for suitable quality water service required.

1.38 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required sanitary facilities and enclosures. Existing facilities may not be used.

B. Maintain in clean and sanitary condition.

1.39 BARRIERS AND FENCING

A. Provide barriers adequate to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage.

B. Provide adequate protection devices to prevent injury to residents and guests from construction operations.

1.40 WATER CONTROL

A. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Provide erosion control measures acceptable to governing authorities.

1.41 EXTERIOR ENCLOSURES

A. Provide temporary weather tight closures to exterior openings to permit acceptable living conditions for residents and protection of the Work. Remove temporary closures as soon as permanent closures are installed.

1.42 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as required to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.

B. Maintain fire ratings as required with temporary enclosures.

C. Paint surfaces exposed to view from Owner occupied areas, or otherwise finish to satisfy Owner.

1.43 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Prohibit traffic or storage upon waterproofed or roofed surfaces.

1.44 SECURITY

A. Provide security measures and facilities to protect Work and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.45 ACCESS AND EGRESS

A. Maintain safe access to main entrance and required means of egress from the building at all times for residents, guests and Owner's personnel.

B. Cooperate fully with emergency services personnel to allow unrestricted access to the building at all times.

C. Maintain full access to all emergency systems, including fire department sprinkler and standpipe connections at all times. Cooperate fully with fire department personnel.

1.46 ACCESS ROADS

A. Construct and maintain temporary roads or access lanes as required accessing public thoroughfares to serve construction area.

B. At completion of construction, remove temporary roads or access lanes and restore lawns, landscaping and paving to original condition.

1.47 PARKING

A. Arrange for temporary parking areas to accommodate construction personnel.

1.48 PROGRESS CLEANING AND WASTE REMOVAL

A. Collect and maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition at all times.

1.49 PROJECT IDENTIFICATION

A. Provide an 8 foot wide x 4 foot high project sign of exterior grade plywood and wood frame construction, painted, to Architect's design and colors.

B. Erect on site at location, established by Owner.

1.50 FIELD OFFICES AND SHEDS

A. Office: Weather tight, with lighting, electrical outlets, heating, cooling and ventilating equipment, and equipped with sturdy furniture and drawing display table.

B. Provide space for Project meetings, with table and chairs to accommodate 8 persons.

1.51 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials prior to Substantial Completion review.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.52 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components specifically identified for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by the Contract Documents.

C. Provide interchangeable components of the same manufacture for components being replaced.

1.53 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

A. Transport, handle, store, and protect Products in accordance with manufacturer's instructions.

1.54 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

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

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

1.55 SUBSTITUTIONS

A. Architect will consider requests for Substitutions only within 15 days after date of Owner-Contractor Agreement. .

B. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

C. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.

D. Conditions: Substitutions will be considered under the following conditions:

1. Revisions to the Contract Documents are not required.
2. Proposed changes are in keeping with the intent of the Contract Documents.
3. The specified product or construction method cannot be provided within the Contract Time, if not due to failure by the Contractor to pursue the work promptly.
4. The specified product or construction method cannot receive approval by governing authorities, and the substitution can be approved.
5. A substantial advantage is offered to the Owner in terms of cost, time or maintenance.
6. The specified product or construction method is not compatible with other materials, and the substitution is compatible.
7. The specified product or construction method cannot receive a required warranty, and the substitution can be warranted.
8. The Contractor will bear the impact of additional cost or time needed to provide the substitution, including design services.
9. The Contractor will be responsible for coordinating the substitution with other Work.

1.56 STARTING SYSTEMS

A. Provide seven days notification prior to start-up of each item.

B. Ensure that each piece of equipment or system is ready for operation.

C. Execute start-up under supervision of responsible persons in accordance with manufacturers' instructions.

D. Submit a written report that equipment or system has been properly installed and is functioning correctly.

1.57 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of Substantial Completion.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at designated location.

1.58 SYSTEM TESTING, ADJUSTING, AND BALANCING

A. Contractor will appoint, employ, and pay for services of an independent firm to perform testing, adjusting, and balancing of building systems.

B. Reports will be submitted by the independent firm to the Architect indicating observations and results of tests and indicating compliance or non-compliance with specified requirements and with the requirements of the Contract Documents.

C. Cooperate with independent firm; furnish assistance as requested.

D. Re-testing required because of non-conformance to specified requirements will be charged to the Contractor.

1.59 CONTRACT CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect's inspection.

B. Submit final Application for Payment identifying total adjusted Contract Sum/Price, previous payments, and amount remaining due.

1.60 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces. Polish glass and reflective surfaces.

C. Clean debris from site, roofs, gutters, downspouts, and drainage systems.

D. Replace filters of operating equipment.

E. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.61 ADJUSTING

A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.62 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of Contract Documents to be utilized for record documents.

B. Record actual revisions to the Work. Record information concurrent with construction progress.

C. Specifications: Legibly mark and record at each Product section a description of actual Products installed.

D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction.

E. Submit two copies of record documents to Owner.

1.63 OPERATION AND MAINTENANCE DATA

A. Submit two sets prior to final inspection, bound in 8-1/2 x 11 inch text pages, three D side ring binders with durable covers.

B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project.

C. Internally subdivide the binder contents with permanent page dividers, logically organized, with tab titles clearly printed under reinforced laminated plastic tabs.

1.64 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide Products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.

B. Deliver to Project site and place in location as directed; obtain receipt prior to final payment.

1.65 WARRANTIES

A. Provide duplicate notarized copies.

B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.

C. Submit prior to final Application for Payment.

2 PART 2 PRODUCTS: Not Used.

3 PART 3 EXECUTION Not Used.

END OF SECTION

SECTION 02225
SELECTIVE DEMOLITION

1 PART 1 GENERAL

1.1 SUMMARY

A. Section includes demolition of designated portions of structures; removal of masonry veneers, windows, roofing; and removing designated building equipment and fixtures; removing designated partitions and components.

1.2 SUBMITTALS

A. Shop Drawings and Schedule: Describe demolition, removal procedures, sequence and schedule.

2 PART 2 PRODUCTS: NOT USED

3 PART 3 EXECUTION

3.1 PREPARATION

A. Provide, erect, and maintain temporary barriers, protection devices and security measures as required by local authorities and for adequate protection of residents, guests and Owner's personnel.

B. Notify Owner and adjacent owners of work which may affect their property, potential noise, utility outage, or disruption, in accordance with procedures described in Contract.

C. Prevent movement or settlement of structures. Provide bracing and shoring as required.

D. Protect existing structures and site improvements which are not to be demolished.

E. Protect existing items which are not indicated to be removed.

F. Mark buried utility locations.

3.2 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent structures and municipal property.

B. Conduct operations with minimum interference to public or private accesses. Maintain unrestricted access to emergency systems, including fire department sprinkler and standpipe connections, at all times.

C. Maintain protected access to the building main entrance and all required means of egress at all times for residents, guests, Owner's personnel and emergency services personnel. Do not close or obstruct roadways or sidewalks without permits.

D. Cease operations immediately if any portion of structures appear to be in any kind of danger, or pose any threat to residents, guests, Owner's or Contractor's personnel. Immediately notify authority having jurisdiction, Owner and Architect/Engineer.

3.3 SELECTIVE DEMOLITION

A. Disconnect and remove designated utilities.

B. Demolish components indicated in an orderly and careful manner.

1. Remove portions of masonry veneer as indicated.
2. Remove balcony handrails as indicated.
3. Remove existing windows and doors as indicated.
4. Disassemble, remove and store existing greenhouse for reinstallation.

C. Remove concrete slabs on grade as indicated.

D. Backfill areas excavated, open pits and holes caused as a result of demolition with fill materials. Backfill and compact fill materials as specified in Section 02300.

E. Rough grade and compact areas affected by demolition to maintain site grades and contours.

F. Protect existing supporting structural members and components indicated to remain.

3.4 CLEAN UP

A. Remove all demolished materials from site as work progresses. Do not allow demolished materials to accumulate on site.

B. Leave areas of work in clean condition.

END OF SECTION

SECTION 03450

ARCHITECTURAL PRECAST CONCRETE

1. PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. General Conditions, Supplementary Conditions and Division 1 - General Requirements apply to Work of this Section.

1.2 SUMMARY

A. Section Includes: Plant-precast architectural concrete Work shown and specified.

B. Substitutions: Submit in accordance with requirements of Section 01001.

1.3 REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO).

B. American Concrete Institute (ACI).

1. ACI 318 - "Building Code Requirements for Reinforced Concrete."
2. ACI 533 - "Guide for Precast Concrete Wall Panels."

C. Architectural Precast Association (APA).

D. American Society for Testing and Materials (ASTM).

1. A 36 - "Specification for Carbon Structural Steel."
2. A 47 - "Specification for Ferritic Malleable Iron Castings."
3. A 123 - "Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products."
4. A 153 - "Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware."
5. A 185 - "Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement."
6. A 283 - "Specification for Low and Intermediate Tensile Strength Carbon Steel Plates."
7. A 307 - "Specification for Carbon Steel Bolts and Studs 60,000 PSI Tensile Strength."
8. A 325 - "Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength."
9. A 416 - "Specification for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete."
10. A 496 - "Specification for Steel Wire, Deformed, for Concrete."
11. A 500 - "Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes."
12. A 563 - "Specification for Carbon and alloy Steel Nuts."
13. A 572 - "Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel."
14. A 615 - "Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement."
15. A 666 - Specification for Austenitic Stainless Steel, Sheet, Strip, Plate, and Flat Bar."

16. A 767 - "Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement."
17. A 934 - "Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars."
18. C 33 - "Specification for Concrete Aggregates."
19. C 150 - "Specification for Portland Cement."
20. C 260 - "Specification for Air-Entraining Admixtures for Concrete."
21. C 330 - "Specification for Lightweight Aggregates for Structural Concrete."
22. C 404 - "Specification for Aggregates for Masonry Grout."
23. C 494 - "Specification for Chemical Admixtures for Concrete."
24. C 979 - "Specification for Pigments for Integrally Colored Concrete."
25. C 1107 - "Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)."
26. C 1240 - "Specification for Silica Fume for Use in Hydraulic-Cement Concrete and Mortar."
27. D 412 - "Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers - Tension."
28. F 593 - "Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs."

E. American Welding Society (AWS).

1. AWS D1.1 - "Structural Welding Code."

F. Cement and Concrete Reference Laboratory (CCRL).

G. Concrete Reinforcing Steel Institute (CRSI).

1. "Manual of Standard Practice."

H. Department of Defense (DOD).

I. Precast/Prestressed Concrete Institute (PCI).

1. MNL 117 - "Manual for Quality Control."
2. MNL 120 - "Design Handbook."

J. Steel Structures Painting Council (SSPC).

1. "Painting Manual."

K. American Institute of Steel Construction (AISC)

1. "Manual of Steel Construction

1.4 SYSTEM DESCRIPTION

A. Performance Requirements: Comply with BOCA National Building Code, municipal building codes, regulations of other governing agencies having jurisdiction and as follows: (Some or all of the following performance requirements may apply, depending on the type and use of precast units and the nature of the structure.)

1. Wind Loads
2. Seismic forces
3. Building dynamics: thermal, live, impact or concentrated loads, structural deflection, story drift.

1.5 SUBMITTALS

A. Product Data: Include color pigments, admixtures, steel reinforcing.

B. Shop Drawings

1. Show in-place location, fabrication details, plans, elevations, anchorages, reinforcement, connection details and methods, dimensions, finishes, relationships to adjacent materials, and erection and placement.

2. Show identification marks, coordinated to Shop Drawings, and date of manufacture on all units to facilitate hauling and erection.

3. Setting diagrams, templates, instructions and directions as required for installation.

C. Engineering Calculations: Engineering calculations sealed by an engineer licensed to practice in project state.

D. Samples: Nominal size 12 inch by 12 inch by appropriate thickness, of each type of unit and finished facing shown and specified for approval of quality, color, and texture of surface finish. Submit prior to fabrication.

E. Mix Design(s): Proposed concrete mix design for each type and color of concrete mix required including backup mix.

F. Test Reports: Include materials, compressive strength, and water absorption.

G. Certifications:

1. Fabricator's certification from APA and PCI, or applicable municipal certification.
2. Welders' AWS certification.

1.6 QUALITY ASSURANCE

A. Fabricator's Qualifications: Firm shall have a minimum of five (5) years experience in producing units similar to those required for this Project, with sufficient production capacity to produce and deliver required units without causing delay in the Work.

1. Fabricating plant shall be certified by one of the following:

a. Architectural Precast Association (APA).
b. Precast/Prestressed Concrete Institute (PCI), Group A1.
c. Applicable municipal building department.
d. Firms not certified by APA or PCI shall submit a written Quality Assurance/Quality Control program for approval.

B. Installer's Qualifications: Installer shall have a record of at least five (5) years of successful installation of units similar to those required for this Project.

C. Welder's Qualifications: Provide certification that welders to be employed in the Work are certified by AWS and applicable local building officials, and have been re-certified in the last 12 months.

D. Applicable Standards: As specified under Paragraph 1.3 References.

E. Production Samples or Mock-ups:

1. Provide color and texture range samples for approval prior to production start

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver units to the Project site in such quantities and at such times to ensure continuity of installation.

B. Avoid job site storage. When job site storage is required store in a manner to prevent physical damage and so that markings are visible.

C. Lift and support only at designated lifting or supporting points as shown on reviewed Shop Drawings.

D. Provide anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, templates, instructions, and directions as required for installation.

1.8 PROJECT CONDITIONS PROJECT CONDITIONS

A. Field Dimensions: General Contractor to furnish field measurements, if required, to precast fabricator.

2. PART 2 - PRODUCTS

2.1 MATERIALS

A. Concrete Materials:

1. Portland Cement: ASTM C 150, Type I or III, white or gray colors to achieve desired finish colors. Use only one brand, type, and color from the same mill. Gray cement maybe used for non-exposed backup mixes.
2. Aggregates: ASTM C 33, gradation may differ to achieve desired finish characteristics. Select coarse and fine aggregate colors and screen sizes to match approved sample(s). Verify that adequate supply, from one pit or quarry, for each type of aggregate is available for the entire Project. If possible obtain entire aggregate supply prior to starting Work, or have aggregate supply held in reserve by aggregate supplier.
3. Water: Potable. Clean, clear, and free from deleterious amounts of salts, acids, alkalis, organic materials, oils, detergents, or other matter that may interfere with color, curing, or strength of concrete.
4. Admixtures: Select to be compatible in specified mix.

    a. Air Entraining: ASTM C 260.
    b. Water Reducing: ASTM C 494, Type A, B, C, F, or G.
    c. Silica Fume: ASTM C 1240, for cement replacement for high performance concrete.
    d. Coloring Agent: ASTM C 979, compatible with other concrete materials.

B. Formwork:

1. Provide forms with acceptable form facing materials that are non-reactive with concrete or form release agents and will produce required finish surfaces.
2. Construct and maintain forms to produce precast concrete units of shapes, lines, and dimensions indicated, within specified tolerances.

C. Reinforcing Materials:

1. Reinforcing Bars: ASTM A 615, Grade 60, unless otherwise required to meet structural requirements. (Use galvanized reinforcing bars; ASTM A 767, hot-dip galvanized where concrete cover is less than 1-1/2 inches).
2. Steel Welded Wire Fabric: ASTM A 185, plain, cold drawn.
3. Pre-stressing Tendons: ASTM A 416, Grade 250 or 270, un-coated, 7 wire, low relaxation strand.

D. Connection Materials:

1. Steel Shapes and Plates: ASTM A 36.
2. Malleable Iron Castings: ASTM A 47.
3. Carbon Steel Plates: ASTM A 283.
4. High Strength, Low Alloy Structural Steel: ASTM A 572.
5. Carbon Steel Structural Tubing: ASTM A 500, Grade B.
6. Anchor Bolts: ASTM A 307, carbon steel or ASTM A 325, high strength; bolts, nuts, and washers.
7. Welded Headed Studs: AWS D1.1, Type B.
8. Deformed Steel Wire Bar Anchors: ASTM A 496.
9. Finish for Steel Connection Materials:

    a. Hot-dip galvanize (ASTM A 123 or A 153) steel exposed to weather in final assembly.
    b. Shop Prime Remaining Steel Shapes: SSPC-Paint 25.
    c. Anchor Bolts, Nuts, Washers, Cadmium Plated: ASTM A 563, Grade C.
    d. Hot-dip galvanize (ASTM A 153) setting bolts or projecting steel in masonry applications.
    e. Galvanizing Repair Paint: DOD-P-21035A or SSPC-Paint 20.
    f. Welding Electrodes: Comply with AWS Standards.

E. Bearing Pads: Elastomeric pads, AASHTO M251; ASTM D 412.

F. Grout Materials:

1. Cement Grout: Cement ASTM C 150; sand ASTM C 404; proportions 1:2.5 by volume, minimum water for placement and hydration.
2. Non-Shrink Grout: ASTM C 1107.

2.2 MIXES

A. Design mixes for each type of concrete specified may be prepared by an independent testing agency or by architectural precast manufacturing plant personnel at precast fabricator's option, provided requirements are met.

B. Proportion mixes by either testing agency trial batch or field test data methods in accordance with ACI 211.1, using materials to be used on the Project, to provide normal weight concrete with properties as follows:

1. Compressive Strength: 5,000 psi when tested in accordance with ASTM C 39.
2. Maximum water cement ratio 0.40 at point of placement.

3. Add air-entrainment admixture to result in air content at point of placement complying with ACI 533 requirements.
4. List other admixtures and recommended quantities.
5. Water absorption maximum 6% (by weight) when tested in accordance with ASTM C 642.

2.3 FABRICATION

A. General:

1. Fabricate precast concrete units with manufacturing and testing procedures, quality control recommendations, and dimensional tolerances as specified in ACI 533, unless more stringent requirements are shown or specified.
2. Fabricate units straight, smooth and true to size and shape, with exposed edges and corners precise and square, unless otherwise indicated.

B. Cast openings larger than 10 inches in any dimension according to locations shown on Shop Drawings. Smaller holes may be field cut when approved by Architect.

C. Reinforcement: Comply with CRSI "Manual of Standard Practice" and ACI 318 recommendations. Reinforce architectural precast concrete units to resist handling, transportation, and erection stresses, and to comply with specified performance criteria.

D. Pre-tension tendons for units in compliance with ACI-533.

E. Cast-In Items: Provide embedded anchors, inserts, steel shapes, and lifting devices as shown on reviewed Shop Drawings. Window connections are best made by field drilled inserts. Firmly hold cast items in place by jigs, strongbacks, or other approved means.

F. Comply with ACI-533 requirements for measuring, mixing, transporting, and placing concrete. Place facing mix to a thickness of the greater of 1 inch or 1.5 times the maximum aggregate size. Place back-up concrete to ensure bond with face concrete.

G. Consolidate concrete using equipment and procedures complying with ACI 533.

H. Permanently mark units with pick-up points as shown on reviewed Shop Drawings. Imprint casting date and
piece mark on a surface to be concealed from view in the finished structure.

I. Cure concrete in accordance with ACI 533 requirements.

J. Discard units that are warped, cracked, broken, spalled, stained, or otherwise defective unless repairs are approved by the Architect and meet specified requirements. Refer to ACI 533 for product finish requirements unless otherwise shown or specified.

K. Fabrication Tolerances: Fabricate to tolerances listed in ACI 533. (More stringent tolerances, if required, will cause increased cost).

2.4 FINISHES

A. Light Acidwash # 224650

2.5 SOURCE QUALITY CONTROL

A. Inspect and test architectural precast concrete in accordance with ACI 533.

B. Producers certified by APA or PCI may conduct their own Quality Control operations with reports to designated authorities.

C. Non-certified producers shall furnish and pay for reports by an independent Testing Laboratory, approved by the Owner as specified in paragraph 2.6.D.

D. The Owner may retain an independent Testing Laboratory to evaluate fabricator's quality control and testing methods. Testing Laboratory shall be certified by CCRL or similar National authority. Fabricator shall allow Testing Laboratory access to all operations pertinent to the Project.

E. Defective Work: Discard units that do not conform to requirements as shown or specified. Replace with units which meet requirements.

3. PART 3 - EXECUTION

3.1 EXAMINATION

A. Field Dimensions: Furnish field dimensions to fabricator as required.

B. Examine substrates and conditions for compliance with requirements for installation, tolerances, true and level bearing surfaces, and other conditions affecting performance of architectural precast concrete units. Do not proceed with installation until unsatisfactory conditions have been corrected.

C. Do not install units until supporting structure has been completed (has attained minimum allowable design compressive strength).

3.2 ERECTION

A. Erection shall be by persons experienced and trained in placement and securing of architectural precast concrete units.

B. Erect level, plumb, and true to line. Do not allow cumulative dimensional errors to develop. Adjustments such as shimming which would place additional stress on units will not be permitted. Adhere to dimensional tolerances in accordance with PCI recommendations. Erect and secure in a manner to prevent damage to units or units in place. Replace any damaged units.

C. Lift and handle precast using lift points and embeds as shown on precast shop drawings.

D. Erection Tolerances:

1. Erect within tolerances listed in ACI-533.
2. Erect to conform with structure tolerances listed in ACI-533.
3. Where two stage joint seal is required, sequence with sealant applicator to ensure that sealant, gaskets, and similar items required for interior side seal are installed concurrently with installation of precast units.

E. Joint Sealants: As specified in Section 07900.

3.3 REPAIR

A. When approved by Architect, repair exposed surfaces of units to match color, texture, and uniformity of surrounding units.

B. Remove and replace damaged units when repairs do not meet requirements.

3.4 CLEANING

A. Clean exposed surfaces of units after erection if soiled or stained.

1. Wash and rinse according to architectural precast concrete fabricator's recommendations. Protect other Work from damage while cleaning.
2. Do not use cleaning materials or methods that change the appearance of architectural precast concrete finishes. Test clean a small area to verify adequacy and safety of materials and methods.
3. Leave in condition for application of water repellents specified in Section 07190.

3.5 PROTECTION

A. Protect finished surfaces from soiling or damage.

END OF SECTION 03450

SECTION 04100

MORTAR AND MASONRY GROUT

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Mortar and grout for masonry.

1.3 SUBMITTALS

A. Samples: Submit two samples of mortar, illustrating mortar color and color range.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 and ACI 530.1.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

B. Hot Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Hot Weather Masonry Construction.

2 PART 2 PRODUCTS

2.1 MATERIALS

A. Portland Cement: ASTM C150, Type I gray color.

B. Mortar Aggregate: ASTM C144, standard masonry type.

C. Hydrated Lime: ASTM C207, Type S.

D. Mortar Color: Mineral oxide pigment color as selected.

E. Grout Aggregate: ASTM C404.

F. Water: Clean and potable.

G. Bonding Agent: Epoxy type.

H. Prism Strength: 1500 psi.

2.2 MORTAR MIXES

A. Mortar for Load Bearing Walls and Partitions: ASTM C270, Type M using the Property Method.

B. Mortar for Brick Veneer Walls: ASTM C270, Type M using the Property Method.

C. Mortar for Reinforced Masonry: ASTM C270, Type M using the Property Method.

2.3 MORTAR MIXING

A. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C270 C780.

B. Add mortar color in accordance with manufacturer's instructions.

C. Do not use anti-freeze compounds to lower the freezing point of mortar.

2.4 GROUT MIXES

A. Bond Beams, Engineered Masonry: 3,000 psi strength at 28 days; 8-10 inches slump; premixed type in accordance with ASTM C94 .

2.5 GROUT MIXING

A. Mix grout in accordance with ASTM C94.

B. Do not use anti-freeze compounds to lower the freezing point of grout.

2.6 MIX TESTS

A. Testing of Mortar Mix: In accordance with ASTM C780.

B. Testing of Grout Mix: In accordance with ASTM C1019.

3 PART 3 EXECUTION

3.1 INSTALLATION

A. Install mortar in accordance with ASTM C780

B. Work grout into masonry cores and cavities to eliminate voids. Do not displace reinforcement.

3.2 SCHEDULES

A. Exterior Face Brick Wall: Type M mortar, matching color of existing mortar.

B. Concrete Masonry Walls: Type M mortar.

END OF SECTION

SECTION 04300

UNIT MASONRY SYSTEM

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Concrete masonry units and face brick units, reinforcement, anchorage, and accessories.

1.3 SUBMITTALS

A. Product Data: Provide for concrete masonry units, face brick, flashings, fabricated wire reinforcement and veneer ties.

B. Samples: Submit four samples of face brick units of each type to illustrate color, texture and extremes of color range.

C. Mock-up: Construct mock-up wall panel in location as directed by Owner, not less than 8'x4' size, to fully illustrate construction details, including masonry bond, coursing, joints, flashings, etc., for approval of Owner and Architect. Maintain mock-up panel during construction operations. Remove mock-up panel upon substantial completion.

D. Extra Stock: Upon substantial completion, deliver to Owner's designated location a minimum of two pallets of field brick and one pallet of accent brick used in the project for Owner's future use.

1.4 REGULATORY REQUIREMENTS

A. Conform to applicable codes for requirements for fire rated, bearing wall and veneer masonry construction.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 and ACI 530.1.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

B. Hot Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Hot Weather Masonry Construction.

2 PART 2 PRODUCTS

2.1 CONCRETE MASONRY UNITS

A. Concrete Masonry Units: ASTM C90, Grade N , Type I - Moisture Controlled ; normal weight.

B. Size and Shape: Nominal modular size of 4x16x8 inches. Provide special units for 90 degree corners, bond beams, lintels, and bullnosed corners.

2.2 BRICK UNITS

A. Face Brick: ASTM C216, Grade SW, Type FBS, wirecut texture.

1. Field Brick: Mojave Mission as manufactured by Mutual Materials Co., Newcastle WA.
2. Accent Brick: #760, as manufactured by Richtex Brick Co., Columbia SC.

B. Size and Shape: Utility size, nominal modular size of 4x4x12 inches . Provide special units for 90 degree corners.

2.3 REINFORCEMENT AND ANCHORAGE

A. Reinforcement and Anchorage Manufacturers:

1. AA Wire Products Co.
2. Dur-O-Wal Inc.
3. Heckman Building Products Inc.
4. Hohmann & Barnard Inc.
5. Masonry Reinforcing Corp. of America.
6. National Wire Products Corp.

B. Single Wythe Joint Reinforcement: Truss type; steel wire, hot dip galvanized to ASTM A641 Class 3 after fabrication, 3/16 inch side rods with 9 gage cross ties.

1. Provide reinforcement with Type 304 Stainless Steel wire at balcony piers only.

C. Multiple Wythe Joint Reinforcement: Truss type; with moisture drip steel wire, hot dip galvanized to ASTM A641 Class 3 after fabrication, 3/16 inch side rods with 9 gage cross ties.

D. Reinforcing Steel: ASTM A615, 60 ksi yield grade, deformed billet bars, uncoated finish.

E. Veneer Ties: Formed steel wire, triangular shape, 3/16" diameter, adjustable, fabricated of ASTM A580 Type 304 stainless steel, with 12 gage sheet metal anchor section, fabricated of ASTM A167 Type 304 Stainless Steel.

1. Veneer Tie Fasteners: Zinc chromate organic coated hex head screws with neoprene washers, as recommended by tie manufacturer; Hilti Kwik-Cote, or equal.

F. Retrofit Repair Anchors: Dur-O-Wal 5100 series, Type 304 stainless steel.

2.4 MORTAR AND GROUT

A. Mortar and Grout: As specified in Section 04100.

2.5 FLASHINGS

A. Laminated Copper Flashings: 5 oz/sq ft sheet copper bonded to asphalt saturated fiberglass fabric.

1. Manufacturers:

a. Afco Products Inc.
b. Hohmann & Barnard Inc.
c. Sandell Manufacturing Co. Inc.
d. York Manufacturing Inc.

B. Lead Coated Copper Flashings: 16 oz lead coated copper, hemmed edge.

2.6 ACCESSORIES

A. Preformed Control Joints: Neoprene material. Provide with corner and tee accessories, cement fused joints.

B. Weeps: Preformed plastic weeps.

C. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials, recommended by masonry unit manufacturer.

3 PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that field conditions are acceptable and are ready to receive Work.

B. Coordinate placement of anchors supplied to other Sections.

3.2 COURSING

A. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

B. Concrete Masonry Units:
1. Bond: Running. .
2. Vertical Coursing: One unit and one mortar joint to equal 8 inches.
3. Mortar Joints: Concave.

C. Brick Units:
1. Bond: Running .
2. Vertical Coursing: Two units and two mortar joints to equal 8 inches.
3. Mortar Joints: Concave.

3.3 PLACING AND BONDING

A. Isolate masonry partitions from vertical structural framing members with a control joint as indicated.

3.4 WEEPS

A. Install weeps in veneer at 24 inches oc horizontally above through-wall flashing, above shelf angles and lintels and at bottom of walls,

3.5 CAVITY WALL

A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep holes.

3.6 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER

A. Install horizontal joint reinforcement 16 inches oc. Place joint reinforcement continuous in first and second joint below top of walls.

B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 12 inches each side of opening.

C. Masonry Back-Up: Install retrofit repair anchors in existing masonry at 16" oc horizontally, 24" oc vertically.

D. Stud Framed Back-Up: Secure wall ties and embed into masonry veneer at maximum 16 inches oc horizontally and 24 inches oc vertically. Place at maximum 4 inches oc each way around perimeter of openings, within 12 inches of openings

E. Reinforce joint corners and intersections with strap anchors 16 inches oc.

3.7 REINFORCEMENT AND ANCHORAGES - MULTIPLE WYTHE UNIT MASONRY

A. Install horizontal joint reinforcement 16 inches oc. Place joint reinforcement continuous in first and second joint below top of walls.

B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

C. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

D. Reinforce joint corners and intersections with strap anchors 16 inches oc.

3.8 MASONRY FLASHINGS

A. Extend flashings horizontally at foundation walls, above ledge or shelf angles and lintels, under parapet caps and at bottom of walls. Extend flashings to exterior of wall surfaces to ensure positive drainage.

B. Turn flashing up minimum 8 inches and seal under air and water infiltration barrier and sheathing over steel stud framed back-up.

C. Lap end joints and seal watertight.

D. Above wall openings, turn ends of flashing up to form dam and seal watertight.

E. Turn flashing, fold, and seal at corners, bends, and interruptions.

3.9 LINTELS

A. Install loose steel lintels over openings

B. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled.

C. Maintain minimum 8 inch bearing on each side of opening.

3.10 GROUTED COMPONENTS

A. Reinforce bond beam and pilasters as detailed

B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

C. Place and consolidate grout fill without displacing reinforcing.

D. At bearing locations, fill masonry cores with grout for a minimum 12 inches either side of opening.

3.11 CONTROL AND EXPANSION JOINTS

A. Do not continue horizontal joint reinforcement through control and expansion joints.

B. Install preformed control joint device in continuous lengths. Seal end, butt, and corner joints in accordance with manufacturer's instructions.

C. Size control joint in accordance with Section 07900 for sealant performance.

D. Form expansion joint as detailed.

3.12 BUILT-IN WORK

A. As work progresses, install built-in metal door and glazed frames fabricated metal frames, wood nailing strips, anchor bolts plates and other items to be built in the work furnished by other Sections.

B. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.

3.13 TOLERANCES

A. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

B. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft ; 1/2 inch in 30 ft.

3.14 CUTTING AND FITTING

A. Cut and fit for chases, pipes, conduit, sleeves, and grounds Coordinate with other sections of work to provide correct size, shape, and location.

3.15 CLEANING

A. Remove excess mortar and mortar smears as work progresses.

B. Clean soiled surfaces with cleaning solution.

END OF SECTION

SECTION 05120

STRUCTURAL STEEL

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The drawings and general conditions of the contract including General and Supplementary Conditions and other Division 1 Specification sections apply to work of this section.

B. Examine all other sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK:

A. Extent of structural steel work is shown on drawings and includes field modification of existing relieving angles, fabrication and installation of supplemental steel at entry canopy and fabrication and erection of balcony support posts.

B. Structural steel is that work defined in AISC "Code of Standard Practice" and as otherwise shown on drawings.

~~C. Balcony Handrail Assemblies are specified in Metal Fabrications, Section 05500.~~

1.03 QUALITY ASSURANCE:

A. Codes and Standards: Comply with provisions of the following, except as otherwise indicated:

1. AISC "Code of Standard Practice for Steel Buildings and Bridges-1986. "Paragraph 4.2.1 of the above code is hereby modified by deletion of the following sentence: "This approval constitutes the Owner's acceptance of all responsibility `for the design adequacy of any detail configuration of connections developed by the Fabricator as part of his preparation of these shop drawings."

2. AISC "Specification for Structural Steel Buildings - Allowable Stress Design and Plastic Design", including "Commentary" and Supplements thereto as issued.

3. AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" approved by the Research Council on Structural Connections of the Engineering Foundation.

4. AWS D1.1 - 90 "Structural Welding Code" - Steel.

5. AWS D1.3 - 89 "Structural Welding Code" - Sheet Steel.

6. ASTM A 6 "General Requirements for Delivery of Rolled Steel Plates,Shapes, Sheet Piling and Bars for Structural Use."

B. Qualifications for Welding Work: Qualify welding processes and welding operators in accordance with AWS D1.1 "Standard Qualification Procedure."

1. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests.

2. If recertification of welders is required, retesting will be the Contractor's responsibility.

E. Fabricator Qualifications: Fabricator must be a member of the American Institute of Steel Construction (AISC), be certified in Category I of the AISC Quality Certification Program, or be a member of the Structural Steel Fabricators of New England (SSFNE). Provide certification of at least one of the above.

1.04 SUBMITTALS

A. Product Data: Submit producer's or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).

1. Structural steel certified mill reports for each grade of steel covering chemical and physical properties and yield strengths.

2. High-strength bolts (each type), including nuts and washers.

3. Structural steel primer paint.

4. Structural steel top coat paint.

5. Structural steel Hot-Dipped Galvanizing.

B. Shop Drawings:

1. General: Submit shop drawings, including complete details and schedules for fabrication and assembly of structural steel members, procedures and diagrams. Use of structural Contract Documents as erection or detail drawings will not be permitted.

a. Include details of cuts, connections, camber, holes and other pertinent data.

b. Indicate welds by standard AWS symbols, and show size, length and type of each weld.

c. Provide setting drawings, templates and directions for installation of anchor bolts and other anchorages to be installed by others.

3. Shop Drawing Review: Review of the shop drawings will be made for the size and arrangement of members and the strength of connections. Conformance of the Shop Drawings to the Contract Documents remains the responsibility of the General Contractor. This review in no way relieves the General Contractor of this responsibility.

4. Test Reports: Submit copies of reports of tests conducted on shop and field bolted and welded connections. Include data on type(s) of test conducted and test results.

1.05 DELIVERY, STORAGE AND HANDLING:

A. Deliver materials to site at such intervals to insure uninterrupted progress of work.

B. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time to not delay work.

C. Store materials to permit easy access for inspection and identification. Keep steel members off ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration.

D. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

PART 2 PRODUCTS

2.01 MATERIALS:

A. Structural Steel Angle Shapes: ASTM A 36

B. Structural Steel Plates and Bars: ASTM A 36

C. Cold-Formed Steel Tubing: ASTM A 500, Grade B, Fy = 46 ksi.

D. Steel Pipe: ASTM A 53, Grade B.

E. Drilled Concrete Anchors: Hilti HVA Adhesive Anchors installed per manufacturer's recommendations or approved equal.

F. High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows:

1. Quenched and tempered medium-carbon steel bolts, nuts and washers, complying with ASTM A325, Type 1, hot-dipped galvanized.

G. Electrodes for Welding: E70XX and comply with AWS Codes.

H. Non Shrink Cement-Based Grout: Non-metallic, non-shrink, 5,000 psi 5-Star Grout by U.S.Grout Corp or equal.

I. Structural Steel Coatings: Use painting methods which result in full coverage of joints, corners, edges and exposed surfaces. Apply primer and top coat at a rate to provide dry film thickness given in this specification.

1. Existing in-place steel (embed plates and relieving angles) shall be field cleaned and painted in-place. Remove loose rust scale, mortar splatter, or other deposits. Clean steel in accordance with Steel Structures Painting Council (SSPC) SP-2 "Hand Tool Cleaning". Power tool clean to bare metal and apply two coats of TNEMEC Series 550 OmniThane at 2-3 mills dry film thickness per coat. Top coat with one coat of Tnemec Series 546 OmniThane at 3-4 mils dry film thickness.

2. New Steel at Balcony piers shall be Hot Dipped Galvanized per ASTM A 525. Shop fabricate pieces to the fullest extent possible prior to galvanizing. Mask base connection zone from galvanizing to facilitate field welding as shown in the drawings.

3. New steel relieving angles: Hot dipped galvanized per ASTM A525. Top coat with TNEMEC Series 66 Hi-Build Epoxoline, 4.0-6.0 mils dry film thickness. Color as selected by Architect.

J. Galvanizing touch-up: Cold galvanizing compound, brush applied, ZRC or approved equal.

2.02 FABRICATION:

A. Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings.

1. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.

2. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs and other defects.

B. Connections: Weld or bolt shop connections, as indicated.

1. Bolt field connections, except where welded connections or other connections are indicated.

2. Provide high-strength threaded fasteners for principal bolted connections, except where unfinished bolts are indicated.

C. High-Strength Bolted Connection: Install high-strength threaded fasteners in accordance with AISC "Specification for Structural Joints using ASTM A 325 Hot-Dipped Galvanized Bolts. Unless otherwise indicated, all bolted connections are to be tightened to the snug tight condition as defined by AISC.

D. Welded Construction: Comply with AWS Codes for procedures, appearance and quality of welds, and methods used in correcting welding work.

E. Holes for Other Work: Provide holes required for securing other work to structural steel framing, and for passage of other work through steel framing members, as shown on final shop drawings.

F. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

PART 3 EXECUTION

3.01 ERECTION:

A. General: Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

B. Surveys: Check elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices, before erection work proceeds, and report discrepancies to Architect. Do not proceed with erection until corrections have been made, or until compensating adjustments to structural steel work have been approved by Engineer of Record. Refer to Section 3.03 B.

C. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.

D. Field Assembly:

1. Set structural members accurately to lines and elevations indicated.

2. Align and adjust various members forming part of complete frame or structure before permanently fastening.

3. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly.

4. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

5. Level and plumb individual members of structure within specified AISC tolerance.

6. Splice members only where indicated and accepted on shop drawings.

7. Do not enlarge unfair holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.

E. Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members which are not under stress, as acceptable to the Engineer of Record. Finish gas-cut sections equal to a sheared appearance when permitted.

F. Paint Damage: Touch up shop applied paint whenever damaged or bare. Clean surface and touch up with shop primer and top coat as required by paint system.

3.02 QUALITY CONTROL:

A. General: Contractor is responsible for maintaining quality control in the field and for providing a structure that is in strict compliance with the contract documents.

1. Required inspection and testing services are intended to assist the Contractor in complying with the Contract Documents. These specified services,however, do not relieve the Contractor of his responsibility for compliance, nor are they intended to limit the Contractor's quality control efforts in the field.

B. Testing: Owner shall engage an independent testing agency to inspect all high-strength bolted and welded connections, to perform tests and prepare reports of their findings. All connections must pass these inspections prior to the installation of subsequent work which they support.

1. Testing agency shall conduct tests and state in each report which specific connections were examined or tested, whether the connections comply with requirements, and specifically state any deviations therefrom.

2. Contractor shall provide access for testing agency to places where structural steel work is being fabricated, produced or erected so that required inspection and testing can be accomplished.

3. Testing agency may inspect structural steel at plant before shipment. The Engineer, however, reserves right, at any time before final acceptance, to reject material not complying with specified requirements.

C. Inspection Requirements:

1. Bolted Connections: Inspect all bolted connections in accordance with procedures outlined in the AISC "Specification for Structural Joints using ASTM A325 or A490 Bolts."

a. Snug Tight Connections:

1. The inspector shall monitor the installation of bolts to determine that all plies of connected material have been drawn together and that the selected procedure is used to tighten all bolts.

2. If the inspector does not monitor the installation of bolts, he shall visually inspect the connection to determine that all plies of connected material have been drawn together and conduct tests on a sampling connection bolts to determine if they have been tightened to the snug tight condition. The test sample shall consist of 100% of the bolts in the connection.

2. Welding: Inspect and test during fabrication of structural steel assemblies, and during erection of structural steel all welded connections in accordance with procedures outline in AWSD1.1.

   a. Certify welders and conduct inspections and tests as required. Record types and location of defects found in work. Record work required and performed to correct deficiencies..

   b. Perform visual inspection of all welds. Welds deemed questionable by visual inspection, all partial and full penetration welds, and any other welds indicated on the drawings to be tested shall be tested by Ultrasonic Inspection, ASTM E 164.

   c. All welds deemed unacceptable shall be repaired and retested at the Contractor's expense

D. Nonconforming Work: Contractor shall be responsible for correcting deficiencies in structural steel work which inspections laboratory test reports have indicated to be not in compliance with requirements. Additional tests shall be performed, at the Contractor's expense, as may be necessary to show compliance of corrected work. Any costs associated with the Engineer's review and disposition of faulty works shall be borne by the Contractor.

END OF SECTION

SECTION 05400

COLDFORMED METAL FRAMING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The drawings and general conditions of the contract including General and Supplementary Conditions and other Division 1 Specification sections apply to work of this section.

B. Examine all other sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF THE WORK

A. Work specified within this Section includes, but is not necessarily limited to, the following:

1. Provide and install new steel stud structural framing system at exterior walls as noted on the Drawings.
2. Repairs to existing steel stud curtainwall system including the addition of clips and anchors at the top and bottom tracks, field welding existing jamb studs to join two separate studs, and the infill of existing openings to re-size the window or door R.O.
3. Providing and installing miscellaneous fasteners, hat channels, stiffeners, bridging, expansion joints, and accessories necessary to complete the work.

B. Related work specified elsewhere:

1. Exterior Gypsum Sheathing: Section 09260 - Gypsum Sheathing

1.04 QUALITY ASSURANCE

A. Materials and installation shall conform to recommendations of the following publications:

1. American Iron and Steel Institute Cold-Formed Steel Design Manual, Specification for the Design of Cold-Formed Steel Structural Members.

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

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

4. ASTM C 954, Standard specification for steel drill screws for the application of gypsum board or metal plaster bases to steel studs from 0.033 in. to 0.112 in. thickness.

5. ASTM C 955, Standard Specification for Load-Bearing Steel Studs, Runners, and Bracing or Bridging, for Screw Application of Gypsum Board and Metal Plaster Bases.

6. ASTM C 1007 Standard Specification for installation of load bearing steel studs and related accessories.

7. Standard Specification for installation of load bearing steel studs and related accessories.

8. ASCE 7-95 "Minimum Design Loads for Building and Other Structures,"

9. BOCA 1999 National Building Code

B. Maximum Allowable Deflections: Deflection limitations, (either horizontal or vertical), include the effect of studs only, not sheathing or facing material. Spans are measured in inches between the attachments to structural steel or concrete.

1. Supporting Glass Curtainwall or Brick Veneer: 1/600 of span.
2. EIFS system: 1/360 of span.

C. Design wind pressures: Design wind pressures calculated in accordance with BOCA 1999 or ASCE 7-95 for Components and Cladding, shall be used in the design of the exterior cold formed steel framing system.

D. Slip Track Tolerances: Where non-bearing light gage framing abuts the structure, provide a slip joint capable of accommodating the vertical movement of the structure. Slip joint gaps shall allow for 1/2" Live Load deflection of the supporting member. Minimum depth of slip track shall be 2". Minimum thickness shall be 14 gage. Alternately, provide top track vertical deflection clip, ETTC-1500 as manufactured by Superstud Building Products, Inc.

1.04 SUBMITTALS

A. Product Data: Submit Manufacturer's specifications and installation instructions for the following products. Include laboratory test reports and other data to show compliance with specifications.

1. Steel Studs
2. Anchors and anchor bolts
3. Self drilling screws
4. Welding Certificates of Installers with Photo ID
5. Welding Rods
6. Critical installation procedures

B. Mock-up:

1. General: Construct a full size mock-up of a sample single window opening framing to demonstrate the weld rod, amperage and technique to successfully weld two toe-to-toe jamb studs as indicated is required on the contract documents. Mock–up welding shall be scheduled to permit attendance of the owner, design team, Construction Manager and weld Inspector.

PART 2 PRODUCTS

2.01 FRAMING MEMBERS

A. Steel Studs:

1. Design Based on Dietrich Industries products. Other acceptable manufacturers include Marino/Ware,: Dietrich, Unimast, Superior.
2. Minimum stud at existing wall repairs or re-work shall be 6", 18 gage with 1.625" flange.

3. Minimum stud at new cold formed wall framing at entry and balcony infill over entry shall be 4", 18 gage with 1.625" flange

3. Provide channel-shaped load-bearing studs, channel-shaped joists, runners (tracks), blocking, lintels, clip angles, shoes, reinforcements, stiffeners, fasteners, and other accessories recommended by manufacturer for complete framing system.

4. Steel framing materials shall comply with ASTM A 446, A 570, or steel with the following minimum yield points:

   a. 16 ga. and heavier 50,000 psi

   b. 18 ga., 33,000 psi

   c. 20 ga., 33,000 psi.

5. Manufacture of studs, runners (track), and other framing members shall comply with ASTM C 955.

6. Framing components shall be galvanized per ASTM A 525, minimum G-60 coating.

B. Self-Drilling Screws: Design based on Hilti products. Other equal products may be submitted for review and possible acceptance.

1. Self-drilling screws shall comply with the Industrial Fastener Institute Standard for steel self-drilling and tapping screws (IFI-113). Provide Hilti *Kwik-Pro #10-16* screws with Zinc/Chromate/Organic coating"*KwikCote*" or approved equal.

2. Penetration through jointed materials shall not be less than three (3) exposed threads.

C. Concrete Screws: Design Based on Hilti Products. Concrete screws shall be "*Hilti Kwik-Con II*" with zinc plating. Buildex "*Tapcon*" screws with "*Climaseal*" coatings are also acceptable.

D. Powder Actuated Fasteners indicated as PAF on drawings shall be

1. In Concrete: Hilti 0.145 inch diameter Dome Head Nail, X-DNI, with ¾" embedment.

2. In Steel: Hilti 0.145 inch diameter, X-EDNI, with full penetration into steel.

PART 3 EXECUTION

3.01 INSTALLATION

A. Product Storage: Store studs, joists, track etc. on a flat plane. Material damaged (i.e. rusted, dented, bent or twisted) shall be discarded. Protect adhesives and sealants from freezing.

B. Construction Methods: Construction may be either piece-by-piece (stick-built), or by fabrication into panels either on or off site.

C. Material Fit up: All framing components shall be cut squarely or at an angle to fit squarely against abutting members. Members shall be held firmly in position until properly fastened. Prefabricated panels, if used, shall be square and braced against racking.

D. Attachment: Components shall be joined by self-drilling screws, so that connection meets or exceeds required design loads. Wire tying of framing components will not be permitted. Field welding will be permitted only where shown on the drawings or approved by the engineer.

E. Anchorage to Structure: Securely anchor studs and track to floor construction and overhead structure. Provide fasteners at a maximum of 16" on center. Provide slip joints where non-bearing vertical studs meet floor or roof structural steel, or as indicated on the drawings.

F. Welding: Shop and field welds shall conform to applicable AWS and AISI standards, and shall be flare bevel groove welds. Touch-up damage to galvanizing caused by welding with zinc-rich paint.

G. Tolerances: Finished installation shall be level and plumb within a tolerance of 1/8 inch in 10 feet horizontally and vertically. Maximum deviation from plan or section dimension shall not exceed 1/8 inch. Spacing of studs shall not be more than 1/8 inch from design spacing, providing that cumulative error does not exceed requirements of finishing materials.

END OF SECTION

SECTION 06100

ROUGH CARPENTRY

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Preservative treatment; sill gaskets.

B. Roof curbs and cants; blocking in wall openings; wood furring and grounds; electrical panel back boards, concealed wood blocking.

C. Air and water infiltration barrier.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with the following agencies:

1. Lumber Grading Agency: NLGA
2. Plywood Grading Agency: APA.

2 PART 2 PRODUCTS

2.1 LUMBER MATERIALS

A. Lumber Grading Rules: NLGA

2.2 SHEATHING MATERIALS

A. Wall Sheathing: Moisture resistant, Fire resistant, 5/8 inch thick, 48 x 96 inch sized sheets, square edges, silicone treated gypsum core, water repellant glass mat faces. Georgia Pacific "Dens-Glass", or equal.

B. Parapet Sheathing: 5/8" thick preservative treated plywood.

2.3 ACCESSORIES

A. Fasteners: Galvanized steel for exterior, high humidity, and treated wood locations, plain finish elsewhere.

B. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.

C. Air and water infiltration barrier: DuPont Tyvek Housewrap. No Substitutions.

D. Seam Sealing Tape: DuPont Tyvek Contractor's Tape.

E. Door and Window Flashing: DuPont Tyvek FlexWrap.

2.4 WOOD TREATMENT

A. Wood Preservative (Pressure Treatment): AWPA Treatment C1 using water borne CCA preservative with 0.40 percent retainage.

B. Shop preservative treat wood materials indicated in accordance with manufacturer's instructions.

3 PART 3 EXECUTION

3.1 FRAMING

A. Curb all roof openings except where curbs are provided. Construct curb members of single pieces per side.

3.2 SHEATHING

A. Install sheathing in strict accordance with manufacturer's instructions and requirements of BOCA National Building Code.

B. Secure wall sheathing with ends staggered, over firm bearing.

1. Fasten with 1-1/4" #6 bugle head self-tapping corrosion resistant screws, 8" oc at edges and at all intermediate supports.

3.3 AIR AND WATER INFILTRATION BARRIER

A. Install air and water infiltration barrier over exterior wall sheathing as instructed by manufacturer.

B. Overlap joints and seal with tape recommended by manufacturer.

C. Install flashing at door and window openings as recommended by manufacturer.

END OF SECTION

SECTION 06200

FINISH CARPENTRY

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Finish carpentry items, other than shop prefabricated casework; hardware and attachment accessories.

1.3 SUBMITTALS

A. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, finishes, and accessories.

B. Samples: Submit two samples illustrating wood grain and specified finish.

1.4 QUALITY ASSURANCE

A. Perform work in accordance with AWI Quality Standards, Custom Grade.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable code for fire retardant requirements.

2 PART 2 PRODUCTS

2.1 LUMBER MATERIALS

A. Softwood Lumber: PS 20; Graded in accordance with AWI Custom ; Eastern White Pine species, plain sawn, maximum moisture content of 15 percent; with mixed grain, of quality suitable for painted finish.

B. Hardwood Lumber: Graded in accordance with AWI Custom; White Birch species, quarter sawn, maximum moisture content of 11 percent; with vertical grain, of quality suitable for transparent finish.

C. Medium Density Fiberboard (MDF): Wood fibers with resin binders compressed and moulded under pressure to produce a medium density product, factory primed and suitable for opaque finishes.

2.2 SHEET MATERIALS

A. Softwood Plywood: PS 1 Grade C-D Graded in accordance with AWI veneer lumber core; fir face species, plan sliced cut.

B. Hardwood Plywood: HPVA HP-1 Grade A1; Graded in accordance with AWI veneer lumber core, type of glue recommended for application; white birch face species, rotary cut.

C. Wood Particleboard: ANSI A208.1 Type 1; AWI standard, composed of wood chips, sawdust, or flakes, made with waterproof resin binders, sanded faces.

D. Hardboard: AHA A135.4; Pressed wood fiber with resin binder; tempered grade.

2.3 ACCESSORIES

A. Fasteners: Size and type to suit application; hot dipped galvanized steel for exterior, high humidity and treated wood locations, plain finish elsewhere.

B. Wall Adhesive: Cartridge type, compatible with wall substrate, capable of achieving durable bond.

C. Primer: Alkyd primer sealer type.

2.4 WOOD TREATMENT

A. Wood Preservative by Pressure Treatment (PT Type): AWPA Treatment C2 using water borne preservative with 0.25 percent retainage.

B. Shop pressure treat wood materials requiring preservatives

C. Provide identification on fire retardant treated material.

D. Deliver fire retardant treated materials cut to required sizes. Minimize field cutting.

E. Kiln dry wood after pressure treatment to maximum 19 percent moisture content.

2.5 FABRICATION

A. Fabricate to AWI Custom standards.

2.6 SHOP FINISHING

A. Stain, seal, and varnish exposed to view surfaces scheduled to receive transparent finish. Brush apply only.

B. Seal internal surfaces and semi-concealed surfaces. Brush apply only.

C. Prime paint Seal surfaces in contact with cementitious materials.

3 PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Prime paint surfaces of items or assemblies in contact with cementitious materials, before installation.

3.2 INSTALLATION

A. Install work in accordance with AWI Custom quality standard.

B. Set and secure materials and components in place, plumb and level.

C. Install trim by nails.

D. Cover exposed edges of shelving with 3/8 inch thick hardwood edging.

E. Apply plastic laminate finishes with adhesive over entire surface. Apply laminate backing sheet on reverse side of plastic laminate finished surfaces.

3.3 PREPARATION FOR FINISH

A. Sand work smooth and set exposed fasteners. Apply wood filler in exposed fastener indentations.

B. Site Finishing: Refer to Section 09900.

3.4 SCHEDULE

A. Interior:

1. Window Sills: Clear White Birch, prepare for urethane finish.
2. Moldings, Bases, Casings, and Miscellaneous Trim: Clear white pine, prepare for paint finish.

END OF SECTION

SECTION 07180
TRAFFIC-BEARING WATERPROOF DECK SURFACING

1 PART 1.00 - 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 waterproof elastomeric traffic-bearing roof deck surfacing as scheduled on the drawings and/or specified herein.

1.3 RELATED WORK

A. Concrete - Section 03300.

1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product Data: Submit manufacturer's technical data, application instructions and general recommendations for the waterproof elastomeric traffic-bearing roof deck surfacing specified herein.

C. Samples for initial selection purposes in form of manufacturer's color charts showing full range of colors and finishes available.
   1. Submit 2-1/2" x 4" samples of color chips from color chart selection designated by the Architect.

D. Material certificates signed by manufacturer certifying that the waterproof elastomeric traffic-bearing roof deck surfacing complies with requirements specified herein.

E. Maintenance Instructions: Submit manufacturer's written instructions for recommended maintenance practices.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer or applicator who has specialized in installing waterproof deck covering system types similar to that required for this Project and who is acceptable to manufacturer of primary materials.

B. Single-Source Responsibility: Obtain waterproof elastomeric traffic-bearing roof deck surfacing materials, including primers, resins, hardening agents, and finish or sealing coats, from a single manufacturer.

C. Pre-Qualified Suppliers: Submit any request for alternative products for review to Architect prior to bid date. Any request for alternate products received after this date will not be considered.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original packages and containers with seals unbroken and bearing manufacturer's labels containing brand name and directions for storage and mixing with other components.

B. Comply with manufacturer's directions for materials storage to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.

1.7 PROJECT CONDITIONS

A. Environmental Conditions: Comply with waterproof elastomeric traffic-bearing roof deck surfacing manufacturer's directions for maintenance of ambient and substrate temperature, moisture, humidity, ventilation, and other conditions required to execute and protect work.

2 PART 2.00 - PRODUCTS

2.1 MATERIALS

A. Troweled waterproof elastomeric traffic-bearing roof deck surfacing shall be Dex-O-Tex Elastatex 500 as manufactured by Crossfield Products Corp., Rancho Dominguez, California; Rosette Park, New Jersey and Burr Ridge, Illinois. Equivalent products from alternate manufacturers may be accepted as judged solely by Architect.

B. The trowel-applied waterproof elastomeric traffic-bearing roof deck surfacing system shall be composed of a primer, moisture-cured polyurethane rubber binder with SBR, ABR and natural rubber aggregate basecoat, polyurethane top coat, and shall conform to the following standards:

2.2 PROPERTIES

A. Colors: As indicated, or if not otherwise indicated, as selected by Architect from manufacturer's standard colors.

B. Physical Properties: Provide a waterproof deck covering system that meets or exceeds the listed minimum physical property requirements when tested according to the referenced standard test method in parentheses.

1. Weight: 0.46 lbs. per sq. ft.
2. Accelerated Weathering: (ASTM G-23): (Atlas Twin-Arc Weatherometer – 2,000 hrs.): No cracking, blistering, delamination, chalking, crazing or color change
3. Accelerated Aging: (ASTM D-756): No cracking, blistering, delamination, chalking, crazing or color change
4. Freeze-Thaw: (ASTM C-67): No breakage or weight loss
5. Percolation: (ICBO standard): Complies
6. Water Absorption: (ASTM D-570): <6.09%, no warping or cracking
7. Adhesion: (ASTM D-903): 175 psi
8. Hardness: (ASTM 2240): 60-70 Durometer "A"
9. Crack Bridging and Low Temperature Flexibility (ASTM C-836): Complies
10. Tensile Strength (ASTM D-412): 1,050 psi
11. Elongation (ASTM D-412): 500%
12. Chemical Resistance:

a. Industrial Detergent: No change in texture or color
b. Salt (20%): No change in texture or color
c. Ammonia Solution (5%): No change in texture or color
d. Muriatic Acid (10%): No change in texture or color
e. Chlorine (10%): No change in texture or color
f. Kerosene: No change in texture or color
g. Turpentine: Slight temporary softening of surface
h. Paint Thinner: Slight temporary softening of surface

2.3 SUPPLEMENTAL MATERIALS

A. Optional Decorative Finishes: Type recommended or produced by manufacturer of waterproof elastomeric traffic-bearing roof deck surfacing system to achieve desired color and texture.

B. Flashings: Galvanized steel, 26 ga, with baked enamel finish, compatible with deck coating system, color as selected.

3 PART 3.00 - EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where the waterproof elastomeric traffic-bearing roof deck surfacing is to be installed and notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

B. Evaluate level of moisture in the substrate to determine that moisture levels are acceptable for application of specified waterproof deck covering system.

3.2 PREPARATION

A. Substrate: Perform preparation and cleaning procedures according to waterproof deck covering manufacturer's instructions for particular substrate conditions involved, and as specified. Provide clean, dry and neutral substrate for application of waterproof deck covering.

B. Materials: Mix aqueous emulsions and aggregate when required as per manufacturer's instructions. Prepare materials according to waterproof deck covering system manufacturer's instructions.

3.3 APPLICATION

A. General: Apply each component of waterproof elastomeric traffic-bearing roof deck surfacing system according to manufacturer's directions to produce a uniform, monolithic surface of thickness indicated.

B. Install flashings as recommended by manufacturer. Embed in full bed of mastic compatible with deck coating.

C. Apply primer bondcoat over entire surface to be coated with the deck surfacing. Apply in thin, even coating. Do not allow primer bondcoat to puddle. Apply subsequent coats within 48 hours of application of primer bondcoat.

C. Apply reinforced membrane detail coat at all vertical junctures, transitions, cracks, or joints. Embed polypropylene fabric into polyurethane membrane liquid. Overlap all seams a minimum of 2 inches.

D. Trowel-apply the Elastatex 500 urethane bodycoat over the entire surface. Take care to provide a uniform thickness and avoid trowel marks.

E. Broadcast rubber aggregate into the wet urethane bodycoat; allow to cure.

F. Remove all excess rubber aggregate. Inspect surface to insure a completely monolithic, seamless surface.

G. Roller apply two coats of final-finish dressing to a uniform finish.

H. Finished elastomeric traffic-bearing roof deck surfacing shall be a nominal 1/16 inch thick, uniform in color and texture.

3.4 CURING, PROTECTION AND CLEANING

A. Cure waterproof elastomeric traffic-bearing roof deck surfacing materials according to manufacturer's directions, taking care to prevent contamination during application stages and before completing curing process. Close application area to traffic for a minimum of 24 hours.

END OF SECTION

SECTION 07210

BUILDING INSULATION

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Batt thermal insulation and vapor retarder in exterior wall construction.

1.3 ENVIRONMENTAL REQUIREMENTS

A. Protect insulation materials from damage by weather or construction operations.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Glass Fiber Insulation:

1. CertainTeed Corp.
2. Knauf Fiber Glass GmbH.
3. Manville Building Insulation/Div. Schuller.
4. Owens-Corning Fiberglas Corp.

2.2 INSULATION MATERIALS

A. Batt Insulation: ASTM C665, preformed glass fiber batt ,conforming to the following:
   1. Thermal Resistance: as indicated.
   2. Facing: Unfaced

2.3 ACCESSORIES

A. Vapor Retarder: polyethylene film, 6 mil thick.

B. Tape: 3M 8086 self-adhering tape.

3 PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that substrate, adjacent materials, and insulation are dry and ready to receive insulation.

3.2 INSTALLATION - BATT INSULATION

A. Install insulation and vapor retarder in accordance with insulation manufacturer's instructions.

B. Install in exterior walls spaces without gaps or voids.

C. Fit insulation tight in spaces. Leave no gaps or voids.

D. Install friction fit insulation tight to framing members, completely filling prepared spaces.

E. Place vapor retarder on warm side of insulation by securing in place. Extend vapor retarder tight to full perimeter of adjacent window and door frames and other items interrupting the plane of membrane. Tape seal in place.

END OF SECTION

SECTION 07241

EXTERIOR INSULATION AND FINISH SYSTEM CLASS PB

1 PART 1 - GENERAL

1.1 SUMMARY

A. This section is based on the following proprietary system to establish performance and appearance characteristics and quality standards. Equivalent products of other manufacturers may be considered as judged solely by Architect:

1. Dryvit Outsulation System.

1.2 SYSTEM DESCRIPTION

A. The Dryvit Outsulation System is an Exterior Insulation and Finish System (EIFS), Class PB, consisting of an adhesive, insulation board, base coat with reinforcing mesh(es) and finish.

1. Design Requirements:

a. Acceptable Substrates shall include:

1) Exterior Grade Gypsum Sheathing meeting ASTM C 79 requirements for water resistant core or Type X core at the time of application.
2) Silicone treated gypsum core sheathing surfaced with inorganic fiberglass mats meeting ASTM C 1177.
3) Unglazed brick, cement plaster, concrete or concrete masonry.
4) APA Exterior or Exposure 1 rated Plywood, Grade C-D or better nominal 13mm (1/2 in.), minimum 4 ply.

b. Deflection of the substrate systems shall not exceed 1/240 times the span.

c. The substrate shall be flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.

d. The slope of inclined surfaces shall not be less than 6:12, and the length shall not exceed 305 mm (12 in).

e. The length of inclined surfaces shall not exceed 305 mm (12 in.).

f. Expansion Joints:

1) As a minimum, expansion joints are required at the following locations:

(i) Where expansion joints occur in the substrate system
(ii) Where building expansion joints occur.
(iii) At floor lines of buildings where significant movement is expected
(iv) Where the EIFS abuts dissimilar materials
(v) Where the substrate changes
(vi) In continuous elevations at intervals not exceeding 23 m (75 ft) measured horizontally.
(vii) Where significant structural movement occurs such as changes in roofline, building shape or structural system.

g. Terminations

1) 1) The system shall be held back from adjoining materials around penetrations such as windows, doors, and mechanical equipment a minimum of 19 mm (3/4 in) for sealant application.

2) 2) The system shall be terminated a minimum of 200 mm (8 in) above finished grade.

h. Sealants

1) Comply with section 07900.

2) Shall be compatible with the EIFS materials and approved by EIFS manufacturer.

3) Sealant backer rod shall be closed cell.

2. Performance Requirements

a. The EIFS shall have been tested for durability as follows:

1) Abrasion Resistance: ASTM D 968; no deleterious effects after 500 liters (132 gal).

2) Absorption, Freeze-Thaw: 60 cycles, soak at 20 °C (68 °F) for four days, then –10 °C (14 °F) for two hours, then 20 °C (68 °F) for two hours; no checking, cracking, or splitting.

3) Accelerated Weathering: ASTM G 23 (Federal Test Standard 141A Method 6151); 2000 hours. No deterioration.

4) Mildew Resistance: Mil Standard 810B; passes.

5) Moisture Resistance: ASTM D 2247 (Federal Test Standard 141A Method 6201); no deleterious effects after 14 days.

6) Salt Spray Resistance: ASTM B 117 Federal Test Standard 141A Method 6061); 5% concentration for 300 hours. No deleterious effects.

7) Air Leakage: ASTM E 283; less than 0.301 l/min/m2 (.001 cfm/ft2) classified as a Type III air barrier as defined by the National Research Council of Canada.

8) Water Penetration: ASTM E 331; no water penetration to the inner most surface of the test specimen.

9) Water Vapor Transmission: ASTM E 96 Procedure B; Standard lamina: 10 g/hr•m2 (14 gr/hr•ft2).

b. The EIFS shall have been tested for structural performance as follows:

1) Tensile Bond Strength: ASTM C 297; minimum 132 kPa (19.1 psi); failure in the substrate or insulation board.

2) Full Scale Structural Tests: ASTM E 330; minimum failure load under positive or negative load of 4.3 kPa (90 psf) unless otherwise specified; substrate failure.

3) Impact Resistance: In accordance with EIMA Standard 101.86. Refer to table below:

c. The EIFS shall have been tested for fire performance as follows:

1) Flame Spread - ASTM E 84:

(i) The EPS insulation board shall have a Flame Spread index not exceeding 25 and a Smoke Developed index not exceeding 450.

(ii) The adhesives and coatings shall have a Flame Spread index not exceeding 20 and a Smoke Developed index not exceeding 10.

2) ASTM E 108 (Modified) Full Scale Fire Test; passed.

3) ASTM E 119 One- and Two-Hour Assemblies.

4) UBC 26-9 Intermediate Scale Multi-Story Test (ISMA); passed.

5) Ignitability Characteristics: BOCA National Building Code Radiant Heat Exposure Test of Exterior Wall Assemblies; passed.

Reinforcing Mesh/Weight	EIMA Impact Class.	EIMA Impact Range		Impact Test Results	
g/m^2 (oz/yd^2)		Joules	(in-lbs)	Joules	(in-lbs)
Standard 146 (4.3)	Level 1	3-6	(25-49)	4	(36)
Medium 203 (6)	Level 2	6-10	(50-89)	6	(56)
High 407 (12)	Level 3	10-17	(90-150)	12	(108)
Ultra High 509 (15)	Level 4	>17	(>150)	18	(162)
Ultra High 695 (20.5)	Level 4	>17	(>150)	40	(352)

1.3 SUBMITTALS

A. Product Data: Submit to the owner/architect the Manufacturer's product data describing the products, which will be used on the project.

B. Samples: Submit to the owner/architect two (2) samples of the EIFS for each finish, texture and color to be used on the project. Samples shall be of sufficient size to accurately represent each color and texture being utilized on the project.

C. Test Reports: Submit to the owner/architect copies of selected test reports verifying the performance of the EIFS.

1.4 QUALITY ASSURANCE

A. Qualifications

1. System Manufacturers:
   a. Dryvit Systems, Inc.
   b. Senergy.
   c. STO Corp.
2. Material shall be manufactured at a facility covered by a current ISO 9001 certification. Certification of the facility shall be done by a registrar accredited by the American National Standards Institute, Registrar Accreditation Board (ANSI-RAB).
3. Contractor: Shall be knowledgeable, experienced and competent in the installation of Exterior Insulation and Finish Systems. Additionally, the contractor shall possess a current Contractor Certificate issued by manufacturer.
4. Insulation Board Manufacturer: Approved by EIFS manufacturer.

B. Mock-Up

1. Provide the Owner/Architect with a mock-up for approval prior to beginning work.
2. The mock-up shall be of suitable size as required to accurately represent each color and texture to be utilized on the project.
3. The mock-up shall be prepared with the same products, tools, equipment and techniques required for the actual applications. The finish used shall be from the same batch as that being used for the project.
4. The approved mock-up shall be available and maintained at the jobsite.

1.5 DELIVERY, STORAGE AND HANDLING

A. All materials shall be delivered to the job site in the original, unopened packages with labels intact. Questionable materials shall not be used.

B. Minimum storage temperature shall be 7°C (45°F).

C. Protect all products from weather and direct sunlight.

1.6 PROJECT CONDITIONS

A. Application of wet materials shall not take place during inclement weather unless appropriate protection is provided. Protect materials from inclement weather until they are completely dry.

B. Application of wet materials shall be at a minimum ambient temperature of 7°C (45°F), or as recommended by manufacturer, depending on product, and rising. These temperatures shall be maintained for a minimum of 24 hours thereafter, or until completely dry.

1.7 SEQUENCING AND SCHEDULING

A. Installation of the EIFS shall be coordinated with other construction trades.

1.8 WARRANTY

B. Provide a written ten (10) year moisture drainage and limited material warranty from manufacturer against defective material.

C. Provide separate warranty for workmanship from the applicator

2 PART 2 - PRODUCTS

2.1 MANUFACTURER

A. All components of the EIFS shall be obtained from the manufacturer or its authorized distributors.

2.2 MATERIALS

A. Portland Cement: Type I, I-II or II, meeting ASTM C 150, white or gray in color, fresh and free of lumps.

B. Adhesives/Base Coats: Used to adhere the insulation board to the air barrier and to embed the reinforcing mesh on the face of the insulation board, shall be one of the following:

1. Cementitious: A liquid polymer based material, which is field mixed with Portland cement for use over non wood-based substrates.
2. Non-cementitious: A factory mixed, fully formulated water based adhesive for use over wood-based substrates.

C. Insulation Board: Expanded Polystyrene meeting the manufacturer's specification for Insulation Board, with the following conditions:

1. Thickness of insulation board shall be minimum 50 mm (2 in).
2. The insulation board shall be manufactured by a board supplier licensed by the manufacturer.

D. Base Coat: Compatible with EIFS insulation board and reinforcing mesh(es).

1. Cementitious: Liquid polymer based material, which is field mixed with Portland cement.
2. Non-cementitious: A factory mixed, fully formulated, water based product.

E. Coatings: Water-based, acrylic coating with integral color and/or texture.

F. Reinforcing Mesh: Shall be a balanced, open weave, glass fiber fabric treated for compatibility with other system materials. Note: Reinforcing meshes are classified by impact resistance and specified by weight and tensile strength as listed in Section 1.02.A.2.b.3.

G. Finish: Shall be the type, color and texture as selected by the Owner/Architect from full range of manufacturer's finishes.

3 PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to installation of the EIFS, the Contractor shall verify that the substrate:

1. Is of an acceptable type.
2. Is flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.
3. Is sound, connections are tight, there are no surface voids, projections, or other conditions that may interfere with the EIFS installation.
4. The Contractor shall notify the General Contractor, and Architect/Owner of all discrepancies.
5. Prior to the installation of the EIFS, ensure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the EIFS application.

3.2 PREPARATION

A. Preparation:

1. The substrate shall be prepared as to be free of foreign materials such as oil, dust, dirt, form-release agents, efflorescence, paint, wax, water repellants, moisture, frost, and any other condition that may inhibit adhesion.

B. Protection:

1. The EIFS materials shall be protected by permanent or temporary means from weather and other damage prior to, during, and following application until dry.
2. Protect adjoining work and property during EIFS installation.

3.3 INSTALLATION

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

B. The overall minimum base coat thickness shall be sufficient to fully embed the mesh. The recommended method is to apply the base coat in two (2) passes.

C. EIFS surfaces in contact with sealant shall be coated with manufacturer's recommended coating. Sealant shall not be applied directly to textured finishes or base coat surfaces.

3.4 FIELD QUALITY CONTROL

A. The Contractor shall be responsible for the proper application of the EIFS.

3.5 CLEANING

A. All excess EIFS materials shall be removed from the job site by the contractor in accordance with contract provisions and as required by applicable law.

B. All surrounding areas, where the EIFS has been applied, shall be left free of debris and foreign substances resulting from the Contractor's work.

3.6 PROTECTION

A. The EIFS shall be protected from weather and other damage until permanent protection in the form of flashings, sealants, etc. are installed.

END OF SECTION

SECTION 07242

EXTERIOR INSULATION AND FINISH DRAINAGE SYSTEM CLASS PB

1 PART 1 - GENERAL

1.1 SUMMARY

A. This section is based on the following proprietary system to establish performance and appearance characteristics and quality standards. Equivalent products of other manufacturers may be considered as judged solely by Architect:

1. Dryvit Outsulation MD System.

1.2 SYSTEM DESCRIPTION

A. The Dryvit Outsulation MD System is an Exterior Insulation and Finish System (EIFS), Class PB, utilizing a cavity wall concept with capability for moisture drainage. The System consists of a secondary weather resistive barrier, adhesive, grooved expanded polystyrene insulation board, internal vinyl tracks, vent, starter strip, base coat, reinforcing mesh, and finish.

1. Design Requirements:

a. Acceptable Substrates include:

1) Exterior Grade Gypsum Sheathing meeting ASTM C 79 requirements for water resistant core or Type X core at the time of application.
2) Silicone treated gypsum core sheathing surfaced with inorganic fiberglass mats meeting ASTM C 1177.
3) Unglazed brick, cement plaster, concrete or concrete masonry.

b. Deflection of the substrate systems shall not exceed 1/240 times the span.

c. The substrate shall be flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.

d. The slope of inclined surfaces shall not be less than 6:12, and the length shall not exceed 305 mm (12 in).

e. Expansion Joints:

1) As a minimum, expansion joints are required at the following locations:

(i) Where expansion joints occur in the substrate system
(ii) Where building expansion joints occur.
(iii) At floor lines of buildings where significant movement is expected
(iv) Where the EIFS abuts dissimilar materials
(v) Where the substrate changes
(vi) In continuous elevations at intervals not exceeding 23 m (75 ft) measured horizontally.
(vii) Where significant structural movement occurs such as changes in roofline, building shape or structural system.

f. Terminations

1) 1) The system shall be held back from adjoining materials around penetrations such as windows, doors, and mechanical equipment a minimum of 19 mm (3/4 in) for sealant application.

2) 2) The system shall be terminated a minimum of 200 mm (8 in) above finished grade.

g. Sealants

1) Comply with section 07900.

2) Shall be compatible with the EIFS materials and approved by EIFS manufacturer.

3) Sealant backer rod shall be closed cell.

2. Performance Requirements

a. The EIFS shall have been tested for durability as follows:

1) Abrasion Resistance: ASTM D 968; no deleterious effects after 500 liters (132 gal).

2) Absorption, Freeze-Thaw: 60 cycles, soak at 20 °C (68 °F) for four days, then –10 °C (14 °F) for two hours, then 20 °C (68 °F) for two hours; no checking, cracking, or splitting.

3) Accelerated Weathering: ASTM G 23 (Federal Test Standard 141A Method 6151); 2000 hours. No deterioration.

4) Mildew Resistance: Mil Standard 810B; passes.

5) Moisture Resistance: ASTM D 2247 (Federal Test Standard 141A Method 6201); no deleterious effects after 14 days.

6) Salt Spray Resistance: ASTM B 117 Federal Test Standard 141A Method 6061); 5% concentration for 300 hours. No deleterious effects.

7) Air Leakage: ASTM E 283; less than 0.301 l/min/m2 (.001 cfm/ft2) classified as a Type III air barrier as defined by the National Research Council of Canada.

8) Water Penetration: ASTM E 331; no water penetration to the inner most surface of the test specimen.

9) Moisture Drainage Efficiency: Modified ASTM E 331, 95% efficiency.

10) Water Vapor Transmission: ASTM E 96 Procedure B; Standard lamina: 10 g/hr•m2 (14 gr/hr•ft2).

b. The EIFS shall have been tested for structural performance as follows:

1) Tensile Bond Strength: ASTM C 297

(i) Backstop to exterior grade gypsum sheathing: 67.7 kPa (9.1 psi), sheathing facer failure.

(ii) Backstop to Dens Glass Gold: 198.6 kPa (28.8 psi), sheathing facer failure.

(iii) Primus to Backstop: Minimum 86.9 kPa (12.6 psi).

(iv) Genesis to Backstop: Minimum 104 kPa (15.1 psi).

2) Full Scale Structural Tests: ASTM E 330; minimum failure load under positive or negative load of4.3 kPa (90 psf) unless otherwise specified; substrate failure.

3) Impact Resistance: In accordance with EIMA Standard 101.86. Refer to table below:

c. The EIFS shall have been tested for fire performance as follows:

1) Flame Spread - ASTM E 84:

(i) The EPS insulation board shall have a Flame Spread index not exceeding 25 and a Smoke Developed index not exceeding 450.

(ii) The adhesives and coatings shall have a Flame Spread index not exceeding 20 and a Smoke Developed index not exceeding 10.

2) ASTM E 108 (Modified) Full Scale Fire Test; passed.

3) UBC 26-9 Intermediate Scale Multi-Story Test (ISMA); passed.

4) Ignitability Characteristics: BOCA National Building Code Radiant Heat Exposure Test of Exterior Wall Assemblies; passed.

Reinforcing Mesh/Weight	EIMA Impact Class.	EIMA Impact Range		Impact Test Results	
g/m^2 (oz/yd^2)		Joules	(in-lbs)	Joules	(in-lbs)
Standard™ - 146 (4.3)	Level 1	3-6	(25-49)	4	(36)
Standard Plus™ - 203 (6)	Level 2	6-10	(50-89)	6	(56)
Intermediate® - 407 (12)	Level 3	10-17	(90-150)	12	(108)
Panzer® 15 * - 509 (15)	Level 4	>17	(>150)	18	(162)
Panzer 20 * - 695 (20.5)	Level 4	>17	(>150)	40	(352)
Detail® Short Rolls - 146	n/a	n/a	n/a	n/a	n/a
Corner Mesh - 244 (7.2)	n/a	n/a	n/a	n/a	n/a

* Shall be used in conjunction with Standard Mesh

1.3 SUBMITTALS

A. Product Data: Submit to the Owner/Architect the Manufacturer's product data describing the EIFS products, which will be used on the project.

B. Samples: Submit to the Owner/Architect two (2) samples of the EIFS for each finish, texture and color to be used on the project. Samples shall be of sufficient size to accurately represent each color and texture being utilized on the project.

C. Test Reports: Submit to the Owner/Architect copies of selected test reports verifying the performance of the EIFS.

1.4 QUALITY ASSURANCE

A. Qualifications

1. System Manufacturers:
   a. Dryvit Systems, Inc.
   b. Senergy.
   c. STO Corp.
2. Material shall be manufactured at a facility covered by a current ISO 9001 certification. Certification of the facility shall be done by a registrar accredited by the American National Standards Institute, Registrar Accreditation Board (ANSI-RAB).
3. Contractor: Shall be knowledgeable, experienced and competent in the installation of Exterior Insulation and Finish Systems. Additionally, the contractor shall possess a current Contractor Certificate issued by manufacturer.
4. Insulation Board Manufacturer: Approved by EIFS manufacturer.

B. Mock-Up

1. Provide the Owner/Architect with a mock-up for approval prior to beginning work.
2. The mock-up shall be of suitable size as required to accurately represent each color and texture to be utilized on the project.
3. The mock-up shall be prepared with the same products, tools, equipment and techniques required for the actual applications. The finish used shall be from the same batch as that being used for the project.
4. The approved mock-up shall be available and maintained at the jobsite.

1.5 DELIVERY, STORAGE AND HANDLING

A. All materials shall be delivered to the job site in the original, unopened packages with labels intact. Questionable materials shall not be used.

B. Minimum storage temperature shall be 7°C (45°F).

C. Protect all products from weather and direct sunlight.

1.6 PROJECT CONDITIONS

A. Application of wet materials shall not take place during inclement weather unless appropriate protection is provided. Protect materials from inclement weather until they are completely dry.

B. Application of wet materials shall be at a minimum ambient temperature of 7 °C (45 °F), or as recommended by manufacturer, depending on product, and rising. These temperatures shall be maintained for a minimum of 24 hours thereafter, or until completely dry.

1.7 SEQUENCING AND SCHEDULING

A. Installation of the EIFS shall be coordinated with other construction trades.

1.8 WARRANTY

B. Provide a written ten (10) year moisture drainage and limited material warranty from manufacturer against defective material.

C. Provide separate warranty for workmanship from the applicator

2 PART 2 - PRODUCTS

2.1 MANUFACTURER

A. All components of the EIFS shall be obtained from the manufacturer or its authorized distributors.

2.2 MATERIALS

A. Air/Weather Barrier: Shall provide an air and secondary weather barrier for the substrates listed in Section 1.02.1.a, and include the following components:

1. Backstop: A 100% acrylic product, which is field mixed with Portland cement in a 1:1 ratio by weight.
2. Grid Tape: An open weave fiberglass mesh tape with pressure sensitive adhesive.
3. Flashing Tape: A high density, polyethylene backed, tape with a rubberized asphalt adhesive.
4. Flashing Tape Surface Conditioner: A water-based surface conditioner and adhesion promoter for the Dryvit Flashing Tape.

B. Adhesives/Base Coats: Used to adhere the insulation board to the air barrier and to embed the reinforcing mesh on the face of the insulation board, shall be one of the following:

1. Cementitious: A fiber-reinforced, acrylic modified product, which is field mixed with Portland cement in a 1:1 ratio.
2. Non-cementitious: A dry mix, polymer-based, fiber-reinforced product, which is field mixed with water.
3. Primus: An acrylic polymer-based product, which is field mixed with Portland cement in a 1:1 ratio.

C. Insulation Board: Expanded Polystyrene meeting the manufacturer's specification for Insulation Board, with the following conditions:

1. Thickness of insulation board shall be minimum 50 mm (2 in).
2. The backside of the insulation board shall have 6 mm x 25 mm (1/4 in x 1 in) grooves running vertically and spaced 305 mm (12 in) on center.
3. The insulation board shall be manufactured by a board supplier licensed by the manufacturer.

D. Insulation Board Closure Blocks: Expanded Polystyrene meeting the manufacturer's specifications for Insulation Board. The Closure Blocks shall measure a minimum of 0.15 m (6 in) in height.

E. Starter Strip: Expanded Polystyrene meeting the manufacturer's specification for Insulation Board. The Starter Strip shall measure 0.15 m (6 in) in height and configured to receive the Track

F. Vent Assembly: A formed aggregate matrix material encased in a piece of insulation board, which provides drainage capability.

G. Track: A "J" shaped track complying with ASTM D 1784 and ASTM C 1063 located above the Starter Strip, at the heads of all penetrations.

H. Vent Track: A "J" shaped track complying with ASTM D 1784 and ASTM C 1063 containing a slot for drainage and located above the Vent Assembly, along the base of walls.

I. Adhesive: A moisture cure urethane-based adhesive used to attach the Track and Vent Track to the Backstop.

J. Reinforcing Mesh: Shall be a balanced, open weave, glass fiber fabric treated for compatibility with other system materials. Note: Reinforcing meshes are classified by impact resistance and specified by weight and tensile strength as listed in Section 1.02.A.2.b.3.

K. Finish: Shall be the type, color and texture as selected by the Owner/Architect from full range of manufacturer's finishes.

3 PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to installation of the EIFS, the Contractor shall verify that the substrate:

1. Is of an acceptable type.
2. Is flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.
3. Is sound, connections are tight, there are no surface voids, projections, or other conditions that may interfere with the EIFS installation.
4. The Contractor shall notify the General Contractor, and/or Architect and/or owner of all discrepancies.
5. Prior to the installation of the EIFS, the Architect, or General Contractor shall insure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the EIFS application.

3.2 PREPARATION

A. Preparation:

1. The substrate shall be prepared as to be free of foreign materials such as oil, dust, dirt, form-release agents, efflorescence, paint, wax, water repellants, moisture, frost, and any other condition that may inhibit adhesion.

B. Protection:

1. The EIFS materials shall be protected by permanent or temporary means from weather and other damage prior to, during, and following application until dry.
2. Protect adjoining work and property during EIFS installation.

3.3 INSTALLATION

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

B. The overall minimum base coat thickness shall be sufficient to fully embed the mesh. The recommended method is to apply the base coat in two (2) passes.

C. EIFS surfaces in contact with sealant shall be coated with manufacturer's recommended coating. Sealant shall not be applied directly to textured finishes or base coat surfaces.

3.4 FIELD QUALITY CONTROL

A. The Contractor shall be responsible for the proper application of the EIFS.

3.5 CLEANING

A. All excess EIFS materials shall be removed from the job site by the contractor in accordance with contract provisions and as required by applicable law.

B. All surrounding areas, where the EIFS has been applied, shall be left free of debris and foreign substances resulting from the Contractor's work.

3.6 PROTECTION

A. The EIFS shall be protected from weather and other damage until permanent protection in the form of flashings, sealants, etc. are installed.

END OF SECTION

SECTION 07530

ELASTOMERIC SHEET ROOFING

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Elastomeric Sheet Membrane Conventional Roofing System complete with fully adhered roofing membrane, tapered insulation, expansion joints, flashings and accessories.

1.3 SYSTEM DESCRIPTION

A. Elastomeric sheet membrane roof assembly including insulation and accessories to conform to requirements for a UL Class A fire rated assembly, and FM I 90 requirements for wind uplift resistance.

B. Wind Speed Rating: Provide roof system capable of meeting requirements of BOCA National Building Code for wind speed of 85 mph.

1.4 SUBMITTALS

A. Product Data: Provide characteristics on membrane materials, flashing materials, insulation, vapor retarders and walkway pads.

B. Shop Drawings: Provide shop drawings of installation details recommended by membrane manufacturer, and of tapered insulation layout.

C. Warranty: Provide warranty signed by roof membrane manufacturer and installer.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with UL 790 (Underwriters Laboratories Inc.) Class A Fire Hazard Classification. FM 4470 (Factory Mutual Engineering Corporation) - Roof assembly Classification wind uplift requirement of I-90, FM Construction Bulletin 1-28, Class 1 A Construction.

B. Owner will engage an independent roofing consultant to monitor and inspect the roofing installation.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not install membrane during inclement weather or when air temperature may fall below 40 degrees F, or as required by manufacturer's instructions.

1.7 WARRANTY

A. Provide fifteen (15) year total system warranty under provisions of Section 01001.

2 PART 2 PRODUCTS

2.1 MEMBRANE MATERIALS

A. Manufacturers:
1. Carlisle Syntec Systems.
2. Celotex Corp.
3. Dunlop Construction Products Co.
4. Firestone Building Products Co.
5. Goodyear Tire and Rubber Co.
6. Schuller Roofing Systems.

B. Membrane: Reinforced EPDM; 0.060 inch thick.

C. Seaming Materials: As recommended by membrane manufacturer.

2.2 FASTENING

A. Insulation Adhesive: Type recommended by insulation manufacturer.

B. Mechanical Fasteners: Manufacturer's standard type for application intended.

2.3 INSULATION MATERIALS

A. Manufacturers:

1. As approved by roof membrane manufacturer.

B. Insulation: ASTM C 1289-95 Type II, polyisocyanurate closed cell foam core with manufacturer's standard facing; thicknesses as indicated, square edges, R value of 6.0 per inch thickness.

C. Separation Sheet: As recommended by roofing membrane manufacturer for application intended.

D. Insulation Adhesive: As recommended by insulation manufacturer.

2.4 ACCESSORIES

A. Flexible Flashings: Same materials as membrane; black color; manufactured by roofing membrane manufacturer.

B. Prefabricated Control or Expansion Joint Flashing: Sheet EPDM with foam filler, and metal edge flashings.

C. Fiber Cant Strips: Asphalt impregnated wood fiberboard.

D. Roofing Fasteners: Galvanized or non-ferrous type as recommended by membrane manufacturer.

E. Sealants: As recommended by membrane manufacturer.

F. Walkway Pads: As recommended by membrane manufacturer

G. Fascia System: Two part prefinished fascia system as indicated with extruded aluminum anchors and snap on cover, 24 ga. steel with Kynar finish, as recommended by membrane manufacturer.

3 PART 3 EXECUTION

3.1 COORDINATION

A. Prior to beginning roofing work, conduct preconstruction conference with all affected trades and roof membrane manufacturer's representative.

B. At a minimum, discuss procedures for removal of existing roofing, temporary protection of building and installation of new roofing system.

C. Document conference and distribute copies to all parties, including Owner and Architect.

3.2 REMOVALS

A. Remove complete existing roofing system, including ballast, membrane, insulation, fascias, flashings and accessories.

B. Provide temporary protection from water infiltration to building during roofing operations.

3.3 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work; deck is clean and smooth, free of snow or ice; properly sloped to drains.

B. Verify roof openings, curbs, and protrusions through roof are solidly set; wood cant strips and reglets are in place.

3.4 PREPARATION

A. Fill concrete surface honeycomb and variations with latex filler.

3.5 INSULATION APPLICATION

A. Embed into insulation adhesive on deck in accordance with insulation manufacturer's instructions.

B. Lay second and any succeeding layers of insulation with joints staggered from previous layer.

C. Minimum Total Insulation Thickness: As required to achieve an insulation R value of 34

D. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

3.6 MEMBRANE APPLICATION

A. Apply membrane in strict accordance with manufacturer's instructions.

B. Roll out membrane. Work out air bubbles, wrinkles, and fishmouths. Adhere fully to substrate.

C. Overlap edges and ends and solvent seal watertight.

D. Seal membrane to adjoining surfaces.

E. Shingle joints on sloped substrate in direction of drainage. Apply joint sealant.

F. Continue membrane up vertical surfaces minimum 8 inches unless otherwise noted. Reinforce membrane with multiple thickness of membrane material over joints.

G. Seal items penetrating membrane with counterflashing membrane material. Install membrane flashings. Seal watertight to membrane.

H. Place walkway units at locations noted.

3.7 FLASHINGS AND ACCESSORIES

A. Apply flexible flashings to seal membrane to vertical elements.

B. Install prefabricated roofing expansion control joints to isolate roof into areas as indicated in accordance with manufacturer's instructions.

C. Coordinate installation of roof drains sumps and related flashings.

D. Seal flashings and flanges of items penetrating membrane.

E. Install fascias in accordance with manufacturer's instructions.

F. Replace existing roof drain domes with cast aluminum domes.

3.8 INSPECTION

A. Upon completion of roofing work, conduct inspection of roof installation with manufacturer's representative and Owner's roofing consultant. Correct any deficiencies noted and have roof reinspected.

END OF SECTION

Section 07820

METAL FRAMED SKYLIGHT STRUCTURES

1 PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal framed skylight structure (greenhouse type) with vertical and sloped glazing portions in lean-to shape.

B. Engineering, design, drafting and structural calculations of the entire skylight system.

C. Fabrication, installation, and warranty of the skylight assembly.

D. Skylight glass and glazing materials.

E. Skylight related flashings, anchors, brackets and insulation.

F. Metal finishes.

G. Work does not include support curbs, counter-flashing, wood blocking, final cleaning nor protection after installation.

1.02 RELATED SECTIONS

A. Section 01001: Basic Requirements

B. Section 07900: Sealants

1.03 REFERENCES

A. The Aluminum Association, Inc. (AA)

1. DAF-45: Designation System for Aluminum Finishes.
2. SAS-30: Specification for Aluminum Structures.

B. American Architectural Manufacturers Association (AAMA):

1. 501.1: Standard Test Method for Metal Curtain Walls for Water Penetration Using Dynamic Pressure.
2. 501.2: Field Check of Metal Curtain Walls for Water Leakage.
3. 606.1: Voluntary Guide Specification and Inspection Methods for Integral Color Anodic Finishes for Architectural Aluminum.
4. 809.2: Voluntary Specification for Non-Drying Sealants.

C. American National Standards Institute, Inc. (ANSI)

1. A58.1: Building Code Requirements for Minimum Design Loads in Building and Other Structures.
2. Z97.1: American National Standard Performance Specifications and Methods of Test for Safety Glazing Materials Used in Buildings.

D. American Society of Testing and Materials (ASTM)

1. A 193: Specification for Ally-Steel and Stainless Steel Bolting Materials for High Temperature Service.
2. A 307: Specification for Carbon Steel Externally Threaded Standard Fasteners.
3. B 209: Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
4. B 211: Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire.
5. B 221: Specification for Aluminum and Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
6. C 1036: Specification for Flat Glass.
7. C 1048: Specification for Heat-Treated Flat Glass.
8. E 283: Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors.
9. E 330: Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
10. E 331: Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
11. E 773: Test Method for Seal Durability of Sealed Insulating Glass Units.
12. E 774: Specification for Sealed Insulating Glass Units.

E. Flat Glass Manufacture's Association (FGMA): Glazing Manual.

F. Insulating Glass Certification Council (IGCC): Classification of Insulating Glass Units.

G. U.S. Consumer Product Safety Commission (CPSC): 16 CFR 1202 Architectural Glazing Standards and Related Materials.

1.04 SYSTEM DESCRIPTION

A. Design Requirements:

1. Extruded aluminum framing members shall have an integral gutter system for positive drainage of condensation.
2. The skylight system shall utilize flush glazed exterior joints on all horizontal purlins.
3. Rafters and mullions shall employ a series of alternate serrations as a screw slot for the attachment of exterior retainer bars.
4. The framing system shall utilize extruded hinged components at the sill, hip and/or ridge locations.

B. Performance Requirements:

1. Structural members shall be designed in accordance with ANSI A58.1 and AA SAS-30. They shall be of sufficient size to support all dead loads as well as the following load requirements:

   a. 46 PSF LIVE LOAD
   b. 46 PSF SNOW LOAD
   c. 42 PSF POSITIVE WIND LOAD
   d. 42 PSF NEGATIVE WIND LOAD

2. The deflection of any structural member in the plane normal to glass surface when subjected to the specified loads shall not exceed L/175 of it clear span. Deflection of any framing member shall not exceed 3/4" within any glass panel.

3. Parallel to glazing plane deflection of a framing member when carrying full design load shall not exceed an amount reducing the glazing unit bite below 75% of the design dimension and shall not reduce the edge clearance to less than 1/8" nor shall it damage or impair the function of any joint seals.

4. Provide for expansion and contraction of components resulting from an ambient temperature change of 180 deg. F. (+/- 90 deg. F.) without causing buckling, excessive stresses on glazing, structural elements or fasteners, failure of seals, reduction of performance or other detrimental effects.

5. No water penetration shall occur when system is tested in accordance with [ASTM E 331 using a differential static air pressure of 20% of inward acting (positive) design wind load, but not less than 6.24psf. nor more than 15 psf.]. Water penetration is defined as the appearance of uncontrolled water other than condensation occurring on the interior surface of any part of the skylight.

6. Air infiltration shall be limited to not more than 0.01 cfm. per square ft. of assembly when tested in accordance with ASTM E 283 at 6.24 psf. static air pressure difference.

7. Where permitted by code, a 1/3 increase in allowable stress for wind or seismic load shall be acceptable, but not in combination with any reduction applied to combined loads. In no case shall the allowable values exceed the yield stress.

8. Assume thermal breaks to have no ability to transfer shear stress for composite action of flexural members. Assume elements joined by a thermal break to act separately.

1.05 SUBMITTALS

A. Submit one set of sepias and 3 copies of shop drawings showing plans, elevations and details required to fully describe the skylight construction for Architect's review and approval before starting fabrication.

B. Submit structural calculations prepared in accordance with ANSI A58.1 and with AA SAS-30, bearing the seal of a structural engineer qualified in the design of self

supporting skylight assemblies and licensed in the jurisdiction where the project is located.

C. Submit results of infiltration tests as described in section 1.04 B (5) & (6) stated above.

D. Submit 12" X 12" samples of each type of glass.

E. Submit manufacturer's samples of each type of sealant.

F. Submit 6" long samples of principal extrusions.

G. Submit manufacturers sample of each type of aluminum finish.

H. Submit 2 sets of as-built drawings and maintenance and cleaning instructions upon completion of the skylight installation.

1.06 QUALITY ASSURANCE

I. Work of this section is to be designed, fabricated and installed by a company with a minimum of five (5) years of experience in work of similar scope and magnitude.

1.07 WARRANTY

A. Submit a written warranty, executed by the skylight manufacturer, certifying that the skylight is to be free of defects in design, materials and construction, and that the skylight is to be free of water leakage for a period of ten (10) years from the date of substantial completion.

B. Glass is to be warranted for ten (5) years against defective materials, seal failure and defects in manufacturing and for five (5) years against delamination according to the glass manufacturer's warranties.

C. Warrant finishes for a period of five (5) years against peeling, checking, cracking, flaking or blistering according to the coating manufacturer's standard warranty.

D. Warrant structural sealants for a period of ten (10) years per manufacturer's standard warranties.

2 PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Contract documents are based on the System 2000^{tm} skylight framing system by Architectural Skylight Co., Inc. Waterboro, Maine USA.

B. Substitute manufacturers will be considered under the provisions of section 01001 and when the following conditions have been met:

1. Substitute manufacturers prequalify in writing no later than ten (10) days prior to the bid closing date.
2. Skylight details are submitted to the Architect.
3. Complete specifications and structural calculations showing member sizes design loads and loads applied the supports are submitted for review.
4. Submit certification that the substitute manufacturer has successfully performed in the design, manufacture and installation of skylight projects similar in scope over the previous five years.
5. Provide proof of financial capability.

2.02 MATERIALS

A. Principal framing members: Extruded aluminum, ASTM B 221 6063-T5 or -T6 alloy and temper, 0.109" minimum thickness.

B. Snap on covers and non-supporting trim: Extruded aluminum, ASTM B 221 6063-T6 alloy and temper, .060" minimum thickness.

C. Structural formed metal members shall be ASTM B 209 5052-H34 or ASTM B 221 6061-T6 aluminum.

D. Gaskets shall be continuous and shall be an extruded E.P.D.M., silicone compatible rubber, shore A hardness of 70 (+/- 5), tensile strength: 950 PSI, % of elongation: 200 min. compression set: 30% max., color: black

E. Setting blocks shall be a silicone compatible rubber, shore A hardness: 85 (+/- 5), color: black.

F. Fasteners:

1. Fasteners for attachment of exterior retainer bars shall be ASTM A 193 B8 300 series stainless steel screws.

2. Fasteners used to connect framing members shall be ASTM A 193 B8 300 series stainless steel or ASTM B 211 2024-T4 aluminum.

3. Fasteners used to anchor the skylight to the support structure shall be ASTM A 193 B8 300 series stainless steel screws.

G. Flashing shall be ASTM B 209 5005-H34 or 5052-H34 aluminum, 0.030" minimum thickness.

H. Exposed metal finish shall comply with the following:

1. Anodized finishes:

a. Architectural Class I Integral Color Anodic Coating 0.7 mil and greater in thickness, AAMA606.1, Type AA-M10C22A42. Color: dark bronze.

I. Sealants:

1. Structural flush glazed joints shall be a higher performance silicone sealant applied in accordance with the sealant manufacturer's instructions. Color: black.
2. Weatherseal joints shall be a neutral cure medium modulus silicone sealant applied in accordance with the sealant manufacturer's instructions. Color: black.
3. Unexposed, low movement flashing joints shall be non-drying, non-skinning, non-oxidizing, non-bleeding curtain wall sealant meeting AAMA 809.2.

J. Glass:

1. Standard certification requirements:

a. Float Glass: ASTM C 1036
b. Heat Treated Glass: ASTM C 1048, with surface stress of 5000 psi, +/- 1500 psi.
c. Laminated Glass: Two lites of equal thickness bonded with a polyvinyl butyral (PVB) interlayer, meeting criteria of ANSI Z97.1-1984 and CPSC 16 CFR 1201 for safety glazing. Provide a PVB interlayer of [0.030" or 0.060"] thickness
d. Insulating Glass: CBA rated by the Insulating Glass Certification Council when tested in accordance with ASTM E 773 and E 774. Dual edge seals with silicone secondary seal. Exterior lite is to be heat strengthened; interior lite to be laminated glass.

2. Performance Requirements:
a. Probability of breakage not to exceed 8/1000 for vertical glass and 1/1000 for sloped glass upon first application of design pressures or due to anticipated thermal stresses.

3. Glazing Unit Composition: minimum 1" clear insulating glass at vertical and sloped portions.

2.03 FABRICATION

A. The skylight shall be factory fitted and assembled (where practical), piece marked and shipped knocked down for the final assembly at the jobsite.

B. All welding shall be done by the heliarc process and all exposed welds ground to minimum 100 grit finish.

C. Retainer bars shall be attached with gasketed stainless steel fasteners spaced at a maximum of 9" on center.

D. Setting blocks and spacers shall be located and sized in accordance with the FGMA Glazing Manual. At no point shall the glazing come in contact with the frame of fasteners.

E. The skylight shall have properly located condensation gutters and weepholes provided for drainage of condensation of the exterior.

3 PART 3: EXECUTION

3.01 EXAMINATION

A. Prior to installation, inspect the support and adjacent construction to verify that they are properly prepared to receive the work. Report in writing any error in the work. No work shall proceed until all errors and deviations are corrected.

3.02 PREPARATION

A. Surface contact between aluminum and dissimilar materials shall receive a protective coating of asphaltic paint or elastomeric isolator to prevent electrolytic action.

3.03 INSTALLATION

B. Install all items plumb, straight, square, level and in their elevation, plane and location, and in proper alignment with other work.

C. The skylight shall be erected and glazed by the manufacturer or an experienced installer authorized by the manufacturer familiar with the manufacturer's systems and installation procedures.

D. The skylight shall be designed to accommodate tolerances of the building structural members and clearances shown on final approved shop drawings. All parts of the erected work, when completed, shall be within the following tolerances:

1. Maximum variation from plane or location shown on final shop drawings: 1/8" per 12 ft. or 1/2" on any total length.

2. Maximum offset from true alignment between two identical members butting end to end in line: 1/32".

E. Anchorage to the structure shall be in accordance with final shop drawings. Supporting brackets shall be so designed as to provide three dimensional adjustment and accurate location of the components.

F. Sealant materials shall be used in accordance with the manufacturer's printed instructions and shall be applied by mechanics specially trained and experienced in their use. Before applying sealant, all dirt, dust moisture and all foreign mater shall be completely cleaned from surfaces it will contact. Adjoining surfaces must be masked to obtain a clean and neat appearance. Sealants shall be tooled to fill the joint and provide a smooth finished surface.

3.04 FIELD WATER TEST

A. Field test for water leakage in accordance with AAMA 5012, in areas as indicated on the contract drawings. There shall be no uncontrolled water leakage as defined in AAMA 501.

3.05 PROTECTION AND CLEANING

A. Protect all materials against damage from mechanical abuse and foreign matter during installation.

B. Remove all manufacturer's seals, labels, etc. Install metal without soiling or smudging finish. Clean glass, inside and out with cleaners recommended by the glass manufacturer at time of installation.

END OF SECTION

SECTION 07900

JOINT SEALERS

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Sealants and joint backing.

1.3 SUBMITTALS

A. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations and color availability.

1.4 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

2 PART 2 PRODUCTS

2.1 SEALANTS

A. Type 1 - General Purpose Exterior Sealant: Polyurethane ; ASTM C920, Grade NS, Class 25, Uses M, G, and A; single or multi- component.

1. Color as selected by Architect.
2. Applications: Use for:

a. Control, expansion, and soft joints in masonry.
b. Joints between concrete and other materials.
c. Joints between metal frames and other materials.
d. Joints in exterior insulation and finish systems.
e. Other exterior joints for which no other sealant is indicated.

B. Type 2 - Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, non-skinning, non-curing.

1. Applications: Use for:

a. Concealed sealant bead in sheet metal work.

C. Type 3 - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, single component, paintable.

1. Colors as selected by Architect.

2. Applications: Use for:

a. Interior wall and ceiling control joints.
b. Joints between door and window frames and wall surfaces.
c. Other interior joints for which no other type of sealant is indicated.

D. Type 4 - Acoustical Sealant: Butyl or acrylic sealant; ASTM C920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non-skinning.

1. Applications: Use for concealed locations only:

a. Sealant bead between top stud runner and structure and between bottom stud track and floor.

2.2 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant; D1667, closed cell PVC oversized 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

3 PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that substrate surfaces and joint openings are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

C. Remove loose materials and foreign matter which might impair adhesion of sealant.

D. Clean and prime joints in accordance with manufacturer's instructions.

E. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

3.2 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer , except where specific dimensions are indicated.

E. Install bond breaker where joint backing is not used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

H. Tool joints concave shaped.

END OF SECTION

SECTION 08210

WOOD HINGED INSWING PATIO DOORS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Wood hinged patio doors.
2. Glazing.
3. Door hardware.
4. Accessories.

B. Related Sections:

1. Section 04200 - Unit Masonry: Openings in masonry.
2. Section 05400 - Cold Formed Metal Framing: Framed openings.
3. Section 06100 - Rough Carpentry: Framed openings.
4. Section 06200 - Finish Carpentry: Interior wood casing.
5. Section 07210 - Building Insulation: Batt insulation at patio door perimeter.
6. Section 07900 - Joint Sealers: Perimeter joint sealant and backer rod.
7. Section 09900 - Painting: Finishing interior wood.

1.02 REFERENCES

A. American Architectural Manufacturers Association (AAMA):

1. AAMA 603.8, Voluntary Performance Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum.
2. AAMA 1303.5, Voluntary Specifications For Forced Entry Resistant Aluminum Sliding Glass Door.

B. American National Standards Institute (ANSI):

1. ANSI Z97.1, Safety Performance Specifications and Methods of Test for Safety Glazing Material Used In Buildings.

C. American Society for Testing and Materials (ASTM):

1. ASTM A 36, Specification for Structural Steel.
2. ASTM C 1036, Specification for Flat Glass.
3. ASTM C 1048, Specification for Heat Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
4. ASTM D 3647, Practice for Classifying Reinforced Plastic Pultruded Shapes According to Composition.
5. ASTM D 4216, Specification for Rigid Poly (Vinyl Chloride) (PVC) and Related Plastic Building Products Compounds.
6. ASTM E 90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
7. ASTM E 283, Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
8. ASTM E 330, Test Method for Structural Performance of Exterior Windows, Curtain

Walls, and Doors by Uniform Static Air Pressure Difference.
9. ASTM E 413, Classification for Rating Sound Insulation.
10. ASTM E 547, Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
11. ASTM E 773, Test Method for Seal Durability of Sealed Insulating Glass Units.
12. ASTM E 774, Specification for Seal Durability of Sealed Insulating Glass Units.
13. ASTM F 476, Test Methods for Security of Swinging Door Assemblies.

D. Consumer Product Safety Commission (CPSC):

1. CPSC 16CFR-1201, Safety Standard for Architectural Glazing Materials.

B. National Fenestration Rating Council (NFRC)

1. NFRC 100, Procedure for Determining Fenestration Product Thermal Properties.
2. NFRC 200, Procedure for Determining Solar Heat Gain Coefficient.

F. Window & Door Manufacturers Association (WDMA):

1. AAMA/NWWDA 101/I.S. 2, Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood windows and Glass Doors..
2. WDMA Industry Standard I.S. 4, Industry Standard for Water-Repellent Preservative Treatment for Millwork.
3. WDMA Industry Standard I.S. 8, Industry Standard for Wood Swinging Patio Doors.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Wood patio doors to comply with the minimum performance requirements specified in AAMA/NWWDA I.S 2.-97 DP40, WDMA Industry Standard I.S. 8, DP 40.

1. Air Infiltration: When tested in accordance with ASTM E 283 at a static pressure of 1.57 psf, total air infiltration to average less than or equal to 0.04 cfm per square foot of unit.

2. Water Penetration: No water penetration beyond the interior face of patio door unit when tested in accordance with ASTM E 547 at a static pressure of 6.00 psf.

3. Structural Performance: No glass breakage, damage to hardware, or permanent deformation (set) which would cause any malfunction or impair the operation of the unit, or residual deflection greater than 0.1% of stile length when tested in accordance with ASTM E 330 at a positive and negative test pressure of 60 psf.

4. Design Criteria: Design and size patio door members to withstand positive and negative loads imposed by wind to a pressure of 42 psf at midwall locations, and 53 psf at corner locations when measured in accordance with ASTM E 330. Limit deflection to L/175.
5. Thermal Performance: Fenestration U-Factor: Fenestration products shall be rated, certified and labeled in accordance with NFRC 100. U-Factors shall be as follows
   a. Residential size (38" x 82"): High-Performance™ glass 0.33; High-Performance Sun™ glass, 0.34.
6. Fenestration Solar Heat Gain Coefficient (SHGC): Fenestration products shall be rated, certified and labeled in accordance with NFRC 200. SHGC shall be as follows:
   a. Residential size (38" x 82"): High-Performance™ glass 0.27.
7. Sound Transmission Ratings: Patio doors to provide a sound transmission class (STC) of 32 when tested in accordance with ASTM E 90 and ASTM C 423.

8. Forced Entry Resistance: Patio units to comply with requirements for Grade 30 performance when tested in accordance with ASTM F 476.

1.04 SUBMITTALS

A. Product Data, Installation Instructions, Detail Drawings and Samples: Submit the following under provisions of Section 01300 - Submittals:

1. Product Data: Submit manufacturer's product literature for all products and accessories furnished.
2. Installation Instructions: Submit manufacturer's installation instruction sheets for all products and accessories furnished.
3. Detail Drawings: Submit detail drawings indicating direction of swing, active and fixed panels, location and type of glazing material, and typical jamb, head and sill details.

B. Quality Control Submittals: Submit the following under provisions of Section 01400 - Quality Control:

1. Reference List: Submit reference lists as specified under Quality Assurance article.

C. Contract Closeout Submittals: Submit the following under provisions of Section 01700 - Contract Closeout:

1. Owner's Manual: Submit bound manual clearly identified with project name, location and completion date. Identify type and size of patio door units installed. Provide recommendations for periodic inspections, care and maintenance. Identify common causes of damage with instructions for temporary patching until permanent repair can be made.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company having at least 25 years experience in the manufacture of wood patio door products. Provide a reference list of at least 3 projects of similar scale and complexity successfully completed during the past three years. Provide project names, locations, completion dates, names and telephone numbers of general contractor's and owners contact person.

B. Installer Qualifications: Company experienced in the installation of wood patio door products. Installer to provide a reference list of at least 3 projects of similar scale and complexity successfully completed during the past three years. Provide project names, locations, completion dates, names and telephone numbers of general contractor's and owners contact person.

C. Safety Glazing: Comply with safety glazing requirements of ANSI Z97.1 and CPSC 16CFR 1201.

D. Insulating Glass Units: Provide insulating glass units permanently marked with certification label of Insulating Glass Certification Council (IGCC) indicating compliance with Class CBA.

1.06 DELIVERY, STORAGE AND HANDLING

A. In addition to general delivery, storage and handling requirements specified in Section 01600, comply with the following:

1. Deliver materials to job site in sealed, unopened cartons. Protect uncartoned units

from damage.
2. Identify each carton with material name, date of manufacture and lot number.
3. Store patio doors and accessories off ground, under cover, protected from weather and construction activities.

1.07 PROJECT CONDITIONS

A. Field Measurements: Verify actual measurements for openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

B. Install patio doors in strict accordance with safety and weather conditions specified by manufacturer's product literature.

C. Extra caution must be exercised when temperature drops below 32 degrees F. and extreme care below 0 degrees F.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Andersen® Frenchwood® hinged patio door units as manufactured by Andersen Corporation, Bayport, Minnesota.

1. Color: Terratone® color.

2.02 MATERIALS

A. Wood Members: Fabricated from a wood species approved in WDMA Industry Standard I.S. 8.

B. Vinyl Cladding for Accessories: Rigid vinyl (PVC) complying with the requirements of ASTM D 4216, class 144434331111.

C. Reinforced Engineered Plastic: Comply with the requirements of ASTM D 3647.

D. Polyester Urethane Coating: High durability polyester urethane coating conforming to the requirements of AAMA 603.8.

E. Weather-stripping: Flexible Santoprene® bulb compression type with welded corners.

F. Sill Cover: Zinc chromate and Polane® coated aluminum extrusion.

G. Fastener Covers: Aluminum extrusion with urethane coating.

H. Sub-sill: Fibrex.™ material.

2.03 GLAZING

A. General: Tempered insulating glass units certified through the Insulating Glass Certification Council as conforming to the requirements of IGCC Class CBA when tested in accordance with ASTM E 773 and E 774. Provide dual sealed units consisting of polyisobutylene primary seal and silicone secondary seal. Metal spacers to have bent or

soldered corners. Glass to be permanently labeled as conforming to the safety glazing requirements CPSC 16 CFR 1201.

B. High-Performance™ Low Emissivity , Argon Blend Filled Insulating Glass Units:

1. Glass: Insulating glass units to consist of an inboard and outboard lite of clear, tempered glass conforming to ASTM C 1048, Type 1, Class 1, q3, Kind FT.
2. High-Performance™ LoE2 Coating: MSVD (magnetron sputtering vapor deposition) LoE2 coating applied to the No. 2 surface.
3. Filling: Fill space between glass lites with an argon gas blend to reduce heat loss.
4. Performance Characteristics for the center of glass: The following performance characteristics are based on NFRC validated spectral data files for the respective glazing. The values are for center of glass only. (See section 1.04 for whole fenestration performance values.)
   a. U-Factor: 0.28.
   b. Solar Heat Gain Coefficient (SHGC): 0.42.
   c. Visible Light Transmittance (Vtc): 72%.
   d. Ultra-Violet Transmittance (Tuv): 15%.
   e. Krochmann Damage Weighted Fading Function (Tdw): 32%.

2.04 HARDWARE

A. Hinges: Ball bearing style adjustable, captured hinge design with cover plate. Hinge to allow vertical and rack panel adjustment. Zinc die-cast adjustable, captured hinge design with ball bearing pivots with brass colored finish.

B. Locks: Steel locking mechanism consisting of a lever handle operated latch and three point deadbolt lock mechanism. Three point locking mechanism to consist of a thumb turn operated 0.787" metal deadbolt which when projected will cause two additional hook bolts to engage inactive panel.

C. Lever handle trim: Estate™ style forged brass lever handle hardware with brass escutcheon plate interior and exterior bright brass High-Performance™ bright brass finish.

2.05 JOINING SYSTEMS

A. Joining Systems:

1. Narrow Wood Fillers: Wood members treated with water repellent preservative after machining in accordance with WDMA I.S. 4.
2. Steel Reinforcement Members: 4" x 3/16" thick hot rolled steel plate conforming to ASTM A 36 with zinc plating and yellow chromate conversion coat. Predrill holes for attachment to door frames.
3. Gusset Plates: Galvanized steel plates as recommended by patio door manufacturer for specific application.
4. Fasteners: Corrosion resistant screws as provided by patio door manufacturer for fastening reinforcement members and gusset plates to wood frame. All other fasteners are provided by patio door installer.
5. Head Flashing: 8" long sheet vinyl. Color to match patio door exterior.
6. Silicone Sealant: Silicone sealant as recommended by patio door manufacturer.
7. Vinyl Trim Strips: As recommended by patio door manufacturer for each joining method used. Color to match patio door unit exterior color.

2.06 ACCESSORIES

A. Insect Screens: Provide hinged patio doors with an insect screen installed on the exterior.

1. Gliding Insect Screen Door Frame: 0.040" roll formed aluminum frame with chromate conversion coating.
2. Insect Screen Cloth: 18 x 16 glass fiber mesh, charcoal finish.
3. Frame Finish: Terratone™ color high-bake fluorocarbon finish.
4. Rollers: Insect screen doors to operate on Delrin® injection molded bottom rollers with self contained leveling adjusters engaged in sill track. Provide Delrin® injection molded, self-adjusting rollers on top rail.
5. Gliding Insect Screen Operating Handles: Polycarbonate operating handles to receive locking mechanism. Color: stone.

B. Exterior Trim:

1. Where indicated on Drawings provide vinyl sheathed plywood conforming to U.S. Product Standards P.S. 1 and rigid vinyl channels. Color to match patio door framing.
   a. Trim: Andersen® Vinyl laminated board to have 0.045" thick vinyl with smooth surface laminated with adhesive to 1/2" thick plywood.
   b. Trim Channels: Rigid vinyl extrusions supplied by patio door manufacturer for use on same product line.
2. Support Mullion Trim: 2" wide wood filler and vinyl trim strip. Color to match patio door unit exterior color.

C. Sill Extender and sill support: Zinc chromate and Polane coated aluminum extrusion.

D. Extension Jambs: Solid or veneered ponderosa pine. Pre-drilled extension jambs for application.

2.07 FABRICATION

A. Preservative Treatment: Treat wood frame and door panel wood members after machining with a water repellent preservative in accordance with WDMA I.S. 4.

B. Frame Components:

1. Attach reinforced engineered plastic frame cover to wood sub-frame.
2. In-line wash and sensitize reinforced engineered plastic frame with a solvent base conductive preparation solution.
3. Factory apply urethane coating (2.6 mil. minimum dry film thickness) to exterior exposed surfaces of sensitized reinforced engineered plastic frame cover.

C. Door Panels:

1. Stiles and Top Rails: Finger jointed and edge glued wood core 1-1/2" thick before milling. Provide solid wood edge strips, phenolic interior and exterior outer substrate, and veneered interior surface.
2. Bottom Rails: Laminated construction consisting of spliced veneer interior surface over a finger jointed and edge glued wood core with a phenolic overlay interior and exterior outer substrate.
3. Door Panel Finish:
   a. Interior: Unfinished natural exposed interior wood to receive paint or stain finish as specified in Section 09900.
   b. Exterior: Factory applied high durability urethane coating.

D. Corner Fastening: Double blind mortise and tenon joints secured with hardwood dowel and

water-resistant structural adhesive.

E. Sill: Zinc chromate and Polane® coated, aluminum extrusion. Aluminum sill attached to composite Fibrex™ material frame.

F. Weather-stripping: Factory applied gasket type weather-stripping to full perimeter of panels.

G. Glazing: Factory glaze with high quality glazing sealant and wood interior trim stops.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect opening before installation is commenced.

1. Verify rough opening or masonry opening is square and dimensions are correct. Verify sill plate is level.
2. Verify wood frame walls are dry, clean, sound and well nailed, and/or glued, free of voids and without offsets at joints. Ensure that nail heads are driven flush with all surfaces in opening and within 3" of rough opening.

3.02 PREPARATION

A. Open carton and remove patio door unit, parts and accessories. Inspect patio door. Verify that patio door unit is not damaged and all parts are included before disposing of carton.

B. Store patio door units in a safe place until installed.

C. For maximum protection, finish interior wood surfaces prior to or immediately after installation.

3.03 JOINING SYSTEMS

A. Assemble joining system where required for patio door and window combinations according to patio door manufacturer's instructions.

B. Apply corrosion resistant coating to cut ends and field drilled holes in steel reinforcement member.

C. Apply head flashing with silicone sealant at each vertical mullion head joint.

D. Attach gusset plates to rough opening as recommended by patio door manufacturer.

3.04 INSTALLATION

A. Install patio door units and accessories according to patio door manufacturer's installation instruction sheets.

B. Set units plumb, level true to line, without warp or rack in frames or panels.

C. Install batt insulation in shim space around perimeter of patio door to maintain continuity of building insulation. Do not use expanding foam insulation.

D. Extend vapor barrier to interior face of patio door frame and attach.

E. Install door hardware according to manufacturer's installation instructions. Check patio door for proper operation of locking mechanism.

F. Check door and insect screen operation. Adjust as recommended by patio door manufacturer to provide smooth operation without binding.

3.05 EXTERIOR FINISHING

A. Hold back exterior siding or other finish materials from edge of window 1/4" to allow for expansion and contraction and the installation of a proper sealant joint with backing materials.

B. Seal perimeter of patio door after exterior finish is applied in accordance with the requirements of Section 07900.

C. Application of vinyl trim strip to wood filler for support mullion:

1. Install according to patio door manufacturer's installation instruction sheets.

D. Application of vinyl trim board and vinyl laminated board and rigid channels:

1. Install according to patio door manufacturer's instructions.

3.06 ACCESSORIES

A. Grilles: Install grilles according to patio door manufacturer's installation instructions.

B. Insect Screens: Install insect screens according to patio door manufacturer's installation instructions.

C. Extension Jambs: Install extension jambs according to patio door manufacturer's installation instructions.

3.07 INTERIOR FINISHING

A. Finish patio door interior wood components according to patio door manufacturer's instructions and requirements specified in Section 09900.

1. Finish patio door prior to installing trim set handle onto the locking mechanism.

3.08 CLEANING

A. Clean surfaces to remove dirt. Use cleaning materials specifically recommended by patio door manufacturer.

B. Protect glass and hardware from masonry cleaning solutions. Contact with the solution could etch the glass and cause seal failure of the insulating glass unit.

C. Remove debris from work site.

D. Leave patio door unit in a closed and locked position.

E. Protect interior and exterior of patio door units until structure is sealed from the weather.

END OF SECTION

SECTION 08554

VINYL CLAD TILT-WASH WOOD DOUBLE-HUNG WINDOWS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Vinyl clad tilt-wash wood double-hung windows.
2. Glazing.
3. Accessories.

B. Related Sections:

1. Section 04200 - Unit Masonry: Openings in masonry.
2. Section 05400 - Cold Formed Metal Framing: Framed openings.
3. Section 06100 - Rough Carpentry: Framed openings.
4. Section 06200 - Finish Carpentry: Interior wood casing.
5. Section 07210 - Building Insulation: Batt insulation at window perimeter.
6. Section 07900 - Joint Sealers: Perimeter joint sealant and backer rod.

1.02 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI Z97.1, Safety Performance Specifications and Methods of Test for Safety Glazing Material Used In Buildings.

B. American Society for Testing and Materials (ASTM):

1. ASTM A 36, Specification for Structural Steel.
2. ASTM C 1036, Specification for Flat Glass.
3. ASTM C 1048, Specification for Heat Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
4. ASTM D 4216, Specification for Rigid Poly(Vinyl Chloride) (PVC) and Related Plastic Building Products Compounds.
5. ASTM E 90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
6. ASTM E 283, Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
7. ASTM E 330, Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
8. ASTM E 413, Classification for Rating Sound Insulation.
9. ASTM E 547, Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
10. ASTM E 773, Test Method for Seal Durability of Sealed Insulating Glass Units.
11. ASTM E 774, Specification for Seal Durability of Sealed Insulating Glass Units.
12. ASTM E 1423, Standard Practice for Determining the Steady State Thermal Transmittance of Fenestration Systems.
13. ASTM E 1425, Practice for Determining Acoustical Performance of Exterior Windows and Doors.
14. ASTM F 588, Test Methods for Resistance of Window Assemblies to Forced Entry Excluding-Glazing.

C. Consumer Product Safety Commission (CPSC):

1. CPSC 16CFR-1201, Safety Standard for Architectural Glazing Materials.

D. National Fenestration Rating Council (NFRC):

1. NFRC 100, Procedure for Determining Fenestration Product Thermal Properties.
2. NFRC 200, Procedure of Determining Solar Heat Gain Coefficient.

E. Window and Door Manufacturers Association (WDMA):

1. AAMA/NWWDA 101/I.S. 2, Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood windows and Glass Doors.
2. WDMA Industry Standard I.S. 4, Industry Standard for Water-Repellent Preservative Non-Pressure Treated for Millwork.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Vinyl clad wood windows to comply with the minimum performance requirements specified in AAMA/NWWDA 101/I.S. 2-97, DP 30, except where more stringent requirements are specified.

1. Air Infiltration: When tested in accordance with ASTM E 283 at a static pressure of 1.57 psf, total air infiltration to average less than or equal to 0.20 cfm per square foot of unit.

2. Water Penetration: No water penetration beyond the interior face of window unit when tested in accordance with ASTM E 547 at a static pressure of 4.50 psf.

3. Structural Performance: No glass breakage, damage to hardware, or permanent deformation (set) which would cause any malfunction or impair the operation of the unit, or residual deflection greater than 0.4% of span when tested in accordance with ASTM E 330 at a test pressure of 45 psf.

4. Design Criteria: Design and size window components to withstand loads imposed by wind to a design pressure of 42 psf at midwall locations, and 53 psf at corner locations, when measured in accordance with ASTM E 330. Limit deflection to L/175.

5. Thermal Performance: Fenestration U-Factor: Fenestration Products shall be rated, certified and labeled in accordance with NFRC 100. U-Factors shall be as follows:
   Tilt-Wash
   a. Residential size (36" x 60"): High-Performance™ glass 0.32.

6. Fenestration Solar Heat Gain Coefficient (SHGC): Fenestration Products shall be rated, certified and labeled in accordance with NFRC 200. SHGC shall be as follows:
   Tilt-Wash
   a. Residential size (36" x 60"): High-Performance™ glass 0.32.

7. Sound Transmission Rating: Windows to provide a sound transmission class (STC) of 27 and (OITC) of 23 when tested in accordance with ASTM E 90 and ASTM E 413.

8. Forced Entry Resistance Window units to comply with requirements for Performance Level 20 when tested in accordance with ASTM F 588.

1.04 SUBMITTALS

A. Product Data, Installation Instructions, Detail Drawings and Samples: Submit the following under provisions of Section 01300 - Submittals:

1. Product Data: Submit manufacturer's product literature for all products and accessories furnished.
2. Installation Instructions: Submit manufacturer's installation instruction sheets for all products and accessories furnished.
3. Detail Drawings: Submit elevations indicating location and type of glazing material, typical jamb, head and sill details, and special mullion reinforcement details.
4. Color Samples:
5. Vinyl Cladding: Submit color samples of vinyl cladding.
6. Hardware: Submit samples indicating typical finish on window hardware.

B. Quality Control Submittals: Submit the following under provisions of Section 01400 - Quality Control:

1. Reference List: Submit reference lists as specified under Quality Assurance article.

C. Contract Closeout Submittals: Submit the following under provisions of Section 01700 - Contract Closeout:

1. Owner's Manual: Submit bound manual clearly identified with project name, location and completion date. Identify type and size of window units installed. Provide recommendations for periodic inspections, care and maintenance. Identify common causes of damage with instructions for temporary patching until permanent repair can be made.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company having at least 25 years experience in the manufacture of vinyl clad wood window products. Provide a reference list of at least 3 projects of similar scale and complexity successfully completed during the past three years. Provide project names, locations, completion dates, names and telephone numbers of General Contractor's and Owner's contact person.

B. Installer Qualifications: Company experienced in the installation of vinyl clad wood window products. Installer to provide a reference list of at least 3 projects of similar scale and complexity successfully completed during the past three years. Provide project names, locations, completion dates, names and telephone numbers of General Contractor's and Owner's contact person.

C. Safety Glazing: Comply with safety glazing requirements of CPSC 16CFR 1201. (

D. Insulating Glass Units: Provide insulating glass units permanently marked with certification label of Insulating Glass Certification Council (IGCC) indicating compliance with Class CBA.

1.06 DELIVERY, STORAGE AND HANDLING

A. In addition to general delivery, storage and handling requirements specified in Section 01600, comply with the following:

1. Deliver materials to job site in sealed, unopened cartons. Protect uncartoned set-up multiple units from rubbing.
2. Identify each carton with material name, date of manufacture and lot number.

3. Store windows and accessories off ground, under cover, protected from weather and construction activities.

1.07 PROJECT CONDITIONS

A. Install windows in strict accordance with safety and weather conditions specified by manufacturer's product literature.

B. Extra caution must be exercised when temperature drops below 32 degrees F., and extreme care below 0 degrees F.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Andersen® 400 Series tilt-wash double-hung units as manufactured by Andersen Corporation, Bayport, Minnesota.

2.02 MATERIALS

A. Frame and Sash Members: Fabricated from a wood species approved in AAMA/NWWDA Industry Standard 101/I.S. 2.

B. Outer Frame Members: Vinyl wrapped wood (PVC) complying with the requirements of ASTM D4216.

1. Color: Terratone®.

C. Sill: Tilt-Wash and Double-Hung Picture: Fibrex™ material sill cover over a wood species approved in AAMA/NWWDA Industry Standard 101/I.S. 2.

D. Weatherstripping:

1. Double-Hung Horizontal Weatherstripping: Gasket type vinyl covered foam in top and bottom rails. Check rail weatherstripping to be Santoprene bulb covered with low friction plastic coating secured to filled polypropylene base. Fin-seal weatherstrip at ends of checkrail.
2. Double-Hung Unit Vertical Weatherstripping: Polypropylene leaf style weatherstripping in contact with side jamb liners.
3. Side Jamb Liner: Back with positive pressure open cell polyurethane foam bonded to polyurethane closed cell edge strip. Seal lower jamb liner with two EPDM closed cell foam plugs. Seal each balance cavity with one closed cell foam plug per ASTM D 1056, 2A2. Provide fin-seal weatherstrip bonded to jamb liner at check rail area of side jamb between sash runs.

E. Design Pressure Upgrade: Provide DP upgrade kit on windows as required to meet design pressure requirements.

2.03 GLAZING

A. General: Insulating glass units certified through the Insulating Glass Certification Council as conforming to the requirements of IGCC Class CBA when tested in accordance with ASTM E 773 and E 774. Provide dual sealed units consisting of polyisobutylene primary seal and silicone secondary seal. Metal spacers to have bent corners.

B. High-Performance™ Low Emissivity, Argon Blend Filled Insulating Glass Units:

1. Glass: Insulating glass units to consist of an outboard lite of clear annealed glass conforming to ASTM C 1036, Type 1, Class 1, q3 and an inboard lite of clear, heat strengthened glass conforming to ASTM C 1048, Type 1, Class 1, q3, Kind HS.
2. High-Performance™ LoE^2 Coating : MSVD LoE^2 coating applied to the No. 2 surface.
3. Filling: Fill space between glass lites with an argon gas blend to reduce heat loss.
4. Performance Characteristics for the center of glass: The following performance characteristics are based on NFRC validated spectral data files for the respective glazing. The values are for center of glass only. (See section 1.03 for whole fenestration performance values.)
   a. U-Factor: 0.28.
   b. Solar Heat Gain Coefficient (SHGC): 0.43.
   c. Visible Light Transmittance (Vtc): 73%.
   d. Ultra-Violet Transmittance (Tuv): 17%.
   e. Krochmann Damage Weighted Fading Function (Tdw): 34%.

2.04 HARDWARE

A. Double-Hung Window Hardware:

1. Sash Locks and Keepers: Provide one sash lock and keeper.

   a. Classic™ Style Locks: Injection molded, glass reinforced polyester sash locks with integral color. Color: white.

2. Sash Lift: Provide one hand lift per window unit.

   a. Hand Lift: Classic™ zinc cast lift with a baked powder coated finish on chromate protective coating in white color.

3. Balances: Fit top and bottom sash with balances consisting of spring power with block and tackle and 100 lb. test nylon cord. Design balances to assure easy operation of double-hung units.
4. Balance Shoes: Provide four balance shoes for each window unit. Locate one balance shoe at lower corners of both sash. Balance shoes to slide in side jamb liner pockets and be capable of being connected to additional block and tackle balances to accommodate optional, heavier glazing. Balance shoe shall lock sash in both up and down directions when sash has been tilted in for cleaning. Balance shoe shall release after sash is returned to vertical position allowing it to operate up and down freely. Equip balance shoe with sash pivot retainer spring.
5. Sash Pivot: Provide four balance pivots. Mount one sash pivot at lower corners of both sash. Sash pivot is retained in balance shoe assembly until sash retainer spring is depressed allowing sash to be removed.
6. Wash Assists: Provide two wash assists mounted in center pocket of side jamb liners. Depressing wash assists between liner and lower check rail ends will cause lower sash to unhook from side jamb liners. When lower sash is unhooked, lower sash can be easily pulled in for cleaning.
7. Wash Assist Stops: Provide two wash assist stops at side jamb liner center pockets.

2.05 INSECT SCREENS

A. Insect Screens: Provide venting sash with an insect screen, including attachment hardware.

1. Frames: 0.020" rolled aluminum frame with chromate conversion coating. Provide matching corner locks and latch retainers.
2. Insect Screen Cloth: 18 x 16 aluminum mesh, gun metal finish.
3. Frame Finish: White high-bake polyester finish.

2.06 JOINING SYSTEMS

A. Joining Systems:
1. Joining Clips.
2. Gusset Plates: Galvanized steel plates which attach to wood frame.
3. Head Flashing: 6" long sheet vinyl. Color to match window exterior.
4. Silicone Sealant: Silicone sealant recommended by window manufacturer.
5. Vinyl Outside Trim Strips: As recommended by window manufacturer for each joining method used. Color to match window unit exterior color.

2.07 ACCESSORIES

A. Sill Stool: Wood members machined from clear material or veneered finger-jointed material approved in AAMA/NWWDA Industry Standard I.S. 2.

B. Extension Jambs: Wood members machined from clear material or veneered finger-jointed material approved in AAMA/NWWDA Industry Standard I.S. 2. Pre-drill extension jambs for application (Note: 5-1/4" extension jambs not pre-drilled).

C. Exterior Trim:

1. Exterior Trim and Casing: Where indicated on Drawings provide 1/2 inch vinyl sheathed plywood conforming to U.S. Product Standards P.S. 1 and rigid vinyl channels. Color to match window framing.
   a. Andersen® Vinyl laminated board to have 0.045" thick vinyl with smooth surface laminated with adhesive to 1/2" thick plywood.
   b. Trim channels: Rigid vinyl extrusions supplied by window manufacturer for use on same product line.
2. Support Mullion Trim: 2" wide wood filler and vinyl trim strip. Color to match window unit exterior color.

2.08 FABRICATION

A. Preservative Treatment: Treat wood sash and frame members after machining with a water repellent preservative in accordance with WDMA I.S. 4.

B. Frame Units: Outer frame shall be vinyl wrapped treated wood with corners sealed with silicone and vinyl corner flashing. Sill to be fabricated of Fibrex™ material laminated to wood sub-sill core with PVC end caps. Bond outer frame members and sill cover to wood base frame with adhesive. Staple inside stops to jambs and sill base. All wood components are treated with wood preservative.

C. Jamb and Head Liners:

1. Double to wood head member. Provide 0.060" thick, rigid vinyl side jamb liner extrusion secured in pocket of side jamb assembly. Hung Units and Transom: Provide 0.045" thick, rigid vinyl head jamb liner extrusion secured.
2. Stationary Picture Unit: Provide vinyl jamb liners.

D. Sash: Treat sash members with a preservative, water repellent, conductive solution in accordance with WDMA I.S. 4.

1. Double-Hung and Transom Sash: Provide Andersen prefinished white interior.
   a. Stabilizer Coating:
      1.) Apply minimum 1.5 mil dry thickness polyurea stabilizer to all surfaces to be topcoated.
   b. Finish Coating:
      1.) Apply minimum 1.5 mil dry thickness flexacron finish coat over stabilized exterior and interior surfaces.
   c. Glazing: Factory glaze with high quality glazing sealant and snap-in rigid vinyl glazing bead.
      1.) Factory glaze with high quality glazing sealant and snap-in rigid vinyl glazing bead.

E. Glazing: Factory glaze with high quality glazing sealant and snap-in rigid vinyl glazing bead.

F. Factory apply weatherstripping.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect opening before installation is commenced.

1. Verify concrete surfaces are dry and free of excess mortar, rocks, sand and other construction debris.
2. Verify rough opening or masonry opening is square and dimensions are correct. Verify sill plate is level.
3. Verify wood frame walls are dry, clean, sound and well nailed, and/or glued, free of voids and without offsets at joints. Ensure that nail heads are driven flush with all surfaces in opening and within 3" of rough opening.

3.02 PREPARATION

A. Open carton and remove window and all parts. Inspect window. Verify that window is not damaged and all parts are included before disposing of carton.

B. Close and lock operating sash.

3.03 JOINING SYSTEMS

A. Assemble joining system where required for window combinations according to window manufacturer's instructions.

B. Apply head flashing with silicone sealant at each vertical mullion head joint.

3.04 INSTALLATION

A. Install window units, hardware, operators, accessories and other window components according to window manufacturer's installation instruction sheets.

B. Set units plumb, level true to line, without warp or rack in frames or sash.

C. Install loose fitting batt insulation in shim space around window perimeter to maintain continuity of building insulation. Do not use expanding foam insulation.

D. Extend vapor barrier to interior face of window frame and attach.

3.05 EXTERIOR FINISHING

A. Hold back exterior siding or other finish materials from edge of window to allow for expansion and contraction and the installation of a proper sealant joint with backing materials.

B. Seal perimeter of window after exterior finish is applied in accordance with the requirements of Section 07900.

C. Application of vinyl trim strip to wood filler for support mullion:

1. Install according to window manufacturer's installation instruction sheets.

D. Application of Andersen® trim board and vinyl laminated board and rigid channels:

1. Install according to window manufacturer's instructions.

3.06 INTERIOR FINISHING

A. Provide Andersen prefinished white interior.

3.07 ACCESSORIES

A. Grilles: Install grilles according to window manufacturer's instructions.

B. Extension Jambs: Install according to window manufacturer's instructions.

3.08 CLEANING

A. Clean vinyl surfaces to remove dirt. Use cleaning materials specifically recommended by window manufacturer.

B. Protect glass and hardware from masonry cleaning solutions. Contact with the solution could etch the glass and cause seal failure of the insulating glass unit.

C. Remove debris from work site.

D. Leave window units in closed and locked position.

E. Protect interior and exterior of window units until structure is sealed from the weather.

END OF SECTION

PARK DANFORTH RENOVATIONS

Portland, Maine

Window Schedule

No.	Window Manufacturer	Unit Type	Model No.	Unit Width (Each)	Unit Height	Infill Existing Opening Below Window	Required Egress	Low "E" Insul-Glass (5)	Pre-finished Interior White	Insect Screen (8)	Pre-finished Grills (10)	Pntd. GWB Return Jamb+Head	Pntd. Wood Sill+Apron (6)	Factory Mulled Pair (11)
A	Andersen Corporation	400 Series Tilt Wash DH	(2) TW28310	2'-9 5/8"	4'-0 7/8"	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes
B	Andersen Corporation	400 Series Tilt Wash DH	TW34310	3'-5 5/8"	4'-0 7/8"	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No
C	Andersen Corporation	400 Series Tilt Wash DH	TW34310	3'-5 5/8"	4'-0 7/8"	No	No	Yes	Yes	Yes	No	Yes	Yes	No
D	Andersen Corporation	400 Series Tilt Wash DH	(2) TW2852	2'-9 5/8"	5'-4 7/8"	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes
E	Andersen Corporation	400 Series Tilt Wash DH	TW3452	3'-5 5/8"	5'-4 7/8"	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No
F	Andersen Corporation	400 Series FW Patio Door (15)	FWH6068	5'-11 1/4"	6'-7 1/2"	-	No	Yes	Yes	Yes	No	Yes	No	No
G	Andersen Corporation	400 Series Picture Unit	DHP34410	3'-5 5/8"	5'-0 7/8"	-	No	Yes	Yes	No	Yes	Yes	Yes	No
H	Andersen Corporation	400 Series Tilt Wash DH	(2) TW34410	3'-5 5/8"	5'-0 7/8"	-	No	Yes	Yes	Yes	No	Yes	Yes	Yes
J	KML Windows Inc. (9)	Picture Window	Alum. Clad DG	3'-5 5/8"	Varies (12)	-	No	Yes	Yes	No	Yes	Yes	Yes	No
K	KML Windows Inc. (9)	Double Hung	Magnum	3'-5 5/8"	Varies (12)	-	No	Yes	Yes	Yes	No	Yes	Yes	Yes

1 Alternate Manufactuers: No alternates.
2 Verify New and Existing Rough Openings Prior to Framing and Ordering.
3 Insulate Between Window and Rough Opening as recommended by window manufacturer.
4 Provide Safety Glazing as Required by CPSC Regulations.
5 Provide Insulated Glazing throughout.
6 Brosco 8710 Apron w/ 5/4x Sill.
7 Prepare openings for window treatments at all residential unit windows (NIC).
8 Match Andersen Window Screen Stock.
9 Interior and exterior finish color to match Andersen Windows Corp. adjacent colors.
10 1 1/8" Full Divided Light Grill, Configuration as Indicated
11 1/16" Tilt Wash Narrow Mullion
12 Unit Height Varies from 3"-1" to 5'-4" +/-; R = 16'-0"
13 Provide DP (Design Pressure) Upgrade Kits as required to meet minimum design pressures specified.
14 Terratone Exterior Color Typical at all Units.
15 Provide ilnterior and exterior ADA Threshold.

SECTION 09260

GYPSUM BOARD SYSTEMS

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Gypsum board with joint treatment.

B. Metal stud wall framing.

1.3 SYSTEM DESCRIPTION

A. Conform to applicable code for fire rated assemblies and in conjunction with Section 05400 and as indicated on drawings:

1.4 SUBMITTALS

A. Product Data: Provide for gypsum board, joint treatment, accessories and metal framing.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with ASTM C840. GA-201 - Gypsum Board for Walls and Ceilings. GA-214 - Recommended Specification: Levels of Gypsum Board Finish. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board. GA-600 - Fire Resistance Design Manual.

2 PART 2 PRODUCTS

2.1 GYPSUM BOARD SYSTEM

A. Manufacturers:

1. Domtar Gypsum Co.
2. Georgia Pacific Corp.
3. Gold Bond Building Products /Div. National Gypsum Co.
4. United States Gypsum Co.

B. Studs and Tracks: ASTM C645; GA-216 and GA-600; galvanized sheet steel, 25 gage unless otherwise indicated, C shape .

C. Furring, Framing, and Accessories: ASTM C645. GA-216, and GA-600.

D. Gypsum Board Types: 5/8 inch thick, maximum available length in place; ends square cut, tapered edges; unless noted otherwise as follows:

1. Standard Type: ASTM C36
2. Fire Rated Type: ASTM C36 fire resistive , UL rated.
3. Moisture Resistant Type: ASTM C630
4. Exterior Gypsum Soffit Board: ASTM C1177.
5. Exterior Gypsum Sheathing Board: ASTM C1177, Type X.
6. Gypsum Core Board: ASTM C442 square edges.
7. Gypsum Tile Backing Board: Silicone treated core, glass fiber reinforced, ASTM C1173,, 1/2 inch thick.

2.2 ACCESSORIES

A. Acoustic Insulation: ASTM C665, preformed mineral wool, friction fit type, unfaced, 2.5 inch thick.

B. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.

C. Corner Beads: Metal.

D. Edge Trim: GA-201 and GA-216, Type LC bead .

E. Joint Materials: ASTM C475 GA-201 and GA-216, reinforcing tape, joint compound, adhesive, and water.

F. Fasteners: ASTM C1002 Type S12 hardened screws. GA-216.

G. Adhesive: ASTM C557 and GA-216.

H. Textured Finish Materials: Latex based texturing material containing fine aggregate,

3 PART 3 EXECUTION

3.1 INSTALLATION - METAL STUDS

A. Install studding in accordance with ASTM C754. GA-201, GA-216, GA-600. and manufacturer's instructions.

B. Metal Stud Spacing: As indicated on drawings.

C. Partition Heights: Full height to floor or roof construction above. Install additional bracing for partitions extending above ceiling.

3.2 INSTALLATION - GYPSUM BOARD

A. Install gypsum board in accordance with GA-201, GA-216, GA-600, and manufacturer's instructions.

B. Fasten gypsum board to furring or framing with screws.

C. Place control joints consistent with lines of building spaces as directed.

D. Place corner beads at external corners as indicated. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.

E. Seal cut edges and holes in moisture resistant gypsum board and exterior gypsum soffit board with sealant.

3.3 JOINT TREATMENT

A. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes, minimum of three coats.

B. Feather coats onto adjoining surfaces so that camber is maximum 1/32 inch.

C. Sanding and final coat of fill is not required at concealed surfaces above ceilings and in inaccessible spaces.

3.4 TOLERANCES

A. Maximum Variation from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

SECTION 09900

PAINTING

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

A. Surface preparation and field application of paints and coatings.

1.3 SYSTEM DESCRIPTION

A. Conform to applicable code for flame and smoke rating requirements for products and finishes.

1.4 SUBMITTALS

A. Product Data: Provide data on all finishing products.

B. Samples: Submit coating samples for selection, illustrating range of colors and textures available for each surface finishing product scheduled.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Store and apply materials in environmental conditions required by manufacturer's instructions.

1.6 EXTRA MATERIALS

A. Provide minimum of two (2) gallons of each type and color of coating specified.

2 PART 2 PRODUCTS

2.1 MATERIALS

A. Manufacturers: Products of one or more manufacturers are listed in Finish Schedules to establish appearance, performance and quality characteristics. Products of other manufacturers may be accepted subject to review by Architect.

1. ICI Paint Stores
2. Benjamin Moore and Co.
3. PPG Industries: Pittsburgh Paints
4. Pratt and Lambert

B. Coatings: Ready mixed except field catalyzed coatings of good flow and brushing properties, capable of drying or curing free of streaks or sags.

C. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials required to achieve the finishes specified, as recommended by coating manufacturer..

2.2 FINISHES

A. Refer to schedule at end of section for surface finish schedule.

3 PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that substrate conditions are ready to receive Work.

B. Measure moisture content of porous surfaces using an electronic moisture meter. Do not apply finishes unless moisture content is less than 12 percent.

C. Correct minor defects and clean surfaces which affect work of this section.

D. Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

E. Gypsum Board Surfaces: Fill minor defects with latex compounds. Spot prime defects after repair.

F. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

G. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove foreign matter. Remove oil and grease with a solution of tri-sodium phosphate, rinse well and allow to dry.

H. Uncoated Ferrous Surfaces: Remove scale by wire brushing, sandblasting, clean by washing with solvent. Apply treatment of phosphoric acid solution. Prime paint after repairs.

I. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust, hand or power tool clean, clean surfaces with solvent. Prime bare steel surfaces.

J. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.

K. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.

L. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied.

M. Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior calking compound after sealer has been applied.

3.2 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Sand transparent finishes lightly between coats to achieve required finish.

C. Where clear finishes are required, tint fillers to match wood.

D. Back prime interior and exterior woodwork scheduled to receive paint finish with primer paint.

E. Back prime interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.

F. Minimum Coating Thickness: As recommended by manufacturer.

G. Prime Coats: Prime material as recommended by manufacturer. Recoat primed surfaces as required to cover suction spots or unsealed areas.

H. Pigmented Surfaces: Completely cover to achieve an opaque, smooth surface of uniform finish, color and appearance. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other imperfections will not be accepted.

I. Transparent Finishes: Provide smooth surface of uniform luster, free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes or other imperfections.

3.3 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

A. Refer to Division 15 and Division 16 sections for schedule of color coding, identification banding of equipment, ductwork, piping, and conduit.

B. Color code items in accordance with requirements indicated. Color band and identify with flow arrows, names, and numbering.

C. Paint shop primed equipment.

D. Remove unfinished louvers, grilles, covers, and access panels and paint separately. Paint dampers exposed behind louvers, grilles, convector and baseboard cabinets to match face panels.

E. Prime and paint insulated and exposed pipes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are prefinished.

F. Paint interior surfaces of air ducts, and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint, to limit of sight line.

G. Paint exposed conduit and electrical equipment occurring in finished areas except prefinished surfaces.

H. Paint both sides and edges of plywood backboards.

I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.4 CLEANING

A. As work proceeds, promptly remove finishes where spilled, splashed, or spattered.

3.5 SCHEDULE - INTERIOR SURFACES

Surface	Finish	System	Product	Coats
Concrete	Sealer	Sealer	Glid Seal 19228	1
Drywall	Eggshell	Primer	ICI Ultra-Hide PVA Primer Sealer 1030-1200	1
		Finish	ICI Ultra-Hide Latex Eggshell Enamel 1412-XXXX	2
Drywall	Flat	Primer	ICI Ultra-Hide PVA Primer Sealer 1030-1200	1
		Finish	ICI Ultra-Hide Flat Enamel 1210-XXXX	1
Metal	Semigloss	Primer	ICI Devflex Acrylic Primer 4020-1000	1
		Finish	ICI Devflex Acrylic Semi-Gloss Enamel 4208-XXXX	2
Wood	Semigloss	Primer	ICI Ultra-Hide Acrylic Wood Primer 1020-1200	1
		Finish	ICI Ultra-Hide Latex Semi-Gloss Enamel 1416-XXXX	2
Wood	Clear	Primer	ICI Woodpride Urethane Satin 1908 reduced 25%	1
		Finish	ICI Woodpride Urethane Satin 1902	2

3.6 SCHEDULE - EXTERIOR SURFACES

Surface	Finish	System	Product	Coats
Metal	Gloss	Primer	ICI Devflex DTM Flat Primer 4020-1000	1
		Finish	ICI Devflex Acrylic Gloss Finish 4206-XXXX	2
Wood	Satin	Primer	ICI Ultra-Hide Durus Acrylic Latex Primer 2010-1200	1
		Finish	ICI Dulux Professional Finish 2402-XXXX	2

...END OF SECTION