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**Project: City of Duluth Fire Station #2 Window Replacement
#15-0369**

**Project Identification & Certification
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CITY OF DULUTH FIRE STATION #2
WINDOW REPLACEMENT
#15-0369

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.



Robert Fern

Registration Number 20088

ARCHITECT: RW Fern Associates, Inc.
413 East Superior Street
Duluth, Minnesota 55802
(218)722-8271

SECTION 01 11 00

SUMMARY OF WORK

Work includes:

- Removal of existing blinds/curtains for reinstallation.
- Removal of existing windows.
- Disposal of old windows and deris.
- All carpentry required for new window installation.
- Furnishing and installing new windows.
- Installation of all flashings/covers.
- Caulking
- Reinstallation of existing blinds/curtains.

SECTION 01 31 00

PROJECT COORDINATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Project Coordination
- B. Schedule
- C. Construction Meetings
- D. Shift Times

1.2 SCHEDULE

- A. Schedule: The general contractor shall submit a schedule of construction activities for approval. Work shall be started as soon as Notice to Proceed is received.
- B. Project Completion: Construction work is to proceed immediately from Notice to Proceed with on-site construction work to begin when directed and continue uninterrupted until completion. Timelines as established by Contractor will be adhered to and used as a guide to construction progress.

1.3 CONSTRUCTION MEETINGS/COORDINATION

- A. All contractors scheduled to have operations on site during any week, or when requested, shall attend weekly construction meetings as scheduled. All upcoming construction operations will be reviewed at this meeting to allow for scheduling of building activities. Close coordination with owner's representative must occur throughout construction period.
- B. Coordination: The general contractor shall provide scheduling and superintendence.

1.4 SHIFT TIMES

- A. Minimum of eight (8) hour work days during regular Monday – Friday schedule. Work can be arranged for longer hours.

1.5 SITE ACCESS/RESTRICTIONS

- A. Building Access: As building will be occupied during construction, access to facilities will not be allowed except for scheduled construction operations. All fire apparatus lanes must remain open at all times.
- B. Operations must be fenced to extent possible for safety. All entrances must remain passable unless prior arrangements for restricted use have been made.
- C. Storage Areas: Storage areas are indicated on plans and must be fenced by contractor to preclude access by patients or others.
- D. Maintain facility delivery access during construction. Coordinate operations with Owner's representative.
- E. Parking – See Section 01 50 00.

SECTION 01 33 00

SUBMITTALS

1.1 REQUIREMENTS INCLUDED

- A. Administrative provisions for required submittals.

1.2 RELATED REQUIREMENTS

- A. General and Special Conditions
- B. Section 01 33 23 - Shop Drawings, Product Data, and Samples
- C. Section 01 70 00 - Contract Closeout Procedures - Closeout Submittals

1.3 SUBMITTALS

- A. Successful bidder will be required to submit the following:
- B. Performance and Material Payment Bond - on City Forms
- C. Non-Collusive Affidavit
- D. Progress Schedule
 - 1. The Contractor shall, within ten (10) days after the Notice of Award, prepare and submit to the Architect for approval, a schedule showing the order in which he proposes to carry on the work, and dates on which he will start, suspend, and complete the various items of work included in this agreement.
 - 2. The Contractor will be required to adhere to his proposed schedule and he shall prosecute the work in such a manner as to insure its completion within the time set forth in the contract. Any failure to adhere to the proposed schedule will be considered prima facie evidence that Contractor has failed to provide sufficient workmen, equipment or materials to insure completion of the work within the specified time limit.
- E. List of Subcontractors and Suppliers
- F. Certificates of Insurance

Certificates of insurance shall be filed with Owner and Architect/Engineer. No work under this contract shall be started until all insurance policies have been filed and approved.
- G. Other submissions required in this specification book.

SECTION 01 33 23

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Submit all shop drawings, product data, and samples to the Architect for approval.

1.2 RELATED REQUIREMENTS

- A. Conditions of Contract govern requirements of this section.
- B. General and Special Conditions.
- C. Section 01 70 20 - Project Record Documents
- D. Section 01 70 30 - Operations and Maintenance Data

1.3 SHOP DRAWINGS

- A. Contractor shall review, approve, stamp and sign, and then submit to the Architect with reasonable promptness and in such sequence as to cause no delay in the work or in the work of the Owner or any separate contractor, electronic copies of all shop drawings, product data, and samples required by the Contract Documents. Each drawing must contain sufficient clear area for the Contractor stamp and the Architect/Engineer stamp.
- B. By approving and submitting shop drawings, product data, and samples, the Contractor represents that he has determined and verified all field materials, field measures, and file construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the work and of the contract documents.
- C. The Contractor shall not be relieved of any responsibility for any deviation from the requirements of the Contract Documents by the Architect's approval of shop drawings, product data or samples, unless the Contractor has specifically informed the Architect in writing of such deviation at the time of the submission, and the Architect has given written approval to the specific deviation.
- D. The Contractor shall not be relieved from responsibility for errors or omissions in the shop drawings, product data, or samples by the Architect/Engineer's approval thereof. All quantities and dimensions are the responsibility of the contractor.
- E. No portion of the work requiring submission of a shop drawing, product, or sample shall be commenced until the submittal has been approved by the Architect/Engineer. All such portions of the work shall be in accordance with approved submittals.

1.4 PRODUCT DATA

- A. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.

- B. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.

1.5 SAMPLES

- A. Where specific color or finish is not indicated in the specification, submit samples for selection of finishes within eight (8) days after date of contract.
- B. Note: Architect will act on color, finish, texture and pattern selections within reasonable time (30 days minimum) after all sample palettes have been received.
- C. Submit full range of manufacturer's standard finishes except when more restrictive requirements are specified, indicating colors, textures, and patterns, for Architect/Engineer selection.
- D. Submit samples to illustrate functional characteristics of products, including parts and attachments.
- E. Approved samples which may be used in the Work are indicated in the specification section.
- F. Label each sample with identification required for transmittal letter.
- G. Provide field samples of finishes at Project, at location acceptable to Architect/Engineer, as required by individual specifications section. Install each sample complete and finished. Acceptable finishes in place may be retained in completed work.

1.6 MANUFACTURER'S INSTRUCTIONS

- A. Manufacturer's instructions for storage, preparation, assembly, installation, start-up, adjusting, and balancing.

1.7 CONTRACTOR'S REVIEW

- A. Contractor shall sign or initial each sheet of shop drawings and product data, and each sample label to certify compliance with requirements of Contract Documents. Notify Architect/Engineer in writing at time of submittal, of any deviations from requirements of Contract Documents.
- B. Do not fabricate products or begin work which requires submittals until return of submittal with Architect/Engineer acceptance.

1.8 SUBMITTAL REQUIREMENTS

- A. Transmit submittals in such sequence to avoid delay in the Work or work of other trade contracts.
- B. Provide blank space on each submittal for Architect/Engineer stamps.
- C. Apply Contractor's stamp, signed or initialed, certifying to review, verification of products, field dimensions and field construction criteria, and coordination of information with requirements of Work and Contract Documents.
- D. Submit under transmittal letter. Identify Project by title, work and product by specifications section and article number.

1.9 RESUBMITTALS

- A. Make resubmittals under procedures specified for initial submittals; identify changes made since previous submittal.

1.10 ARCHITECT/ENGINEER REVIEW

- A. Architect/Engineer will review shop drawings for general design only, product data, and samples and return submittals to Contractor within seven (7) days. Quantities are the responsibility of the Contractor.

1.11 DISTRIBUTION

- A. Duplicate and distribute reproductions of shop drawings, copies of product data, and samples, which bear Architect/Engineer stamp of approval, to job site file, Record Documents file, subcontractor, suppliers, other affected contractors, and other entities requiring information.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

SECTION 01 50 00

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Temporary Utilities

1. Electricity: From building.
2. Heat: N/A.
3. Telephone Service: Contractor to have cell phone.
4. Water: From building.
5. Sanitary Facilities: Use toilets designated by owner within building.

B. Temporary Controls

1. Barriers: By Contractor.
2. Enclosures and Fencing: By Contractor.
3. Protection of the Work: By Contractor
4. Safety Railings: Subcontract to provide required safety railings. Contractor shall supervise.
5. Building openings to be closed up by weathertight and secure means at the end of each work day.

C. Construction Facilities

1. Parking: No Contractor parking will be allowed on site unless designated area is allowed by the City.
2. Project Sign: None on site.
3. Temporary Buildings: Not required.

D. Delivery of Materials: All delivery of materials across owner's parking lot must be coordinated with on-site staff.

E. Snow Removal: Snow must be promptly removed from construction area to off site.

F. Clean Up: Parking lot, staging area, and construction zone must be kept clean and all debris kept in approved dumpsters.

G. Safety Programs: Each contractor shall be responsible for their safety programs and safety programs of their subcontractors. They shall be responsible for holding safety meetings, adherence to safety programs for their own forces or forces that are performing work that is a part of their contract. They shall be further responsible for the related safety of the public or other persons on site relative to the work under their control.

In no case shall the Owner, the Architect, or their respective employees and agents have either direct or indirect responsibility for matters related to project safety.

SECTION 01 70 00

CONTRACT CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Administrative provisions for Substantial Completion and for final acceptance.

1.2 SUBSTANTIAL COMPLETION

- A. When Contractor considers Work or designated portion of Work is substantially complete, submit written notice to Architect with list of items to be completed or corrected.
- B. Should Architect/Engineer inspection find Work is not substantially complete, he will promptly notify Contractor in writing, listing observed deficiencies.
- C. Contractor shall remedy deficiencies and send a second written notice of substantial completion.
- D. When Architect/Engineer finds Work is substantially complete he will prepare a Certificate of Substantial Completion in accordance with provisions of General Conditions.

1.3 FINAL COMPLETION

- A. When Contractor considers Work is complete, submit written certification:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents, and deficiencies listed with Certificate of Substantial Completion have been corrected.
 - 4. Equipment and systems have been tested, adjusted, and balanced, and are fully operational.
 - 5. Operation of systems has been demonstrated to Owner's personnel.
 - 6. Work is complete and ready for final inspection.
- B. Should Architect/Engineer inspection find Work incomplete, he will promptly notify Contractor in writing listing observed deficiencies.
- C. Contractor shall remedy deficiencies and send a second certification of final completion.
- D. When Architect/Engineer finds work is complete, he will consider closeout submittals.

1.4 REINSPECTION FEES

- A. Should status of completion of Work require reinspection by Architect/Engineer after substantial completion inspection and final inspection of this work and due to failure of

Work to complete, Owner will deduct the amount of Architect/Engineer's compensation for reinspection services from final payment to Contractor.

1.5 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Under provisions of Section 01720.
- B. Operations and Maintenance Data: Under provisions of Section 01730.
- C. Warranties and Bonds: Under provisions of Section 01740.
- D. Spare Parts and Maintenance Materials: Under provisions of Section 01750.
- E. Keys and Keying Schedule: Under provisions of Section 08700.
- F. Evidence of Payment and Release of Liens: In accordance with Conditions of the Contract.
- G. Consent of Surety to Final Payment.
- H. Certificates of Insurance for Products and Completed Operations: In accordance with Supplementary Conditions.

1.6 STATEMENT OF ADJUSTMENT OF ACCOUNTS

- A. Submit final statement reflecting Adjustments to Contract Sum indicating:
 - 1. Original contract sum.
 - 2. Previous change orders.
 - 3. Changes under allowances.
 - 4. Changes under unit prices.
 - 5. Deductions for uncorrected work.
 - 6. Penalties and bonuses.
 - 7. Deductions for liquidated damages.
 - 8. Deductions for reinspection fees.
 - 9. Other adjustment to contract sum.
 - 10. Total contract sum as adjusted.
 - 11. Previous payments.
 - 12. Sum remaining due.
- B. Architect/Engineer will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by change orders.

1.7 APPLICATION FOR FINAL PAYMENT

- A. Submit application for final payment in accordance with provisions of Conditions of the Contract.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

SECTION 01 72 00

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Maintenance of Record Documents and Samples.
- B. Submittal of Record Documents and Samples

1.2 RELATED REQUIREMENTS

- A. Conditions of Contract govern requirements of this section.
- B. Section 00700 - General Conditions
- C. Section 01300 - Shop Drawings, Product Data, and Samples
- D. Section 01700 - Contract Closeout Procedures
- E. Section 01730 - Operation and Maintenance Data
- F. Individual Specification Sections: Manufacturer' certificates and certificates of inspection.

1.3 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. In addition to requirements in General Conditions, all Contractors shall maintain at the site for Owner one record copy of:
 - 1. Contract Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other modifications to the Contract
 - 5. Reviewed shop drawings, product data, and samples.
 - 6. Field test records
 - 7. Inspection certificates
 - 8. Manufacturer's certificates
- B. Store Record Documents and samples in Field Office apart from documents used for construction. Provide fields, racks, and secure storage for record documents and samples.
- C. Label and file Record Documents and samples in accordance with Section number listing in Table of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- D. Maintain Record Documents in a clean, dry and legible condition. Do not use Record Documents for construction purposes.
- E. Keep Record Documents and samples available for inspection by Architect/Engineer.

1.4 RECORDING

- A. Record information on a set of blue line opaque drawings and in a copy of a Project Manual, provided to Owner.
- B. Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.
- C. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- D. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:
 - 1. Measured depth of element of foundation in relation to finish first floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
 - 4. Field changes of dimension and detail.
 - 5. Changes made by Modifications.
 - 6. Details not on original Contract Drawings.
 - 7. References to related shop drawings and Modifications.
- E. Specifications: Legibly mark each item to record actual construction, including;
 - 1. Manufacturer, trade name, and catalog number of each product actually installed, particularly optional items and substitute items.
 - 2. Changes made by Addenda and Modifications.
- F. Other Documents: Maintain manufacturer's certifications, inspection certifications, and field test records, required by individual specification sections.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

SECTION 01 74 00

FINAL CLEANING

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Final cleaning of project to be done by a company experienced in cleaning of carpet, masonry, windows, and building cleaning.

1.2 DESCRIPTION

- A. Contractors execute cleaning prior to inspection for Substantial Completion of each designated portion of the Work.
- B. Execute exterior and site cleaning. Provide access and coordinate with owner's personnel.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

- A. Use materials which will not create hazards to health or property, and which will not damage surfaces.
- B. Use only materials and methods recommended by manufacturer of material being cleaned.

PART 3 - EXECUTION

3.1 CLEANING

- A. In addition to removal of debris and cleaning specified in other sections, clean interior and exterior exposed to view surfaces.
- B. Remove temporary protection and labels not required to remain.
- C. Clean finishes free of dust, stains, films, and other foreign substances.
- D. Clean transparent and glossy materials to a polished condition; remove foreign substances. Polish reflective surfaces to a clear shine.
- E. Vacuum clean carpeted and similar soft surfaces.
- F. Clean, damp mop, wax, and polish resilient and hard surface floors as specified.
- G. Clean surfaces of equipment; remove excess lubrication.
- H. Clean plumbing fixtures, food service equipment, to a sanitary condition.
- I. Clean permanent filters of ventilating equipment and replace disposable filters when units have been operated during construction; in addition, clean ducts, blowers, and coils when units have been operated without filters during construction.

- J. Clean light fixtures and lamps.
- K. Maintain cleaning until Substantial Completion.
- L. Remove waste, foreign matter, and debris from roofs, gutters, area ways, and drainage systems.
- M. Remove waste, debris, and surplus materials from site. Clean grounds; remove stains, spills, and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces.
- N. After substantial completion Owner will perform further cleaning as he may require.

SECTION 01 78 00

WARRANTIES, BONDS, AND GUARANTEES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. This is separate from performance and payment bonds which are reviewed in other parts of this document.

See also Instructions to Bidders: Bid Bonds.

General and Special Conditions: Performance Bond and Labor and Material Payment Bonds, Warranty, and Correction of Work.

- B. Preparation and submittal of warranties and bonds.
- C. Schedule of submittals.

1.2 RELATED REQUIREMENTS INCLUDE

- A. Conditions of Contract and Division 1 - General Requirements govern work of this section.
- B. Section 01 70 00 - Contract Closeout Procedures
- C. Section 01 73 00 - Operation and Maintenance Data
- D. Individual Specification Sections; Warranties and bonds required for specific products or work.

1.3 FORM OF SUBMITTALS

- A. Bind in commercial quality 8-1/2 x 11 inch three-ring side binders, with hard back, cleanable, plastic covers.
- B. Label cover of each binder with typed or printed title WARRANTIES AND BONDS, with title of project; name, address and telephone number of Contractor; and name of responsible principal.
- C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of Product or work item.
- D. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List subcontractor, supplier, and manufacturer with name, address, and telephone number of responsible principal.

1.4 PREPARATION OF SUBMITTALS

- A. Obtain warranties and bonds, executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Completion is determined.

- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Submit to Owner.

1.5 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
- B. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
- C. For items of Work when acceptance is delayed beyond date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

SECTION 01 78 20

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Format and content of manuals.
- B. Instruction of Owner's personnel.
- C. Schedule of submittals.

1.2 RELATED REQUIREMENTS INCLUDE

- A. Conditions of Contract and Division 1 - General Requirements govern work of this section.
- B. Section 01340 - Shop Drawings, Product Data, and Samples
- C. Section 01700 - Contract Closeout Procedures.
- D. Section 01720 - Project Record Documents
- E. Section 01740 - Warranties and Bonds
- F. Section 01750 - Spare parts and maintenance materials.
- G. Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.3 QUALITY ASSURANCE

- A. Instructions and data shall be prepared by personnel experienced in maintenance and operation of described products. Owner's personnel shall be instructed in the maintenance and operations as outlined below.

1.4 FORMAT

- A. Prepare data in the form of an instructional manual.
- B. Binders: Commercial quality, 8-1/2 x 11 inch three-ring binders with hardback, cleanable, plastic covers; one inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS: List title of Project, identify subject matter of contents.
- D. Arrange content by systems, under section numbers and sequence of Table of Contents of this Project Manual.
- E. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

- F. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.5 CONTENTS, EACH VOLUME

- A. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect/Engineer and Contractor with names of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation, delete inapplicable information.
- D. Drawings; Supplement product data to illustrate relations of component part of equipment and systems, to show control and flow diagrams. **DO NOT USE PROJECT RECORD DOCUMENTS AS MAINTENANCE DRAWINGS.**
- E. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- F. Warranties and Bonds: Bind in copy of each.

1.6 MANUALS FOR MATERIALS AND FINISHES

- A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance; Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture-protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: As specified in individual specifications sections.
- E. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.7 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Each Item of Equipment and Each System: Include description of unit or system and component parts. Give function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications.

- C. Include as-installed color coded wiring diagrams.
- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.
- G. Include manufacture's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Provide as-installed control diagrams by control manufacturer.
- K. Provide Contractor's coordination drawings, with as-installed color coded piping diagrams.
- L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- N. Include test and balancing reports as specified.
- O. Additional Requirements: As specified in individual specification sections.
- P. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.8 INSTRUCTION OF OWNER'S PERSONNEL

- A. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times. For equipment requiring seasonal operation, perform instructions for other seasons within six months.
- B. Use operation and maintenance manuals as basis of instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- C. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

1.9 SUBMITTALS

- A. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.

- B. Submit one copy of completed volumes in final form 15 days prior to final inspection. Copy will returned after final inspection with Architect/Engineer comments. Revise content of documents as required prior to final submittal.
- C. Submit four copies of revised volumes of data in final form within ten days after final inspection.

PART 2 - Not Used

PART 3 - Not Used

SECTION 02 41 00

DEMOLITION

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Work under this section includes all demolition and removal work of the existing windows and related as is necessary to accommodate, build, and install new windows; and disposition of all removed materials and equipment. Removal of existing windows shall be limited to areas that can be reconstructed to weathertight condition in one work day.
- B. Furnish all labor, tools, and appliances, and perform all operations necessary to complete all demolition work shown on the drawings and hereinafter specified, or as required to carry all work in the contract to satisfactory completion.

1.2 GENERAL

- A. Care of Work
 - 1. The Contractor shall be responsible for all injury to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all work performed until completion and final acceptance.
 - 2. Demolition work shall proceed only after all materials, equipment, etc. designated for reuse or salvage of the Owner have been removed.
 - 3. In an emergency affecting the safety of life or property, on or adjoining the site, the contractor shall act, at his own discretion to prevent such threatened loss or injury.
 - 4. The Contractor shall avoid damaging sidewalks, streets, curbs, pavements, utilities, structures or any other property (except that which is to be replaced or removed) either on or adjacent to the site. He shall repair, at his own expense and in a manner satisfactory to the Architect, any damage thereto caused by his operations.
- B. Except as otherwise specifically stated in the contract documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fees or other expenses incurred and all other services and facilities of every nature whatsoever necessary for his performance of the contract within the time specified.

PART 3 - EXECUTION

3.1 PROTECTION

- A. The contractor shall take responsible and adequate precautions to protect the Owner's property from damage during demolition work, moving of debris, and damage by the elements, including flooding, wind storms, etc. Any damage to the Owner's property due to the aforesaid work shall be restored or replaced by the contractor at his own expense and in a manner satisfactory to the Owner.

- B. Contractor shall provide and maintain suitable barricades during the progress of the work. They must meet the requirements of state and/or local building codes. The Contractor shall assume full responsibility of barriers to completion of contract and shall remove same.

3.2 GENERAL

- A. Remove all work carefully and only to the extent required for the final work. Remove all loose or damaged materials caused by demolition, or noted or specified to be removed. Protect existing construction that is to remain from damage.
- B. Openings and pockets shall be neatly cut for installation of lintels, anchors, concrete slabs, and precast concrete slabs or bearing plates where required.
- C. Depressions, chases, etc. shall be neatly cut with carborundum saws where such cuts will be exposed in the finished work.
- D. The use of pneumatic hammers for demolitions and cutting purposes within the existing building will not be permitted.
- E. Debris transported through finished spaces shall be on rubber-tired trucks or dollies and shall be properly covered to minimize spread of dust. Clean up in finished spaces must occur on a regular basis.
- F. Leave each area broom clean upon completion of the demolition work.

3.3 DISPOSITION OF MATERIALS

- A. Unsalvageable Materials - All unsalvageable materials shall be removed in a manner that will avoid damage to materials or equipment to remain and shall be completely removed and legally disposed away from the site.
- B. Salvageable Materials to be Reused in the Work - Salvageable materials designated for reuse or relocation shall be carefully removed by the applicable trades and shall be protected from damage until they are incorporated into the new work.
- C. Salvageable Materials to be Stored for the Owner - Salvageable materials designated to remain the property of the Owner shall be carefully removed by the applicable trades, protected from damage, and stored as directed on the site.
- D. All other materials or debris resulting from demolition operation shall become the property of the Contractor and shall be removed from the site promptly. No accumulation of debris will be permitted. Wood and flammable debris resulting from demolition operations shall not be burned on the site.

3.4 ASBESTOS OR PCB REMOVAL/ENCAPSULATION

- A. If suspect material is encountered, advise Architect for removal action or instructions.

3.5 DEMOLITION AND SALVAGE

- A. No right, title, property or interest of any kind whatsoever in or to the land or premises upon which buildings or structures stand is created, assigned, conveyed, granted or transferred to the Contractor or any other person or persons, except only

the license and right of entry to remove parts of buildings and structures in strict accordance with the Contract.

- B. Only such property may be salvaged by the Contract as is owned by the Owner and in the event of any doubt respecting the ownership of any particular property, the Contractor shall request from the Owner a written statement regarding its ownership.
- C. All salvage becomes the property of the contractor except as otherwise indicated, but storage of such materials and equipment on the project area will not be permitted except for the duration of the contract and such storage at no time interfere with the activities of the Owner or of other contractors.
- D. Personal property of third persons or of occupants of buildings on the site shall not become the property of the Contractor.
- E. Unless otherwise specified, no part of the structure shall be removed from the premises as a whole, or in a substantially whole condition, but all such parts shall be demolished on the premises.
- F. Live Utilities and Other Property
 - 1. The contractor shall assume all responsibility for damage attributable to him to any property upon, or passing through the project area, but excluded from the work not owned by the Owner such as utility lines, surface improvements, or like items.
 - 2. If disconnections of underground utility services are required to be made in public thoroughfares, the Contractor shall comply with all local requirements and regulations respecting the barricading of trees, the removal and restoration of pavement, and other pertinent matters.
- G. Mechanical and Electrical Work Exposed: Where mechanical ductwork or piping or electrical conduit is exposed during removal of partitions or walls it shall be removed or rerouted by the respective trades as required. Rerouting piping shall be located where directed and shall be connected to maintain all functions in proper operation. Abandoned piping may be left in place where it is concealed in floors or walls, providing that it is disconnected from its source. There shall be no "dead end" water, sewer, or vent piping existing in the completed work.

3.6 PRECAUTIONS

- A. The operations of the contractor shall be done in such manner as to avoid fires and other hazards to persons and property, interference with the use of adjacent buildings or interruption of free passage to and from such buildings. On completion of the work, the premises shall be left in a condition satisfactory to the Architect.
- B. Where adjoining structures are occupied, the contractor is required to advise the inhabitants as to when the demolition work or site clearance work will be started and of the hazards involved. A minimum of a rope barricade shall be provided during working hours to restrict unauthorized persons from entering hazardous working areas. If basement openings or other hazardous conditions must be left unattended, a minimum of a continuous snow fence barricade shall be provided around the entire basement opening or hazard.
- C. The use of explosives in the performance of the work under this Contract is prohibited.

3.7 DEBRIS CLEANUP

- A. No combustible debris shall be thrown, stored or burned on the site or adjacent parcels, sidewalks, streets, drives, parking lots or alleys. Debris created from wrecking site clearances must be disposed of as demolition or removal work proceeds.
- B. Dropping of brick, stone or concrete walls on adjacent property, sidewalks, streets, drives, parking lots or alleys not in Contract is forbidden. All wrecking operations, storing or processing of non-combustible debris shall be restricted to the boundaries of the demolition area.
- C. The cleaning up of the streets, drives, walks, parking lots, parcels and the site shall include the removal and disposal of any rubbish, refuse or other trash lying within the areas, whether or not such conditions have resulted from operations under this Contract.

END OF SECTION

SECTION 06 10 00

CARPENTRY

PART 1 – GENERAL

1.1 WORK INCLUDES

- A. Furnish and install all rough carpentry indicated on the drawings and herein specified.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Lumber shall be construction grade, coast type, Douglas Fir or White Pine, No. 1 Northern Hardwood and Pine Association. Lumber shall comply with PS20, American Softwood Lumber Standard. All of the above shall be less than 15% moisture content when installed as framing, furring, or rough bucks. Lumber must bear stamp on each piece over 5'-0" long.

Wood nailers, cants, curbs, etc. for roofs and wood in direct contact with concrete slabs shall be pressure treated with Wolman Salts with not less than 0.35 pounds of salt injected for each cubic foot of wood, or shall be treated before installation with two coats of woodlife preservative, colored to identify areas coated.

- B. Wood bucks, plates, etc. and fire treated wood shall be nominal 2-inch material. Lumber for bucks, blocking, furring or other use shall be pressure treated with Kopper's Company Non-Com fire-retardant chemicals to comply with UL requirements.
- C. Plywood shall be DFPA exterior grade "A-C" Douglas Fir plywood of thickness indicated on the drawings, tongue and groove where called for. Plywood shall comply with ANSI A199.1.
- D. Vapor Barrier: N/A
- E. Air Infiltration Barrier: N/A

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Protect all masonry, carpentry, metal work, millwork and other materials from damage of any character during the progress of the work. Store millwork in accordance with manufacturer's recommendations. Provide temporary wood doors in exterior walls and cloth or transparent plastic covering over windows in exterior walls during plastering and until the building has dried out.

- B. Furnish and install all wood nailing blocks, furring strips, grounds, including grounds, etc. and all other ground and framing detailed or required for the securing of all finished work. When installed on masonry, securely fasten with anchors spaced not more than 18" on centers. Anchors shall be similar to Rawl Plugs consisting of #12 sheet metal screws at least 2-1/4" long and lead lined fibre enclosed shield inserted in 1/4" holes drilled in masonry with a carboloy bit. Devices other than Rawl Plugs may be substituted provided they consist of metal lined shields enclosed with compressive material inserted in drilled holes and have screws to permit shimming of wood grounds providing for adjustment and alignment to true lines and planes.
- C. Furnish and install all rough hardware required, such as nails, screws, anchor bolts and devices (except those occurring in structural steel). All rough hardware shall be of the proper type and size for the intended use. Provide adequate hardware to achieve substantial and positive anchorage. Nailing into wood plugs is not acceptable for any work.
- D. Blanket and fill type insulation shall be installed where shown and to the extent indicated on the drawings.

END OF SECTION

SECTION 06 20 00

FINISH CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. The work of this section consists of the furnishing of all millwork indicated on the drawings and herein specified
- B. Installation of millwork is specified in Section 06 10 00, and is not a part of the work of this section.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Interior Trim: Furnish and install all interior trim moldings and all other trim as noted in this section or on plans. All exposed trim to be knot free poplar, painted.

2.2 FABRICATION

- A. Millwork and trim shall conform to design and details shown. Where practical, work shall be finished and assembled at the mill. All millwork and trim shall be finished smooth and free from machine or tool marks that will show through the finish. All nail heads shall be set to receive putty.

PART 3 - EXECUTION

3.1 GENERAL

- A. All finish carpentry work shall be done in a neat and workmanlike manner. Items shall be accurately cut, scribed, fitted and joints and all work shall be plumb, square, level, at proper elevation, straight, true to line and flush.
- B. In no case shall any finish be allowed in the building until at least ten days after plastering has been completed. All finish material shall be air and kiln dried, highly sanded and free from defects. All finish shall be back painted and face primed, filled or stained as a part of the work under painting specification before placing. Gouges, dents, hammer marks, splits or other defects will not be permitted in the finish work.

END OF SECTION

SECTION 07 65 00

MEMBRANE FLASHING

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Provide self adhering membrane or liquid applied flashings on sill and window perimeter and as indicated on drawings. Turn ends up to form dam.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Membrane flashing to be 6" strips of Bituthene or similar product, self adhering or liquid applied membrane. Submit data to architect for approval.

PART 3 – INSTALLATION

- A. Install membrane to clean and dry surfaces per manufacturer's instructions.
- B. Seal edges of membrane to dissimilar material with compatible sealant to watertight condition.

END OF SECTION

SECTION 07 62 00

FLASHINGS, SHEET METAL

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Providing sill flashing over membrane, turned up at ends and fabricated as indicated on section.
- B. Mullion and perimeter trim covering as indicated on drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Prefinished Metal: Shall be hot dipped galvanized steel, cleaned, pretreated, and primed and coated. Material shall be 24 gauges and have properties as outlined for Color Klud in Nov. 1987 Spec Data Sheet Metal Roofing as provided by Vincent Brass and Aluminum Co., Pac-Clad, or Una-Clad. Provide strippable plastic film coating and remove coating after installation on building.
- B. Color as selected.

PART 3 - INSTALLATION

- A. Install in first class manner utilizing Sheet Metal and Air Conditioning Contractors National Association (SMACNA) standards.
- B. Touch up paint all raw edges and any exposed fasteners with matching paint.
- C. All seams to be folded and sealed watertight. Provide means for expansion, contraction.

END OF SECTION

SECTION 07 90 00

CAULKING AND SEALANTS

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Furnish and apply all caulking complete, in strict accordance with these specifications and the applicable drawings. Caulk at all intersections or junctions of metal and other materials as shown on drawings and as required.
- B. Caulk at intersections of metal, concrete, masonry, wood, or similar combinations. Caulk at all joints of aluminum clad composite panels.

1.2 SUBMITTALS

- A. Provide samples of colors of sealants to be selected.
- B. Manufacturer's Data - Provide three (3) copies of manufacturer's data sheet recommendations, specifications, and installation instructions.

1.3 STORAGE AND DELIVERY

- A. Deliver materials in manufacturer's original unopened packaging with identification labels intact and eligible.
- B. Store materials in area protected from weather, moisture, open flame, and sparks.
- C. Environmental Requirements: Comply with sealant manufacturer's recommendations for maximum and minimum application temperatures and humidity.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Caulking and sealant material for exterior use shall be 20-year minimum life expectancy products.
- B. Control Joints: Provide Ethafoam rod and Tremco Dymeric caulking, both installed as recommended by manufacturer and as per typical details shown on plans. Sonneborn NP II or similar Pecora Product will be approved. Architect will select color from samples provided by contractor. Installation shall be made by applicator regularly engaged in this work and knowledgeable in current caulking techniques and having approved equipment.
- C. One part urethane sealant shall comply with Federal Specification TT-S-00230C. Use for interior and exterior vertical surface joints where normal movement is anticipated, window and door perimeters, etc. Sonneborn-Contech-Sonolastic NPI; Sika Chemical Corp. - Sikaflex 1A. Colors as selected by Architect from manufacturer's standard colors.

- D. Two part self-leveling urethane sealant shall comply with Federal Specification TT-S-00227E, Type I, Class A. Use for horizontal surface joints, exterior/interior, such as concrete paving joints, concrete floor joints, etc. Sonolastic Paving Joint Sealant; Sonneborn-Contech, Urexpan NR100, Pecora Corp. Color as selected by Architect from manufacturer's standard colors.
- E. Acrylic Latex Sealant - Use for non-moving interior joints at HM doors, etc. Sonneborn-Contech-Sonolac; Tremco - Acrylic Latex Caulk; Pecora Corp. AC-20. Colors as selected by Architect from manufacturer's standard colors.
- F. Silicone Sanitary Sealant - Use at joints in ceramic tile, joints around plumbing fixtures, etc. General Electric Co. - Silicone Rubber Bathtub Caulk. Colors as selected by Architect from manufacturer's standard colors.
- G. Joint Cleaner - As recommended by sealant manufacturer.
- H. Joint Primer - As recommended by sealant manufacturer.
- I. Bond Breaker Tape - As recommended by sealant manufacturer.
- J. Sealant Backer Rod - Ethafoam circular sized to tight fit into opening.
 - 1. Sealant is to be "Sikaflex" polyurethane in color to match aluminum panels.
 - 2. Back up material shall be non-asphaltic expanded closed cell polyethylene, Ethafoam (round) Rod Stock by Dow Chemical Co., or approved equal. Back up material shall not bond to sealant. Diameter of rod stock shall be at least 1/8" larger than the joint opening.

PART 3 - EXECUTION

3.1 GENERAL

- A. Furnish and apply all caulking, complete, in strict accordance with these specifications and the applicable drawings. Caulk at all intersections or junctions, masonry and concrete at junctions of metal, and concrete or masonry at hollow metal and aluminum windows and doors, at tops of all precast and poured concrete walls, tops of block partitions, and as shown on drawings. Caulk at intersections of plaster, metal, concrete, masonry, wood, or similar combinations. Caulk under copings at expansion joints and where required for watertight construction.
- B. Caulk at all joints around doors, windows, louvers, or other openings through exterior walls where shown on drawings. Expansion joints, top joints of all sills, coping stone and projecting cut stone ledges, both sides of jambs and heads on exterior and interior panels, and interior joint at spandrel beams shall be caulked with caulking compound. Where joints are more than 3/4" in depth, joints shall be backed up to 3/4" of surface before caulking.
- C. Caulking compound shall be applied around metal walls and roof panels, HM doors, and similar locations. Where voids occur, joints shall be filled with back-up material specified for use with flexible sealant. For joints up to 1/2" in width, depth of joint shall be equal to width; for joints over 1/2" in width, depth shall be 1/2 of width.

3.2 INSPECTION

- A. Examine joints to be sealed for construction defects that would adversely affect execution of work.
- B. Ensure that masonry and concrete have cured a minimum of 28 days.
- C. Do not proceed with installation until unsatisfactory conditions are corrected.

3.3 PREPARATION

- A. Clean joint surfaces with joint cleaner, free of dust, dirt, oil, grease, lacquers, laitance, release agents, moisture, or other matter which might adversely affect adhesion of sealant.
- B. Apply primer to surfaces recommended by sealant manufacturer to be primed, following manufacturer's instructions.

3.4 INSTALLATION

- A. Install bond breaker tape where required by sealant manufacturer's instructions.
- B. Install sealant backer rod where shown or required by sealant manufacturer's instructions.
- C. Install sealants in accordance with manufacturer's instructions. Install sealants in uniform, neat and continuous beads without gaps or air pockets. Tool joints to required configuration within 10 minutes of sealant installation.

3.5 WORKMANSHIP

- A. Sides and tops of windows and inside joint areas of exterior frames or any other openings in exterior wall shall be caulked with oakum where voids exist and tubular backup can not be used.
- B. After all back up caulking has been placed, caulk all joints with caulking compound. All surfaces to be caulked shall be clean and thoroughly dry. Caulking shall be forced into rabbets under mechanical pressure, filling all voids complete to render water and airtight and shall be struck smooth and left ready for painting. Where joints occur in stone or other materials not to be painted, compound shall match adjoining surface.
- C. Temperature shall be not less than 40°F, surface dry and clean when flexible sealant is applied. Remove lacquer from caulking rabbets in aluminum. Metal, glass, and other dense surfaces shall be solvent cleaned. Apply solvent with brush and wipe dry with lint-free paper towel. All stone, concrete, wood, and other porous surfaces shall be primed. Primer shall be dry before installation of back up material and applying sealant. Flexible sealant shall be applied from a gun or cartridge in a neat bead, well bonded to both sides and extending full depth of caulking rabbet. Joints shall be masked and struck as required for neatness, and smears solvent-cleaned immediately.

3.6 ADJUSTMENT AND CLEANING

- A. Remove excess materials adjacent to joints by mechanical means or with solvents as recommended by sealant manufacturer as work progresses to eliminate evidence of spillage or damage to adjacent surfaces.

END OF SECTION

SECTION 08 54 13

FIBERGLASS DOUBLE HUNG AND FIXED WINDOWS

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Furnish and install fiberglass double hung windows complete with hardware, glazing, weather strip, insect screen, jamb extension, anchors, trim and attachments as specified or shown on drawings.
- B. Contractor is responsible for verification of all window dimensions, existing conditions, and perimeter blocking and closures. Use stock window unit dimensions wherever possible if glass to jamb openings does not decrease more than 1½" per side, otherwise furnish custom sized unit.

1.2 REFERENCES

- A. American Society for Testing and Materials:
 - 1. C1036: Standard Specification for Flat Glass.
 - 2. E90-09: Standard Test Method for Laboratory Measurement of airborne Sound Transmission Loss of Building Partitions and Elements.
 - 3. E 283: Standard Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors.
 - 4. E 330: Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Door by Uniform Static Air Pressure Difference.
 - 5. E 547: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
 - 6. E 2190: Standard Specification for Insulating Glass Unit Performance Evaluation.
 - 7. F 2090-10: Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.
 - 8. E 2068: Standard Test Method to Determine the Operating and Breakaway Forces of Sliding Windows and Doors.
- B. Insulating Glass Manufacturer's Alliance/Insulating Glass Certification Council (ICGMA/IGCC)
- C. American Architectural Manufacturer's Association/Window and Door Manufacturer's Association/Canadian Standards Association (AAMA/WDMA/CSA):
 - 1. AAMA/WDMA/CSA 101/I.S.2/A440-08: North American Fenestration Standard/Specification for windows, doors, and skylights.
 - 2. AAMA/WDMA/CSA 101/I.S.2/A440-05: Standard/Specification for windows and unit skylights.
- D. Window and Door Manufacturer's Association (WDMA): Hallmark Certification Program.
- E. American Architectural Manufacturer's Association (AAMA): 624-10: Voluntary Specification, Performance Requirements and Test Procedures for Organic Coatings on Fiber Reinforced Thermoset Profiles.
- F. National Fenestration Rating Council (NFRC)

1. 100: Procedures for Determining Fenestration Product U-factors
2. 200: Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence.

1.3 SUBMITTALS

- A. Shop drawings: Drawings to include details for perimeter blocking, flashing, and anchorage of window unit.
- B. Product data: Submit catalog data.

1.4 QUALITY ASSURANCE

- A. Consult local code for IBC adoption year and pertinent revisions for information on:
 1. Egress, emergency escape and rescue requirements.
 2. Basement window requirements.
 3. Window fall prevention and/or window opening control device requirements.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver in original packaging and protect from weather.
- B. Store windows in an upright position in a clean and dry storage area above ground to protect from weather.

1.6 WARRANTY

- A. Clear insulating glass with stainless steel spacers is warranted against seal failure caused by manufacturing defects and resulting in visible obstruction through the glass for twenty (20) years from the original date of purchase. Glass is warranted against stress cracks caused by manufacturing defects from ten (10) years from the original date of purchase.
- B. Hardware and other non-glass components are warranted to be free from manufacturing defects for ten (10) years from the original date of purchase.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Fiberglass double hung and related stationary or picture units as manufactured by Integrity Windows and Doors, Roanoke, Virginia, or approved equal.

2.2 FRAME DESCRIPTION

- A. Interior: Pultruded reinforced fiberglass, 0.070 inch (2mm) thick
- B. Frame width: 3 3/32 inches (79mm)
- C. Jamb depth: 2 inches (51mm)

2.3 SASH DESCRIPTION

- A. Pultruded reinforced fiberglass, .077 inch (2mm) thick.

- B. Composite sash thickness: 15/16 inch (24mm)
- C. Sash Options: Equal Sash
- D. Operating sash tilt to interior for cleaning or removal

2.4 GLAZING

- A. Select quality complying with ASTM C 1036. Insulating glass SIGMA/IGCC when tested in accordance with ASTM E 2190. STC/OITC ratings are tested to the stated performance level in accordance with ASTM E 90-09.
- B. Glazing Method: Insulating glass
- C. Glass Type: Low E 366 Argon gas, tempered where required by Code.

2.5 REINFORCED MULLING

- A. Provide fiberglass reinforcing stiffener between "D" window units or where recommended by manufacturer.

2.6 FINISH

- A. Exterior: Fiberglass with a cross-head extruded acrylic organic coating system. Meets AAMA 624-10 requirements.
- B. Interior: Fiberglass with a cross-head extruded acrylic organic coating system. Meets AAMA 624-10 and 00022716 requirements.
- C. Color: Exterior to be selected from manufacturer's full color palette, white interior.

2.7 HARDWARE

- A. Balance System: Coil spring block and tackle with nylon cord, glass filled nylon shoe and zinc locking mechanism.
- B. Sash Lock: Zinc die cast contoured sash lift. Standard Color: White
- C. Sash Lift: Zinc die cast contoured sash lift. Standard Color: White
- D. Top and Bottom Tilt Latches: Ergonomic tilt latches attached to the upper corners of the top and bottom sash for easy fitting and sash removal.

2.8 WEATHER STRIP

- A. At Bottom Sash: Combination foam filled bulb – Color: Beige
- B. At Top Sash: Combination hollow vinyl bulb – Color: Beige
- C. At Interlock: Rigid ABS with flexible hollow bulb – Color: Beige

2.9 JAMB EXTENSION

- A. Standard 2 inch jambs with fillers/extenders as required by existing conditions.

2.10 INSECT SCREEN

- A. Factory-installed full screen: Screen mesh: 18 by 16 – Charcoal fiberglass
- B. Rolled form aluminum frame finish: Color: Match exterior color of window unit.

2.11 ACCESSORIES AND TRIM

- A. Installation Accessories
 - 1. Installation brackets for masonry applications as required by existing conditions.
 - 2. Mullion kit: Standard mullion kit for field assembly of related units available in horizontal configurations. Kit includes instruction, interior and exterior mull covers, mull plugs, and brackets.
 - 3. Frame expander: Size as required by job condition.
- B. Exterior Casing: As required by existing conditions and as shown on drawings.
 - 1. Non-integral to the unit Fastened to the exterior wall with barb and kerf.
 - 2. Match exterior color of window unit.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Before installation, verify openings are plumb, square, and of proper dimensions. Report frame defects or unsuitable conditions to the general contractor before proceeding.
- B. Acceptance of Conditions: Beginning installation confirms acceptance of existing conditions.

3.2 INSTALLATION

- A. Assemble and install window/door unit(s) according to manufacturer's instructions and reviewed shop drawings.
- B. Install membrane flashings at window opening window sill, jambs, and head. Install prefinished metal flashing as detailed on drawings.

- C. Install sealant and related backing materials at perimeter of unit or assembly in accordance with Section 07 90 00. Do not use expansive foam sealant.
- D. Install accessory items as required.
- E. Use finish nails to apply wood trim and mouldings.

3.3 CLEANING

- A. Remove visible labels and adhesive residue according to manufacturer's instructions.
- B. Leave windows and glass in a clean condition.

3.4 PROTECTING INSTALLED CONSTRUCTION

- A. Protect windows from damage by chemicals, solvents, paint or other construction operations that may cause damage.

SECTION 09 91 00

PAINTING

PART 1 - GENERAL

1.1 SCOPE

- A. This work is limited to any casing, stool, apron, or similar rebuilt work; or any damaged or rebuilt wall work including exposed steel lintels.
- B. The Contractor shall examine all surfaces to be finished and make certain that they can be put in proper condition for finishing by customary cleaning, sanding, and puttying operations. The painting subcontractor assumes full responsibility for producing a satisfactory finish with the materials specified.

1.2 STORAGE AND HANDLING

- A. The area selected for paint storage and mixing must have good natural or mechanical ventilation. It shall be posted as a "No Smoking" area and this regulation strictly enforced.
- B. There shall be no open containers of any flammable liquids, including paint left in the storage or mixing area. Paints, turpentine, spirits, thinners, and all other flammable liquids shall be kept in closed metal containers. The container size shall be one gallon or smaller if the material is more flammable than kerosene. Brushes and rollers left in solvent or brush cleaner must be kept in closed containers. If the quantity of materials more flammable than kerosene exceeds five gallons, it must be stored in a closed metal or flame retardant plywood lockers.
- C. Waste rags, paper and similar combustible materials shall be placed in metal containers provided with self-closing covers. These containers shall be emptied regularly and the contents removed from the premises.
- D. Manufacturer's instructions shall be strictly followed in storing, mixing, and applying paint materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. All paints, varnishes and stains shall be best quality line of Pratt and Lambert, Pittsburgh Paints, Sherwin Williams, DuPont Co., Mautz, Glidden Co., Benjamin Moore, or approved equal.

2.2 MATERIALS

- A. All paint materials shall be of the best institutional grade manufactured by reputable paint manufacturers.
- B. All paint products shall be of the specific type recommended by the paint manufacturer for the particular substrate and conditions of exposure.

- C. Paint, varnish, stains and fillers shall be of types and brands specified under "Schedule of Painting". Painting materials such as stains, shellac, and thinners shall be of highest quality and have identifying labels on containers.
- D. All paint shall be ready mixed and delivered to the site in manufacturer's sealed containers. Each container shall be labeled by the manufacturer; labels shall give manufacturer's name, type of paint, and instructions for reducing. Thinning shall be done only in accordance with directions from manufacturer. Job mixing or job tinting may be done when approved by the Architect. Each coat shall be tinted so that respective coats can be identified.

2.3 FINISHES

- A. Painter's finishes shall generally be as follows:

Finish for interior wood doors (except prefinished doors), windows and casings, cabinet work and trim shall be alkyd base semi-gloss or eggshell enamel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. The Contractor shall examine all surfaces to be finished and make certain that they can be put in proper condition for finishing by customary cleaning, sanding, and puttying operations. The painting subcontractor assumes full responsibility for producing a satisfactory finish with the materials specified.

3.2 PREPARATION

- A. Wood: Sandpaper to smooth and even surface and then dust off. After priming or stain coat has been applied, thoroughly fill nail and other holes and cracks. Use plastic wood filler (with proper tint color) for stained work and putty for painted work.
- B. Plaster Surfaces: Fill all holes and cracks. Do not use sandpaper on plaster surfaces to be painted. Before painting any plaster, surfaces shall be tested with a moisture testing device especially designed for this purpose. No paint or sealer shall be applied on plaster when the moisture content exceeds 5.5% as determined by the testing device. Test sufficient areas in each space as often as necessary to determine the proper moisture content for painting.
- C. General: Before painting, remove hardware, accessories, plates, lighting fixtures and similar items or provide ample protection of such items. Upon completion of each space, replace above items. When necessary, disconnect radiators to permit painting of walls behind them; replace and reconnect upon completion. Remove doors if necessary to paint bottom edge. Use only skilled mechanics for removing and connecting above items.

3.3 WORKMANSHIP

- A. All materials shall be applied in strict accordance with the manufacturer's printed instructions. Paint shall not be thinned except where recommended by the manufacturer.
- B. The workmanship shall be of the very best. All materials shall be applied under adequate illumination, evenly spread and smoothly flowed on without runs or sags. Only skilled mechanics shall be employed.

- C. All surfaces to be painted shall be cleaned free of loose dirt and dust before painting is started.
- D. Access doors, registers, radiators and convectors, regardless of factory finish; will in general be painted the same color as adjacent walls.
- E. Prime coated butts and overhead door closers will be painted the same color as door and frame to which they are attached.
- F. Metal covered and hollow metal doors, trim and frames will not be painted the same color or finish as adjacent walls.
- G. Access doors, electric panel doors, fire extinguisher cabinets, etc. shall be painted in an open position.
- H. Prime and back prime all surfaces of millwork indicated to be painted and enameled. Also back prime all unexposed faces of all millwork indicated, scheduled or specified to be stained, varnished, lacquered or otherwise finished on exposed faces. Parts inaccessible after assembly shall be primed or back primed before assembly. Shellac all knots, streaks, etc. before priming.
- I. Contractor shall be responsible for marring, spotting and/or staining of floors, walls, marble, or other work and shall either entirely remove said stains, etc. or replace damaged materials with approved materials, and make good any damage to other work in connection with said removal and replacement at his own expense.

3.4 CLEANING AND PROTECTION

- A. All windows, casings, doors, frames, sidelights, and other finished surfaces shall be protected during application of paint and stain. Contractor shall be responsible for marring, spotting, and/or staining and shall either entirely remove said stains, etc. or replace damaged materials with new materials, and make good any damage to other work in connection with said removal and replacement at his own expense.
- B. At conclusion of work, touch up all painting, enameling, varnishing, finishing and lettering throughout entire job. Clean all paint spots off glass, mirrors, metal, wood, and other building surfaces and/or equipment. Where necessary and as directed, paint over all soiled, stained, and dark spots, fingerprints, etc. so that none show through finished work. Retouching shall exactly match surrounding surface. If necessary refinish entire surface in order to attain said results. Leave all painting and finishing in perfect condition.

END OF SECTION