

**SPECIFICATION
FOR
BUILDING 1 WINDOW REPLACEMENT PROJECT
VA Project 405-09-114**

**VA MEDICAL CENTER, B1
215 North Main Street
White River Junction, VT 05001**

ARCHITECT

BMA Associates, Inc.
103 Wales Street, Rutland, VT 05701
Phone 802-773-8245 Fax 802-773-8235

FINAL FOR CONSTRUCTION



RELEASE DATE:
May 02, 2011

DEPARTMENT OF VETERANS AFFAIRS

BUILDING 1 WINDOW REPLACEMENT PROJECT

VA PROJECT 405-09-114

TABLE OF CONTENTS

Section 00 01 10

	DIVISION 00 - SPECIAL SECTIONS	DATE
00 01 15	List of Drawing Sheets	10-07
00 10 10	Bidding Requirements	
	DIVISION 01 - GENERAL REQUIREMENTS	
01 00 00	General Requirements	
01 33 23	Shop Drawings, Product Data, and Samples	11-08
01 42 19	Reference Standards	11-08
	DIVISION 02 – EXISTING CONDITIONS	
02 41 00	Demolition	06-10
02 83 33.13	Lead-Based Paint Removal and Disposal	10-07
	DIVISION 03 – CONCRETE	
	NOT USED	
	DIVISION 04 – MASONRY	
04 05 13	Masonry Mortaring	06-08
04 05 31	Masonry Tuck Pointing	10-08
	DIVISION 05 – METALS	
05 50 00	Metal Fabrications	10-07
	DIVISION 06 – WOOD,PLASTICS AND COMPOSITES	
06 20 00	Finish Carpentry	05-10
	DIVISION 07 - THERMAL AND MOISTURE PROTECTION	
07 92 00	Joint Sealants	08-08
	DIVISION 08 - OPENINGS	
08 14 23	Clad Wood Doors	01-10
08 41 13	Aluminum-Framed Entrances and Storefronts	10-07
08 42 36	Balanced Door Entrances	09-08
08 54 13	Fiberglass Fixed Frame Windows	03-10
08 55 00	Clad Wood Windows	04-10

08 71 00	Door Hardware	05-10
	DIVISION 09 – FINISHES	
09 91 00	Painting	04-09
	DIVISION 10 – 25	
	NOT USED	
	DIVISION 26	
26 05 11	BASIC REQUIREMENTS FOR ELECTRONIC WIRING INSTALLATIONS	
	DIVISION 27 – 34	
	NOT USED	

SECTION 00 01 15
CONTRACT DRAWING SHEETS

1. The drawings accompanying this specification form a part of the contract, and are listed on the Project Cover Sheet, Drawing # G-001, marked **FINAL FOR CONSTRUCTION**.

- - - END - - -

SECTION 00 10 10
BIDDING REQUIREMENTS

PART 1 - GENERAL

SCHEDULE OF VALUES: The Schedule of Values provided by bidders shall be organized by MasterFormat© 2004 divisions to correspond to the specifications.

- A. The work within each Division shall be further sub-divided so that the value of each line item scheduled shall not exceed \$75,000.00.
- B. In the event that the Government elects to contract with a bidder to perform the Work, the Schedules of Values that form part of the Contract and are submitted with Applications for Payment shall be organized in the same way.
 - a. Such Schedules shall be revised by the bidder prior to execution of the Contract to correctly account for the applicable Bid Alternates.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

-----END--

**SECTION 01 00 00
GENERAL REQUIREMENTS**

TABLE OF CONTENTS

1.1 GENERAL INTENTION.....	1
1.2 STATEMENT OF BID ITEM(S).....	2
1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR.....	3
1.4 CONSTRUCTION SECURITY REQUIREMENTS.....	3
1.5 FIRE SAFETY.....	5
1.6 OPERATIONS AND STORAGE AREAS.....	8
1.7 ALTERATIONS.....	14
1.8 INFECTION PREVENTION MEASURES.....	15
1.9 DISPOSAL AND RETENTION.....	21
1.10 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS	22
1.11 RESTORATION.....	22
1.12 PHYSICAL DATA.....	23
1.13 PROFESSIONAL SURVEYING SERVICES NOT USED	23
1.14 LAYOUT OF WORK.....	23
1.15 AS-BUILT DRAWINGS.....	24
1.16 USE OF ROADWAYS.....	24
1.17 COTR'S FIELD OFFICE NOT USED	25
1.18 TEMPORARY USE OF MECHANICAL AND ELECTRICAL EQUIPMENT.....	25
1.19 TEMPORARY USE OF EXISTING ELEVATORS.....	26
1.20 TEMPORARY USE OF NEW ELEVATORS: <u>NOT USED</u>	26
1.21 TEMPORARY TOILETS.....	26
1.22 AVAILABILITY AND USE OF UTILITY SERVICES.....	26
1.23 NEW TELEPHONE EQUIPMENT.....	25
1.24 TESTS.....	27
1.25 INSTRUCTIONS.....	28
1.26 GOVERNMENT-FURNISHED PROPERTY.....	29
1.27 RELOCATED // EQUIPMENT // ITEMS //	30
1.28 STORAGE SPACE FOR DEPARTMENT OF VETERANS AFFAIRS EQUIPMENT NOT USED	30
1.29 CONSTRUCTION SIGN.....	31
1.30 SAFETY SIGN NOT USED	31
1.31 PHOTOGRAPHIC DOCUMENTATION NOT USED	27
1.32 FINAL ELEVATION Digital Images NOT USED	27
1.33 HISTORIC PRESERVATION.....	28

1.34 SCHEDULES FOR CONSTRUCTION CONTRACTS.....	28
1.35 ASBESTOS MATERIALS.....	28
1.36 FALL PROTECTION DURING CONSTRUCTION.....	29
1.37 HAZARD COMMUNICATION	29
1.38 HAZARDOUS MATERIALS NOTIFICATION.....	29
1.39 DAILY LOGS.....	30
1.40 KEYS	32
1.41 CELL PHONES.....	32
1.42 LOCKOUT/TAGOUT PROCEDURE:.....	32
1.43 LICENSING.....	32
1.44 MERCURY FREE FACILITY.....	32
1.45 SOLID WASTE DISPOSAL.....	33
1.46 BUY RECYCLED.....	33
1.47 LISTING OF SUBCONTRACTORS.....	33
1.48 SUBMITTALS.....	33
1.49 S PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL.....	33
1.50 ENERGY EFFICIENCY.....	34

SECTION 01 00 00
GENERAL REQUIREMENTS

1.1 GENERAL INTENTION

- A. Contractor shall completely prepare site for building operations, including demolition and removal of existing structures, and furnish labor and materials and perform work for the Building 1 Window Replacement as required by drawings and specifications.
- B. Visits to the site by Bidders may be made only by appointment with the Medical Center Contracting Officer (CO).
- C. Offices of BMA Architects as Architect-Engineers, will render certain technical services during construction. Such services shall be considered as advisory to the Government and shall not be construed as expressing or implying a contractual act of the Government without affirmations by Contracting Officer or his duly authorized representative.
- D. Before placement and installation of work subject to tests by testing laboratory retained by Department of Veterans Affairs, the Contractor shall notify the Contracting Officer Technical Representative (COTR) in sufficient time to enable testing laboratory personnel to be present at the site in time for proper taking and testing of specimens and field inspection. Such prior notice shall be not less than three work days unless otherwise designated by the COTR.
- E. All employees of general contractor and subcontractors shall comply with VA security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.
- F. Prior to commencing work, general contractor shall provide proof that a OSHA certified "competent person" (CP) (29 CFR 1926.20(b)(2)) will maintain a presence at the work site whenever the general or subcontractors are present.
- G. Training:
 - 1. All employees of general contractor or subcontractors shall have the 10-hour OSHA certified Construction Safety course and /or other relevant competency training, as determined by VA CP with input from the ICRA team.
 - 2. Submit training records of all such employees for approval before the start of work.

H. It is the Government's intention that certain systems and materials installed in the Project shall be completely compatible, interoperable and interchangeable with those in the existing building and throughout the Medical Center campus. This is particularly important for, but not limited to, locks and keying and building services. Accordingly, the following terms used in Part 2 of sections throughout the Specification indicate requirements that apply for product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.
2. Products: Subject to compliance with requirements, provide one of the products specified.
3. Basis-of-Design: The design for the item is based on the product specified. Subject to compliance with requirements, provide the named product. Products deemed by the COTR to be "equal" to the specified item shall be substantially identical, and may be limited to products of same manufacturer sold under an alternate brand name.

1.2 STATEMENT OF BID ITEM(S)

A. Base Item: \$_____ Window Replacement project includes selective demolition and installation of new replacement windows and exterior doors. Also included are associated repairs to masonry, finish carpentry, interior finishes, building systems, and all other work identified and inferred, including necessary removal of existing structures and construction and certain other items at the VA Medical Center, White River Junction, VT in accordance with the Drawings and Specifications.

Total Contract Duration: **180** calendar days.

B. Deduct Alternates:

1. **DEDUCT ALTERNATE 1:** \$_____ Deduct all costs related to balanced entrance systems and doors at main (South) entrance. Substitute thermally broken aluminum storefront system including doors with heavy pivot hinges, basis for design is Kawneer 451-T. Glazing shall be as per specification 08 42 36. The time stated for

completion with DEDUCT ALTERNATE 1 is **180** calendar days. The time stated for completion shall include final cleanup of the premises.

2. **DEDUCT ALTERNATE 2:** \$_____ Deduct all costs for work related to Alternate No. 1 plus delete all work related to bronze entrance systems and balanced doors at main (South) entrance, including associated repairs and alterations of existing adjacent construction and building systems. Existing entrance systems and glazing shall remain. The time stated for completion with DEDUCT ALTERNATE 2 is **165** calendar days. The time stated for completion shall include final cleanup of the premises.
3. **DEDUCT ALTERNATE 3:** \$_____ Deduct all costs for work related to Alternate No. 1 and 2 plus delete all work related to replacement of existing steel-framed basement windows below main (South) entrance, including masonry repair, new steel lintels, etc. The time stated for completion with DEDUCT ALTERNATE 3 is **160** calendar days. The time stated for completion shall include final cleanup of the premises.
4. **DEDUCT ALTERNATE 4:** \$_____ Deduct all costs for work related to Alternate No. 1, 2, and 3 plus delete all work related to replacement of existing insulated metal doors and frames at fire escape to North elevation. The time stated for completion with DEDUCT ALTERNATE 3 is **150** calendar days. The time stated for completion shall include final cleanup of the premises.

1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

- A. AFTER AWARD OF CONTRACT, one electronic set of specifications and drawings will be furnished.
- B. Additional sets of drawings (including hard copy) sufficient to accomplish the Work within the limits of copyright law may be made by the Contractor, at Contractor's expense.
- C. Specification Conventions: Specification is arranged according to MasterFormat 2004. All information submitted by Contractor shall be organized on the same basis where applicable, including Schedule of Values, Submittals, etc.

1.4 CONSTRUCTION SECURITY REQUIREMENTS

- A. Security Plan:

1. The security plan defines both physical and administrative security procedures that will remain effective for the entire duration of the project. Contractor shall submit a security plan commensurate with the project complexity within 10 days after the Notice To Proceed.
 - a. The Security Plan shall include contingency procedures for working out of hours.
2. The General Contractor is responsible for assuring that all sub-contractors working on the project and their employees also comply with all VA regulations and the project security plan.

B. Security Procedures:

1. General Contractor's employees shall not enter the project site without appropriate badge. They may also be subject to inspection of their personal effects when entering or leaving the project site.
2. For working outside the "regular hours" as defined in the contract, The General Contractor shall give 3 days notice of such request to the COTR so that security arrangements can be provided for the employees. This notice is separate from any notices required for utility shutdown described later in this section.
3. No photography of VA premises is allowed without permission of the COTR.
4. VA reserves the right to close down or shut down the project site and order General Contractor's employees off the premises in the event of a national emergency. The General Contractor may return to the site only with the written approval of the Contracting Officer.

C. Guards: section not used

D. Key Control:

1. The General Contractor shall provide temporary doors, closers, and locksets which accept Best 7 pin cylinders to secure the work area. VA shall provide "blue core" cylinders and shall issue keys to the general contractor for access. VA shall be authorized to conduct security inspections of every area of project including tool boxes and parked machines and take any emergency action.
2. The General Contractor shall turn over all permanent lock cylinders to the COTR for passing to the VA locksmith for permanent installation. See Section 08 71 00, DOOR HARDWARE and coordinate.

E. Document Control:

2. The General Contractor is responsible for safekeeping of all drawings, project manual and other project information. This

information shall be shared only with those with a specific need to accomplish the project.

F. Motor Vehicle Restrictions

1. Vehicle authorization shall be required for any vehicle parking on site unless in pre designated areas. VA vehicle and parking regulations shall apply.
2. Separate permits may be issued for General Contractor and its employees for parking in designated areas only.

1.5 FIRE SAFETY

A. Applicable Publications: Publications listed below form part of this Article to extent referenced. Publications are referenced in text by basic designations only.

1. American Society for Testing and Materials (ASTM):

E84-2008.....Surface Burning Characteristics of Building
Materials

2. National Fire Protection Association (NFPA):

10-2006.....Standard for Portable Fire Extinguishers

30-2007.....Flammable and Combustible Liquids Code

51B-2003.....Standard for Fire Prevention During Welding,
Cutting and Other Hot Work

70-2007.....National Electrical Code

241-2004.....Standard for Safeguarding Construction,
Alteration, and Demolition Operations

3. Occupational Safety and Health Administration (OSHA):

29 CFR 1926.....Safety and Health Regulations for Construction

B. Fire Safety Plan: Establish and maintain a fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to COTR for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the general contractor's competent person per OSHA requirements. This briefing shall include information on the construction limits, VAMC safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of VAMC equipment,

smoking rules, etc. Documentation shall be provided to the COTR that individuals have undergone contractor's safety briefing.

- C. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
- D. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 6 m (20 feet) exposing overall length, separate by 3m (10 feet).
- E. Temporary Construction Partitions:
 - 1. Allow to install and maintain temporary construction partitions to provide smoke-tight separations between construction areas and adjoining areas for dust and pollutant control as and where required by COTR.
 - a. Re-usable plastic sheeting with taped joints and zippered access points shall be the typical method of separation.
 - b. Construction of partitions of Grade X gypsum board and/ metal steel studs may be required for fire-rated separations or where security is an issue, at no additional cost to the Government.
 - c. Seal joints and penetrations. At door openings, install zip-strips or, for rated partitions, install doors acceptable to COTR with self-closing devices.
 - 2. Install temporary construction partitions as required by COTR to maintain integrity of existing exit stair enclosures, exit passageways, fire-rated enclosures of hazardous areas, horizontal exits, smoke barriers, vertical shafts and openings enclosures.
 - 3. Close openings in smoke barriers and fire-rated construction to maintain fire ratings. Seal penetrations with listed through-penetration firestop materials in accordance with Section 07 84 00, FIRESTOPPING.
 - 4. Temporary partitions of fire rated plastic may be allowed at the sole discretion of the COTR.
- F. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.
- G. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with COTR.

- H. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions daily to COTR.
- I. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.
- J. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.
- K. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Provide fire watch for impairments more than 4 hours in a 24-hour period. Request interruptions in accordance with Article, OPERATIONS AND STORAGE AREAS, and coordinate with COTR and facility Safety Office. The campus fire alarm system and notification system is currently under contract warranty with Carrigg M.E.P., Inc. of Manchester, NH phone: 603-262-4343 fax: 602-222-2226. Any modification or alteration or addition to the warranted system must be done by or under the strict supervision of Carrigg M.E.P., Inc. for the building fire alarm system and components, and Carrigg M.E.P., Inc. for the campus-wide alarm notification system. Installing Contractor shall solicit a proposal from Carrigg M.E.P., Inc. to deactivate and remove devices from the systems, connect and activate devices, device ID assignment, labeling, testing, graphic display changes, panel certification, full NFPA-72 required certified testing report for the work per chapter 7 upon completion of each modification, update as-built fire alarm drawings, and addition to the warranty period services.

"Under the direct supervision" is intended to insure that new work is accomplished in a manner consistent with our campus system, to include wire size, type, color, compatible devices, etc. See available attachment regarding wire types used. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested and coordinated with the medical center. Parameters for the testing and results of any tests performed shall be recorded by the medical center and copies provided to the COTR.

- N. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with COTR and facility Safety Office.
- O. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B and VA permit system. Coordinate with COTR. Obtain permits from facility Safety Office at least 4 hours in advance.
- P. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions daily to COTR.
- Q. Smoking: Smoking is prohibited throughout the entire campus except in designated areas. Smoking outside of designated areas will not be tolerated and violators will be subject to fines.
- R. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily. Keep a daily log of approximate quantities and materials which are being recycled.
- S. Perform other construction, alteration and demolition operations in accordance with 29 CFR 1926.

1.6 OPERATIONS AND STORAGE AREAS

- A. The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the COTR. Note that space is not available within Building 1 apart from immediate working areas, and adjacent space is extremely limited. Agree location of on-site storage in other areas of campus with COTR.
 - 1. Coordinate parking and deliveries with COTR.
 - 2. Standard working hours shall be defined as 7 am until 4.30 pm. Allow to schedule at least 10% of working time outside standard working hours to avoid disturbance to Medical Center operations by explicit prior arrangement with COTR.
 - a. Schedule all work in and around the existing occupied building with COTR. Keep all fire exits clear and unobstructed except when alternative arrangements have been made.
 - 3. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.
- B. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the COTR and shall be built with labor and materials furnished by the Contractor

without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

- C. The Contractor shall, under regulations prescribed by the COTR, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the COTR. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair any damaged curbs, sidewalks, roads or grass areas. Where grass is not readily reestablished, sod shall be installed at contractor expense.
- D. Working space and space available for storing materials shall be as determined by the COTR.
- E. Workmen are subject to rules of Medical Center applicable to their conduct.
- F. Execute work so as to interfere as little as possible with normal functioning of Medical Center as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others. Use of equipment and tools that transmit vibrations and noises through the building structure are not permitted in buildings that are occupied during construction jointly by patients or medical personnel and by Contractor's personnel, except as permitted by COTR.
 - 1. Do not store materials and equipment in other than assigned areas.
 - 2. Schedule delivery of materials and equipment to immediate construction working areas within buildings in use by Department of Veterans Affairs in quantities sufficient for not more than two work days. Provide unobstructed access to Medical Center areas required to remain in operation.
 - 3. Where access by Medical Center personnel to vacated portions of buildings is not required, short-term (e.g. overnight) storage of Contractor's materials and equipment will be permitted subject to fire and safety requirements.

- G. Utilities Services: Where necessary to cut existing pipes, electrical wires, conduits, cables, etc., of utility services, or of fire protection systems or communications systems (except telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by COTR. All such actions shall be coordinated with the COTR:
- H. Phasing: To insure such executions, Contractor shall furnish the COTR with a schedule of approximate phasing dates on which the Contractor intends to accomplish work in each specific area of site, building or portion thereof. In addition, Contractor shall notify the COTR two weeks in advance of the proposed date of starting work in each specific area of site, building or portion thereof. Arrange such phasing dates to insure accomplishment of this work in successive phases mutually agreeable to COTR and Contractor.
- Contractor shall permit access to Department of Veterans Affairs personnel and patients through other construction areas which serve as routes of access to such affected areas and equipment. Coordinate alteration work in areas occupied by Department of Veterans Affairs so that Medical Center operations will continue during the construction period.
- I. Construction Fence: Construction fence acceptable to OSHA and COTR may be required especially around open excavation areas.
- J. When a building is turned over to Contractor, Contractor shall accept entire responsibility therefore.
1. Contractor shall maintain in operating condition existing fire protection and alarm equipment.
- K. Utilities Services: Maintain existing utility services for Medical Center at all times unless approved in advance by COTR. When feasible provide temporary facilities, labor, materials, equipment, connections, and utilities to assure uninterrupted services. Where necessary to cut existing water, steam, gases, sewer or air pipes, or conduits, wires, cables, etc. of utility services or of fire protection systems and communications systems (including telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by COTR.
1. It is not anticipated that utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems will be interrupted during the course of the

- Work, however no services may be interrupted without prior approval of COTR. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished, work on any energized circuits or equipment shall not commence without the Medical Center Director's prior knowledge and written approval. Request guidance from COTR regarding existing services, and including additional specification Sections 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, 27 05 11 REQUIREMENTS FOR COMMUNICATIONS INSTALLATIONS and 28 05 11, REQUIREMENTS FOR ELECTRONIC SAFETY AND SECURITY INSTALLATIONS for requirements in the event that questions regarding materials and workmanship arise.
2. Contractor shall submit a request to interrupt any such services to COTR, in writing, 48 hours in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.
 3. Contractor will be advised of approval of request, or of which other date and/or time such interruption will cause least inconvenience to operations of Medical Center. Interruption time approved by Medical Center may occur at other than Contractor's normal working hours with no provision for extra cost to the Medical Center.
 4. Major interruptions of any system must be requested, in writing, at least 10 calendar days prior to the desired time and shall be performed as directed by the COTR.
 5. In case of a contract construction emergency, service may be interrupted to protect life and property. Such interruption shall be reported to the COTR as soon as possible.
 6. Whenever it is required that a connection fee be paid to a public utility provider for new permanent service to the construction project, for such items as water, sewer, electricity, gas or steam, payment of such fee shall be the responsibility of the Government and not the Contractor.
 7. Liaise with technical rep for existing system when planning and making alterations to existing electronic security system:
John Corbett, Minuteman Security Technologies
978-783-0018 x 3
jcorbett@minutemanst.com

- L. Abandoned Lines: All service lines such as wires, cables, conduits, ducts, pipes and the like, and their hangers or supports, which are to be abandoned shall be entirely removed back to the source. Questions shall be referred to the COTR.
- M. To minimize interference of construction activities with flow of Medical Center traffic, comply with the following:
1. Keep roads, walks and entrances to grounds, to parking and to occupied areas of buildings clear of construction materials, debris and standing construction equipment and vehicles. Wherever excavation for new utility lines cross existing roads, at least one lane may be required to be open at all times.
 2. Method and scheduling of required cutting, altering and removal of existing roads, walks and entrances must be approved by the COTR.
- N. Reduction of Noise: Minimize noise using every action possible. Perform noise-producing work in less sensitive hours of the day or week as directed by the COTR. Maintain noise-produced work at or below the decibel levels and within the time periods specified.
1. Perform construction activities involving repetitive, high-level impact noise only between end of Medical Center working hours and 10:00 p.m, or between 8.00 am and 6.00 pm on weekends, unless otherwise permitted by prior arrangement with the Contracting Officer. Repetitive impact noise on the property shall not exceed the following dB limitations:

Time Duration of Impact Noise	Sound Level in dB
Less than 30 seconds of any hour	85
Less than three minutes of any hour	80
Less than 12 minutes of any hour	70

2. Provide sound-deadening devices on equipment and take noise abatement measures that are necessary to comply with the requirements of this contract, consisting of, but not limited to, the following:
 - a. Maintain maximum permissible construction equipment noise levels at 15 m (50 feet) (dBA):

PUMPS	75	JACK HAMMERS	75
GENERATORS	75	PNEUMATIC TOOLS	80

- b. Use shields or other physical barriers to restrict noise transmission.
 - c. Provide soundproof housings or enclosures for noise-producing machinery.
 - d. Use efficient silencers on equipment air intakes.
 - e. Use efficient intake and exhaust mufflers on internal combustion engines that are maintained so equipment performs below noise levels specified.
 - f. Line hoppers and storage bins with sound deadening material.
 - g. Conduct truck loading, unloading, and hauling operations so that noise is kept to a minimum.
3. Measure sound level for noise exposure due to the construction at least once every five successive working days while work is being performed above 55 dB(A) noise level. Measure the sound levels on the A weighing network of a General Purpose sound level meter at slow response. To minimize the effect of reflective sound waves at buildings, take measurements at 900 to 1800 mm (three to six feet) in front of any building face. Submit the recorded information to the Resident Engineer noting any problems and the alternatives for mitigating actions.
- O. Hold bi-weekly Job Progress Meetings at time and location as determined by COTR. Record detailed notes of meetings and distribute to all parties in same manner as described for Submittals, within 72 hours of meeting.
1. Agenda shall include:
- a. Submit updated Construction Schedule.
 - b. Report on progress since last meeting and projected activity for next two weeks.
 - c. Items to be coordinated and scheduled with COTR.
 - d. Clarifications.
- P. Coordinate the work for this contract with other construction operations as directed by COTR. This includes the scheduling of traffic and the use of roadways, as specified in Article, USE OF ROADWAYS.

1.7 ALTERATIONS

- A. Survey: Before any work is started, the Contractor shall make a thorough survey with the COTR of areas of buildings in which alterations occur and areas which are anticipated routes of access, and furnish a report, signed by both contractor and COTR. This report shall list by rooms and spaces:
1. Existing condition and types of resilient flooring, doors, windows, walls and other surfaces not required to be altered throughout affected areas of the building
 2. Existence and conditions of items such as plumbing fixtures and accessories, electrical fixtures, equipment, Venetian blinds, shades, etc., required by drawings to be either reused or relocated, or both.
 3. Shall note any discrepancies between drawings and existing conditions at site.
 4. Shall designate areas for working space, materials storage and routes of access to areas within buildings where alterations occur and which have been agreed upon by Contractor and COTR
- B. Any items required by drawings to be either reused or relocated or both, found during this survey to be nonexistent, or in opinion of COTR and/or Supply Representative to be in such condition that their use is impossible or impractical, shall be furnished and/or replaced by Contractor with new items in accordance with specifications which will be furnished by Government. Provided the contract work is changed by reason of this subparagraph B, the contract will be modified accordingly, under provisions of clause entitled "DIFFERING SITE CONDITIONS" (FAR 52.236-2) and "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).
- C. Re-Survey: Ten days before expected partial or final inspection date, the Contractor and COTR together shall make a thorough re-survey of the areas of buildings involved. They shall furnish a report on conditions then existing, of resilient flooring, doors, windows, walls and other surfaces as compared with conditions of same as noted in first condition survey report:
1. Re-survey report shall also list any damage caused by Contractor to such flooring and other surfaces, despite protection measures; and, will form basis for determining extent of repair work required of

Contractor to restore damage caused by Contractor's workmen in executing work of this contract.

D. Protection: Provide the following protective measures:

1. Wherever existing roof surfaces are disturbed they shall be protected against water infiltration. In case of leaks, they shall be repaired immediately upon discovery.
2. Temporary protection against damage for portions of existing structures and grounds where work is to be done, materials handled and equipment moved and/or relocated.
3. Protection of interior of existing structures at all times, from damage, dust and weather inclemency. Wherever work is performed, floor surfaces that are to remain in place shall be adequately protected prior to starting work, and this protection shall be maintained intact until all work in the area is completed.

1.8 INFECTION PREVENTION MEASURES

- A. Implement the requirements of VAMC's Infection Control Risk Assessment (ICRA) team. ICRA Group may monitor dust in the vicinity of the construction work and require the Contractor to take corrective action immediately if the safe levels are exceeded.
- B. Establish and maintain a dust control program as part of the contractor's infection preventive measures in accordance with the guidelines provided by COTR and . Prior to start of work, COTR will prepare a plan detailing project-specific dust protection measures, including periodic status reports, and submit daily to COTR for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
 1. All personnel involved in the construction or renovation activity shall be educated and trained in infection prevention measures established by the medical center.
 2. Format of the Infection Control plan shall be similar to the following:

VA MEDICAL CENTER
WHITE RIVER JUNCTION, VERMONT

CENTER MEMORANDUM NO. 138-05-60
ATTACHMENT D

April 15, 2005
(138)

MULTIPLE LOCATION INFECTION CONTROL CHECKLIST FORM

Project Name: Renovate for GI Suite				Project Number: 07-114	
Description of Construction: Renovate 2 south nurses station and patient rooms for GI procedure rooms and offices.				Location of Construction: Building 31, south west corner of second floor	
				Project Start Date: 12/15/08	
VA Project Coordinator: Jeff Nichol				Estimated Duration: 8 months	
Contractor Performing Work: B & J Multi Service				Permit Expiration Date: 8/15/08	
Contractor Supervisor: Bob Gifford				Telephone: 978.375.0643	
YES	NO	CONSTRUCTION ACTIVITY	YES	NO	INFECTION CONTROL RISK GROUP
		TYPE A: Inspection, non-invasive activity	XX		GROUP 1: Least Risk
		TYPE B: Small scale, short duration, moderate to high levels			GROUP 2: Medium Risk
		TYPE C: Activity generates moderate to high levels of dust, requires greater than one work shift for completion			GROUP 3: Medium/High Risk
XX		TYPE D: Major duration and construction activities requiring consecutive work shifts			GROUP 4: Highest Risk

IC Measure List locations and Class #	Class	Areas Affected	MON	TUES	WED	THUR	FRI	SAT
For example Area 1 -Class III Area 5 - Class III								
BARRIERS								
1. Build sheetrock dust partitions	III	Area 1,5						
2. Build plastic dust partitions	III	na						
3. Duct tape secure at edges	II	Area 1,5						
4. Relocate patients	IV	na						
5. Seal penetrations, same day	IV	Area 1,5						
6. Construct anteroom	IV	na						

2.

AIR HANDLING

7. Close off ducts/vents with plastic - per COTR	II	Area 1,5						
8. Negative air machine running during work shifts	III	Area 1,5						
9. Neg air machine properly exhausted outdoors	III	Area 1,5						
10. Doors properly closed and/or sealed	II	Area 1,5						
11. All windows closed /sealed	II	Area 1,5						
12. Shutdown HVAC - while capping	II	Area 1,5						
13. Seal off building air intakes	II	na						
14. Test for negative pressure daily	III	na						

PROJECT AREA

15. Minimize raising dust	I	Area 1,5						
16. Wet ceiling tiles as removed	I	na						
17. Area free of debris	I	Area 1,5						
18. Wet mop daily	I	na						
19. Wash hands frequently	I	Area 1,5						
20. Water mist work surfaces	I	na						
21. Broom clean daily	I	Area 1,5						
22. Wipe surfaces with disinfectant	I	na						
23. Bag ceiling tiles as removed	II	na						
24. Debris removed in covered container	II	Area 1,5						
25. Trash in proper covered container	II	na						
26. Sticky mats in use, change frequently	II	Area 1,5						
27. No missing tiles if area unattended	II	na						
28. HEPA vacuum frequently	III	na						

TRAFFIC CONTROL

29. Reroute traffic away from construction	II	Area 1,5						
--	----	----------	--	--	--	--	--	--

30. Construction signs posted	III	Area 1,5						
31. Alt Route debris removal	III	Area 1,5						

DRESS CODE

32. Workers wear hats - hard hats	IV	na						
33. Workers wear shoe covers, change each time	IV	na						
34. Workers wear Tyvek suits	IV	na						
35. Vacuum self upon leaving area	IV	na						

OTHER

36. Use drill with vacuum	III							

Comments:

_Area 1 and 5 will be segregated with partitions and accessible only to authorized personnel.

IC _____ COTR_Jeff Nichol _____ Date: _12/30/208_____

- C. Medical center Infection Control personnel shall monitor for airborne disease (e.g. aspergillosis) as appropriate during construction. A baseline of conditions may be established by the medical center prior to the start of work and periodically during the construction stage to determine impact of construction activities on indoor air quality. In addition:
1. The COTR VAMC Infection Control personnel shall review pressure differential monitoring documentation to verify that pressure differentials in the construction zone and in the patient-care rooms are appropriate for their settings. The requirement for negative air pressure in the construction zone shall depend on the location and type of activity. Upon notification, the contractor shall implement corrective measures to restore proper pressure differentials as needed.
 2. In case of any problem, the medical center, along with assistance from the contractor, shall conduct an environmental assessment to find and eliminate the source.
- D. In general, following preventive measures shall be adopted during construction to keep down dust and prevent mold.
1. Dampen debris to keep down dust and provide temporary construction partitions in existing structures where directed by COTR. Blank off ducts and diffusers to prevent circulation of dust into occupied areas during construction.
 2. Do not perform dust producing tasks within occupied areas without the approval of the COTR. For construction in any areas that will remain jointly occupied by the medical Center and Contractor's workers, the Contractor shall:
 - a. Provide dust proof or fire-rated temporary drywall construction barriers as required per location to completely separate construction from the operational areas of the hospital in order to contain dirt debris and dust. Barriers shall be sealed and made presentable on hospital occupied side. Install a self-closing rated door in a metal frame, commensurate with the partition, to allow worker access. Maintain negative air at all times. A fire retardant polystyrene, 6-mil thick or greater plastic barrier meeting local fire codes may be approved where dust control is the only hazard, and an agreement is reached with the COTR and Medical Center.

- b. HEPA filtration is required where the exhaust dust may reenter the breathing zone. Contractor shall verify that construction exhaust to exterior is not reintroduced to the medical center through intake vents, or building openings. Install HEPA (High Efficiency Particulate Accumulator) filter vacuum system rated at 95% capture of 0.3 microns including pollen, mold spores and dust particles. Insure continuous negative air pressures occurring within the work area.
 - i) HEPA filters shall be new or shall have a performance test certificate from no more than 30 calendar days before being brought into service on the project, and shall be re-tested at intervals of no more than 60 days.
 - ii) Vacuum system shall have ASHRAE 85 or other pre-filter to extend the useful life of the HEPA. Provide both primary and secondary filtration units, and clean/ change regularly during the course of the work at no greater than weekly intervals according to manufacturers instructions.
 - iii) Exhaust hoses shall be heavy duty, flexible steel reinforced and exhausted so that dust is not reintroduced to the medical center.
- c. Adhesive Walk-off/Carpet Walk-off Mats, minimum 600 mm x 900 mm (24" x 36"), shall be used at all interior transitions from the construction area to occupied medical center area. These mats shall be changed daily, or more often if required to maintain clean work areas directly outside construction area at all times.
- d. Vacuum and wet mop all transition areas from construction to the occupied medical center at the end of each workday. Vacuum shall utilize HEPA filtration. Maintain surrounding area frequently. Remove debris as they are created. Transport these outside the construction area in containers with tightly fitting lids.
- e. The contractor shall not haul debris through patient-care areas without prior approval of the COTR and the Medical Center. When, approved, debris shall be hauled in enclosed dust proof containers or wrapped in plastic and sealed with duct tape. No sharp objects should be allowed to cut through the plastic. Wipe down the exterior of the containers with a damp rag to remove dust. All equipment, tools, material, etc. transported through

occupied areas shall be made free from dust and moisture by vacuuming and wipe down.

- f. Using a HEPA vacuum, clean inside the barrier and vacuum ceiling tile prior to replacement. Any ceiling access panels opened for investigation beyond sealed areas shall be sealed immediately when unattended.
- g. There shall be no standing water during construction. This includes water in equipment drip pans and open containers within the construction areas. All accidental spills must be cleaned up and dried within 12 hours. Remove and dispose of porous materials that remain damp for more than 72 hours.
- h. At completion, remove construction barriers and ceiling protection carefully, outside of normal work hours. Vacuum and clean all surfaces free of dust after the removal.

E. Final Cleanup:

- 1. Upon completion of project, or as work progresses, remove all construction debris from above ceiling, vertical shafts and utility chases that have been part of the construction.
- 2. Perform HEPA vacuum cleaning of all surfaces in the construction area. This includes walls, ceilings, cabinets, furniture (built-in or free standing), partitions, flooring, etc.
- 3. All new air ducts shall be cleaned prior to final inspection.

1.9 DISPOSAL AND RETENTION

A. Materials and equipment accruing from work removed and from demolition of buildings or structures, or parts thereof, shall be disposed of as follows:

- 1. Reserved items which are to remain property of the Government, if identified by COTR as items to be stored: Items that remain property of the Government shall be removed or dislodged from present locations in such a manner as to prevent damage which would be detrimental to re-installation and reuse. Store such items on site where directed by COTR.
- 2. Items not reserved shall become property of the Contractor and be removed by Contractor from Medical Center. Refer to Paragraph 1.45 Solid Waste Disposal.
- 3. Items of portable equipment and furnishings located in rooms and spaces in which work is to be done under this contract shall remain the property of the Government. When rooms and spaces are vacated by

the Department of Veterans Affairs during the alteration period, such items which are NOT required by drawings and specifications to be either relocated or reused will be removed by the Government in advance of work to avoid interfering with Contractor's operation.

1.9A PCB-BEARING CAPACITORS: NOT USED.

1.10 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS

- A. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees and shrubs when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer. If shrubs are damaged, COTR may direct Contractor to replace wi
- B. The Contractor shall protect from damage all existing improvements and utilities at or near the work site and on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

(FAR 52.236-9)

1.10 A. TEMPORARY ENVIRONMENTAL CONTROLS: NOT USED

1.11 RESTORATION

- A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Except as otherwise shown or specified, do not cut, alter or remove any structural work, and do not disturb any ducts, plumbing, steam, gas, or electric work without approval of the COTR. Existing work to be altered or extended and that is found to be

defective in any way, shall be reported to the COTR before it is disturbed. Materials and workmanship used in restoring work, shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.

- B. Upon completion of contract, deliver work complete and undamaged. Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before commencing work.
- C. At Contractor's own expense, Contractor shall immediately restore to service and repair any damage caused by Contractor's workmen to existing piping and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems (including telephone) which are indicated on drawings and which are not scheduled for discontinuance or abandonment.
- D. Expense of repairs to such utilities and systems not shown on drawings or locations of which are unknown will be covered by adjustment to contract time and price in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88) and "DIFFERING SITE CONDITIONS" (FAR 52.236-2).

1.12 PHYSICAL DATA

- A. Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

- 1. Drawings of previous projects and many as built conditions are available from COTR.

Bidders are expected to examine site of work; and, after investigation, decide for themselves character of materials and make their bids accordingly.

1.13 PROFESSIONAL SURVEYING SERVICES

Article not used

1.14 LAYOUT OF WORK

- A. The Contractor shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at Contractor's own expense, all stakes, templates, platforms, equipment, tools, materials,

and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the COTR. **(FAR 52.236-17)**

B. 1.15 AS-BUILT DRAWINGS

- A. The contractor shall maintain two full size sets of as-built drawings which will be kept current during construction of the project, to include all contract changes, modifications and clarifications.
- B. All variations shall be shown in the same general detail as used in the contract drawings. To insure compliance, as-built drawings shall be made available for the COTR's review, as often as requested.
- C. Contractor shall make final record as-built drawings in AutoCAD .DWG format and deliver two approved completed hard-copy sets and one electronic set to the COTR within 15 calendar days after each completed phase and after the acceptance of the project by the COTR. Government's A/E Consultant has electronic files of Bid Documents and is available to enter as-built data for Contractor upon reasonable notice.
- D. Paragraphs A, B, & C shall also apply to all shop drawings, except that Contractor is responsible to provide electronic files or procure same from vendors without A/E assistance.

1.16 USE OF ROADWAYS

- A. For hauling, use only established public roads and roads on Medical Center property and, when authorized by the COTR, such temporary roads which are necessary in the performance of contract work. Temporary roads shall be constructed by the Contractor at Contractor's expense. When necessary to cross curbing, sidewalks, or similar construction, they must be protected by well-constructed bridges.
- B. When new permanent roads are to be a part of this contract, Contractor may construct them immediately for use to facilitate building operations. These roads may be used by all who have business thereon within zone of building operations.
- C. When certain buildings (or parts of certain buildings) are required to be completed in advance of general date of completion, all roads leading thereto must be completed and available for use at time set for completion of such buildings or parts thereof.

1.17 COTR'S FIELD OFFICE - NOT USED

1.18 TEMPORARY USE OF MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Use of new installed mechanical and electrical equipment to provide heat, ventilation, plumbing, light and power will be permitted subject to compliance with the following provisions:
1. Permission to use each unit or system must be given by COTR.. If the equipment is not installed and maintained in accordance with the following provisions, the COTR will withdraw permission for use of the equipment.
 2. Electrical installations used by the equipment shall be completed in accordance with the drawings and specifications to prevent damage to the equipment and the electrical systems, i.e. transformers, relays, circuit breakers, fuses, conductors, motor controllers and their overload elements shall be properly sized, coordinated and adjusted. Voltage supplied to each item of equipment shall be verified to be correct and it shall be determined that motors are not overloaded. The electrical equipment shall be thoroughly cleaned before using it and again immediately before final inspection including vacuum cleaning and wiping clean interior and exterior surfaces.
 3. Units shall be properly lubricated, balanced, and aligned. Vibrations must be eliminated.
 4. Automatic temperature control systems for preheat coils shall function properly and all safety controls shall function to prevent coil freeze-up damage.
 5. The air filtering system utilized shall be that which is designed for the system when complete, and all filter elements shall be replaced at completion of construction and prior to testing and balancing of system.
 6. . All components of heat production and distribution system, metering equipment, condensate returns, and other auxiliary facilities used in temporary service shall be cleaned prior to use; maintained to prevent corrosion internally and externally during use; and cleaned, maintained and inspected prior to acceptance by the Government.
- B. Prior to final inspection, the equipment or parts used which show wear and tear beyond normal, shall be replaced with identical replacements, at no additional cost to the Government.

C. This paragraph shall not reduce the requirements of the mechanical and electrical specifications sections.

1.19 TEMPORARY USE OF EXISTING ELEVATORS

A. Contractor will not be allowed the use of existing elevators. Specific exceptions may be approved by the COTR.

1.20 TEMPORARY USE OF NEW ELEVATORS NOT USED

1.21 TEMPORARY TOILETS

A. Provide where directed, (for use of all Contractor's workmen) ample temporary sanitary toilet accommodations with suitable sewer and water connections; or, when approved by COTR, provide suitable dry closets where directed. Keep such places clean and free from flies, and all connections and appliances connected therewith are to be removed prior to completion of contract, and premises left perfectly clean.

1.22 AVAILABILITY AND USE OF UTILITY SERVICES

A. The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract, at no charge. The Contractor shall carefully conserve any utilities furnished without charge.

B. The Contractor, at Contractor's expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and any meters required to measure the amount of electricity used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

D. Heat: Furnish temporary heat necessary to prevent injury to work and materials through dampness and cold. Use of open salamanders or any temporary heating devices which may be fire hazards or may smoke and damage finished work, will not be permitted. Maintain minimum temperatures as specified for various materials:

1. Obtain heat by connecting to Medical Center heating distribution system.

a. Steam is available at no cost to Contractor.

E. Electricity (for Construction and Testing): Furnish all temporary electric services.

1. Obtain electricity by connecting to the Medical Center electrical distribution system. Electricity for all reasonable uses is available at no cost to the Contractor.
- F. Water (for Construction and Testing): Furnish temporary water service.
 1. Obtain water by connecting to the Medical Center water distribution system. Provide reduced pressure backflow preventer at each connection. Water is available at no cost to the Contractor.
 2. Maintain connections, pipe, fittings and fixtures and conserve water-use so none is wasted. Failure to stop leakage or other wastes will be cause for revocation (at COTR's discretion) of use of water from Medical Center's system.
- G. Steam: Furnish steam system for testing required in various sections of specifications.
 1. Obtain steam for testing by connecting to the Medical Center steam distribution system. Steam is available at no cost to the Contractor.
 2. Maintain connections, pipe, fittings and fixtures and conserve steam-use so none is wasted. Failure to stop leakage or other waste will be cause for revocation (at COTR's discretion), of use of steam from the Medical Center's system.

1.23 NEW TELEPHONE EQUIPMENT

The contractor shall coordinate with the work of installation of telephone equipment by others. This work shall be completed before the building is turned over to VA.

1.24 TESTS

- A. Pre-test mechanical and electrical equipment and systems and make corrections required for proper operation of such systems before requesting final tests. Final test will not be conducted unless pre-tested.
- B. Conduct final tests required in various sections of specifications in presence of an authorized representative of the Contracting Officer. Contractor shall furnish all labor, materials, equipment, instruments, and forms, to conduct and record such tests.
- C. Mechanical and electrical systems shall be balanced, controlled and coordinated. A system is defined as the entire complex which must be coordinated to work together during normal operation to produce results for which the system is designed. For example, air conditioning supply

air is only one part of entire system which provides comfort conditions for a building. Other related components are return air, exhaust air, steam, chilled water, refrigerant, hot water, controls and electricity, etc.

- D. All related components as defined above shall be functioning when any system component is tested. Tests shall be completed within a reasonably short period of time during which operating and environmental conditions remain reasonably constant.
- E. Individual test result of any component, where required, will only be accepted when submitted with the test results of related components and of the entire system.

1.25 INSTRUCTIONS

- A. Contractor shall furnish Maintenance and Operating manuals and verbal instructions when required by the various sections of the specifications and as hereinafter specified.
- B. Manuals: Maintenance and operating manuals (one complete hard copy and one electronic complete version) for each separate piece of equipment shall be delivered to the COTR coincidental with the delivery of the equipment to the job site. Manuals shall be complete, detailed guides for the maintenance and operation of equipment. They shall include complete information necessary for starting, adjusting, maintaining in continuous operation for long periods of time and dismantling and reassembling of the complete units and sub-assembly components. Manuals shall include an index covering all component parts clearly cross-referenced to diagrams and illustrations. Illustrations shall include "exploded" views showing and identifying each separate item. Emphasis shall be placed on the use of special tools and instruments. The function of each piece of equipment, component, accessory and control shall be clearly and thoroughly explained. All necessary precautions for the operation of the equipment and the reason for each precaution shall be clearly set forth. Manuals must reference (highlight) the exact model, style and size of the piece of equipment and system being furnished. Manuals referencing equipment similar to but of a different model, style, and size than that furnished will not be accepted.
- C. Instructions: Contractor shall provide qualified, factory-trained manufacturers' representatives to give detailed instructions to assigned Department of Veterans Affairs personnel in the operation and

complete maintenance for each piece of equipment. All such training will be at the job site. These requirements are more specifically detailed in the various technical sections. Instructions for different items of equipment that are component parts of a complete system, shall be given in an integrated, progressive manner. All instructors for every piece of component equipment in a system shall be available until instructions for all items included in the system have been completed. This is to assure proper instruction in the operation of inter-related systems. All instruction periods shall be at such times as scheduled by the COTR and shall be considered concluded only when the COTR is satisfied in regard to complete and thorough coverage. The Department of Veterans Affairs reserves the right to request the removal of, and substitution for, any instructor who, in the opinion of the COTR, does not demonstrate sufficient qualifications in accordance with requirements for instructors above.

1.26 GOVERNMENT-FURNISHED PROPERTY

- A. The Government shall deliver to the Contractor, the Government-furnished property shown on the drawings.
- B. Equipment furnished by Government to be installed by Contractor will be furnished to Contractor at the Medical Center.
- C. Storage space for equipment will be provided by the Government and the Contractor shall be prepared to unload and store such equipment therein upon its receipt at the Medical Center. Such storage space may be within the job site.
- D. Immediately upon delivery of equipment, Contractor shall arrange for a joint inspection thereof with a representative of the Government. At such time the Contractor shall acknowledge receipt of equipment described, make notations, and immediately furnish the Government representative with a written statement as to its condition or shortages.

Contractor thereafter is responsible for such equipment until such time as acceptance of contract work is made by the Government.

- E. Equipment furnished by the Government will be delivered in a partially assembled (knock down) condition in accordance with existing standard commercial practices, complete with all fittings, fastenings, and appliances necessary for connections to respective services installed under contract. All fittings and appliances (i.e., couplings, ells,

tees, nipples, piping, conduits, cables, and the like) necessary to make the connection between the Government furnished equipment item and the utility stub-up shall be furnished and installed by the contractor at no additional cost to the Government.

- F. Completely assemble and install the Government furnished equipment in place ready for proper operation in accordance with specifications and drawings.
- G. Furnish supervision of installation of equipment at construction site by qualified factory trained technicians regularly employed by the equipment manufacturer.

1.27 RELOCATED ITEMS

- A. Contractor shall disconnect, dismantle as necessary, remove and reinstall in new location, all existing equipment, documents, supplies, furniture, including but not limited to items indicated on floor plans by symbol "R" or otherwise shown to be relocated by the Contractor, when necessary to perform the Work.
 - 1. Perform relocation of such equipment or items at such times and in such a manner as directed by the COTR.
 - 2. Cover furniture, documents, and other items to remain within working areas with plastic dust-sheets, taped and sealed to prevent contamination or other damage.
- C. Suitably cap existing service lines, such as steam, condensate return, water, drain, gas, air, vacuum and/or electrical, whenever such lines need to be disconnected from equipment to be relocated. Remove abandoned lines in finished areas if applicable and cap as specified herein before under paragraph "Abandoned Lines".
- D. Provide all mechanical and electrical service connections, fittings, fastenings and any other materials necessary for assembly and installation of relocated equipment; and leave such equipment in proper operating condition.
- F. All service lines such as noted above for relocated equipment shall be in place at point of relocation ready for use before any existing equipment is disconnected. Make relocated existing equipment ready for operation or use immediately after reinstallation.

1.28 STORAGE SPACE FOR DEPARTMENT OF VETERANS AFFAIRS EQUIPMENT

- A. NOT USED

1.29 CONSTRUCTION SIGN: REFER TO DRAWING G-002

- A. Provide one free-standing or scaffold-mounted Construction Sign Board as indicated where directed by the COTR.
 - 1. Maintain sign and remove it when directed by the COTR.
- A. Provide two Project Signs for installation at each active working area as indicated. Relocate as necessary throughout Contract Time to notify building users as to the location and extent of active work areas.
 - 1. VA will provide electronic sign document(s) which shall be printed and suitably framed for mounting outside each construction area.

1.30 SAFETY SIGN

- A. NOT USED

1.31 PHOTOGRAPHIC DOCUMENTATION

- A. NOT USED

1.32 FINAL ELEVATION DIGITAL IMAGES

- A. NOT USED

1.33 HISTORIC PRESERVATION

Where the Contractor or any of the Contractor's employees, prior to, or during the construction work, are advised of or discover any possible archeological, historical and/or cultural resources, the Contractor shall immediately notify the COTR verbally, and then with a written follow up.

1.34 SCHEDULES FOR CONSTRUCTION CONTRACTS

- A. In addition to any other schedules required by this contract, the Contractor shall, within ten days after issuance of the Notice to Proceed or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.
- B. If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps

necessary to improve its progress without additional cost to the Government including but not limited to increasing the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and submitting for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained. No additional general conditions shall be allowed if contractor has fallen behind schedule.

- C. Failure of the Contractor to proceed in accordance with the approved schedule shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of this contract.

1.35 ASBESTOS MATERIALS

Pursuant to Clause 52.236-2 Differing Site Conditions, it is the responsibility of the contractor to notify the COTR promptly and before conditions are disturbed of the possible presence of asbestos in areas other than those so designated in this contract. The Government shall collect a sample of suspected asbestos and obtain laboratory testing. If asbestos is not detected, the contractor will be notified in writing of the negative test results and will be directed to proceed with the performance of the contract. It is anticipated that the only asbestos materials in the area of this project will be certain floor tile mastic, certain window glazing, and certain duct joint compound. Removal of these items shall be accomplished in strict compliance with state and federal and VA requirements.

1.36 FALL PROTECTION DURING CONSTRUCTION

Fall protection shall be required during all work operations in accordance with OSHA Article 1926.500, 29 CFR Ch. XVII (7-1-92 Edition).

- A. In general for areas greater than 6 ft. in height above the adjacent grade and/or level, persons shall be protected from fall by one or a combination of the following:
 - 1. Motion Stopping System
 - 2. Warning Line System, and/or

- 3. Safety Monitoring System
- B. A Motion Stopping System will be employed at edges where material handling and material storage occurs.

1.37 HAZARD COMMUNICATION

- A. The Medical Center advises the Contractor of the following potential hazards in accordance with OSHA Article 1926.59. The Contractor is completely responsible for the health and safety of himself, his employees, agents, subcontractors, and others that may be performing, testing, or reviewing his work under his direction, request, or otherwise during the period of execution of work under this contract.
- B. Lead Based Paint - Exposure is through inhalation and ingestion. Contractor shall wear proper respiratory protection when preparing lead based paint surfaces as required in State Regulations.
- C. Infectious Diseases - The contractor shall be thoroughly familiar with the VA signage for universal precautions. The Contractor will be advised of using proper hygiene techniques (washing hands regularly etc.)

1.38 HAZARDOUS MATERIALS NOTIFICATION

An official Material Safety Data Sheet (MSDS) shall be approved in advance by COTR of any chemical brought onto the Medical Center premises. Contractor shall maintain a file on the job site of all such MSDS sheets. The copy shall be annotated with 1) the specific job related use of the product, 2) the contractor, subcontractor or person using the chemical, 3) the maximum quantity of the chemical on site or expected to be on site at any given time, 4) the estimated date when this chemical will no longer be stored or housed on the Medical Center premises.

1.39 DAILY LOGS

Contractor shall complete a daily log in a format prescribed by the Medical Center and place a completed, signed copy in a binder at the job site following each day's work. See the attached form. Binder shall be available for COTR inspection at all times. The form shall indicate the type of work completed, the number of workers on site, and a brief description of the work and issues addressed each day. Indicate any penetration or hot work permits obtained and whether such work was completed.

- A. The template of the Daily Log form is available from COTR in Microsoft Excel worksheet format (*.xls).
- B. The binder shall also contain infection control reports, MSDS sheets, and all other periodic reports not limited to safety logs.



Department of Veterans Affairs

DAILY LOG - FORMAL CONTRACT				STATION	DIVISION
PROJECT TITLE				NAME OF CONTRACTOR	
WEATHER				CONTRACT NO.	
DATE	TEMPERATURE	8 A.M.		PROJECT , PO #:	
DAY		NOON			
		4 P.M.			
BRANCH OF WORK	SKILLED WORKERS AND HELPERS	UNSKILLED WORKERS	LOCATION AND DESCRIPTION OF WORK		
(For additional notes, see back)					
TOTAL					
FIRE/SAFETY INSPECTION:				Ok/Not Ok	Action Taken
Temporary fire/smoke barrier tight, door lock					
Fire alarm, exit lights, smoke detector functional					
Contractor's fire extinguisher present					
Dust partition secured					
Dust mat present/clean					
Construction dust minimize					
Negative air system functional (if apply)					
Burning permit displayed					
Means of egress unobstructed					
SATISFACTORY		EQUIPMENT	FORCE	PROGRESS	DELIVERY OF MATERIALS
UNSATISFACTORY					
REMARKS (Continue on blank page, if necessary)					
SIGNATURE OF CONTRACTOR COMPETENT PERSON					
SIGNATURE OF PROJECT ENGINEER or COTR					
To be used in lieu of VA Form 6131 12/99					

1.40 KEYS

The COTR will issue keys as required, to the Contractor to access certain rooms on the Medical Center property. Keys shall be returned when no longer needed or upon completion of construction. A \$100 fine per key shall apply to Contractor for all keys not returned at the completion of construction.

1.41 CELL PHONES

Cell phones must be turned OFF when inside Building #31. The Contractor shall communicate this restriction to all Contractor employees and subcontractors. "OFF" shall not be confused with "mute".

1.42 LOCKOUT/TAGOUT PROCEDURE:

A lockout/tagout procedure shall be required to be performed by the Contractor on this contract. The contractor may follow his own procedure if approved in advance by the COTR or the VA policy shall be followed. Copies of the VA policy are available at the Facilities Management Office in Building 37.

1. Purpose: This procedure establishes the minimum requirements for the lockout of energy isolating devices. It shall be used to ensure that the machine or equipment are isolated from all potentially hazardous energy, and locked out or tagged out before employees perform any servicing or maintenance activities where the unexpected energization, start-up or release of stored energy could cause injury.
2. Responsibility: The Contractor's supervisor shall instruct appropriate employees in the safety significance of the lockout procedure. Each new or transferred affected employee and other employees whose work operations are or may be in the area shall be instructed in the purpose and use of the lockout procedure.

1.43 LICENSING

Contractor is required to insure that all trades workers hold proper State or Federal licenses for the work they are to perform. Such licenses shall be submitted to the COTR upon request.

1.44 MERCURY FREE FACILITY

The VA Medical Center desires to be a mercury free facility. Contractor shall take all necessary means and good faith to insure that no mercury containing devices are introduced to this campus as a result of this project.

1.45 SOLID WASTE DISPOSAL

Contractor shall not dispose of solid or liquid waste on the VA Campus. This shall include the wash down of concrete at any place on campus without the specific approval of the COTR, such approval is not likely to be given.

Contractor shall submit a Waste Management Plan at the initial jobsite meeting. This shall include provisions for recycling, including coordination of recycling container locations and security.

Submit monthly records of the percentage of waste materials that are recycled at the first jobsite meeting of each calendar month.

1.46 BUY RECYCLED

This facility is required to buy recycled products and materials whenever possible. Contractor shall take all necessary means and good faith to insure that recycled materials are considered and/or used on this project.

1.47 LISTING OF SUBCONTRACTORS

Upon beginning the project, contractor shall furnish to the CO and COTR

- A complete contact listing of all subcontractors, to include name, address, phone, cell phone, fax, e-mail of the responsible parties.

1.48 SUBMITTALS

Prior to installing any new equipment, hardware, building service equipment, etc contractor shall deliver submittals on the equipment proposed. No items shall be installed without proper approval of submittals in advance. Submittals shall be delivered electronically as prescribed by the Contracting Officer at the notice to proceed meeting.

1.48 PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL (JAN 2006)

- A. The contractor shall comply with agency personal identity verification procedures identified in the contract that implemented Homeland Security Presidential Verification Directive-12 (HSPD-12),

Office of Management and Budget (OMB) guidance M-05-24, and Federal Information Processing Standards Publication (FIPS PUB) Number 201.

- B. The contractor shall insert this clause in all subcontracts when the subcontractor is required to have physical access to a federally-controlled facility or access to a Federal information system.
- C. This PIV process typically requires all workers to complete forms in advance of entering the VA Medical Center, to present two official forms of identification, to submit finger prints and background checks, etc depending on the nature of the project and the length of construction. The approval process typically requires a minimum of five business days before access can be approved.

1.50 ENERGY EFFICIENCY

All AC motors shall be premium efficient and meet the performance requirements and incentive eligibility established by Efficiency Vermont.

All lighting shall be high efficiency and meet the performance requirements and incentive eligibility established by Efficiency Vermont.

Attachment: Daily Log

- - - E N D - - -

SECTION 01 33 23
SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- 1.1 Refer to Articles titled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR 52.236-21) and, SPECIAL NOTES (VAAR 852.236-91), in GENERAL CONDITIONS.
- 1.2 For the purposes of this contract, samples (including laboratory samples to be tested), test reports, certificates, and manufacturers' literature and data shall also be subject to the previously referenced requirements. The following text refers to all items collectively as SUBMITTALS.
- 1.3 Make all submittals in accordance with VAMC local standard described in APPENDIX below. Procedure A shall be the default standard for compliance in electronic formats whenever practicable.
Procedure B may be followed when necessary for physical samples and other objects that cannot be handled according to Procedure A.
 - A. Address and password of A-E FTP site will be notified at Notice to Proceed meeting.
 - B. Other general requirements for submittals shall be as outlined in the body of this Section.
 - C. Contractor, having assigned each submittal a file number, shall refer to said file and identification number in subsequent correspondence to expedite replies relative to previously approved or disapproved submittals.
- 1.4 Submit for approval, all of the items specifically mentioned under the separate sections of the specification, with information sufficient to evidence full compliance with contract requirements. Materials, fabricated articles and the like to be installed in permanent work shall equal those of approved submittals. After an item has been approved, no change in brand or make will be permitted unless:
 - A. Satisfactory written evidence is presented to, and approved by COTR, that manufacturer cannot make scheduled delivery of approved item or;
 - B. Item delivered has been rejected and substitution of a suitable item is an urgent necessity or;
 - C. Other conditions become apparent which indicates approval of such substitute item to be in best interest of the Government.

- 1.5 Forward submittals in sufficient time to permit proper consideration and approval action by Government while allowing adequate lead time for procurement of contract - required items. Delays attributable to untimely and rejected submittals (including any laboratory samples to be tested) will not serve as a basis for extending contract time for completion.
- 1.6 Submittals will be reviewed for compliance with contract requirements by Architect-Engineer (A-E), and action thereon will be taken by COTR.
- 1.7 The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract, without adjustment in contract price and time.
- 1.8 Schedules called for in specifications and shown on shop drawings shall be submitted for use and information of Department of Veterans Affairs and A-E. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The COTR and A-E assumes no responsibility for checking schedules or layout drawings for exact sizes, exact numbers and detailed positioning of items.
- 1.9 Submittals must be submitted by Contractor only. Physical submittals shall be shipped prepaid. COTR assumes no responsibility for checking quantities or exact numbers included in such submittals.
 - A. Submit sufficient numbers of physical submittals, taking into account the number of copies to be retained by Government, A-E, and sub-consultant(s) where applicable.
 1. Submit materials samples for color and finish verification required by Division 09 and other Divisions in quadruplicate.
 2. Submit other samples in single units unless otherwise specified. Submit shop drawings, schedules, manufacturers' literature and data, and certificates in quadruplicate, except where a greater number is specified or necessary.
 - B. Submittals will receive consideration only when accompanied by an attached electronic transmittal signed by Contractor, or paper letter in the case of Procedure B. Transmittal shall contain the list of items, name of Medical Center, name of Contractor, contract number, applicable specification paragraph numbers, applicable drawing numbers (and other information required for exact identification of location for each item), manufacturer and brand, ASTM or Federal Specification Number (if any) and such additional information as may be required by specifications for particular item being furnished. In addition,

catalogs shall be marked to indicate specific items submitted for approval.

1. Any items received without identification letter will be considered "unclaimed goods" and held for a limited time only.
 2. Each sample, certificate, manufacturers' literature and data shall be labeled to indicate the name and location of the Medical Center , name of Contractor, manufacturer, brand, contract number and ASTM or Federal Specification Number as applicable and location(s) on project.
 3. Required certificates shall be signed by an authorized representative of manufacturer or supplier of material, and by Contractor.
- C. In addition to complying with the applicable requirements specified in preceding Article 1.9, samples which are required to have Laboratory Tests (those preceded by symbol "LT" under the separate sections of the specification shall be tested, at the expense of Contractor, in a commercial laboratory approved by COTR.
1. Laboratory shall furnish COTR with a certificate stating that it is fully equipped and qualified to perform intended work, is fully acquainted with specification requirements and intended use of materials and is an independent establishment in no way connected with organization of Contractor or with manufacturer or supplier of materials to be tested.
 2. Certificates shall also set forth a list of comparable projects upon which laboratory has performed similar functions during past five years.
 3. Samples and laboratory tests shall be sent directly to approved commercial testing laboratory.
 4. Contractor shall send a copy of transmittal letter to both COTR and to A-E simultaneously with submission of material to a commercial testing laboratory.
 5. Laboratory test reports shall be sent directly to COTR for appropriate action, with copy to A-E.
 6. Laboratory reports shall list contract specification test requirements and a comparative list of the laboratory test results. When tests show that the material meets specification requirements, the laboratory shall so certify on test report.

7. Laboratory test reports shall also include a recommendation for approval or disapproval of tested item.
- D. If submittal samples have been disapproved or recommended for disapproval by laboratory, resubmit new samples as soon as possible after notification. Such new samples shall be marked "Resubmitted Sample" in addition to containing other previously specified information required on label and in transmittal letter.
 - E. Approved samples will be kept on file by the COTR at the site until completion of contract, at which time such samples will be delivered to Contractor as Contractor's property. Where noted in technical sections of specifications, approved samples in good condition may be used in their proper locations in contract work. At completion of contract, samples that are not approved will be returned to Contractor only upon request and at Contractor's expense. Such request should be made prior to completion of the contract. Disapproved samples that are not requested for return by Contractor will be discarded after completion of contract.
 - F. Submittal drawings (shop, erection or setting drawings) and schedules, required for work of various trades, shall be checked before submission by technically qualified employees of Contractor for accuracy, completeness and compliance with contract requirements. These drawings and schedules shall be stamped and signed by Contractor certifying to such check.

1.10 Address of A-E office to receive submittals:

BMA Architects & Planners
210 South Street, Suite 106
Bennington, VT 05201

APPENDIX: ELECTRONIC SUBMITTAL PROCEDURES DECEMBER 28, 2010.

A. FOR ITEMS IN 8.5 X 11 FORMAT OR OTHERWISE EASILY SCANNED and less than 9 MB is size:

1. General contractor (GC) prepares submittal in electronic format. Official numbering scheme to be as submitted by the GC. To include:
 - a. VA Electronic cover document (see attachment)
 - b. GC submittal cover document combined with submittal documents, usually to include a sub contractor cover document.
 - c. These two items may be submitted as two documents or one.
2. GC scans submittal, uploads to A-E's FTP site, and sends complete electronic submittal by e-mail to all parties as agreed in the Notice to Proceed Meeting (NTP). Typically to include VA CO Technical Representative (COTR); VA Ron Clark; and the A-E (and including engineer subs to the A-E where applicable).

This e-mail starts the clock on the date of submittal. COTR to post the "Submittal log" saved on the "joint fms-90" mainframe folder on the "WRJ Common server".
3. Simultaneously with item 2 above, GC sends (or hand delivers) one hard copy of full submittal to the CO.
4. A-E (including his sub-consultants) begins immediate review of the electronic submittal.
5. Upon A-E completion of review - A-E returns complete electronic submittal package to the COTR with electronic signature and any comments entered ON the electronic cover document.
6. COTR reviews the info from A-E and adds any VA specific comments; then saves with COTR electronic signature. COTR forwards approved electronic submittal to the GC with copies to CO and VA Ron Clark, (and others if determined at the NTP meeting). The date of this e-mail becomes the official date for return of submittal.
7. VA Ron Clark to make one complete copy of the final reviewed (approved or resubmit) submittal package with all cover docs and files in the VA FMS project folder. Plus one copy of the Return of Submittal electronic signature document and sends this by VA internal mail to the CO.

B. FOR ITEMS NOT IN 8.5 X 11 FORMAT OR OTHERWISE EASILY SCANNED (i.e. Shop Drawings) OR SCANNED BUT LARGER THAN 9 MB:

Option 1 (preferred):

1. A-E shall provide a folder on A-E's ftp site and shall manage all submittals (small and large) through an approved process using the ftp site which can handle large submittals. Process similar to that above.

Option 2:

1. GC prepares submittal. Official numbering scheme to be as submitted by the GC. To include:
 - a. Paper version of the VA Electronic cover document
 - b. GC submittal cover document
 - c. Submittal documents (shop drawings, etc.) usually to include a sub contractor cover document.
 - d. The number of copies will be as agreed at the Notice to Proceed meeting. Typically the number required is the number desired back by the GC plus four (consider if there is an outside engineer sub to the A-E who may want a copy).
2. GC sends copies of the submittal by Fed Ex Next Day (or equal) to all parties as agreed in the NTP meeting. Typically to include One for VA CO; One for VA COTR; multiple to cover A-E and subs.

The date RECEIVED starts the clock on the date of submittal. VA CO to post the "Submittal log" saved on the "joint fms-90" mainframe folder on the "WRJ Common server".

3. A-E (including sub-consultants) begins immediate review of the paper submittal upon receipt.
4. Upon A-E completion of review - A-E returns (by Fed Ex Next Day (or equal) complete submittal package to the COTR with stamp or signature on EACH hard copy of the cover document and any comments entered ON each hard copy cover document OR directly on each copy of the shop drawings. If comments are located on the submittal drawings - an A-E stamp is also required thereon. All copies of the submittal must be marked up with all comments and signatures/stamps. Mark ups to be in RED. A-E will keep one copy (plus if agreed in advance, engineer sub to A-E may also keep one copy) and return the remaining copies (By Fed Ex Next Day or equal) to COTR.
5. COTR reviews the info from A-E and adds any VA specific comments; then stamps and signs the hard copy of each cover document. COTR returns all copies to VA Construction Clerk Ron Clark.
6. VA Ron Clark will file one copy for the VA FMS file. One copy is sent by internal mail to the CO; all other copies will be returned to the General Contractor by Fed Ex Next Day or equal. Date of mailing by Fed Ex (before 3pm) plus one calendar day will be logged as the date for submittal returned. CO will post the return of submittal date on the official submittal log saved on the "joint fms-90" mainframe folder on the "WRJ Common server".

- - - E N D - - -

SECTION 01 42 19
REFERENCE STANDARDS

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies the availability and source of references and standards specified in the project manual under paragraphs APPLICABLE PUBLICATIONS and/or shown on the drawings.

1.2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS FPMR PART 101-29 (FAR 52.211-1) (AUG 1998)

- A. The GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29 and copies of specifications, standards, and commercial item descriptions cited in the solicitation may be obtained for a fee by submitting a request to - GSA Federal Supply Service, Specifications Section, Suite 8100, 470 East L'Enfant Plaza, SW, Washington, DC 20407, Telephone (202) 619-8925, Facsimile (202) 619-8978.
- B. If the General Services Administration, Department of Agriculture, or Department of Veterans Affairs issued this solicitation, a single copy of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained free of charge by submitting a request to the addressee in paragraph (a) of this provision. Additional copies will be issued for a fee.

1.3 AVAILABILITY FOR EXAMINATION OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS (FAR 52.211-4) (JUN 1988)

The specifications and standards cited in this solicitation can be examined at the following location:

DEPARTMENT OF VETERANS AFFAIRS

Office of Construction & Facilities Management

Facilities Quality Service (00CFM1A)

811 Vermont Avenue, NW - Room 462

Washington, DC 20420

Telephone Numbers: (202) 461-8217 or (202) 461-8292

Between 9:00 AM - 3:00 PM

**1.4 AVAILABILITY OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF
FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS
(FAR 52.211-3) (JUN 1988)**

The specifications cited in this solicitation may be obtained
from the associations or organizations listed below.

AA	Aluminum Association Inc. http://www.aluminum.org
AABC	Associated Air Balance Council http://www.aabchq.com
AAMA	American Architectural Manufacturer's Association http://www.aamanet.org
AAN	American Nursery and Landscape Association http://www.anla.org
AASHTO	American Association of State Highway and Transportation Officials http://www.aashto.org
AATCC	American Association of Textile Chemists and Colorists http://www.aatcc.org
ACGIH	American Conference of Governmental Industrial Hygienists http://www.acgih.org
ACI	American Concrete Institute http://www.aci-int.net
ACPA	American Concrete Pipe Association http://www.concrete-pipe.org
ACPPA	American Concrete Pressure Pipe Association http://www.acppa.org
ADC	Air Diffusion Council http://flexibleduct.org
AGA	American Gas Association http://www.aga.org
AGC	Associated General Contractors of America http://www.agc.org
AGMA	American Gear Manufacturers Association, Inc. http://www.agma.org
AHAM	Association of Home Appliance Manufacturers http://www.aham.org
AISC	American Institute of Steel Construction http://www.aisc.org

AISI	American Iron and Steel Institute http://www.steel.org
AITC	American Institute of Timber Construction http://www.aitc-glulam.org
AMCA	Air Movement and Control Association, Inc. http://www.amca.org
ANLA	American Nursery & Landscape Association http://www.anla.org
ANSI	American National Standards Institute, Inc. http://www.ansi.org
APA	The Engineered Wood Association http://www.apawood.org
ARI	Air-Conditioning and Refrigeration Institute http://www.ari.org
ASAE	American Society of Agricultural Engineers http://www.asae.org
ASCE	American Society of Civil Engineers http://www.asce.org
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers http://www.ashrae.org
ASME	American Society of Mechanical Engineers http://www.asme.org
ASSE	American Society of Sanitary Engineering http://www.asse-plumbing.org
ASTM	American Society for Testing and Materials http://www.astm.org
AWI	Architectural Woodwork Institute http://www.awinet.org
AWS	American Welding Society http://www.aws.org
AWWA	American Water Works Association http://www.awwa.org
BHMA	Builders Hardware Manufacturers Association http://www.buildershardware.com
BIA	Brick Institute of America http://www.bia.org

CAGI	Compressed Air and Gas Institute http://www.cagi.org
CGA	Compressed Gas Association, Inc. http://www.cganet.com
CI	The Chlorine Institute, Inc. http://www.chlorineinstitute.org
CISCA	Ceilings and Interior Systems Construction Association http://www.cisca.org
CISPI	Cast Iron Soil Pipe Institute http://www.cispi.org
CLFMI	Chain Link Fence Manufacturers Institute http://www.chainlinkinfo.org
CPMB	Concrete Plant Manufacturers Bureau http://www.cpmc.org
CRA	California Redwood Association http://www.calredwood.org
CRSI	Concrete Reinforcing Steel Institute http://www.crsi.org
CTI	Cooling Technology Institute http://www.cti.org
DHI	Door and Hardware Institute http://www.dhi.org
EGSA	Electrical Generating Systems Association http://www.egsa.org
EEI	Edison Electric Institute http://www.eei.org
EPA	Environmental Protection Agency http://www.epa.gov
ETL	ETL Testing Laboratories, Inc. http://www.etl.com
FAA	Federal Aviation Administration http://www.faa.gov
FCC	Federal Communications Commission http://www.fcc.gov
FPS	The Forest Products Society http://www.forestprod.org
GANA	Glass Association of North America http://www.cssinfo.com/info/gana.html/

FM	Factory Mutual Insurance http://www.fmglobal.com
GA	Gypsum Association http://www.gypsum.org
GSA	General Services Administration http://www.gsa.gov
HI	Hydraulic Institute http://www.pumps.org
HPVA	Hardwood Plywood & Veneer Association http://www.hpva.org
ICBO	International Conference of Building Officials http://www.icbo.org
ICEA	Insulated Cable Engineers Association Inc. http://www.icea.net
\ICAC	Institute of Clean Air Companies http://www.icac.com
IEEE	Institute of Electrical and Electronics Engineers http://www.ieee.org/
IMSA	International Municipal Signal Association http://www.imsasafety.org
IPCEA	Insulated Power Cable Engineers Association
NBMA	Metal Buildings Manufacturers Association http://www.mbma.com
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry Inc. http://www.mss-hq.com
NAAMM	National Association of Architectural Metal Manufacturers http://www.naamm.org
NAPHCC	Plumbing-Heating-Cooling Contractors Association http://www.phccweb.org.org
NBS	National Bureau of Standards See - NIST
NBBPVI	National Board of Boiler and Pressure Vessel Inspectors http://www.nationboard.org
NEC	National Electric Code See - NFPA National Fire Protection Association
NEMA	National Electrical Manufacturers Association http://www.nema.org

NFPA	National Fire Protection Association http://www.nfpa.org
NHLA	National Hardwood Lumber Association http://www.natlhardwood.org
NIH	National Institute of Health http://www.nih.gov
NIST	National Institute of Standards and Technology http://www.nist.gov
NLMA	Northeastern Lumber Manufacturers Association, Inc. http://www.nelma.org
NPA	National Particleboard Association 18928 Premiere Court Gaithersburg, MD 20879 (301) 670-0604
NSF	National Sanitation Foundation http://www.nsf.org
NWWDA	Window and Door Manufacturers Association http://www.nwwda.org
OSHA	Occupational Safety and Health Administration Department of Labor http://www.osha.gov
PCA	Portland Cement Association http://www.portcement.org
PCI	Precast Prestressed Concrete Institute http://www.pci.org
PPI	The Plastic Pipe Institute http://www.plasticpipe.org
PEI	Porcelain Enamel Institute, Inc. http://www.porcelainenamel.com
PTI	Post-Tensioning Institute http://www.post-tensioning.org
RFCI	The Resilient Floor Covering Institute http://www.rfci.com
RIS	Redwood Inspection Service See - CRA
RMA	Rubber Manufacturers Association, Inc. http://www.rma.org

SCMA	Southern Cypress Manufacturers Association http://www.cypressinfo.org
SDI	Steel Door Institute http://www.steeldoor.org
IGMA	Insulating Glass Manufacturers Alliance http://www.igmaonline.org
SJI	Steel Joist Institute http://www.steeljoist.org
SMACNA	Sheet Metal and Air-Conditioning Contractors National Association, Inc. http://www.smacna.org
SSPC	The Society for Protective Coatings http://www.sspc.org
STI	Steel Tank Institute http://www.steeltank.com
SWI	Steel Window Institute http://www.steelwindows.com
TCA	Tile Council of America, Inc. http://www.tileusa.com
TEMA	Tubular Exchange Manufacturers Association http://www.tema.org
TPI	Truss Plate Institute, Inc. 583 D'Onofrio Drive; Suite 200 Madison, WI 53719 (608) 833-5900
UBC	The Uniform Building Code See ICBO
UL	Underwriters' Laboratories Incorporated http://www.ul.com
ULC	Underwriters' Laboratories of Canada http://www.ulc.ca
WCLIB	West Coast Lumber Inspection Bureau 6980 SW Varns Road, P.O. Box 23145 Portland, OR 97223 (503) 639-0651
WRCLA	Western Red Cedar Lumber Association P.O. Box 120786

New Brighton, MN 55112

(612) 633-4334

WWPA Western Wood Products Association

<http://www.wwpa.org>

- - - E N D - - -

SECTION 02 41 00
DEMOLITION

PART 1 - GENERAL

1.1 DESCRIPTION:

This section specifies demolition and removal of buildings, portions of buildings, other structures and debris.

Included are salvage items for re-use in the Work.

1.2 RELATED WORK:

- A. Safety Requirements: GENERAL CONDITIONS Article, ACCIDENT PREVENTION.
- B. Disconnecting utility services prior to demolition: Section 01 00 00, GENERAL REQUIREMENTS.
- C. Reserved items that are to remain the property of the Government: Section 01 00 00, GENERAL REQUIREMENTS.
- D. Lead Paint, : Section 02 83 33.13, LEAD-BASED PAINT REMOVAL AND DISPOSAL.
- E. Environmental Protection, Construction Waste Management, Infectious Control, Historic Resources: Section 01 00 00, GENERAL REQUIREMENTS, respective Articles.

1.3 WASTE MANAGEMENT PLAN

- A. Submit a Waste Management Plan to COTR at or before the NTP Meeting, indicating:
 - 1. Full list of proposed salvage items.
 - 2. Proposed methods for recycling, including proposed sizes and locations of receptacles, and proposed arrangements with local materials re-use agencies such as ReCover and Vermont Salvage.
 - 3. Proposed locations of general disposal receptacles.
 - 4. Proposed methods of measuring and logging approximate quantities and materials which are being recycled.

1.4 PROTECTION:

- A. Perform demolition in such manner as to eliminate hazards to persons and property; to minimize interference with use of adjacent areas, utilities and structures or interruption of use of such utilities; and to provide free passage to and from such

adjacent areas of structures. Comply with requirements of GENERAL CONDITIONS Article, ACCIDENT PREVENTION.

- B. Provide safeguards, including warning signs, barricades, temporary fences, warning lights, and other similar items that are required for protection of all personnel during demolition and removal operations. Comply with requirements of Section 01 00 00, GENERAL REQUIREMENTS, Article PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES AND IMPROVEMENTS.
- C. Maintain fences, barricades, lights, and other similar items around exposed excavations until such excavations have been completely filled.
- D. Prevent spread of flying particles and dust. Sprinkle rubbish and debris with water to keep dust to a minimum. Do not use water if it results in hazardous or objectionable condition such as, but not limited to; ice, flooding, or pollution. Vacuum and dust the work area daily.
- E. In addition to previously listed fire and safety rules to be observed in performance of work, include following:
 - 1. No wall or part of wall shall be permitted to fall outwardly from structures.
 - 2. Maintain at least one stairway in each structure in usable condition to highest remaining floor. Keep stairway free of obstructions and debris until that level of structure has been removed.
 - 3. Wherever a cutting torch or other equipment that might cause a fire is used, provide and maintain fire extinguishers nearby ready for immediate use. Instruct all possible users in use of fire extinguishers.
 - 4. Keep hydrants clear and accessible at all times. Prohibit debris from accumulating within a radius of 4500 mm (15 feet) of fire hydrants.
- F. Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work and identify items to be temporarily and permanently removed, protected, relocated, etc, in order to develop a plan for avoiding damage. Contractor shall take necessary precautions to avoid damages to existing items to remain in place, to be reused, or to remain the property of the

Medical Center; any damaged items shall be repaired or replaced at Contractor's expense as approved by the COTR.

1. Refer to respective paragraphs in Section 01 00 00 Article 1.9 regarding items to be moved, stored, etc.
2. Cover desks, furniture, and small items to remain. Roll up floor mats, remove portable items from rooms. Keep an inventory of items that are moved and replaced.
3. Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract. Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition or removal works. Repairs, reinforcement, or structural replacement must have COTR's approval.

PART 2 - PRODUCTS

2.1 EXISTING ITEMS: SALVAGE FOR RE-USE

- A. Items to be salvaged for re-use in the Work are noted on the Drawings.
 1. Consult COTR regarding existing security and fire alarm devices and other mechanical and electrical items affected by the Work but not specifically listed before starting demolition in each area.
- B. Thoroughly clean salvaged items and service operating parts. Repaint field painted items.

PART 3 - EXECUTION

3.1 DEMOLITION:

- A. Debris, including brick, concrete, stone, metals and similar materials shall become property of Contractor and shall be disposed of by him daily, off the Medical Center to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the COTR. Contractor shall dispose debris in compliance with applicable federal, state or local permits, rules and/or regulations.
- B. Remove and legally dispose of all materials, other than earth to remain as part of project work, from any trash dumps shown. Materials removed shall become property of contractor and shall

be disposed of in compliance with applicable federal, state or local permits, rules and/or regulations be hauled to VA specified disposal site. All materials in the indicated trash dump areas, including above surrounding grade and extending to a depth of 1500mm (5 feet) below surrounding grade, shall be included as part of the lump sum compensation for the work of this section. Materials that are located beneath the surface of the surrounding ground more than 1500 mm (5 feet), or materials that are discovered to be hazardous, shall be handled as unforeseen. The removal of hazardous material shall be referred to Hazardous Materials specifications.

- C. Remove existing utilities as indicated or uncovered by work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the COTR. When Utility lines are encountered that are not indicated on the drawings, the COTR shall be notified prior to further work in that area.

3.2 CLEAN-UP:

On completion of work of this section and after removal of all debris, leave site in clean condition satisfactory to COTR. Clean-up shall include off the Medical Center Property disposal of all items and materials not required to remain property of the Government as well as all debris and rubbish resulting from demolition operations.

- - - E N D - - -

SECTION 02 83 33.13
LEAD-BASED PAINT REMOVAL AND DISPOSAL

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies procedures including abatement (if required) and disposal of lead-based paint (LBP) and controls needed to limit occupational and environmental exposure to lead hazards.

- A. All Historic wood doors, windows and trim (including items concealed by existing aluminum trim) have, at some time, been coated with LBP, hence existence of same shall not be deemed "Unforeseen". Due to the Historic status of these items, disturbance of existing paint shall be to the minimum extent necessary to meet VAMC requirements for the ongoing safety of the facility.
- B. In view of the intent to minimize disturbance of items that have been coated with LBP, and the likelihood that that the LBP is already encapsulated by subsequent paint layers and more recent construction, it is the hope of the VA that abatement of the LBP will not be needed to accomplish the current project safely.
- C. Entity performing work to be air-tested, and LBP abatement if required, shall hold licenses and follow procedures required by the State of Vermont for the safe treatment of lead paint.

1.2 RELATED WORK

- A. Section 01 00 00, GENERAL REQUIREMENTS Articles including
01 00 00 - 1.8, INFECTION CONTROL: Requirements may
be complementary or may overlap.
- B. Section 02 41 00, DEMOLITION.
- C. Section 09 91 00, PAINTING.

1.3 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
- B. Code of Federal Regulations (CFR):
CFR 29 Part 1910.....Occupational Safety and Health Standards

- CFR 29 Part 1926.....Safety and Health Regulations for
Construction
- CFR 40 Part 148.....Hazardous Waste Injection Restrictions
- CFR 40 Part 260.....Hazardous Waste Management System:
General
- CFR 40 Part 261.....Identification and Listing of Hazardous
Waste
- CFR 40 Part 262.....Standards Applicable to Generators of
Hazardous Waste
- CFR 40 Part 263.....Standards Applicable to Transporters of
Hazardous Waste
- CFR 40 Part 264.....Standards for Owners and Operations of
Hazardous Waste Treatment, Storage, and
Disposal Facilities
- CFR 40 Part 265.....Interim Status Standards for Owners and
Operators of Hazardous Waste Treatment,
Storage, and Disposal Facilities
- CFR 40 Part 268.....Land Disposal Restrictions
- CFR 49 Part 172.....Hazardous Material Table, Special
Provisions, Hazardous Material
Communications, Emergency Response
Information, and Training Requirements
- CFR 49 Part 178.....Specifications for Packaging
- C. National Fire Protection Association (NFPA):
NFPA 701-2004.....Methods of Fire Test for Flame-Resistant
Textiles and Films
- D. National Institute for Occupational Safety And Health (NIOSH)
NIOSH OSHA Booklet 3142. Lead in Construction
- E. Underwriters Laboratories (UL)
UL 586-1996 (Rev 2004).. High-Efficiency, Particulate, Air
Filter Units
- F. American National Standards Institute
Z9.2-2001.....Fundamentals Governing the Design and
Operation of Local Exhaust Systems
Z88.2-1992.....Respiratory Protection

1.4 DEFINITIONS

- A. Action Level: Employee exposure, without regard to use of
respirations, to an airborne concentration of lead of 30

- micrograms per cubic meter of air averaged over an 8-hour period. As used in this section, "30 micrograms per cubic meter of air" refers to the action level.
- B. Area Monitoring: Sampling of lead concentrations within the Lead Control Area and inside the physical boundaries which is representative of the airborne lead concentrations which may reach the breathing zone of personnel potentially exposed to lead.
 - C. Physical Boundary: Area physically roped or partitioned off around an enclosed Lead Control Area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside Lead Control Area."
 - D. Certified Industrial Hygienist (CIH): As used in this section, refers to an Industrial Hygienist employed by the Contractor and is certified by the American Board of Industrial Hygiene in comprehensive practice.
 - E. Change Rooms and Shower Facilities: Rooms within the designated physical boundary around the Lead Control Area equipped with separate storage facilities for clean protective work clothing and equipment and for street clothes which prevent cross-contamination.
 - F. Competent Person: A person capable of identifying lead hazards in the work area and is authorized by the contractor to take corrective action.
 - G. Decontamination Room: Room for removal of contaminated personal protective equipment (PPE).
 - H. Eight-Hour Time Weighted Average (TWA): Airborne concentration of lead averaged over an 8-hour workday to which an employee is exposed.
 - I. High Efficiency Particulate Air (HEPA) Filter Equipment: HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron size particles.
- 1. Refer to Section 01 00 00 for testing and maintenance requirements.

- J. Lead: Metallic lead, inorganic lead compounds, and organic lead soaps. Excluded from this definition are other organic lead compounds.
- K. Lead Control Area: An enclosed area or structure with full containment to prevent the spread of lead dust, paint chips, or debris of lead-containing paint removal operations. The Lead Control Area is isolated by physical boundaries to prevent unauthorized entry of personnel.
- L. LBP Removal Plan: Refer to Article 1.6, SUBMITTALS.
- M. Lead Permissible Exposure Limit (PEL): Fifty micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR 1910.1025. If an employee is exposed for more than 8 hours in a work day, the PEL shall be determined by the following formula.
$$\text{PEL (micrograms/cubic meter of air)} = 400/\text{No. of hrs worked per day}$$
- N. Personnel Monitoring: Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR 1910.1025. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 150 mm to 225 mm (6 to 9 inches) and the center at the nose or mouth of an employee.

1.5 QUALITY ASSURANCE:

REFER ALSO TO SECTION 01 00 00, INCL. ART 1.8

- A. Before exposure to lead-contaminated dust, provide workers with a comprehensive medical examination as required by 29 CFR 1926.62 (I) (1) (i) & (ii). The examination shall not be required if adequate records show that employees have been examined as required by 29 CFR 1926.62(I) without the last year.
- B. Medical Records: Maintain complete and accurate medical records of employees in accordance with 29 CFR 1910.20.
- C. CIH Responsibilities: The Contractor shall employ a certified Industrial Hygienist who will be responsible for the following:
 - 1. Certify Training.
 - 2. Review and approve LBP Removal Plan for conformance to the applicable referenced standards.

3. Inspect LBP removal work for conformance with the approved plan.
 4. Direct monitoring.
 5. Ensure work is performed in strict accordance with specifications at all times.
 6. Ensure hazardous exposure to personnel and to the environment are adequately controlled at all times.
- D. Training: Train each employee performing LBP removal, disposal, and air sampling operations prior to the time of initial job assignment, in accordance with 29 CFR 1926.62.
- E. Training Certification: Submit certificates signed and dated by the CIH and by each employee stating that the employee has received training.
- F. Respiratory Protection Program:
1. Furnish each employee required to wear a negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least every 6 months thereafter as required by 29 CFR 1926.62.
 2. Establish and implement a respiratory protection program as required by 29 CFR 1910.134, 29 CFR 1910.1025, and 29 CFR 1926.62.
- G. Hazard Communication Program: Establish and implement a Hazard Communication Program as required by 29 CFR 1910.1200.
- H. Hazardous Waste Management: The Hazardous Waste Management plan shall comply with applicable requirements of Federal, State, and local hazardous waste regulations and address:
1. Identification of hazardous wastes associated with the work.
 2. Estimated quantities of wastes to be generated and disposed of.
 3. Names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact. Furnish two copies of EPA, state, and local hazardous waste permits and EPA Identification numbers.
 4. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.

5. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
 6. Spill prevention, containment, and cleanup contingency measures to be implemented.
 7. Work plan and schedule for waste containment, removal and disposal. Wastes shall be cleaned up and containerized daily.
 8. Cost for hazardous waste disposal according to this plan.
- I. Safety and Health Compliance:
1. In addition to the detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of federal, state, and local authorities regarding removing, handling, storing, transporting, and disposing of lead waste materials. Comply with the applicable requirements of the current issue of 29 CFR 1910.1025. Submit matters regarding interpretation of standards to the Contracting Officer for resolution before starting work.
 2. Where specification requirements and the referenced documents vary, the most stringent requirements shall apply.
- J. Pre-Construction Conference: Along with the CIH, meet with the Contracting Officer and COTR to discuss in detail the lead-containing paint removal work plan, including work procedures and precautions for the work plan.

1.6 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Catalog Data:
 - Vacuum filters
 - Respirators
 - Negative Air Pressure Equipment
- C. Instructions: Paint removal materials. Include applicable material safety data sheets.
- D. Statements Certifications and Statements:
 1. Qualifications of CIH: Submit name, address, and telephone number of the CIH selected to perform responsibilities in paragraph entitled "CIH Responsibilities." Provide previous experience of the CIH. Submit proper documentation that the Industrial Hygienist is certified by the American Board of

Industrial Hygiene in comprehensive practice, including certification number and date of certification/recertification.

2. Testing Laboratory: Submit the name, address, and telephone number of the testing laboratory selected to perform the monitoring, testing, and reporting of airborne concentrations of lead. Provide proper documentation that persons performing the analysis have been judged proficient by successful participation within the last year in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing (PAT) Program. The laboratory shall be accredited by the American Industrial Hygiene Association (AIHA). Provide AIHA documentation along with date of accreditation/reaccreditation.

3. LBP Removal Plan:

- a. Submit a high-level job-specific plan of the work procedures to be used in the removal of LBP.
 - i) VA envisions initial air sampling at 5 representative windows. Plan shall indicate all appropriate precautions related to this task. Refer to IRCA Plan matrix (Section 01 00 00 Article 1.8) to indicate VA thinking re. initial IRCA measures to be employed.
 - ii) Plan shall indicate the exposure levels expected, and the Action Levels that will trigger subsequent actions laid out in the Plan.
 - iii) The plan shall include a sketch showing the location, size, and details of facilities required for the plan, including (but not necessarily limited to) the following if relevant: Lead Control Areas, location and details of decontamination rooms, change rooms, shower facilities, and mechanical ventilation system.
 - iv) If the initial air sample tests indicate exposure above the Action Levels, work shall cease temporarily pending reassessment.
 - v) Upon completion of the initial 5 windows, submit a CIH memo either validating measures already in place and adding clarifications if appropriate, or recommending next steps (high level).

- vi) In the event that extraordinary measures are determined to be required, such measures may be deemed "Unforeseen".
- b. Include in the plan, eating, drinking, smoking and restroom procedures, interface of trades, sequencing of lead related work, collected wastewater and paint debris disposal plan, air sampling plan, respirators, protective equipment, and a detailed description of the method of containment of the operation to ensure that airborne lead concentrations of 30 micrograms per cubic meter of air are not exceeded outside of the Lead Control Area.
- c. Include air sampling, training and strategy, sampling methodology, frequency, duration of sampling, and qualifications of air monitoring personnel in the air sampling portion on the plan.
- 4. Field Test Reports: Monitoring Results: Submit monitoring results to the Contracting Officer within 3 working days, signed by the testing laboratory employee performing the air monitoring, the employee that analyzed the sample, and the CIH.
- 5. Records:
 - a. Completed and signed hazardous waste manifest from treatment or disposal facility.
 - b. Certification of Medical Examinations.
 - c. Employee training certification.
 - d. Records of periodic tests and maintenance procedures performed on air filtration equipment.

PART 2 PRODUCTS

PAINT REMOVAL PRODUCTS: Submit applicable MSDS for paint removal products used in paint removal work. Use the least toxic product suitable for the job and acceptable to the CIH.

PART 3 EXECUTION

3.1 PROTECTION

- A. Notification: Notify the COTR 20 days prior to the start of any paint removal work.
- B. Lead Control Area Requirements.

1. Establish a Lead Control Area by completely enclosing the area or structure where lead-containing paint removal operations will be performed with containment screens.
 2. Contain removal operations by the use of a negative pressure full containment system with HEPA filtered exhaust.
- C. Protection of Existing Work to Remain: Perform paint removal work without damage or contamination of adjacent areas. Where existing work is damaged or contaminated, restore work to its original condition.
- D. Boundary Requirements: Provide physical boundaries around the Lead Control Area by roping off the area [designated on the drawings] or providing curtains, portable partitions or other enclosures to ensure that airborne concentrations of lead will not reach 30 micrograms per cubic meter of air outside of the Lead Control Area.
- E. Heating, Ventilating and Air Conditioning (HVAC) Systems: Shut down, lock out, and isolate HVAC systems that supply, exhaust, or pass through the Lead Control Areas. Seal intake and exhaust vents in the Lead Control Area with 6-mil plastic sheet and tape. Seal seams in HVAC components that pass through the Lead Control Area.
- F. Change Room and Shower Facilities: If indicated as a result of initial air tests, provide clean change rooms and shower facilities within the physical boundary around the designated Lead Control Area in accordance with requirements of 29 CFR 1926.62.
- G. Mechanical Ventilation System:
1. Use adequate ventilation to control personnel exposure to lead in accordance with 29 CFR 1926.57.
 2. To the extent feasible, use fixed local exhaust ventilation connected to HEPA filters or other collection systems, approved by the industrial hygienist. Local exhaust ventilation systems shall be designed, constructed, installed, and maintained in accordance with ANSI Z9.2. Exhaust HEPA filtered air directly outdoors whenever possible.
 3. If air from exhaust ventilation is recirculated into the work place, the system shall have a high efficiency filter with reliable back-up filter and controls to monitor the

concentration of lead in the return air and to bypass the recirculation system automatically if it fails. Air may be recirculated only where exhaust to the outside is not feasible.

- H. Personnel Protection: Personnel shall wear and use protective clothing and equipment as specified herein. Eating, smoking, or drinking is not permitted in the Lead Control Area. No one will be permitted in the Lead Control Area unless they have been given appropriate training and protective equipment.
- I. Warning Signs: Provide warning signs at approaches to Lead Control Areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Signs shall comply with the requirements of 29 CFR 1926.62.

3.2 WORK PROCEDURES

- A. Perform removal of lead-containing paint in accordance with approved LBP Removal Plan (LBPRP). Use procedures and equipment required to limit occupational and environmental exposure to lead when LBP is removed in accordance with 29 CFR 1926.62, except as specified herein. Dispose of removed paint chips and associated waste in compliance with Environmental Protection Agency (EPA), federal, state, and local requirements.
- B. Personnel Exiting Procedures: Whenever personnel exit the lead-controlled area, they shall perform the appropriate procedures as defined in the LBPRP.
- C. Monitoring: Monitoring of airborne concentrations of lead shall be in accordance with 29 CFR 1910.1025 and as specified herein. Air monitoring, testing, and reporting shall be performed by the CIH or an Industrial Hygiene (IH) Technician who is under the direction of the CIH:
 - 1. The CIH or the IH Technician under the direction of the CIH shall be on the job site directing the monitoring of the first 5 windows, and inspecting the LBP-related work to ensure that the requirements of the Contract have been satisfied. Absent significant changes in the High level Plan, monitoring shall continue on a "spot check" basis, on at least 1 window in 40.
 - 2. Take personal air monitoring samples on employees who are anticipated to have the greatest risk of exposure as

determined by the CIH. In addition, take air monitoring samples on at least 25 percent of the work crew or a minimum of two employees, whichever is greater, during each work shift.

3. Submit results of air monitoring samples, signed by the CIH, within 24 hours after the air samples are taken. Notify the Contracting Officer & COTR immediately of exposure to lead at or in excess of the action level of 30 micrograms per cubic meter of air outside of the Lead Control Area.

D. Monitoring During Paint Removal Work:

1. Paint removal work (if any) shall be done outdoors.
2. Perform personal and area monitoring during the initial 5-window operation. Sufficient area monitoring shall be conducted at the physical boundary to ensure unprotected personnel are not exposed above 30 micrograms per cubic meter of air at all times. If the outside boundary lead levels are at or exceed 30 micrograms per cubic meter of air, work shall be stopped.
3. The CIH shall review the sampling data collected on that day to determine if condition(s) requires any further change in work methods. Removal work shall resume when approval is given by the CIH and COTR. The Contractor shall control the lead level outside of the work boundary to less than 30 micrograms per cubic meter of air at all times. As a minimum, conduct area monitoring again for 3 days in areas immediately adjacent to the Lead Control Area to confirm acceptable conditions.
4. Frequency of spot checks shall then revert to 1 window in 40.

3.3 LEAD-CONTAINING PAINT REMOVAL

- A. INTENT IS TO ENCAPSULATE LBP. If not entirely feasible, undertake minimal LBP removal, only after verification with the COTR. If removal is required, take whatever precautions are necessary to minimize damage to the underlying Historic substrate.
- B. Outside Lead Paint Removal: Select removal processes to minimize contamination of work areas with lead-contaminated dust or other lead-contaminated debris/waste. This paint removal process should be described in the lead-containing paint removal plan. Perform manual sanding and scraping to the maximum extent feasible.

3.4 SURFACE PREPARATIONS

Avoid flash rusting or other deterioration of the substrate.
Provide surface preparations for painting in accordance with
Section 09 91 00, PAINTING.

3.5 CLEANUP AND DISPOSAL

- A. Cleanup: Maintain surfaces of the Lead Control Area free of accumulations of paint chips and dust. Restrict the spread of dust and debris; keep waste from being distributed over the work area. Do not dry sweep or use compressed air to clean up the area. At the end of each shift and when the paint removal operation has been completed, clean the area of visible lead paint contamination by vacuuming with a HEPA filtered vacuum cleaner and wet mopping the area.
 - 1. Vacuum and filter shall be maintained and certified to the same level and frequency as the HEPA exhaust system.
- B. Certification: Following the initial 5-window test period, the CIH shall certify in writing that the inside and outside the Lead Control Area air monitoring samples are less than 30 micrograms per cubic meter of air, the respiratory protection for the employees was adequate, the work procedures were performed in accordance with 29 CFR 1926.62, and that there were no visible accumulations of lead-contaminated paint and dust on the worksite. Do not remove the Lead Control Area or roped-off boundary and warning signs prior to the Contracting Officer's receipt of the CIH's certification. Re-clean areas showing dust or residual paint chips.
- C. Testing of possible LBP Residue and Used Abrasive Where indicated or when directed by the CIH or COTR, test residue and used abrasive and dispose of same as indicated.
- D. Disposal:
 - 1. Collect lead-contaminated waste, scrap, debris, bags, containers, equipment, and lead-contaminated clothing, which may produce airborne concentrations of lead particles.
 - 2. Store removed paint, lead-contaminated clothing and equipment, and lead-contaminated dust and cleaning debris into U.S. Department of Transportation (49 CFR 178) approved 55-gallon drums. Properly label each drum to identify the type of waste (49 CFR 172) and the date lead-contaminated wastes were first

put into the drum. Obtain and complete the Uniform Hazardous Waste Manifest forms from Staff Civil Engineer. Comply with land disposal restriction notification requirements as required by 40 CFR 268:

- a. At least 14 days prior to delivery, notify the Contracting Officer who will arrange for job site inspection of the drums and manifests by [PWC Hazardous Waste Storage Facility personnel.
 - b. As necessary, make lot deliveries of hazardous wastes to the PWC Hazardous Waste Storage Facility to ensure that drums do not remain on the jobsite longer than 90 calendar days from the date affixed to each drum.
 - a. Collect lead-contaminated waste, scrap, debris, bags, containers, equipment, and lead-contaminated clothing which may produce airborne concentrations of lead particles. Label the containers in accordance with 29 CFR 1926.62. Dispose of lead-contaminated waste material at a EPA or state approved hazardous waste treatment, storage, or disposal facility off Government property.
 - b. Store waste materials in U.S. Department of Transportation (49 CFR 178) approved 55-gallon drums. Properly label each drum to identify the type of waste (49 CFR 172) and the date the drum was filled. The Contracting Officer or an authorized representative will assign an area for interim storage of waste-containing drums. Do not store hazardous waste drums in interim storage longer than 90 calendar days from the date affixed to each drum.
 - c. Handle, store, transport, and dispose lead or lead-contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265. Comply with land disposal restriction notification requirements as required by 40 CFR 268.
- E. Disposal Documentation Submit written evidence that the hazardous waste treatment, storage, or disposal facility (TSD) is approved for lead disposal by the EPA and state or local regulatory agencies. Submit one copy of the completed manifest, signed and dated by the initial transporter in accordance with 40 CFR 262.

- - - E N D - - -

SECTION 04 05 13
MASONRY MORTARING

PART 1 - GENERAL

1.1 DESCRIPTION:

Section specifies mortar materials and mixes for repair of existing masonry where necessary.

1.2 RELATED WORK:

A. Mortar used in Section:

- 1 Section 04 05 31, MASONRY TUCK POINTING.

1.3 SUBMITTALS:

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Certificates:

1. Indicating that following items meet specifications:

- a. Portland cement.
- b. Masonry cement.
- c. Mortar cement.
- d. Hydrated lime.
- e. Fine aggregate (sand).
- g. Color admixture.

C. Laboratory Test Reports:

1. Mortar, each type.
2. Admixtures.

D. Manufacturer's Literature and Data:

1. Cement, each kind.
2. Hydrated lime.
3. Admixtures.
4. Liquid acrylic resin.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Deliver masonry materials in original sealed containers marked with name of manufacturer and identification of contents.
- B. Store masonry materials under waterproof covers on planking clear of ground, and protect damage from handling, dirt, stain, water and wind.

1.5 APPLICABLE PUBLICATIONS:

- A. Publications listed below form a part of specification to extent referenced. Publications are referenced in text by basic designation only.
- B. American Society for Testing and Materials (ASTM):
- C40-04.....Organic Impurities in Fine Aggregates for Concrete
 - C91-07.....Masonry Cement
 - C109-05.....Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-MM Cube Specimens)
 - C144-04.....Aggregate for Masonry Mortar
 - C150-05.....Portland Cement
 - C207-06.....Hydrated Lime for Masonry Purposes
 - C270-07.....Mortar for Unit Masonry
 - C307-03.....Tensile Strength of Chemical - Resistant Mortar, Grouts, and Monolithic Surfacing
 - C321-00/R05.....Bond Strength of Chemical-Resistant Mortars
 - C348-02.....Flexural Strength of Hydraulic Cement Mortars
 - C595-07.....Blended Hydraulic Cement
 - C780-06.....Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
 - C979-05.....Pigments for Integrally Colored Concrete
 - C1329-05.....Mortar Cement

PART 2 - PRODUCTS

2.1 HYDRATED LIME:

ASTM C207, Type S.

2.2 AGGREGATE FOR MASONRY MORTAR:

- A. ASTM C144 and as follows:
1. Light colored sand for mortar for laying face brick.
 2. White plastering sand meeting sieve analysis for mortar joints for pointing.
- B. Test sand for color value in accordance with ASTM C40. Sand producing color darker than specified standard is unacceptable.

2.3 BLENDED HYDRAULIC CEMENT:

ASTM C595, Type IS, IP.

2.4 MASONRY CEMENT:

A. ASTM C91. Type N, S, or M.

2.5 MORTAR CEMENT:

ASTM C1329, Type N, S or M.

2.6 PORTLAND CEMENT:

A. ASTM C150, Type I.

2.7 LIQUID ACRYLIC RESIN:

A formulation of acrylic polymers and modifiers in liquid form designed for use as an additive for mortar to improve physical properties.

2.8 WATER:

Potable, free of substances that are detrimental to mortar, masonry, and metal.

2.9 POINTING MORTAR:

A. For Cast Stone or Precast Concrete: Proportion by volume; One part white Portland cement, two parts white sand, and 1/5 part hydrated lime.

2.10 MASONRY MORTAR:

A. Conform to ASTM C270.

B. Admixtures:

1. Do not use mortar admixtures, except for color admixtures unless approved by Resident Engineer.
2. Submit laboratory test report showing effect of proposed admixture on strength, water retention, and water repellency of mortar.
3. Do not use antifreeze compounds.

C. Colored Mortar: Match color of existing/ historic adjacent masonry.

1. Maintain uniform mortar color for exposed work throughout.
2. Match mortar color in approved mock-up.
3. Color of mortar for exposed work in alteration work to match color of existing mortar.

D. Color Admixtures:

1. Proportion as specified by manufacturer.

2.11 HIGH BOND MORTAR:

- A. Mixture by volume, one-part Portland cement, 1/4-part hydrated lime, three-parts sand, water, and liquid acrylic resin.
- B. Mortar properties when tested in accordance with referenced specifications.
 - 1. Compressive Strength, ASTM C109: Minimum 19,305 kPa (2800 psi), using 50 mm (2 inch) cubes.
 - 2. Tensile Strength, ASTM C307: 3861 kPa Minimum (560 psi), using the 25mm (1 inch) briquettes.
 - 3. Flexural Strength, ASTM C348: Minimum 6067 kPa (880 psi), using flexural bar.
 - 4. Bond Strength, ASTM C321: Minimum 2965 kPa (430 psi), using crossed brick.

2.14 COLOR ADMIXTURE:

- A. Pigments: ASTM C979.
- B. Use mineral pigments only. Organic pigments are not acceptable.
- C. Pigments inert, stable to atmospheric conditions, non-fading, alkali resistant and water insoluble.

PART 3 - EXECUTION

3.1 MIXING:

- A. Mix in a mechanically operated mortar mixer.
 - 1. Mix mortar for at least three minutes but not more than five minutes.
 - 2. Alternative: provide factory pre-mixed mortar.
- B. Measure ingredients by volume. Measure by the use of a container of known capacity.
- C. Mix water with dry ingredients in sufficient amount to provide a workable mixture which will adhere to vertical surfaces of masonry units.
- D. Mortar that has stiffened because of loss of water through evaporations:
 - 1. Re-tempered by adding water to restore to proper consistency and workability.
 - 2. Discard mortar that has reached its initial set or has not been used within two hours.
- E. Pointing Mortar:

1. Mix dry ingredients with enough water to produce a damp mixture of workable consistency which will retain its shape when formed into a ball.
2. Allow mortar to stand in dampened condition for one to 1-1/2 hours.
3. Add water to bring mortar to a workable consistency prior to application.

3.2 MORTAR USE LOCATION:

- C. For brick veneer over frame back up walls, use Type N Portland cement-lime mortar or Type S masonry cement or mortar cement mortar.
- D. Use Type N mortar for other masonry work, except as otherwise specified.
- E. Use Type N mortar for tuck pointing work.
- F. Use pointing mortar for items specified.

- - - E N D - - -

SECTION 04 05 31
MASONRY TUCK POINTING

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies requirements for tuck pointing of existing masonry and stone work where necessary as part of the work.

1.2 RELATED WORK

Mortars: Section 04 05 13, MASONRY MORTARING.

1.3 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - C67-07.....Brick and Structural Clay Tile, Sampling and Testing
 - C216-07.....Facing Brick (Solid Masonry Units Made From Clay or Shale)
- C. International Masonry Institute: Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

PART 2 - PRODUCTS

2.1 TUCK POINTING MORTAR

Refer to Section 04 05 13, MASONRY MORTARING.

2.2 REPLACEMENT MASONRY UNITS

- A. Face Brick:
 - 1. ASTM C216, Grade SW, Type FBS. Brick shall be classified slightly efflorescent or better when tested in accordance with ASTM C67.
 - 2. Face brick shall match facing brick of the existing building that is being tuck pointed.
- B. Other Units to match existing, including salvaged dimension stone.

PART 3 - EXECUTION

3.1 CUT OUT OF EXISTING MORTAR JOINTS

- A. Cut out existing mortar joints (both bed and head joints) and remove by means of a toothing chisel or a special pointer's grinder, to a uniform depth of to 19 mm (3/4-inch), or until

sound mortar is reached. Take care to not damage edges of existing masonry units to remain.

- B. Remove dust and debris from the joints by brushing, blowing with air or rinsing with water. Do not rinse when temperature is below freezing.

3.2 JOB CONDITIONS

- A. Protection: Protect newly pointed joints from rain, until pointed joints are sufficiently hard enough to prevent damage.
- B. Cold Weather Protection:
 - 1. Tuck pointing may be performed in freezing weather when methods of protection are utilized.
 - 2. Comply with applicable sections of "Recommended Practices for Cold Weather Construction" as published by International Masonry Industry All Weather Council.
 - 3. Existing surfaces at temperatures to prevent mortar from freezing or causing other damage to mortar.

3.3 INSTALLATION OF TUCK POINTING MORTAR

- A. Immediately prior to application of mortar, dampen joints to be tuck pointed. Prior to application of pointing mortar, allow masonry units to absorb surface water.
- B. Tightly pack mortar into joints in thin layers, approximately 6 mm (1/4-inch) thick maximum.
- C. Allow layer to become "thumbprint hard" before applying next layer.
- D. Pack final layer flush with surfaces of masonry units. When mortar becomes "thumbprint hard", tool joints.

3.4 TOOLING OF JOINTS

- A. Tool joints in patchwork with a jointing tool to match the existing surrounding joints.

3.5 REPLACEMENT OF MASONRY UNITS

- A. Cut out mortar joints surrounding masonry units that are to be removed and re-installed or replaced.
 - 1. Units removed may be broken and removed, providing surrounding units to remain are not damaged.
 - 2. Once the units are removed, carefully chisel out the old mortar and remove dust and debris.
 - 3. If units are located in exterior wythe of a cavity or veneer wall, exercise care to prevent debris falling into cavity. //

- B. Dampen surfaces of the surrounding units before new units are placed.
 - 1. Allow existing masonry to absorb surface moisture prior to starting installation of the new replacement units.
 - 2. Butter contact surfaces of existing masonry and new replacement masonry units with mortar.
 - 3. Center replacement masonry units in opening and press into position.
 - 4. Remove excess mortar with a trowel.
 - 5. Point around replacement masonry units to ensure full head and bed joints.
 - 6. When mortar becomes "thumbprint hard", tool joints.

3.6 CLEANING

- A. Clean exposed masonry surfaces on completion.
- B. Remove mortar droppings and other foreign substances from wall surfaces.
- C. First wet surfaces with clean water, then wash down with a solution of soapless detergent specially prepared for cleaning brick.
- D. Brush with stiff fiber brushes while washing, and immediately thereafter hose down with clean water.
- E. Free clean surfaces from traces of detergent, foreign streaks or stains. Protect materials during cleaning operations including adjoining construction.
- F. Use of muratic acid for cleaning is prohibited.

- - - E N D - - -

SECTION 05 50 00
METAL FABRICATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies items and assemblies fabricated from structural steel shapes and other materials as shown and specified.
- B. Items specified.
 - 1. Loose Lintels & Shelf Angles in Masonry Repair, where necessary in the course of the Work.

1.2 RELATED WORK

- A. Prime and finish painting: Section 09 91 00, PAINTING.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings:
 - 1. Each item specified, showing complete detail, location in the project, material and size of components, method of joining various components and assemblies, finish, and location, size and type of anchors.
 - 2. Mark items requiring field assembly for erection identification and furnish erection drawings and instructions.
 - 3. Provide templates and rough-in measurements as required.
- D. Design Calculations for specified live loads including dead loads.

1.4 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society of Mechanical Engineers (ASME):
 - B18.6.1-81(R1997).....Wood Screws
 - B18.2.2-87(R2005).....Square and Hex Nuts
- C. American Society for Testing and Materials (ASTM):
 - A36/A36M-05.....Structural Steel
 - A47-99(R2004).....Malleable Iron Castings

A48-03.....Gray Iron Castings
 A53-06.....Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
 A123-02.....Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 A167-99(R2004).....Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip
 A269-07.....Seamless and Welded Austenitic Stainless Steel Tubing for General Service
 A307-07.....Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
 A312/A312M-06.....Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
 A391/A391M-01.....Grade 80 Alloy Steel Chain
 A653/A653M-07.....Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process
 A786/A786M-05.....Rolled Steel Floor Plate
 B221-06.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
 B456-03.....Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium
 B632-02.....Aluminum-Alloy Rolled Tread Plate
 C1107-07.....Packaged Dry, Hydraulic-Cement Grout (Non-shrink)
 D3656-04.....Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns
 F436-07.....Hardened Steel Washers
 F468-06.....Nonferrous Bolts, Hex Cap Screws, and Studs for General Use
 F593-02.....Stainless Steel Bolts, Hex Cap Screws, and Studs
 F1667-05.....Driven Fasteners: Nails, Spikes and Staples
 D. American Welding Society (AWS):
 D1.1-04.....Structural Welding Code Steel
 D1.2-03.....Structural Welding Code Aluminum

- D1.3-98.....Structural Welding Code Sheet Steel
- E. National Association of Architectural Metal Manufacturers (NAAMM)
 - AMP521-01.....Pipe Railing Manual
 - AMP 500-505-1988.....Metal Finishes Manual
 - MBG 531-00.....Metal Bar Grating Manual
 - MBG 532-00.....Heavy Duty Metal Bar Grating Manual
- F. Structural Steel Painting Council (SSPC):
 - SP 1-05.....No. 1, Solvent Cleaning
 - SP 2-05.....No. 2, Hand Tool Cleaning
 - SP 3-05.....No. 3, Power Tool Cleaning
- G. Federal Specifications (Fed. Spec):
 - RR-T-650E.....Treads, Metallic and Nonmetallic, Nonskid

PART 2 - PRODUCTS

2.1 DESIGN CRITERIA

- A. In addition to the dead loads, design fabrications to support the following live loads unless otherwise specified.
- B. Entrance vestibule floors: 100 lb/sf.

2.2 MATERIALS

- A. Structural Steel: ASTM A36.
- B. Stainless Steel: ASTM A167, Type 302 or 304.
- C. Primer Paint: As specified in Section 09 91 00, PAINTING.
- D. Grout: ASTM C1107, pourable type.

2.3 HARDWARE

- A. Rough Hardware:
 - 1. Furnish rough hardware with a standard plating, applied after punching, forming and assembly of parts; galvanized, cadmium plated, or zinc-coated by electro-galvanizing process. Galvanized G-90 where specified.
 - 2. Use G90 galvanized coating on ferrous metal for exterior work unless non-ferrous metal or stainless is used.

2.4 FABRICATION GENERAL

- A. Finish:
 - 1. Finish exposed surfaces in accordance with NAAMM Metal Finishes Manual.
 - 2. Steel and Iron: NAAMM AMP 504.
 - a. Zinc coated (Galvanized): ASTM A123, G90 unless noted otherwise.
 - b. Surfaces exposed in the finished work:

- 1) Finish smooth rough surfaces and remove projections.
 - 2) Fill holes, dents and similar voids and depressions with epoxy type patching compound.
- c. Shop Prime Painting:
- 1) Surfaces of Ferrous metal:
 - a) Items not specified to have other coatings.
 - b) Galvanized surfaces specified to have prime paint.
 - c) Remove all loose mill scale, rust, and paint, by hand or power tool cleaning as defined in SSPC-SP2 and SP3.
 - d) Clean of oil, grease, soil and other detrimental matter by use of solvents or cleaning compounds as defined in SSPC-SP1.
 - e) After cleaning and finishing apply one coat of primer as specified in Section 09 91 00, PAINTING.
 - 2) Non ferrous metals: Comply with MAAMM-500 series.

2.5 LOOSE LINTELS

- A. Furnish lintels of sizes shown. Where size of lintels is not shown, provide the sizes specified.
- 1 Size and thickness of members shall be at least as large as original lintels per location, and verified by steel supplier as sufficient for actual load condition.
- B. Fabricate lintels with not less than 150 mm (6 inch) bearing at each end for nonbearing masonry walls, and 200 mm (8 inch) bearing at each end for bearing walls.
- C. Provide one angle lintel for each 100 mm (4 inches) of masonry thickness as follows except as otherwise specified or shown.
1. Openings 750 mm to 1800 mm (2-1/2 feet to 6 feet) - 100 x 90 x 8 mm (4 x 3-1/2 x 5/16 inch).
 2. Openings 1800 mm to 3000 mm (6 feet to 10 feet) - 150 x 90 x 9 mm (6 x 3-1/2 x 3/8 inch).
- D. For 150 mm (6 inch) thick masonry openings 750 mm to 3000 mm (2-1/2 feet to 10 feet) use one angle 150 x 90 x 9 mm (6 x 3-1/2 x 3/8 inch).
- E. Provide bearing plates for lintels where shown.

- F. Weld or bolt upstanding legs of double angle lintels together with 19 mm (3/4 inch bolts) spaced at 300 mm (12 inches) on centers.
- G. Insert spreaders at bolt points to separate the angles for insertion of metal windows, louver, and other anchorage.
- H. Where shown or specified, punch upstanding legs of single lintels to suit size and spacing of anchor bolts.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set work accurately, in alignment and where shown, plumb, level, free of rack and twist, and set parallel or perpendicular as required to line and plane of surface.
- B. Items set into concrete or masonry.
 - 1. Provide temporary bracing for such items until concrete or masonry is set.
 - 2. Place in accordance with setting drawings and instructions.
 - 3. Build strap anchors, into masonry as work progresses.
- C. Set frames of gratings, covers, corner guards, trap doors and similar items flush with finish floor or wall surface and, where applicable, flush with side of opening.
- D. Field weld in accordance with AWS.
 - 1. Design and finish as specified for shop welding.
 - 2. Use continuous weld unless specified otherwise.
- E. Install anchoring devices and fasteners as shown and as necessary for securing metal fabrications to building construction as specified. Power actuated drive pins may be used except for removable items and where members would be deformed or substrate damaged by their use.
- F. Spot prime all abraded and damaged areas of zinc coating as specified and all abraded and damaged areas of shop prime coat with same kind of paint used for shop priming.
- G. Isolate aluminum from dissimilar metals and from contact with concrete and masonry materials as required to prevent electrolysis and corrosion.
- H. Secure escutcheon plate with set screw.

3.2 STEEL LINTELS

- A. Use lintel sizes and combinations shown or specified.

- B. Install lintels with longest leg upstanding, except for openings in 150 mm (6 inch) masonry walls install lintels with longest leg horizontal.
- C. Install lintels to have not less than 150 mm (6 inch) bearing at each end for nonbearing walls, and 200 mm (8 inch) bearing at each end for bearing walls.

3.3 SHELF ANGLES

- A. Anchor shelf angles with 19 mm (3/4 inch) bolts unless shown otherwise in adjustable malleable iron inserts, set level at elevation shown.
- B. Provide expansion space at end of members.

3.4 CLEAN AND ADJUSTING

- A. Adjust movable parts including hardware to operate as designed without binding or deformation of the members centered in the opening or frame and, where applicable, contact surfaces fit tight and even without forcing or warping the components.
- B. Clean after installation exposed prefinished and plated items and items fabricated from stainless steel, aluminum and copper alloys, as recommended by the metal manufacture and protected from damage until completion of the project.

- - - E N D - - -

SECTION 06 20 00
FINISH CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies exterior and interior millwork, including materials for miscellaneous repairs that are necessary in the course of the Work.
- B. Items indicated:
 - Standing and running trim.
- C. Lumber for blocking is included in this Section.

1.2 RELATED WORK

- A. Clad wood doors & windows: Division 08, respective Sections.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings:
 - 1. Window and door casing, sill & trim details to match existing configurations additional to those detailed in the Drawings.
 - 2. Show construction and installation.
- C. Samples:
 - 1. Wood moldings for clear finish for verification of match to existing.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Protect lumber and millwork from dampness, maintaining moisture content specified both during and after delivery at site.
- B. Store finishing lumber and millwork in weathertight well ventilated structures or in space in existing buildings designated by Resident Engineer. Store at a minimum temperature of 21°C (70°F) for not less than 10 days before installation.
- C. Pile lumber in stacks in such manner as to provide air circulation around surfaces of each piece.

1.5 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society of Testing and Materials (ASTM):

- A36/A36M-08.....Structural Steel
- A53-07.....Pipe, Steel, Black and Hot-Dipped Zinc
Coated, Welded and Seamless
- A167-99 (R2009).....Stainless and Heat-Resisting Chromium-
Nickel Steel Plate, Sheet, and Strip
- B26/B26M-09.....Aluminum-Alloy Sand Castings
- B221-08.....Aluminum and Aluminum-Alloy Extruded
Bars, Rods, Wire, Profiles, and Tubes
- E84-09.....Surface Burning Characteristics of
Building Materials
- C. American Hardboard Association (AHA):
- A135.4-04.....Basic Hardboard
- D. Builders Hardware Manufacturers Association (BHMA):
- A156.9-03.....Cabinet Hardware
- A156.11-04.....Cabinet Locks
- A156.16-02.....Auxiliary Hardware
- E. Hardwood Plywood and Veneer Association (HPVA):
- HP1-09.....Hardwood and Decorative Plywood
- F. National Particleboard Association (NPA):
- A208.1-99.....Wood Particleboard
- G. American Wood-Preservers' Association (AWPA):
- AWPA C1-03.....All Timber Products - Preservative
Treatment by Pressure Processes
- H. Architectural Woodwork Institute (AWI):
- AWI-99.....Architectural Woodwork Quality Standards
and Quality Certification Program
- I. National Electrical Manufacturers Association (NEMA):
- LD 3-05.....High-Pressure Decorative Laminates
- J. U.S. Department of Commerce, Product Standard (PS):
- PS20-05.....American Softwood Lumber Standard
- K. Military Specification (Mil. Spec):
- MIL-L-19140E.....Lumber and Plywood, Fire-Retardant
Treated
- L. Federal Specifications (Fed. Spec.):
- A-A-1922A.....Shield Expansion
- A-A-1936.....Contact Adhesive
- FF-N-836D.....Nut, Square, Hexagon Cap, Slotted, Castle
- FF-S-111D(1).....Screw, Wood

PART 2 - PRODUCTS

2.1 LUMBER

A. Grading and Marking:

1. Lumber shall bear the grade mark, stamp, or other identifying marks indicating grades of material.
2. Such identifying marks on a material shall be in accordance with the rule or standard under which the material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification.
3. The inspection agency for lumber shall be approved by the Board of Review, American Lumber Standards Committee, to grade species used.

B. Sizes:

1. Lumber Size references, unless otherwise specified, are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the standard under which product is produced.
2. Millwork, standing and running trim, and rails: Actual size as shown or specified.

C. Hardwood: MM-L-736, species as specified for each item.

D. Softwood: PS-20, exposed to view appearance grades:

1. Use C select or D select, vertical grain for transparent finish including stain transparent finish.
2. Use Prime for painted or opaque finish.

E. Use edge grain Wood members exposed to weather.

F. Lumber for Blocking and Similar Purposes Other Than Structural:

1. Furring, blocking, nailers and similar items 100 mm (4 inches) and narrower Standard Grade; and, members 150 mm (6 inches) and wider, Number 2 Grade.
2. Size references conforming to Prod. Std., PS20, are nominal sizes, unless otherwise specified, actual sizes within manufacturing tolerances allowed by standard under which produced.

3. Moisture Content:

- a. At time of delivery and maintained at the site.

- b. Boards and lumber 50 mm (2 inches) and less in thickness: 19 percent or less.
 - c. Lumber over 50 mm (2 inches) thick: 25 percent or less.
- 4. Fire Retardant Treatment:
 - a. Mil Spec. MIL-L-19140 with piece of treated material bearing identification of testing agency and showing performance rating.
 - b. Treatment and performance inspection, by an independent and qualified testing agency that establishes performance ratings.
- 5. Preservative Treatment:
 - a. Treat wood members and plywood exposed to weather or in contact with plaster, masonry or concrete, including framing of open roofed structures; sills, sole plates, furring, and sleepers that are less than 600 mm (24 inches) from ground; nailers, edge strips, blocking, crickets, curbs, cant, vent strips and other members used in connection with roofing and flashing materials.
 - b. Treat other members specified as preservative treated (PT).
 - c. Preservative treat by the pressure method complying with ASTM D1760, except any process involving the use of Chromated Copper arsenate (CCA) for pressure treating wood is not permitted.
 - d. Fastenings for preservative treated lumber shall be Stainless Steel.

2.2 PLYWOOD

- A. Softwood Plywood:
 - 1. Prod. Std: PS-1, APA grade per use and location.
 - 2. Grading and Marking:
 - a. Each sheet of plywood shall bear the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the plywood.
 - b. The mark shall identify the plywood by species group or identification index, and shall show glue type, grade, and compliance with PS1.
- B. Hardwood Plywood:
 - 1. HPVA: HP.1

2. Species of face veneer shall be as shown or to match existing adjacent.
3. Inside of Building:
 - a. Use Type II (interior) A grade veneer for transparent finish.
 - b. Use Type II (interior) Sound Grade veneer for paint finish.
4. On Outside of Building:
 - a. Use Type I, (exterior) A Grade veneer for natural or stained and varnish finish.
 - b. Use Type I, (exterior) Sound Grade veneer for paint finish.

2.3 PARTICLEBOARD

Not Used.

2.4 PLASTIC LAMINATE

Coordinate requirements for miscellaneous repairs with COTR.

2.5 BUILDING BOARD (HARDBOARD)

Coordinate requirements for miscellaneous repairs with COTR.

2.6 ADHESIVE

- A. For Plastic Laminate: Fed. Spec. A-A-1936.
- B. For Interior Millwork: Unextended urea resin, unextended melamine resin, phenol resin, or resorcinol resin.
- C. For Exterior Millwork: Unextended melamine resin, phenol resin, or resorcinol resin.

2.7 STAINLESS STEEL

ASTM A167, Type 302 or 304.

2.8 HARDWARE

- A. Rough Hardware:
 1. Furnish rough hardware with a standard plating, applied after punching, forming and assembly of parts; galvanized, cadmium plated, or zinc-coated by electric-galvanizing process.
Galvanized where specified.
 2. Use galvanized coating on ferrous metal for exterior work unless non-ferrous metals or stainless is used.
 3. Fasteners:
 - a. Bolts with Nuts: FF-N-836.
 - b. Expansion Bolts: A-A-1922A.
 - c. Screws: Fed. Spec. FF-S-111.

2.9 MOISTURE CONTENT

- A. Moisture content of lumber and millwork at time of delivery to site.
 - 1. Interior finish lumber, trim, and millwork 32 mm (1-1/4 inches) or less in nominal thickness: 12 percent on 85 percent of the pieces and 15 percent on the remainder.
 - 2. Exterior treated or untreated finish lumber and trim 100 mm (4 inches) or less in nominal thickness: 15 percent.
 - 3. Moisture content of other materials shall be in accordance with the standards under which the products are produced.

2.12 FIRE RETARDANT TREATMENT

- A. Where wood members and plywood are required to be fire retardant treated, the treatment shall be in accordance with Mil. Spec. MIL-L19140.
- B. Treatment and performance inspection shall be by an independent and qualified testing agency that establishes performance ratings.
- C. Each piece of treated material shall bear identification of the testing agency and shall indicate performance in accordance with such rating of flame spread and smoke developed.
- D. Treat wood for maximum flame spread of 25 and smoke developed of 25.
- E. Fire Resistant Softwood Plywood:
 - 1. Use Grade A, Exterior, plywood for treatment.
 - 2. Meet the following requirements when tested in accordance with ASTM E84.
 - a. Flame spread: 0 to 25.
 - b. Smoke developed: 100 maximum
- F. Fire Resistant Hardwood Plywood:
 - 1. Core: Fire retardant treated softwood plywood.
 - 2. Hardwood face and back veneers untreated,
 - 3. Factory seal panel edges, to prevent loss of fire retardant salts.

2.13 PRESERVATIVE TREATMENT

Wood members and plywood exposed to weather or in contact with plaster, masonry or concrete, including wood members used for rough framing of millwork items except heart-wood Redwood and

Western Red Cedar shall be preservative treated in accordance with AWP Standards.

B. Use Grade A, exterior plywood for treatment.

2.14 FABRICATION

A. General:

1. Except as otherwise specified, use AWI Custom Grade for architectural woodwork and interior millwork.
2. Finish woodwork shall be free from pitch pockets.
3. Except where special profiles are shown, trim shall be standard stock molding and members of the same species.
4. Plywood shall be not less than 13 mm (1/2 inch), unless otherwise shown or specified.
5. Edges of members in contact with concrete or masonry shall have a square corner caulking rebate.
6. Fabricate members less than 4 m (14 feet) in length from one piece of lumber, back channeled and molded as shown.
7. Interior trim and items of millwork to be painted may be fabricated from jointed, built-up, or laminated members, unless otherwise shown on drawings or specified.
8. Plastic Laminate Work:
 - a. Factory glued to either a plywood or a particle board core, thickness as shown or specified.
 - b. Cover exposed edges with plastic laminate, except where aluminum, stainless steel, or plastic molded edge strips are shown or specified. Use plastic molded edge strips on 19 mm (3/4-inch) molded thick or thinner core material.
 - c. Provide plastic backing sheet on underside of countertops, vanity tops, thru-wall counter // and sills // including back splashes and end splashes of countertops.
 - d. Use backing sheet on concealed large panel surface when decorative face does not occur.
4. Trim and base:
 - a. Fabricate each side in one piece and one length when practical.
 - b. Fit joints, to produce a hair-line crack.
 - c. Completely shop fabricate trim units where practicable to minimize field work, in accordance with approved shop drawings.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL REQUIREMENTS

- A. Maintain work areas and storage areas to a minimum temperature of 21⁰C (70⁰F) for not less than 10 days before and during installation of interior millwork.
- B. Do not install finish lumber or millwork in any room or space where wet process systems such as concrete, masonry, or plaster work is not complete and dry.

3.2 INSTALLATION

- A. General:
 - 1. Millwork receiving transparent finish shall be primed and back-painted on concealed surfaces. Set no millwork until primed and back-painted.
 - 2. Secure trim with fine finishing nails, screws, or glue as required.
 - 3. Set nails for putty stopping. Use washers under bolt heads where no other bearing plate occurs.
 - 4. Seal cut edges of preservative and fire retardant treated wood materials with a certified acceptable sealer.
 - 5. Coordinate with plumbing and electrical work for installation of fixtures and service connections in millwork items.
 - 6. Plumb and level items unless shown otherwise.
 - 7. Nail finish at each blocking, lookout, or other nailer and intermediate points; toggle or expansion bolt in place where nails are not suitable.
 - 8. Exterior Work: Joints shall be close fitted, metered, tongue and grooved, rebated, or lapped to exclude water and made up in thick white lead paste in oil.

- - - E N D - - -

SECTION 07 92 00
JOINT SEALANTS

PART 1 - GENERAL

1.1 DESCRIPTION:

Section covers all sealant and caulking materials and their application, wherever required for complete installation of building materials or systems.

1.2 RELATED WORK:

- A. Masonry control and expansion joint: Section 04 20 00, UNIT MASONRY.

1.3 QUALITY CONTROL:

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Product Testing: Obtain test results from a qualified testing agency based on testing current sealant formulations within a 12-month period.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021.
 - 2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C920, and where applicable, to other standard test methods.
 - 3. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.
- D. VOC: Acrylic latex and Silicon sealants shall have less than 50g/l VOC content.
- E. Mockups: Before installing joint sealants, apply elastomeric sealants as follows to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution:

1. Joints in mockups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants.

1.4 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's installation instructions for each product used.
- C. Cured samples of exposed sealants for each color where required to match adjacent material.
- D. Manufacturer's Literature and Data:
 1. Caulking compound
 2. Primers
 3. Sealing compound, each type, including compatibility when different sealants are in contact with each other.

1.5 PROJECT CONDITIONS:

- A. Environmental Limitations:
 1. Do not proceed with installation of joint sealants under following conditions:
 - a. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 °C (40 °F).
 - b. When joint substrates are wet.
- B. Joint-Width Conditions:
 1. Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- C. Joint-Substrate Conditions:
 1. Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.6 DELIVERY, HANDLING, AND STORAGE:

- A. Deliver materials in manufacturers' original unopened containers, with brand names, date of manufacture, shelf life, and material designation clearly marked thereon.
- B. Carefully handle and store to prevent inclusion of foreign materials.
- C. Do not subject to sustained temperatures exceeding 5° C (40° F) or less than 32° C (90° F).

1.7 DEFINITIONS:

- A. Definitions of terms in accordance with ASTM C717 and as specified.
- B. Back-up Rod: A type of sealant backing.
- C. Bond Breakers: A type of sealant backing.
- D. Filler: A sealant backing used behind a back-up rod.

1.8 WARRANTY:

- A. Warranty exterior sealing against leaks, adhesion, and cohesive failure, and subject to terms of "Warranty of Construction", FAR clause 52.246-21, except that warranty period shall be extended to two years.
- B. General Warranty: Special warranty specified in this Article shall not deprive Government of other rights Government may have under other provisions of Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of Contract Documents.

1.9 APPLICABLE PUBLICATIONS:

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - C509-06.....Elastomeric Cellular Preformed Gasket and Sealing Material.
 - C612-04.....Mineral Fiber Block and Board Thermal Insulation.
 - C717-07.....Standard Terminology of Building Seals and Sealants.
 - C834-05.....Latex Sealants.
 - C919-02.....Use of Sealants in Acoustical Applications.
 - C920-05.....Elastomeric Joint Sealants.
 - C1021-08.....Laboratories Engaged in Testing of Building Sealants.
 - C1193-05.....Standard Guide for Use of Joint Sealants.
 - C1330-02 (R2007).....Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
 - D1056-07.....Specification for Flexible Cellular Materials—Sponge or Expanded Rubber.

E84-08.....Surface Burning Characteristics of
Building Materials.

C. Sealant, Waterproofing and Restoration Institute (SWRI).
The Professionals' Guide

PART 2 - PRODUCTS

2.1 SEALANTS:

A. S-1:

1. ASTM C920, polyurethane or polysulfide.
2. Type M.
3. Class 25.
4. Grade NS.
5. Shore A hardness of 20-40

B. S-2:

1. ASTM C920, polyurethane or polysulfide.
2. Type M.
3. Class 25.
4. Grade P.
5. Shore A hardness of 25-40.

C. S-3:

1. ASTM C920, polyurethane or polysulfide.
2. Type S.
3. Class 25, joint movement range of plus or minus 50 percent.
4. Grade NS.
5. Shore A hardness of 15-25.
6. Minimum elongation of 700 percent.

D. S-4:

1. ASTM C920 polyurethane or polysulfide.
2. Type S.
3. Class 25.
4. Grade NS.
5. Shore A hardness of 25-40.

E. S-5:

1. ASTM C920, polyurethane or polysulfide.
2. Type S.
3. Class 25.
4. Grade P.
5. Shore hardness of 15-45.

F. S-6:

1. ASTM C920, silicone, neutral cure.
 2. Type S.
 3. Class: Joint movement range of plus 100 percent to minus 50 percent.
 4. Grade NS.
 5. Shore A hardness of 15-20.
 6. Minimum elongation of 1200 percent.
- G. S-7:
1. ASTM C920, silicone, neutral cure.
 2. Type S.
 3. Class 25.
 4. Grade NS.
 5. Shore A hardness of 25-30.
 6. Structural glazing application.
- H. S-8:
1. ASTM C920, silicone, acetoxo cure.
 2. Type S.
 3. Class 25.
 4. Grade NS.
 5. Shore A hardness of 25-30.
 6. Structural glazing application.
- I. S-9:
1. ASTM C920 silicone.
 2. Type S.
 3. Class 25.
 4. Grade NS.
 5. Shore A hardness of 25-30.
 6. Non-yellowing, mildew resistant.
- J. S-10:
1. ASTM C920, coal tar extended fuel resistance polyurethane.
 2. Type M/S.
 3. Class 25.
 4. Grade P/NS.
 5. Shore A hardness of 15-20.
- K. S-11:
1. ASTM C920 polyurethane.
 2. Type M/S.
 3. Class 25.

4. Grade P/NS.
 5. Shore A hardness of 35 to 50.
- L. S-12:
1. ASTM C920, polyurethane.
 2. Type M/S.
 3. Class 25, joint movement range of plus or minus 50 percent.
 4. Grade P/NS.
 5. Shore A hardness of 25 to 50.

2.2 CAULKING COMPOUND:

- A. C-1: ASTM C834, acrylic latex.
- B. C-2: One component acoustical caulking, non drying, non hardening, synthetic rubber.

2.3 COLOR:

- A. Sealants used with exposed masonry shall match color of mortar joints.
- B. Sealants used with unpainted concrete shall match color of adjacent concrete.
- C. Color of sealants for other locations shall be light gray or aluminum, unless specified otherwise.
- D. Caulking shall be light gray or white, unless specified otherwise.

2.4 JOINT SEALANT BACKING:

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 1. Type C: Closed-cell material with a surface skin.
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 32° C (minus 26° F). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.5 FILLER:

- A. Mineral fiber board: ASTM C612, Class 1.
- B. Thickness same as joint width.
- C. Depth to fill void completely behind back-up rod.

2.6 PRIMER:

- A. As recommended by manufacturer of caulking or sealant material.
- B. Stain free type.

2.7 CLEANERS-NON POURIOUS SURFACES:

Chemical cleaners acceptable to manufacturer of sealants and sealant backing material, free of oily residues and other substances capable of staining or harming joint substrates and adjacent non-porous surfaces and formulated to promote adhesion of sealant and substrates.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Inspect substrate surface for bond breaker contamination and unsound materials at adherent faces of sealant.
- B. Coordinate for repair and resolution of unsound substrate materials.
- C. Inspect for uniform joint widths and that dimensions are within tolerance established by sealant manufacturer.

3.2 PREPARATIONS:

- A. Prepare joints in accordance with manufacturer's instructions and SWRI.
- B. Clean surfaces of joint to receive caulking or sealants leaving joint dry to the touch, free from frost, moisture, grease, oil, wax, lacquer paint, or other foreign matter that would tend to destroy or impair adhesion.
 - 1. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants.

2. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
3. Remove laitance and form-release agents from concrete.
4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.
- C. Do not cut or damage joint edges.
- D. Apply masking tape to face of surfaces adjacent to joints before applying primers, caulking, or sealing compounds.
 1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- E. Apply primer to sides of joints wherever required by compound manufacturer's printed instructions.
 1. Apply primer prior to installation of back-up rod or bond breaker tape.
 2. Use brush or other approved means that will reach all parts of joints.
- F. Take all necessary steps to prevent three sided adhesion of sealants.

3.3 BACKING INSTALLATION:

- A. Install back-up material, to form joints enclosed on three sides as required for specified depth of sealant.
- B. Where deep joints occur, install filler to fill space behind the back-up rod and position the rod at proper depth.
- C. Cut fillers installed by others to proper depth for installation of back-up rod and sealants.

- D. Install back-up rod, without puncturing the material, to a uniform depth, within plus or minus 3 mm (1/8 inch) for sealant depths specified.
- E. Where space for back-up rod does not exist, install bond breaker tape strip at bottom (or back) of joint so sealant bonds only to two opposing surfaces.
- F. Take all necessary steps to prevent three sided adhesion of sealants.

3.4 SEALANT DEPTHS AND GEOMETRY:

- A. At widths up to 6 mm (1/4 inch), sealant depth equal to width.
- B. At widths over 6 mm (1/4 inch), sealant depth 1/2 of width up to 13 mm (1/2 inch) maximum depth at center of joint with sealant thickness at center of joint approximately 1/2 of depth at adhesion surface.

3.5 INSTALLATION:

- A. General:
 - 1. Apply sealants and caulking only when ambient temperature is between 5° C and 38° C (40° and 100° F).
 - 2. Do not use polysulfide base sealants where sealant may be exposed to fumes from bituminous materials, or where water vapor in continuous contact with cementitious materials may be present.
 - 3. Do not use sealant type listed by manufacture as not suitable for use in locations specified.
 - 4. Apply caulking and sealing compound in accordance with manufacturer's printed instructions.
 - 5. Avoid dropping or smearing compound on adjacent surfaces.
 - 6. Fill joints solidly with compound and finish compound smooth.
 - 7. Tool joints to concave surface unless shown or specified otherwise.
 - 8. Finish paving or floor joints flush unless joint is otherwise detailed.
 - 9. Apply compounds with nozzle size to fit joint width.
 - 10. Test sealants for compatibility with each other and substrate. Use only compatible sealant.
- B. For application of sealants, follow requirements of ASTM C1193 unless specified otherwise.

- C. Where gypsum board partitions are of sound rated, fire rated, or smoke barrier construction, follow requirements of ASTM C919 only to seal all cut-outs and intersections with the adjoining construction unless specified otherwise.
1. Apply a 6 mm (1/4 inch) minimum bead of sealant each side of runners (tracks), including those used at partition intersections with dissimilar wall construction.
 2. Coordinate with application of gypsum board to install sealant immediately prior to application of gypsum board.
 3. Partition intersections: Seal edges of face layer of gypsum board abutting intersecting partitions, before taping and finishing or application of veneer plaster-joint reinforcing.
 4. Openings: Apply a 6 mm (1/4 inch) bead of sealant around all cut-outs to seal openings of electrical boxes, ducts, pipes and similar penetrations. To seal electrical boxes, seal sides and backs.
 5. Control Joints: Before control joints are installed, apply sealant in back of control joint to reduce flanking path for sound through control joint.

3.6 FIELD QUALITY CONTROL:

- A. Inspect joints in mock-ups for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a test log.
- B. Evaluation of Field-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements, will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.7 CLEANING:

- A. Fresh compound accidentally smeared on adjoining surfaces: Scrape off immediately and rub clean with a solvent as recommended by the caulking or sealant manufacturer.
- B. After filling and finishing joints, remove masking tape.
- C. Leave adjacent surfaces in a clean and unstained condition.

3.8 LOCATIONS:

- A. Exterior Building Joints, Horizontal and Vertical:

1. Metal to Metal: Type S-1, S-2
 2. Metal to Masonry or Stone: Type S-1
 3. Masonry to Masonry or Stone: Type S-1
 4. Stone to Stone: Type S-1
 5. Cast Stone to Cast Stone: Type S-1
 6. Threshold Setting Bed: Type S-1, S-3, S-4
 7. Masonry Expansion and Control Joints: Type S-6
 8. Wood to Masonry: Type S-1
- B. Metal Reglets and Flashings:
1. Flashings to Wall: Type S-6
 2. Metal to Metal: Type S-6
- C. Sanitary Joints:
1. Walls to Plumbing Fixtures: Type S-9
 2. Counter Tops to Walls: Type S-9
 3. Pipe Penetrations: Type S-9
- D. Horizontal Traffic Joints:
1. Concrete Paving, Unit Pavers: Type S-11 or S-12
 2. Garage/Parking Decks: Type S-10
- E. High Temperature Joints over 204 degrees C (400 degrees F):
1. Exhaust Pipes, Flues, Breech Stacks: Type S-7 or S-8
- F. Interior Caulking:
1. Typical Narrow Joint 6 mm, (1/4 inch) or less at Walls and Adjacent Components: Types C-1, C-2 and C-3.
 2. Perimeter of Doors, Windows, Access Panels which Adjoin Concrete or Masonry Surfaces: Types C-1, C-2 and C-3.
 3. Joints at Masonry Walls and Columns, Piers, Concrete Walls or Exterior Walls: Types C-1, C-2 and C-3.
 4. Perimeter of Lead Faced Control Windows and Plaster or Gypsum Wallboard Walls: Types C-1, C-2 and C-3.
 5. Exposed Isolation Joints at Top of Full Height Walls: Types C-1, C-2 and C-3.
 6. Exposed Acoustical Joint at Sound Rated Partitions Type C-2.
 7. Concealed Acoustic Sealant Type S-4, C-1, C-2 and C-3.

- - - E N D - - -

SECTION 08 14 23
CLAD WOOD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Clad wood doors.
- B. Glazing and accessories.

1.2 RELATED SECTIONS

- A. Division 07, Section Sealants.
- B. Division 08, Section Door Hardware.

1.3 REFERENCES

- A. AAMA/WDMA/CSA 101/I.S.2/A440-08 NAFS - North American Fenestration Standard/Specification for windows, doors, and skylights.
- B. AAMA 2605-05 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- C. ASTM C 1036-06 - Standard Specification for Flat Glass.
- D. ASTM C 1048-04 - Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass.
- E. ASTM C1172-03 - Standard Specification for Laminated Architectural Flat Glass.
- F. ASTM D 2244 - Standard Test Method for Calculation of Color Differences From Instrumentally Measured Color Coordinates; 1993 (Reapproved 2000).
- G. ASTM D 4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films; 1998.
- H. ASTM E 774-97 - Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units.
- I. ASTM E 330-02 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- J. ASTM E 1886 - Standard Test method for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Missiles and Exposed to Cyclic Pressure Differentials.
- K. ASTM E 1996-06 - Standard Specification for Performance of

Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.

- L. WDMA I.S.4-07A - Water-Repellent Preservative Treatment for Millwork.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Certification: Evidence of certification to specified ratings.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

- A. Impact Rated Windows and Doors:
 - 1. High Velocity Hurricane Zone: Eagle Harbor Master Windows conform to ASTM E 330-02 for Static Air Pressure.
 - 2. Large Missile Impact and Cyclic Pressure Loading: Eagle Harbor Master Windows conform to ASTM E 1886 and ASTM E 1996-06 for large missile impact and cyclic pressure loading.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver units to project site until ready to install, unless indoor storage area is available.
- B. Store products in manufacturer's unopened packaging until ready for installation.

1.7 WARRANTY

- A. Provide manufacturer's standard warranty for:
 - 1. Wood Members: 10 years.
 - 2. Aluminum Cladding Structural Performance: Lifetime.
 - 3. Exterior Aluminum Finish: Thermoset siliconized polyester finish 20 years.
 - 4. Exterior Aluminum Finish: Kynar finish 20 years.
 - 5. Anodized Aluminum Finish: 5 years.
 - 6. Insulating Glass: 20 years.
 - 7. Other Components: 10 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- a. Basis-of-Design Product: The basis-of-design for clad wood doors is Pella Insulated Clad Wood Panel Doors to match construction, profiles and finishes of proposed replacement clad wood windows. Drawings indicate size, general appearance, and dimensional requirements of wood doors and frames. Do not modify size and dimensional requirements. Do not modify intended aesthetic effects, as judged solely by A-E, except with COTR and A-E approval. If modifications are proposed, submit comprehensive explanatory data to COTR for review PRIOR TO BID. Note that such review may include consultation with State of Vermont Division for Historic Preservation, and that neither the Government nor the A-E are able to offer a timescale for this process in relation to the Bid Deadline.
- b. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

1) Aluminum-Clad Wood Windows and Doors:

- a) Eagle Window and Door
- b) Kolbe & Kolbe.
- c) Loewen.
- d) Marvin Windows and Doors.
- e) Pella Corporation.
- f) Weather Shield Mfg., Inc.

2.2 WINDOWS AND DOORS - GENERAL

- A. Windows and Doors: Complying with AAMA/WDMA/CSA 101/I.S.2/A440-08; factory assembled and glazed, complete with weatherstripping, operating hardware and specified accessories.
 - 1. Total Jamb Depth: As indicated on Drawings; provide factory installed jamb extensions.
 - 2. NFRC certified thermal performance.

2.3 CLAD WOOD DOORS

- A. Ascent In-Swinging French Doors and Sidelights:
 - 1. Style: Standard, one glazed panel, mid rail and 1/2 lite raised panel.
 - 2. Single Standard Doors: Rating CW-PG45, maximum size 40 by 102 inches (1016 by 2591 mm), standard door.
 - 3. Jamb Depth: Adjustable 6-9/16 inches (167 mm); adjustable from 5-9/16 inches to 7-9/16 inches (141 mm to 192 mm)
 - 4. Nailing Fin:
 - a. No nailing fin.
 - 5. Panel Configuration:
 - a. Traditional Panel 12 inch (305 mm) optional bottom rail height.
 - 6. Provide hinged screen; screen frame with spring latch and door closer and charcoal colored fiberglass mesh. Screen

- frames to:
 - a. Match Sash color
- 7. Swinging Door Hardware and Weatherstripping:
 - a. Inswing Door Sill: Low-rise saddle type, extruded aluminum with thermal break.
 - 1) Sill Finish: Mill aluminum
 - 2) Sill Finish: Bronze anodized.
 - b. Weatherstripping: High performance compression weatherstripping on frame stop.
 - c. Locks: Prepare door and frame for standard bored lockset by others. Backset: 2-3/4 inches.
- 8. Door Closer and Panic Hardware Reinforcement: Solid reinforcement positioned to support surface-mounted closer.
- B. Wood Frame and Sash Members: Select kiln dried wood, water and insect repellent and preservative treated in accordance with WDMA I.S.4; wood members not fastened or adhered to cladding.
 - 1. Wood Species: Ponderosa pine.
 - 2. Windows: Frames laminated veneer lumber (LVL), sash solid wood.
 - 3. Doors: Frames finger jointed, panel veneer-wrapped.
 - 4. Frame Corners: Block mitered, stapled, and sealed with silicone.
 - 5. Sash Corners: Mortised and tenoned, glued, mechanically fastened, and sealed with silicone.
- C. Aluminum Cladding: Aluminum extrusions, 0.045 inch thick minimum on both frame and sash, one piece in any one length; with mitered corners mechanically fastened with corner locks and stainless steel screws; sash cladding applied by sliding onto wood members, not fastened or adhered to wood.
 - 1. Kynar Finish: Factory-applied Thermoset Kynar finish complying with AAMA 2605 (20-YEAR).
 - 2. Frame Color:
 - a. As selected from manufacturer's full line of standard colors.
 - 3. Sash Color: Different color as follows:
 - a. As selected from manufacturer's full line.
 - 4. Provide matching exterior trim in profiles as indicated on the drawings.

2.4 MATERIALS

- A. Insulated Glazing: Sealed insulating glass; glass of thickness recommended by manufacturer for size and application; rated CBA in accordance with ASTM E 774.
 - 1. All windows shall be covered with a protective film applied to the interior and exterior lites to protect against damage and aid in final cleaning.
 - 2. Doors and Sidelights: Both lites fully tempered, complying with ASTM C 1036 quality Q3 and ASTM C 1048, Kind FT.
 - 3. Windows, Unless Indicated as Impact Resistant: Inboard and outboard lite annealed, complying with ASTM C 1036 quality Q3.

4. Type: High Performance Low-E4; Titanium Dioxide and Silicone Dioxide hydrophilic low-emissivity coated with Argon gas blend fill and a translucent protective film.
 - a. Low-Emissivity Coating: Magnetron sputtering vapor deposition (MSVD) type applied to No.3 surface.
 - b. Performance at Center of Glass: NFRC validated:
 - 1) Thermal Transmission: U-value of 0.25.
 - 2) Solar Heat Gain Coefficient (SHGC): 0.41.
 - 3) Visible Light Transmittance (Vtc): 72 percent.
 - 4) Ultraviolet Transmittance (Tuv): 16 percent.
 - 5) ISO-CIE Damage Weighted Transmission (300 to 700 nm): 55 percent.
- B. Interior Trim and Casings: Profiles to match existing historic items unless otherwise as indicated on the drawings; same species as interior frame and sash; finger jointing is acceptable for opaque finishing.
- C. Metal Trim Accessories: Type and configuration as required to make a complete, weatherproof installation; same finish as exterior frame.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify COTR of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. After installation adjust units for proper operation, without binding, sticking, or racking.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 08 14 23

SECTION 08 41 13
ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 DESCRIPTION:

In the event that the Government elects to accept Deduct Alternate 1, this section specifies replacement aluminum entrance work including storefront construction, hung doors, and other components to make a complete assembly.

1.2 RELATED WORK:

- A. Hardware: Section 08 71 00, DOOR HARDWARE.
- B. Automatic Door Operators: Section 08 71 13, AUTOMATIC DOOR OPERATORS.

1.3 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings: (1/2 full scale) showing construction, anchorage, reinforcement, and installation details.
- C. Manufacturer's Literature and Data:
 - 1. Doors, each type.
 - 2. Entrance and Storefront construction.
- D. Samples:
 - 1. Door corner section, 450 mm x 450 mm (18 x 18 inches), of each door type specified, showing vertical and top hinge edges, door closer reinforcement & internal reinforcement.
 - 2. Two samples of organic finish of each color specified.
- E. Manufacturer's Certificates:
 - 1. Stating that aluminum has been given specified thickness of anodizing.
 - 2. Indicating manufacturer's qualifications specified.

1.4 QUALITY ASSURANCE:

- A. Approval by Contracting Officer is required of products of proposed manufacturer, or supplier, and will be based upon submission by Contractor certification.
- B. Certify manufacturer regularly and presently manufactures aluminum entrances and storefronts as one of their principal products.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. Deliver aluminum entrance and storefront material to the site in packages or containers; labeled for identification with the manufacturer's name, brand and contents.
- B. Store aluminum entrance and storefront material in weather-tight and dry storage facility.
- C. Protect from damage from handling, weather and construction operations before, during and after installation.

1.6 APPLICABLE PUBLICATIONS:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - B209-06.....Aluminum and Aluminum-Alloy Sheet and Plate
 - B221-05.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
 - E283-04.....Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
 - E331-00.....Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
 - F468-06.....Nonferrous Bolts, Hex Cap Screws, and Studs for General Use
 - F593-04.....Stainless Steel Bolts, Hex Cap Screws, and Studs
- C. National Association of Architectural Metal Manufacturers (NAAMM):
 - AMP 500 Series.....Metal Finishes Manual
- D. American Architectural Manufacturer's Association (AAMA):
 - 2604-05.....High Performance Organic Coatings on Architectural Aluminum Extrusions and Panels
- E. American Welding Society (AWS):
 - D1.2-03.....Structural Welding Code Aluminum

1.7 PERFORMANCE REQUIREMENTS:

- A. Shapes and thickness of framing members shall be sufficient to withstand a design wind load of not less than that indicated in the International Building Code for the project location in White River Junction, VT, with a deflection of not more than 1/175 times the length of the member and a safety factor of not less than 1.65 (applied to overall load failure of the unit). Provide glazing beads, moldings, and trim of not less than 1.25 mm (0.050 inch) nominal thickness.
- B. Air Infiltration: When tested in accordance with ASTM E 283, air infiltration shall not exceed 2.63×10^{-50} cm per square meter (0.06 cubic feet per minute per square foot) of fixed area at a test pressure of 0.30 kPa (6.24 pounds per square foot) 80 kilometers (50 mile) per hour wind.
- C. Water Penetration: When tested in accordance with ASTM E 331, there shall be no water penetration at a pressure of 0.38 kPa (8 pounds per square foot) of fixed area.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Aluminum, ASTM B209 and B221:
 - 1. Alloy 6063 temper T5 for doors, door frames, fixed glass sidelights, storefronts and transoms.
 - 2. Alloy 6061 temper T6 for guide tracks for sliding doors and other extruded structural members.
- B. Thermal Break: Manufacturer standard low conductive material retarding heat flow in the framework, where insulating glass is scheduled.
- C. Fasteners:
 - 1. Aluminum: ASTM F468, Alloy 2024.
 - 2. Stainless Steel: ASTM F593, Alloy Groups 1, 2 and 3.

2.2 FABRICATION:

- A. Fabricate doors, of extruded aluminum sections not less than 3 mm (0.125 inch) thick. Fabricate glazing beads of aluminum not less than 1.0 mm (0.050 inch) thick.
- B. Accurately form metal parts and accurately fit and rigidly assemble joints, except those joints designed to accommodate movement. Seal joints to prevent leakage of both air and water.

- C. Make welds in aluminum in accordance with the recommended practice AWA D1.2. Use electrodes and methods recommended by the manufacturers of the metals and alloys being welded. Make welds behind finished surfaces so as to cause no distortion or discoloration of the exposed side. Clean welded joints of welding flux and dress exposed and contact surfaces.
- D. Make provisions in doors and frames to receive the specified hardware and accessories. Coordinate schedule and template for hardware specified under Section 08 71 00, DOOR HARDWARE. Where concealed closers or other mechanisms are required, provide the necessary space, cutouts, and reinforcement for secure fastening.
- E. Fit and assemble the work at the manufacturer's plant. Mark work that cannot be permanently plant-assembled to assure proper assembly in the field.

2.3 PROTECTION OF ALUMINUM:

- A. Isolate aluminum from contact with dissimilar metals other than stainless steel, white bronze, or zinc by any of the following:
 - 1. Coat the dissimilar metal with two coats of heavy-bodied alkali resistant bituminous paint.
 - 2. Place caulking compound, or non-absorptive tape, or gasket between the aluminum and the dissimilar metal.
 - 3. Paint aluminum in contact with mortar, concrete and plaster, with a coat of aluminum paint primer.

2.4 FRAMES:

- A. Fabricate doors, frames, mullions, transoms, frames for fixed glass and similar members from extruded aluminum not less than 3 mm (0.125 inch) thick.
- B. Provide integral stops and glass rebates and applied snap-on type trim.
- C. Use concealed screws, bolts and other fasteners. Secure cover boxes to frames in back of all lock strike cutouts.
- D. Fabricate framework with thermal breaks in frames where insulating glass is scheduled and specified.

2.5 STILE AND RAIL DOORS:

- A. Nominal 45 mm (1-3/4 inch) thick, with "wide stile" layout, member widths as indicated.
- B. Bevel single-acting doors 3 mm (1/8 inch) at lock, hinge and meeting stile edges. Provide clearances of 2 mm (1/16 inch) at

- hinge stiles, 3 mm (1/8 inch) at lock stiles and top rails, and 5 mm (3/16 inch) at floors and thresholds. Form glass rebates integrally with stiles and rails. Glazing beads may be formed integrally with stiles and rails or applied type secured with fasteners at 150 mm (six inches) on centers.
- C. Construct doors with a system of welded joints or interlocking dovetail joints between stiles and rails. Clamp door together through top and bottom rails with 9 mm (3/8 inch) primed steel rod extending into the stiles, and having a self-locking nut and washer at each end. Reinforce stiles and rails to prevent door distortion when tie rods are tightened. Provide a compensating spring-type washer under each nut to take up any stresses that may develop. Construct joints between rails and stiles to remain rigid and tight when door is operated.
 - D. Weather-stripping: Provide removable, woven pile type (silicone-treated) weather-stripping attached to aluminum or vinyl holder. Make slots for applying weather-stripping integral with doors and door frame stops. Apply continuous weather-stripping to heads, jambs, bottom, and meeting stiles of doors and frames. Install weather-stripping so doors can swing freely and close positively.

2.6 FLUSH PANEL DOORS:

- A. Not Used.

2.7 REINFORCEMENT FOR BUILDERS HARDWARE:

- A. Fabricate from stainless steel plates.
- B. Hinge and pivot reinforcing: 4.55 mm (0.1793 inch) thick.
- C. Reinforcing for lock face, flush bolts, concealed holders, concealed or surface mounted closers: 2.66 mm (0.1046 inch) thick.
- D. Reinforcing for all other surface mounted hardware: 1.5 mm (0.0598 inch) thick.

2.8 COLUMN COVERS AND TRIM

- A. Fabricate trim shown from 1.5 mm (0.0625 inch) thick sheet aluminum of longest available lengths.
- B. Use concealed fasteners.
- C. Provide aluminum stiffener and other supporting members shown or as required to maintain the integrity of the components.

2.9 FINISH

- A. In accordance with NAAMM AMP 500 series.

B. Anodized Aluminum:

1. Fluorocarbon Finish: AAMA 605.2, high performance coating, to match typical color of new clad wood windows installed during the same project, as selected by Architect from manufacturers full color range, including special colors.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Allowable Installation Tolerances: Install work plumb and true, in alignment and in relation to lines and grades shown. Variation of 3 mm (1/8 inch) in 2400 mm (eight feet), non-accumulative, is maximum permissible for plumb, level, warp, bow and alignment.
- B. Anchor aluminum frames to adjoining construction at heads, jambs and bottom and to steel supports, and bracing. Anchor frames with stainless steel or aluminum countersunk flathead, expansion bolts or machine screws, as applicable. Use aluminum clips for internal connections of adjoining frame sections.
- C. Where work is installed within masonry or concrete openings, place no parts other than built-in anchors and provision for operating devices located in the floor, until after the masonry or concrete work is completed.
- D. Install hardware specified under Section 08 71 00, DOOR HARDWARE.
- E. Install hung door operators specified under Section 08 71 13, AUTOMATIC DOOR OPERATORS.

3.2 ADJUSTING:

After installation of entrance and storefront work is completed, adjust and lubricate operating mechanisms to insure proper performance.

3.3 PROTECTION, CLEANING AND REPAIRING:

Remove all mastic smears and other unsightly marks, and repair any damaged or disfiguration of the work. Protect the installed work against damage or abuse.

- - - E N D - - -

SECTION 08 42 36
BRONZE BALANCED DOOR ENTRANCES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. In the event that the Government elects to accept the Base Bid, this Section specifies that new entrance and vestibule doors and frames where indicated shall be integrated "Balanced Door" units consisting of doors, jambs, frames (sidelight and transoms where applicable), thresholds, operating mechanism and all finish hardware as shown on the drawings and specified herein.

1.02 RELATED WORK

- A. Section [07 92 00], joint sealants; at interface of entrance assemblies and other building components.
- B. Section [08 71 00], door hardware; other than hardware specified in this section.
- C. Division 28; coordination with security, fire alarm systems.

1.03 DESIGN / PERFORMANCE REQUIREMENTS

- A. System Design: Design and size members to withstand dead loads and live loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.
- B. System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to exterior.
- C. Air Infiltration: Limit air leakage through system to maximum 1.25 cfm/square foot (0.63 L/s/sq m) of door area when tested in accordance with ASTM E 283.
- D. Expansion / Contraction: System to provide for expansion and contraction within system components caused by cycling surface temperature range of 170 degrees F (77 degrees C) without causing detrimental effects to system or components.
- E. Deflection: Limit mullion deflection to 1/175 or flexure limit of glass with full recovery of glazing materials, whichever is less.
- F. Products Requiring Electrical Connection: Listed and classified by UL or testing firm acceptable to authority having jurisdiction. Comply with Medical Center compatibility requirements outlined in Division 28.

1.04 QUALITY ASSURANCE

- A. The manufacturer must have been regularly engaged in the manufacture of "Balanced Doors" for a period of no less than ten (10) years.
- B. All door, frame and balanced hardware must be engineered and fabricated by the same manufacturer.
- C. In order to ensure proper coordination between all elements of the balanced entrance system, the balanced hardware including the hydraulic check must be engineered, cast, machined and

assembled in the same facility with the engineering and fabrication of the door and frame material.

- D. The manufacturer having a quality system registered to ISO9001 including design engineering.

1.05 SUBMITTALS

- A. Product data including line drawings and color photographs of finish hardware.
- B. Shop drawings including elevations and plans, one-half size detail sections of typical composite members, hardware arrangement details and interaction with surrounding material.
- C. Two (2) finish samples shall be submitted.
- D. Maintenance and Cleaning Data: Instructions for general maintenance and repair of surfaces and finishes.
- E. Manufacturer's Warrantee: Copies of properly prepared warrantee documents.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.06 WARRANTY

- A. All finished hardware and material not fabricated by Ellison to carry manufacturer's standard warranty, not less than ten (10) years from date of substantial completion.
- B. All Ellison manufactured material furnished and installed to these specifications, including the door operating mechanisms, shall be warranted against defective material and workmanship for a period of ten (10) years from date of substantial completion.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Materials shall be packed, unloaded, stored and protected to avoid abuse and damage.
- B. Protect finished surfaces with wrapping and/or strippable coating.
- C. When unloading, remove all paper type wrappings that are wet or which could become wet.
- D. Store inside, if possible, in clean well drained area free of dust and corrosive fumes.
- E. Stack vertically or on edge so that water cannot accumulate on or within materials, using wood or plastic shims between components to provide water drainage and air circulation.
- F. Cover materials with tarpaulins or plastic hung on frames to provide air circulation.
- G. When installing protect materials from lime, mortar, run-off from concrete and copper, weld splatter, acids, roofing tar, solvents and abrasive cleaners.

PART II – PRODUCTS

1.08 MANUFACTURERS

- A. Available Manufacturers:

- 1 Dawson Doors Division/Dawson Metal Company, Inc.
- 2 Ellison Bronze, Inc; 125 W. Main Street, Falconer, NY 14733. Phone: (800) 665-6445 Fax: (716) 665-5552
Web site: www.ellisonbronze.com. Email: info@ellisonbronze.com

- 3 Cj Rush Industries, a division of Stanley Security Solutions .

1.09 MATERIALS AND FINISHES

- A. Material:
1. Bronze (Muntz metal, alloy #280).
- B. Finish: To be selected during Submittal process from Manufacturer's full range of standard finishes.
- C. Provide a deduct Allowance for oil-rubbed finish without lacquer.
- D. The finish is to be applied after fabrication to ensure a blemish free finish.

1.010 BALANCED DOORS AND FRAMES

- A. Doors:
1. Door thickness: 2 inch (51 mm).
 2. Stiles and rails: As indicated.
 3. Bronze door bodies shall be formed from a minimum of .09 inch (2 mm) thick material.
 4. Formed bronze doors shall have .09 inch (2 mm) thick continuous tie channel frame spot-welded into door body.
 5. Seams between stiles and rails shall be welded and finished to an invisible joint.
 6. Door top and bottom rails shall have spot-welded in .09 inch (2 mm) thick reinforcement channels.
 7. All reinforcing material to be bronze and welded to door body. Aluminum, plastic or other glued-in reinforcements or stiffeners are unacceptable.
 8. Glass stops:
 - a. Applied glass stops (glass molding shall be permanently fixed on exterior side and screw attached type on interior side).
 9. Glass: Glass and Glazing Materials: Manufacturers standard factory glazing that produces a weathertight seal. Comply with GANA glazing manual, latest edition.
 - a. Glass for Exterior Doors: Clear, fully tempered clear insulating glass units, argon gas filled.
 - b. Glass for Vestibule Interior Doors: Fully tempered clear float glass of thickness required for safety compliance.
- B. Frames:
1. Frames for door jambs and header (sidelights and transom material where applicable) shall be formed from a minimum of .09 inch (2 mm) thick material.
 - a. Frame face dimension: 3 inch (76 mm) minimum, as indicated and to suit door and masonry opening dimensions.
 - b. Frame depth: 5 inch (127 mm) minimum, to conceal residue from removal of existing frames.
 2. Frames shall be erected without the use of exposed screws where feasible.

3. Hinge shaft configuration:
 - a. Concealed with portion of hinge jamb to be removable for access to operating hardware.
 - b. Exposed with hinge shaft clad in extruded bronze (in matching finish to door and/or frame).
4. Glass stops (at sidelight and transom areas, where applicable):
 - a. Applied to framing.
5. Glass: as specified for doors. Glass in transoms shall be tempered only where required by code or to resist wind load.

1.011 HARDWARE AND WEATHERSTRIPPING

- A. Balanced hardware: All doors shall have balanced hardware, including hydraulic check, which shall be cast bronze and shall be cast, machined and assembled by the door and frame fabricator.
- B. Hardware sets shall correspond to the functional Hardware Sets assigned to respective doors in Section 08 71 00 DOOR HARDWARE. These may include, but are not necessarily limited to items specified in this Section, which are typical offerings of established Balanced Door manufacturers.
- C. Exposed hardware shall be finished as specified below.
 1. Cast bronze mechanism and other integral parts must be heavy duty and must be designed to allow variation in adjustments to meet this particular job with respect to door size, door weight and varying or internal building pressures.
 2. Balanced hardware shall consist of the following items:
 - a. Cast bronze hydraulic check shall be concealed in the head frame and have first and second speed adjustment. The hydraulic check unit must be removable without requiring the removal of the door, head frame or any other hardware. Closer arms are unacceptable.
 - b. Each door to have a heavy duty steel tube hinge shaft 1-3/4 inch (44 mm) diameter with 1/4 inch (6 mm) minimum wall thickness. Hinge shaft to be furnished complete with spring closing mechanism. The spring closer shall be adjustable at the floor to meet varying wind or building conditions. Top and bottom arms shall be one piece bronze castings, welded to hinge shaft. Two piece arms, aluminum arms, or steel painted arms will not be acceptable.
 - c. Hardware shall include a spring-cushioned door roller bumper located in the guide channel. The operating mechanism in the head shall include ball bearing pivots, cast bronze hydraulic check and cast bronze door guide channel with minimum dimensions of 2-3/8 inch (60 mm) by 3/4 inch (19 mm) thick and a minimum wall thickness of 9/16 inch (14 mm).
 - d. Means shall be provided which make possible field adjustment for proper perimeter clearance of each door leaf in relation to its finished framework to accommodate on-site conditions.
 - e. All doors shall have a semi-automatic hold open device located in the bottom rail.
 - f. Doors designated as handicapped entrances shall have a maximum of 8 lbs. spring tension adjustment at pull handle. The clear opening shall be a minimum of 32

inches (813 mm) or greater (depending on local codes). The Ellison hydraulic check shall be adjusted so that from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.

g. Bronze hardware finish:

(1) Cast bronze, polished, without lacquer.

D. Finish hardware by door manufacturer:

1. Standard locking hardware:

a. Adams Rite dead latch with lever handle or push paddle (for single door).

b. Adams Rite deadlatch with lever handle or push paddle and flush bolts (for pair of doors).

2. Standard push-pull hardware to be 1 inch (25 mm) diameter offset profile with 12 inch (305 mm) centers, [stainless steel] [bronze] [aluminum] in finish as selected from manufacturer's standards.

3. Panic hardware to be furnished by the door supplier. To be equal to Von Duprin touch pad type panic exit device in finish as selected from manufacturers standards:

a. Rim type (for single door).

4. Temporary "Blue Core" cylinders with keys to be provided by VA for mechanical locking hardware.

5. Furnish permanent cylinders to COTR for keying as specified in Division 08, section "Door Hardware".

E. Thresholds:

1. Provide at all exterior doors unless otherwise detailed.

2. Provide woodscrew and Rawl plug type fastenings approximately 15 inches (381 mm) on center.

3. Thresholds shall be set on the finished floor and adequately caulked against water seepage.

4. Profile:

a. Thresholds shall be 1/2 inch (13 mm) high x 6 inch (152 mm) wide ADA-compliant saddle type.

5. Material:

a. Extruded bronze.

F. Weatherstrip:

1. Shall be manufacturer's standard polypropylene pile.

2. Shall occur:

a. Vertically at meeting stiles on pairs of doors.

b. Concealed at door top and bottom rails.

c. At door stops at both hinge and strike jambs.

d. At both sides of exposed hinge shaft if used.

1.012 SHOP INSPECTION

A. Prior to leaving factory, all balanced doors and immediate framing shall be assembled and "hung". At this time, adjustment shall be made to provide proper perimeter clearance between door and frame and all coordination between door, frame and finish hardware shall be tested.

PART III - EXECUTION

1.013 EXAMINATION

A. The installer/erector shall examine substrates, supports and conditions under which this work is to be performed and notify

contractor, in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with work until unsatisfactory conditions are corrected.

- B. The floor material shall be solid (not susceptible to either deterioration or heaving), smooth and level and the adjacent work in its proper place prior to the installation of the door and frame system.
- C. Coordination dimensions, tolerances and method of attachment with other work.
- D. Verify electric power is available and of correct characteristics, if required.

1.014 INSTALLATION/ERECTION

- A. The installer/erector to install all materials by factory-trained personnel in strict accordance with installation data provided by manufacturer and these specifications.
- B. Provide attachments and shims required to fasten system to building structure.
- C. Install entrances plumb, level, square in alignment and true plane.
- D. Install glass in accordance with manufacturer's instructions.
- E. Install perimeter type sealant, backing materials to installation requirements.

1.015 ADJUSTING AND CLEANING

- A. The installer/erector to fit, align and adjust door assembly.
- B. Adjust door installation and hardware so that doors open and close smoothly.
- C. Adjust speed to comply with applicable codes.
- D. Remove protective materials from finished metal surfaces.
- E. Clean exposed surfaces using materials and methods recommended by manufacturer, exercising care to avoid damage to coatings.
- F. Touch-up damaged coatings and finishes.

1.016 PROTECTION

- A. The contractor to institute protective measures required throughout the remainder of the construction period to ensure that the balanced door units will be without damage or deterioration, other than normal weathering, at the time of substantial completion.

END OF SECTION

SECTION 08 54 13
FIBERGLASS FIXED FRAME WINDOWS

PART 1 GENERAL

1.1 SUMMARY

- A. In the event that the Government does NOT elect to accept **Deduct Alternate 3**, this Section specifies fiberglass fixed frame windows to replace original steel basement sash.

1.2 REFERENCES

- A. American Architectural Manufacturers Association (AAMA):
1. AAMA 502 - Voluntary Specification for Field Testing of Windows and Sliding Doors.
 2. AAMA 613 - Voluntary Performance Requirements and Test Procedures for Organic Coatings on Plastic Profiles.
- B. American Society for Testing and Materials (ASTM):
1. ASTM C 1036 - Flat Glass.
 2. ASTM C 1048 - Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass.
 3. ASTM E 283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Difference Across the Specimen.
 4. ASTM E 547 - Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential.
- C. Window and Door Manufacturers Association (WDMA):
1. ANSI/AAMA/NWDA 101/I.S.2 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.

1.4 PERFORMANCE REQUIREMENTS

- A. Windows shall meet Rating C-40 specifications in accordance with ANSI/AAMA/NWDA 101/I.S.2.
- B. Window Air Leakage, ASTM E 283: Window air leakage when tested at 1.57 psf (25 mph) shall be 0.25 cfm/ft² of frame or less.
- C. Window Water Penetration, ASTM E 547: No water penetration through window when tested under static pressure of 4.5 psf (42 mph) after 4 cycles of 5 minutes each, with water being applied at a rate of 5 gallons per hour per square foot.

1.5 SUBMITTALS

- A. Submit in accordance with Division 01 requirements.
- B. Product Data: Submit manufacturer's product data, including installation instructions.

- C. Shop Drawings: Submit manufacturer's shop drawings, indicating dimensions, construction, component connections and locations, anchorage methods and locations, hardware locations, and installation details.
- D. Samples: Submit full-size or partial full-size (corner) sample of window illustrating frame and muntin profiles, glazing system, quality of construction, and color of finish.
 - a. Product Schedule: For window units. Follow on from clad wood windows, using same designations indicated on Drawings.
 - b. Maintenance Data: For finishes to include in maintenance manuals.
 - c. Warranty: Special warranty specified in this Section.

1.6 QUALITY ASSURANCE

- A. Mockup:
 - 1. Provide sample installation for field testing window performance requirements and to determine acceptability of window installation methods.
 - 2. Approved mockup shall represent minimum quality required for the Work.
 - 3. Approved mockup may remain in place within the Work.
- B. Preinstallation conference: Conduct conference, including installation mechanics and ,manufacturer representative, at Project site to comply with requirements in Division 1 Section "General Requirements."

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify existing masonry openings for new windows by field measurements before fabrication and indicate measurements on Shop Drawings. Indicate means of accommodating tolerances and variations in existing openings.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site undamaged in manufacturer's or sales branch's original, unopened containers and packaging, with labels clearly identifying manufacturer and product name. Include installation instructions.
- B. Storage:
 - 1. Store materials in accordance with manufacturer's instructions.
 - 2. Store materials off ground and under cover.
 - 3. Protect materials from weather, direct sunlight, and construction activities.

- C. Handling: Protect materials and finish during handling and installation to prevent damage.

1.9 WARRANTY

- a. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace windows that fail in materials or workmanship within specified warranty period.

1) Failures include, but are not limited to, the following:

- a) Failure to meet performance requirements.
- b) Structural failures including excessive deflection, water leakage, or air infiltration.
- c) Deterioration of wood, metals, vinyl, other materials, and finishes beyond normal weathering.
- d) Failure of insulating glass.

2) Warranty Period:

- a) Window, including Factory Finish: Ten years from date of Substantial Completion.
- b) Insulating Glass: Twenty years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design for Fixed Frame Fiberglass Windows: Pella Impervia Series®, with flat frame & muntin profile similar to existing steel basement window units in masonry openings.

1. Drawings indicate nominal sizes and dimensional requirements for windows. Do not modify sizes relative to existing openings and other dimensional requirements. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review PRIOR TO BID. Note that such review may include consultation with State of Vermont Division for Historic Preservation, and that neither the Government nor the Architect will be able to offer a timescale for this process relative to bid deadline.

- b. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

1) Fiberglass Fixed Windows:

- a) Marvin Windows and Doors.
- b) Pella Corporation.

- c) Serious Windows.
- d) Weather Shield Mfg., Inc.

2.2 WINDOW UNITS

- A. Frame Material: "Duracast" or equivalent: pultruded-fiberglass material, reinforced with interlocking mat, factory finished.
 - 1. Type: Block frame.
 - 2. Overall Frame Depth: no greater than 3 inches.
 - 3. Nominal Wall Thickness of Fiberglass Members: 0.050 inch to 0.080 inch.
 - 4. Frame Corners:
 - a. Mitered.
 - b. Joined and bonded with thermoset polyurethane adhesive, nylon corner lock, and mechanically fastened.
 - 5. Install frame with glazing stop on side.
 - 6. Jambs: Contain factory-drilled, counter-bored, installation screw holes.
 - 7. Head and Sill: Contain factory-drilled, counter-bored, installation screw holes.
- C. Glazing:
 - 1. Glass and Glazing Materials: Manufacturers standard factory glazing for fiberglass window units that produces weathertight seal. Comply with GANA glazing manual, latest edition.
- D. Glass: Clear, insulating-glass units, argon gas filled, with low-E coating sputtered on third surface.
 - 1. Float Glass: ASTM C 1036, Quality 1.
 - a. Tempered Glass: ASTM C 1048.
 - 2. Type: Polyurethane reactive (PUR) hot-melt glazed, 1-inch thick, insulating glass, multi-layer Low-E coated with argon.

2.3 OPTIONS

- A. Grilles:
 - 1. Applied Grille: 1-5/8 inch wide single vertical aluminum grille bar applied on interior and exterior of each unit.
 - 2. Finish: Factory pre-finished to match window frame.

2.4 TOLERANCES

- A. Windows shall accommodate the following opening tolerances:
 - 1. Vertical Dimensions Between High and Low Points: Plus 1/4-inch, minus 0 inch.
 - 2. Width Dimensions: Plus 1/4-inch, minus 0 inch.
 - 3. Building Columns or Masonry Openings: Plus or minus 1/4-inch from plumb.

2.5 FINISH

- A. Exterior and Interior Finish: Factory-applied powder-coat paint, comply with AAMA 613.
 - 1. Color and Sheen: Match typical new clad wood windows installed elsewhere in the project, per sample selected by Architect from manufacturer's full range including special colors.

2.6 INSTALLATION ACCESSORIES

- A. Flashing/Sealant Tape: Window manufacturers' standard accessory, equivalent to Pella SmartFlash.
 - 1. Aluminum-foil-backed butyl window and door flashing tape.
 - 2. Maximum Total Thickness: 0.013 inch.
 - 3. UV resistant.
 - 4. Verify sealant compatibility with sealant manufacturer.
- B. Exterior Perimeter Sealant: Geocel Proflex Tripolymer Sealant.
- C. Insulating-Foam Sealant: Dow Chemical Great Stuff Window and Door Insulating Foam Sealant.
 - 1. Low-pressure, polyurethane window and door insulating-foam sealant.
- D. Block Frame Installation Accessories: Installation clips and installation screws for frame screw applications.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive windows. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 INSTALLATION

- A. Install windows in accordance with manufacturer's written instructions.
- B. Install windows to be weather-tight.
- C. Maintain alignment with adjacent work.
- D. Secure assembly to framed openings, plumb and square, without distortion.
- E. Seal window to exterior wall cladding with sealant and related backing materials at perimeter of assembly.

3.3 CLEANING

- A. Clean window frames and glass immediately after installing in accordance with Division 1 requirements.
- B. Do not use harsh cleaning materials or methods that would damage finish or glass.
- C. Remove labels and visible markings.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

3.4 PROTECTION

- A. Protect installed windows to ensure that, except for normal weathering, windows will be without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 08 55 00
CLAD WOOD WINDOWS

PART 1 GENERAL

1. SUMMARY

- a. This Section includes fixed wood-framed windows and transoms to operable doors of the following type:
 - 1) Primed wood exterior.
 - 2) Aluminum clad.
 - 3) Special shapes and mulled units as indicated.

2. DEFINITIONS

- a. Accessories: Mullions, staff beads, casings, closures, trim, moldings, panning systems, sub-sills, clips anchors, fasteners, weather-stripping, and other necessary components required for fabrication and installation of window units.
- b. Uncontrolled Water: Water not drained to the exterior, or water appearing on the room side of the window.

3. SUBMITTALS

- a. Product Data: Include construction details, material descriptions, fabrication methods, dimensions of individual components and profiles, hardware, finishes, performance test reports, and operating instructions for each type of wood window indicated.
 - 1) Product Test Reports: Based on evaluation of comprehensive tests performed within the last four years by a qualified testing agency for each type of wood window. The size shall be at least as large as the largest unit of each type in the project.
 - 2) If the test report is for a size that is at least as large as the largest size in the project, then smaller sizes do not need separate test reports.
- b. Shop Drawings: Include Installation Details and Instructions, plans, elevations, sections, details, hardware, attachments to other work, operational clearances, and the following:
 - 1) Mullion details, including reinforcement and stiffeners.
 - 2) Joinery details.
 - 3) Expansion provisions.
 - 4) Flashing and drainage details.

- 5) Weather-stripping details.
- 6) Glazing details.
- 7) Window cleaning provisions.

c. Samples for Initial Selection:

- 1) Include Samples of hardware and accessories involving color selection.
- 2) Include samples of manufacturers standard options for obscure glass.

d. Samples for Verification: For wood windows and components required, prepared on Samples of size indicated below.

- 1) Operable Window: Full-size unit with weather stripping and factory-applied finish.
- 2) Hardware: Full-size units with factory-applied finish.

e. Product Schedule: For wood windows. Use same designations indicated on Drawings.

f. Maintenance Data: For finishes to include in maintenance manuals.

g. Warranty: Special warranty specified in this Section.

4. QUALITY ASSURANCE

a. Installer Qualifications: An installer acceptable to wood window manufacturer or supplier for installation of units required for this Project.

b. Manufacturer Qualifications: A manufacturer capable of fabricating wood windows that meet or exceed performance requirements indicated and of documenting this performance by inclusion in lists and by labels, test reports, and calculations.

c. Source Limitations: Obtain wood windows through one source from a single manufacturer.

d. Fenestration Standard: Comply with AAMA/WDMA 101/I.S.2/NAFS, "North American Fenestration Standard Voluntary Performance Specification for Windows, Skylights and Glass Doors," for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

- 1) Provide WDMA-certified wood windows with an attached label.

e. Preinstallation Conference: Conduct conference, including installation mechanics and ,manufacturer representative, at Project site to comply with requirements in Division 1 Section "General Requirements."

5. PROJECT CONDITIONS

- a. Field Measurements: Verify existing masonry openings for wood windows by field measurements before fabrication and indicate measurements on Shop Drawings. Indicate means of accommodating tolerances and variations in existing openings.

6. WARRANTY

- a. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace wood windows that fail in materials or workmanship within specified warranty period.

1) Failures include, but are not limited to, the following:

- a) Failure to meet performance requirements.
- b) Structural failures including excessive deflection, water leakage, or air infiltration.
- c) Deterioration of wood, metals, vinyl, other materials, and finishes beyond normal weathering.
- d) Failure of insulating glass.

2) Warranty Period:

- a) Window: Ten years from date of Substantial Completion.
- b) Insulating Glass: Twenty years from date of Substantial Completion.
- c) Laminated Glass: 5 years from date of Substantial Completion.
- d) Metal Finish (Fluoropolymer - 70% Kynar 500®): AAMA 2605-05 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels. Twenty years from date of Substantial Completion.

PART 2P RODUCTS

1. MANUFACTURERS

- a. Basis-of-Design Product: The basis-of-design for wood windows is Pella Corporation Architect Series® WITH SPECIAL RETROFIT SUBFRAME FOR INSTALLATION FROM THE BUILDING INTERIOR.

- 1) Drawings indicate nominal sizes, profiles, and dimensional requirements for windows. Do not modify sizes relative to existing openings and other dimensional requirements. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review PRIOR TO BID. Note that such review may include consultation with State of Vermont Division for Historic Preservation, and that

neither the Government nor the Architect will be able to offer a timescale for this process relative to bid deadline.

- b. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

- 1) Requirements that must be met for this project include a system of components and accessories furnished by the window manufacturer FOR INSTALLATION FROM THE BUILDING INTERIOR, while completely encasing and protecting the remaining Historic window components in the same way as the Basis of Design product.

A)The entire window system must be acceptable to the State of Vermont Division for Historic Preservation.

- 2) Manufacturers of Aluminum-Clad Wood Windows:

- a) Eagle Window and Door
- b) Kolbe & Kolbe.
- c) Loewen.
- d) Marvin Windows and Doors.
- e) Pella Corporation.
- f) Weather Shield Mfg., Inc.

2. MATERIALS

- a. Wood: Clear ponderosa pine or another suitable fine-grained lumber; kiln dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 0.8 mm (1/32 inch) deep by 51 mm (2 inches) wide; water-repellent preservative treated.
- b. Aluminum Extrusions and Rolled Aluminum for Cladding, Sub-Frame and Applied Trim: Manufacturer's standard formed sheet or extruded-aluminum cladding, mechanically bonded to exterior exposed wood members. Provide aluminum alloy and temper recommended by wood window manufacturer for strength, corrosion resistance, and application of required finish, but not less than 150-MPa (22,000-psi) ultimate tensile strength, and not less than 110-MPa (16,000-psi) minimum yield strength.
 - 1) High-Performance Organic Finish for Extrusions and Sheet: Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - a) Fluoropolymer Two-Coat System: Manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent

polyvinylidene fluoride resin by weight; complying with AAMA 2605-05 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels .

1) Color and Gloss: Custom color to match Architect's sample.

2) High-Performance Organic Finish for Coil: Manufacturer's standard high performance finish complying with AAMA 620 and paint manufacturer's written specifications for cleaning, conversion coating, and painting.

a) Fluoropolymer Two-Coat System: Manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with the performance requirements of AAMA 2605.

1)Color and Gloss: Custom color to match Architect's sample.

c. Interior Wood Trim & Jamb Extensions: Material and finish to match frame interior members.

d. Clad Trim and Subframes: Hollow extrusions and finish to match clad frame members.

e. Fasteners: Aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by manufacturer to be noncorrosive and compatible with wood window members, cladding, trim, hardware, anchors, and other components.

1)Exposed Fasteners: Unless unavoidable for applying hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.

f. Anchors, Nail Fins, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.

g. Reinforcing Members: Aluminum, or nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.

h. Compression-Type Weather Stripping: Provide compressible weather stripping designed for permanently resilient sealing under

bumper or wiper action and for complete concealment when wood window is closed.

- 1) Weather-Stripping Material: Dual weather stripping, consisting of continuous, flexible polyvinyl chloride material in dual durometer design. Vent units have welded corners, compressed between frame and sash for positive seal on all four sides. Secondary polyvinyl chloride leaf-type weather strip between edge of sash and frame.
- i. Sliding-Type Weather Stripping: Provide woven-pile weather stripping of wool, polypropylene, or nylon pile and resin-impregnated backing fabric. Comply with AAMA 701/702.
 - 1) Weather Seals: Provide weather stripping with integral barrier fin or fins of semi-rigid, polypropylene sheet or polypropylene-coated material. Comply with AAMA 701/702.
- j. Replaceable Weather Seals: Comply with AAMA 701/702.

3. WINDOW (TYPICAL FOR ALL NEW WINDOWS EXCEPT FOR STOREFRONT TYPES)

- a. Window Types A -J: Double hung (Fixed Shut) and Circular Fixed Window, as indicated on Drawings, and transom to Balcony Door type X.
- b. AAMA/WDMA Performance Requirements: Provide wood windows of performance indicated that comply with AAMA/WDMA 101/I.S.2/NAFS.
 - 1) Performance Class and Grade: C 50.
- c. Thermal Transmittance: Provide wood windows with a whole-window, U-factor maximum indicated at 24-km/h (15-mph) exterior wind velocity and winter condition temperatures when tested according to NFRC 100.
 - 1)U-Factor: 1.6 W/sq. m x K (0.28 Btu/sq. ft. x h x deg F) or less.
- d. Solar Heat-Gain Coefficient (SHGC): Provide wood windows with a whole-window SHGC maximum of 0.40, determined according to NFRC 200 procedures.
- e. Outside-Inside Transmission Class (OITC): Provide glazed windows rated for not less than 26 OITC when tested for laboratory sound transmission loss according to ASTM E 90 and determined by ASTM E 1332.
- f. Windborne-Debris Resistance: Provide glazed windows capable of resisting impact from windborne debris, based on the pass/fail criteria as determined from testing glazed windows identical to those specified, according to ASTM E 1886 and testing information in ASTM E 1996 and requirements of authorities having jurisdiction.

4. GLAZING

- a. Glass and Glazing Materials: Manufacturers standard factory glazing for wood window units that produces a weathertight seal. Comply with GANA glazing manual, latest edition.
- b. Glass: Clear, insulating-glass units, argon gas filled, with low-E coating sputtered on third surface.
 - 1) Inner pane of window shall be obscure glass for toilet rooms, basement therapy rooms, and other locations where patient or staff privacy is a priority, as designated by Resident Engineer.

5. HARDWARE

- a. General: Summary: Provide manufacturer's standard hardware for Balcony Door, fabricated from stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with wood and aluminum cladding; designed to smoothly operate, tightly close, and securely lock door, and sized to accommodate unit dimensions. Do not use aluminum in frictional contact with other metals. Where exposed to the exterior, provide stainless steel. Where exposed on the interior, provide finish hardware to match typical for room.
 - 1) Refer to Division 08, section "Door Hardware" for hardware set and specific requirements for balcony door by window manufacturer. No windows are scheduled to be operable.

6. ACCESSORIES

- a. Dividers (Permanent Muntins): Provide dividers in designs indicated for each sash lite, two per sash with between-the-glass foam spacer.
 - 1) Exterior Material: Extruded aluminum, beveled profile to simulate putty glazing.
 - 2) Interior Material: Primed wood, ogee profile as indicated.
 - 3) Design: As indicated.
 - 4) Exterior Color: Match cladding.
 - 5) Interior Color: Primed Wood.
 - 6) Width: 7/8 inch (28.2 mm).
- b. Installation Accessories: All mounting and anchoring hardware.
 - 1) Low-expanding foam for air barrier sealing: "Great Stuff Window and Door", product of Dow Chemical Company, Inc, in accordance with ICC Evaluation NER-645 or successor.

7. FABRICATION

- a. Fabricate wood windows in sizes indicated. Include a complete system for assembling components and anchoring windows.
- b. Mullions: Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design loads of window units.
- c. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

8. INTERIOR WOOD FINISHES

- a. Factory-Primed Windows: Provide manufacturer's standard factory-prime coat on exposed interior wood surfaces.

PART 3 EXECUTION

1. EXAMINATION

- a. Examine openings, substrates, structural support, anchorage, and conditions, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate, and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weathertight window installation.
 - 1) Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
 - 2) Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 76 mm (3 inches) of opening.
 - 3) Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
 - 4) Proceed with installation only after unsatisfactory conditions have been corrected.

2. INSTALLATION

- a. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing subframes, windows, panning & trim, hardware, accessories, and other components.

- b. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction. Install windows to be weather-tight and freely operating.
- c. Do not remove existing windows until new replacement is available, ready for immediate installation.
- d. Remove existing work carefully; avoid damage to existing historic items to remain.
- e. Perform all other operations as necessary to prepare openings for proper installation and operation of new units.
- f. Do not leave openings uncovered at end of working day, during precipitation or in temperatures below 16 degrees C (60 degrees F.).
- g. Subframe system is designed to enable prime windows to be installed from building interior.
 - 1) Insulate remaining cavities within historic box frames of existing historic wood window frames that are exposed when existing aluminum units are removed, taking care to minimize damage to the historic components.
 - 2) Firmly attach subframe to remaining portions of the historic wood frames, or to new wood blocking as required per location.
 - 3) Install new prime window within subframe in accordance with manufacturers specific directions for historic restoration systems.
- h. Place interior seal around window perimeter using low-expanding foam sealant to maintain continuity of building thermal and air barrier.
- i. Sill members should not be set in a bed of sealant. But rather, sills should be shimmed and then sealed as described in paragraphs E and F below, and in accordance with manufacturers written instructions. Seal shall be continuous with low-expanding foam to provide a complete air barrier.
- j. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action (dissimilar materials, treated lumber, etc.) at points of contact with other materials.
- k. Seal window to exterior wall cladding with sealant and related backing materials at perimeter of assembly.
- l. Leave window units closed and with sash fixed shut.

3. ADJUSTING, CLEANING, AND PROTECTION

- a. Clean exposed surfaces immediately after installing windows.
Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- b. Clean factory-glazed glass immediately after installing windows.
Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.
- c. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- d. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

END OF SECTION 08 55 00

SECTION 08 71 00
DOOR HARDWARE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Door hardware and related items necessary for complete installation and operation of doors.

1.2 RELATED WORK

- A. Caulking: Section 07 92 00 JOINT SEALANTS.
- B. Application of Hardware: Division 08, Sections CLAD WOOD DOORS, ALUMINUM ENTRANCES & STOREFRONT, and BALANCED ENTRANCE DOORS.
- C. Painting: Section 09 91 00, PAINTING.
- E. Card Readers and Alarm Sensors: Division 28, Section REQUIREMENTS FOR ELECTRONIC SAFETY AND SECURITY INSTALLATIONS.

1.3 GENERAL

- A. All hardware shall comply with UFAS, (Uniform Federal Accessible Standards) unless specified otherwise.
- B. Provide rated door hardware assemblies where required by most current version of the International Building Code (IBC).
- C. Hardware for Labeled Fire Doors and Exit Doors: Conform to requirements of NFPA 80 for labeled fire doors and to NFPA 101 for exit doors, as well as to other requirements specified. Provide hardware listed by UL, except where heavier materials, large size, or better grades are specified herein under paragraph HARDWARE SETS. In lieu of UL labeling and listing, test reports from a nationally recognized testing agency may be submitted showing that hardware has been tested in accordance with UL test methods and that it conforms to NFPA requirements.
- D. Hardware for application on metal and wood doors and frames shall be made to standard templates. Furnish templates to the fabricator of these items in sufficient time so as not to delay the construction.
- E. The following items shall be of the same manufacturer as typical existing units throughout building, if possible, except as otherwise specified:
 - 1. Mortise locksets.
 - 2. Hinges for hollow metal and wood doors.

3. Surface applied overhead door closers.
4. Exit devices.
5. Floor closers.

1.4 WARRANTY

- A. Automatic door operators shall be subject to the terms of FAR Clause 52.24-21, except that the Warranty period shall be two years in lieu of one year for all items except as noted below:
1. Locks, latchsets, and panic hardware: 5 years.
 2. Door closers and continuous hinges: 10 years.

1.5 MAINTENANCE MANUALS

- A. In accordance with Section 01 00 00, GENERAL REQUIREMENTS Article titled "INSTRUCTIONS", furnish maintenance manuals and instructions on all door hardware.

1.6 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. Submit 6 copies of the schedule per Section 01 33 23 plus 2 copies to the VAMC Locksmith (VISN Locksmith if the VAMC does not have a locksmith).
- B. Hardware Schedule: Prepare and submit hardware schedule in the following form:

Hardware Item	Quantity	Size	Reference Publication Type No.	Finish	Mfr. Name and Catalog No.	Key Control Symbols	UL Mark (if fire rated and listed)	ANSI/BHMA Finish Designation

- C. Samples and Manufacturers' Literature:
1. Samples: All hardware items (proposed for the project) that have not been previously approved by Builders Hardware Manufacturers Association shall be submitted for approval. Tag and mark all items with manufacturer's name, catalog number and project number.
 2. Samples are not required for hardware listed in the specifications by manufacturer's catalog number, if the

contractor proposes to use the manufacturer's product specified.

- D. Certificate of Compliance and Test Reports: Submit certificates that hardware conforms to the requirements specified herein. Certificates shall be accompanied by copies of reports as referenced. The testing shall have been conducted either in the manufacturer's plant and certified by an independent testing laboratory or conducted in an independent laboratory, within four years of submittal of reports for approval.

1.7 DELIVERY AND MARKING

- A. Deliver items of hardware to job site in their original containers, complete with necessary appurtenances including screws, keys, and instructions. Tag one of each different item of hardware and deliver to COTR for reference purposes. Tag shall identify items by Project Specification number and manufacturer's catalog number. These items shall remain on file in COTR's office until all other similar items have been installed in project, at which time the COTR will deliver items on file to Contractor for installation in predetermined locations on the project.

1.8 PREINSTALLATION MEETING

- A. Convene a preinstallation meeting not less than 30 days before start of installation of door hardware. Require attendance of parties directly affecting work of this section, including Contractor and Installer, Architect, Project Engineer and VA Locksmith, Hardware Consultant, and Hardware Manufacturer's Representative. Review the following:
1. Inspection of door hardware.
 2. Job and surface readiness.
 3. Coordination with other work.
 4. Protection of hardware surfaces.
 5. Substrate surface protection.
 6. Installation.
 7. Adjusting.
 8. Repair.
 9. Field quality control.
 10. Cleaning.

1.9 INSTRUCTIONS

- A. Hardware Set Symbols on Drawings: Except for protective plates, door stops, mates, thresholds and the like specified herein, hardware requirements for each door are indicated on drawings by symbols. Symbols for hardware sets consist of letters (e.g., "HW") followed by a number. Each number designates a set of hardware items applicable to a door type.
- B. Manufacturers' Catalog Number References: Where manufacturers' products are specified herein, products of other manufacturers which are considered equivalent to those specified may be used. Manufacturers whose products are specified are identified by abbreviations as follows:

Adams-Rite	Adams Rite Mfg. Co.	Pomona, CA
Best	Best Access Systems	Indianapolis, IN
Don-Jo	Don-Jo Manufacturing	Sterling, MA
G.E. Security	GE Security, Inc.	Bradentown, FL
Markar	Markar Architectural Products	Pomona, CA
Pemko	Pemko Manufacturing Co.	Ventura, CA
Rixson	Rixson	Franklin Park, IL
Rockwood	Rockwood Manufacturing Co.	Rockwood, PA
Securitron	Securitron Magnalock Corp.	Sparks, NV
Southern Folger	Southern Folger Detention Equipment Co.	San Antonio, TX
Stanley	The Stanley Works	New Britain, CT
Tice	Tice Industries	Portland, OR
Trimco	Triangle Brass Mfg. Co.	Los Angeles, CA
Zero	Zero Weather Stripping Co.	New York, NY

- C. Keying: All cylinders shall be suitable for keying into existing Medical Center Master Key System, which is based upon 7-pin **Best** cylinders with Type TE keyway. Provide removable core cylinders that are removable only with a special key or tool without disassembly of device or lockset.
1. Before hardware is installed, deliver all permanent cylinders to VAMC's customary locksmith (c/o COTR) for keying.
 2. Install construction cores when doors are hung.

1.10 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. In text, hardware items are referred to by series, types, etc., listed in such specifications and standards, except as otherwise specified.
- B. American Society for Testing and Materials (ASTM):
- F883-04.....Padlocks
 - E2180-07.....Standard Test Method for Determining the
Activity of Incorporated Antimicrobial
Agent(s) In Polymeric or Hydrophobic
Materials
- C. American National Standards Institute/Builders Hardware
Manufacturers Association (ANSI/BHMA):
- A156.1-06.....Butts and Hinges
 - A156.2-03.....Bored and Pre-assembled Locks and Latches
 - A156.3-08.....Exit Devices, Coordinators, and Auto
Flush Bolts
 - A156.4-08.....Door Controls (Closers)
 - A156.5-01.....Auxiliary Locks and Associated Products
 - A156.6-05.....Architectural Door Trim
 - A156.8-05.....Door Controls-Overhead Stops and Holders
 - A156.12-05Interconnected Locks and Latches
 - A156.13-05.....Mortise Locks and Latches Series 1000
 - A156.14-07Sliding and Folding Door Hardware
 - A156.15-06.....Release Devices-Closer Holder,
Electromagnetic and Electromechanical
 - A156.16-08.....Auxiliary Hardware
 - A156.17-04Self-Closing Hinges and Pivots
 - A156.18-06.....Materials and Finishes
 - A156.20-06Strap and Tee Hinges, and Hasps
 - A156.21-09.....Thresholds
 - A156.22-05.....Door Gasketing and Edge Seal Systems
 - A156.23-04.....Electromagnetic Locks
 - A156.24-03.....Delayed Egress Locking Systems
 - A156.25-07Electrified Locking Devices
 - A156.26-06.....Continuous Hinges
 - A156.28-07Master Keying Systems

- A156.29-07Exit Locks and Alarms
- A156.30-03High Security Cylinders
- A156.31-07Electric Strikes and Frame Mounted
Actuators
- A250.8-03.....Standard Steel Doors and Frames
- D. National Fire Protection Association (NFPA):
 - 80-10.....Fire Doors and Fire Windows
 - 101-09.....Life Safety Code
- E. Underwriters Laboratories, Inc. (UL):
 - Building Materials Directory (2008)

PART 2 - PRODUCTS

2.1 BUTT HINGES

- A. ANSI A156.1. Provide only three-knuckle hinges, except five-knuckle where the required hinge type is not available in a three-knuckle version (e.g., some types of swing-clear hinges). The following types of butt hinges shall be used for the types of doors listed, except where otherwise specified:
 - 1. Exterior Doors: Type A2112/A5112 for doors 900 mm (3 feet) wide or less and Type A2111/A5111 for doors over 900 mm (3 feet) wide. Hinges for exterior outswing doors shall have non-removable pins. Hinges for exterior fire-rated doors shall be of stainless steel material.
 - 2. Interior Doors: Type A8112/A5112 for doors 900 mm (3 feet) wide or less and Type A8111/A5111 for doors over 900 mm (3 feet) wide. Hinges for doors exposed to high humidity areas (shower rooms, toilet rooms, kitchens, janitor rooms, etc. shall be of stainless steel material.
- B. Provide quantity and size of hinges per door leaf as follows:
 - 1. Doors up to 1210 mm (4 feet) high: 2 hinges.
 - 2. Doors 1210 mm (4 feet) to 2260 mm (7 feet 5 inches) high: 3 hinges minimum.
 - 3. Doors greater than 2260 mm (7 feet 5 inches) high: 4 hinges.
 - 4. Doors up to 900 mm (3 feet) wide, standard weight: 114 mm x 114 mm (4-1/2 inches x 4-1/2 inches) hinges.
 - 5. Doors over 900 mm (3 feet) to 1065 mm (3 feet 6 inches) wide, standard weight: 127 mm x 114 mm (5 inches x 4-1/2 inches).
 - 6. Doors over 1065 mm (3 feet 6 inches) to 1210 mm (4 feet), heavy weight: 127 mm x 114 mm (5 inches x 4-1/2 inches).

7. Provide heavy-weight hinges where specified.
 8. At doors weighing 330 kg (150 lbs.) or more, furnish 127 mm (5 inch) high hinges.
- C. See Articles "MISCELLANEOUS HARDWARE" and "HARDWARE SETS" for pivots and hinges other than butts specified above and continuous hinges specified below.

2.2 CONTINUOUS HINGES

- A. ANSI/BHMA A156.26, Grade 1-600.
1. Listed under Category N in BHMA's "Certified Product Directory."
- B. General: Minimum 0.120-inch- (3.0-mm-) thick, hinge leaves with minimum overall width of 4 inches (102 mm); fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete
- C. Continuous, Barrel-Type Hinges: Hinge with knuckles formed around a Teflon-coated 6.35mm (0.25-inch) minimum diameter pin that extends entire length of hinge.
1. Base Metal for Exterior Hinges: Stainless steel.
 3. Base Metal for Hinges for Fire-Rated Assemblies: Stainless Steel.
 4. Provide with non-removable pin (hospital tip option) at lockable outswing doors.
 5. Where required to clear adjacent casing, trim, and wall conditions and allow full door swing, provide wide throw hinges of minimum width required.
 6. Provide with manufacturer's cut-outs for separate mortised power transfers and/or mortised automatic door bottoms where they occur.
 7. Where thru-wire power transfers are integral to the hinge, provide hinge with easily removable portion to allow easy access to wiring connections.
 8. Where models are specified that provide an integral wrap-around edge guard for the hinge edge of the door, provide manufacturer's adjustable threaded stud and machine screw mechanism to allow the door to be adjusted within the wrap-around edge guard.

2.3 DOOR CLOSING DEVICES

- A. Closing devices shall be products of same single manufacturer as existing closers used throughout Building 1.

2.4 OVERHEAD CLOSERS

- A. Conform to ANSI A156.4, Grade 1.
- B. Closers shall conform to the following:
 - 1. The closer shall have minimum 50 percent adjustable closing force over minimum value for that closer and have adjustable hydraulic back check effective between 60 degrees and 85 degrees of door opening.
 - 2. Where specified, closer shall have hold-open feature.
 - 3. Size Requirements: Provide multi-size closers, sizes 1 through 6, except where multi-size closer is not available for the required application.
 - 4. Material of closer body shall be forged or cast.
 - 5. Arm and brackets for closers shall be steel, malleable iron or high strength ductile cast iron.
 - 6. Where closers are exposed to the exterior or are mounted in rooms that experience high humidity, provide closer body and arm assembly of stainless steel material.
 - 7. Closers shall have full size metal cover; plastic covers will not be accepted.
 - 8. Closers shall have adjustable hydraulic back-check, separate valves for closing and latching speed, adjustable back-check positioning valve, and adjustable delayed action valve.
 - 9. Provide closers with any accessories required for the mounting application, including (but not limited to) drop plates, special soffit plates, spacers for heavy-duty parallel arm fifth screws, bull-nose or other regular arm brackets, longer or shorter arm assemblies, and special factory templating. Provide special arms, drop plates, and templating as needed to allow mounting at doors with overhead stops and/or holders.
 - 10. Closer arms or backcheck valve shall not be used to stop the door from overswing, except in applications where a separate wall, floor, or overhead stop cannot be used.
 - 11. Provide parallel arm closers with heavy duty rigid arm.

12. Where closers are to be installed on the push side of the door, provide parallel arm type except where conditions require use of top jamb arm.
13. Provide all surface closers with the same body attachment screw pattern for ease of replacement and maintenance.
14. All closers shall have a 1 ½" (38mm) minimum piston diameter.

2.5 FLOOR CLOSERS AND FLOOR PIVOT SETS

- A. Comply with ANSI A156.4. Provide stainless steel floor plates for floor closers and floor pivots, except where metal thresholds occur. Provide cement case for all floor closers. Floor closers specified for fire doors shall comply with Underwriters Laboratories, Inc., requirements for concealed type floor closers for classes of fire doors indicated on drawings. Hold-open mechanism, where required, shall engage when door is opened 105 degrees, except when door swing is limited by building construction or equipment, the hold-open feature shall engage when door is opened approximately 90 degrees. The hold-open mechanism shall be selectable on/off by turning a screw through the floor plate. Floor closers shall have adjustable hydraulic back-check, adjustable close speed, and adjustable latch speed. Provide closers with delayed action where a hold-open mechanism is not required. Floor closers shall be multi-sized. Single acting floor closers shall also have built in dead stop. Where required, provide closers with special cement cases appropriate for shallow deck installation or where concrete joint lines run through the floor knockout. At offset-hung doors installed in deep reveals, provide special closer arm and spindle to allow for installation. Where stone or terrazzo is applied over the floor closer case, provide closer without floor plate and with extended spindle (length as required) and special cover pan (depth as required) to allow closer to be accessed without damaging the material applied over the closer. Pivots for non-labeled doors shall be cast, forged or extruded brass or bronze.
- B. Where floor closer appears in hardware set provide the following as applicable.
 1. Double Acting Floor Closers: Type C06012.

2. Single Acting Floor Closer: Type C06021 (center pivoted).
(Intermediate pivot is not required).
3. Single Acting Floor Closers: Type C06041 (offset pivoted).
4. Single Acting Floor Closer for Labeled Fire Doors: Type C06051
(offset pivoted).
5. Single Acting Floor Closers For Lead Lined Doors: Type C06071
(offset pivoted).

2.6 COMBINATION CLOSER – HOLDER

- A. Conform to ANSI A156.15; combination closer-holder with built-in electronic release.
- B. Combination closer-holder shall have the following features:
 1. Control door closing and latching sequence by hydraulic action.
 2. Wiring for 24V DC current. Current draw shall not exceed 0.16 amperes.
 3. Combination closer-holder type:
 - a. At doors with 90-110° hold-open point: Single lever arm with slide track closing action, and adjustable hydraulic back-check. Provide tracks with spring-cushion stop assemblies to avoid the necessity of a separate wall or floor stop. Provide with double egress arm where required.
 - b. At doors with over 110° to 175° hold-open point: Single or double lever arm and adjustable hydraulic back-check. Provide with long arms where required for deep frame reveals.
 4. Spring power for closing force shall conform to ANSI A156.4 and have 50% spring power adjustment.
 5. Size closers per manufacturer's printed catalog recommendations.
 6. Hold open mechanism shall hold door open between 85 degrees and 175 degrees depending on wall and frame conditions. Mount device to provide maximum door opening permitted by building construction or equipment.
 7. Electronic release shall release door when signaled by smoke detector. Smoke detectors shall not be incorporated as an integral part of door holders. Smoke detectors are specified in the ELECTRICAL Section.

8. All closers to have full covers.
9. All closers shall have a 1 ½" minimum piston diameter and an adjustable back check position valve.

2.7 DOOR STOPS

- A. Conform to ANSI A156.16.
- B. Provide door stops wherever an opened door or any item of hardware thereon would strike a wall, column, equipment or other parts of building construction. For concrete, masonry or quarry tile construction, use lead expansion shields for mounting door stops.
- C. Where cylindrical locks with turn pieces or pushbuttons occur, equip wall bumpers Type L02251 (rubber pads having concave face) to receive turn piece or button.
- D. Provide floor stops (Type L02141 or L02161 in office areas; Type L02121 x 3 screws into floor elsewhere. Wall bumpers, where used, must be installed to impact the trim or the door within the leading half of its width. Floor stops, where used, must be installed within 4-inches of the wall face and impact the door within the leading half of its width.
- E. Where drywall partitions occur, use floor stops, Type L02141 or L02161 in office areas, Type L02121 elsewhere.
- F. Provide stop Type L02011, as applicable for exterior doors. At outswing doors where stop can be installed in concrete, provide stop mated to concrete anchor set in 76mm (3-inch) core-drilled hole and filled with quick-setting cement.
- G. Omit stops where floor mounted door holders are required and where automatic operated doors occur.
- H. Provide appropriate roller bumper for each set of doors (except where closet doors occur) where two doors would interfere with each other in swinging.
- I. Provide appropriate door mounted stop on doors in individual toilets where floor or wall mounted stops cannot be used.
- J. Provide overhead surface applied stop Type C02541, ANSI A156.8 on patient toilet doors in bedrooms where toilet door could come in contact with the bedroom door.
- K. Provide door stops on doors where combination closer magnetic holders are specified, except where wall stops cannot be used or

where floor stops cannot be installed within 4-inches of the wall.

- L. Where the specified wall or floor stop cannot be used, provide concealed overhead stops (surface-mounted where concealed cannot be used).

2.8 OVERHEAD DOOR STOPS AND HOLDERS

- A. Conform to ANSI Standard A156.8. Overhead holders shall be of sizes recommended by holder manufacturer for each width of door. Set overhead holders for 110 degree opening, unless limited by building construction or equipment. Provide Grade 1 overhead concealed slide type: stop-only at rated doors and security doors, hold-open type with exposed hold-open on/off control at all other doors requiring overhead door stops.

2.9 FLOOR DOOR HOLDERS

- A. Conform to ANSI Standard A156.16. Provide extension strikes for Types L01301 and L01311 holders where necessary.

2.10 LOCKS AND LATCHES

- A. Conform to ANSI A156.2. Locks and latches for doors 45 mm (1-3/4 inch) thick or over shall have beveled fronts. Permanent lock cylinders shall be as noted elsewhere. Cylinders shall be furnished with construction removable cores and construction master keys. Cylinder shall be removable by special key or tool. Construct all cores so that they will be interchangeable into the core housings of all mortise locks, rim locks, cylindrical locks, and any other type lock on the campus. Disassembly of lever or lockset shall not be required to remove core from lockset. All locksets or latches on double doors with fire label shall have latch bolt with 19 mm (3/4 inch) throw, unless shorter throw allowed by the door manufacturer's fire label. Provide temporary keying device or construction core of allow opening and closing during construction and prior to the installation of final cores.
- B. In addition to above requirements, locks and latches shall comply with following requirements:

- 1. Mortise Lock and Latch Sets: Conform to ANSI/BHMA A156.13. Mortise locksets shall be series 1000, minimum Grade 2. All locksets and latch-sets, except on designated doors in Psychiatric (Mental Health) areas, shall have lever handles

fabricated from cast stainless, Best locks "Contour" design with angled return. No substitute lever material shall be accepted, EXCEPT IN ORDER TO MATCH THE FINISH OF Bronze Doors levers may be Bronze-Coated stainless or solid bronze. All locks and latchsets shall be furnished with 122.55 mm (4-7/8-inch) curved lip strike and wrought box. At outswing pairs with overlapping astragals, provide flat lip strip with 21mm (7/8-inch) lip-to-center dimension. Lock function F02 shall be furnished with emergency tools/keys for emergency entrance. All lock cases installed on lead lined doors shall be lead lined before applying final hardware finish. Furnish armored fronts for all mortise locks. Where mortise locks are installed in high-humidity locations or where exposed to the exterior on both sides of the opening, provide non-ferrous mortise lock case.

2. Cylindrical Lock and Latch Sets: levers shall meet ADA (Americans with Disabilities Act) requirements. Cylindrical locksets shall be series 4000 Grade I. All locks and latchsets shall be furnished with equivalent design features to mortise sets, to match existing throughout Medical Center. Where two turn pieces are specified for lock F76, turn piece on inside knob shall lock and unlock inside knob, and turn piece on outside knob shall unlock outside knob when inside knob is in the locked position. (This function is intended to allow emergency entry into these rooms without an emergency key or any special tool.)
3. Auxiliary locks shall be as specified under hardware sets and conform to ANSI A156.5.
4. Locks on designated doors in Psychiatric (Mental Health) areas shall be paddle type with arrow projection covers and be UL Listed. Provide these locks with paddle in the down position on both sides of the door. Locks shall be fabricated of wrought stainless steel.
5. Privacy locks in non-mental-health patient rooms shall have an inside thumbturn for privacy and an outside thumbturn for emergency entrance. Single occupancy patient privacy doors shall typically swing out; where such doors cannot swing out, provide center-pivoted doors with rescue hardware (see HW-2B).

2.11 PUSH-BUTTON COMBINATION LOCKS

- A. ANSI/BHMA A156.13, Grade 1. Battery operated pushbutton entry.
- B. Construction: Heavy duty mortise lock housing conforming to ANSI/BHMA A156.13, Grade 1. Lever handles and operating components in compliance with the UFAS and the ADA Accessibility Guidelines. Match lever handles of locks and latchsets on adjacent doors.
- C. Special Features: Key override to permit a master keyed security system and a pushbutton security code activated passage feature to allow access without using the entry code.

2.12 ELECTROMAGNETIC LOCKS

- A. ANSI/BHMA A156.23; electrically powered, of strength and configuration indicated; with electromagnet attached to frame and armature plate attached to door. Listed under Category E in BHMA's "Certified Product Directory."
 - 1. Type: Full exterior or full interior, as required by application indicated.
- B. Delayed-Egress Locks: BHMA A156.24
 - 1. Means of Egress Doors: Lock releases within 15 seconds after applying a force not more than 15 lbf (67 N) for not more than 3 seconds, as required by NFPA 101.
 - 2. Security Grade: Activated from secure side of door by initiating device.
 - 3. Movement Grade: Activated by door movement as initiating device.
 - 4. The lock housing shall not project more than 4-inches (101mm) from the underside of the frame head stop.

2.13 ELECTRIC STRIKES

- A. ANSI/ BHMA A156.31 Grade 1.
- B. General: Use fail-secure electric strikes at fire-rated doors.

2.14 KEYS

- A. As noted elsewhere.

2.15 KEY CABINET: NOT APPLICABLE:

2.17 EXIT DEVICES

- A. Conform to ANSI Standard A156.3. Exit devices shall be Grade 1; type and function are specified in hardware sets. Provide flush with finished floor strikes for vertical rod exit devices in interior of building. Trim shall have cast satin stainless steel

lever handles of design similar to locksets, unless otherwise specified. Provide key cylinders for keyed operating trim and, where specified, cylinder dogging.

- B. Surface vertical rod panics shall only be provided less bottom rod; provide fire pins as required by exit device and door fire labels. Do not provide surface vertical rod panics at exterior doors.
- C. Concealed vertical rod panics shall be provided less bottom rod at interior doors, unless lockable or otherwise specified; provide fire pins as required by exit device and door fire labels. Where concealed vertical rod panics are specified at exterior doors, provide with both top and bottom rods.
- D. Where removable mullions are specified at pairs with rim panic devices, provide mullion with key-removable feature.
- E. At non-rated openings with panic hardware, provide panic hardware with key cylinder dogging feature.
- F. Exit devices for fire doors shall comply with Underwriters Laboratories, Inc., requirements for Fire Exit Hardware. Submit proof of compliance.

2.18 FLUSH BOLTS (LEVER EXTENSION)

- A. Conform to ANSI A156.16. Flush bolts shall be Type L24081 unless otherwise specified. Furnish proper dustproof strikes conforming to ANSI A156.16, for flush bolts required on lower part of doors.
- B. Lever extension manual flush bolts shall only be used at non-fire-rated pairs for rooms only accessed by maintenance personnel.
- C. Face plates for cylindrical strikes shall be rectangular and not less than 25 mm by 63 mm (1 inch by 2-1/2 inches).
- D. Friction-fit cylindrical dustproof strikes with circular face plate may be used only where metal thresholds occur.
- E. Provide extension rods for top bolt where door height exceeds 2184 mm (7 feet 2 inches).

2.19 FLUSH BOLTS (AUTOMATIC)

- A. Conform to ANSI A156.3. Dimension of flush bolts shall conform to ANSI A115. Bolts shall conform to Underwriters Laboratories, Inc., requirements for fire door hardware. Flush bolts shall automatically latch and unlatch. Furnish dustproof strikes conforming to ANSI A156.16 for bottom flushbolt. Face plates for

dustproof strike shall be rectangular and not less than 38 mm by 90 mm (1-1/2 by 3-1/2 inches).

- B. At interior doors, provide auto flush bolts less bottom bolt, unless otherwise specified, except at wood pairs with fire-rating greater than 20 minutes; provide fire pins as required by auto flush bolt and door fire labels.

2.20 DOOR PULLS

- A. Conform to ANSI A156.6. Pull plate 90 mm by 350 mm (3-1/2 inches by 14 inches), unless otherwise specified. Cut plates of door pulls for cylinders, or turn pieces where required.

2.21 PUSH PLATES AND KICK/ MOP/ ARMOR PLATES:

- A. Push plates conform to ANSI A156.6. Metal, Type J302, 200 mm (8 inches) wide by 350 mm (14 inches) high. Provide metal Type J300 plates 100 mm (4 inches wide by 350 mm (14 inches) high) where push plates are specified for doors with stiles less than 200 mm (8 inches) wide. Cut plates for cylinders, and turn pieces where required.
- B. Kick/ Mop/ Armor plates, Size: 1-1/2 inches (38 mm) less than door width on push side and 1/2 inch (13 mm) less than door width on pull side, by 8" high unless otherwise indicated on Drawings.
 - 1. Fasteners: Manufacturer's standard machine or self-tapping screws.
 - 2, Metal Protective Trim Units: BHMA A156.6; beveled top and 2 sides; fabricated from the following material:
 - 3. Material: 0.050-inch- (1.3-mm-) thick stainless steel.

2.22 COMBINATION PUSH AND PULL PLATES

- A. Conform to ANSI 156.6. Type J303, stainless steel 3 mm (1/8 inch) thick, 80 mm (3-1/3 inches) wide by 800 mm (16 inches) high), top and bottom edges shall be rounded. Secure plates to wood doors with 38 mm (1-1/2 inch) long No. 12 wood screws. Cut plates for turn pieces, and cylinders where required. Pull shall be mounted down.

2.23 COORDINATORS

- A. Conform to ANSI A156.16. Coordinators, when specified for fire doors, shall comply with Underwriters Laboratories, Inc., requirements for fire door hardware. Coordinator may be omitted on exterior pairs of doors where either door will close independently regardless of the position of the other door.

Coordinator may be omitted on interior pairs of non-labeled open where open back strike is used. Open back strike shall not be used on labeled doors. Paint coordinators to match door frames, unless coordinators are plated. Provide bar type coordinators, except where gravity coordinators are required at acoustic pairs. For bar type coordinators, provide filler bars for full width and, as required, brackets for push-side surface mounted closers, overhead stops, and vertical rod panic strikes.

2.24 THRESHOLDS

- A. Conform to ANSI A156.21, mill finish extruded aluminum, except as otherwise specified. In existing construction, thresholds shall be installed in a bed of sealant with ¼-20 stainless steel machine screws and expansion shields. In new construction, embed aluminum anchors coated with epoxy in concrete to secure thresholds. Furnish thresholds for the full width of the openings.
- B. For thresholds at elevators entrances see other sections of specifications.
- C. At exterior doors and any interior doors exposed to moisture, provide threshold with non-slip abrasive finish.
- D. Provide with miter returns where threshold extends more than 12 mm (0.5 inch) from frame face.

2.25 AUTOMATIC DOOR BOTTOM SEAL AND RUBBER GASKET FOR LIGHT PROOF OR SOUND CONTROL DOORS

- A. Conform to ANSI A156.22. Provide mortise or under-door type, except where not practical. For mortise automatic door bottoms, provide type specific for door construction (wood or metal).

2.26 WEATHERSTRIPS (FOR EXTERIOR DOORS)

- A. Conform to ANSI A156.22. Air leakage shall not to exceed 0.50 CFM per foot of crack length (0.000774m³/s/m).

2.27 MISCELLANEOUS HARDWARE

- A. Access Doors (including Sheet Metal, Screen and Woven Wire Mesh Types): Except for fire-rated doors and doors to Temperature Control Cabinets, equip each single or double metal access door with Lock Type E76213, conforming to ANSI A156.5. Key locks as directed. Hinges shall be provided by door manufacturer.
- B. Cylinders for Various Partitions and Doors: as noted elsewhere.

- C. Mutes: Conform to ANSI A156.16. Provide door mutes or door silencers Type L03011 or L03021, depending on frame material, of white or light gray color, on each steel or wood door frame, except at fire-rated frames, lead-lined frames and frames for sound-resistant, lightproof and electromagnetically shielded doors. Furnish 3 mutes for single doors and 2 mutes for each pair of doors, except double-acting doors. Provide 4 mutes or silencers for frames for each Dutch type door. Provide 2 mutes for each edge of sliding door which would contact door frame.

2.31 FINISHES

- A. Exposed surfaces of hardware shall have ANSI A156.18, finishes as specified below. Finishes on all hinges, pivots, closers, thresholds, etc., shall be as specified below under "Miscellaneous Finishes." For field painting (final coat) of ferrous hardware, see Section 09 91 00, PAINTING.
- B. 626 or 630: All surfaces on exterior and interior of buildings, except where other finishes are specified.
- C. Miscellaneous Finishes:
 - 1. Hinges --exterior doors: 626 or 630.
 - 2. Hinges --interior doors: 652 or 630.
 - 3. Pivots: Match door trim.
 - 4. Door Closers: Factory applied paint finish. Dull or Satin Aluminum color.
 - 5. Thresholds: Mill finish aluminum.
 - 6. Cover plates for floor hinges and pivots: 630.
 - 7. Other primed steel hardware: 600.
- D. Hardware Finishes for Existing Buildings: U.S. Standard finishes shall match finishes of hardware in (similar) existing spaces.
- E. Anti-microbial Coating: All hand-operated hardware (levers, pulls, push bars, push plates, paddles, and panic bars) shall be provided with an anti-microbial/anti-fungal coating that has passed ASTM E2180 tests. Coating to consist of ionic silver (Ag+). Silver ions surround bacterial cells, inhibiting growth of bacteria, mold, and mildew by blockading food and respiration supplies.

2.32 BASE METALS

- A. Apply specified U.S. Standard finishes on different base metals as following:

Finish	Base Metal
652	Steel
626	Brass or bronze
630	Stainless steel

PART 3 - EXECUTION

3.1 HARDWARE HEIGHTS

- A. For existing buildings locate hardware on doors at heights to match existing adjacent hardware, except where code requirements apply. The Contractor shall visit the site, verify location of existing hardware and submit locations to VA COTR for approval.
- B. Hardware Heights from Finished Floor:
 - 1. Exit devices centerline of strike (where applicable) 1024 mm (40-5/16 inches).
 - 2. Locksets and latch sets centerline of strike 1024 mm (40-5/16 inches).
 - 3. Deadlocks centerline of strike 1219 mm (48 inches).
 - 4. Hospital arm pull 1168 mm (46 inches) to centerline of bottom supporting bracket.
 - 5. Centerline of door pulls to be 1016 mm (40 inches).
 - 6. Push plates and push-pull shall be 1270 mm (50 inches) to top of plate.
 - 7. Push-pull latch to be 1024 mm (40-5/16 inches) to centerline of strike.
 - 8. Locate other hardware at standard commercial heights. Locate push and pull plates to prevent conflict with other hardware.

3.2 INSTALLATION

- A. Closer devices, including those with hold-open features, shall be equipped and mounted to provide maximum door opening permitted by building construction or equipment. Closers shall be mounted on side of door inside rooms, inside stairs, and away from corridors except security bedroom, bathroom and anteroom doors which shall have closer installed parallel arm on exterior side of doors. At exterior doors, closers shall be mounted on interior side. Where closers are mounted on doors they shall be mounted with sex nuts and bolts; foot shall be fastened to frame with machine screws.

B. Hinge Size Requirements:

Door Thickness	Door Width	Hinge Height
45 mm (1-3/4 inch)	900 mm (3 feet) and less	113 mm (4-1/2 inches)
45 mm (1-3/4 inch)	Over 900 mm (3 feet) but not more than 1200 mm (4 feet)	125 mm (5 inches)
35 mm (1-3/8 inch) (hollow core wood doors)	Not over 1200 mm (4 feet)	113 mm (4-1/2 inches)

C. Hinge leaves shall be sufficiently wide to allow doors to swing clear of door frame trim and surrounding conditions.

D. Where new hinges are specified for new doors in existing frames or existing doors in new frames, sizes of new hinges shall match sizes of existing hinges; or, contractor may reuse existing hinges provided hinges are restored to satisfactory operating condition as approved by COTR. Existing hinges shall not be reused on door openings having new doors and new frames. Coordinate preparation for hinge cut-outs and screw-hole locations on doors and frames.

E. Hinges Required Per Door:

Doors 1500 mm (5 ft) or less in height	2 butts
Doors over 1500 mm (5 ft) high and not over 2280 mm (7 ft 6 in) high	3 butts
Doors over 2280 mm (7 feet 6 inches) high	4 butts
Dutch type doors	4 butts
Doors with spring hinges 1370 mm (4 feet 6 inches) high or less	2 butts
Doors with spring hinges over 1370 mm (4 feet 6 inches)	3 butts

F. Fastenings: Suitable size and type and shall harmonize with hardware as to material and finish. Provide machine screws and lead expansion shields to secure hardware to concrete, ceramic or quarry floor tile, or solid masonry. Fiber or Rawl plugs and adhesives are not permitted. All fastenings exposed to weather shall be of nonferrous metal.

G. After locks have been installed; show in presence of COTR that keys operate their respective locks in accordance with keying requirements. (All keys, Master Key level and above shall be sent

Registered Mail to the Medical Center Director along with the bitting list. Also a copy of the invoice shall be sent to the COTR for his records.) Installation of locks which do not meet specified keying requirements shall be considered sufficient justification for rejection and replacement of all locks installed on project.

3.3 FINAL INSPECTION

- A. Installer to provide letter to VA Resident/Project Engineer that upon completion, installer has visited the Project and has accomplished the following:
1. Re-adjust hardware.
 2. Evaluate maintenance procedures and recommend changes or additions, and instruct VA personnel.
 3. Identify items that have deteriorated or failed.
 4. Submit written report identifying problems.

3.4 DEMONSTRATION

- A. Demonstrate efficacy of mechanical hardware and electrical, and electronic hardware systems, including adjustment and maintenance procedures, to satisfaction of Resident/Project Engineer and VA Locksmith.

3.5 HARDWARE SETS

- A. Following sets of hardware correspond to hardware symbols shown on drawings. Only those hardware sets that are shown on drawings will be required. Disregard hardware sets listed in specifications but not shown on drawings.

ELECTRIC HARDWARE ABBREVIATIONS LEGEND:

ADO = Automatic Door Operator

CR = Card Reader

EMCH = Electro-Mechanical Closer-Holder

MHO = Magnetic Hold-Open (wall- or floor-mounted)

- B. APPLICATION OF HARDWARE SETS:** Refer to Drawing A-502.

C. HARDWARE SETS: INTERIOR SINGLE DOORS

HW-1

THIS SET NOT USED.

INTERIOR PAIRS OF DOORS

HW-8D

Each [ADO] Aluminum Storefront Pair to Have: NON-RATED

2	Pivot Sets	C07162
2	Intermediate Transfer Pivots	C07321 x 4-WIRES
2	Intermediate Pivots	C07321
2	Push/Pull Bar Sets	J505 - 305 MM (12 INCH) CENTER-TO-CENTER PULL
2	Overhead Stops	C01541-ADJUSTABLE

AUTO DOOR OPERATORS, CONTROLS, AND REACTIVATION SENSORS BY SECTION
08 71 13.11.

POWER TRANSFERS FOR RE-ACTIVATION SENSOR WIRING (RE-ACTIVATION
SENSORS PROVIDED BY SECTION 08 71 13).

120VAC POWER, CONDUIT, AND WIRING BY DIVISION 26.

HW-8D-B

Each [ADO] Balanced Airlock Pair to Have: NON-RATED

(By Door Manufacturer, base metal and finish to match doors)

2	Sets Balanced Hinges, Including Transfer Hinges (Min. 4-WIRES)	
2	Push/Pull Bar Sets	MIN. 305 MM (12 INCH) CENTER-TO-CENTER PULL
2	Floor Stops	1214CK x 1268CK (TRIMCO), OR EQUAL

HW-9

THIS SET NOT USED.

D. HARDWARE SETS: EXTERIOR SINGLE DOORS

HW-E1

Each Door to Have:

NON-RATED

1	Continuous Hinge	A51031B
1	Entry Lock	F11
1	Latch Protector (outswing dr)	MLP-111 (DON-JO), OR EQUAL
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Kick Plate	J102
1	Floor Stop	1214CK x 1268CK (TRIMCO), OR EQUAL
1	Threshold (outswing door)	J35130 x SILICONE GASKET
1	Threshold (inswing door)	ALUMINUM, PER ARCHITECTURAL DETAIL
1	Door Sweep	90100CNB (PEMKO), OR EQUAL
1	Set Frame Seals	2891AS X CSK SCREWS (PEMKO), OR EQUAL
1	Drip	R0Y976

HW-E2

Each Door to Have:

NON-RATED

1	Continuous Hinge	A51031B
1	Classroom Lock	F05
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Kick Plate	J102
1	Floor Stop	1214CK x 1268CK (TRIMCO), OR EQUAL
1	Threshold (outswing door)	J35130 x SILICONE GASKET
1	Threshold (inswing door)	ALUMINUM, PER ARCHITECTURAL DETAIL
1	Door Sweep	90100CNB (PEMKO), OR EQUAL
1	Set Frame Seals	2891AS X CSK SCREWS (PEMKO), OR EQUAL
1	Drip	R0Y976

HW-E3

NOT USED

HW-E4-0

Each Balanced Door to Have: NON-RATED
(By Door Manufacturer)

- 1 Set Balanced Hinges, Including Transfer Hinge (Min. 4-WIRES)
- 1 Pull Bar Set MIN. 305 MM (12 INCH) CENTER-TO-CENTER
PULL
- 1 Exit Device TYPE 1 F03 LES TRIM, ELECTRIC
OPERATION, DOG OPEN DURING
OPERATING HOURS
- 1 Key Cylinder INTERIOR SIDE, TYPE AS REQUIRED
- 1 Floor Stop 1214CK x 1268CK (TRIMCO), OR EQUAL
- 1 ADO.
- 1 CR INSTALLED WHERE DIRECTED ON EXTERIOR SIDE.
- 1 STANDARD ADA THRESHOLD TO SUIT HINGES.
- 1 SET DOOR MANUFACTURER'S STANDARD SWEEP AND FRAME SEALS.

POWER, CONDUIT, AND WIRING FOR CARD READER & STRIKE BY DIVISION 26.

HW-E4

Each Door to Have: NON-RATED

- 1 Continuous Hinge A51031B
- 1 Anti-Vandal Pull 1097HASP (TRIMCO), OR EQUAL
- 1 Exit Device TYPE 1 F03 LES TRIM
- 1 Key Cylinder TYPE AS REQUIRED
- 1 Closer C02011 (PT4D, PT4F, PT4H)
- 1 Kick Plate J102
- 1 Floor Stop 1214CK x 1268CK (TRIMCO), OR EQUAL
- 1 Threshold J35130 x SILICONE GASKET
- 1 Door Sweep 90100CNB (PEMKO), OR EQUAL
- 1 Set Frame Seals 2891AS X CSK SCREWS (PEMKO), OR
EQUAL
- 1 Drip R0Y976

HW-E4-A

Each Storefront Door to Have:

NON-RATED

1	Pivot Set	C07162
1	Intermediate Transfer Pivot	C07321 x 4-WIRES
1	Intermediate Pivot	C07321
1	Pull Bar	J505 - 305 MM (12 INCH) CENTER-TO-CENTER PULL
1	Exit Device	TYPE 1 F03 LES TRIM, ELECTRIC OPERATION, DOG OPEN DURING OPERATING HOURS
1	Key Cylinder	INTERIOR SIDE, TYPE AS REQUIRED
1	Floor Stop	1214CK x 1268CK (TRIMCO), OR EQUAL
1	CR.	
1	STANDARD ADA THRESHOLD TO SUIT PIVOTS.	
1	SET DOOR MANUFACTURER'S STANDARD SWEEP AND FRAME SEALS.	
	POWER, CONDUIT, AND WIRING FOR CARD READER BY DIVISION 26.	

SECURITY HARDWARE ABBREVIATIONS LEGEND:

AC = Access Control Device (Card reader, biometric reader, keypad, etc.)

ADO = Automatic Door Operator

DEML = Delayed Egress Magnetic Lock

DEPH = Delayed Egress Panic Exit Device

DPS = Door Position Switch (Door or Alarm Contact)

EL = Electric Lock or Electric Lever Exit Device

PB = Push-button Combination Lock (stand-alone)

RR = Remote Release Button

ELR = Electric Latch Retraction Exit Device

REX = Request-to-Exit Switch in Latching Device Inside Trim

- - - E N D - - -

SECTION 09 91 00
PAINTING

PART 1-GENERAL

1.1 DESCRIPTION

- A. Section specifies field painting.
- B. Section specifies prime coats which may be applied in shop under other sections.
- C. Painting includes shellacs, stains, varnishes, and coatings specified.
- D. Note that Sherwin Williams coating products are used throughout the Medical Center, and field-applied work of this section should be performed with Sherwin Williams products as far as possible. Alternate brands will not be approved.

1.2 RELATED WORK

- A. Shop prime painting of steel and ferrous metals: Divisions 05 - METAL FABRICATIONS & 08 - OPENINGS.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:

Before work is started, submit manufacturer's literature, the current Master Painters Institute (MPI) "Approved Product List" indicating brand label, product name and product code as of the date of contract award, will be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use subsequent MPI "Approved Product List", however, only one list may be used for the entire contract and each coating system is to be from a single manufacturer. All coats on a particular substrate must be from a single manufacturer. No variation from the MPI "Approved Product List" where applicable is acceptable.
- C. Sample Panels:
 - 1. After painters' materials have been approved and before work is started submit sample panels showing each type of finish

specified and each separate color required to match existing conditions throughout the facility.

2. Panels to show color: Composition board, 100 by 250 by 3 mm (4 inch by 10 inch by 1/8 inch).
3. Attach labels to panel stating the following:
 - a. Federal Specification Number or manufacturers name and product number of paints used.
 - c. Product type and color.
 - d. Name of project.
5. Strips showing not less than 50 mm (2 inch) wide strips of undercoats and 100 mm (4 inch) wide strip of finish coat.
- D. Sample of identity markers if used.
- E. Manufacturers' Certificates indicating compliance with specified requirements:
 1. Manufacturer's paint substituted for Federal Specification paints meets or exceeds performance of paint specified.

1.4 DELIVERY AND STORAGE

- A. Deliver materials to site in manufacturer's sealed container marked to show following:
 1. Name of manufacturer.
 2. Product type.
 3. Batch number.
 4. Instructions for use.
 5. Safety precautions.
- B. In addition to manufacturer's label, provide a label legibly printed as following:
 1. Federal Specification Number, where applicable, and name of material.
 2. Surface upon which material is to be applied.
 3. If paint or other coating, state coat types; prime, body or finish.
- C. Maintain space for storage, and handling of painting materials and equipment in a neat and orderly condition to prevent spontaneous combustion from occurring or igniting adjacent items.
- D. Store materials at site at least 24 hours before using, at a temperature between 18 and 30 degrees C (65 and 85 degrees F).

1.5 MOCK-UP PANEL

- A. Before starting general application of paint, apply paint as specified to one or more areas throughout facility to be selected by Resident Engineer to indicate match of color and sheen to existing adjacent wall surfaces. If approved, the sample area(s) may form part of the completed work.
- B. Finish and texture approved by Resident Engineer will be used as a standard of quality for remainder of work.

1.6 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by basic designation only.
- B. American Conference of Governmental Industrial Hygienists (ACGIH):
 - ACGIH TLV-BKLT-2008.....Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs)
 - ACGIH TLV-DOC-2008.....Documentation of Threshold Limit Values and Biological Exposure Indices, (Seventh Edition)
- C. American National Standards Institute (ANSI):
 - A13.1-07.....Scheme for the Identification of Piping Systems
- D. American Society for Testing and Materials (ASTM):
 - D260-86.....Boiled Linseed Oil
- E. Commercial Item Description (CID):
 - A-A-1555.....Water Paint, Powder (Cementitious, White and Colors) (WPC) (cancelled)
 - A-A-3120.....Paint, For Swimming Pools (RF) (cancelled)
- F. Federal Specifications (Fed Spec):
 - TT-P-1411A.....Paint, Copolymer-Resin, Cementitious (For Waterproofing Concrete and Masonry Walls) (CEP)
- G. Master Painters Institute (MPI):
 - 1. Architectural Painting Manual
 - 2. Individual product type specification series, numbered 1 thru' 141, latest editions, as referenced in Article 2.1 below.
- H. Steel Structures Painting Council (SSPC):

SSPC SP 1-04 (R2004)....Solvent Cleaning
SSPC SP 2-04 (R2004)....Hand Tool Cleaning
SSPC SP 3-04 (R2004)....Power Tool Cleaning

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cementitious Paint (CEP): TT-P-1411A [Paint, Copolymer-Resin, Cementitious (CEP)], Type 1 for exterior use, Type II for interior use at masonry repair areas.
- B. Wood Sealer: MPI 31 (gloss) or MPI 71 (flat) thinned with thinner recommended by manufacturer at rate of about one part of thinner to four parts of varnish, for repairs to clear-finished wood trim.
- C. Plastic Tape: If required for security wiring ID.
 - 1. Pigmented vinyl plastic film in colors as specified in Section 09 06 00, SCHEDULE FOR FINISHES or specified.
 - 2. Pressure sensitive adhesive back.
 - 3. Widths as shown.
- D. Identity markers options:
 - 1. Pressure sensitive vinyl markers.
 - 2. Snap-on coil plastic markers.
- E. Aluminum Paint (AP): MPI 1. [NOT USED]
- F. Interior/Exterior Latex Block Filler: MPI 4. [NOT USED]
- G. Exterior Alkyd Wood Primer: MPI 5 For repair of exterior wood.
- H. Exterior Oil Wood Primer: MPI 7. [NOT USED]
- I. Exterior Alkyd, Flat (EO): MPI 8. [NOT USED]
- J. Exterior Alkyd Enamel (EO): MPI 9. [NOT USED]
- K. Exterior Latex, Flat (AE): MPI 10.
- L. Exterior Latex, Semi-Gloss (AE): MPI 11.
- M. Organic Zinc rich Coating (HR): MPI 22.
- N. High Heat Resistant Coating (HR): MPI 22. [NOT USED]
- O. Cementitious Galvanized Metal Primer: MPI 26.
- P. Exterior/ interior Alkyd Floor Enamel, Gloss (FE): MPI 27. [NOT USED]
- Q. Knot Sealer: MPI 36.
- R. Interior Satin Latex: MPI 43.
- S. Interior Low Sheen Latex: MPI 44.
- T. Interior Primer Sealer: MPI 45. [NOT USED]
- U. Interior Latex Primer Sealer: MPI 50.

V. Interior Alkyd, Semi-Gloss (AK): MPI 47. [NOT USED]

W. Interior Alkyd, Eggshell: MPI 51 [NOT USED]

Z. Interior Latex, MPI Gloss Level 3 (LE): MPI 52.

AA. Interior Latex, Flat, MPI Gloss Level 1 (LE): MPI 53.

BB. Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE): MPI 54.

DD. Interior / Exterior Alkyd Porch & Floor Enamel, Low Gloss (FE): MPI 59. [ONLY IF REQUIRED FOR PATCHING]

EE. Interior/ Exterior Latex Porch & Floor Paint, Low Gloss: MPI 60. [NOT USED]

FF. Interior Alkyd Fire Retardant, Clear Top-Coat (ULC Approved) (FC): MPI 66. [ONLY IF REQUIRED FOR PATCHING]

GG. Interior Latex Fire Retardant, Top-Coat (ULC Approved) (FR): MPI 67. [ONLY IF REQUIRED FOR PATCHING]

HH. Interior/ Exterior Latex Porch & Floor Paint, gloss: MPI 68. [NOT USED]

II. Epoxy Cold Cured, Gloss (EC): MPI 77. [NOT USED]

JJ. Marine Alkyd Metal primer: MPI 79. [NOT USED]

KK. Interior Wood Stain, Semi-Transparent (WS): MPI 90. [ONLY IF REQUIRED FOR PATCHING]

LL. Wood Filler Paste: MPI 91. [ONLY IF REQUIRED FOR PATCHING]

MM. Exterior Alkyd, Semi-Gloss (EO): MPI 94. [NOT USED]

NN. Fast Drying Metal Primer: MPI 95. [ONLY IF REQUIRED FOR PATCHING]

OO. High Build Epoxy Coating: MPI 98. [NOT USED]

PP. Epoxy Anti-Corrosive Metal Primer: MPI 101. [NOT USED]

QQ. High Build Epoxy Marine Coating (EC): MPI 108. [NOT USED]

RR. Interior latex, Gloss (LE) and (LG): MPI 114.

SS. Exterior Latex, High Gloss (acrylic) (AE): MPI 119.

TT. Waterborne Galvanized Primer: MPI 134. [NOT USED]

UU. Non-Cementitious Galvanized Primer: MPI 135. [NOT USED]

VV. Interior High Performance Latex, MPI Gloss Level 2 (LF): MPI 138. [NOT USED]

2.2 PAINT PROPERTIES

A. Use ready-mixed (including colors), except two component epoxies, polyurethanes, polyesters, paints having metallic powders packaged separately and paints requiring specified additives.

- B. Where no requirements are given in the referenced specifications for primers, use primers with pigment and vehicle, compatible with substrate and finish coats specified.

2.3 REGULATORY REQUIREMENTS/QUALITY ASSURANCE

- A. Paint materials shall conform to the restrictions of the local Environmental and Toxic Control jurisdiction.
 - 1. Volatile Organic Compounds (VOC): VOC content of paint materials shall not exceed 10g/l for interior latex paints/primers and 50g/l for exterior latex paints and primers.
 - 2. Lead-Base Paint:
 - a. Comply with Section 410 of the Lead-Based Paint Poisoning Prevention Act, as amended, and with implementing regulations promulgated by Secretary of Housing and Urban Development.
 - b. Regulations concerning prohibition against use of lead-based paint in federal and federally assisted construction, or rehabilitation of residential structures are set forth in Subpart F, Title 24, Code of Federal Regulations, Department of Housing and Urban Development.
 - c. For lead-paint removal, see Section 02 83 33.13, LEAD-BASED PAINT REMOVAL AND DISPOSAL.
 - 3. Asbestos: Materials shall not contain asbestos.
 - 4. Chromate, Cadmium, Mercury, and Silica: Materials shall not contain zinc-chromate, strontium-chromate, Cadmium, mercury or mercury compounds or free crystalline silica.
 - 5. Human Carcinogens: Materials shall not contain any of the ACGIH-BKLT and ACGHI-DOC confirmed or suspected human carcinogens.
 - 6. Use high performance acrylic paints in place of alkyd paints, where possible.
 - 7. VOC content for solvent-based paints shall not exceed 250g/l and shall not be formulated with more than one percent aromatic hydro carbons by weight.

PART 3 - EXECUTION

3.1 JOB CONDITIONS

- A. Safety: Observe required safety regulations and manufacturer's warning and instructions for storage, handling and application of painting materials.
 - 1. Take necessary precautions to protect personnel and property from hazards due to falls, injuries, toxic fumes, fire, explosion, or other harm.
 - 2. Deposit soiled cleaning rags and waste materials in metal containers approved for that purpose. Dispose of such items off the site at end of each days work.
- B. Atmospheric and Surface Conditions:
 - 1. Do not apply coating when air or substrate conditions are:
 - a. Less than 3 degrees C (5 degrees F) above dew point.
 - b. Below 10 degrees C (50 degrees F) or over 35 degrees C (95 degrees F), unless specifically pre-approved by the Contracting Officer and the product manufacturer. Under no circumstances shall application conditions exceed manufacturer recommendations.
 - 2. Maintain interior temperatures until paint dries hard.
 - 3. Do no exterior painting when it is windy and dusty.
 - 4. Do not paint in direct sunlight or on surfaces that the sun will soon warm.
 - 5. Apply only on clean, dry and frost free surfaces except as follows:
 - a. Apply water thinned acrylic and cementitious paints to damp (not wet) surfaces where allowed by manufacturer's printed instructions.
 - b. Dampened with a fine mist of water on hot dry days concrete and masonry surfaces to which water thinned acrylic and cementitious paints are applied to prevent excessive suction and to cool surface.

3.2 SURFACE PREPARATION

- A. Method of surface preparation is optional, provided results of finish painting produce solid even color and texture specified with no overlays.

B. General: Conform to MPI standards.

1. Remove prefabricated items not to be painted such as lighting fixtures, escutcheon plates, hardware, trim, and similar items for reinstallation after paint is dried.
2. Remove items for reinstallation and complete painting of such items and adjacent areas when item or adjacent surface is not accessible or finish is different.
3. See other sections of specifications for specified surface conditions and prime coat.
4. Clean surfaces for painting with materials and methods compatible with substrate and specified finish. Remove any residue remaining from cleaning agents used. Do not use solvents, acid, or steam on concrete and masonry.

C. Wood:

1. Sand to a smooth even surface and then dust off.
2. Sand surfaces showing raised grain smooth between each coat.
3. Wipe surface with a tack rag prior to applying finish.
4. Surface painted with an opaque finish:
 - a. Coat knots, sap and pitch streaks with MPI 36 (Knot Sealer) before applying paint.
 - b. Apply two coats of MPI 36 (Knot Sealer) over large knots.
5. After application of prime or first coat of stain, fill cracks, nail and screw holes, depressions and similar defects with wood filler paste. Sand the surface to make smooth and finish flush with adjacent surface.
6. Before applying finish coat, reapply wood filler paste if required, and sand surface to remove surface blemishes. Finish flush with adjacent surfaces.
7. Fill open grained wood such as oak, walnut, ash and mahogany with MPI 91 (Wood Filler Paste), colored to match wood color.
 - a. Thin filler in accordance with manufacturer's instructions for application.
 - b. Remove excess filler, wipe as clean as possible, dry, and sand as specified.

D. Ferrous Metals:

1. Remove oil, grease, oil, drawing and cutting compounds, flux and other detrimental foreign matter in accordance with SSPC-SP 1 (Solvent Cleaning).

2. Remove loose mill scale, rust, and paint, by hand or power tool cleaning, as defined in SSPC-SP 2 (Hand Tool Cleaning) and SSPC-SP 3 (Power Tool Cleaning). Exception: where high temperature aluminum paint is used, prepare surface in accordance with paint manufacturer's instructions.
 3. Fill dents, holes and similar voids and depressions in flat exposed surfaces of hollow steel doors and frames, access panels, roll-up steel doors and similar items specified to have semi-gloss or gloss finish with TT-F-322D (Filler, Two-Component Type, For Dents, Small Holes and Blow-Holes). Finish flush with adjacent surfaces.
 - a. This includes flat head countersunk screws used for permanent anchors.
 - b. Do not fill screws of item intended for removal such as glazing beads.
 4. Spot prime abraded and damaged areas in shop prime coat which expose bare metal with same type of paint used for prime coat. Feather edge of spot prime to produce smooth finish coat.
 5. Spot prime abraded and damaged areas which expose bare metal of factory finished items with paint as recommended by manufacturer of item.
- E. Zinc-Coated (Galvanized) Metal, Aluminum, Copper and Copper Alloy Surfaces Specified Painted or for Patching:
1. Clean surfaces to remove grease, oil and other deterrents to paint adhesion in accordance with SSPC-SP 1 (Solvent Cleaning).
 2. Spot coat abraded and damaged areas of zinc-coating which expose base metal on hot-dip zinc-coated items with MPI 18 (Organic Zinc Rich Coating). Prime or spot prime with MPI 134 (Waterborne Galvanized Primer) or MPI 135 (Non-Cementitious Galvanized Primer) depending on finish coat compatibility.
- F. Masonry, Concrete, Cement Board, Cement Plaster and Stucco:
1. Clean and remove dust, dirt, oil, grease efflorescence, form release agents, laitance, and other deterrents to paint adhesion.
 2. Use emulsion type cleaning agents to remove oil, grease, paint and similar products. Use of solvents, acid, or steam is not permitted.

3. Remove loose mortar in masonry work.
 4. Replace mortar and fill open joints, holes, cracks and depressions with new mortar specified in Section 04 05 13.
 6. Repair broken and spalled concrete edges with concrete patching compound to match adjacent surfaces as specified in CONCRETE Sections. Remove projections to level of adjacent surface by grinding or similar methods.
- G. Gypsum Plaster and Gypsum Board:
1. Remove efflorescence, loose and chalking plaster or finishing materials.
 2. Remove dust, dirt, and other deterrents to paint adhesion.
 3. Fill holes, cracks, and other depressions with CID-A-A-1272A Plaster, Gypsum (Spackling Compound) finished flush with adjacent surface, with texture to match texture of adjacent surface. Patch holes over 25 mm (1-inch) in diameter as specified in Section for plaster or gypsum board.

3.3 PAINT PREPARATION

- A. Thoroughly mix painting materials to ensure uniformity of color, complete dispersion of pigment and uniform composition.
- B. Do not thin unless necessary for application and when finish paint is used for body and prime coats. Use materials and quantities for thinning as specified in manufacturer's printed instructions.
- C. Remove paint skins, then strain paint through commercial paint strainer to remove lumps and other particles.
- D. Mix two component and two part paint and those requiring additives in such a manner as to uniformly blend as specified in manufacturer's printed instructions unless specified otherwise.
- E. For tinting required to produce exact shades specified, use color pigment recommended by the paint manufacturer.

3.4 APPLICATION

- A. Start of surface preparation or painting will be construed as acceptance of the surface as satisfactory for the application of materials.
- B. Unless otherwise specified, apply paint in three coats; prime, body, and finish. When two coats applied to prime coat are the same, first coat applied over primer is body coat and second coat is finish coat.

- C. Apply each coat evenly and cover substrate completely.
- D. Allow not less than 48 hours between application of succeeding coats, except as allowed by manufacturer's printed instructions, and approved by Resident Engineer.
- E. Finish surfaces to show solid even color, free from runs, lumps, brushmarks, laps, holidays, or other defects.
- F. Apply by brush, roller or spray, except as otherwise specified.
- G. Do not spray paint in existing occupied spaces unless approved by Resident Engineer, except in spaces sealed from existing occupied spaces.
 - 1. Apply painting materials specifically required by manufacturer to be applied by spraying.
 - 2. In areas, where paint is applied by spray, mask or enclose with polyethylene, or similar air tight material with edges and seams continuously sealed including items specified in WORK NOT PAINTED, motors, controls, telephone, and electrical equipment, fronts of sterilizes and other recessed equipment and similar prefinished items.
- I. Do not paint in closed position operable items such as access doors and panels, window sashes, overhead doors, and similar items except overhead roll-up doors and shutters.

3.5 PRIME PAINTING

- A. After surface preparation prime surfaces before application of body and finish coats, except as otherwise specified.
- B. Spot prime and apply body coat to damaged and abraded painted surfaces before applying succeeding coats.
- C. Additional field applied prime coats over shop or factory applied prime coats are not required except for exterior exposed steel apply an additional prime coat.
- D. Prime rebates for stop and face glazing of wood, and for face glazing of steel.
- E. Wood and Wood Particleboard:
 - 1. Use same kind of primer specified for exposed face surface.
 - a. Exterior wood: MPI 7 (Exterior Oil Wood Primer) for new construction and MPI 5 (Exterior Alkyd Wood Primer) for repainting bare wood primer except where MPI 90 (Interior Wood Stain, Semi-Transparent (WS)) is scheduled.

- b. Interior wood except for transparent finish: MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat), thinned if recommended by manufacturer.
 - c. Transparent finishes as specified under Transparent Finishes on Wood.
- 2. Apply two coats of primer MPI 5 (Exterior Alkyd Wood Primer) or sealer MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) to surfaces of wood doors, including top and bottom edges, which are cut for fitting or for other reason.
- 3. Apply one coat of primer MPI 5 (Exterior Alkyd Wood Primer) or sealer MPI 45 (Interior Primer Sealer) or MPI 46 (Interior Enamel Undercoat) as soon as delivered to site to surfaces of unfinished woodwork, except concealed surfaces of shop fabricated or assembled millwork and surfaces specified to have varnish, stain or natural finish.
- 4. Back prime and seal ends of exterior woodwork, and edges of exterior plywood specified to be finished.
- 5. Apply MPI 67 (Interior Latex Fire Retardant, Top-Coat (ULC Approved) (FR) to wood for fire retardant finish.
- F. Metals except boilers, incinerator stacks, and engine exhaust pipes:
 - 1. Steel and iron: MPI 95 (Fast Drying Metal Primer).
- F. Gypsum Board:
 - 2. Primer: MPI 50 (Interior Latex Primer Sealer).
- G. Gypsum Plaster and Veneer Plaster:
 - 1. MPI 45 (Interior Primer Sealer), except use MPI 50 (Interior Latex Primer Sealer) when an alkyd flat finish is specified.

3.7 INTERIOR FINISHES

- A. Apply following finish coats over prime coats.
- B. Metal Work:
 - 1. Apply to exposed surfaces.
 - 2. Omit body and finish coats on surfaces concealed after installation except electrical conduit containing conductors over 600 volts.
 - 3. Ferrous Metal, Galvanized Metal, and Other Metals Scheduled:
 - a. Apply two coats of MPI 47 (Interior Alkyd, Semi-Gloss (AK)) unless specified otherwise.

C. Gypsum Board:

1. One coat of MPI 45 (Interior Primer Sealer).
2. Two coats of MPI 51 (Interior Alkyd, Eggshell) (AK)).
3. One coat of MPI 45 (Interior Primer Sealer).
2. Two coats of MPI 51 (Interior Alkyd, Eggshell) (AK)).

3.8 REFINISHING EXISTING PAINTED SURFACES

- A. Clean, patch and repair existing surfaces as specified under surface preparation.
- B. Remove and reinstall items as specified under surface preparation.
- C. Remove existing finishes or apply separation coats to prevent non compatible coatings from having contact.
- D. Patched or Replaced Areas in Surfaces and Components: Apply spot prime and body coats as specified for new work to repaired areas or replaced components.
- E. Except where scheduled for complete painting apply finish coat over plane surface to nearest break in plane, such as corner, reveal, or frame.
- F. In existing rooms and areas where alterations occur, clean existing stained and natural finished wood retouch abraded surfaces and then give entire surface one coat of // MPI 31 (Polyurethane, Moisture Cured, Clear Gloss) // MPI 71 (Polyurethane, Moisture Cured, Clear Flat (PV)) //.
- G. Refinish areas as specified for new work to match adjoining work unless specified or scheduled otherwise.
- H. Coat knots and pitch streaks showing through old finish with MPI 36 (Knot Sealer) before refinishing.
- I. Sand or dull glossy surfaces prior to painting.
- J. Sand existing coatings to a feather edge so that transition between new and existing finish will not show in finished work.

3.9 PAINT COLOR

- A. Color and gloss of finish coats is to match typical existing adjacent, except where directed by Resident Engineer.
- B. Coat Colors:
 1. Color of priming coat: Lighter than body coat.
 2. Color of body coat: Lighter than finish coat.
 3. Color prime and body coats to not show through the finish coat and to mask surface imperfections or contrasts.

C. Painting, Caulking, Closures, and Fillers:

1. Paint to match color of adjacent paint finish.

3.10 MECHANICAL AND ELECTRICAL WORK FIELD PAINTING SCHEDULE

- A. Field painting of mechanical and electrical consists of cleaning, touching-up abraded shop prime coats, and applying prime, body and finish coats to materials and equipment if not factory finished in space scheduled to be finished.

3.12 IDENTITY PAINTING SCHEDULE

A. Fire and Smoke Partitions:

1. Identify partitions above ceilings on both sides of partitions except within shafts in letters not less than 64 mm (2 1/2 inches) high.
2. Stenciled message: "SMOKE BARRIER" or, "FIRE BARRIER" as applicable.
3. Locate not more than 6100 mm (20 feet) on center on corridor sides of partitions, and with a least one message per room on room side of partition.
4. Use semigloss paint of color that contrasts with color of substrate.

3.14 PROTECTION CLEAN UP, AND TOUCH-UP

- A. Protect work from paint droppings and spattering by use of masking, drop cloths, removal of items or by other approved methods.
- B. Upon completion, clean paint from hardware, glass and other surfaces and items not required to be painted of paint drops or smears.
- C. Before final inspection, touch-up or refinished in a manner to produce solid even color and finish texture, free from defects in work which was damaged or discolored.

- - - E N D - - -

SECTION 26 05 11
BASIC REQUIREMENTS FOR ELECTRONIC WIRING INSTALLATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section applies to access control wiring in connection with window and door replacement.
- B. Carry out all temporary and permanent work to electronic safety and security installations to match existing system and to conform to requirements of Medical Center's service contractor.
 - i) Recondition and re-install salvaged existing components where directed, including card-readers and AOD interface units.
 - ii) All new components shall be latest equivalent products of same manufacturers as existing system, NO SUBSTITUTIONS.
 - iii) All installation methods, including wiring color coding, shall exactly match existing.
 - iv) Medical center's service contractor will be asked to participate in submittal review as a consultant and shall be required to sign off on completed work.

1.2 MINIMUM REQUIREMENTS

- A. References to the International Building Code (IBC), National Electrical Code (NEC), Underwriters Laboratories, Inc. (UL) and National Fire Protection Association (NFPA) are minimum installation requirement standards.

Compliance with other customary industry and trade association standards and codes is also required.
- B. Drawings and other specification sections shall govern in those instances where requirements are greater than those specified in the above standards.

1.3 MANUFACTURED PRODUCTS

- A. Equipment Assemblies and Components:
 - 1. Manufacturers of equipment assemblies, which include components made by others, shall assume complete responsibility for the final assembled unit.
 - 2. Components shall be compatible with each other and with the total assembly for the intended service.
 - 3. Constituent parts which are similar shall be the product of a single manufacturer.

D. Factory wiring shall be identified on the equipment being furnished and on all wiring diagrams.

E. Subject to requirements, salvaged existing card-reader units may be re-used. Units shall be serviced, cleaned and tested to COTR's satisfaction before re-installation.

1.4 EQUIPMENT PROTECTION

A. Equipment and materials shall be protected during shipment and storage against physical damage, dirt, moisture, cold and rain:

1. During installation, enclosures, equipment, controls, controllers, circuit protective devices, and other like items, shall be protected against entry of foreign matter; and be vacuum cleaned both inside and outside before testing and operating and repainting if required.

1.5 WORK PERFORMANCE

A. All electrical work must comply with the requirements of NFPA 70 (NEC), NFPA 70B, NFPA 70E, OSHA Part 1910 subpart J, OSHA Part 1910 subpart S and OSHA Part 1910 subpart K, or per numbering sequence of most recent updates thereof, in addition to other references required by contract.

B. For work on existing stations, arrange, phase and perform work to assure electronic safety and security service for other buildings at all times. Refer to Article OPERATIONS AND STORAGE AREAS under Section 01 00 00, GENERAL REQUIREMENTS.

C. New work shall be installed and connected to existing work neatly and carefully. Disturbed or damaged work shall be replaced or repaired to its prior conditions, as required by Section 01 00 00, GENERAL REQUIREMENTS.

1.6 EQUIPMENT INSTALLATION AND REQUIREMENTS

A. Equipment location shall be as close as practical to locations shown on the drawings.

B. Inaccessible Equipment:

1. Where the Government determines that the Contractor has installed equipment not conveniently accessible for operation and maintenance, the equipment shall be removed and reinstalled as directed at no additional cost to the Government.

2. "Conveniently accessible" is defined as being capable of being reached without the use of ladders, or without climbing or crawling under or over obstacles such as, but not limited to, motors, pumps, belt guards, transformers, piping, ductwork, conduit and raceways.

1.7 EQUIPMENT IDENTIFICATION

- A. Install an identification sign which clearly indicates information required for use and maintenance of equipment.

1.8 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. The Government's approval shall be obtained for all equipment and material before delivery to the job site. Delivery, storage or installation of equipment or material which has not had prior approval will not be permitted at the job site.
- C. All submittals shall include adequate descriptive literature, catalog cuts, shop drawings and other data necessary for the Government to ascertain that the proposed equipment and materials comply with specification requirements. Catalog cuts submitted for approval shall be legible and clearly identify equipment being submitted.
- D. The submittals shall include the following:
 - 1. Information that confirms compliance with contract requirements. Include the manufacturer's name, model or catalog numbers, catalog information, technical data sheets, shop drawings, pictures, nameplate data and test reports as required.
 - 2. Elementary and interconnection wiring diagrams for communication and signal systems, control system and equipment assemblies. All terminal points and wiring shall be identified on wiring diagrams.
 - 3. Parts list which shall include those replacement parts recommended by the equipment manufacturer, quantity of parts, current price and availability of each part.

1.11 SINGULAR NUMBER

Where any device or part of equipment is referred to in these specifications in the singular number (e.g., "the switch"), this reference shall be deemed to apply to as many such devices as are required to complete the installation as shown on the drawings.

- - - E N D - - -

-