



## **SPECIFICATIONS**

**PROJECT NO. 694A4-13-116SM**

**PROJECT TITLE "REPLACE EPOXY FLOORING IN BUILDING 20" AT  
DEPARTMENT OF VETERANS AFFAIRS, AMBULATORY CARE CENTER  
16111 PLUMMER STREET, SEPULVEDA, CA 91343**



**100% CONSTRUCTION DOCUMENT  
MAY 15, 2013**

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REPLACE EPOXY FLOORING IN BUILDING 20

PROJECT # 691A4-13-116SM

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DEPARTMENT OF VETERANS AFFAIRS

VHA MASTER SPECIFICATIONS

REPLACE EPOXY FLOORING BUILDING-20

~~100% 65% CONSTRUCTION DOCUMENTS~~ ~~DESIGN DEVELOPMENT~~

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**SECTION 00 01 15**  
**LIST OF DRAWING SHEETS**

The drawings listed below accompanying this specification form a part of  
the contract.

Drawing No.Title

~~SPEC WRITER NOTE: List drawing numbers and  
titles under the classifications and in  
the relative order listed below. See  
Sample Section 00 01 15, LIST OF DRAWINGS  
on back of this sheet.~~

GENERAL

GI-001	COVER SHEET
GI-002	DRAWING INDEX AND NOTES
GI-003	GENERAL NOTES

ARCHITECTURAL

AD-001	PHASING PLAN
AD-101	DEMOLITION PLANS
AD-102	EXISTING SITE PHOTOGRAPHS
AS-101	NEW FLOOR PLAN AND INTERIOR ELEVATION
AS-601	FINISH PLAN AND SCHEDULE

~~SITE PLANNING~~

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~~(SAMPLE LIST OF DRAWINGS)~~~~VAMC (NAME) \_\_\_\_\_ (SPEC No.) \_\_\_\_\_~~~~SECTION 00 01 15  
LIST OF DRAWINGS~~~~The drawings listed below accompanying this specification form a part of the contract.~~~~Drawing No. \_\_\_\_\_ Title \_\_\_\_\_~~~~SITE PLANNING~~~~L1 \_\_\_\_\_ Site Plan \_\_\_\_\_~~~~L2 \_\_\_\_\_ Planting Plan \_\_\_\_\_~~~~L3 \_\_\_\_\_ Site and Planting Details \_\_\_\_\_~~~~ARCHITECTURAL~~~~30 1 \_\_\_\_\_ Ground Floor Plan \_\_\_\_\_~~~~30 2 \_\_\_\_\_ Elevations \_\_\_\_\_~~~~30 3 \_\_\_\_\_ Wall Sections and Details \_\_\_\_\_~~~~30 4 \_\_\_\_\_ Industrial Stair, Deck Leveler, Areaway Sections  
and Details \_\_\_\_\_~~~~30 5 \_\_\_\_\_ Reflected Ceiling Plan \_\_\_\_\_~~~~30 6 \_\_\_\_\_ Schedules \_\_\_\_\_~~~~E N D \_\_\_\_\_~~

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SECTION 01 00 00  
GENERAL REQUIREMENTS

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**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 Replace Epoxy in Building 20 as required by drawings and specifications.
- B. Visits to the site by Bidders may be made only by appointment with the Medical Center Engineering Officer.
- C. Offices of SRD Architects Inc., 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.
- 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 designated "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 or 30-hour OSHA Construction Safety course and other relevant competency training, as determined by RE/COR acting as the Construction Safety Officer with input from the facility Construction Safety Committee.
  - 2. Submit training records of all such employees for approval before the start of work.
- H. VHA Directive 2011-36, Safety and Health during Construction, dated 9/22/2011 in its entirety is made a part of this section

**1.2 STATEMENT OF BID ITEM(S)**

- A. ITEM I, GENERAL CONSTRUCTION: Main Bid: Work includes general construction, alterations, per drawings and specifications and certain other items. See construction document for project scope of work.
- B. ALTERNATE NO.1: Main bid (Item I) less ~~P~~ainting of Corridor No. 1-C3, Walls and Frames.

**1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR**

- A. AFTER AWARD OF CONTRACT, 15 sets of specifications and drawings will be furnished. These drawings and specifications will consist of those returned by prospective bidders.
- B. Additional sets of drawings may be made by the Contractor, at Contractor's expense, from reproducible sepia prints furnished by Issuing Office. Such sepia prints shall be returned to the Issuing Office immediately after printing is completed.

**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.
  - 2. The General Contractor is responsible for assuring that all sub-contractors working on the project and their employees also comply with these regulations.
- 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. The General Contractor shall be responsible to present all employees that will be working on VA's premises for proper clearances at the Security Office. All employees of the General Contractor and their subcontractor must meet all VA's security requirements for access and badging as stated in the AE solicitation package.
  - 2. For working outside the "regular hours" as defined in the contract, The General Contractor shall give 3 days notice to the Contracting Officer 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 written permission of the Contracting Officer.
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.

D. Key Control:

1. The General Contractor shall provide duplicate keys and lock combinations to the Resident Engineer for the purpose of 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 VA locksmith for permanent installation. See Section 08 71 00, DOOR HARDWARE and coordinate.

E. Document Control:

1. Before starting any work, the General Contractor/Sub Contractors shall submit an electronic security memorandum describing the approach to following goals and maintaining confidentiality of "sensitive information".
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.
3. Certain documents, sketches, videos or photographs and drawings may be marked "Law Enforcement Sensitive" or "Sensitive Unclassified". Secure such information in separate containers and limit the access to only those who will need it for the project. Return the information to the Contracting Officer upon request.
4. These security documents shall not be removed or transmitted from the project site without the written approval of Contracting Officer.
5. All paper waste or electronic media such as CD's and diskettes shall be shredded and destroyed in a manner acceptable to the VA.

6. Notify Contracting Officer and Site Security Officer immediately when there is a loss or compromise of "sensitive information".
7. All electronic information shall be stored in specified location following VA standards and procedures using an Engineering Document Management Software (EDMS).
  - a. Security, access and maintenance of all project drawings, both scanned and electronic shall be performed and tracked through the EDMS system.
  - b. "Sensitive information" including drawings and other documents may be attached to e-mail provided all VA encryption procedures are followed.

#### F. Motor Vehicle Restrictions

1. Vehicle authorization request shall be required for any vehicle entering the site and such request shall be submitted 24 hours before the date and time of access. Access shall be restricted to picking up and dropping off materials and supplies.
2. Separate permits shall 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):

E84-2009.....Surface Burning Characteristics of Building  
Materials

2. National Fire Protection Association (NFPA):

10-2010.....Standard for Portable Fire Extinguishers

30-2008.....Flammable and Combustible Liquids Code

51B-2009.....Standard for Fire Prevention During Welding,  
Cutting and Other Hot Work

70-2011.....National Electrical Code

241-2009.....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 Project Engineer and Facility Safety Officer 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, etc. Documentation shall be provided to the Resident Engineer 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. Install and maintain temporary construction partitions to provide smoke-tight separations between construction areas the areas that are described in phasing requirements and adjoining areas. Construct partitions of gypsum board or treated plywood (flame spread rating of 25 or less in accordance with ASTM E84) on both sides of fire retardant treated wood or metal steel studs. Extend the partitions through suspended ceilings to floor slab deck or roof. Seal joints

and penetrations. At door openings, install Class C, ¾ hour fire/smoke rated doors with self-closing devices.

2. Install one-hour fire-rated temporary construction partitions as required by Resident Engineer 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.

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 Project Engineer and facility Safety Manager.

H. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to Project Engineer and facility Safety Manager.

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.

M. 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 Project Engineer and facility Safety Officer. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested as 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 Resident Engineer.

- N. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with Resident Project Engineer and facility Safety Officer .
- P. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to Project Engineer and facility Safety Officer.
- Q. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.
- R. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.
- 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 Contracting Officer. 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 Contracting Officer 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 Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. 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 or pay for the repair of any damaged curbs, sidewalks, or roads.

**(FAR 52.236-10)**

- D. Working space and space available for storing materials shall be as determined by the Resident Engineer.
- 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 Contractor's personnel, except as permitted by Resident Engineer where required by limited working space.
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, storage of Contractor's materials and equipment will be permitted subject to fire and safety requirements.
- G. Phasing: To insure such executions, Contractor shall furnish the Resident Engineer 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 Resident Engineer 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 Medical Center Director, Resident Engineer and Contractor, as follows:

**All Phases - See Phasing Plan Drawing.**

Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used in the Medical Centers operations will not be hindered. 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.

2. Immediate areas of alterations not mentioned in preceding Subparagraph 1 will be temporarily vacated while alterations are performed.

K. Utilities Services: Maintain existing utility services for Medical Center at all times. 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 Resident Engineer.

1. No utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems may be interrupted without prior approval of Resident Engineer. 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. 2.

Contractor shall submit a request to interrupt any such services to Resident Engineer, 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 (in writing) 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.
  4. Major interruptions of any system must be requested, in writing, at least 15 calendar days prior to the desired time and shall be performed as directed by the Resident Engineer.
  5. In case of a contract construction emergency, service will be interrupted on approval of Resident Engineer. Such approval will be confirmed in writing as soon as practical.
  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.
- 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 but are not required to be entirely removed, shall be sealed, capped or plugged. The lines shall not be capped in finished areas, but shall be removed and sealed, capped or plugged in ceilings, within furred spaces, in unfinished areas, or within walls or partitions; so that they are completely behind the finished surfaces.
- 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.

#### 1.7 ALTERATIONS

- A. Survey: Before any work is started, the Contractor shall make a thorough survey with the Resident Engineer and a representative of VA Supply Service, of areas of buildings in which alterations occur and areas which are anticipated routes of access, and furnish a report, signed by both, all three, to the Contracting Officer. 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 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 Resident Engineer.
- 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 Resident Engineer, 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: Thirty days before expected partial or final inspection date, the Contractor and Resident Engineer 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. 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.

- 2 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 ICRA Group. Prior to start of work, prepare a plan detailing project-specific dust protection measures, including periodic status reports, and submit to Resident and Facility ICRA team 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.
- 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 RE and 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 Resident Engineer. 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 Resident Engineer. 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 one-hour fire-rated temporary drywall construction barriers 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 used where dust control is the only hazard, and an agreement is reached with the Resident Engineer 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. HEPA filters should have ASHRAE 85 or other prefilter to extend the useful life of the HEPA. Provide both primary and secondary filtrations units. 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 600mm x 900mm (24" x 36"), shall be used at all interior transitions from the construction area to occupied medical center area. These mats shall be changed as often as 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 Resident Engineer 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 are identified by attached tags 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 where directed by Resident Engineer.
2. Items not reserved shall become property of the Contractor and be removed by Contractor from Medical Center.
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.

(FAR 52.236-9)

**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 Resident Engineer. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the Resident Engineer 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).

#### **1.15 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 Resident Engineer's review, as often as requested.
- C. Contractor shall deliver two approved completed sets of as-built drawings to the Resident Engineer within 15 calendar days after each completed phase and after the acceptance of the project by the Resident Engineer.
- D. Paragraphs A, B, & C shall also apply to all shop drawings.

#### **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. The amount to be paid by the Contractor for chargeable electrical services shall be the prevailing rates charged to the Government. 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 all 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.
- C. Contractor shall install meters at Contractor's expense and furnish the Medical Center a monthly record of the Contractor's usage of electricity as hereinafter specified.
- 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.
- E. Electricity (for Construction and Testing): Furnish all temporary electric services.
1. Obtain electricity by connecting to the Medical Center electrical distribution system. The Contractor shall meter and pay for electricity required for electric cranes and hoisting devices, electrical welding devices and any electrical heating devices providing temporary heat. Electricity for all other 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 Resident Engineer's discretion) of use of water from Medical Center's system.

**1.27 RELOCATED EQUIPMENT ITEMS**

- A. Contractor shall disconnect, dismantle as necessary, remove and reinstall in new location, all existing equipment and items indicated by symbol "R" or otherwise shown to be relocated by the Contractor.
- B. Perform relocation of such equipment or items at such times and in such a manner as directed by the Resident Engineer.
- C. Suitably cap existing service lines, such as steam, condensate return, water, drain, gas, air, vacuum and/or electrical, whenever such lines are disconnected from equipment to be relocated. Remove abandoned lines in finished areas 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.
- E. Contractor shall employ services of an installation engineer, who is an authorized representative of the manufacturer of this equipment to supervise assembly and installation of existing equipment, required to be relocated.
- 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.

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**SECTION 01 32 16.15**  
**PROJECT SCHEDULES**  
*(SMALL PROJECTS - DESIGN/BID/BUILD)*

**PART 1- GENERAL**

**1.1 DESCRIPTION:**

- A. The Contractor shall develop a Critical Path Method (CPM) plan and schedule demonstrating fulfillment of the contract requirements (Project Schedule), and shall keep the Project Schedule up-to-date in accordance with the requirements of this section and shall utilize the plan for scheduling, coordinating and monitoring work under this contract (including all activities of subcontractors, equipment vendors and suppliers). Conventional Critical Path Method (CPM) technique shall be utilized to satisfy both time and cost applications.

**1.2 CONTRACTOR'S REPRESENTATIVE:**

- A. The Contractor shall designate an authorized representative responsible for the Project Schedule including preparation, review and progress reporting with and to the Contracting Officer's Representative (COTR).
- B. The Contractor's representative shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the requirements of this specification section.
- C. The Contractor's representative shall have the option of developing the project schedule within their organization or to engage the services of an outside consultant. If an outside scheduling consultant is utilized, Section 1.3 of this specification will apply.

**1.3 CONTRACTOR'S CONSULTANT:**

- A. The Contractor shall submit a qualification proposal to the COTR, within 10 days of bid acceptance. The qualification proposal shall include:
1. The name and address of the proposed consultant.
  2. Information to show that the proposed consultant has the qualifications to meet the requirements specified in the preceding paragraph.
  3. A representative sample of prior construction projects, which the proposed consultant has performed complete project scheduling services. These representative samples shall be of similar size and scope.
- B. The Contracting Officer has the right to approve or disapprove the proposed consultant, and will notify the Contractor of the VA decision within seven calendar days from receipt of the qualification proposal. In case of disapproval, the Contractor shall resubmit another consultant within 10 calendar days for renewed consideration. The Contractor shall

have their scheduling consultant approved prior to submitting any schedule for approval.

#### **1.4 COMPUTER PRODUCED SCHEDULES**

- A. The contractor shall provide monthly, to the Department of Veterans Affairs (VA), all computer-produced time/cost schedules and reports generated from monthly project updates. This monthly computer service will include: three copies of up to five different reports (inclusive of all pages) available within the user defined reports of the scheduling software approved by the Contracting Officer; a hard copy listing of all project schedule changes, and associated data, made at the update and an electronic file of this data; and the resulting monthly updated schedule in PDF~~FM~~ format. These must be submitted with and substantively support the contractor's monthly payment request and the signed look ahead report. The COTR shall identify the five different report formats that the contractor shall provide.
- B. The contractor shall be responsible for the correctness and timeliness of the computer-produced reports. The Contractor shall also responsible for the accurate and timely submittal of the updated project schedule and all CPM data necessary to produce the computer reports and payment request that is specified.
- C. The VA will report errors in computer-produced reports to the Contractor's representative within ten calendar days from receipt of reports. The Contractor shall reprocess the computer-produced reports and associated diskette(s), when requested by the Contracting Officer's representative, to correct errors which affect the payment and schedule for the project.

#### **1.5 THE COMPLETE PROJECT SCHEDULE SUBMITTAL**

- A. Within 45 calendar days after receipt of Notice to Proceed, the Contractor shall submit for the Contracting Officer's review; three blue line copies of the interim schedule on sheets of paper 765 x 1070 mm (30 x 42 inches) and an electronic file in the previously approved CPM schedule program. The submittal shall also include three copies of a computer-produced activity/event ID schedule showing project duration; phase completion dates; and other data, including event cost. Each activity/event on the computer-produced schedule shall contain as a minimum, but not limited to, activity/event ID, activity/event description, duration, budget amount, early start date, early finish date, late start date, late finish date and total float. Work activity/event relationships shall be restricted to finish-to-start or start-to-start without lead or lag constraints. Activity/event date constraints, not required by the contract, will not be accepted unless

submitted to and approved by the Contracting Officer. The contractor shall make a separate written detailed request to the Contracting Officer identifying these date constraints and secure the Contracting Officer's written approval before incorporating them into the network diagram. The Contracting Officer's separate approval of the Project Schedule shall not excuse the contractor of this requirement. Logic events (non-work) will be permitted where necessary to reflect proper logic among work events, but must have zero duration. The complete working schedule shall reflect the Contractor's approach to scheduling the complete project. **The final Project Schedule in its original form shall contain no contract changes or delays which may have been incurred during the final network diagram development period and shall reflect the entire contract duration as defined in the bid documents.** These changes/delays shall be entered at the first update after the final Project Schedule has been approved. The Contractor should provide their requests for time and supporting time extension analysis for contract time as a result of contract changes/delays, after this update, and in accordance with Article, ADJUSTMENT OF CONTRACT COMPLETION.

- D. Within 30 calendar days after receipt of the complete project interim Project Schedule and the complete final Project Schedule, the Contracting Officer or his representative, will do one or both of the following:
1. Notify the Contractor concerning his actions, opinions, and objections.
  2. A meeting with the Contractor at or near the job site for joint review, correction or adjustment of the proposed plan will be scheduled if required. Within 14 calendar days after the joint review, the Contractor shall revise and shall submit three blue line copies of the revised Project Schedule, three copies of the revised computer-produced activity/event ID schedule and a revised electronic file as specified by the Contracting Officer. The revised submission will be reviewed by the Contracting Officer and, if found to be as previously agreed upon, will be approved.
- E. The approved baseline schedule and the computer-produced schedule(s) generated there from shall constitute the approved baseline schedule until subsequently revised in accordance with the requirements of this section.
- F. The Complete Project Schedule shall contain approximately 20 work activities/events.

**1.6 WORK ACTIVITY/EVENT COST DATA**

- A. The Contractor shall cost load all work activities/events except procurement activities. The cumulative amount of all cost loaded work activities/events (including alternates) shall equal the total contract price. Prorate overhead, profit and general conditions on all work activities/events for the entire project length. The contractor shall generate from this information cash flow curves indicating graphically the total percentage of work activity/event dollar value scheduled to be in place on early finish, late finish. These cash flow curves will be used by the Contracting Officer to assist him in determining approval or disapproval of the cost loading. Negative work activity/event cost data will not be acceptable, except on VA issued contract changes.
- B. The Contractor shall cost load work activities/events for guarantee period services, test, balance and adjust various systems in accordance with the provisions in Article, FAR 52.232 - 5 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS) and VAAR 852.236 - 83 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS).
- C. In accordance with FAR 52.236 - 1 (PERFORMANCE OF WORK BY THE CONTRACTOR) and VAAR 852.236 - 72 (PERFORMANCE OF WORK BY THE CONTRACTOR), the Contractor shall submit, simultaneously with the cost per work activity/event of the construction schedule required by this Section, a responsibility code for all activities/events of the project for which the Contractor's forces will perform the work.
- D. The Contractor shall cost load work activities/events for all BID ITEMS including ASBESTOS ABATEMENT. The sum of each BID ITEM work shall equal the value of the bid item in the Contractors' bid.

**1.7 PROJECT SCHEDULE REQUIREMENTS**

- A. Show on the project schedule the sequence of work activities/events required for complete performance of all items of work. The Contractor Shall:
  - 1. Show activities/events as:
    - a. Contractor's time required for submittal of shop drawings, templates, fabrication, delivery and similar pre-construction work.
    - b. Contracting Officer's and Architect-Engineer's review and approval of shop drawings, equipment schedules, samples, template, or similar items.
    - c. Interruption of VA Facilities utilities, delivery of Government furnished equipment, and rough-in drawings, project phasing and any other specification requirements.

- d. Test, balance and adjust various systems and pieces of equipment, maintenance and operation manuals, instructions and preventive maintenance tasks.
  - e. VA inspection and acceptance activity/event with a minimum duration of five work days at the end of each phase and immediately preceding any VA move activity/event required by the contract phasing for that phase.
2. Show not only the activities/events for actual construction work for each trade category of the project, but also trade relationships to indicate the movement of trades from one area, floor, or building, to another area, floor, or building, for at least five trades who are performing major work under this contract.
  3. Break up the work into activities/events of a duration no longer than 20 work days each or one reporting period, except as to non-construction activities/events (i.e., procurement of materials, delivery of equipment, concrete and asphalt curing) and any other activities/events for which the COTR may approve the showing of a longer duration. The duration for VA approval of any required submittal, shop drawing, or other submittals will not be less than 20 work days.
  4. Describe work activities/events clearly, so the work is readily identifiable for assessment of completion. Activities/events labeled "start," "continue," or "completion," are not specific and will not be allowed. Lead and lag time activities will not be acceptable.
  5. The schedule shall be generally numbered in such a way to reflect either discipline, phase or location of the work.
- B. The Contractor shall submit the following supporting data in addition to the project schedule:
1. The appropriate project calendar including working days and holidays.
  2. The planned number of shifts per day.
  3. The number of hours per shift.
- Failure of the Contractor to include this data shall delay the review of the submittal until the Contracting Officer is in receipt of the missing data.
- C. To the extent that the Project Schedule or any revised Project Schedule shows anything not jointly agreed upon, it shall not be deemed to have been approved by the COTR. Failure to include any element of work required for the performance of this contract shall not excuse the Contractor from completing all work required within any applicable completion date of each phase regardless of the COTR's approval of the Project Schedule.

- D. Compact Disk Requirements and CPM Activity/Event Record Specifications:  
Submit to the VA an electronic file(s) containing one file of the data required to produce a schedule, reflecting all the activities/events of the complete project schedule being submitted.

**1.8 PAYMENT TO THE CONTRACTOR:**

- A. Monthly, the contractor shall submit the AIA application and certificate for payment documents G702 & G703 reflecting updated schedule activities and cost data in accordance with the provisions of the following Article, PAYMENT AND PROGRESS REPORTING, as the basis upon which progress payments will be made pursuant to Article, FAR 52.232 - 5 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS) and VAAR 852.236 - 83 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS). The Contractor shall be entitled to a monthly progress payment upon approval of estimates as determined from the currently approved updated project schedule. Monthly payment requests shall include: a listing of all agreed upon project schedule changes and associated data; and an electronic file (s) of the resulting monthly updated schedule.
- B. Approval of the Contractor's monthly Application for Payment shall be contingent, among other factors, on the submittal of a satisfactory monthly update of the project schedule.

**1.9 PAYMENT AND PROGRESS REPORTING**

- A. Monthly schedule update meetings will be held on dates mutually agreed to by the COTR and the Contractor. Contractor and their CPM consultant (if applicable) shall attend all monthly schedule update meetings. The Contractor shall accurately update the Project Schedule and all other data required and provide this information to the COTR three work days in advance of the schedule update meeting. Job progress will be reviewed to verify:
1. Actual start and/or finish dates for updated/completed activities/events.
  2. Remaining duration for each activity/event started, or scheduled to start, but not completed.
  3. Logic, time and cost data for change orders, and supplemental agreements that are to be incorporated into the Project Schedule.
  4. Changes in activity/event sequence and/or duration which have been made, pursuant to the provisions of following Article, ADJUSTMENT OF CONTRACT COMPLETION.
  5. Completion percentage for all completed and partially completed activities/events.
  6. Logic and duration revisions required by this section of the specifications.

7. Activity/event duration and percent complete shall be updated independently.
- B. After completion of the joint review, the contractor shall generate an updated computer-produced calendar-dated schedule and supply the Contracting Officer's representative with reports in accordance with the Article, COMPUTER PRODUCED SCHEDULES, specified.
- C. After completing the monthly schedule update, the contractor's representative or scheduling consultant shall rerun all current period contract change(s) against the prior approved monthly project schedule. The analysis shall only include original workday durations and schedule logic agreed upon by the contractor and resident engineer for the contract change(s). When there is a disagreement on logic and/or durations, the Contractor shall use the schedule logic and/or durations provided and approved by the resident engineer. After each rerun update, the resulting electronic project schedule data file shall be appropriately identified and submitted to the VA in accordance to the requirements listed in articles 1.4 and 1.7. This electronic submission is separate from the regular monthly project schedule update requirements and shall be submitted to the resident engineer within fourteen (14) calendar days of completing the regular schedule update. **Before inserting the contract changes durations, care must be taken to ensure that only the original durations will be used for the analysis, not the reported durations after progress. In addition, once the final network diagram is approved, the contractor must recreate all manual progress payment updates on this approved network diagram and associated reruns for contract changes in each of these update periods as outlined above for regular update periods. This will require detailed record keeping for each of the manual progress payment updates.**
- D. Following approval of the CPM schedule, the VA, the General Contractor, its approved CPM Consultant, RE office representatives, and all subcontractors needed, as determined by the SRE, shall meet to discuss the monthly updated schedule. The main emphasis shall be to address work activities to avoid slippage of project schedule and to identify any necessary actions required to maintain project schedule during the reporting period. The Government representatives and the Contractor should conclude the meeting with a clear understanding of those work and administrative actions necessary to maintain project schedule status during the reporting period. This schedule coordination meeting will occur after each monthly project schedule update meeting utilizing the resulting schedule reports from that schedule update. If the project is



behind schedule, discussions should include ways to prevent further slippage as well as ways to improve the project schedule status, when appropriate.

#### **1.10 RESPONSIBILITY FOR COMPLETION**

- A. If it becomes apparent from the current revised monthly progress schedule that phasing or contract completion dates will not be met, the Contractor shall execute some or all of the following remedial actions:
  - 1. Increase construction manpower in such quantities and crafts as necessary to eliminate the backlog of work.
  - 2. Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the backlog of work.
  - 3. Reschedule the work in conformance with the specification requirements.
- B. Prior to proceeding with any of the above actions, the Contractor shall notify and obtain approval from the COTR for the proposed schedule changes. If such actions are approved, the representative schedule revisions shall be incorporated by the Contractor into the Project Schedule before the next update, at no additional cost to the Government.

#### **1.11 CHANGES TO THE SCHEDULE**

- A. Within 30 calendar days after VA acceptance and approval of any updated project schedule, the Contractor shall submit a revised electronic file (s) and a list of any activity/event changes including predecessors and successors for any of the following reasons:
  - 1. Delay in completion of any activity/event or group of activities/events, which may be involved with contract changes, strikes, unusual weather, and other delays will not relieve the Contractor from the requirements specified unless the conditions are shown on the CPM as the direct cause for delaying the project beyond the acceptable limits.
  - 2. Delays in submittals, or deliveries, or work stoppage are encountered which make rescheduling of the work necessary.
  - 3. The schedule does not represent the actual prosecution and progress of the project.
  - 4. When there is, or has been, a substantial revision to the activity/event costs regardless of the cause for these revisions.
- B. CPM revisions made under this paragraph which affect the previously approved computer-produced schedules for Government furnished equipment, vacating of areas by the VA Facility, contract phase(s) and sub phase(s), utilities furnished by the Government to the Contractor, or

any other previously contracted item, shall be furnished in writing to the Contracting Officer for approval.

- C. Contracting Officer's approval for the revised project schedule and all relevant data is contingent upon compliance with all other paragraphs of this section and any other previous agreements by the Contracting Officer or the VA representative.
- D. The cost of revisions to the project schedule resulting from contract changes will be included in the proposal for changes in work as specified in FAR 52.243 - 4 (Changes) and VAAR 852.236 - 88 (Changes - Supplemental), and will be based on the complexity of the revision or contract change, man hours expended in analyzing the change, and the total cost of the change.
- E. The cost of revisions to the Project Schedule not resulting from contract changes is the responsibility of the Contractor.

#### **1.12 ADJUSTMENT OF CONTRACT COMPLETION**

- A. The contract completion time will be adjusted only for causes specified in this contract. Request for an extension of the contract completion date by the Contractor shall be supported with a justification, CPM data and supporting evidence as the COTR may deem necessary for determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof based on revised activity/event logic, durations (in work days) and costs is obligatory to any approvals. The schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved in this request. The Contracting Officer's determination as to the total number of days of contract extension will be based upon the current computer-produced calendar-dated schedule for the time period in question and all other relevant information.
- B. Actual delays in activities/events which, according to the computer-produced calendar-dated schedule, do not affect the extended and predicted contract completion dates shown by the critical path in the network, will not be the basis for a change to the contract completion date. The Contracting Officer will within a reasonable time after receipt of such justification and supporting evidence, review the facts and advise the Contractor in writing of the Contracting Officer's decision.
- C. The Contractor shall submit each request for a change in the contract completion date to the Contracting Officer in accordance with the provisions specified under FAR 52.243 - 4 (Changes) and VAAR 852.236 - 88 (Changes - Supplemental). The Contractor shall include, as a part of each change order proposal, a sketch showing all CPM logic revisions,

duration (in work days) changes, and cost changes, for work in question and its relationship to other activities on the approved network diagram.

- D. All delays due to non-work activities/events such as RFI's, WEATHER, STRIKES, and similar non-work activities/events shall be analyzed on a month by month basis.

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

~~SPEC WRITER NOTE: Delete between // // if not applicable to project. Also delete any other item or paragraph not applicable in the sections and renumber the paragraphs.~~

- 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. 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 Contracting Officer, 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.
- 1-4. Forward submittals in sufficient time to permit proper consideration and approval action by Government. Time submission to assure 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.
- 1-5. Submittals will be reviewed for compliance with contract requirements by Architect-Engineer, and action thereon will be taken by Resident Engineer on behalf of the Contracting Officer.
- 1-6. Upon receipt of submittals, Architect-Engineer will assign a file number thereto. Contractor, in any subsequent correspondence, shall refer to

this file and identification number to expedite replies relative to previously approved or disapproved submittals.

- 1-7. The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract. If additional submittals beyond those required by the contract are furnished pursuant to request therefor by Contracting Officer, adjustment in contract price and time will be made in accordance with Articles titled CHANGES (FAR 52.243-4) and CHANGES - SUPPLEMENT (VAAR 852.236-88) of the GENERAL CONDITIONS.
- 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 Architect-Engineer. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The Contracting Officer and Architect-Engineer 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 and shipped prepaid. Contracting Officer assumes no responsibility for checking quantities or exact numbers included in such submittals.
  - A. ~~Submit~~ samples required by Section 09 06 00, SCHEDULE FOR FINISHES, in quadruplicate. ~~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.
  - B. Submittals will receive consideration only when covered by a transmittal letter signed by Contractor. Letter shall be sent via first class mail ~~FAX~~ and shall contain the list of items, name of ~~Medical Center-Cemetery~~, 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. A copy of letter must be enclosed with items, and 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 //~~ ~~Cemetery //~~, 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.

~~SPEC WRITER NOTE: Omit following  
subparagraph "C" if laboratory tests are  
not required.~~

- ~~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 Contracting Officer.~~
- ~~1. Laboratory shall furnish Contracting Officer 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 Resident Engineer and to Architect Engineer simultaneously with submission of material to a commercial testing laboratory.~~
  - ~~//4. Contractor shall forward a copy of transmittal letter to Resident Engineer simultaneously with submission to a commercial testing laboratory //.~~
  - ~~5. Laboratory test reports shall be sent directly to Resident Engineer for appropriate action.~~
  - ~~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, resubmit new samples as soon as possible after notification of disapproval. 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 Resident Engineer 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. For each drawing required, submit one legible photographic paper or vellum reproducible.
  2. Reproducible shall be full size.
  3. Each drawing shall have marked thereon, proper descriptive title, including ~~//Medical Center // Cemetery //~~ location, project number, manufacturer's number, reference to contract drawing number, detail Section Number, and Specification Section Number.
  4. A space 120 mm by 125 mm (4-3/4 by 5 inches) shall be reserved on each drawing to accommodate approval or disapproval stamp.
  5. Submit drawings, ROLLED WITHIN A MAILING TUBE, fully protected for shipment.
  6. One reproducible print of approved or disapproved shop drawings will be forwarded to Contractor.
  7. When work is directly related and involves more than one trade, shop drawings shall be submitted to Architect-Engineer under one cover.
- 1-10. Samples ~~// (except laboratory samples), //~~ shop drawings, test reports, certificates and manufacturers' literature and data, shall be submitted for approval to following address, by overnight delivery and include pre-paid overnight or two-day delivery return label:
- SRD Architects Inc.-

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\_\_\_\_\_  
\_\_\_\_\_

~~(Architect Engineer)~~

\_\_\_\_\_  
\_\_\_\_\_

~~(A/E P.O. Address)~~

~~\_\_\_\_\_  
\_\_\_\_\_3920 E Coronado Street, # 201, Anaheim, CA. 92807.~~

\_\_\_\_\_  
\_\_\_\_\_

~~\_\_\_\_\_~~

~~(City, State and Zip Code)~~

- 1-11. At the time of transmittal to the Architect-Engineer, the Contractor shall also send a copy of the complete submittal directly to the Resident Engineer.

~~SPEC WRITER NOTE: Include following paragraph only if samples are to be sent to project site. If so, delete reference to samples in Paragraph 1-10.~~

- ~~1-12. Samples // (except laboratory samples) // for approval shall be sent to Architect Engineer, in care of Resident Engineer, VA Medical Center,~~

\_\_\_\_\_  
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~~(P.O. Address)~~

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~~(City, State and Zip Code)~~

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**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)  
425 Eye Street N.W, (sixth floor)  
Washington, DC 20001  
Telephone Numbers: (202) 632-5249 or (202) 632-5178  
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. <a href="http://www.aluminum.org">http://www.aluminum.org</a>
AABC	Associated Air Balance Council <a href="http://www.aabchq.com">http://www.aabchq.com</a>
AAMA	American Architectural Manufacturer's Association <a href="http://www.aamanet.org">http://www.aamanet.org</a>
AAN	American Nursery and Landscape Association <a href="http://www.anla.org">http://www.anla.org</a>
AASHTO	American Association of State Highway and Transportation Officials <a href="http://www.aashto.org">http://www.aashto.org</a>
AATCC	American Association of Textile Chemists and Colorists <a href="http://www.aatcc.org">http://www.aatcc.org</a>
ACGIH	American Conference of Governmental Industrial Hygienists <a href="http://www.acgih.org">http://www.acgih.org</a>
ACI	American Concrete Institute <a href="http://www.aci-int.net">http://www.aci-int.net</a>
ACPA	American Concrete Pipe Association <a href="http://www.concrete-pipe.org">http://www.concrete-pipe.org</a>
ACPPA	American Concrete Pressure Pipe Association <a href="http://www.acppa.org">http://www.acppa.org</a>
ADC	Air Diffusion Council <a href="http://flexibleduct.org">http://flexibleduct.org</a>
AGA	American Gas Association <a href="http://www.aga.org">http://www.aga.org</a>
AGC	Associated General Contractors of America <a href="http://www.agc.org">http://www.agc.org</a>

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 <a href="http://www.astm.org">http://www.astm.org</a>
AWI	Architectural Woodwork Institute <a href="http://www.awinet.org">http://www.awinet.org</a>
AWS	American Welding Society <a href="http://www.aws.org">http://www.aws.org</a>
AWWA	American Water Works Association <a href="http://www.awwa.org">http://www.awwa.org</a>
BHMA	Builders Hardware Manufacturers Association <a href="http://www.buildershardware.com">http://www.buildershardware.com</a>
BIA	Brick Institute of America <a href="http://www.bia.org">http://www.bia.org</a>
CAGI	Compressed Air and Gas Institute <a href="http://www.cagi.org">http://www.cagi.org</a>
CGA	Compressed Gas Association, Inc. <a href="http://www.cganet.com">http://www.cganet.com</a>
CI	The Chlorine Institute, Inc. <a href="http://www.chlorineinstitute.org">http://www.chlorineinstitute.org</a>
CISCA	Ceilings and Interior Systems Construction Association <a href="http://www.cisca.org">http://www.cisca.org</a>
CISPI	Cast Iron Soil Pipe Institute <a href="http://www.cispi.org">http://www.cispi.org</a>
CLFMI	Chain Link Fence Manufacturers Institute <a href="http://www.chainlinkinfo.org">http://www.chainlinkinfo.org</a>
CPMB	Concrete Plant Manufacturers Bureau <a href="http://www.cpmc.org">http://www.cpmc.org</a>
CRA	California Redwood Association <a href="http://www.calredwood.org">http://www.calredwood.org</a>
CRSI	Concrete Reinforcing Steel Institute <a href="http://www.crsi.org">http://www.crsi.org</a>

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 <a href="http://www.icbo.org">http://www.icbo.org</a>
ICEA	Insulated Cable Engineers Association Inc. <a href="http://www.icea.net">http://www.icea.net</a>
\ICAC	Institute of Clean Air Companies <a href="http://www.icac.com">http://www.icac.com</a>
IEEE	Institute of Electrical and Electronics Engineers <a href="http://www.ieee.org/">http://www.ieee.org/</a>
IMSA	International Municipal Signal Association <a href="http://www.imsasafety.org">http://www.imsasafety.org</a>
IPCEA	Insulated Power Cable Engineers Association
NBMA	Metal Buildings Manufacturers Association <a href="http://www.mbma.com">http://www.mbma.com</a>
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry Inc. <a href="http://www.mss-hq.com">http://www.mss-hq.com</a>
NAAMM	National Association of Architectural Metal Manufacturers <a href="http://www.naamm.org">http://www.naamm.org</a>
NAPHCC	Plumbing-Heating-Cooling Contractors Association <a href="http://www.phccweb.org.org">http://www.phccweb.org.org</a>
NBS	National Bureau of Standards See - NIST
NBBPVI	National Board of Boiler and Pressure Vessel Inspectors <a href="http://www.nationboard.org">http://www.nationboard.org</a>
NEC	National Electric Code See - NFPA National Fire Protection Association
NEMA	National Electrical Manufacturers Association <a href="http://www.nema.org">http://www.nema.org</a>
NFPA	National Fire Protection Association <a href="http://www.nfpa.org">http://www.nfpa.org</a>

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>

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**SECTION 01 57 19**  
**TEMPORARY ENVIRONMENTAL CONTROLS**

~~SPEC WRITER NOTE: Refer to and edit this Section per the environmental protection actions required and identified in the specific project mitigation memorandum on file with the Project Director. Delete or add information between // // and any other items applicable to project. Renumber the paragraphs as applicable.~~

**PART 1 - GENERAL****1.1 DESCRIPTION**

- A. This section specifies the control of environmental pollution and damage that the Contractor must consider for air, water, and land resources. It includes management of visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants and resources encountered or generated by the Contractor. The Contractor is obligated to consider specified control measures with the costs included within the various contract items of work.
- B. Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which:
  - 1. Adversely effect human health or welfare,
  - 2. Unfavorably alter ecological balances of importance to human life,
  - 3. Effect other species of importance to humankind, or;
  - 4. Degrade the utility of the environment for aesthetic, cultural, and historical purposes.
- C. Definitions of Pollutants:
  - 1. Chemical Waste: Petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals, and inorganic wastes.
  - 2. Debris: Combustible and noncombustible wastes, such as leaves, tree trimmings, ashes, and waste materials resulting from construction or maintenance and repair work.
  - 3. Sediment: Soil and other debris that has been eroded and transported by runoff water.
  - 4. Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from industrial, commercial, and agricultural operations and from community activities.
  - 5. Surface Discharge: The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or "water of the

United States" and would require a permit to discharge water from the governing agency.

6. Rubbish: Combustible and noncombustible wastes such as paper, boxes, glass and crockery, metal and lumber scrap, tin cans, and bones.
7. Sanitary Wastes:
  - a. Sewage: Domestic sanitary sewage and human and animal waste.
  - b. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

#### 1.2 QUALITY CONTROL

- A. Establish and maintain quality control for the environmental protection of all items set forth herein.
- B. Record on daily reports any problems in complying with laws, regulations, and ordinances. Note any corrective action taken.

#### 1.3 REFERENCES

- 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. U.S. National Archives and Records Administration (NARA):  
33 CFR 328.....Definitions

#### 1.4 SUBMITTALS

- A. In accordance with Section, 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:
  1. Environmental Protection Plan: After the contract is awarded and prior to the commencement of the work, the Contractor shall meet with the Resident Engineer to discuss the proposed Environmental Protection Plan and to develop mutual understanding relative to details of environmental protection. Not more than 20 days after the meeting, the Contractor shall prepare and submit to the Resident Engineer ~~and~~ and the Contracting Officer ~~for~~ for approval, a written and/or graphic Environmental Protection Plan including, but not limited to, the following:
    - a. Name(s) of person(s) within the Contractor's organization who is (are) responsible for ensuring adherence to the Environmental Protection Plan.
    - b. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site.
    - c. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.
    - d. Description of the Contractor's environmental protection personnel training program.

- e. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, noise control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.
  - f. Methods for protection of features to be preserved within authorized work areas including trees, shrubs, vines, grasses, ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, and archeological and cultural resources.
  - g. Procedures to provide the environmental protection that comply with the applicable laws and regulations. Describe the procedures to correct pollution of the environment due to accident, natural causes, or failure to follow the procedures as described in the Environmental Protection Plan.
  - h. Permits, licenses, and the location of the solid waste disposal area.
  - i. ~~Drawings showing locations of any proposed temporary excavations or embankments for haul roads, // stream crossings, // material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials. Include as part of an Erosion Control Plan approved by the District Office of the U.S. Soil Conservation Service and the Department of Veterans Affairs.~~
  - ~~j.~~ Environmental Monitoring Plans for the job site including land, water, air, and noise.
  - \*j. Work Area Plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas. This plan may be incorporated within the Erosion Control Plan.
- B. Approval of the Contractor's Environmental Protection Plan will not relieve the Contractor of responsibility for adequate and continued control of pollutants and other environmental protection measures.

#### 1.5 PROTECTION OF ENVIRONMENTAL RESOURCES

- A. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract. Confine activities to areas defined by the specifications and drawings.
- B. Protection of Land Resources: Prior to construction, identify all land resources to be preserved within the work area. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without permission from the

Resident Engineer. Do not fasten or attach ropes, cables, or guys to trees for anchorage unless specifically authorized, or where special emergency use is permitted.

1. Work Area Limits: Prior to any construction, mark the areas that require work to be performed under this contract. Mark or fence isolated areas within the general work area that are to be saved and protected. Protect monuments, works of art, and markers before construction operations begin. Convey to all personnel the purpose of marking and protecting all necessary objects.

~~2. Protection of Landscape: Protect trees, shrubs, vines, grasses, land forms, and other landscape features shown on the drawings to be preserved by marking, fencing, or using any other approved techniques.~~

~~a. Box and protect from damage existing trees and shrubs to remain on the construction site.~~

~~b. Immediately repair all damage to existing trees and shrubs by trimming, cleaning, and painting with antiseptic tree paint.~~

~~c. Do not store building materials or perform construction activities closer to existing trees or shrubs than the farthest extension of their limbs.~~

~~3. Reduction of Exposure of Unprotected Erodible Soils: Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Clear areas in reasonably sized increments only as needed to use. Form earthwork to final grade as shown. Immediately protect side slopes and back slopes upon completion of rough grading.~~

~~4. Temporary Protection of Disturbed Areas: Construct diversion ditches, benches, and berms to retard and divert runoff from the construction site to protected drainage areas approved under paragraph 208 of the Clean Water Act.~~

~~SPEC WRITER NOTE: The design year storm is determined by the downstream environment to be protected. Implement appropriate protection based on the estimate of damage to the downstream environment versus the design year storm that will cause damage. If permanent sediment basins are necessary for the particular project, include these permanent facilities in the project design and the contract documents. If permanent basins are not required, delete reference thereto.~~

~~a. Sediment Basins: Trap sediment from construction areas in temporary or permanent sediment basins that accommodate the runoff of a local //\_\_\_\_// (design year) storm. After each storm, pump~~

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~~the basins dry and remove the accumulated sediment. Control overflow/drainage with paved weirs or by vertical overflow pipes, draining from the surface.~~

~~b. Reuse or conserve the collected topsoil sediment as directed by the Resident Engineer. Topsoil use and requirements are specified in Section 31 20 00, EARTH MOVING.~~

~~c. Institute effluent quality monitoring programs as required by Federal, State, and local environmental agencies.~~

~~5. Erosion and Sedimentation Control Devices: The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality standards are not violated as a result of the Contractor's activities. Construct or install all temporary and permanent erosion and sedimentation control features // shown. // on the Environmental Protection Plan. // Maintain temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, grassing, and mulching, until permanent drainage and erosion control facilities are completed and operative.~~

~~6. Manage borrow areas on // and off // Government property to minimize erosion and to prevent sediment from entering nearby water courses or lakes.~~

~~7. Manage and control spoil areas on // and off // Government property to limit spoil to areas // shown // on the Environmental Protection Plan // and prevent erosion of soil or sediment from entering nearby water courses or lakes.~~

~~8. Protect adjacent areas from despoilment by temporary excavations and embankments.~~

~~9.2.~~ Handle and dispose of solid wastes in such a manner that will prevent contamination of the environment. Place solid wastes (excluding clearing debris) in containers that are emptied on a regular schedule. Transport all solid waste off Government property and dispose of waste in compliance with Federal, State, and local requirements.

~~103.-~~ Store chemical waste away from the work areas in corrosion resistant containers and dispose of waste in accordance with Federal, State, and local regulations.

~~114.-~~ Handle discarded materials other than those included in the solid waste category as directed by the Resident Engineer.

C. Protection of Water Resources: Keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters and sewer systems. Implement management techniques to

control water pollution by the listed construction activities that are included in this contract.

1. Washing and Curing Water: Do not allow wastewater directly derived from construction activities to enter water areas. Collect and place wastewater in retention ponds allowing the suspended material to settle, the pollutants to separate, or the water to evaporate.
2. Control movement of materials and equipment at stream crossings during construction to prevent violation of water pollution control standards of the Federal, State, or local government.

~~SPEC WRITER NOTE: Specify additional operations unique to this contract.~~

3. Monitor water areas affected by construction.

D. ~~Protection of Fish and Wildlife Resources: Keep construction activities under surveillance, management, and control to minimize interference with, disturbance of, or damage to fish and wildlife. Prior to beginning construction operations, list species that require specific attention along with measures for their protection.~~

~~E.~~ Protection of Air Resources: Keep construction activities under surveillance, management, and control to minimize pollution of air resources. Burning is not permitted on the job site. Keep activities, equipment, processes, and work operated or performed, in strict accordance with the State of California SCAQMD ~~// insert Name of State and title of State Air Pollution Statute, Rule, or Regulation //~~ and Federal emission and performance laws and standards. Maintain ambient air quality standards set by the Environmental Protection Agency, for those construction operations and activities specified.

1. Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities, processing, and preparation of materials (such as from asphaltic batch plants) at all times, including weekends, holidays, and hours when work is not in progress.
2. ~~Particulates Control: Maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and all other work areas within or outside the project boundaries free from particulates which would cause a hazard or a nuisance. Sprinklering, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators, or other methods are permitted to control particulates in the work area.~~
3. Hydrocarbons and Carbon Monoxide: Control monoxide emissions from equipment to Federal and State allowable limits.



4. Odors: Control odors of construction activities and prevent obnoxious odors from occurring.

~~F.E.~~ 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 Resident Engineer. 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 8:00 ~~++~~ a.m. and 6:00 ~~++~~ p.m unless otherwise permitted by local ordinance or the Resident Engineer. Repetitive impact noise on the property shall not exceed the following dB limitations:

Time Duration of Impact Noise	Sound Level in dB
More than 12 minutes in any hour	70
Less than 30 seconds of any hour	85
Less than three minutes of any hour	80
Less than 12 minutes of any hour	75

~~SPEC WRITER NOTE: Insert additional information as needed when unique to a particular VA Medical Center site.~~

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):

EARTHMOVING		MATERIALS HANDLING	
FRONT LOADERS	75	CONCRETE MIXERS	75
BACKHOES	75	CONCRETE PUMPS	75
DOZERS	75	CRANES	75
TRACTORS	75	DERRICKS IMPACT	75
SCAPERS	80	PILE DRIVERS	95
GRADERS	75	JACK HAMMERS	75
TRUCKS	75	ROCK DRILLS	80
PAVERS, STATIONARY	80	PNEUMATIC TOOLS	80
PUMPS	75	BLASTING	<del>++</del> <u>75</u>
GENERATORS	75	SAWS	75
COMPRESSORS	75	VIBRATORS	75

- 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~~ dB(A) noise level. Measure noise exposure at the property line or 15 m (50 feet) from the noise source, whichever is greater. 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.
- FG. Restoration of Damaged Property: If any direct or indirect damage is done to public or private property resulting from any act, omission, neglect, or misconduct, the Contractor shall restore the damaged property to a condition equal to that existing before the damage at no additional cost to the Government. Repair, rebuild, or restore property as directed or make good such damage in an acceptable manner.
- GH. Final Clean-up: On completion of project and after removal of all debris, rubbish, and temporary construction, Contractor shall leave the construction area in a clean condition satisfactory to the Resident Engineer. Cleaning shall include off the station disposal of all items and materials not required to be salvaged, as well as all debris and rubbish resulting from demolition and new work operations.

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REPLACE EPOXY FLOORING IN BUILDING 20

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01-11

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REPLACE EPOXY FLOORING IN BUILDING 20

PROJECT # 691A4-13-116SM  
06-01-12

**MODIFICATION**

~~06-01-12 CONTENT REVISED IN REFERENCE TO REQUIREMENT FOR RECYCLING OF  
CONSTRUCTION AND DEMOLITION WASTE.~~

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**SECTION 01 74 19**  
**CONSTRUCTION WASTE MANAGEMENT**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies the requirements for the management of non-hazardous building construction and demolition waste.
- B. Waste disposal in landfills shall be minimized to the greatest extent possible. Of the inevitable waste that is generated, as much of the waste material as economically feasible shall be salvaged, recycled or reused.
- C. Contractor shall use all reasonable means to divert construction and demolition waste from landfills and incinerators, and facilitate their salvage and recycle not limited to the following:
  - 1. Waste Management Plan development and implementation.
  - 2. Techniques to minimize waste generation.
  - 3. Sorting and separating of waste materials.
  - 4. Salvage of existing materials and items for reuse or resale.
  - 5. Recycling of materials that cannot be reused or sold.
- D. At a minimum the following waste categories shall be diverted from landfills:
  - 1. Soil.
  - 2. Inerts (eg, concrete, masonry and asphalt).
  - 3. Clean dimensional wood and palette wood.
  - 4. Green waste (biodegradable landscaping materials).
  - 5. Engineered wood products (plywood, particle board and I-joists, etc).
  - 6. Metal products (eg, steel, wire, beverage containers, copper, etc).
  - 7. Cardboard, paper and packaging.
  - 8. Bitumen roofing materials.
  - 9. Plastics (eg, ABS, PVC).
  - 10. Carpet and/or pad.
  - 11. Gypsum board.
  - 12. Insulation.
  - 13. Paint.
  - 14. Fluorescent lamps.

**1.2 RELATED WORK**

- A. Section 02 41 00, DEMOLITION.
- B. Section 01 00 00, GENERAL REQUIREMENTS.
- ~~C. Lead Paint: Section 02 83 33.13, LEAD-BASED PAINT REMOVAL AND DISPOSAL.~~

**1.3 QUALITY ASSURANCE**

- A. Contractor shall practice efficient waste management when sizing, cutting and installing building products. Processes shall be employed to ensure the generation of as little waste as possible. Construction /Demolition waste includes products of the following:
1. Excess or unusable construction materials.
  2. Packaging used for construction products.
  3. Poor planning and/or layout.
  4. Construction error.
  5. Over ordering.
  6. Weather damage.
  7. Contamination.
  8. Mishandling.
  9. Breakage.
- B. Establish and maintain the management of non-hazardous building construction and demolition waste set forth herein. Conduct a site assessment to estimate the types of materials that will be generated by demolition and construction.
- C. Contractor shall develop and implement procedures to recycle construction and demolition waste to a minimum of 50 percent.
- D. Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling. Any revenues or savings obtained from salvage or recycling shall accrue to the contractor.
- E. Contractor shall provide all demolition, removal and legal disposal of materials. Contractor shall ensure that facilities used for recycling, reuse and disposal shall be permitted for the intended use to the extent required by local, state, federal regulations. The Whole Building Design Guide website <http://www.cwm.wbdg.org> provides a Construction Waste Management Database that contains information on companies that haul, collect, and process recyclable debris from construction projects.
- F. Contractor shall assign a specific area to facilitate separation of materials for reuse, salvage, recycling, and return. Such areas are to be kept neat and clean and clearly marked in order to avoid contamination or mixing of materials.
- G. Contractor shall provide on-site instructions and supervision of separation, handling, salvaging, recycling, reuse and return methods to be used by all parties during waste generating stages.

- H. Record on daily reports any problems in complying with laws, regulations and ordinances with corrective action taken.

#### 1.4 TERMINOLOGY

- A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial and industrial waste resulting from construction, remodeling, repair and demolition operations.
- B. Clean: Untreated and unpainted; uncontaminated with adhesives, oils, solvents, mastics and like products.
- C. Construction and Demolition Waste: Includes all non-hazardous resources resulting from construction, remodeling, alterations, repair and demolition operations.
- D. Dismantle: The process of parting out a building in such a way as to preserve the usefulness of its materials and components.
- E. Disposal: Acceptance of solid wastes at a legally operating facility for the purpose of land filling (includes Class III landfills and inert fills).
- F. Inert Backfill Site: A location, other than inert fill or other disposal facility, to which inert materials are taken for the purpose of filling an excavation, shoring or other soil engineering operation.
- G. Inert Fill: A facility that can legally accept inert waste, such as asphalt and concrete exclusively for the purpose of disposal.
- H. Inert Solids/Inert Waste: Non-liquid solid resources including, but not limited to, soil and concrete that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional water board, and does not contain significant quantities of decomposable solid resources.
- I. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
- J. Mixed Debris Recycling Facility: A solid resource processing facility that accepts loads of mixed construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing non-recyclable materials.
- K. Permitted Waste Hauler: A company that holds a valid permit to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal.
- L. Recycling: The process of sorting, cleansing, treating, and reconstituting materials for the purpose of using the altered form in the

manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.

1. On-site Recycling - Materials that are sorted and processed on site for use in an altered state in the work, i.e. concrete crushed for use as a sub-base in paving.

2. Off-site Recycling - Materials hauled to a location and used in an altered form in the manufacture of new products.

M. Recycling Facility: An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of new products. Depending on the types of materials accepted and operating procedures, a recycling facility may or may not be required to have a solid waste facilities permit or be regulated by the local enforcement agency.

N. Reuse: Materials that are recovered for use in the same form, on-site or off-site.

O. Return: To give back reusable items or unused products to vendors for credit.

P. Salvage: To remove waste materials from the site for resale or re-use by a third party.

Q. Source-Separated Materials: Materials that are sorted by type at the site for the purpose of reuse and recycling.

R. Solid Waste: Materials that have been designated as non-recyclable and are discarded for the purposes of disposal.

S. Transfer Station: A facility that can legally accept solid waste for the purpose of temporarily storing the materials for re-loading onto other trucks and transporting them to a landfill for disposal, or recovering some materials for re-use or recycling.

#### 1.5 SUBMITTALS

A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES, furnish the following:

B. Prepare and submit to the Resident Engineer a written demolition debris management plan. The plan shall include, but not be limited to, the following information:

1. Procedures to be used for debris management.

2. Techniques to be used to minimize waste generation.

3. Analysis of the estimated job site waste to be generated:

a. List of each material and quantity to be salvaged, reused, recycled.



- b. List of each material and quantity proposed to be taken to a landfill.
- 4. Detailed description of the Means/Methods to be used for material handling.
  - a. On site: Material separation, storage, protection where applicable.
  - b. Off site: Transportation means and destination. Include list of materials.
    - 1) Description of materials to be site-separated and self-hauled to designated facilities.
    - 2) Description of mixed materials to be collected by designated waste haulers and removed from the site.
  - c. The names and locations of mixed debris reuse and recycling facilities or sites.
  - d. The names and locations of trash disposal landfill facilities or sites.
  - e. Documentation that the facilities or sites are approved to receive the materials.
- C. Designated Manager responsible for instructing personnel, supervising, documenting and administer over meetings relevant to the Waste Management Plan.
- D. Monthly summary of construction and demolition debris diversion and disposal, quantifying all materials generated at the work site and disposed of or diverted from disposal through recycling.

#### **1.6 APPLICABLE PUBLICATIONS**

- A Publications listed below form a part of this specification to the extent referenced. Publications are referenced by the basic designation only. In the event that criteria requirements conflict, the most stringent requirements shall be met.
- B. U.S. Green Building Council (USGBC):  
LEED Green Building Rating System for New Construction

#### **1.7 RECORDS**

Maintain records to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. Records shall be kept in accordance with the LEED Reference Guide and LEED Template.

### **PART 2 - PRODUCTS**

#### **2.1 MATERIALS**

- A. List of each material and quantity to be salvaged, recycled, reused.

- B. List of each material and quantity proposed to be taken to a landfill.
- C. Material tracking data: Receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, invoices, net total costs or savings.

**PART 3 - EXECUTION**

**3.1 COLLECTION**

- A. Provide all necessary containers, bins and storage areas to facilitate effective waste management.
- B. Clearly identify containers, bins and storage areas so that recyclable materials are separated from trash and can be transported to respective recycling facility for processing.
- C. Hazardous wastes shall be separated, stored, disposed of according to local, state, federal regulations.

**3.2 DISPOSAL**

- A. Contractor shall be responsible for transporting and disposing of materials that cannot be delivered to a source-separated or mixed materials recycling facility to a transfer station or disposal facility that can accept the materials in accordance with state and federal regulations.
- B. Construction or demolition materials with no practical reuse or that cannot be salvaged or recycled shall be disposed of at a landfill or incinerator.

**3.3 REPORT**

- A. With each application for progress payment, submit a summary of construction and demolition debris diversion and disposal including beginning and ending dates of period covered.
- B. Quantify all materials diverted from landfill disposal through salvage or recycling during the period with the receiving parties, dates removed, transportation costs, weight tickets, manifests, invoices. Include the net total costs or savings for each salvaged or recycled material.
- C. Quantify all materials disposed of during the period with the receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, ~~invoices~~ and invoices. Include the net total costs for each disposal.

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**SECTION 02 41 00  
DEMOLITION**~~SPEC WRITER NOTES:~~

- ~~1. Delete between // ----- // if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.~~
- ~~2. Use this Section for projects involving total or large scale demolition. Omit this Section on projects involving minor demolition.~~
- ~~3. Buildings, structures, utilities, etc., required to be removed must be clearly shown.~~
- ~~4. Debris or trash dumps should be shown to the fullest extent. If quantities of materials to be removed cannot be accurately estimated, do not include estimates of quantities. If site clearing is included in project, removal of debris from onsite trash dumps should be included in that specification section, then removal of materials from onsite trash dumps should be included in this specification section.~~
- ~~5. Modify the following paragraphs to reflect specific conditions for the project.~~

**PART 1 - GENERAL****1.1 DESCRIPTION:**

This section specifies demolition and removal of buildings, portions of buildings, utilities, other structures and debris from trash dumps shown.

**1.2 RELATED WORK:**

~~A. Demolition and removal of roads, walks, curbs, and on-grade slabs outside buildings to be demolished: // Section 31 20 00, EARTH MOVING // Section 31 20 11, EARTH MOVING (SHORT FORM) //.~~

~~AB. -----~~ Safety Requirements: GENERAL CONDITIONS Article, ACCIDENT PREVENTION.

~~C. Disconnecting utility services prior to demolition: Section 01 00 00, GENERAL REQUIREMENTS.~~

~~B.D.~~ Reserved items that are to remain the property of the Government: Section 01 00 00, GENERAL REQUIREMENTS.

~~E. Asbestos Removal: Section 02 82 11, TRADITIONAL ASBESTOS ABATEMENT.~~

~~F. Lead Paint: Section 02 83 33.13, LEAD BASED PAINT REMOVAL AND DISPOSAL.~~

~~CG.~~ Environmental Protection: Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.

~~D. H.~~ Construction Waste Management: Section 017419 CONSTRUCTION WASTE MANAGEMENT.

~~HI.~~ Infectious Control: Section 01 00 00, GENERAL REQUIREMENTS, Article 1.7, INFECTION PREVENTION MEASURES.

### 1.3 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. Provide enclosed dust chutes with control gates from each floor to carry debris to truck beds and govern flow of material into truck. Provide overhead bridges of tight board or prefabricated metal construction at dust chutes to protect persons and property from falling debris.~~

~~CE.~~ 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.

~~SPEC WRITER NOTE: Unless the building is to be demolished story by story paragraph F2 should not be used.~~

~~DF.~~ 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.~~

~~31.~~ 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.

~~2.4.~~ Keep hydrants clear and accessible at all times. Prohibit debris from accumulating within a radius of 4500 mm (15 feet) of fire hydrants.

~~EG.~~ Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The 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 // Cemetery Property //~~; any damaged items shall be repaired or replaced as approved by the Resident Engineer. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The 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 Resident Engineer's approval.

~~FH.~~ The work shall comply with the requirements of Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS.

~~GI.~~ The work shall comply with the requirements of Section 01 00 00, GENERAL REQUIREMENTS, Article 1.7 INFECTION PREVENTION MEASURES.

#### ~~1.4 UTILITY SERVICES:~~

~~A. Demolish and remove outside utility service lines shown to be removed.~~

~~B. Remove abandoned outside utility lines that would interfere with installation of new utility lines and new construction.~~

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 - EXECUTION

##### 3.1 DEMOLITION:

~~A. Completely demolish and remove buildings and structures, including all appurtenances related or connected thereto, as noted below:~~

~~1. As required for installation of new utility service lines.~~

~~2. To full depth within an area defined by hypothetical lines located 1500 mm (5 feet) outside building lines of new structures.~~

~~B. 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 // Cemetery Property // to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Resident Engineer. Break~~

~~up concrete slabs below grade that do not require removal from present location into pieces not exceeding 600 mm (24 inches) square to permit drainage. Contractor shall dispose debris in compliance with applicable federal, state or local permits, rules and/or regulations.~~

~~C. In removing buildings and structures of more than two stories, demolish work story by story starting at highest level and progressing down to third floor level. Demolition of first and second stories may proceed simultaneously.~~

~~A. D.~~ 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 (5feet) 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.

~~E. 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 Resident Engineer. When Utility lines are encountered that are not indicated on the drawings, the Resident Engineer 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 Resident Engineer.

Clean-up shall include off the ~~//~~ Medical Center ~~// Cemetery 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.

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**SECTION 03 54 16**  
**ENGINEERED CEMENT**

**PART 1 - GENERAL****1.1 DESCRIPTION**

This Section includes a cement-based self-leveling underlayment formulated with a special blend of polymers used to level and smooth interior concrete substrates, and non-soluble adhesive residue on concrete prior to the installation of finished flooring on all grade levels.

**1.2 RELATED WORK**

**NOT USED**

**1.3 REFERENCES**

- A. ASTM C 109M, Compressive Strength Air-Cure Only
- B. ASTM C348, Flexural Strength of Hydraulic-Cement Mortars
- C. ASTM E84, Surface Burning Characteristics of Building Materials
- D. ASTM F2170, Relative Humidity in Concrete Floor Slabs Using in situ Probes
- E. ASTM F1869, Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- F. ASTM 710 -Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

**1.4 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Include manufacturer's Material Safety Data Sheets.
- C. Qualification Data: For Installer

**1.5 QUALITY ASSURANCE**

- A. Installation of the specified product must be completed by a factory-trained applicator, using mixing equipment and tools approved by the manufacturer.
- B. Product must have hydraulic cement-based inorganic binder content as the primary binder which includes Portland cement per ASTM C150: Standard Specification for Portland cement and other specialty hydraulic cements. Gypsum-based products are not acceptable.
- C. Manufacturer Experience: Provide products of this section by companies which have successfully specialized in production of this type of work for not less than 10 years. Contact Manufacturer Representative prior to installation.

**1.6 WARRANTY**

The product shall provide a minimum 10-year comprehensive warranty.



**1.7 DELIVERY, STORAGE AND HANDLING**

- A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area with temperature maintained between 50° and 85° F (10° and 29° C) and Protect from direct sunlight.
- C. Handle products in accordance with manufacturer's printed recommendations.

**1.8 PROJECT CONDITIONS**

Do not install material below 50° F (10° C) surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this section. Install quickly if substrate is warm and follow warm weather instructions available from the ARDEX Technical Service Department.

**PART 2 - PRODUCTS****2.1 ENGINEERED CEMENT**

- A. Provide specified product (basis of design) or approved equal:
  - a. ARDEX K 15<sup>®</sup>; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA, (724) 203-5000, [www.ardex.com](http://www.ardex.com)
    - i. Primer Standard Porous Concrete: ARDEX P 51™ Primer
    - ii. Primer Non-porous substrates, ceramic & quarry tile, non-water soluble adhesive residue, concrete treated with silicate compounds, metal, and wooden subfloors: ARDEX P 82™ Ultra Prime
    - iii. Additive: ARDEX E 25™ Resilient Emulsion
- B. Performance and Physical Properties: Meet or exceed the following values for material cured at 73° F+/-3°F (23° C+/-3°C) and 50% +/-5% relative humidity:
  - a. Application: Barrel Mix or Pump
  - b. Flow Time: 10 minutes
  - c. Initial Set: Approx. 30 minutes
  - d. Final Set: Approx. 90 minutes
  - e. Compressive Strength: 4100 psi at 28 days, ASTM C109M.
  - f. Flexural Strength: 1000 psi at 28 days, ASTM C78.
  - g. VOC: 0 g/l, calculated SCAQMD 1168

**2.2 WATER**

- A. Water shall be clean, potable, and sufficiently cool (not warmer than 70°F).

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Concrete Subfloors: Prepare substrate in accordance with manufacturer's instructions.
  - 1. Prior to proceeding please refer to ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. All concrete subfloors must be sound, solid, clean, and free of all oil, grease, dirt, curing compounds and any substance that might act as a bond breaker before priming. Mechanically clean if

necessary using shot blasting or other. Acid etching and the use of sweeping compounds and solvents are not acceptable.

2. All cracks in the subfloor shall be repaired to minimize telegraphing through the underlayment.
  3. Substrates shall be inspected in accordance with ASTM F1869 or ASTM F2170 and corrected for moisture or any other conditions that could affect the performance of the underlayment or the finished floor covering. For areas where moisture vapor emissions exceed the limits required by the floor covering manufacturer refer to Section 07 26 19, Topical Moisture Vapor Mitigation Systems and install the appropriate ARDEX Moisture Control System.
- B. Joint Preparation:
1. Moving Joints - honor all expansion and isolation joints up through the underlayment. A flexible sealing compound such as ARDEX ARDISEAL™ Rapid Plus may be installed.
  2. Saw Cuts and Control Joints - fill all non-moving joints with ARDEX ARDIFIX™ Joint Filler or ARDEX SD-F™ FEATHER FINISH® as recommended by the manufacturer.
- C. Wooden subfloors: must be clean and free of all foreign matter. Sand to bare wood then vacuum to remove all dust. Re-nail any loose boards exhibiting movement.
- D. Metal subfloors must be clean and free of all rust and foreign matter. Where required, a corrosive resistant coating should be applied and allowed to dry before priming.
- E. Cutback and other non-water soluble adhesive residues must be wet scraped to a thin, well-bonded layer.
- F. Non-porous subfloors such as ceramic and quarry tile as well as terrazzo should be clean and free of all waxes and sealers. If necessary, clean by mechanical methods such as shot blasting or other.

### 3.2 APPLICATION OF ARDEX K 15®:

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.
- C. Priming:
  1. Primer for standard absorbent concrete subfloors: Mix ARDEX P-51 1:1 with water and apply evenly with a soft push broom. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry to a clear, thin film (min. 3 hours, max. 24 hours). Underlayment shall not be applied until the primer is dry. Primer coverage is approximately 400 to 600 sq. ft. per gallon.
  2. Primer for extremely absorbent concrete subfloors: Make an initial application of ARDEX P-51 mixed with 3 parts water using a soft push broom. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry thoroughly before proceeding with the standard application of primer as described above for standard absorbent concrete.
  3. Primer for non-porous subfloors, wooden or metal subfloors, or cutback and other non-water soluble adhesive residues over

concrete: Prime with ARDEX P-82 Ultra Prime. Mix Part A (red) with Part B (white) and apply with a short-nap or sponge paint roller, leaving a thin coat of primer no heavier than a thin coat of paint. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry to a clear, slightly tack film (minimum 3 hours, maximum 24 hours). Underlayment shall not be installed until primer is dry. Primer coverage is approximately 200 to 400 square feet per gallon.

4. Minimum drying time for ARDEX P-82 Ultra-Prime over cutback adhesive is 18 hours.

D. Mixing: Comply with manufacturer's printed instructions and the following.

1. Add 7 quarts (6.5 L) of clean potable water per two 55-pound bag.
2. Mix using a  $\frac{1}{2}$ " (650 rpm) low speed heavy-duty mixing drill with an ARDEX T-1 mixing paddle. Do not overwater.
3. Aggregate mix: For areas to be installed over 1  $\frac{1}{2}$ " thick, aggregate may be added to reduce material costs. Mix ARDEX K 15® with water first, then add from 1/3 up to 1 part by volume of washed, well graded pea gravel aggregate (1/8" to 1/4" or larger). Do not use sand. Note: The addition of aggregate will diminish the workability of the make it necessary to install a finish coat to obtain a smooth surface. Ardex recommends a  $\frac{1}{4}$ " application of ARDEX K 15® neat to be installed as the finish coat.
4. For pump installations, ARDEX K 15® shall be mixed using the ARDEX Levelcraft Automatic Mixing Pump. Start the pump at 210 gallons of water per hour, and then adjust to the minimum water reading that still allows self-leveling properties. Do not overwater. Check the consistency of the product on the floor to ensure a uniform distribution of the sand aggregate at both the top surface and bottom of the pour.

E. Application: Comply with manufacturer's printed instructions and the following.

1. ARDEX K 15® must be installed at a minimum thickness of 1/8" over the highest point in the floor, which typically results in an average thickness of  $\frac{1}{4}$ " over the entire floor. ARDEX K 15® can be installed up to 1  $\frac{1}{2}$ " over large areas neat, and up to 5" with the addition of proper aggregate. ARDEX K 15® can also be featheredged to match existing elevations.
2. Pour or pump the liquid ARDEX K 15® and spread in place with the ARDEX T-4 Spreader. Use the ARDEX T-5 Smoother and featheredge and touch-up. Wear nonmetallic cleats to avoid leaving marks in the liquid ARDEX K 15®.
3. Wood subfloors require the use of the mesh-reinforced ARDEX K15® + E25™ Resilient Emulsion Underlayment System. After priming, install 3.4 galvanized diamond metal lath by stapling to the wooden subfloor approximately every 6 inches to center.
4. Metal subfloors require the use ARDEX K15® + E25™ Resilient Emulsion Underlayment System.
5. Steel subfloors require that the substrate first be primed with an anti-corrosive paint. After thorough drying of the paint, prime the surface with ARDEX P82™ Ultra Prime.

**F. Curing**

1. ARDEX K15® can be walked on in 2-3 hours. Moisture-insensitive tiles such as ceramic quarry and porcelain can be installed after 6 hours. Underlayment can accept all other finish floor covering materials after 16 hours at 70°F and 50% relative humidity. For resinous systems such as epoxy and polyurethane floors please contact the ARDEX Technical Services Department.

**3.4 FIELD QUALITY CONTROL**

Where specified, field sampling of the Ardex underlayment is to be done by taking an entire unopened bag of the product being installed to an independent testing facility to perform compressive strength testing in accordance with ASTM C 109/modified: air-cure only. There are no in situ test procedures for the evaluation of compressive strength.

**3.5 PROTECTION**

Prior to the installation of the finish flooring, the surface of the underlayment should be protected from abuse by other trades by the use of plywood, Masonite or other suitable protection course.

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REPLACE EPOXY FLOORING IN BUILDING 20

PROJECT # 691A4-13-116SM  
10-11

SECTION 09 06 00  
SCHEDULE FOR FINISHES

SECTION 09 06 00-SCHEDULE FOR FINISHES

VAMC:AMBULATORY CARE CENTER

Location:16111 PLUMMER STREET, SEPULVEDA, CA 91343

Project no. and Name:#694A-13-116SM "REPLACE EPOXY FLOORING IN BUILDING 20"

Submission: 100% CONSTRUCTION DOCUMENT

Date: May 15, 2013→

~~INSTRUCTIONS FOR PREPARATON OF  
SECTION 09 06 00 SCHEDULE FOR FINISHES~~

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~~GENERAL:~~

~~Use, SECTION 09 06 00, SCHEDULE FOR FINISHES as a master format for construction projects, to identify interior and exterior material finishes for type, texture, patterns, color and placement. Fully coordinate with other VA master construction specification sections for information, abbreviations and symbols contained in this Section to be consistent and fully coordinated with those in drawings, finish schedules and material boards.~~

~~Provide dimensions in metric followed by English equivalent in parenthesis, when applicable.~~

~~Slash symbol (//.. //) Edit information contained between these symbols for project or delete if not applicable. These are not always used.~~

~~Delete pages SECTION 09 06 00, SCHEDULE FOR FINISHES i, ii, iii from final document. Submit complete master document that you received with edit marks during Design Development and Construction Document stage of project. Provide a re-typed version for final document.~~

~~Coordinate with VA handbook H 08 14, Room Finishes, Door and Hardware Schedule.~~

~~Explanation of Terms:~~

~~Material Abbreviations: Use in Room Finish Schedule to identify Finish Materials.~~

~~Example: CWB W is Gypsum Wall Board Vinyl coated fabric wallcovering finish surface.~~

~~Pain, Stain, or Coating Code and Finish Code: A number or abbreviation you assign for material color system texture and pattern in conjunction with a manufacturer's identification when applicable.~~

~~Instructions for Part I General~~

~~Copy following paragraphs as stated: 1.1 DESCRIPTION, 1.2 MANUFACTURERS, 1.3 SUBMITTALS.~~

~~Paragraph 1.5 Digital Color Photos Interior Views: Include a series of photographic slides, representing a sequential walk through. Show typical public, patient, staff and all specialized areas. The photography is of architectural quality and are the property of the Department of Veterans Affairs, Office of Facility Management.~~

~~**Instruction for Part II Products Interior and Exterior**~~

~~Edit outline to suit the project. The outline is divided by technical specification section and list items requiring finish selections. Locations are designated either in room finish schedule in this section or shown on drawings.~~

~~Some products are listed for which a VA guide specifications is not available; no technical Section number shown, Section will have to be written.~~

~~Identify locations for products not shown in Room Finish Schedule. Some items require identification of room number and name to establish location.~~

~~Identify color, texture, patterns as applicable with manufacturer's identification label with a product or abbreviations are identified throughout drawings and specification sections. Coordinate for uniformity and consistency. Do not duplicate abbreviations for different materials. Avoid conflicts with technical specification sections. Example: Vinyl Composition Tile (VCT).~~

~~Some Sections specify finish on product and are not included in Part II, i.e. 10350, FLAGPOLES.~~

~~Whenever possible minimize use of multiple manufacturer's for colors and ones which constitute large quantities such as paint, plastic, laminate and carpet.~~



~~Loose items are not permitted in construction contracts unless an integral component of a fixed item i.e. keys for locks, adjustable shelves in cabinets.~~  
~~Give preference to products containing recovered materials when price performance and availability meets project requirements.~~  
~~Give sizes in metric followed by English in parenthesis, i.e. 100 mm (4 inches).~~

~~Instructions for Part III - Execution~~

~~Paragraph 3.1 a: Finish Schedules and Miscellaneous Abbreviations provide a complete list of product abbreviations used on project. Edit list to suit project.~~

~~Paragraph 3.1 b: Finish Schedule Symbols: Edit symbol list to suit project.~~

~~Paragraph 3.2: Room Finish Schedule - Finish schedule format is contained in architectural package or at end of this Section. Surface for walls "C" is for free standing columns.~~

~~Finish Plans: these plans are a part of architectural drawing set as an adjunct to the finish schedule. Use for showing wall, ceiling and floor patterns and identifying stopping and starting points for finishes exterior elevations may be used to show locations of various finishes identified by finish code and materials.~~

**SECTION 09 06 00  
SCHEDULE FOR FINISHES**

~~DESIGNER NOTE: Delete between //. // if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the document.~~

**PART I - GENERAL****1.1 DESCRIPTION**

This section contains a coordinated system in which requirements for materials specified in other sections shown are identified by abbreviated material names and finish codes in the room finish schedule or shown for other locations.

**1.2 MANUFACTURERS**

Manufacturer's trade names and numbers used herein are only to identify colors, finishes, textures and patterns. Products of other manufacturer's equivalent to colors, finishes, textures and patterns of manufacturers listed that meet requirements of technical specifications will be acceptable upon approval in writing by contracting officer for finish requirements.

**1.3 SUBMITALS**

Submit in accordance with SECTION 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES—provide quadruplicate samples for color approval of materials and finishes specified in this section.

~~DESIGNER NOTE: See instructions.~~

~~1. DIGITAL COLOR PHOTOS INTERIOR VIEWS:~~

<del>Room Number and Name</del>	<del>Item/View to be Photographed</del>
<del>1.</del>	
<del>2.</del>	
<del>3.</del>	
<del>4.</del>	

REPLACE EPOXY FLOORING IN BUILDING 20

PROJECT # 691A4-13-116SM  
10-11

~~DESIGNER NOTE: Update Applicable Publications to correct issue at time  
of project specification preparation.~~

#### 1.4 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in text by basic designation only.

B. MASTER PAINTING INSTITUTE: (MPI)

2001.....Architectural Painting Specification Manual

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PART 2- PRODUCTS

~~2.1 DIGITAL COLOR PHOTOS~~

~~A. SIZE 24 X 35 MM.~~

~~B. LABELED FOR:~~

~~1. BUILDING NAME AND NUMBER.~~

~~2. ROOM NAME AND NUMBER.~~

~~2.2 DIVISION 31 EARTHWORK~~

~~A. SECTION 32 31 13, CHAIN LINK FENCES AND GATES~~

<del>FINISH CHAIN LINK FABRIC</del>	<del>FINISH POSTS AND RAILS</del>	<del>MANUFACTURER</del>	<del>MFG. COLOR NAME/NO.</del>
<del>COATED</del>			
<del>GALVANIZED</del>			
<del>PAINTED (P)</del>			

~~B. SECTION 32 14 16, BRICK UNIT PAVING.~~

<del>SIZE</del>	<del>PATTERN</del>	<del>MANUFACTURER</del>	<del>MFG. COLOR NAME/NO.</del>

~~C. SECTION 32 17 23, PAVEMENT MARKINGS.~~

<del>COLOR</del>	<del>MANUFACTURER</del>	<del>MFG. COLOR NAME/NO.</del>
<del>YELLOW</del>		
<del>WHITE</del>		

~~D. ASPHALTIC BLOCK PAVER~~

<del>SIZE</del>	<del>SHAPE</del>	<del>MANUFACTURER</del>	<del>MFG. COLOR NAME/NO.</del>

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~~E. CONCRETE PAVERS~~

SIZE	SHAPE	MANUFACTURER	MFG. COLOR NAME/NO.

~~F. BOLLARDS (ORNAMENTAL)~~

MATERIAL	FINISH	STYLE NAME/ NO.	MANUFACTURER	MFG. COLOR NAME/NO.
PRECAST CONCRETE				
STONE				

~~G. SITE AND STREET FURNISHINGS~~

~~DESIGNER NOTE: SPECIFY SITE AND STREET  
FURNISHINGS ONLY WHEN PERMANENTLY ANCHORED.  
LOOSE ITEMS ARE NOT IN CONTRACT.~~

ITEM	STYLE NAME/NO.	FINISH	MANUFACTURE	MFG. COLOR NAME/NO.
BENCHES				
GAME TABLES				
PLANTERS				

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TREE GRATES				
TRASH RECEPTACLES				
ASH RECEPTACLES				

DESIGNER NOTE: SPECIFY ONLY 03300 OR 03301 WHEN COATED WITH A CEMENTITIOUS PAINT OR SPECIAL FORM WORK PATTERNS ARE REQUIRED.

2.3 DIVISION 03 CONCRETE

A. SECTION 03 30 00, CAST IN PLACE CONCRETE // SECTION 03 30 53, MISCELLANEOUS CAST-IN-PLACE CONCRETE //

SURFACE	FINISH DESCRIPTION

B. SECTION 03 45 00, PRECAST ARCHITECTURAL CONCRETE

FINISH COLOR	TEXTURE	FINISH	MANUFACTURER	MFG. COLOR NAME/NO.

2.4 DIVISON 04 MASONRY

DESIGNER NOTE: GROUT IS NOT EXPOSED.

A. SECTION 04 05 13, MASONRY MORTARING AND SECTION 04 05 16, MASONRY GROUTING

FINISH CODE	MANUFACTURER	MFG. COLOR NAME
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~~B. SECTION 04 20 00, UNIT MASONRY~~

1. <del>FACE BRICK (FB)</del>				
<del>FINISH CODE</del>	<del>SIZE</del>	<del>PATTERN</del>	<del>MANUFACTURER</del>	<del>MFG. COLOR NAME/NO.</del>

<del>2.CERAMIC GLAZED FACING BRICK (CGFB)</del>				
<del>FINISH CODE</del>	<del>SIZE</del>	<del>PATTERN</del>	<del>MANUFACTURER</del>	<del>MFG. COLOR NAME/NO.</del>

3. CONCRETE MASONRY UNIT (CMU)				
TYPE	SIZE	PATTERN	FINISH	MFG. COLOR NAME/NO.
CMU STANDARD				
GLAZED FACE				
SOUND ABSORBING				
SPLIT RIB				
GROUND FACE				

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4. CLAY TILE UNITS				
TYPE	PATTERN	FINISH	MANUFACTURER	MFG. COLOR/FINISH
GLAZED STRUCTURAL FACING TILE (SFTU)				
STRUCTURAL CLAY LOAD BEARING WALL TILE (SFTU)				

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~~C. UNIT MASONRY (04 20 00)~~

STONE TYPE	COLOR	MANUFACTURER	MFG. COLOR & TEXTURE NO.

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~~D. GLASS MASONRY UNITS~~

SIZE	PATTERN	MANUFACTURER	MFG. COLOR NAME/NO.

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~~E. STONE MASONRY~~

Material	Size	Color, Texture,	Pattern	Stone Source
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		<del>Finish, Grain</del>		

~~F. STONE FACING~~

<del>Name of Stone</del>	<del>Color, Texture, Finish</del>	<del>Stone Source</del>

2.1~~2.5-D~~ DIVISION 05 - METALS

~~DESIGNER NOTE: Include structural steel items only when exposed to view.~~

~~A. SECTION 05 12 00, STRUCTURAL STEEL FRAMING~~

<del>Component</del>	<del>Finish</del>	<del>Color</del>

~~B. SECTION 05 21 00, STEEL JOIST FRAMING~~

<del>Finish</del>	<del>Color</del>

~~C. SECTION 05 31 00, STEEL DECKING, SECTION 05 36 00, COMPOSITE METAL DECKING~~

<del>Finish</del>	<del>Color</del>

~~D. SECTION 05 40 00, COLD FORMED METAL FRAMING~~

<del>Finish</del>	<del>Color</del>
-------------------	------------------


~~DESIGNER NOTE: See Section 05 50 00, METAL FABRICATION for items specified and finishes for exposed surfaces.~~

~~EA.~~ SECTION 05 50 00, METAL FABRICATION

Item	Finish
<del>Modular Channel Units</del> <u>Stainless Steel Wall Covering</u>	<u>20 Gauge Type 304 #4 Satin Stainless Steel</u>
<u>Stainless Steel J-Molding</u>	<u>Type 304 Stainless Steel</u>
<del>Channel Door Frames</del>	
<del>Frames for Lead Lined Doors</del>	
<del>Structural Steel Angle Corner Guards</del>	
<del>Guard Angles for Overhead Doors</del>	
<del>Edge Guards Angles for Opening in Slabs</del>	
<del>Wheel Guards</del>	
<del>Steel Covers and Frames for pits and trenches</del>	
<del>Cast Iron Covers and Frames for Pits and Trenches</del>	
<del>Steel Grating and Frames</del>	
<del>Aluminum Gratings and Frames</del>	
<del>Steel Plank Gratings</del>	
<del>Cast Iron Gratings</del>	
<del>Loose Lintels</del>	
<del>Steel Plate Door Sill</del>	
<del>Aluminum Plate Door Sill</del>	
<del>Cast Iron Safety Nosing</del>	

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<del>Aluminum Safety Nosing</del>	
<del>Steel Ladders</del>	
<del>Aluminum Ladders</del>	
<del>Steel Ladder Rungs</del>	
<del>Steel Pipe Railings and Gates (not on Steel Stairs)</del>	
<del>Aluminum Railings</del>	
<del>Stainless Steel Railings</del>	
<del>Ornamental Railings</del>	
<del>Catwalks</del>	
<del>Floor Trap Door and Ceiling Hatch</del>	
<del>Sidewalk Door</del>	
<del>Screened Access Door and Frame</del>	
<del>Steel Counter or Bench Top Frame and Legs</del>	

~~F. SECTION 05 51 00, METAL STAIRS~~

<del>Component</del>	<del>Finish</del>	<del>Color</del>
<del>Newel Posts</del>		
<del>Guard Rails</del>		
<del>Handrails</del>		
<del>Stringers</del>		
<del>Risers</del>		
<del>Underside</del>		

~~G. SECTION 07 95 13, EXPANSION JOINT COVER ASSEMBLIES~~

	Material	Finish	Manufacturer	Mfg. Color Name/No.
<del>Floor Component Cover Plate Frame Gasket or Sealant (interior only)</del>				
<del>Wall Component Cover Plate Frame Gasket or Sealant (interior only)</del>				
<del>Ceiling Component Cover Plate, Gasket or Sealant (interior only)</del>				
<del>Exterior Wall Cover Plate Frame Thermoplastic Joint</del>				
<del>Garage Floor Steel</del>				

~~2.6 DIVISION 06 WOOD, PLASTICS, AND COMPOSITES~~

~~DESIGNER NOTE: Include 06 10 00 items only when exposed to view.~~

~~A. SECTION 06 10 00, ROUGH CARPENTRY~~

Item	Finish	Color

~~DESIGNER NOTE: Coordinate with Section 06-20-00, FINISH CARPENTRY for items specified there as listed and additional items added for the project which are custom fabricate under this section. Communication center counter is custom fabricated for specific locations. List locations of each counter. Rubber or vinyl base is specified in Section 09-65-13, RESILIENT BASE AND ACCESSORIES. Specify other base material. Duplicate items 1,2,3,4 for individual room numbers~~

~~B. SECTION 06-20-00, FINISH CARPENTRY~~

<del>1. RECEPTION COUNTER PUBLIC OR PATIENT SIDE</del>					
<del>Room No. and Name</del>	<del>Component</del>	<del>Material</del>	<del>Species</del>	<del>Finish</del>	<del>Color</del>
	<del>Countertop</del>				
	<del>Vertical Surface(s)</del>				
	<del>Trim</del>				
	<del>Reveal</del>				
	<del>Handrail</del>				
	<del>Bumper guard</del>				
	<del>Base</del>				
<del>2. RECEPTION COUNTER STAFF SIDE</del>					
<del>Room No. and Name</del>	<del>Component</del>	<del>Material</del>	<del>Finish</del>	<del>Color</del>	
	<del>Tack Surface</del>				
	<del>Vertical Surface</del>				
	<del>Tackable Wall Covering</del>				

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	Shelving			
	Trim			
	Drawers			
	Misc. Items			

3. NURSES STATION STAFF SIDE			
Room No. and Name	Component	Material	Finish/Color
	Vertical Surface(s)		
	Tackable Wall Covering		
	Shelving		
	Trim		
	Drawers		
	Misc. Items		
	Base		

4. NURSES STATION PATIENT SIDE			
Room No. and Name	Component	Material	Finish
	Transaction Countertop		
	Vertical Surface(s)		
	Trim		
	Reveal		
	Handrail		
	Bumper Guard		

	Base			
<del>5. INTERVIEW BOOTH - PATIENT SIDE</del>				
<del>Room No. and Name</del>	<del>Component</del>	<del>Material</del>	<del>Finish</del>	<del>Color</del>
	<del>Countertop Surface</del>			
	<del>Vertical Surface Side</del>	<del>Acoustical Panel</del>		
	<del>Trim</del>			
	<del>Base</del>			
	<del>Vertical Under Countertop Panel</del>			

<del>6. INTERVIEW BOOTH - STAFF SIDE</del>				
<del>Room No. and Name</del>	<del>Component</del>	<del>Material</del>	<del>Finish</del>	<del>Color</del>
	<del>Counter-top surface</del>			
	<del>Vertical Surface Side Drawers (both sides)</del>	<del>Acoustical Panel</del>		
	<del>Trim</del>			
	<del>Base</del>			
	<del>Vertical Under Countertop Panel</del>			
	<del>Trim</del>			
	<del>Base</del>			

<del>7. DESK IN CREDIT UNION</del>		
<del>Component</del>	<del>Material/Finish/Species</del>	<del>Color</del>
<del>Task Surface</del>		
<del>Panel</del>		
<del>Exposed Steel Frame</del>		
<del>Trim</del>		

<del>8. PATIENT PARTICIPATION MODULE AT PREVENTATIVE DENTISTRY</del>			
<del>Components</del>	<del>Material</del>	<del>Finish</del>	<del>Color</del>
<del>Countertop</del>			
<del>Dividers</del>			
<del>Trim</del>			
<del>Compartments</del>			

<del>9. SEATS AND BENCHES (TYPE 20 A, 12 E, 13 B)</del>		
<del>Room No. and Name</del>	<del>Component</del>	<del>Finish/Color</del>
	<del>Seat</del>	
	<del>Support</del>	

<del>10. MOUNTING STRIPS, SHELVES AND RODS</del>		
<del>Room No. and Name</del>	<del>Component</del>	<del>Finish/Color</del>
	<del>Strips</del>	



	Shelf	
	Red	

~~11. PEGBOARD (PERFORATED HARDBOARD)~~

<del>Room No. and Name</del>	<del>Component</del>	<del>Finish/Color</del>
	<del>Spacing Strip</del>	
	<del>Pegboard</del>	
	<del>Trim</del>	

~~12. VANITIES (TYPES S4, S4-M)~~

<del>Room No. and Name</del>	<del>Component</del>	<del>Finish/Color</del>
	<del>Countertop</del>	
	<del>Trim</del>	

~~13. FOLDING SHELVES (TYPE B OR A)~~

<del>Room No. and Name</del>	<del>Component</del>	<del>Finish/Color</del>
	<del>Wood Strips</del>	
	<del>Shelf</del>	

~~14. THROUGH WALL COUNTER OR PASS THROUGH COUNTER (TYPE B)~~

<del>Room No. and Name</del>	<del>Component</del>	<del>Finish/Color</del>
	<del>Wood Edge</del>	

	Countertop	
	Brackets	

~~15. RECEIVING SHELF IN AGENT CASHIER~~

Room No. and Name	Component	Finish
	Bracket	
	Shelf	

~~16. WALL PANELING IN CORRECTIVE THERAPY~~

Room No. and Name	Component	Finish
	Panel	
	Trim	
	Base	

~~17. DISPLAY CABINET (TYPE 25)~~

Room No. and Name	Component	Finish
	Back	
	Sides	
	Shelves	
	Trim	
	Doors	
	Base	

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<del>18. WOOD TOP FOR WORK BENCHES</del>	
<del>Room No. and Name</del>	<del>Finish</del>

<del>20. WOOD HANDRAILS</del>	
<del>Room No. and Name</del>	<del>Finish</del>

<del>21. GLASS FIBER REINFORCE PLASTIC PANELS</del>			
<del>Location</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

**2.7-2 DIVISION 07 - THERMAL AND MOISTURE PROTECTION**

~~A. SECTION 07-31-13, ASPHALT SHINGLES~~

<del>Size</del>	<del>Shape</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

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~~B. SECTION 07 31 29.13, WOOD SHINGLES~~

<del>Size</del>	<del>Shape</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~C. SECTION 07 31 26, SLATE SHINGLES~~

<del>Size</del>	<del>Shape</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~D. SECTION 07 32 13, CLAY ROOF TILES~~

<del>Size</del>	<del>Shape</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~E. SECTION 07 40 00, ROOFING AND SIDING PANELS~~

<del>Type</del>	<del>Shape</del>	<del>Ext. Finish</del>	<del>Int. Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

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~~F. SECTION 07 24 00, EXTERIOR INSULATION AND FINISH SYSTEMS~~

<del>Finish Code</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~G. SECTION 07 54 19, POLYVINYL CHLORIDE ROOFING~~

<del>Color</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~H. SETION 07 53 23, ETHYLENE-PROPYLENE-DIENE MONOMER ROOFING~~

<del>Color</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~I. SECTION 07 57 13, SPRAYED POLYURETHANE FOAM ROOFING~~

<del>Coating Material</del>	<del>Color</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Silicone Rubber Top Coat</del>			
<del>Ceramic Granules</del>			

~~J. SECTION 07 56 00, FLUID-APPLIED ROOFING~~

<del>Material</del>	<del>Color</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

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~~K. BUILT-UP BITUMINOUS ROOFING (07 51 00 ) / STYRENE BUTADIENE STYRENE MODIFIED BITUMINOUS MEMBRANE  
ROOFING (07 52 16 ) / POLYVINYL CHLORIDE ROOFING (07 54 19) / ETHYLENE PROPYLENE DIENE MONOMER  
ROOFING (7 53 23)~~

<del>Pavers</del>	<del>Size</del>	<del>Material</del>	<del>Color</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~L. SECTION 07 14 21, LATEX MASTIC DECK COVERING~~

<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~M. SECTION 07 18 13, PEDESTRIAN TRAFFIC COATINGS~~

<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~N. SECTION 07 60 00, FLASHING AND SHEET METAL~~

<del>Item</del>	<del>Material</del>	<del>Finish</del>
<del>Copings</del>	<del>Copper</del>	
	<del>Stainless steel</del>	
	<del>Aluminum</del>	
<del>Hanging Gutters and Downspouts</del>	<del>Copper</del>	
	<del>Stainless steel</del>	
	<del>Aluminum</del>	
<del>Roof Insulated Expansion Joint Covers</del>	<del>Vinyl sheet</del>	

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<del>Gravel Steps</del>	<del>Aluminum mill</del>	
	<del>Aluminum</del>	
	<del>Copper</del>	
	<del>Stainless steel</del>	
<del>Scuppers</del>		

~~O. SECTION 07 61 16, BATTEN SEAM SHEET METAL ROOFING~~

<del>Material</del>	<del>Finish/Color</del>

~~P. STANDING SEAM ROOFING (NO VA GUIDE SECTION)~~

<del>Material</del>	<del>Finish/Color</del>

~~Q. SECTION 07 71 00 / 07 72 00, ROOF SPECIALITIES AND ACCESSORIES~~

<del>Item</del>	<del>Material</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Manufacturer/Color Name/Number</del>
<del>Roof Hatch</del>	<del>Aluminum</del>	<del>Mill</del>		
<del>Equipment Support</del>	<del>Galv. Steel</del>	<del>Paint</del>		
<del>Gravity Ventilators</del>	<del>Aluminum</del>	<del>Mill</del>		
<del>Grating Walkway</del>	<del>Galv Steel</del>			
<del>Copings</del>	<del>Extruded Aluminum</del>			
<del>Gravel Steps and Fascia System</del>	<del>Extruded Aluminum</del>			
<del>Fascia Systems</del>	<del>Extruded Aluminum</del>			
<del>Roof Expansion Joint Covers</del>	<del>Extruded Aluminum</del>	<del>Mill</del>		

RA. SECTION 07 92 00, JOINT SEALANTS

Location	Color	Manufacturer	Manufacturer Color
<del>Masonry Expansion Joints</del> Wainscot to existing wall	<u>Clear</u>	<u>GE SilPruf SCS 2000 or Approved Equal</u>	<u>Clear</u>
<del>CMU Control Joints</del>			
<del>Precast Concrete Panels</del>			
<del>New to Existing Walls</del>			
<del>Building Expansion Joints</del>			
<del>Masonry Sealed Joints</del>			
<del>Stone Sealed Joints</del>			

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2.8-3 DIVISION 08 - OPENINGS

A. SECTION 08 11 13, HOLLOW METAL DOORS AND FRAMES

Paint both sides of door and frames same color including ferrous metal louvers, and hardware attached to door	
Component	Color of Paint Type and Gloss
Door	<u>Final color selection by VA &amp; Architect</u> <del>Match Existing</del>
Frame	<u>Final color selection by VA &amp; Architect</u> <del>Match Existing</del>
<del>Window frame</del>	

~~B. SECTION 08 14 00, WOOD DOORS~~

<del>Component</del>	<del>Finish/Color</del>
<del>Doors</del>	



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Frames					
<del>C. SECTION 08 31 13, ACCESS DOORS AND FRAMES</del>					
Material		Finish/Color			
Steel					
Stainless steel					
<del>D. SECTION 08 11 73, SLIDING METAL FIRE DOORS</del>					
Material		Finish/Color			
<del>E. SECTION 08 33 00, COILING DOORS AND GRILLES</del>					
Location	Item	Material	Finish	Manufacturer	Manufacturer Color Name/No.
	Door				
	Grille				
<del>F. SECTION 08 33 13, COILING COUNTER DOORS</del>					
Location	Material	Finish	Manufacturer	Manufacturer Color Name/No.	
DESIGNER NOTE: Use for opening of 2100 mm (7 feet) high or less and 1200 mm (4 feet) wide or less.					

~~G. SECTION 08-35-13.13, Accordion Folding~~

Location	Component	Finish	Manufacturer	Manufacturer Color Name/No.

~~DESIGNER NOTE: Flexible door has a standard black cover. Select finish on frame Section 05-50-00, METAL FABRICATIONS.~~

~~H. SECTION 08-38-16, FLEXIBLE TRAFFIC DOORS~~

Location	Frame	Finish
	Steel	

~~I. SECTION 08-36-13, SECTIONAL DOORS~~

Finish	Manufacturer	Manufacturer Color Name/No.

~~J. SECTION 08-41-13, ALUMINUM FRAMED ENTRANCES AND STOREFRONTS~~

Material	Finish	Manufacturer	Manufacturer Color Name/No.
Aluminum			
Glass			

~~K. SECTION 08-42-33, REVOLVING DOOR ENTRANCES~~

<del>Material</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Aluminum</del>			
<del>Glass</del>			
<del>Stainless Steel</del>			

~~L. SECTION 08-51-23, STEEL WINDOW~~

<del>Component</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Window</del>			
<del>Trim</del>			
<del>Screens</del>			
<del>Sills</del>			
<del>Stools</del>			

~~DESIGNER NOTE: Coordinate with 08-80-00 for glazing systems.~~~~M. SECTION 08-51-13, ALUMINUM WINDOWS~~

<del>Type</del>	<del>Finish</del>	<del>Glazing</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Hung</del>				
<del>Casement</del>				
<del>Projected</del>				
<del>Dual Horizontal Sliding</del>				
<del>Single Horizontal</del>				

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<del>Sliding</del>				
<del>Fixed</del>				

~~N. SECTION 08 51 13.11, SIDE HINGED ALUMINUM WINDOWS~~

<del>Finish</del>	<del>Ext. Glazing</del>	<del>Blind color</del>	<del>Int. Glazing</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~O. SECTION 08 51 69.11, ALUMINUM STORM WINDOWS~~

<del>Finish</del>	<del>Glazing</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~P. SECTION 08 63 00, METAL FRAMED SKYLIGHTS~~

<del>Finish</del>	<del>Glazing</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Frame</del>			

~~Q. SECTION 08 51 69.11, ALUMINUM STORM WINDOWS~~

<del>Component</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Frame</del>	<del>Mill</del>		
<del>Glazing</del>	<del>Tinted Clear</del>		

~~R. SECTION 08 56 19, PASS WINDOWS~~

<del>Room No. and Name</del>	<del>Finish</del>	<del>Glazing</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~S. WINDOW SILLS~~

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<del>Room No. and Name</del>	<del>Material</del>	<del>Finish</del>
	<del>Aluminum (With Windows)</del>	
	<del>SECTION 04 72 00, CAST STONE MASONRY</del>	

~~T. WINDOW STOOLS~~

<del>Room No. and Name</del>	<del>Material</del>	<del>Finish</del>
	<del>Marble (09310)</del>	
	<del>Ceramic Tiling (09 30 13)</del>	
	<del>Plastic Laminate</del>	
	<del>Finish Carpentry (06 20 00)</del>	

~~DESIGNER NOTE: Coordinate with Section 08 71 00, DOOR HARDWARE for preferred finishes, specified per 2.28. List only items deviating from Section 08 71 00, per 2.28.~~

~~U. SECTION 08 71 00, BUILDERS HARDWARE~~

<del>Item</del>	<del>Material</del>	<del>Finish</del>
<del>Hinges</del>		
<del>Door Closers</del>		
<del>Floor Closers</del>		
<del>Floor Pivot Sets</del>		
<del>Closer/ Holder</del>		
<del>Floor Stops</del>		
<del>Door Holders</del>		
<del>Lock/ Latches</del>		
<del>Key Cabinet</del>	<del>Steel</del>	

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<del>Armor Plates</del>	<del>Metal Plastic</del>	
<del>Kick Mop Plates</del>	<del>Metal Plastic</del>	
<del>Door Edging</del>		
<del>Exit Device</del>		
<del>Flush Bolts</del>		
<del>Door Pulls</del>		
<del>Push Plates</del>		
<del>Combination Push Pull Plate</del>		
<del>Coordinators</del>		
<del>Light Proof Seals</del>		
<del>Weather Strip</del>		
<del>Threshold</del>		

Designer note: See Section 08-80-00, GLAZING for glazing types and terminology omit clear glazing, transparent mirror and glazing assemblies.

~~V. SECTION 08-80-00, GLAZING~~

<del>Glazing Type</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>G-6</del>		
<del>G-7</del>		
<del>G-8</del>		
<del>G-9</del>		
<del>G-10</del>		
<del>G-11</del>		
<del>G-12</del>		

<del>E-13</del>		
<del>E-14</del>		
<del>E-15</del>		
<del>E-16</del>		
<del>E-17</del>		

~~W. SECTION 08 44 13, GLAZED ALUMINUM CURTAIN WALLS~~

<del>Component</del>	<del>Material</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Frame</del>				
<del>Glazing</del>				
<del>Standard Panel</del>				

~~DESIGNER NOTE: Use Section 09 24 00, PORTLAND CEMENT PLASTERING only if integral color finish occurs. Delete if painted.~~

~~2.9-4~~ DIVISION 09 -- FINISHES

~~A. SECTION 09 30 13, QUARRY TILE (QT)~~

~~A. SECTION 09 24 00, PORTLAND CEMENT PLASTERING~~

<del>Finish code</del>	<del>Integral</del>	<del>Color</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~B. SECTION 09 30 13, CERAMIC TILING~~

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<del>1. CERAMIC MOSAIC TILE (FT)</del>					
<del>Color</del>	<del>Size</del>	<del>Shape</del>	<del>Pattern</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

<del>2. SECTION 09 30 13, CERAMIC TILING</del>		
<del>Finish code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No</del>

<del>3. SECTION 09 30 13, QUARRY TILE (QT)</del>					
Finish Code	Size	Shape	Pattern	Manufacturer	Mfg. Color Name/No.
<u>QT</u>	<u>Match Existing</u>	<u>Match Existing</u>	<u>Match Existing</u>	<u>TBD</u>	<u>TBD</u>

B. SECTION 09 30 13, QUARRY TILE GROUT



<del>4. SECTION 09 30 13, QUARRY TILE GROUT</del>		
Finish Code	Manufacturer	Mfg. Color Name/No.
-	<u>ARDEX FL™ Sanded Grout or</u> <u>Approved Equal</u>	<u>Match Existing</u>

<del>5. SECTION 09 30 13, PAVER TILE (PVT)</del>					
<del>Finish Code</del>	<del>Size</del>	<del>Shape</del>	<del>Pattern</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

<del>6. SECTION 09 30 13, PAVER TILE GROUT</del>		
<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

<del>7. SECTION 09 30 13, PORCELAIN PAVER TILE (PPT)</del>		
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<del>Finish Code</del>	<del>Size</del>	<del>Shape</del>	<del>Pattern</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~8. SECTION 09 30 13, PORCELAIN PAVER TILE GROUT~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~9. SECTION 09 30 13, MARBLE THRESHOLDS~~

<del>Marble Type</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~10. SECTION 09 30 13, MARBLE WINDOW STOOLS~~

<del>Marble Type</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

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<del>11. SECTION 09 30 13, METAL DIVIDER STRIPS</del>		
<del>Size</del>	<del>Material</del>	<del>Manufacturer</del>

~~DESIGNER NOTE: See National Terrazzo and Mosaic Association, Inc. "Terrazzo Design Data" or Marble Products Co. "Terrazzo Color Plates." Use these color plates for selection of design where possible.~~

~~C. SECTION 09 66 13, PORTLAND CEMENT TERRAZZO FLOORING~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Color Pattern/ Name/No.</del>

<del>1. THIN SET TERRAZZO (TST)</del>		
<del>Finish Code</del>	<del>Manufacturer</del>	<del>Color Pattern/ Name/No.</del>

<del>2. SECTION 09 66 13, DIVIDER STRIPS</del>			
<del>Size</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Manufacturer Number</del>

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~~D. SECTION 09 66 16, TERRAZZO TILE (TT)~~

<del>Size</del>	<del>Manufacturer</del>	<del>Color Pattern/Name/No.</del>

~~E. SECTION 09 66 16, TERRAZZO TILE GROUT~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color/Name/No.</del>

~~F. SECTION 09 51 00, ACOUSTICAL CEILINGS~~

<del>Finish Code</del>	<del>Component</del>	<del>Color Pattern</del>	<del>Manufacturer</del>	<del>Mfg. Name/No.</del>
	<del>Exposed Suspension System</del>			
	<del>Type III</del>			
	<del>Type III A</del>			
	<del>Type V</del>			

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	Type VI			
	Type VII			
	Type XX A			
	Type XX B			

~~G. SECTION 09 54 23, LINEAR METAL CEILINGS (LMC)~~

<del>Finish Code</del>	<del>Strip Material</del>	<del>Strip Face Size</del>	<del>Manufacturer</del>	<del>Mfg Name/No.</del>

~~H. SECTION 09 63 13 / 09 63 40, BRICK FLOORING / STONE FLOORING~~

<del>Finish Code</del>	<del>Material/ Component</del>	<del>Size</del>	<del>Manufacturer</del>	<del>Mfg Name/No.</del>
	<del>{BF}</del>			
	<del>{SF}</del>			
	<del>BF Grout</del>			
	<del>SF Grout</del>			

~~I. SECTION 09 65 19, RESILIENT TILE FLOORING~~

<del>Finish Code</del>	<del>Size</del>	<del>Material/Component</del>	<del>Manufacturer</del>	<del>Mfg Name/No.</del>
		<del>VCT</del>		
		<del>R</del>		
		<del>RT</del>		

~~J. SECTION 09 65 16, VINYL SHEET FLOORING (VSF)~~

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<del>Finish Code</del>	<del>Pattern name</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~K. SECTION 09 65 16, VINYL SHEET FLOORING, HEAT WELDED SEAMS (WSF)~~

<del>Finish Code</del>	<del>Pattern name</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~1. SECTION 09 65 16, WELDING RODS (WSF)~~

<del>Finish code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~2. SECTION 09 65 16, CAP STRIPS (WSF)~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~L. SECTION 09 65 13, RESILIENT BASE STAIR TREADS AND ACCESSORIES~~

<del>Finish Code</del>	<del>Item</del>	<del>Height</del>	<del>Manufacturer</del>	<del>Mfg. Name/No.</del>
	<del>Rubber Base (RB)</del>			
	<del>Vinyl Base (VB)</del>			
	<del>Resilient Stair</del>			

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	<del>Treads (RST)</del>			
	<del>Sheet Rubber Flooring (SRF)</del>			

~~M. SECTION 09 68 00, CARPET (CP)~~

<del>Finish Code</del>	<del>Pattern</del>	<del>Manufacture</del>	<del>Mfg. Color Name/No.</del>

~~1. SECTION 09 68 00, CARPET EDGE STRIP~~

<del>Finish Code</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
	<del>Metal</del>		
	<del>Vinyl</del>		

~~2. SECTION 09 68 00, CARPET BASE MOLDING~~

<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~N. SECTION 09 68 00, CARPET MODULES (CFT)~~

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<del>Finish Code</del>	<del>Size</del>	<del>Pattern direction</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~O. SECTION 09 68 21, CARPET ATHELETIC FLOORING (CAF)~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~P. SECTION 09 77 01, LATEX MASTIC FLOORING (LM)~~

<del>Finish Code</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
	<del>Vinyl Resin</del>		
	<del>Neoprene Resin</del>		

QC. SECTION 09 67 23.60, ~~EPOXY RESINOUS FLOORING (ERF)~~EPOXY NON CLIMATIC MORTAR FLOOR (RES-6B)

Finish code	Manufacturer	Mfg. Color Name/No.
<u>RES-6B</u>	<u>Themec or approved equal</u>	<u>1C 223-Q205 Deco-Trowel/2C 284-0000 Deco-Clear. Final color selection by VA &amp; Architect</u>

RD. SECTION ~~09 96 59~~09 97 33.10, HIGH BUILD GLASED COATING RESINOUS COATING FOR WALLS (RES-WSG)

Finish code	Manufacturer	Mfg. Color Name/No.
<u>RES-W</u>	<u>Stonhard, Inc. or approved equal</u>	<u>Color: Navajo White / Eggshell-3.Final color selection by VA &amp; Architect</u>



~~S. SECTION 09 94 19, MULTI-COLOR COATING (MC)~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~DESIGNER NOTE: Pavement marking see Section 32 14 16, BRICK UNIT PAVING. Paints and Coating now specified by Master Painters Institute Standards, including gloss and sheen designations. Use paint, stain or coating code to identify these finishes in room finish schedule or for products specified under Section Finishes, use gloss level 1 or 4 for clear coating.~~

~~FE.~~ SECTION 09 91 00, PAINT AND COATINGS

## 1. MPI Gloss and Sheen Standards

		Gloss @60	Sheen @85
Gloss Level 1	a traditional matte finish-flat	max 5 units, and	max 10 units
Gloss Level 2	a high side sheen flat-"a velvet-like" finish	max 10 units, and	10-35 units
Gloss Level 3	a traditional "egg-shell like" finish	10-25 units, and	10-35 units
Gloss Level 4	a "satin-like" finish	20-35 units, and	min. 35 units
Gloss Level 5	a traditional semi-gloss	35-70 units	
Gloss Level 6	a traditional gloss	70-85 units	
Gloss level 7	a high gloss	more than 85 units	

<del>2. Paint code</del>	<del>Gloss</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>P</del>			
<del>P</del>			
<del>P</del>			
<del>P</del>			

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<del>3. Stain Code (S)</del>	<del>Gloss and Transparency</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
	<del>Semi</del>		
Ⓢ			
Ⓢ			
Ⓢ			
Ⓢ			
Ⓢ	<del>Opaque</del>		
Ⓢ			
Ⓢ			
Ⓢ			

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<del>S</del>			
<del>4. Clear coatings Code(CC)</del>	<del>Gloss</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>CC</del>			
<del>CC</del>			

~~U. SECTION 09 72 16, VINYL COATED FABRIC WALLCOVERING (W)~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~V. SECTION 09 72 16, EDGE GUARD OR TRIM (W)~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~W. SECTION 09 72 31, POLYPROPYLENE FABRIC WALLCOVERING (PFW)~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

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~~X. SECTION 09 72 31, EDGE GUARDS (PEW)~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~Y. SECTION 09 72 31, WAINSCOT CAP (PEW)~~

<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~Z. SECTION 09 84 33, ACCOUSTICAL WALL PANELLING (AWF)~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~2.10 DIVISION 10 — SPECIALTIES~~

~~A. SECTION 10 11 13 / 10 11 23, CHALKBOARDS / TACKBOARDS~~

<del>Room No. and Name</del>	<del>Component</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~B. SECTION 10 21 23, HOSPITAL CUBICLE CURTAINS AND INTRAVENOUS SUPPORT TRACKS~~

<del>Finish Code</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
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~~C. SECTION 10 22 26.13, ACCORDION FOLDING PARTITION (AFP)~~

<del>Component</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>1. Panels</del>			
<del>Plasters</del>			
<del>Doors</del>			
<del>Urinal Screens</del>			
<del>2. Panels</del>			
<del>Plasters</del>			
<del>Doors</del>			
<del>3. Panels</del>			
<del>Plasters</del>			
<del>Doors</del>			
<del>4. Panels</del>			
<del>Doors</del>			
<del>Plasters</del>			
<del>5. Panels</del>			
<del>Plasters</del>			
<del>Doors</del>			

~~D. SECTION 10 21 16, PREFABRICATED SHOWER AND DRESSING COMPARTMENTS~~

<del>Room No. and Name</del>	<del>Component</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

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~~E. SECTION 08 90 00, LOUVERS AND WALL VENTS~~

<del>Item</del>	<del>Material</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~F. SECTION 10 26 00, WALL GUARDS AND CORNER GUARDS~~

<del>Item</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Corner Guards</del>			
<del>Wall Guards and Handrail</del>			
<del>Wall Guard</del>			
<del>Door Frame Protection</del>			

~~G. SECTION 09 69 00, ACCESS FLOORING (AF)~~

<del>Floor Panel Covering</del>	<del>Panel Edges</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

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~~H. SECTION 10 28 00 / 10 14 00 / 11 17 36, MISCELLANEOUS SPECIALITIES~~

<del>Room No. and Name</del>	<del>Item</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
	<del>Mop racks</del>			
	<del>Package Transfer Box</del>			
	<del>Lobby Clock</del>			

~~I. SECTION 10 13 00 / 10 14 00, EXTERIOR SIGNS~~

<del>Component</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~J. SECTION 10 13 00 / 10 14 00, INTERIOR SIGNS~~

<del>Sign Type</del>	<del>Component</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

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~~K. SECTION 10 44 13, FIRE EXTINGUISHER CABINETS~~

<del>Component</del>	<del>Material</del>	<del>Finish</del>

~~L. SECTION 10 22 13, WIRE MESH PARTITIONS~~

<del>Room No. and Name</del>	<del>Paint Code</del>

~~M. SECTION 10 22 19.13, MOVABLE METAL PARTITIONS~~

<del>Room No. and Name</del>	<del>Paint Code</del>

~~N. SECTION 10 22 26.13, FOLDING PANEL PARTITION (FP)~~

<del>Room No. and Name</del>	<del>Component</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
	<del>Panel Face</del>			
	<del>Panel Edge</del>			

~~O. SECTION 10 28 00, TOILET AND BATH ACCESSORIES~~



~~DESIGNER NOTE: Use Section 10-28-00, TOILET, BATH, AND LAUNDRY ACCESSORIES for colored accessories. Not required for aluminum or stainless steel items.~~

~~P. SECTION 10-28-00, TOILET AND BATH ACCESSORIES~~

<del>Item</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>

~~Q. SECTION 10-28-00, CUSTOM TOILET ACCESSORIES~~

<del>Item</del>	<del>Component</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Toilet Backrest</del>	<del>Support</del>			
	<del>Vinyl Fabric</del>			

~~2.11 DIVISION II - EQUIPMENT~~

~~A. SECTION 11-12-00, PARKING CONTROL EQUIPMENT~~

<del>Component</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Ticket Dispenser</del>			
<del>Gate and Arm</del>			
<del>Booth Exterior</del>			
<del>Booth Interior</del>			
<del>Booth Shelf</del>			

~~B. SECTION 08-11-61 / 08-56-66, DETENTION AND PROTECTION SCREENS~~

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Type	Material	Finish Color
Type A		
Type B		
Type C		
Door Screen		

~~C. SECTION 11 41 00, FOOD SERVICE SELF-CONTAINED REFRIGERATION EQUIPMENT~~

Component	Material	Finish	Manufacturer	Mfg. Color Name/No.
Refrigerators, Mechanical, Food, Self-Contained, Reach-in, Roll- in, Pass-Through	Outer Shell			
	Doors			
	Loading Cart			
	Transfer Carriage			

~~D. SECTION 11 40 21, FOOD SERVICE EQUIPMENT-UTILITY DISTRIBUTION SYSTEMS~~

Plastic Laminate Slide Tray	Manufacturer	Mfg. Color Name/No.

~~E. SECTION 11 26 00, UNIT KITCHEN TYPE 22~~

Component	Manufacturer	Mfg. Color Name/No.
Cabinet		
Wall Splash		

~~F. SECTION 11 27 00, PHOTOGRAPHIC PROCESSING EQUIPMENT~~

Component	Item	Manufacturer	Mfg. Color Name/No.
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<del>Steel Cabinets</del>			
<del>Plastic Laminate</del>			

~~G. SECTION 11-53-53, BIOLOGICAL SAFETY CABINETS~~

<del>Type</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>H-12-A</del>		
<del>H-12-B1</del>		
<del>H-12-B-2</del>		
<del>H-12-B-3</del>		
<del>H-20</del>		

~~H. SECTION 11-53-13, LAB FUME HOODS~~

<del>Component</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Molded Resin</del>		
<del>Steel</del>		
<del>Base Cabinet</del>		

~~I. SECTION 13-21-29, LABORATORY CONTROLLED TEMPERATURE ROOMS AND REFRIGERATORS~~

<del>Room No. &amp; Location</del>	<del>Exterior Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>VL-52-24-R</del>			
<del>VL-52-24-F</del>			
<del>VL-52-E-24R</del>			
<del>VL-52-EF-24</del>			
<del>CTR</del>			

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~~2.12 DIVISION 12 FURNISHINGS~~

~~A. SECTION 12-31-00, METAL CASEWORK~~

<del>Item/ Type</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>1. PHARMACY</del>			
<del>PH-61</del>			
<del>PH-71</del>			
<del>PH-77</del>			
<del>PH-77W</del>			
<del>PH-77U</del>			
<del>PH-77D</del>			
<del>2. SHELVES</del>			
<del>4</del>			
<del>4-A</del>			
<del>4-B</del>			
<del>5-C</del>			
<del>6</del>			
<del>6-A</del>			
<del>6-B</del>			
<del>6-C</del>			
<del>6-E</del>			
<del>7</del>			
<del>7-A</del>			

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<del>7-B</del>			
<del>3. LOCKERS</del>			
<del>A</del>			
<del>B</del>			
<del>C</del>			
<del>8-3</del>			
<del>4. CABINETS</del>			
<del>1-A</del>			
<del>1-B</del>			
<del>1-C</del>			
<del>8-A</del>			
<del>8-B</del>			
<del>8-C</del>			
<del>13</del>			
<del>14</del>			
<del>14-A</del>			
<del>17</del>			
<del>5. COUNTERS</del>			
<del>1-F</del>			
<del>1-K</del>			
<del>1-L</del>			
<del>15</del>			
<del>15-A</del>			
<del>15-B</del>			
<del>15-D</del>			
<del>15-E</del>			

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<del>15-F</del>			
<del>16</del>			
<del>16-A</del>			
<del>16-B</del>			

~~B. SECTION 12 32 00, WOOD CASEWORK~~

<del>Item Type</del>	<del>Location</del>	<del>Finish/Color</del>
	<del>Cabinet Dental Service</del>	
	<del>Countertop</del>	
	<del>Radiology Countertop</del>	

~~DESIGNER NOTE: Construction of counter tops including materials is specifies in 12303. Use 12303 for defining countertop types and construction for tops specified furnished in other sections.~~

~~C. SECTION 12 36 00, COUNTERTOPS AND ACCESSORIES~~

<del>Type</del>	<del>Finish/Color</del>
<del>Plastic Laminate</del>	
<del>Chemical Resistant Plastic Laminate</del>	
<del>Molded Resin</del>	
<del>Maple Tops</del>	
<del>Methyl Methacrylate</del>	

~~D. SECTION 12 34 00, MOLDED PLASTIC CASEWORK~~

<del>Component</del>	<del>Finish</del>	<del>Manufacturer</del>	<del>Mfg. Color Name</del>
<del>Component</del>			
<del>Support Rails</del>			
<del>Free Standing</del>			

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Support			
Shelf Unit			
Hardware			
Countertops			
Panels			

~~E. SECTION 12 22 16, DRAPERY HARDWARE~~

Material	Finish
Aluminum	
Steel	

~~F. SECTION 12 24 00, WINDOW SHADES~~

Component	Material	Manufacturer	Mfg. Color Name/No.
Shade Cloth			
Vertical Blinds			
Venetian Blinds			
Support Hardware			

~~G. SECTION 12 24 21, LIGHTPROOF SHADES~~

Component	Material	Manufacturer	Mfg. Color Name/No.
Shade Cloth			
Framing			

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~~H. SECTION 12-56-70.11, SUSPENDED TABLE~~

<del>Component</del>	<del>Material</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Table Top</del>			
<del>Suspension System</del>			
<del>Ceiling Assembly</del>			

~~2.13 DIVISION 13 -- SPECIAL CONSTRUCTION~~

~~A. SECTION 11-41-21 / 11-53-23 / 11-78-13, WALK-IN REFRIGERATORS AND FREEZERS~~

<del>Component</del>	<del>Finish</del>	<del>Color</del>
<del>Quarry Tile Floor</del>		
<del>Galvanized Steel Floor</del>		

~~DESIGNER NOTE: See 13-05-41 for items exposed to view requiring finishes.~~

~~B. SECTION 13-05-41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS~~

<del>Item</del>	<del>Location</del>	<del>Finish</del>	<del>Color</del>

~~C. SECTION 13-34-19, PRE-ENGINEERED METAL BUILDINGS~~

<del>Component</del>	<del>Manufacturer</del>	<del>Mfg. Color Name/No.</del>
<del>Exterior Wall Panels</del>		
<del>Exterior Roof Panels</del>		



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<del>Interior Wall Panels</del>		
<del>Interior Structural Framing</del>		
<del>Doors</del>		
<del>Windows</del>		
<del>Louvers</del>		

~~DESIGNER NOTE: Coordinate with 09900 for color of exterior surfaces.~~

~~D. SECTION 22 12 16, ELEVATED WATER TANK~~

<del>Finish</del>	<del>Color</del>

~~E. SECTION 13 17 23.11, THERAPEUTIC POOL ACCESSORIES~~

<del>Item</del>	<del>Finish</del>	<del>Color</del>

~~DESIGNER NOTE: Repeat components for elevators having different materials and finishes. Number passenger and freight elevators consecutively for both traction and hydraulic. Do not use the same number for traction and hydraulic elevators. List elevators having same finish in elevator number space.~~

~~F. SECTION 14 21 00, ELECTRIC TRACTION ELEVATORS~~

<del>Elevator</del>	<del>Component</del>	<del>Material</del>	<del>Finish</del>	<del>Color</del>
---------------------	----------------------	---------------------	-------------------	------------------

<del>Passenger Elevator No. P</del>	<del>Hoistway Entrance</del>			
	<del>Hoistway Doors</del>			
	<del>Corridor Position Indicator and Call Buttons</del>			
	<del>Car Canopy</del>	<del>Steel</del>		
	<del>Car Wainscot</del>	<del>Stainless Steel</del>		
	<del>Panels Above Wainscot</del>	<del>Plastic Laminate</del>		
	<del>Car Floor</del>			
	<del>Car Operating Panel</del>			
<del>Freight Elevator No. F</del>	<del>Car Enclosure</del>	<del>Steel</del>		
	<del>Car Floor</del>	<del>Steel</del>		
	<del>Car Gate</del>	<del>Wire Mesh</del>		
	<del>Rubbing Strip</del>	<del>Wood</del>		
	<del>Hoistway Entrances</del>	<del>Steel</del>		
	<del>Hoistway Doors</del>	<del>Steel</del>		

~~G. SECTION 14 24 00, HYDRAULIC ELEVATORS~~

<del>1. Passenger Elevator No. P</del>	<del>Component</del>	<del>Material</del>	<del>Color</del>
	<del>Hoistway Entrances</del>		
	<del>Hoistway Doors</del>		
	<del>Corridor Position Indicator</del>		
	<del>Car Canopy</del>		
	<del>Car Wainscot</del>		
	<del>Panels Above Wainscot</del>		
	<del>Car Floor</del>		

	<del>Corridor Call Buttons</del>		
	<del>Car Doors</del>		
	<del>Car Door Frame</del>		
	<del>Corridor Position Indicator</del>		
	<del>Car Operating Panel</del>		
<del>2. Service Elevator No. S</del>			
	<del>Hoistway Entrances</del>		
	<del>Hoistway Doors</del>		
	<del>Car Canopy Car Doors</del>		
	<del>Car Wainseot</del>		
	<del>Panels Above Wainseot</del>		
	<del>Car Floor</del>		
	<del>Car Operating Panel</del>		
	<del>Corridor Position Indicator</del>		
	<del>Corridor Call Button</del>		
<del>3. Freight Elevator No. F</del>			
	<del>Hoistway Entrance</del>		
	<del>Hoistway Doors</del>		
	<del>Car Canopy</del>		
	<del>Car Sides</del>		
	<del>Car Gate</del>		
	<del>Rubbing Strips</del>		
	<del>Car Floor</del>		
<del>Station Directories</del>			

~~2.15 DIVISION 22 -- PLUMBING~~

~~A. SECTION 22 40 00, PLUMBING FIXTURES AND TRIM~~

<del>Item</del>	<del>Color</del>
<del>Water Closet</del>	
<del>Urinal</del>	
<del>Bathtubs</del>	
<del>Lavatories</del>	
<del>Service Sink Corner</del>	
<del>Service Sink</del>	
<del>Clinic Service Sink</del>	
<del>Plaster Sink</del>	
<del>Laundry Tub</del>	

~~2.16 DIVISION 26 -- ELECTRICAL~~

~~DESIGNER NOTE: Edit to suit project. If outdoor switchgear, transformers, or other electrical equipment are to have finishes other than the manufacturer's standard finish, specify the finishes herein and edit the appropriate Division 26 specifications to reference these schedules.~~

~~A. SECTION 26 51 00, BUILDING LIGHTING INTERIOR~~

<del>Fixture Type</del>	<del>Exterior Finish</del>	<del>Color</del>

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~~B. SECTION 26 56 00, SITE LIGHTING~~

Type and Component	Exterior Finish	Manufacturer	Mfg. Name/No.

~~C. SECTION 10 25 13, PATIENT BED SERVICE WALLS~~

Component	Material	Finish	Manufacturer	Mfg. Color/Name
Cabinet Frame				
Face Panel				
Doors				

~~PART III EXECUTION~~

~~3.1 FINISH SCHEDULES & MISCELLANEOUS ABBREVIATIONS~~

~~DESIGNER NOTE: Edit to suit project. Check abbreviations with technical section to avoid conflict or duplicate abbreviations for different materials.~~

<del>FINISH SCHEDULE &amp; MISCELLANEOUS ABBREVIATIONS</del>	
Term	Abbreviation
<del>Access Flooring</del>	<del>AF</del>
<del>Accordion Folding Partition</del>	<del>AFP</del>
<del>Acoustical Ceiling</del>	<del>AT</del>
<del>Acoustical Ceiling, Special Faced</del>	<del>AT (SP)</del>
<del>Acoustical Metal Pan Ceiling</del>	<del>AMP</del>

<del>Acoustical Wall Panel</del>	<del>AWP</del>
<del>Acoustical Wall Treatment</del>	<del>AWT</del>
<del>Acoustical Wallcovering</del>	<del>AWF</del>
<del>Anodized Aluminum Colored</del>	<del>AAC</del>
<del>Anodized Aluminum Natural Finish</del>	<del>AA</del>
<del>Baked-On Enamel</del>	<del>BE</del>
<del>Brick Face</del>	<del>BR</del>
<del>Brick Flooring</del>	<del>BF</del>
<del>Brick Paving</del>	<del>BP</del>
<del>Carpet</del>	<del>CP</del>

<del>Carpet Athletic Flooring</del>	CAF
<del>Carpet Module Tile</del>	CPT
<del>Ceramic Glazed Facing Brick</del>	CGFB
<del>Ceramic Mosaic Tile</del>	FTCT
<del>Concrete</del>	C
<del>Concrete Masonry Unit</del>	CMU
<del>Divider Strips Marble</del>	DS-MB
<del>Epoxy Coating</del>	EC
<del>Epoxy Resin Flooring</del>	ERF
<del>Existing</del>	E
<del>Exposed Divider Strips</del>	EXP
<del>Exterior</del>	EXT
<del>Exterior Finish System</del>	EFS
<del>Exterior Paint</del>	EXT-P
<del>Exterior Stain</del>	EXT-ST
<del>Fabric Wallcovering</del>	WF
<del>Facing Tile</del>	SCT
<del>Feature Strips</del>	FS
<del>Floor Mats &amp; Frames</del>	FM
<del>Floor Tile, Mosaic</del>	FT
<del>Fluorocarbon</del>	FC
<del>Folding Panel Partition</del>	FP
<del>Foot Grille</del>	FG
<del>Glass Masonry Unit</del>	GUMU
<del>Glazed Face CMU</del>	GCMU
<del>Glazed Structural Facing Tile</del>	SFTU
<del>Granite</del>	GT
<del>Gypsum Wallboard</del>	GWB
<del>High Glazed Coating</del>	SC
<del>Latex Mastie Flooring</del>	LM
<del>Linear Metal Ceiling</del>	LMC
<del>Linear Wood Ceiling</del>	LWC
<del>Marble</del>	MB
<del>Material</del>	MAT
<del>Mortar</del>	M
<del>Multi-Color Coating</del>	MC
<del>Natural Finish</del>	NF

<del>Paint</del>	P
<del>Paver Tile</del>	PVT
<del>Perforated Metal Facing (Tile or Panels)</del>	PMF
<del>Plaster</del>	PL
<del>Plaster High-Strength</del>	HSPL
<del>Plaster Keene Cement</del>	KC
<del>Plastic Laminate</del>	HPDL
<del>Polypropylene Fabric Wallcovering</del>	PPW
<del>Porcelain Paver Tile</del>	PPT
<del>Quarry Tile</del>	QT
<del>Radiant Ceiling Panel System</del>	RCP
<del>Resilient Stair Tread</del>	RST
<del>Rubber Base</del>	RB
<del>Rubber Tile Flooring</del>	RT
<del>Spandrel Glass</del>	SLG
<del>Stain</del>	ST
<del>Stone Flooring</del>	SF
<del>Structural Clay Grids</del>	SC
<del>Suspension Decorative Grids</del>	SDG
<del>Terrazzo Portland Cement</del>	PCT
<del>Terrazzo Tile</del>	TT
<del>Terrazzo, Thin Set</del>	
<del>Textured Gypsum Ceiling Panel</del>	TGC
<del>Textured Metal Ceiling Panel</del>	TMC
<del>Thin set Terrazzo</del>	TST
<del>Veneer Plaster</del>	VP
<del>Vinyl Base</del>	VB
<del>Vinyl Coated Fabric Wallcovering</del>	W
<del>Vinyl Composition Tile</del>	VCT
<del>Vinyl Sheet Flooring</del>	VSF
<del>Vinyl Sheet Flooring</del>	WSF

<del>(Welded Seams)</del>	
<del>Wall Border</del>	<del>WB</del>

<del>Wood</del>	<del>WD</del>
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### ~~3.2 FINISH SCHEDULE SYMBOLS~~

~~DESIGNER NOTE: Do not substitute these symbols. Add new symbols as required.~~

#### ~~Symbol Definition~~

~~\*\* Same finish as adjoining walls~~

~~— No color required~~

~~E Existing~~

~~XX To match existing~~

~~EFTR Existing finish to remain~~

~~RM Remove~~

### ~~3.3 ROOM FINISH SCHEDULE~~

~~DESIGNER NOTE: Copy as stated for projects requiring alterations.~~

~~A. Match adjoining or existing similar surfaces colors, textures or patterns where disturbed or damaged by alterations or new work when not scheduled.~~

~~DESIGNER NOTE: Use the schedule below to edit for rooms on project include existing rooms demolished and delete new section not part of new work. Use new section to show revision to existing work. Delete exist Sections for new construction.~~

#### ~~B. ROOM FINISH SCHEDULE~~

Room No. and Name		FLOOR			BASE		WALL		WAINSCOT		CEILING		REMARKS
		MAT	FC		MAT	FCC	MAT	FCC	MAT	FC	MAT	FCC	
	E												
	XX			N									

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--- E N D---

**SECTION 09 29 00  
GYPSUM BOARD**

~~SPEC WRITER NOTE: Delete between //====//  
if not applicable to project. Also delete  
any other item or paragraph not applicable  
in the section and renumber the  
paragraphs. Detail all types of gypsum  
board construction.~~

**PART 1 - GENERAL****1.1 DESCRIPTION**

This section specifies installation and finishing of gypsum board.

**1.2 RELATED WORK**

~~Not UsedA. Installation of steel framing members for walls, partitions,  
furring, soffits, and ceilings: Section 05 40 00, COLD FORMED METAL  
FRAMING, and Section 09 22 16, NON STRUCTURAL METAL FRAMING.  
B. Sound deadening board: Section 07 21 13, THERMAL INSULATION.  
C. Acoustical Sealants: Section 07 92 00, JOINT SEALANTS.  
D. Gypsum base for veneer plaster: Section 09 26 00, VENEER PLASTERING.  
E. Lead lined wallboard: Section 13 49 00, RADIATION PROTECTION.  
F. Lay in gypsum board ceiling panels: Section 09 51 00, ACOUSTICAL  
CEILING.~~

**1.3 TERMINOLOGY**

A. Definitions and description of terms shall be in accordance with ASTM C11, C840, and as specified.

~~B. Underside of Structure Overhead: In spaces where steel trusses or bar joists are shown, the underside of structure overhead shall be the underside of the floor or roof construction supported by the trusses or bar joists.~~

~~C. "Yoked": Gypsum board cut out for opening with no joint at the opening (along door jamb or above the door).~~

**1.4 SUBMITTALS**

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

B. Manufacturer's Literature and Data:

1. Cornerbead and edge trim.
2. Finishing materials.
3. Laminating adhesive.
4. Gypsum board, each type.

C. Shop Drawings:

1. Typical gypsum board installation, showing corner details, edge trim details and the like.

~~2. Typical sound rated assembly, showing treatment at perimeter of partitions and penetrations at gypsum board.~~

~~3. Typical shaft wall assembly.~~

~~4. Typical fire rated assembly and column fireproofing, indicating details of construction same as that used in fire rating test.~~

~~D. Samples:~~

~~1. Cornerbead.~~

~~2. Edge trim.~~

~~3. Control joints.~~

~~DE. Test Results:~~

~~1. Fire rating test, each fire rating required for each assembly.~~

~~2. Sound rating test.~~

**1.5 DELIVERY, IDENTIFICATION, HANDLING AND STORAGE**

In accordance with the requirements of ASTM C840.

**1.6 ENVIRONMENTAL CONDITIONS**

In accordance with the requirements of ASTM C840.

**1.7 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):

C11-08.....Terminology Relating to Gypsum and Related  
Building Materials and Systems

C475-02.....Joint Compound and Joint Tape for Finishing  
Gypsum Board

C840-08.....Application and Finishing of Gypsum Board

C919-08.....Sealants in Acoustical Applications

C954-07.....Steel Drill Screws for the Application of Gypsum  
Board or Metal Plaster Bases to Steel Stud from  
0.033 in. (0.84mm) to 0.112 in. (2.84mm) in  
thickness

C1002-07.....Steel Self-Piercing Tapping Screws for the  
Application of Gypsum Panel Products or Metal  
Plaster Bases to Wood Studs or Steel Studs

C1047-05.....Accessories for Gypsum Wallboard and Gypsum  
Veneer Base

C1177-06.....Glass Mat Gypsum Substrate for Use as Sheathing

C1658-06.....Glass Mat Gypsum Panels

C1396-06.....Gypsum Board

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

C. Underwriters Laboratories Inc. (UL):

Latest Edition.....Fire Resistance Directory

D. Inchcape Testing Services (ITS):

Latest Editions.....Certification Listings

## PART 2 - PRODUCTS

### ~~SPEC WRITER NOTES:~~

- ~~1. Make material requirements agree with applicable requirements specified in the referenced Applicable Publications.~~
- ~~2. Backing board is used for first ply of two and first and second ply of three ply assemblies and for coreboard of multiple layers in semi solid or solid gypsum board partitions.~~
- ~~3. Show on the drawings and clearly detail where 13 mm (1/2 inch) concrete backboard is used at showers and how faces of boards of different thickness align.~~
- ~~4. Use 13 mm (1/2 inch) thick gypsum board for buildings with non health related occupancy.~~

### 2.1 GYPSUM BOARD

~~A. Gypsum Board: ASTM C1396, Type X, 16 mm (5/8 inch) thick unless shown otherwise. Shall contain a minimum of 20 percent recycled gypsum.~~

~~B. Coreboard or Shaft Wall Liner Panels.~~

- ~~1. ASTM C1396, Type X.~~
- ~~2. ASTM C1658: Glass Mat Gypsum Panels,~~
- ~~3. Coreboard for shaft walls 300, 400, 600 mm (12, 16, or 24 inches) wide by required lengths 25 mm (one inch) thick with paper faces treated to resist moisture.~~

~~A.C.~~ Water Resistant Gypsum Backing Board: ASTM C620, Type X, 16 mm (5/8 inch) thick.

~~D.B.~~ Gypsum cores shall contain maximum percentage of post industrial recycled gypsum content available in the area (a minimum of 95 percent post industrial recycled gypsum content). Paper facings shall contain 100 percent post-consumer recycled paper content.

### ~~2.2 GYPSUM SHEATHING BOARD~~

~~A. ASTM C1396, Type X, water resistant core, 16 mm (5/8 inch) thick.~~

~~B. ASTM C1177, Type X.~~

### 2.3 ACCESSORIES

A. ASTM C1047, except form of 0.39 mm (0.015 inch) thick zinc coated steel sheet or rigid PVC plastic.

B. Flanges not less than 22 mm (7/8 inch) wide with punchouts or deformations as required to provide compound bond.

**2.4 FASTENERS**

- A. ASTM C1002 and ASTM C840, except as otherwise specified.
- B. ASTM C954, for steel studs thicker than 0.04 mm (0.33 inch).
- C. Select screws of size and type recommended by the manufacturer of the material being fastened.
- D. For fire rated construction, type and size same as used in fire rating test.
- E. Clips: Zinc-coated (galvanized) steel; gypsum board manufacturer's standard items.

**2.5 FINISHING MATERIALS AND LAMINATING ADHESIVE**

ASTM C475 and ASTM C840. Free of antifreeze, vinyl adhesives, preservatives, biocides and other VOC. Adhesive shall contain a maximum VOC content of 50 g/l.

**PART 3 - EXECUTION**

~~SPEC WRITER NOTE: Read ASTM C840, coordinate with project specification and drawing requirements.~~

**3.1 GYPSUM BOARD HEIGHTS**

- A. Extend all layers of gypsum board from floor to underside of structure overhead on following partitions and furring:
  - 1. Two sides of partitions:
    - a. Fire rated partitions.
    - b. Smoke partitions.
    - c. Sound rated partitions.
    - d. Full height partitions shown (FHP).
  - ~~e. Corridor partitions.~~
  - 2. One side of partitions or furring:
    - a. Inside of exterior wall furring or stud construction.
    - b. Room side of room without suspended ceilings.
    - c. Furring for pipes and duct shafts, except where fire rated shaft wall construction is shown.
  - 3. Extend all layers of gypsum board construction used for fireproofing of columns from floor to underside of structure overhead, unless shown otherwise.
- B. In locations other than those specified, extend gypsum board from floor to heights as follows:
  - 1. Not less than 100 mm (4 inches) above suspended acoustical ceilings.
  - 2. At ceiling of suspended gypsum board ceilings.

3. At existing ceilings.

### 3.2 INSTALLING GYPSUM BOARD

- A. Coordinate installation of gypsum board with other trades and related work.
- B. Install gypsum board in accordance with ASTM C840, except as otherwise specified.
- C. Moisture and Mold-Resistant Assemblies: Provide and install moisture and mold-resistant glass mat gypsum wallboard products with moisture-resistant surfaces complying with ASTM C1658 where shown and in locations which might be subject to moisture exposure during construction.
- D. Use gypsum boards in maximum practical lengths to minimize number of end joints.
- E. Bring gypsum board into contact, but do not force into place.
- F. Ceilings:
  - 1. For single-ply construction, use perpendicular application.
  - 2. For two-ply assemblies:
    - a. Use perpendicular application.
    - b. Apply face ply of gypsum board so that joints of face ply do not occur at joints of base ply with joints over framing members.
- G. Walls (Except Shaft Walls):
  - 1. When gypsum board is installed parallel to framing members, space fasteners 300 mm (12 inches) on center in field of the board, and 200 mm (8 inches) on center along edges.
  - 2. When gypsum board is installed perpendicular to framing members, space fasteners 300 mm (12 inches) on center in field and along edges.
  - 3. Stagger screws on abutting edges or ends.
  - 4. For single-ply construction, apply gypsum board with long dimension either parallel or perpendicular to framing members as required to minimize number of joints except gypsum board shall be applied vertically over "Z" furring channels.
  - 5. For two-ply gypsum board assemblies, apply base ply of gypsum board to assure minimum number of joints in face layer. Apply face ply of wallboard to base ply so that joints of face ply do not occur at joints of base ply with joints over framing members.
  - 6. For three-ply gypsum board assemblies, apply plies in same manner as for two-ply assemblies, except that heads of fasteners need only be driven flush with surface for first and second plies. Apply third ply of wallboard in same manner as second ply of two-ply assembly, except

- use fasteners of sufficient length enough to have the same penetration into framing members as required for two-ply assemblies.
7. No offset in exposed face of walls and partitions will be permitted because of single-ply and two-ply or three-ply application requirements.
  8. Installing Two Layer Assembly Over Sound Deadening Board:
    - a. Apply face layer of wallboard vertically with joints staggered from joints in sound deadening board over framing members.
    - b. Fasten face layer with screw, of sufficient length to secure to framing, spaced 300 mm (12 inches) on center around perimeter, and 400 mm (16 inches) on center in the field.

~~SPEC WRITER NOTE:-~~

- ~~1. Show and clearly define locations of control joints.~~
- ~~2. Detail control joints.~~
- ~~3. See ASTM C840 for design criteria.~~

9. Control Joints ASTM C840 and as follows:
  - a. Locate at both side jambs of openings if gypsum board is not "yoked". Use one system throughout.
  - b. Not required for wall lengths less than 9000 mm (30 feet).
  - c. Extend control joints the full height of the wall or length of soffit/ceiling membrane.

H. Acoustical or Sound Rated Partitions, Fire and Smoke Partitions:

~~SPEC WRITER NOTE:- Show STC sound rating on partition details for sound rating partitions, minimum value of 45 to 49.~~

1. Cut gypsum board for a space approximately 3 mm to 6 mm (1/8 to 1/4 inch) wide around partition perimeter.
2. Coordinate for application of caulking or sealants to space prior to taping and finishing.
3. For sound rated partitions, use sealing compound (ASTM C919) to fill the annular spaces between all receptacle boxes and the partition finish material through which the boxes protrude to seal all holes and/or openings on the back and sides of the boxes. STC minimum values as shown.

I. Electrical and Telecommunications Boxes:

1. Seal annular spaces between electrical and telecommunications receptacle boxes and gypsum board partitions.

J. Accessories:

1. Set accessories plumb, level and true to line, neatly mitered at corners and intersections, and securely attach to supporting surfaces as specified.

2. Install in one piece, without the limits of the longest commercially available lengths.
3. Corner Beads:
  - a. Install at all vertical and horizontal external corners and where shown.
  - b. Use screws only. Do not use crimping tool.
4. Edge Trim (casings Beads):
  - a. At both sides of expansion and control joints unless shown otherwise.
  - b. Where gypsum board terminates against dissimilar materials and at perimeter of openings, except where covered by flanges, casings or permanently built-in equipment.
  - c. Where gypsum board surfaces of non-load bearing assemblies abut load bearing members.
  - d. Where shown.

### 3.3 INSTALLING GYPSUM SHEATHING

- A. Install in accordance with ASTM C840, except as otherwise specified or shown.
- B. Use screws of sufficient length to secure sheathing to framing.
- C. Space screws 9 mm (3/8 inch) from ends and edges of sheathing and 200 mm (8 inches) on center. Space screws a maximum of 200 mm (8 inches) on center on intermediate framing members.
- D. Apply 600 mm by 2400 mm (2 foot by 8 foot) sheathing boards horizontally with tongue edge up.
- E. Apply 1200 mm by 2400 mm or 2700 mm (4 ft. by 8 ft. or 9 foot) gypsum sheathing boards vertically with edges over framing.

~~SPEC WRITER NOTE: The following paragraphs are for typical two hour rated, shaft walls and one hour shaft wall. If a shaft wall of a different fire rating is required, modify the specification to suit the construction used in fire rating test. Coordinate details to show different fire ratings with specifications if more than one ratings is required.~~

### ~~3.4 CAVITY SHAFT WALL~~

- ~~A. Coordinate assembly with Section 09 22 16, NON STRUCTURAL METAL FRAMING, for erection of framing and gypsum board.~~
- ~~B. Conform to UL Design No. U438 or FM WALL CONSTRUCTION 12 2/HR (Nonbearing for two hour fire rating. // Conform to FM WALL CONSTRUCTION 25 1/HR (Non loadbearing) for one hour fire rating where shown. //~~
- ~~C. Cut coreboard (liner) panels 25 mm (one inch) less than floor to ceiling height, and erect vertically between J-runners on shaft side.~~



- ~~1. Where shaft walls exceed 4300 mm (14 feet) in height, position panel end joints within upper and lower third points of wall.~~
  - ~~2. Stagger joints top and bottom in adjacent panels.~~
  - ~~//3. After erection of J struts of opening frames, fasten panels to J struts with screws of sufficient length to secure to framing staggered from those in base, spaced 300 mm (12 inches) on center. //~~
- ~~D. Gypsum Board:~~
- ~~1. Two hour wall:~~
    - ~~a. Erect base layer (backing board) vertically on finish side of wall with end joints staggered. Fasten base layer panels to studs with 25 mm (one inch) long screws, spaced 600 mm (24 inches) on center.~~
    - ~~b. Use laminating adhesive between plies in accordance with UL or FM if required by fire test.~~
    - ~~c. Apply face layer of gypsum board required by fire test vertically over base layer with joints staggered and attach with screws of sufficient length to secure to framing staggered from those in base, spaced 300 mm (12 inches) on center.~~
  - ~~2. One hour wall with one layer on finish side of wall: Apply face layer of gypsum board vertically. Attach to studs with screws of sufficient length to secure to framing, spaced 300 mm (12 inches) on center in field and along edges.~~
  - ~~3. Where coreboard is covered with face layer of gypsum board, stagger joints of face layer from those in the coreboard base.~~
- ~~E. Treat joints, corners, and fasteners in face layer as specified for finishing of gypsum board.~~
- ~~F. Elevator Shafts:~~
- ~~1. Protrusions including fasteners other than flange of shaft wall framing system or offsets from vertical alignments more than 3 mm (1/8 inch) are not permitted unless shown.~~
  - ~~2. Align shaft walls for plumb vertical flush alignment from top to bottom of shaft.~~

### 3.5 FINISHING OF GYPSUM BOARD

- A. Finish joints, edges, corners, and fastener heads in accordance with ASTM C840. Use Level 4 finish for all finished areas open to public view.
- B. Before proceeding with installation of finishing materials, assure the following:
  1. Gypsum board is fastened and held close to framing or furring.
  2. Fastening heads in gypsum board are slightly below surface in dimple formed by driving tool.
- C. Finish joints, fasteners, and all openings, including openings around penetrations, on that part of the gypsum board extending above suspended

ceilings to seal surface of ~~non-decorated~~~~non-decorated~~ ~~// smoke barrier,~~  
~~// fire rated // and sound rated // and sound rated //~~ gypsum board  
construction. After the installation of hanger rods, hanger wires,  
supports, equipment, conduits, piping and similar work, seal remaining  
openings and maintain the integrity of the ~~// smoke barrier, // fire~~  
~~rated // and sound rated //~~ construction/ Sanding is not required of non  
decorated surfaces.

### 3.6 REPAIRS

- A. After taping and finishing has been completed, and before decoration,  
repair all damaged and defective work, including nondecorated surfaces.
- B. Patch holes or openings 13 mm (1/2 inch) or less in diameter, or  
equivalent size, with a setting type finishing compound or patching  
plaster.
- C. Repair holes or openings over 13 mm (1/2 inch) diameter, or equivalent  
size, with 16 mm (5/8 inch) thick gypsum board secured in such a manner  
as to provide solid substrate equivalent to undamaged surface.
- D. Tape and refinish scratched, abraded or damaged finish surfaces  
including cracks and joints in ~~non-decorated~~~~non-decorated~~ surface ~~to~~  
~~provide // smoke tight construction // fire protection equivalent to the~~  
~~fire rated construction // and STC equivalent to the sound rated~~  
~~construction //.~~

### ~~3.7 UNACCESSIBLE CEILINGS~~

- ~~— At Mental Health and Behavioral Nursing Units, areas accessible to~~  
~~patients and not continuously observable by staff (e.g., patient~~  
~~bedrooms, day rooms), ceilings should be a solid material such as gypsum~~  
~~board. This will limit patient access. Access doors are needed to access~~  
~~electrical and mechanical equipment above the ceiling. These doors~~  
~~should be locked to prevent unauthorized access and secured to ceiling~~  
~~using tamper resistant fasteners.~~

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**SECTION 09 30 30**  
**TILE INSTALLATION MATERIALS AND SYSTEMS**

**PART 1 - GENERAL****1.1 DESCRIPTION**

This Section includes the an epoxy membrane designed to reduce the emissions of moisture vapor prior to receiving the application of a Portland cement based crack isolation membrane the subsequent installation of tile with a latex modified thin-set mortar.

**1.2 RELATED WORK**

**NOT USED**

**1.3 REFERENCES****A. AMERICAN NATIONAL STANDARDS INSTITUTE (A.N.S.I.)**

1. A-118.4 Fast-setting latex thin-set mortar and latex Portland cement mortar
2. A-118.11 EGP latex Portland cement mortar
3. A-118.12 Crack Isolation Membrane
4. A-118.7 High Performance Cement Grouts for Tile Installation
5. A-108.01 General Requirements for Sub surfaces and Preparations by Other Trades
6. A-108.10 Installation of Grout in Tilework
7. A-108.5 Installation of ceramic tile with latex thin-set mortar
8. A-108.17 Installation of Crack Isolation Membrane

**B. TILE COUNCIL OF AMERICA, INC.**

1. Handbook for Ceramic Tile Installation

**C. INTERNATIONAL STANDARDS ORGANIZATION (ISO)**

1. ISO 13007 - Ceramic Tile-Grouts & Adhesives

**1.4 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Include manufacturer's Material Safety Data Sheets.
- C. Qualification Data: For Installer

**1.5 QUALITY ASSURANCE**

- A. Installation of the specified product must be completed by a factory-trained applicator, using mixing equipment and tools approved by the manufacturer.

**1.6 DELIVERY, STORAGE AND HANDLING**

- A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area with temperature maintained between 50° and 85° F (10° and 29° C) and Protect from direct sunlight.
- C. Handle products in accordance with manufacturer's printed recommendations.

**1.7 PROJECT CONDITIONS**

Do not install material below 50° F (10° C) surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this section. Install quickly if substrate is warm and follow warm weather instructions available from the ARDEX Technical Service Department.

**PART 2 - PRODUCTS****2.1 THIN-SET MORTAR**

- A. Provide specified product (basis of design) or approved equal:
  - 1. ARDEX X77™; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, PA 15001 USA, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)
- B. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (21° C+/-3°C) and 50% +/-5% relative humidity:
  - 1 Open Time: up to 60 Minutes
  - 2 Pot Life: 3 hours
  - 3 ISO 13007: EN C2 FT (T) E (E) S1
  - 4 Thin Set: Meets or Exceeds ANSI A 118.11 & ANSI A 118.4

**2.2 WATERPROOFING & CRACK ISOLATION MEMBRANE**

- A. Provide specified product (basis of design) or approved equal:
  - 1. ARDEX 8+9™; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, PA 15001 USA, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)
- B. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (21° C+/-3°C) and 50% +/-5% relative humidity:
  - 1 Pot Life: 45 Minutes
  - 2 Coats: 2
  - 3 Dry Time: 1 hr. - coat 1, 2-hr coat 2
  - 4 Crack Isolation: Meets or Exceeds ANSI A 118.12

**2.3 GROUT**

- A. Provide specified product (basis of design) or approved equal:
  - 1. ARDEX FL™ Sanded Grout; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, PA 15001 USA, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)
- B. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (21° C+/-3°C) and 50% +/-5% relative humidity:
  - 1 Pot Life: 30 minutes
  - 2 Working Time: 30 minutes

3 Open to Traffic: 90 minutes

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Subfloors: Prepare substrate in accordance with manufacturer's instructions.
  - 1. Prior to proceeding please refer to ANSI A 108.01 "General Requirements for Subsurface" and the TCNA's "Handbook for Ceramic Tile Installation" for detailed information.
  - 2. All subfloors must be clean and completely free of all contaminants, including dust, oil, grease, wax, sealers, paint, varnish, etc. Prepare floor as required by mechanical means. Do not use chemicals to clean the floor.
  - 3. The freezer area must be brought to room temperature (70°F) for a minimum of 48 hours before the installation, and this temperature must be maintained during the installation and for 48 hours after the installation. After the installation cures for 48 hour, the freezer may be dropped 5° per day until the designated temperature is reached. Lower temperatures at the time of installation will extend all drying times. Please note that the minimum installation temperature for all Cements is 50°F (10°C).
- B. Joint Preparation:
  - 1. Moving Joints - Expansion joints must be provided over existing moving joints and cracks, and where substrate materials change composition or direction per ANSI A108 AN-3.7. A flexible sealing compound such as ARDEX ARDISEAL™ Rapid Plus may be installed.
  - 2. Saw Cuts and Control Joints - fill all non-moving joints with ARDEX ARDIFIX™ Joint Filler, as recommended by the manufacturer.

#### **3.2 APPLICATION OF CRACK ISOLATION MEMBRANE**

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.
- C. Install Waterproofing and Crack Isolation Membrane
  - 1. Reference A-108.17 Installation of Crack Isolation Membrane
  - 2. Comply with manufacturer's printed instructions for mixing of material, installation, and cure. For questions contact the ARDEX Technical Services Department at (724) 2035000.
- D. Install Tile with Thin-Set Mortar
  - 1. Install tiles following the general office outline procedure set forth in ANSI A108.5.
  - 2. Comply with manufacturer's printed instructions for mixing of material, installation, and cure. For questions contact the ARDEX Technical Services Department at (724) 2035000.
- E. Install Grout
  - 1. Install grout in accordance with ANSI A108.10.
  - 2. Comply with manufacturer's printed instructions for mixing of material, installation, and cure. For questions contact the ARDEX

Technical Services Department at (724) 2035000.

**3.3 FIELD QUALITY CONTROL**

Where required, contact manufacturer for field sampling methods and procedures.

**3.5 PROTECTION**

Prior to the installation of the finish flooring from abuse by other trades by the use of plywood, Masonite or other suitable protection course.

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## SECTION 09 67 23.60

## RESINOUS (URETHANE AND EPOXY MORTAR) FLOORING (RES-6)

~~SPEC WRITER NOTES:~~

~~1. Delete // \_\_\_\_// if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.~~

~~2. Recommended areas of Use~~~~RES-6A (Heavy Duty Climatic)  
(Urethane Mortar)~~

- ~~• Cell Bank Freezer~~
- ~~• Freezer Room, Ultra Low~~
- ~~• Mortuary Refrigerator (Cold Room)~~
- ~~• Necropsy Room~~
- ~~• Refrigerated Holding,  
Waste/Carcass~~
- ~~• Refrigerator, Central Tray Retherm~~
- ~~• Refrigerator, Tray Retherm Cart  
Holding~~
- ~~• Storage, Refrigerated~~
- ~~• Storage, Refrigerated and Frozen  
Food~~
- ~~• Storage, Refrigerated Blast  
Chilled Food (One or Two day food  
bank)~~
- ~~• Storage, Refrigerated  
Garbage/Trash Holding~~
- ~~• Automatic Cart Wash~~
- ~~• Bulk Food Cart Holding Area~~
- ~~• Cage Wash Room (Cage Wash / Tunnel  
Wash) Manual/Automated (Vivarium)~~
- ~~• Cook/Chill (High Volume)~~
- ~~• Cook/Serve; Kitchen and Servery~~
- ~~• Diet Kitchen~~
- ~~• Dishwashing~~
- ~~• Incinerator Room~~
- ~~• Manual Equipment Wash~~
- ~~• Pot Washing~~
- ~~• Preparation, Assembly and  
Sterilization (SPD)~~
- ~~• Sanitization and Recycling Area~~
- ~~• Serving Kitchen~~
- ~~• Soiled Transition Room (SPD)~~
- ~~• Sorting and Washing~~
- ~~• Storage, Dry Food and Ingredient  
Control~~
- ~~• Storage, Non Food~~
- ~~• Washing and Sterilization Room,  
Glassware~~
- ~~• Warm Room, 20 °C to 37 °C~~

~~RES-6B (Heavy Duty Non Climatic)~~

~~(Epoxy Mortar)~~

- ~~• Autopsy Room~~
- ~~• Isolation /Teaching Autopsy Room~~
- ~~• Clean Receiving and Bulk Storage Area~~
- ~~• Detergent and Water Treatment Room (SPD)~~
- ~~• Food Preparation and Production~~
- ~~• Food Service~~
- ~~• Nourishment Preparation~~
- ~~• Pantry~~
- ~~• Tray Assembly Area~~
- ~~• Tray Cart Storage Area, Clean Carts~~
- ~~• Tray Cart Storage Area, Soiled Carts~~
- ~~• Tray Return Cart System, Centralized~~

~~3. Resinous flooring application to be installed on properly prepared concrete (lightweight concrete substrate is not acceptable) substrate.~~

**PART 1 - GENERAL****1.1 DESCRIPTION**

A. This section specifies Resinous (Resinous urethane and epoxy mortars) flooring with integral cove base ~~//and trench liner//~~:

~~1. High Abuse Climatic Troweled and Sealed Urethane Mortar Flooring System.~~

~~1.2~~ High Abuse Non-Climatic Troweled and Sealed Epoxy Mortar Flooring System.

**1.2 RELATED WORK**

~~A. Concrete and Moisture Vapor Barrier: Section 03 30 00, CAST IN PLACE CONCRETE.~~

~~A.B.~~ Color and location of each type of resinous (urethane and epoxy mortar) flooring: As indicated in Section 09 06 00, SCHEDULE FOR FINISHES.

**1.3 REFERENCES**

A. ASTM D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products.

B. ASTM D 4259 - Standard Practice for Abrading Concrete.

C. ASTM D 4263 - Indicating Moisture in Concrete by the Plastic Sheet Method.

D. ASTM F 1869 - Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

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E. International Concrete Repair Institute (ICRI) Guideline No. 03732 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.

F. SSPC-SP 13/NACE 6 - Surface Preparation of Concrete.

G. ABRASION

METHOD: ASTM D 4060, (CS-17 Wheel, 1,000 grams load).  
SYSTEM: Series 223 Deco-Trowel cured 30 days at 75°F (24°C).  
REQUIREMENT: 65.2 mg loss, average of three tests.

H. ADHESION

METHOD: ASTM D 4541.  
SYSTEM: Series 201 Epoxoprime/Series 223 Deco-Trowel cured seven days at 75°F (24°C).  
REQUIREMENT: Exceeds the cohesive strength of the concrete substrate (400 psi), average of three tests.

I. COEFFICIENT OF FRICTION

METHOD: ASTM D 2047.  
SYSTEM: Series 201 Epoxoprime/Series 223 Deco-Trowel/Series 284 Deco-Clear cured 14 days at 75°F (24°C).  
REQUIREMENT: 0.79 static coefficient of friction, average of 12 tests.

J. COMPRESSIVE STRENGTH

METHOD: ASTM C 579.  
SYSTEM: Series 223 Deco-Trowel cured seven days at 75°F (24°C).  
REQUIREMENT: 15,567 psi (107.33 MPa) compressive strength.

K. CRITICAL RADIANT FLUX

L. METHOD: ASTM E 648.

SYSTEM: Series 201 Epoxoprime/Series 223 Deco-Trowel/Series 284 Deco-Clear applied to cement board and cured 34 days at 75°F (24°C).  
REQUIREMENT: Maximum flame propagation distance of 419 mm and critical radiant flux of 0.52 W/cm<sup>2</sup>, average of three tests. (TR5780)  
METHOD: ASTM R 648.  
SYSTEM: Series 201 Epoxoprime/Series 223 Deco-Trowel/Series 284 Deco-Clear applied to cement board and cured 34 days at 75°F (24°C).  
REQUIREMENT: Maximum flame propagation distance of 419 mm and critical radiant flux of 0.52 W/cm<sup>2</sup>, average of three tests. (TR5780)

M. FLEXURAL STRENGTH AND MODULUS OF ELASTICITY

METHOD: ASTM C 580, Method A.  
SYSTEM: Series 223 Deco-Trowel cured 14 days at 75°F (24°C).  
REQUIREMENT: 4,550 psi (31.4 MPa) flexural strength, average of three tests.  
METHOD: ASTM D 790.  
SYSTEM: Series 223 Deco-Trowel cured seven days at 75°F (24°C).  
REQUIREMENT: 2,867 psi (19.77 MPa) flexural strength average of five tests. 127,876 psi (881.67 MPa) flexural modulus, average of five tests.

N. HARDNESS

METHOD: ASTM D 2240.  
SYSTEM: Series 201 Epoxoprime/Series 223 Deco-Trowel/Series 284 Deco-Clear cured 30 days at 75°F (24°C).  
REQUIREMENT: Not less than a Shore Type D hardness of 83.0, average of five tests.

O. IMPACT

METHOD: ASTM D 2794.

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SYSTEM: Series 201 Epoxoprime/223 Deco-Trowel cured 30 days at 75°F (24°C).  
REQUIREMENT: 160 inch pounds (18.08 J) average, direct impact.

P. RATE OF BURNING

METHOD: ASTM D 635.  
SYSTEM: Series 223 Deco-Trowel trowel applied.  
REQUIREMENT: Self-extinguishing (HB Classification), average of ten trials. (TR6093)

Q. SHRINKAGE

METHOD: ASTM C 531.  
SYSTEM: Series 223 Deco-Trowel cured 14 days at 75°F (24°C).  
REQUIREMENT: No more than 0.0035% linear shrinkage, average of four tests. (TR5779)

R. TENSILE STRENGTH, ELONGATION, MODULUS OF ELASTICITY

METHOD: ASTM D 638.  
SYSTEM: Series 223 Deco-Trowel cured seven days at 75°F (24°C).  
REQUIREMENT: 2,183 psi (15.1 MPa) tensile strength, average of five tests.  
METHOD: ASTM C 307.  
SYSTEM: Series 223 Deco-Trowel cured 14 days at 75°F (24°C).  
REQUIREMENT: 2,100 psi (14.5 MPa) tensile strength, average of three tests.

S. THERMAL EXPANSION

METHOD: ASTM C 531.  
SYSTEM: Series 223 Deco-Trowel cured 14 days at 75°F (24°C).  
REQUIREMENT: No more than  $1.85 \times 10^{-5}$  linear coefficient of thermal expansion per °F, average of four tests. (TR5779)

WATER ABSORPTION

METHOD: ASTM C 413.  
SYSTEM: Series 223 Deco-Trowel cured seven days at 75°F (24°C).  
REQUIREMENT: 0.1% water absorption, average of three tests.

1.4 DEFINITIONS

A. Definitions of Painting Terms: ASTM D 16, unless otherwise specified.

B. Dry Film Thickness (DFT): Thickness of a coat of paint in fully cured state measured in mils (1/1000 inch).

~~C. Floor Drains: Division 22, PLUMBING.~~

1.5 SUBMITTALS

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

B. Manufacturer's Literature and Data:

1. Description of each product to be provided.
2. Application and installation instructions.
3. Maintenance Instructions: Submit manufacturer's written instructions for recommended maintenance practices.

C. Qualification Data: For Installer.

D. ~~Sustainable Submittal~~ NOT USED.

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- ~~1. Product data for products having recycled content, submit documentation indicating percentages by weight of postconsumer and pre-consumer recycled content.~~
  - ~~a. Include statements indicating costs for each product having recycled content, and low emitting materials.~~
- ~~2. Product data for Environmental Quality Credit EQ 4.2 low emitting materials, include printed statement of VOC content indicating compliance with environmental requirements.~~
- ~~3. Product data for Material Resource Credit MR 4.1, 12% 35% post-consumer recycled glass content.~~
- ~~4. Product data for Material Resource Credit MR 6, renewable resin.~~
- ~~5. Product data for field applied, interior, paints, coatings, and primers, include printed statement of VOC content indicating compliance with environmental requirements.~~

## E. Samples:

1. Each color and texture specified in Section 09 06 00, SCHEDULE FOR FINISHES.
2. Samples for verification: For each (color and texture) resinous flooring system required, 6 inches (152 mm) square, applied to a rigid backing by installer for this project.
3. Sample showing construction from substrate to finish surface in thickness specified and color and texture of finished surfaces. Finished flooring must match the approved samples in color and texture.

## F. Shop Drawings: Include plans, sections, component details, and attachment to other trades. Indicate layout of the following:

1. Patterns.
2. Edge configuration~~++s++~~.

## G. Certifications and Approvals:

1. Manufacturer's certification of material and substrate compliance with specification.
2. Manufacturer's approval of installer~~++s++~~.
3. Contractor's certificate of compliance with Quality Assurance requirements.

## H. Warranty: As specified in this section.



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**1.46 QUALITY ASSURANCE**

- A. Manufacture Certificate: Manufacture shall certify that a particular resinous flooring system has been manufactured and in use for a minimum of five (5) years.

- B. Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this project for a minimum period of five (5) years, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous flooring manufacturer.
1. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
  2. Contractor shall have completed at least five (5) projects of similar size and complexity. Include list of at least five (5) projects. List must include owner (purchaser); address of installation, contact information at installation project site; and date of installation.
  3. Installer's Personnel: Employ persons trained for application of specified product.
- C. Source Limitations:
1. Obtain primary resinous flooring materials including primers, resins, hardening agents, grouting coats and finish or sealing coats from a single manufacturer.
  2. Provide secondary materials, including patching and fill material, joint sealant, and repair material of type and from source recommended by manufacturer of primary materials.
- ~~SPEC WRITER NOTE: Use mock-up for large projects only~~
- D. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and establish quality standards for materials and execution.
1. Apply full-thickness mockups on 48 inch (1200 mm)square floor area selected by VA Resident Engineer.
    - a. If applicable include 48 inch (1200 mm)length of integral cove base.
  2. Approved mockups not damaged during the testing may become part of the completed work if undisturbed at time of Substantial Completion.
  3. Sign off from VA Resident Engineer on texture for slip resistance and clean ability must be complete before installation of flooring system.
- E. Pre-Installation Conference:
1. Convene a meeting not less than thirty days prior to starting work.
  2. Attendance:
    - a. Contractor
    - b. VA Resident Engineer

- c. Manufacturer and Installer's Representative
- 3. Review the following:
  - a. Environmental requirements
    - 1) Air and surface temperature
    - 2) Relative humidity
    - 3) Ventilation
    - 4) Dust and contaminates
  - b. Protection of surfaces not scheduled to be coated
  - c. Inspect and discuss condition of substrate and other preparatory work performed
  - d. Review and verify availability of material; installer's personnel, equipment needed
  - e. Design ~~and pattern~~ and edge conditions.
  - f. Performance of the coating with chemicals anticipated in the area receiving the resinous (urethane and epoxy mortar/cement) flooring system
  - g. Application and repair
  - h. Field quality control
  - i. Cleaning
  - j. Protection of coating systems
  - k. One-year inspection and maintenance
  - l. Coordination with other work
- F. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of resinous flooring systems.
- G. Contractor Job Site Log: Contractor shall document daily; the work accomplished environmental conditions and any other condition event significant to the long term performance of the urethane and epoxy mortar/cement flooring materials installation. The Contractor shall maintain these records for one year after Substantial Completion.
- H. Volatile Organic Compound content to remain under 100g/liter.

#### 1.75 MATERIAL PACKAGING DELIVERY AND STORAGE

- A. Deliver materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number and date of manufacture.
- B. Protect materials from damage and contamination in storage or delivery, including moisture, heat, cold, direct sunlight, etc.
- C. Maintain temperature of storage area between 60 and 80 degrees F (15 and 26 degrees C).
- D. Keep containers sealed until ready for use.

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- E. Do not use materials beyond manufacturer's shelf life limits.
- F. Package materials in factory pre-weighed and in single, easy to manage batches sized for ease of handling and mixing proportions from entire package or packages. No On site weighing or volumetric measurements are allowed.

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**1.86 PROJECT CONDITIONS**

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring applications.
  - 1. Maintain material and substrate temperature between 65 and 85 degrees F (18 and 30 degrees C) during resinous flooring application and for not less than 24 hours after application.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.
- D. Concrete substrate shall be properly cured for a minimum of 30 days. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the resinous flooring.

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**1.97 WARRANTY**

- A. Work subject to the terms of the Article "Warranty of Construction" FAR clause 52.246-21.
- B. Warranty: Manufacture shall furnish a single, written warranty covering the full assembly (including substrata) for both material and workmanship for a extended period of three (3) full years from date of installation, or provide a joint and several warranty signed on a single document by manufacturer and applicator jointly and severally warranting the materials and workmanship for a period of three (3) full years from date of installation. A sample warranty letter must be included with bid package or bid may be disqualified.

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~~SPEC WRITER NOTE:~~~~1. Update and specify publications which apply to the project.~~

**1.108 APPLICABLE PUBLICATIONS**

- A. The publication 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):
- B221-08.....Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
  - C307-03 (2008).....Standard Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacing
  - C413-01(2006).....Standard Test Method for Absorption of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing and Polymer Concretes
  - C531-00(2005).....Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
  - C579-01(2006).....Standard Test Method for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
  - C580-02(2008).....Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
  - C811-98(2008).....Standard Practice for Surface Preparation of Concrete for Application of Chemical-Resistant Resin Monolithic Surfacing
  - D1308-02(2007).....Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
  - D2047-04 .....Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
  - D2240-05.....Standard Test Method for Rubber Property – Durometer Hardness
  - D4060-07.....Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
  - D4226-09.....Standard Test Methods for Impact Resistance of Rigid Poly(Vinyl Chloride) (PVC) Building Products

D7234-05.....Standard Test Methods for Pull-Off Adhesion  
Strength of Coatings on Concrete Using Portable  
Pull-Off Adhesion Testers  
F1869-09.....Standard Test Method for Measuring Moisture  
Vapor Emission Rate of Concrete Subfloor Using  
Anhydrous Calcium Chloride  
F2170-09.....Standard Test Method for Determining Relative  
Humidity in Concrete Floor Slabs Using in situ  
Probes

~~C. National Association of Architectural Metal Manufacturers (NAAMM):  
AMD 501.....Finishes for Aluminum~~

## **PART 2 - PRODUCTS**

### **~~2.1 SYSTEM DESCRIPTION FOR RES-6A (HEAVY DUTY CLIMATIC)~~**

#### ~~A. System Descriptions:-~~

~~1. Monolithic, multi component urethane chemistry resinous flooring system, Screed and steel finish trowel applied, chemical and thermal cycling and shock resistant. Self priming multiple component polyurethane mortar, quartz aggregates for texture and associated high performance urethane sealer. Temperature resistance to 250 degrees F (121 degrees C) where required.~~

~~B. Products: Subject to compliance with applicable fire, health, environmental, and safety requirements for storage, handling, installation, and clean up.~~

~~C. System Components: Verify specific requirements as systems vary by manufacturer. Verify mortar base product, build up layers of broadcast systems will not be accepted. Verify compatibility with substrate. Use manufacturer's standard components, compatible with each other and as follows:-~~

#### ~~1. Mortar (Body coat):-~~

- ~~a. Resin: Urethane with rapidly renewable resin components.~~
- ~~b. Formulation Description: Multiple component high solids.~~
- ~~c. Application Method: Screed and steel finish trowel.~~
- ~~d. Thickness of coat(s): Verify thickness as systems vary by manufacturer; Nominal thickness 3/16 to 1/4 inch (4.76 to 6.35mm).~~
- ~~e. Number of Coats: One.~~
- ~~f. Aggregates: Quartz texture broadcast into wet urethane mortar base.~~

#### ~~2. Seal Coat(s):-~~

- ~~a. Resin: Urethane.~~
- ~~b. Formulation Description: Pigmented Two component, high solids.~~
- ~~c. Application Method: Squeegee and Back roll.~~

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~~d. Number of Coats: One.~~~~D. Physical Properties:~~~~1. Physical Properties of flooring system when tested as follows:~~

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Property	Test	Value
<del>Compressive Strength</del>	<del>ASTM C579</del>	<del>5,000 psi after 7 days</del>
<del>Tensile Strength</del>	<del>ASTM C307</del>	<del>1,000 psi</del>
<del>Flexural Strength</del>	<del>ASTM C580</del>	<del>2,400 psi</del>
<del>Water Absorption</del>	<del>ASTM C413</del>	<del>0.056%</del>
<del>Coefficient of friction dry/slip index wet</del>	<del>ASTM D2047</del>	<del>&gt;1.0 dry &gt;1.0 wet</del>
<del>Impact Resistance</del>	<del>ASTM D4226</del>	<del>&gt;160 in. lbs</del>
<del>Abrasion Resistance</del>	<del>ASTM D4060</del>	<del>0.05 gm maximum weight loss</del>
<del>Thermal Coefficient of Linear Expansion</del>	<del>ASTM C531</del>	<del><math>1.1 \times 10^{-5}</math> mm/°C mm</del>
<del>Hardness Shore D</del>	<del>ASTM D2240</del>	<del>80 to 84</del>
<del>Bond Strength</del>	<del>ASTM D7234</del>	<del>&gt;300 psi 100% concrete failure</del>
<del>Chemical Resistance of the following:</del>	<del>ASTM D1308</del>	<del>No Effect</del>
<del>Acetic acid</del>	<del>5 percent</del>	
<del>Ammonium hydroxide</del>	<del>10 percent</del>	
<del>Citric Acid</del>	<del>50 percent</del>	
<del>Fatty acid Motor Oil, 20W</del>		
<del>Hydrochloric acid</del>	<del>10 percent</del>	
<del>Salt water</del>	<del>10 percent</del>	
<del>Sodium Hydroxide</del>	<del>10 percent</del>	
<del>Sulfuric acid</del>	<del>10 percent</del>	
<del>Trisodium phosphate</del>	<del>5 percent</del>	
<del>Urine</del>		
<del>Feces</del>		
<del>Hydrogen peroxide</del>	<del>28 percent</del>	
<del>Distilled Water</del>		
<del>Sodium Hypochloride</del>	<del>5.28 percent</del>	

**2.2-1 SYSTEM DESCRIPTION FOR RES-6B (HEAVY DUTY - NON CLIMATIC)****A. Provide specified product (basis of design) or approved equal:****1. Tnemec Company, Inc., Compton, CA. Local contact: Tony Hobbs 310/637-****2363.****2. Moderate Abuse, Decorative, Wet, Chemical Spills:****a. System Type: Decorative Quartz Epoxy.****b. Surface Preparation: Shot Blast or Mech. Abrade (CSP 4-6).****c. Primer: Series 201 Epoxoprime DFT 6.0 to 8.0 Mils.****d. Intermediate Coat: Series 223 Deco-Trowel (Mortar) DFT 1/4 inch.****e. Grout Coat: Series 284 Deco-Clear. DFT 6.0 to 8.0 Mils.****f. Finish Coat: Series 284 Deco-Clear. DFT 8.0 to 10.0 Mils.**

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g. Total DFT: 1/4 inch system

h. Finish Color: See 09 06 00 Schedule for Finishes

BA. System Description:

1. Epoxy resinous Troweled mortar includes: concrete epoxy primers, three component, 100% solids resin, amine and quartz aggregate mortar, and associated 100% solids general service epoxy sealer. Optional: aliphatic polyurethane sealer finish coat for higher UV stability, and chemical resistance. Texture dependant on use of areas.

DB. Products: Subject to compliance with applicable fire, health, environmental, and safety requirements for storage, handling, installation, and clean up.

EE. System Components: Verify specific requirements as systems vary by manufacturer. Verify mortar base product, build up layers of broadcast systems will not be accepted. Verify compatibility with substrate. Use manufacturer's standard components, compatible with each other and as follows:

1. Primer (Bond Coat): Verify inclusion of primer in manufacturer's system.
  - a. Resin: Epoxy.
  - b. Formulation Description: 100 percent solids.
  - c. Application Method: Apply by Squeegee and back roller.
    - 1) Coats: Single (one).
2. Mortar:
  - a. Resin: Epoxy with rapidly renewable resin components.
  - b. Formulation Description: 100 percent solids.
  - c. Application Method: Verify specific requirements as systems vary by manufacturer.
    - 1) Trowel application only:
      - a) Thickness of coats: Nominal 3/16 to 1/4 inch (4.76 to 6.35 mm).
      - b) Number of coats: One.
    - 2) Slurry application: Not accepted for non-climatic finish.
  - d. Aggregates: Quartz/silica blend with 25% Recycled Glass
3. Topcoat:
  - a. Resin: Epoxy.
  - b. Formulation Description: 100 percent solids.
  - c. Application Method: Squeegee and finish roll.
    - 1) Thickness of coats: 3 mils.

2) Number of Coats: one (aggressive texture profiles may require more than one coat)

d. Aggregates: For added slip resistance dependant on area.

- 1) Dry silica sand (30 Mesh or larger).
- 2) Aluminum oxide.

DE. System Characteristics:

1. Color and Pattern: As selected by Resident Engineer from manufacturer's standard colors.
2. Integral cove base: 1 inch (25.4 mm) radius epoxy mortar cove keyed into concrete substrate and or resinous flooring mortar system. No fillers integral cove base must be troweled in place with specified resinous mortar base.
3. Overall System Thickness: Nominal ~~3/16 to~~ 1/4 inches (~~4.76 to~~ 6.35 mm).
4. Finish: ~~//standard//~~ or ~~//texture finish// or //anti-slip resistant//~~.
5. Temperature Range: Systems vary by manufacturer; approximate range from a minimum of 45 to 150 degrees F.

EF. Physical Properties:

1. Physical Properties of flooring system when tested as follows:

Property	Test	Value
Compressive Strength	ASTM C579	10,000 psi after 7 days
Tensile Strength	ASTM C307	1,750 psi
Flexural Strength	ASTM C580	4,000 psi
Water Absorption	ASTM C413	0.2%
Slip Resistance Index	ASTM D2047	0.83 dry 0.66 wet
Impact Resistance	ASTM D4226	> 160 in. lbs
Abrasion Resistance	ASTM D4060 CS-17 1000g 1000 cycles	0.1 gm maximum weight loss
Thermal Coefficient of Linear Expansion	ASTM C531	$1.5 \times 10^{-5}$ mm/ °C mm
Hardness Shore D	ASTM D2240	> 70
Bond Strength	ASTM D7234	>300 psi 100% concrete failure
Chemical Resistance of the following:	ASTM D1308	No Effect
Acetic acid	5 percent	
Ammonium hydroxide	10 percent	
Citric Acid	50 percent	
Fatty acid Motor Oil, 20W		
Hydrochloric acid	10 percent	
Salt water	10 percent	
Sodium Hydroxide	10 percent	
Sulfuric acid	10 percent	
Trisodium phosphate	5 percent	
Urine		
Feces		
Hydrogen peroxide	28 percent	
Distilled Water		
Sodium Hypochloride	5.28 percent	

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**2.4 SUPPLEMENTAL MATERIALS**

- A. Textured Top Coat: Type recommended or produced by manufacturer of seamless resinous flooring system, ~~//~~slip resistance ~~//~~ type and profile of ~~//~~ for desired final finish.
- B. Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service or joint conditioned indicated.

~~SPEC WRITER NOTE:~~~~1. Waterproofing membrane recommended for wet areas above grade.~~

- C. Waterproof Membrane: Type recommended or produced by manufacturer of resinous floor coatings for type of service and conditions as ~~//~~ indicated in Drawings ~~//~~ and/or specified ~~//~~ ~~//~~.

~~SPEC WRITER NOTE:~~

~~1. Provide Highly chemical resistant  
topcoat~~  
//D. Provide a chemical resistant epoxy novolac top coat capable of resisting  
sustained temperatures up to ~~//120°C (250°F).~~

~~SPEC WRITER NOTE:~~

~~1. Crack Isolation membrane recommended  
for new flooring in existing  
structures.~~  
//E. Crack Isolation Membrane: Type recommended or produced by manufacturer  
of resinous flooring for conditions as ~~//indicated in Drawings//~~ and/or  
specified ~~//~~ ~~//~~.

~~SPEC WRITER NOTE:~~

~~1. Anti Microbial Additive is optional and  
recommended where possibility of  
infection occurs.~~  
//F. Anti-Microbial Additive: Incorporate anti-microbial chemical additive to  
prevent growth of most bacteria, algae, fungi, mold, mildew, yeast,  
etc. ~~//~~

~~SPEC WRITER NOTE:~~

~~1. If sub floor is not level is should be  
filled and leveled~~  
//G. Patching and Fill Material: Resinous product of or approved by resinous  
coating manufacturer for application indicated. Resinous based materials  
only. Cementitious or single component product are not expectable ~~//~~.

## 2.5 TROWELED COVE BASE ~~//AND TRENCH LINER//~~

Same physical properties as specified resinous mortar system.  
~~//climatic, non-climatic//~~

## 2.6 BASE CAP STRIP

- A. Aluminum, Extruded: ASTM B221, Alloy 6063-T6.
- B. Shape for 3/16 inch (4.76 mm) depth of base material, "J" configuration.
- C. Finish:
  - 1. Finish exposed surfaces in accordance with NAAMM Metal Finishes Manual.
  - 2. Aluminum: NAAMM Amp 501:
    - a. Clear anodic coating, AA-C22A41 chemically etched medium matte, with Architectural Class 1, 0.7 mils (0.018 mm) or thicker.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Examine the areas and conditions where monolithic resinous (urethane and epoxy mortar) flooring system with integral base is to be installed with the VA Resident Engineer.

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- B. Moisture Vapor Emission Testing: Perform moisture vapor transmission testing in accordance with ASTM F1869 to determine the MVER of the substrate prior to commencement of the work. See section 3.4, 3.

### 3.2 PROJECT CONDITIONS

- A. Maintain temperature of rooms (air and surface) where work occurs, between 70 and 90 degrees F (21 and 32 degrees C) for at least 48 hours, before, during, and 24 hours after installation. Maintain temperature at least 70 degrees F (21 degrees C) during cure period.
- B. Maintain relative humidity less than 75 percent.
- C. Do not install materials until building is permanently enclosed and wet construction is complete, dry, and cured.
- D. Maintain proper ventilation of the area during application and curing time period.
1. Comply with infection control measures of the VA Medical Center.

### 3.3 INSTALLATION REQUIREMENTS

- A. The manufacturer's instructions for application and installation shall be reviewed with the VA Resident Engineer for the seamless resinous (urethane and epoxy mortar) flooring system with integral cove base-  
~~//and trench liner//~~.
- B. Substrate shall be approved by manufacture technical representative.

### 3.4 PREPARATION

- A. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral Ph substrate for resinous flooring application.
- ~~SPEC WRITER NOTE: Retain first paragraph and subparagraphs below for concrete substrates. Insert requirements for other substrates to suit Project.~~
- B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
1. Prepare concrete substrates as follows:
- a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
- ~~SPEC WRITER NOTE: Delete subparagraph above or first subparagraph below. See Evaluations.~~
- b. Comply with ASTM C 811 requirements, unless manufacturer's written instructions are more stringent. Use of acids is never allowed.

2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written recommendations.

~~SPEC WRITER NOTE: Consider including allowance or unit price for remedial procedures if concrete substrates exhibit unacceptable moisture vapor emission rates. See "Moisture and Flooring Failures" Article in the Evaluations.~~

3. Verify that concrete substrates are dry.

~~SPEC WRITER NOTE: For applying impermeable resinous flooring systems, 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) of slab in 24 hours is generally considered a safe moisture vapor emission rate. Consult manufacturers for appropriate rates for permeable systems that will allow moisture vapor to continue through them once cured.~~

- a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of **5 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m)** in 24 hours.
- b. MVT threshold for monolithic resinous Non - climatic flooring shall not exceed 5 lbs/1000 square feet (0.0001437 kPa) in a 24 hour period. MVT threshold for monolithic resinous climatic flooring shall not exceed 6 lbs/1000 square feet (0.0002155 kPa) over a 24 hour period.
- c. When MVT emission exceeds this limit, apply manufacturer's recommended vapor control primer or other corrective measures as recommended by manufacturer prior to application of flooring or membrane systems.
- d. Perform in situ probe test, ASTM F2170. Proceed with application only after substrates do not exceed a maximum potential equilibrium relative humidity of 75-80 percent.
  - a. Provide a written report showing test placement and results.
4. Verify that concrete substrates have neutral Ph and that resinous flooring will adhere to them. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- C. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
- D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written recommendations. Allowances should be included

for flooring manufacturer recommended joint fill material, and concrete crack treatment.

- F. Prepare wall to receive integral cove base ~~//and trench liner//~~:
1. Verify wall material is acceptable for resinous flooring application, if not, install material (e.g. cement board) to receive base.
  2. Fill voids in wall surface to receive base, install undercoats (e.g. water proofing membrane, and/or crack isolation membrane) as recommended by resinous flooring manufacturer.
  3. Install base ~~//and trench liner//~~ prior to flooring if required by resinous flooring manufacturer.
  4. Grind, cut or sand protrusions to receive base application.

### 3.5 APPLICATION

- A. **General:** Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
  2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.

~~SPEC WRITER NOTE: Delete subparagraph below if no expansion or isolation joints in floor. Detail joints on Drawings and revise below to suit Project.~~

3. At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.

~~SPEC WRITER NOTE: Delete subparagraph below if joint sealant is specified in Division 07 Section "Joint Sealants."~~

- a. Apply joint sealant to comply with manufacturer's written recommendations.

~~SPEC WRITER NOTE: Delete paragraph below if only self priming systems are required.~~

- B. Apply Primer: over prepared substrate at manufacturer's recommended spreading rate.

~~SPEC WRITER NOTE: Delete paragraph below if no integral cove base. If retaining, insert requirements for installing metal or plastic cove caps if required.~~

- C. Apply cove base: Trowel to wall surfaces at a 1 inch radius, before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming,



and troweling, sanding, and top coating of cove base. Round internal and external corners.

- D. Trowel mortar base: Mix mortar material according to manufacturer's recommended procedures. Climatic and non-climatic resinous flooring systems may vary slightly on mode of application. Application should be based upon the following: Uniformly spread mortar over substrate using a specially designed screed box adjusted to manufacturer's recommended height. Metal trowel (hand or power) single mortar coat in thickness indicated for flooring system, grout to fill substrate voids. When cured, sand to remove trowel marks and roughness
- E. Topcoat: Mix and roller apply the topcoat(s) with strict adherence to manufacturer's installation procedures and coverage rates.

### 3.6 TOLERANCE

- A. From line of plane: Maximum 1/8 inch (3.18 mm) in total distance of flooring and base.
- B. From radius of cove: Maximum of 1/8 inch (3.18 mm) plus or 1/16-inch (1.59 mm) minus.

### 3.7 CURING, PROTECTION AND CLEANING

- A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process.
- B. Close area of application for a minimum of 24 hours.
- C. Protect resinous flooring materials from damage and wear during construction operation.
  - 1. Cover flooring with kraft type paper.
  - 2. Optional 6 mm (1/4 inch) thick hardboard, plywood, or particle board where area is in foot or vehicle traffic pattern, rolling or fixed scaffolding and overhead work occurs.
- D. Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer.

- - - E N D - - -

**SECTION 09 97 33.10****RESINOUS COATING SYSTEMS FOR WALLS AND CEILINGS (RES-W)**~~SPEC WRITER NOTE:~~

- ~~1. Delete //\_\_\_\_\_// if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.~~
- ~~2. Identified as RES-W in for resinous wall and ceiling application in VA Program Guide PG 18-14 "Room Finishes, Door & Hardware Schedule"~~
  - ~~A. Areas of Use~~
    - ~~• Walls~~
    - ~~• Ceilings~~

**PART 1 - GENERAL****1.1 DESCRIPTION**

- A. This section specifies a seamless wall coating system.
- B. Wall systems consist of multi component epoxy resins, primer base and finishing coats.

**1.2 RELATED WORK**

Color and room finish schedule: Section 09 06 00, SCHEDULE FOR FINISHES.

**1.3 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
  1. Description of each product to be provided.
  2. Application and installation instructions.
  3. Maintenance Instructions: Submit manufacturer's written instructions for recommended maintenance practices.
- C. Qualification Data: For Installer.
- D. Sustainable Submittal:
  1. Product data for products having recycled content, submit documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
    - a. Include statements indicating costs for each product having recycled content.
  2. Product data for field applied, interior, paints, coatings, and primers, include printed statement of VOC content indicating compliance with environmental requirements.

## E. Samples:

1. Each color and texture specified in Section 09 06 00, SCHEDULE FOR FINISHES.
2. Samples for verification: For each (color and texture) resinous wall/ceiling system required, 6 inches (152 mm) square, applied to a rigid backing by installer for this project.
3. Sample showing construction from substrate to finish surface in thickness specified and color and texture of finished surfaces. Finished resinous coating must match the approved samples in color and texture.

## F. Shop Drawings: Include plans, sections, component details, and attachment to other trades. Indicate layout of the following:

1. Patterns.
2. Edge configuration~~++s++~~.

## G. Certification and Approval:

1. Manufacturer's certification of material and substrata compliance.
2. Manufacturer's approval of installer~~++s++~~.
3. Contractor's certificate of compliance with Quality Assurance requirements.

## H. Warranty: As specified in this section.

**1.4 QUALITY ASSURANCE**

- A. Manufacture Certificate: Manufacture shall certify that a particular resinous coating for wall/~~ceiling~~ system has been in use for a minimum of five years.
- B. Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous coating for wall/~~ceiling~~ systems similar in material, design, and extent to those indicated for this project for a minimum period of 5 years, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous coating for wall/ceiling manufacturer.
  1. Engage an installer who is certified in writing by resinous product manufacturer as qualified to apply resinous coatings for wall/~~ceiling~~ systems indicated.
  2. Contractor shall have completed at least 10 projects of similar size and complexity. Include list of at least 5 projects. List must include owner (purchaser); address of installation, contact information at installation project site; and date of installation.

3. Installer's Personnel: Employ persons trained for application of specified product.

C. Source Limitations:

1. Obtain primary resinous coating materials including primers, resins, hardening agents, grouting coats and finish or sealing coats from a single manufacturer.
2. Provide secondary materials, including patching and fill material, joint sealant, and repair material of type and from source recommended by manufacturer of primary materials.

D. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and establish quality standards for materials and execution.

1. Apply full-thickness mockups on 48 inch (1200 mm)square area (wall/~~ceiling~~) selected by VA Resident Engineer.
2. Test mock-up with anticipated chemicals to be used in the designated area.
3. Approved mockups not damaged during the testing may become part of the completed work if undisturbed at time of Substantial Completion.
4. Sign off from VA Resident Engineer on texture must be complete before installation of wall/ceiling system.

E. Pre-Installation Conference

1. Convene a meeting not less than thirty days prior to starting work.
2. Attendance:
  - a. Contractor
  - b. VA Resident Engineer
  - c. Manufacturer and Installer's Representative
3. Review the following:
  - a. Environmental requirements
    - i) Air and surface temperature
    - ii) Relative humidity
    - iii) Ventilation
    - iv) Dust and contaminates
  - b. Protection of surfaces not scheduled to be coated
  - c. Inspect and discuss condition of substrate and other preparatory work performed
  - d. Review and verify availability of material; installer's personnel, equipment needed
  - e. Design ~~//~~and pattern~~//~~~~//s~~~~//~~ and edge conditions.

- f. Performance of the coating with chemicals anticipated in the area receiving the resinous coating system
  - g. Application and repair
  - h. Field quality control
  - i. Cleaning
  - j. Protection of coating systems
  - k. One-year inspection and maintenance
  - l. Coordination with other work
- F. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of coating systems.

#### 1.5 MATERIAL PACKAGING DELIVERY AND STORAGE

- A. Deliver materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number, date of manufacture and mixing/thinning instructions.
- B. Protect materials from damage and contamination in s storage or delivery, including moisture, heat, cold, direct sunlight, etc.
- C. Maintain temperature of storage area between 60 and 80 degrees F (15 and 26 degrees C).
- D. Keep containers sealed until ready for use.
- E. Do not use materials beyond manufacturer's shelf life limits.
- F. Package materials in factory pre-weighed and in single, easy to manage batches sized for ease of handling and mixing proportions from entire package or packages.

#### 1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with resinous wall/~~ceiling~~ manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous wall/~~ceiling~~ applications.
  - 1. Maintain material and substrate temperature between 65 and 85 degrees F (18 and 30 degrees C) during resinous wall/~~ceiling~~ application and for not less than 24 hours after application.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous wall/~~ceiling~~ application.

- C. Close spaces to traffic during resinous wall/ceiling application and for not less than 24 hours after application, unless manufacturer recommends a longer period.

#### 1.7 WARRANTY

- A. Work subject to the terms of the Article "Warranty of Construction" FAR clause 52.246-21.
- B. Warranty: Manufacture shall furnish a single, written warranty covering the full assembly (including substrata) for both material and workmanship for a extended period of (3) full years from date of installation, or provide a joint and several warranty signed on a single document by manufacturer and applicator jointly and severally warranting the materials and workmanship for a period of (3) full years from date of installation. A sample warranty letter must be included with bid package or bid may be disqualified.

~~SPEC WRITER NOTE:-~~

~~1. Update and specify publications which apply to the project.~~

#### 1.8 APPLICABLE PUBLICATIONS

- A. The publication 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. ACI (American Concrete institute):  
Comm. 503.1-92.....Four Epoxy Specifications (Reapproved 2003).
- C. American Society for Testing and Materials (ASTM):  
D16-08.....Standard Terminology for Paint, Related Coatings, Materials, and Applications  
D4259-88(2006).....Standard Practice for Abrading Concrete  
D4263-83(2005).....Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method  
F1869-09.....Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- C. International Concrete Repair Institute (ICRI) Guideline No.:  
03732 (2008).....Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays
- D. International Concrete Repair Institute (ICRI) Guideline No.:

03732 (2008).....Selecting and Specifying Concrete Surface  
Preparation for Sealers, Coatings, and Polymer  
Overlays

E. The Society for Protective Coatings SSPC:

SP 13/NACE 6 (2008).....Surface Preparation of Concrete

~~SPEC WRITER NOTE: Update and specify in  
publications listing and Part 2 only  
that, which applies to the project.~~

## PART 2 - PRODUCTS

### 2.1 SYSTEM DESCRIPTION

A. Epoxy resinous wall system includes: 100% solids two component epoxy primers, and base coats. Vinyl chip broadcast aggregates and associated 100% solids general service epoxy sealer. Optional: aliphatic polyurethane sealer finish coat for higher UV stability, and chemical resistance.

C. System Characteristics.

1. Color and pattern: As indicated on drawings.
2. Wearing Surface: Smooth
4. Overall System Thickness: 15-20 mils.

D. System Components: Manufactures standard components that are compatible with each other, and as follows:

1. **Primer Formulation Description:** Multi-component 100% solids epoxy.

2. **Formulation Description: Body Coat:**

- a). Resin: epoxy
- b). Formulation Description: Two component 100% solids
- c). Application Method: Dip and roll
- d). Coats: One
- e). Thickness: 10 mils (wet).
- f). Aggregates: Solid/single color pigmented quartz blended

3. **Sealer Finish Coat:**

- a). Resin: epoxy
- b). Formulation Description: Two Component 100% solids
- c). Type: clear
- d). Finish: Gloss
- e). Number of coats: One or two
- c). Application Method: back roll nap roller

4. Optional 100% solids urethane for UV and increased chemical protection.

## 2.2 SPECIAL WALL COATING SYSTEM.

- A. Physical Properties of flooring system when tested as follows:

Property	Test	Value
Hardness	ASTM D2240	80-85
Bond Strength (Concrete Only)	ASTM D7234	>300 psi 100% concrete failure
Impact Resistance	ASTM D2794	Exceeds 40in. lbs
Abrasion Resistance	ASTM D4060	0.08 gm maximum weight loss
Fire Resistance of dry film		Self extinguishing
Impact Resistance (Concrete Only)	ASTM D4226	> 160 in. lbs
Resistance to elevated temperatures	MIL D 3134J	No slip or flow at 158f
VOC		< 100 G/L

- C. Primer, Coloring, Sealer, and Finish coats as standard with manufacture of resinous system.
- D. Base cap: Extruded aluminum, clear anodized finish unless specified otherwise in Section 09 06 00, SCHEDULE FOR FINISHES.

## 2.4 ACCESORY MATERIALS

- A. Patching and Fill Material: Resinous product of or approved by resinous manufacturer for application indicated.

## PART 3 - EXECUTION

### 3.1 PROJECT CONDITIONS

- A. Maintain temperature of materials above 21°C (70 degrees F), for 48 hours before installation.
- B. Maintain temperature of rooms where work occurs, between 21°C and 32°C (70°F and 90°F) for at least 48 hours, before, during, and 24 hours after installation. Maintain temperature at least 21°C (70 degrees F) thereafter.



- C. Do not install materials until building is permanently enclosed and wet construction is complete, dry, and cured.
- D. Area free of other trades during and for a period of 24 hours after installation.

### **3.2 INSTALLATION REQUIREMENTS**

- A. The respective manufacturer's instructions for application and installation will be considered for use when approved by the Resident Engineer.
- B. Submit proposed installation deviation from this specification to the Resident Engineer indicating the differences in the method of installation.

### **3.3 PREPARATION**

- A. General: Prepare and clean substrates according to manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral Ph substrate for resinous application.
- B. Substrates: Provide sound surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible.
  - 1. Prepare substrates as follows:
    - a. Mechanically sand or hand grind if previously applied coating is present.
    - b. Comply with ASTM C 811 requirements, unless manufacturer's written instructions are more stringent.
  - 2. Repair damaged and deteriorated substrate according to manufacturer's written recommendations.
  - 3. Verify that substrates are dry.
- C. Resinous Materials: Mix components and prepare materials according to manufacturer's written instructions.
- D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

### **3.4 APPLICATION**

- A. **General:** Apply components of resinous wall system according to manufacturer's written instructions to produce a uniform, monolithic surface of thickness indicated.
  - 1. Coordinate application of components to provide optimum adhesion of resinous system to substrate, and optimum inter-coat adhesion.

2. Cure resinous components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
- B. **Apply Primer:** over prepared substrate at manufacturer's recommended spreading rate.
- C. **Base coat(s):** Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, and troweling, sanding, and top coating.
- E. **Topcoat:** Mix and roller apply the topcoat(s) with strict adherence to manufacturer's installation procedures and coverage rates.

### 3.5 CURING, PROTECTION AND CLEANING

- A. Cure resinous materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process.
- B. Close area of application for a minimum of 24 hours.
- C. Protect resinous materials from damage and wear during construction operation.

- END - - -

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