

Wilkes-Barre
VA Medical Center

Improve Wayfinding and Signage

Solicitation # VA244-15-C-024

Specifications

Project # 693-13-106

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**DEPARTMENT OF VETERANS AFFAIRS
VHA MASTER SPECIFICATIONS**

**TABLE OF CONTENTS
Section 00 01 10**

	DIVISION 00 - SPECIAL SECTIONS	DATE
00 01 15	List of Drawing Sheets	07-15
00 11 21	Request for Proposal to Design Build	11-15
	DIVISION 01 - GENERAL REQUIREMENTS	
01 00 00	General Requirements	11-15
01 33 23	Shop Drawings, Product Data, and Samples	07-15
01 35 26	Safety Requirements	10-14
01 42 19	Reference Standards	07-15
01 57 19	Temporary Environmental Controls	
01 58 16	Temporary Interior Signage	07-15
01 74 19	Construction Waste Management	09-13
	DIVISION 02 - EXISTING CONDITIONS	
02 21 00	Site Surveys	05-13
02 41 00	Demolition	02-15
	DIVISION 03 - CONCRETE	
03 30 53	(Short-Form) Cast-in-Place Concrete	02-16
	DIVISION 09 - FINISHES	
09 06 00	Schedule for Finishes	04-15
	DIVISION 10 - SPECIALTIES	
10 13 00	Directories	05-15
10 14 00	Signage	10-15

SECTION 00 01 15
LIST OF DRAWING SHEETS

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

Drawing No(Exterior Signage). Title

	VAMC W-B CAMPUS SITE PLAN
1	COLORS, TYPOGRAPHY, VA SIGNATURE
2	LOCATION 01
3	LOCATION 02
4	LOCATION 03
5	LOCATION 04
6	LOCATION 05
7	LOCATION 06
8	LOCATION 07
9	LOCATION 08
10	LOCATION 09
11	LOCATION 10
12	LOCATION 11
13	LOCATION 12
14	LOCATION 13
15	LOCATION 14
16	LOCATION 15
17	LOCATION 16
18	LOCATION 17
19	LOCATION 18
20	LOCATION 19
21	LOCATION 20
22	LOCATION 21
23	LOCATION 22
24	LOCATION 23
25	LOCATION 23.1
26	LOCATION 24
27	LOCATION 25
28	LOCATION 26
29	LOCATIONS A-1, A-2
30	LOCATIONS B-1, B-2
31	LOCATION C-1
32	LOCATION E-1, E-2
33	LOCATION G-1
34	LOCATION J-1
35	LOCATION K-1
36	LOCATION L-1
37	LOCATION M-1
38	LOCATION N-1
39	LOCATION O-1
40	LOCATION S-1
41	LOCATIONS 1-A, 2-A
42	LOCATIONS 1-B, 2-B, 3-B, 4-B
43	LOCATIONS 1-L, 2-L
44	LOCATIONS 1-M, 2-M
45	LOCATIONS 1-N, 2-N
46	LOCATIONS VAP-1, VAP-2, VAP-3
47	EXTERIOR BEACON SIGN

Drawing No(Interior Signage). Title

1	COLORS, TYPOGRAPHY, VA SIGNATURE
2	ADA-1
3	RI-1
4	RI-2
5	SLIDER
6	PR-2
7	PR-4
8	ID-1
9	DP-1
10	SD-1
11	LD-1
12	EID-1
13	FID-1
14	DIR-1
15	DIR-2
16	SW-1
17	OH-1, OH-2
18	PD-1
19	FM-1
20	PI-1
21	DB-1
22	VP-01
23	IN-02
24	IN-04.00

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**SECTION 01 00 00
GENERAL REQUIREMENTS**

TABLE OF CONTENTS

1.1 SAFETY REQUIREMENTS.....	1
1.2 GENERAL INTENTION.....	1
1.3 STATEMENT OF BID ITEM(S)	1
1.4 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR	1
1.5 OPERATIONS AND STORAGE AREAS.....	2
1.6 ALTERATIONS.....	4
1.7 DISPOSAL AND RETENTION.....	5
1.8 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS	5
1.9 RESTORATION.....	6
1.10 AVAILABILITY AND USE OF UTILITY SERVICES.....	7
1.11 TESTS.....	8
1.12 INSTRUCTIONS.....	8

SECTION 01 00 00
GENERAL REQUIREMENTS

1.1 SAFETY REQUIREMENTS

Refer to section 01 35 26, SAFETY REQUIREMENTS for safety and infection control requirements.

1.2 GENERAL INTENTION

- A. Contractor shall prepare site for signage placement, including demolition and removal of existing signage, and furnish labor and materials and perform work for design and provision of all signage and signage support systems 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.
- E. All employees of contractor/vendor 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.

1.3 STATEMENT OF BID ITEM(S)

- A. ITEM I, SIGNAGE: Work includes fabrication, delivery, and installation of signage, necessary removal of existing signage and certain other systems items, not under the scope of this project.

1.4 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

- A. Drawings and contract documents may be obtained from the website where the solicitation is posted. Additional copies will be at Contractor's expense.
- B. 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. A limited number of (2 to 5) permits shall be issued for General Contractor and its employees for parking in designated areas only.

1.5 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 COR.
- E. Workmen are subject to rules of Medical Center applicable to their conduct.

Execute work in such a manner as to interfere as little as possible with work being done by others. Keep roads clear of construction

materials, debris, standing construction equipment and vehicles at all times.

- F. Execute work so as to interfere as little as possible with normal functioning of Medical Center as a whole. 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 COR 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.

- G. Utilities Services: Where necessary to cut existing pipes, electrical wires, conduits, cables, etc., of utility services, or of fire protection systems or communications systems (except telephone), they shall be cut and capped at suitable places where directed by COR. All such actions shall be coordinated with the COR or Utility Company involved:

1. 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.

H. Phasing:

The Medical Center must maintain its operation 24 hours a day 7 days a week. Therefore, any interruption in service must be scheduled and coordinated with the COR to ensure that no lapses in operation occur. It is the CONTRACTOR'S responsibility to develop a work plan and schedule detailing, at a minimum, the procedures to be employed, the equipment and materials to be used, the interim life safety measure to be used during the work, and a schedule defining the duration of the

work with milestone subtasks. The work to be outlined shall include, but not be limited to:

To insure such executions, Contractor shall furnish the COR with a schedule of approximate 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 COR one week in advance of the proposed date of starting work in each specific area of site, building or portion thereof. Arrange such dates to insure accomplishment of this work mutually agreeable to =COR =and Contractor.

I. 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.

1.6 ALTERATIONS

A. Survey: Before any work is started, the Contractor/Vendor shall make a thorough survey with the COR and a representative of VA Supply Service, of buildings in which signage is to be installed occur and areas which are anticipated routes of access, and furnish a report, signed by all three, to the Contracting Officer. This report shall note any discrepancies between drawings and existing conditions at site.

- 1.. Shall designate areas for working space, materials storage and routes of access to areas within buildings and campus where signage is to be installed occur and which have been agreed upon by Contractor and COR.

B. 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.

4. Electrical:

- a. Proposed ground-mounted signage will not require illumination.
- b. Several existing signs will be replaced, while several additional signs identified as ID-1.0 and BI-1.0 will be added to better guide patients to their desired destinations. Prior to installing new signage, a licensed electrician shall verify adequacy of existing electrical load capacity to accommodate limited internally illuminated, low amperage, building-mounted exterior signage.
- c. The selected signage installation contractor shall utilize a licensed electrician to install new internally illuminated, low amperage, building-mounted exterior signage.

1.7 DISPOSAL AND RETENTION

- A. Materials accruing from work removed and from demolition 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 re-use. Store such items where directed by COR.
 - 2. Items not reserved shall become property of the Contractor and be removed by Contractor from Medical Center.

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

- A. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the exterior signage locations, which are not to be removed and which do not unreasonably interfere with the work required under this contract.

The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

- B. The Contractor shall protect from damage all existing improvements and utilities at or near exterior sign locations, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

(FAR 52.236-9)

- C. Refer to Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS, for additional requirements on protecting vegetation, soils and the environment. Refer to Articles, "Alterations", "Restoration", and "Operations and Storage Areas" for additional instructions concerning repair of damage to structures and site improvements.

1.9 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 COR. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the COR 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 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).
- E. Contractor may have for use of Contractor's workmen, such toilet accommodations as may be assigned to Contractor by Medical Center. Contractor shall keep such places clean and be responsible for any damage done thereto by Contractor's workmen. Failure to maintain satisfactory condition in toilets will deprive Contractor of the privilege to use such toilets.

1.10 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.
- B. Electricity (for signage installation): Furnish all temporary electric services.
 - 1. Obtain electricity by connecting to the Medical Center electrical distribution system. Electricity for all uses is available at no cost to the Contractor.
- C. Water (for Construction):
 - 1. Obtain water by connecting to the Medical Center water distribution system. 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 COR discretion of use of water from Medical Center's system.

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

1.11 TESTS

A. Pre-test electrical lighting and systems and make corrections required for proper operation of such systems before final tests. Final test will not be conducted unless pre-tested.

B. Conduct final lighting tests in presence of an authorized representative of the Contracting Officer. Contractor shall furnish all labor, materials, equipment, instruments, and forms, to conduct and record such tests.

1.12 INSTRUCTIONS

A. Contractor shall furnish Maintenance and Operating manuals (hard copies and electronic) and verbal instructions when required for operation of any signage and related lighting.

B. Manuals: Maintenance and operating manuals and one compact disc (four hard copies and one electronic copy each) for each separate piece of equipment shall be delivered to the COR coincidental with the delivery and installation of the signage. Manuals shall be complete, detailed guides for the maintenance and operation of signage. They shall include complete information necessary for adjusting, maintaining for long periods of time, and dismantling and reassembling of the complete units and sub-assembly components. Manuals shall include an index covering all component parts clearly cross-referenced to diagrams and illustrations. Illustrations shall include "exploded" views showing and identifying each separate item. Emphasis shall be placed on the use of any special tools and instruments. The function of each piece of component, accessory and control shall be clearly and thoroughly explained. All necessary precautions for the operation of the equipment and the reason for each precaution shall be clearly set forth. Manuals must reference the exact model, style and size of the piece of signage

and lighting system being furnished. Manuals referencing signage similar to but of a different model, style, and size than that furnished will not be accepted.

C. Instructions: Contractor shall provide qualified, factory-trained manufacturers' representatives to give any training to assigned Department of Veterans Affairs personnel in the operation and complete maintenance of signage. All such training will be at the job site.

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**SECTION 01 35 26
SAFETY REQUIREMENTS**

TABLE OF CONTENTS

1.1	APPLICABLE PUBLICATIONS	2
1.2	DEFINITIONS	3
1.3	REGULATORY REQUIREMENTS	4
1.4	ACCIDENT PREVENTION PLAN (APP)	4
1.6	PRECONSTRUCTION CONFERENCE	8
1.7	"SITE SAFETY AND HEALTH OFFICER" (SSHO) and "COMPETENT PERSON" (CP)	8
1.8	TRAINING	9
1.9	INSPECTIONS	10
1.10	ACCIDENTS, OSHA 300 LOGS, AND MAN-HOURS	10
1.11	PERSONAL PROTECTIVE EQUIPMENT (PPE)	10
1.12	INFECTION CONTROL	11
1.14	FIRE SAFETY	12
1.16	FALL PROTECTION	13
1.17	SCAFFOLDS AND OTHER WORK PLATFORMS	13
1.19	CRANES	14
1.23	LADDERS	14

14

SECTION 01 35 26
SAFETY REQUIREMENTS

1.1 APPLICABLE PUBLICATIONS:

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

B. American Society of Safety Engineers (ASSE):

A10.1-2011.....Pre-Project & Pre-Task Safety and Health
Planning

A10.34-2012.....Protection of the Public on or Adjacent to
Construction Sites

A10.38-2013.....Basic Elements of an Employer's Program to
Provide a Safe and Healthful Work Environment
American National Standard Construction and
Demolition Operations

C. The Facilities Guidelines Institute (FGI):

FGI Guidelines-2010Guidelines for Design and Construction of
Healthcare Facilities

241-2013.....Standard for Safeguarding Construction,
Alteration, and Demolition Operations

D. The Joint Commission (TJC)

TJC ManualComprehensive Accreditation and Certification
Manual

E. U.S. Occupational Safety and Health Administration (OSHA):

29 CFR 1904Reporting and Recording Injuries & Illnesses

29 CFR 1910Safety and Health Regulations for General
Industry

29 CFR 1926Safety and Health Regulations for Construction
Industry

F. VHA Directive 2005-007

1.2 DEFINITIONS:

- A. OSHA "Competent Person" (CP). One who is capable of identifying existing and predictable hazards in the surroundings and working conditions which are unsanitary, hazardous or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them (see 29 CFR 1926.32(f)).
- B. "Qualified Person" means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.
- C. High Visibility Accident. Any mishap, which may generate publicity or high visibility.
- D. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even though provided by a physician or registered personnel.
- E. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:
 - 1. Death, regardless of the time between the injury and death, or the length of the illness;
 - 2. Days away from work (any time lost after day of injury/illness onset);
 - 3. Restricted work;
 - 4. Transfer to another job;
 - 5. Medical treatment beyond first aid;
 - 6. Loss of consciousness; or
 - 7. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

1.3 REGULATORY REQUIREMENTS:

- A. In addition to the detailed requirements included in the provisions of this contract, comply with 29 CFR 1926, comply with 29 CFR 1910 as incorporated by reference within 29 CFR 1926, comply with ASSE A10.34, and all applicable federal, state, and local laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern except with specific approval and acceptance by the Contracting Officer Representative.

1.4 ACCIDENT PREVENTION PLAN (APP):

- A. The APP (aka Construction Safety & Health Plan) shall interface with the Contractor's overall safety and health program. Include any portions of the Contractor's overall safety and health program referenced in the applicable APP element and ensure it is site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all worksite safety and health of each subcontractor(s). Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out.

- B. The APP shall be prepared as follows:

1. Written in English by a qualified person who is employed by the Prime Contractor articulating the specific work and hazards pertaining to the contract (model language can be found in ASSE A10.33). Specifically articulating the safety requirements found within these VA contract safety specifications.
2. Address both the Contractor and any subcontractors work operations.
3. State measures to be taken to control hazards associated with materials, services, or equipment provided by suppliers.

4. Address all the elements/sub-elements and in order as follows:

a. **SIGNATURE SHEET.** Title, signature, and phone number of the following:

- 1) Plan preparer (Qualified Person such as corporate safety staff person or contracted Certified Safety Professional with construction safety experience);
- 2) Plan approver (company/corporate officers authorized to obligate the company);
- 3) Plan concurrence (e.g., Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional). Provide concurrence of other applicable corporate and project personnel (Contractor).

b. **BACKGROUND INFORMATION.** List the following:

- 1) Contractor;
- 2) Contract number;
- 3) Project name;
- 4) Brief project description, description of work to be performed, and locations.

c. **STATEMENT OF SAFETY AND HEALTH POLICY.** Provide a copy of current corporate/company Safety and Health Policy Statement, detailing commitment to providing a safe and healthful workplace for all employees.

d. **RESPONSIBILITIES AND LINES OF AUTHORITIES.** Provide the following:

- 1) A statement of the employer's ultimate responsibility for the implementation of his SOH program;
- 2) Identification and accountability of personnel responsible for safety at both corporate and project level.

- 3) The names of Competent and/or Qualified Person(s) and proof of competency/qualification to meet specific OSHA requirements must be attached.
- 4) Requirements that no work shall be performed unless a designated competent person is present on the job site;
- 5) Lines of authority;
- 6) Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified;

e. SUBCONTRACTORS AND SUPPLIERS. If applicable, provide procedures for coordinating SOH activities with other employers on the job site:

- 1) Identification of subcontractors and suppliers (if known);
- 2) Safety responsibilities of subcontractors and suppliers.

f. TRAINING.

- 1) Site-specific SOH orientation training at the time of initial hire or assignment to the project for every employee before working on the project site is required.
- 2) Mandatory training and certifications that are applicable to this project (e.g., crane operator, fall protection, etc.) and any requirements for periodic retraining/recertification are required.
- 3) Procedures for safety and health training for supervisors and employees shall be established to address changes in site hazards/conditions.

g. SAFETY AND HEALTH INSPECTIONS.

- 1) Specific assignment of responsibilities for a minimum daily job site safety and health inspection during periods of work activity: Who will conduct (e.g., "Site Safety and Health CP"), proof of inspector's training/qualifications, when

inspections will be conducted, procedures for documentation, deficiency tracking system, and follow-up procedures.

- 2) Any external inspections/certifications that may be required (e.g., contracted CSP or CSHT)

h. ACCIDENT INVESTIGATION & REPORTING. The Contractor shall conduct mishap investigations of all OSHA Recordable Incidents. The APP shall include accident/incident investigation procedure & identify person(s) responsible to provide the following to the Contracting Officer Representative:

- 1) Exposure data (man-hours worked);
- 2) Accident investigations, reports, and logs.

i. PLANS (PROGRAMS, PROCEDURES) REQUIRED. Based on a risk assessment of contracted activities and on mandatory OSHA compliance programs, the Contractor shall address all applicable occupational risks in site-specific compliance and accident prevention plans. These Plans shall include but are not be limited to procedures for addressing the risks associates with the following:

- 1) Emergency response;
- 2) Contingency for severe weather;
- 3) Medical Support;
- 4) Posting of emergency telephone numbers;
- 5) Site-Specific Fall Protection & Prevention;

C. Submit the APP to the Contracting Officer Representative for review for compliance with contract requirements 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.

D. Once accepted by the Contracting Officer Representative, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for

stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

- E. Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer Representative. Should any severe hazard exposure, i.e. imminent danger, become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate/remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSE/SAFE A10.34) and the environment.
- F. The selected signage installation contractor will coordinate an Accident Prevention Plan (APP) with Facility Management Service (FMS) prior to installing signage

1.6 PRECONSTRUCTION CONFERENCE:

- A. Contractor will schedule a Preconstruction Conference as required by FAR Clause 52.236-26, Preconstruction Conference. Contractor representatives who have a responsibility or significant role in implementation of the accident prevention program, as required by 29 CFR 1926.20(b)(1), on the project shall attend the preconstruction conference to gain a mutual understanding of its implementation. This includes the project superintendent, any subcontractor superintendents, and any other assigned safety and health professionals.
- B. Discuss the details of the submitted APP to include incorporated plans, programs, and procedures that will be developed and implemented during the performance of the contract.
- C. Deficiencies in the submitted APP will be brought to the attention of the Contractor within 7 days of submittal, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Do not begin work until there is an accepted APP.

1.7 "SITE SAFETY AND HEALTH OFFICER" (SSHO) AND "COMPETENT PERSON" (CP):

- A. The Prime Contractor shall designate a minimum of one trained person at the project site that will be identified as the SSHO to administer the Contractor's safety program and government-accepted Accident Prevention

Plan. Each subcontractor shall designate a minimum of one CP in compliance with 29 CFR 1926.20 (b) (2) that will be identified as a CP to administer their individual safety programs.

- B. Further, all specialized Competent Persons for the work crews will be supplied by the respective contractor as required by 29 CFR 1926 (i.e. Cranes, Demolition, Fall Protection, Fire Safety/Life Safety, Ladder, and Scaffolds).
- C. These Competent Persons can have collateral duties as the subcontractor's superintendent and/or work crew lead persons as well as fill more than one specialized CP role (i.e. Cranes, Demolition, Fall Protection, Fire Safety/Life Safety, Ladder, Scaffolds, and Trenches/Excavations).
- D. The Designated Representative will maintain a presence on the site during construction operations in accordance with FAR Clause 52.236-6: *Superintendence by the Contractor*. CPs will maintain presence during their construction activities in accordance with above mentioned clause. A listing of the designated CPs shall be submitted prior to the start of work as part of the APP with the training documentation.
- E. The repeated presence of uncontrolled hazards during a contractor's work operations will result in the designated CP as being deemed incompetent and result in the required removal of the employee in accordance with FAR Clause 52.236-5: Material and Workmanship, Paragraph (c).

1.8 TRAINING:

- A. The designated Prime Contractor SSHO must meet the requirements of all applicable OSHA standards and be capable (through training, experience, and qualifications) of ensuring that the requirements of 29 CFR 1926.16 and other appropriate Federal, State and local requirements are met for the project.
- E
- F. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the SSHO or his/her designated representative. As a minimum, this briefing shall include information on the site-specific hazards, construction limits,

VAMC safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of VAMC equipment, emergency procedures, accident reporting etc... Documentation shall be provided to the Resident Engineer that individuals have undergone contractor's safety briefing.

1.9 INSPECTIONS:

- A. The SSHO shall conduct frequent and regular safety inspections (daily) of the site as required by 29 CFR 1926.20(b)(2).

\1.10 ACCIDENTS, OSHA 300 LOGS, AND MAN-HOURS:

- A. Notify the Contracting Officer Representative as soon as practical, but no more than four hours after any accident meeting the definition of OSHA Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than \$5,000, or any weight handling equipment accident. Within notification include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Contracting Officer Representative determines whether a government investigation will be conducted.
- B. Conduct an accident investigation for recordable injuries and illnesses, for Medical Treatment defined in paragraph DEFINITIONS, and property damage accidents resulting in at least \$20,000 in damages, to establish the root cause(s) of the accident. Complete the VA Form 2162, and provide the report to the Contracting Officer Representative or Government Designated Authority within 5 calendar days of the accident. The Contracting Officer will provide copies of any required or special forms.

1.11 PERSONAL PROTECTIVE EQUIPMENT (PPE):

- A. PPE is governed in all areas by the nature of the work the employee is performing. For example, specific PPE required for performing work on

electrical equipment is identified in NFPA 70E, Standard for Electrical Safety in the Workplace.

B. Mandatory PPE includes:

1. Hard Hats - unless written authorization is given by the Contracting Officer Representative or Government Designated Authority in circumstances of work operations that have limited potential for falling object hazards such as during finishing work or minor remodeling. With authorization to relax the requirement of hard hats, if a worker becomes exposed to an overhead falling object hazard, then hard hats would be required in accordance with the OSHA regulations.
2. Safety glasses - unless written authorization is given by the Contracting Officer Representative or Government Designated Authority appropriate safety glasses meeting the ANSI Z.87.1 standard must be worn by each person on site.
3. Appropriate Safety Shoes - based on the hazards present, safety shoes meeting the requirements of ASTM F2413-11 shall be worn by each person on site unless written authorization is given by the Contracting Officer Representative.

1.12 INFECTION CONTROL

- A. Infection Control is critical in all medical center facilities. Interior construction activities causing disturbance of existing dust, or creating new dust, must be conducted within ventilation-controlled areas that minimize the flow of airborne particles into patient areas. Exterior construction activities causing disturbance of soil or creates dust in some other manner must be controlled.

I. Exterior Construction

1. Contractor shall verify that dust will not be introduced into the medical center through intake vents, or building openings. HEPA filtration on intake vents is required where dust may be introduced.

2. Dust created from disturbance of soil such as from vehicle movement will be wetted with use of a water truck as necessary
3. All cutting, drilling, grinding, sanding, or disturbance of materials shall be accomplished with tools equipped with either local exhaust ventilation (i.e. vacuum systems) or wet suppression controls.

1.14 FIRE SAFETY

- A. 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.
- B. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with Contracting Officer Representative.
- C. Egress Routes for Construction Workers: Maintain free and unobstructed egress.
- D. 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.
- E. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.

1.16 FALL PROTECTION

- A. The fall protection (FP) threshold height requirement is 6 ft (1.8 m) for ALL WORK, unless specified differently or the OSHA 29 CFR 1926 requirements are more stringent, to include scaffolding work.
 - 1. The use of a Safety Monitoring System (SMS) as a fall protection method is prohibited.
 - 2. The use of Controlled Access Zone (CAZ) as a fall protection method is prohibited.
 - 3. Fall protection while using a ladder will be governed by the OSHA requirements.

1.17 SCAFFOLDS AND OTHER WORK PLATFORMS

- A. All scaffolds and other work platforms construction activities shall comply with 29 CFR 1926 Subpart L.
- B. The fall protection (FP) threshold height requirement is 6 ft (1.8 m) as stated in Section 1.16.
- C. The following hierarchy and prohibitions shall be followed in selecting appropriate work platforms.
 - 1. Scaffolds, platforms, or temporary floors shall be provided for all work except that can be performed safely from the ground or similar footing.
 - 2. Ladders less than 20 feet may be used as work platforms only when use of small hand tools or handling of light material is involved.
 - 3. Ladder jacks, lean-to, and prop-scaffolds are prohibited.
 - 4. Emergency descent devices shall not be used as working platforms.
- D. Contractors shall use a scaffold tagging system in which all scaffolds are tagged by the Competent Person. Tags shall be color-coded: green indicates the scaffold has been inspected and is safe to use; red indicates the scaffold is unsafe to use. Tags shall be readily visible, made of materials that will withstand the environment in which they are used, be legible and shall include:

1. The Competent Person's name and signature;
2. Dates of initial and last inspections.

\1.19 CRANES

- A. All crane work shall comply with 29 CFR 1926 Subpart CC.
- B. Crane operators shall not carry loads
 1. over the general public or VAMC personnel

1.23 LADDERS

- A. All Ladder use shall comply with 29 CFR 1926 Subpart X.
- B. All portable ladders shall be of sufficient length and shall be placed so that workers will not stretch or assume a hazardous position.
- C. Manufacturer safety labels shall be in place on ladders
- D. Step Ladders shall not be used in the closed position
- E. Top steps or cap of step ladders shall not be used as a step
- A. Portable ladders, used as temporary access, shall extend at least 3 ft (0.9 m) above the upper landing surface.
 1. When a 3 ft (0.9-m) extension is not possible, a grasping device (such as a grab rail) shall be provided to assist workers in mounting and dismounting the ladder.
 2. In no case shall the length of the ladder be such that ladder deflection under a load would, by itself, cause the ladder to slip from its support.
- G. Ladders shall be inspected for visible defects on a daily basis and after any occurrence that could affect their safe use. Broken or damaged ladders shall be immediately tagged "DO NOT USE," or with similar wording, and withdrawn from service until restored to a condition meeting their original design.

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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 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. http://www.aluminum.org
AAMA	American Architectural Manufacturer's Association http://www.aamanet.org
AAN	American Nursery and Landscape Association http://www.anla.org
ACGIH	American Conference of Governmental Industrial Hygienists http://www.acgih.org
ACI	American Concrete Institute http://www.aci-int.net
AGC	Associated General Contractors of America http://www.agc.org
AIA	American Institute of Architects http://www.aia.org
AISC	American Institute of Steel Construction http://www.aisc.org
AISI	American Iron and Steel Institute http://www.steel.org
ANLA	American Nursery & Landscape Association http://www.anla.org
ANSI	American National Standards Institute, Inc. http://www.ansi.org
ASTM	American Society for Testing and Materials http://www.astm.org

AWS	American Welding Society http://www.aws.org
BHMA	Builders Hardware Manufacturers Association http://www.buildershardware.com
CPMB	Concrete Plant Manufacturers Bureau http://www.cpmc.org
CRSI	Concrete Reinforcing Steel Institute http://www.crsi.org
EPA	Environmental Protection Agency http://www.epa.gov
ETL	ETL Testing Laboratories, Inc. http://www.etl.com
GANA	Glass Association of North America http://www.cssinfo.com/info/gana.html/
GSA	General Services Administration http://www.gsa.gov
ICBO	International Conference of Building Officials http://www.icbo.org
NBMA	Metal Buildings Manufacturers Association http://www.mbma.com
NAAMM	National Association of Architectural Metal Manufacturers http://www.naamm.org
NAPHCC	Plumbing-Heating-Cooling Contractors Association http://www.phccweb.org.org
NBS	National Bureau of Standards See - NIST
NEC	National Electric Code See - NFPA National Fire Protection Association
NEMA	National Electrical Manufacturers Association http://www.nema.org

NFPA National Fire Protection Association
<http://www.nfpa.org>

NIH National Institute of Health
<http://www.nih.gov>

NIST National Institute of Standards and Technology
<http://www.nist.gov>

OSHA Occupational Safety and Health Administration
Department of Labor
<http://www.osha.gov>

SMACNA Sheet Metal and Air-Conditioning Contractors
National Association, Inc.
<http://www.smacna.org>

SSPC The Society for Protective Coatings
<http://www.sspc.org>

UBC The Uniform Building Code
See ICBO

UL Underwriters' Laboratories Incorporated
<http://www.ul.com>

ULC Underwriters' Laboratories of Canada
<http://www.ulc.ca>

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SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the control of environmental damage that the Contractor must consider on the property. It includes management of visual aesthetics, noise, and solid waste, 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.
 - 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 COR to discuss the proposed Environmental Protection Plan and to develop mutual understanding relative to any details of environmental protection for signage installation. Not more than 20 days after the meeting, the Contractor shall prepare and submit to the Contracting Officer for approval, a written 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. Methods for protection of features to be preserved within authorized work areas including trees, shrubs, vines, grasses, ground cover, landscape features, and soil.
 - c. Procedures to provide the environmental protection that comply with any 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.

- d. Permits, licenses, and the location of the solid waste disposal area.
- 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 COR. 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. 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. Form earthwork to final grade as shown. Immediately protect side slopes and back slopes upon completion of rough grading.

- b. Reuse or conserve the collected topsoil sediment as directed by the Resident Engineer.
- 4. 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.
- 5. Handle discarded materials other than those included in the solid waste category as directed by the Resident Engineer.
- C. 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.
- D. 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.
- E. 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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SECTION 03 30 53
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Cast-in-place structural concrete.
 - 2. Footings.

1.2 RELATED REQUIREMENTS

- A. Materials Testing and Inspection During Construction: Section 01 45 29, TESTING LABORATORY SERVICES.

1.3 APPLICABLE PUBLICATIONS

- A. Comply with references to extent specified in this Section.
- B. American Concrete Institute (ACI):
 - 1. 117-15 - Tolerances for Concrete Construction, Materials and Commentary.
 - 2. 305.1-14 - Hot Weather Concreting.
 - 3. 306.1-90 (R2002) - Cold Weather Concreting.
 - 4. 347-04 - Guide to Formwork for Concrete.
- C. ASTM International (ASTM):
 - 1. A615/A615M-15a1 - Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 - 2. A996/A996M-15 - Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
 - 3. A1064/A1064M-15 - Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
 - 4. C33/C33M-13 - Concrete Aggregates.
 - 5. C94/C94M-15a - Ready-Mixed Concrete.

1.4 SUBMITTALS

- A. Manufacturer's Literature and Data:
 - 1. Concrete Mix Design.
 - 2. Indicate manufacturer's recommendation for each application.
- B. Certificates: Certify products comply with specifications.
 - a. Each ready mix concrete batch delivered to site.

1.5 DELIVERY

- A. Deliver each ready-mixed concrete batch with mix certification in duplicate according to ASTM C94/C94M.

1.6 WARRANTY

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Portland Cement: ASTM C150/C150M, Type I or II.
- B. Pozzolans:
 - 1. Fly Ash: ASTM C618, Class C or F including supplementary optional physical requirements.
 - 2. Slag: ASTM C989/C989M; Grade 80.
 - 3. Silica Fume: ASTM C1240.

SPEC WRITER NOTE: Edit the aggregates
below to meet the Project specific needs.

- C. Coarse Aggregate: ASTM C33/C33M.
 - 1. Size 467 for footings and walls over 300 mm (12 inches) thick.
- D. Fine Aggregate: ASTM C33/C33M.
- E. Mixing Water: Fresh, clean, and potable.

SPEC WRITER NOTE: Confirm reinforcing
steel grades are shown on drawings.

- F. Reinforcing Steel: ASTM A615/A615M or ASTM A996/A996M, deformed. #4 re-bar or larger at no more than 8" o.c. vertically and horizontally for large exterior signage in footings. All re-bar to have a minimum of 3" concrete coverage from soil.
- G. Forms: Wood, plywood, metal, or other materials, approved by Contracting Officer, of grade or type suitable to obtain type of finish specified.
 - 1. Plywood: Exterior grade, free of defects and patches on contact surface.
 - 2. Lumber: Sound, grade-marked, S4S stress graded softwood.

2.2 CONCRETE MIXES

- A. Design concrete mixes according to ASTM C94/C94M, Option C.
- B. Compressive strength at 28 days: minimum 25 MPa (3,000 psi).
- C. Cement and Water Factor (See Table I):

2.3 BATCHING AND MIXING

- A. Store, batch, and mix materials according to ASTM C94/C94M.
 - 1. Ready-Mixed Concrete: Comply with ASTM C94/C94M, except use of non-agitating equipment for transporting concrete to Site is not acceptable.

PART 3 - EXECUTION**3.1 FORMWORK**

- A. Installation: Conform to ACI 347. Construct forms to obtain concrete of the shapes, dimensions and profiles indicated, with tight joints.
- B. Design and construct forms to prevent bowing-out of forms between supports and to be removable without prying against or otherwise damaging fresh concrete.
- C. When patching formed concrete, seal form edges against existing surface to prevent leakage; set forms so that patch is flush with adjacent surfaces.
- D. Treating and Wetting: Treat or wet concrete contact surfaces:
 - 1. Wet wood forms thoroughly when they are not treated with form release agent.
 - 2. Prevent water from accumulating and remaining within forms.
- E. Inserts and Similar Items: Install anchors, inserts, sleeves, and other cast-in items as shown on drawings. Place where indicated, square, flush and secured to formwork.
- F. Construction Tolerances - General: Install and maintain concrete formwork to assure completion of work within specified tolerances.
- G. Adjust or replace completed work exceeding specified tolerances before placing concrete.

3.2 REINFORCEMENT

- A. Install concrete reinforcement according to ACI 318 and ACI SP-66.
- B. Support and securely tie reinforcing steel to prevent displacement during placing of concrete.

3.3 PLACING CONCRETE

- A. Remove water from excavations before concrete is placed. Remove hardened concrete, debris and other foreign materials from interior of forms, and from inside of mixing and conveying equipment. Obtain approval from Contracting Officer's Representative before placing concrete.

- B. Place structural concrete according to ACI 301 and ACI 318.
- C. Convey concrete from mixer to final place of deposit by method that will prevent segregation or loss of ingredients. Do not deposit, in Work, concrete that has attained its initial set or has contained its water or cement more than 1 1/2 hours. Do not allow concrete to drop freely more than 1500 mm (5 feet) in unexposed work nor more than 900 mm (3 feet) in exposed work.
- D. Place and consolidate concrete in horizontal layers not exceeding 300 mm (12 inches) in thickness. Consolidate concrete by spading, rodding, and mechanical vibrator. Continuously vibrate during placement of concrete.
- E. Hot Weather Concrete Placement: As recommended by ACI 305.1 to prevent adversely affecting properties and serviceability of hardened concrete.
- F. Cold Weather Concrete Placement: As recommended by ACI 306.1, to prevent freezing of thin sections less than 300 mm (12 inches) and to permit concrete to gain strength properly.

3.4 PROTECTION AND CURING

- A. Protect exposed surfaces of concrete from premature drying, wash by rain or running water, wind, mechanical damage, and excessive hot or cold temperatures.
- B. Formed Concrete Curing: Wet the tops and exposed portions of formed concrete and keep moist until forms are removed.
 - 1. If forms are removed before 14 days after concrete is cast, install sheet curing materials as specified above.

3.5 FORM REMOVAL

- A. Maintain forms in place until concrete is self-supporting, with construction operation loads.
- B. Remove fins, laitance and loose material from concrete surfaces when forms are removed. Repair honeycombs, rock pockets, sand runs, spalls, or otherwise damaged surfaces by patching with the same mix as concrete minus the coarse aggregates.

3.6 FINISHES

- A. Vertical and Overhead Surface Finishes:
 - 1. Surfaces Concealed in Completed Construction: As-cast; no additional finishing required.
 - 2. Surfaces Exposed to View in Finished Areas: Grout finish, as needed, for uniform color and smooth finish treated.

- a. Remove laitance, fins and burrs.
 - b. Scrub concrete with wire brushes. Clean stained concrete surfaces with hone or stone.
 - c. Apply grout composed of 1 part Portland cement and 1 part clean, fine sand (smaller than 600 micro-m (No. 30) sieve). Work grout into surface of concrete with cork floats or fiber brushes until pits and honeycomb are filled.
 - d. After grout has hardened, but is still plastic, remove surplus grout with sponge rubber float and by rubbing with clean burlap.
 - e. In hot, dry weather fog spray surfaces with water to keep grout wet during setting period. Complete finished areas in same day. Confine limits of finished areas to natural breaks in wall surface. Do not leave grout on concrete surface overnight.
3. Steel Trowel Finish: Applied to all exterior signage "mowing curbs" concrete exposed to view.
- a. Form with even trowelling, continuous 45 degree, 1" beveled edges around perimeters of all "mowing curbs" prior to setting of concrete.
 - b. Delay final steel troweling of all exposed concrete surfaces to secure smooth, dense surface, usually when surface can no longer be dented by fingers. During final troweling, tilt steel trowel at slight angle and exert heavy pressure on trowel to compact cement paste and form dense, smooth surface.
 - c. Finished surface: Free from trowel marks. Uniform in texture and appearance.

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**SECTION 09 06 00
SCHEDULE FOR FINISHES**

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.

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.

VA Signage Design Guidelines, VACO

PART 2- PRODUCTS

2.10 DIVISION 10 - SPECIALTIES

- A. SECTION 10 13 00 / 10 14 00, EXTERIOR SIGNS

Component	Finish	Manufacturer	Mfg. Color Name/No.

B. SECTION 10 13 00 / 10 14 00, INTERIOR SIGNS

Sign Type	Component	Manufacturer	Mfg. Color Name/No.

PART III EXECUTION

3.1 FINISH SCHEDULES & MISCELLANEOUS ABBREVIATIONS

FINISH SCHEDULE & MISCELLANEOUS ABBREVIATIONS	
Term	Abbreviation
Anodized Aluminum Colored	AAC

Anodized Aluminum Natural Finish	AA
Baked On Enamel	BE
Epoxy Coating	EC
Existing	E
Exterior	EXT
Exterior Paint	EXT-P

Exterior Stain	EXT-ST
Facing Tile	SCT
Feature Strips	FS
Fluorocarbon	FC
Gypsum Wallboard	GWB
Material	MAT
Multi-Color Coating	MC

Natural Finish	NF
Paint	P
Plastic Laminate	HPDL
Stain	ST
Wood	WD

3.2 FINISH SCHEDULE SYMBOLS

Symbol Definition

- No color required
E Existing
XX To match existing
EFTR Existing finish to remain
RM Remove

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**SECTION 10 13 00
DIRECTORIES**

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section specifies interior and exterior directories.

1.2 RELATED WORK:

- A. Electrical Work: NOT IN CONTRACT.
- B. Section 10 14 00, SIGNAGE.
- C. Manufacturer, Color and Style: Section 09 06 00, SCHEDULE FOR FINISHES, and as shown in signage drawings. In case of conflict, drawings take precedence over written specifications for finishes.

1.3 QUALITY ASSURANCE:

- A. Manufacturer's Qualifications: Provide directories that are the product of a single manufacturer, that has provided units as specified for a minimum of three (3) years.

1.4 SUBMITTALS:

- A. Submit in accordance with Section 01 33 00, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
- B. Samples: Directory panels and frames, with letters and symbols, each type.
1. Color samples of each color, 152 mm x 152 mm (6 inches x 6 inches). Show anticipated range of color and texture.
 2. Sample of typeface, arrow and symbols in a typical full size layout.
- C. Manufacturer's Literature:
1. Manufacturer's printed specifications, anchorage details, installation and maintenance instructions.
 2. Manufacturer's qualifications.
- D. Directory location plan showing location and type of each directory.

1.5 DELIVERY AND STORAGE:

- A. Deliver materials to job in manufacturer's original sealed containers with brand name markings. Protect materials from damage.
- B. Package to prevent damage or deterioration during shipment, handling, storage and installation. Maintain protective covering in place and in good repair until removal is necessary.
- C. Deliver directories only when the site and mounting services are ready for installation work to proceed.
- D. Store products in dry condition inside enclosed facilities.

1.6 APPLICABLE PUBLICATIONS:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. ASTM International (ASTM):
- A666-10.....Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
- B209-14.....Aluminum and Aluminum-Alloy Sheet and Plate
- B209M-14.....Aluminum and Aluminum-Alloy Sheet and Plate (Metric)
- B221-14.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
- B221M-13.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes (Metric)
- C1036-11e1.....Flat Glass
- C1048-12e1.....Heat-Strengthened and Fully Tempered Flat Glass
- D1003-13.....Haze and Luminous Transmittance of Transparent Plastics
- D4802-10.....Poly(Methyl Methacrylate) Acrylic Plastic Sheet
- C. American Architectural Manufacturers Association (AAMA):
- 611-14.....Anodized Architectural Aluminum
- 2603-13.....Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
- D. National Association of Architectural Metal Manufacturers (NAAMM):
- AMP 500 Series.....Metal Finishes Manual
- E. Federal Specifications (Fed Spec):
- MIL-PRF-8184F.....Plastic Sheet, Acrylic, Modified.
- MIL-P-46144C.....Plastic Sheet, Polycarbonate
- F. National Fire Protection Association (NFPA):
- 70-14.....National Electric Code

PART 2 - PRODUCTS**2.1 DIRECTORY TYPE:**

- A. Non-Illuminated Message Strip Directories:

- //1. Profiled Frame: // Molded acrylic // // Extruded aluminum //
 profiled frame at top and bottom, with sheet metal rear cover,
 housing changeable message. //
- //2. Metal Frame: Directory with full perimeter metal frame and sheet
 metal rear cover housing changeable message strips. //
- //3. Unframed: Directory with modular system of changeable message
 strips. // //
- //B. Rear Illuminated Message Strip Directories:
 - //1. Factory fabricated unit consisting of changeable message strips
 held in place by retainer frame enclosed manufacturer's standard
 perimeter frame with glazed cover, aluminum sheet rear cover panel,
 and concealed rear-illumination system. //
 - //2. Exterior Directories: Metal framed directories of weather
 resistant construction. //
 - //3. Rear Illumination System: Provide removable and accessible
 // fluorescent strip // // LED // // // lighting system. // //
- //C. Changeable Letter Directories:
 - //1. Open Face Changeable Letter Directory //
 - //a. Wood perimeter frame. //
 - //b. Aluminum perimeter frame. //
 - //2. Enclosed Face Changeable Letter Directory //
 - //a. Aluminum perimeter frame. //
 - //b. Wood perimeter frame. //
 - //c. Glazed sliding doors. //
 - //d. Glazed hinge doors. //
 - //e. Exterior Directories: Aluminum framed unit of weather resistant
 construction. //
 - //f. Illumination System: Concealed top lighting system consisting
 of // fluorescent strip // // LED // // // lighting
 system. //
- 3. Letters: Molded plastic with tabs for engaging grooves in
 letterboard. Provide manufacturer's standard assortment of not less
 than 300 // // characters for each size, style, color, and case
 required; include letters, numbers, and characters. Package letters
 in compartmentalized carrying box.
 - a. Height: // 9.5 mm (3/8 inch) // // 13 mm (1/2 inch) // // 25 mm
 (1 inch) // // 38 mm (1-1/2 inch) // // 50 mm (2 inches) //
 // 75 mm (3 inches) // // // to top of capitals.

- b. Style: // Helvetica // // Gothic // // Roman // // //.
 - c. Color: // White // // Black // // //.
 - d. Case: // All capitals // // Capitals and lowercase //.
4. Engraved Changeable Message Strips: Machine- or laser-engraved copy in // 177 mm (7 inch) // // 350 mm (14 inch) // // //, interchangeable, interlocking, black, acrylic strips with transparent core.
- a. Message-Strip Height: // 9.5 mm (3/8 inch) // // 13 mm (1/2 inch) // // 16 mm (5/8 inch) // // 19 mm (3/4 inch) // // 25 mm (1 inch) // // //.
 - b. Letter Height: // 5 mm (3/16 inch) // // 6 mm (1/4 inch) // // 9.5 mm (3/8 inch) // // 13 mm (1/2 inch) // // 16 mm (5/8 inch) // // //.
 - c. Letter Style: // Helvetica Medium // // Clarendon Medium // // Optima Bold // // //.
 - d. Letter Case: // All capitals // // Initial capitals // // Capitals and lowercase //.

2.2 MATERIALS:

- A. Aluminum:
 - 1. Sheet and Plate: ASTM B209M (B209).
 - 2. Extrusions and Tubing: ASTM B221M (B221) Alloy 6063.
- B. Stainless Steel Sheet: ASTM A666, Type 304.
- C. Clear Float Glass: ASTM C1036, Type I, Class 1, Quality q3.
- D. Clear Tempered Glass: ASTM C1048, Kind FT, Condition A, Type I, Class 1 (clear) Quality q3 with exposed edges seamed before tempering.
- E. Clear Acrylic Sheet: ASTM D4802, Category A-1 (cell cast sheet) with Finish 1 (smooth or polished) colorless sheet with visible light transmittance of 92 percent measured according to ASTM D1003.
- F. Fasteners: Provide screws, bolts, and other fastening devices made from same material as items being fastened except provide hot dipped galvanized, stainless steel, or aluminum fasteners for exterior applications.
- G. Electrical Components: Listed and labeled as defined in NFPA 70, by a qualified testing agency.

2.3 FABRICATION:

- A. Fabricate directories to requirements indicated for dimensions, design, and thickness and finish of materials. Provide metals and shapes of

thickness and reinforcement to produce flat surfaces, free of oil canning.

- B. Fabricate directory cabinets and door frames with reinforced corners, mitered and welded to a hairline fit, with no exposed fasteners. Provide structural reinforcement to prevent racking and misalignment.
- C. Message-Strip Directories: Provide message strips with wording and other designations for the locations where wording is indicated. Include blank message strips as needed to fill out remainder of directory.
- D. Provide hold-open arms for doors of top-hinged directories.

2.4 GENERAL FINISH REQUIREMENTS:

- A. Comply with NAAMM AMP 500 for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved samples and are assembled or installed to minimize contrast.

2.5 ALUMINUM FINISHES:

- //A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm (0.70 mils) or thicker. //
- //B. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm (0.70 mils) or thicker. //
- //C. Baked Enamel or Powder-Coat Finish: AAMA 2603 except with minimum dry film thickness of 0.04 mm (1.5 mils). //

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. General: Install directories in locations and at mounting heights indicated on construction documents and approved shop drawings. Keep perimeter lines straight, level, and plumb.
- B. Recessed Directories: Attach directories to wall framing with fasteners at not more than 406 mm (16 inches) centers. Attach aluminum trim over edges of recessed directories, and conceal grounds and clips.
- C. Surface-Mounted Directories: Attach directories to wall surfaces with concealed clips, hangers, or grounds fastened at not more than 406 mm (16 inches) o.c. Secure both top and bottom of directories to walls.

3.2 ADJUSTING AND CLEANING:

- A. Adjust directory doors to operate smoothly without warp or bind and so that contact points meet accurately. Lubricate operating hardware as recommended by manufacturer.
- B. Touch up factory-applied finishes to restore damaged or soiled areas.

- - - END - - -

**SECTION 10 14 00
SIGNAGE**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies interior signage for room numbers, directional signs, code required signs, identification signs and temporary interior signs.
- B. This section also specifies exterior medical center identification signs, building identification signs, parking and traffic signs.

1.2 RELATED WORK

- A. Electrical: **NOT IN CONTRACT.**
- C. Section 10 13 00, DIRECTORIES and Section 10 14 00, SIGNAGE.
- D. Color Finish: Section 09 06 00, SCHEDULE FOR FINISHES and as shown on all drawing documents. IN CASE OF CONFLICT ON FINISHES, NOTES AND FINISHES ON DRAWINGS TAKE PRECEDENCE OVER THE WRITTEN SPECIFICATIONS.
- E. Sign Maintenance: To prolong the life and appearance of exterior signage a maintenance schedule should be established. The cleaning schedule must be performed twice a year (i.e. spring and fall). Use a diluted eco-friendly cleaning solution (such as Simple Green) and water applied with a sponge or soft bristle scrub brush. Hand wash the entire sign area (do not allow cleaning solution to dry on the sign, and follow manufacturer's instructions). Rinse thoroughly with a LOW PRESSURE RINSE of clean water (Do not use a pressure washer - SERIOUS DAMAGE TO THE PAINT FINISH OR GRAPHICS COULD OCCUR). Inspection of the sign should also occur at this time. Look for any dings or chips (potentially caused by ground maintenance equipment or vehicles) and repair if necessary. Tar and difficult bird droppings can be safely removed with mineral spirits or automotive grade tar and bug remover (test in an inconspicuous location before applying to the affected area and follow manufacturer's instructions).

1.3 MANUFACTURER'S QUALIFICATIONS

Sign manufacturer shall provide evidence that they regularly and presently manufacture signs similar to those specified in this section as one of their principal products.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 00, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

- B. Samples: Sign panels and frames, with letters and symbols, each type.
Submit 2 sets. One set of samples will be retained by Resident Engineer, other returned to Contractor.
 - 1. Sign Panel, 200 mm x 250 mm (8 inches x 10 inches), with letters.
 - 2. Color samples of each color, 150 mm x 150 mm (6 inches x 6 inches).
Show anticipated range of color and texture.
 - 3. Sample of typeface, arrow and symbols in a typical full size layout.
- C. Manufacturer's Literature:
 - 1. Showing the methods and procedures proposed for the concealed anchorage of the signage system to each surface type.
 - 2. Manufacturer's printed specifications, anchorage details, installation and maintenance instructions.
- D. Samples: Sign location plan, showing location, type and total number of signs required.
- E. Shop Drawings: Scaled for manufacture and fabrication of sign types. Identify materials, show joints, welds, anchorage, accessory items, mounting and finishes.
- F. Full size layout patterns for dimensional letters.

1.5 DELIVERY AND STORAGE

- A. Deliver materials to job in manufacturer's original sealed containers with brand name marked thereon. Protect materials from damage.
- B. Package to prevent damage or deterioration during shipment, handling, storage and installation. Maintain protective covering in place and in good repair until removal is necessary.
- C. Deliver signs only when the site and mounting services are ready for installation work to proceed.
- D. Store products in dry condition inside enclosed facilities.

1.6 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - B209-07.....Aluminum and Aluminum-Alloy Sheet and Plate
 - B221-08.....Aluminum and Aluminum-Alloy Extruded Bars,
Rods, Wire, Shapes, and tubes.
- C. Federal Specifications (Fed Spec):
 - MIL-PRF-8184F.....Plastic Sheet, Acrylic, Modified.
 - MIL-P-46144C.....Plastic Sheet, Polycarbonate

1.7 MINIMUM SIGN REQUIREMENTS

A. Permanent Rooms and Spaces:

1. Tactile and Braille Characters, raised minimum 0.793 mm (1/32 in). Characters shall be accompanied by Grade 2 Braille.
2. Type Styles: Characters shall be uppercase, Helvetica Medium, Helvetica Medium Condensed, Helvetica Regular, Futura Heavy and Futura Medium.
3. Character Height: Minimum 16 mm (5/8 in) high, Maximum 50 mm (2 in).
4. Symbols (Pictograms): Equivalent written description shall be placed directly below symbol, outside of symbol's background field. Border dimensions of symbol background shall be minimum 150 mm (6 in) high.
5. Finish and Contrast: Characters and background shall be eggshell, matte or other non-glare finish with adequate contrast with background.
6. Mounting Location and Height: As shown. Mounted on wall adjacent to the latch side of the door and to avoid door swing and protruding objects.

B. Overhead Signs:

1. Type Styles: As shown. Characters shall have a width-to-height ratio between 3:5 and 1:1. Characters shall have a stroke width-to-height ratio of between 1:5 and 1:10.
2. Character Height: minimum 75 mm (3 in) high for overhead signs. As shown, for directional signs.
3. Finish and Contrast: Same as for signs of permanent rooms and spaces.
4. Mounting Location and Height: As shown (Installation contractor will provide precise location for Exterior Beacon Signage; that will be submitted to and approved by the Contracting Officer through shop drawing review).

1.8 COLORS AND FINISHES:

AS NOTED IN Section 09 06 00, SCHEDULE FOR FINISHES. IN CASE OF CONFLICT ON FINISHES, NOTES AND FINISHES ON DRAWINGS TAKE PRECEDENCE OVER THE WRITTEN SPECIFICATIONS.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Signs of type, size and design shown on the drawings and as listed in Section 00 01 15 and as specified on drawings.

- B. Signs complete with lettering, framing and related components for a complete installation.
- C. Provide graphics items as completed units produced by a single manufacturer, including necessary mounting accessories, fittings and fastenings.
- D. Do not scale drawings for dimensions. Contractor to verify and be responsible for all dimensions and conditions shown by these drawings. Resident Engineer to be notified of any discrepancy in drawing, in field directions or conditions, and/or of any changes required for all such construction details.
- E. The Sign Contractor, by commencing work of this section, assumes overall responsibility, as part of his warranty of work, to assure that assemblies, components and parts shown or required within the work of the section, comply with the Contract Documents. The Contractor shall further warrant: That all components, specified or required to satisfactorily complete the installation are compatible with each other and with conditions of installations. THE VENDOR/CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL DESIGN AND INSTALLATION WORK, INCLUDING DETERMINATION AND PROVISION OF NECESSARY CIRCUITS, WIRING, CONDUIT, LOCATION AND COORDINATION OF JUNCTION BOXES (EXISTING AND NEW REGARDING SIGANCE ELECTRICAL NEEDS), PANEL BOARDS, CONDUITS, AND SWITCHING. ALL WORK BY VENDOR/CONTRACTOR SHALL CONFORM TO ALL NATIONLA ELECTRICAL CODE REQUIREMENTS, AS WELL AS APPLICABLE FEDERAL, STATE, AND LOCAL CODES, AND WORK SHALL BE SIGNED AND SEALED BY A LAWFULLY REGISTERED ENGINEER IN ELECTRICAL ENGINEERING. FINAL SEALED ELECTRICAL DOCUMENTS FROM THE VENDOR SHALL BE SUBMITTED TO THE VA COTR PRIOR TO INSTALLATION OF ANY SIGNAGE INVOLVING ELECTRICAL CONNECTIONS.

2.2 PRODUCTS

- A. Aluminum:
 - 1. Sheet and Plate: ASTM B209.
 - 2. Extrusions and Tubing: ASTM B221.
- B. Cast Acrylic Sheet: MIL-PRF-8184F; Type II, class 1, Water white non-glare optically clear. Matt finish water white clear acrylic shall not be acceptable.
- C. Polycarbonate: MIL-P-46144C; Type I, class 1.
- D. Vinyl: 0.1 mm thick machine cut, having a pressure sensitive adhesive and integral colors.
- E. Electrical Signs:

1. General: Furnish and install all lighting, electrical components, fixtures and lamps ready for use in accordance with the sign type drawings, details and specifications.
2. Refer to SECTION 2.1.E ABOVE prior to submitting electrical documents to the COTR and verify line voltages for sign locations with electrical requirements.
3. Quality Control: Installed electrical components and sign installations are to bear the label and certification of Underwriter's Laboratories, Inc., and are to comply with National Electrical Code as well as applicable federal, state and local codes for installation techniques, fabrication methods and general product safety.
4. Lighting Fixtures: As shown on signage drawing documents.
- F. Concrete Post Footings: See Section 03 30 53, MISCELLANEOUS CAST-IN-PLACE CONCRETE, Cast-in-place Concrete.
- G. Steel: See Section 05 12 00, STRUCTURAL STEEL FRAMING.

2.3 SIGN STANDARDS

- A. Topography:
 1. Type Style: Helvetica Medium and Helvetica Medium Condensed. Initial caps or all caps as indicated in Sign Message Schedule.
 2. Arrow: See graphic standards in drawings.
 3. Letter spacing: See graphic standards on drawings.
 4. Letter spacing: See graphic standards on drawings.
 5. All text, arrows, and symbols to be provided in size, colors, typefaces and letter spacing shown. Text shall be a true, clean, accurate reproduction of typeface(s) shown. Text shown in drawings are for layout purposes only; final text for signs is listed in Sign Message Schedule.
- B. Project Colors and Finishes: See Section 09 06 00, SCHEDULE FOR FINISHES.

2.4 SIGN TYPES

- A. General:
 1. The interior sign system is comprised of sign types families that are identified by a letter and number that identify a particular group of signs. An additional number identifies a specific type of sign within that family.
- a. IN indicates a component construction based sign.
 1. The exterior sign system shall be comprised of sign types families that are identified by a letter and number which identify a

particular group of signs. An additional number identifies a specific type of sign within that family.

2. EI designation indicates exterior internally illuminated sign.
3. EN designation indicates exterior non-illuminated sign.

B. Interchangeable Component System:

1. Sign Type Families: 03, 04, 05, 06, 07, 08, 09 10, 11 12, 13, 14, 15, 16 and 17.

2. Interior sign system capable of being arranged in a variety of configurations with a minimum of attachments, devices and connectors.

a. Interchangeable nature of the system shall allow for changes of graphic components of the installed sign, without changing sign in its entirety.

b. Component Sign System is comprised of the following primary components:

- 1) Rail Back utilizing horizontal rails, spaced to allow for uniform, modular sizing of sign types.
- 2) Rail Insert mounted to back of Copy Panels to allow for attachment to Rail Back.
- 3) Copy Panels, made of a variety of materials to allow for different graphic needs.
- 4) End Caps which interlock to Rail Back to enclose and secure changeable Copy Panels.
- 5) Joiners and Accent Joiners connect separate Rail Backs together.
- 6) Top Accent Bars which provide decorative trim cap that encloses the top of sign or can connect the sign to a Type 03 Room Number Sign.

c. Rail Back, Rail Insert and End Caps in anodized extruded aluminum to allow for tight tolerances and consistent quality of fit and finish.

d. Signs in system shall be convertible in the field to allow for enlargement from one size to another in height and width through use of Joiners or Accent Joiners, which connect Rail Back panels together blindly, providing a butt joint between Copy Panels. Accent Joiners shall connect Rail Backs together with a visible 3 mm (1/8") horizontal rib, flush to the adjacent copy insert surfaces.

- e. Sign configurations shall vary in width from 225 mm (9 inches) to 2050 mm (80 inches), and have height dimensions of 50 mm (2 inches), 75 mm (3 inches), 150 mm (6 inches), 225 mm (9 inches) and 300 mm (12 inches). Height shall be increased beyond 300 mm (12 inches), by repeating height module in full or in part.
3. Rail Back functions as internal structural member of sign using 6063T5 extruded aluminum and anodized black.
 - a. Shall accept an extruded aluminum or plastic insert on one sign or on both sides, depending upon sign type.
 - b. Shall be convertible in field to allow for connection to other Rail Back panels, so that additive changes can be made to sign unit.
 - c. Rail shall allow for a variety of mounting devices including wall mounting for screw-on applications, using pressure sensitive tape, freestanding mount, ceiling mount and other mounting devices as needed.
 4. Rail Insert functions as a mounting device for Copy Panels on to the Rail Back. The Rail Insert mounts to the back of the Copy Panel with adhesive suitable for use with the particular copy insert material.
 - a. Shall allow Copy Panels to slide or snap into the horizontal Rail Back for ease of changeability.
 - b. Shall mount to the back of the Copy Panel with adhesive suitable for use with particular Copy Panel material.
 5. Copy Panels shall accept various forms of copy and graphics, and attaches to the Rail Back with the Rail Insert. Copy Panels shall be either ABS plastic with integral color or an acrylic lacquer finish; photo polymer; or, acrylic.
 - a. Interchangeable by sliding horizontally from either side of sign, and to other signs in system of equal or greater width or height.
 - b. Cleanable without use of special chemicals or cleaning solutions.
 - c. Copy Insert Materials.
 - 1) ABS Inserts - 2.3 mm (.090 inches) extruded ABS plastic core with .07 mm (.003 inches) acrylic cap bonded during extrusion/texturing process. Pressure bonded to extruded Rail Insert using adhesive. Background color is either integral or painted in acrylic lacquer. ABS inserts finished in a chromium industries #HM335RA texture pattern to prevent glare.

- 2) Photo polymer Inserts - 3 mm (.125 inches) phenolic photo polymer with raised copy etched to 2.3 mm (.0937 inches), bonded to an ABS plastic or extruded aluminum insert with adhesive. Background color is painted in acrylic enamel.
- 3) Changeable Paper/ Insert Holder - Extruded insert holder with integral Rail Insert for connection with structural back panel in 6063T5 aluminum with a black anodized finish. Inserts into holder are paper with a clear 0.7 mm (.030 inches) textured cover. Background color is painted in acrylic lacquer.
- 4) Acrylic - 2 mm (.080 inches) non-glare acrylic. Pressure bonded to extruded Rail Insert using adhesive. Background color is painted in acrylic lacquer or acrylic enamel.
- 5) Extruded 6063T5 aluminum with a black anodized finish Insert Holder with integral Rail Insert for connection with Structural Back Panel to hold a 0.7 mm (.030 inches) textured polycarbonate insert and a Sliding Tile which mounts in the Inset Holder and slides horizontally.
- 6) End Caps - Extruded using 6063T5 aluminum with a black anodized. End Caps interlock with Rail Back with clips to form an integral unit, enclosing and securing the changeable Copy Panels, without requiring tools for assembly.
 - a) Shall be interchangeable to either end of sign and to other signs in the system of equal height.
 - b) Mechanical fasteners can be added to the End Caps that will secure it to Rail Back to make sign tamper resistant.
- 7) Joiners - Extruded using 6063T5 aluminum with a black anodized finish. Rail Joiners connect Rail Backs together blindly, providing a butt joint between Copy Inserts.
- 8) Accent Joiners - Extruded using 6063T5 aluminum with a mirror polished finish. Joiner shall connect Rail Backs together with a visible 3 mm (.125 inches) horizontal rib, flush to the adjacent Copy Panel surfaces.
- 9) Top Accent Rail - Extruded using 6063T5 aluminum with a mirror polished finish. Rail shall provide 3 mm (.125 inches) high decorative trim cap, which butts flush to adjacent Copy Panel and encloses top of Rail Back and Copy Panel.
- 10) Typography

- a) Vinyl First Surface Copy (non-tactile) - Applied Vinyl copy.
- b) Subsurface Copy Inserts - Textured 1 mm (.030 inches) clear polycarbonate face with subsurface applied Vinyl copy. Face shall be back sprayed with paint and laminated to an extruded aluminum carrier insert.
- c) Integral Tactile Copy Inserts - phenolic photo polymer etched with 2.3 mm (.0937 inches) raised copy.
- d) Silk-screened First Surface Copy (non-tactile) - Injection molded or extruded ABS plastic or aluminum insert with first surface applied enamel silk-screened copy.

C. Sign Type Family 01, 02.01 thru 02.05, 08, 09 and 20:

- 1. All text and graphics are to be first surface silk-screened.
- 2. IN-01.12 & IN-01.13: Refer to Sign Type 03 specification for tactile and Braille portion of sign.
- 3. IN-02.4: All text and graphics are to be first surface vinyl letters.
- 4. IN-01.1: Preparation of artwork for reproduction of "fire and emergency evacuation maps" is by manufacturer.

D. Sign Type Families 03:

- 1. Tactile sign is to be made from a material that provides for letters, numbers and Braille to be integral with sign plaque material such as: photosensitive polyamide resin, etched metal, sandblasted phenolic or embossed material. Do not apply letters, numbers and Braille with adhesive.
- 2. Numbers, letters and Braille to be raised 0.793 mm (.0312 inches) from the background surface. The draft of the letters, numbers and Braille to be tapered, vertical and clean.
- 3. Braille dots are to conform with standard dimensions for literary Braille; (a) Dot base diameter: 1.5 mm (.059 inches) (b) Inter-dot spacing: 2.3 mm (.090 inches) (c) Horizontal separation between cells: 6.0 mm (.241 inches) (d) Vertical separation between cells: 10.0 mm (.395 inches)
- 4. Entire assembly is painted in specified color. After painting, apply white or other specified color to surface of the numbers and letters. Entire sign is to have a protective clear coat sealant applied.

5. Complete sign is to have an eggshell finish (11 to 19 degree on a 60 degree glossmeter).
- E. Sign Type Family 04 and 11:
1. All text and graphics are to be first surface applied vinyl letters.
 2. IN-04: When a Type IN-04 is to be mounted under a Type IN03, a connecting Accent Joiner is to be used to create a singular integrated sign.
- F. Sign Type 05:
1. Text if added to Copy Insert module to be first surface applied vinyl letters.
- G. Sign Type Family 06 and 07:
1. All text and graphics are to be first surface applied vinyl letters except for under sliding tile.
 2. Protect text, which is covered by sliding tile, so tile does not wear away letters.
- H. Sign Type Family 10:
1. Pocket depth is to be 0.3 mm (.0150 inches).
- I. Sign Type Family 12 and 13:
1. All text and graphics are to be first surface applied vinyl letters.
 2. IN-12: Provide felt, cork or similar material on bottom of desk mounting bracket to protect counter surfaces.
- J. Sign Type Family 14, 15, and 16:
1. All text and graphics are to be first surface applied vinyl letters.
 2. IN-14.06: When added to top of IN-14.01, IN-14.04, or IN-14.05 a connecting Accent Joiner is to be used to create a singular integrated sign.
 3. Ceiling mounted signs required mounting hardware on the sign that allows for sign disconnection, removal and reinstallation and reconnection.
- K. Sign Type Family 17:
1. All text and graphics are to be first surface applied vinyl letters.
 2. IN-17: Directory constructed using elements of the Component System.
- L. Sign Type Family 18:
1. All text and graphics are to be first surface applied stylus cut vinyl letters.
 2. Provide in specified typeface, color and spacing, with each message or message group on a single quick release backing sheet.
- M. Sign Type Family 19:

1. Dimensional letters are mill or laser cut acrylic in the size and thickness noted in the drawings.
2. Draft of letters is perpendicular to letters face.
3. All corners such as where a letter stem and bar intersect are to be square so the letter form is accurately reproduced.
4. Paint letters with acrylic polyurethane in specified color and finish.

N. Sign Type Family (See Specialty Signs Section) 21:

1. IN-21.01: 57 mm (2.25 inches) polished aluminum tube mounted to weighted 356 mm (14 inches) diameter polished aluminum base. Sign bracket to hold a 6 mm (.25 inches) sign plaque.
2. IN-21.02: 57 mm (2.25 inches) polished aluminum tube vertical support mounted to a weighted polished 57 mm (2.25 inches) aluminum tubular base. Rail Back mechanically connected to vertical supports with Copy Panel attached to front and back.
3. IN-21.03 & 21.04: IN-21.02: 57 mm (2.25 inches) polished aluminum tube vertical support mounted to a weighted polished 57 mm (2.25 inches) aluminum tubular base. Rail Back mechanically connected to vertical supports with hinged locking glass door. Black felt covered changeable letter board or tan vinyl impregnated cork tack surface as background within case.

O. Sign Type Family 22:

1. IN-22.01: Extruded aluminum clip anodized black containing rollers to pinch and release paper. End caps are black plastic.
2. IN-22.02: Patient Information holder constructed of 18 gauge formed sheet metal painted in specified color. Polished aluminum connecting rods and buttons. Button covers for mounting screws are to permanently attach and securely conceal screws.

P. Temporary Interior Signs:

1. Fabricated from 50 kg (110 pound) matte finished white paper cut to 100 mm (4 inch) wide by 300 mm (12 inch) long. Punched 3 mm (.125 inch) hole with edge of hole spaced 13 mm (.5 inch) in from edge and centered on 100 mm (4 inch) side. Reinforce hole on both sides with suitable material that prevents the form pulling through hole. Ties are steel wire 0.3 mm (0.120 inch) thick attached to tag with twist leaving 150 mm (6 inch) long free ends.

2. Mark architectural room number on sign, with broad felt marker in clearly legible numbers or letters that identify room, corridor or space as shown on floor plans.
3. Install temporary signs to all rooms that have a room, corridor or space number. Attach to door frame, door knob or door pull.
 - a. Doors that do not require signs are: corridor doors in corridor with same number, folding doors or partitions, toilet doors, bathroom doors within and between rooms, closet doors within rooms, communicating doors in partitions between rooms with corridor entrance doors.
 - b. Replace and missing damaged or illegible signs.

2.5 FABRICATION

- A. Design components to allow for expansion and contraction for a minimum material temperature range of 56 °C (100 °F), without causing buckling, excessive opening of joints or over stressing of adhesives, welds and fasteners.
- B. Form work to required shapes and sizes, with true curve lines and angles. Provide necessary rebates, lugs and brackets for assembly of units. Use concealed fasteners whenever and wherever possible.
- C. Shop fabricate so far as practicable. Joints fastened flush to conceal reinforcement, or welded where thickness or section permits.
- D. Contact surfaces of connected members be true. Assembled so joints will be tight and practically unnoticeable, without use of filling compound.
- E. Signs shall have fine, even texture and be flat and sound. Lines and miters sharp, arises unbroken, profiles accurate and ornament true to pattern. Plane surfaces be smooth flat and without oil-canning, free of rack and twist. Maximum variation from plane of surface plus or minus 0.3 mm (0.015 inches). Restore texture to filed or cut areas.
- F. Level or straighten wrought work. Members shall have sharp lines and angles and smooth surfaces.
- G. Extruded members to be free from extrusion marks. Square turns and corners sharp, curves true.
- H. Drill holes for bolts and screws. Conceal fastenings where possible. Exposed ends and edges mill smooth, with corners slightly rounded. Form joints exposed to weather to exclude water.
- I. Finish hollow signs with matching material on all faces, tops, bottoms and ends. Edge joints tightly mitered to give appearance of solid material.

- J. All painted surfaces properly primed. Finish coating of paint to have complete coverage with no light or thin applications allowing substrate or primer to show. Finished surface smooth, free of scratches, gouges, drips, bubbles, thickness variations, foreign matter and other imperfections.
- K. Movable parts, including hardware, are be cleaned and adjusted to operate as designed without binding or deformation of members. Doors and covers centered in opening or frame. All contact surfaces fit tight and even without forcing or warping components.
- L. Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.
- M. No signs are to be manufactured until final sign message schedule and location review has been completed by the Resident Engineer & forwarded to contractor.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Protect products against damage during field handling and installation. Protect adjacent existing and newly placed construction, landscaping and finishes as necessary to prevent damage during installation. Paint and touch up any exposed fasteners and connecting hardware to match color and finish of surrounding surface.
- B. Mount signs in proper alignment, level and plumb according to the sign location plan and the dimensions given on elevation and sign location drawings. Where otherwise not dimensioned, signs shall be installed where best suited to provide a consistent appearance throughout the project. When exact position, angle, height or location is in doubt, contact Resident Engineer for clarification.
- C. Contractor shall be responsible for all signs that are damaged, lost or stolen while materials are on the job site and up until the completion and final acceptance of the job.
- D. Remove or correct signs or installation work Resident Engineer determines as unsafe or as an unsafe condition.
- E. At completion of sign installation, clean exposed sign surfaces. Clean and repair any adjoining surfaces and landscaping that became soiled or damaged as a result of installation of signs.
- F. Locate signs as shown on the Sign Location Plans.

- G. Certain signs may be installed on glass. A blank glass back up is required to be placed on opposite side of glass exactly behind sign being installed. This blank glass back up is to be the same size as sign being installed.
- H. Contractor will be responsible for verifying that behind each sign location there are no utility lines that will be affected by installation of signs. Any damage during installation of signs to utilities will be the sole responsibility of the Contractor to correct and repair.
- I. Furnish inserts and anchoring devices which must be set in concrete or other material for installation of signs. Provide setting drawings, templates, instructions and directions for installation of anchorage devices which may involve other trades.

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