



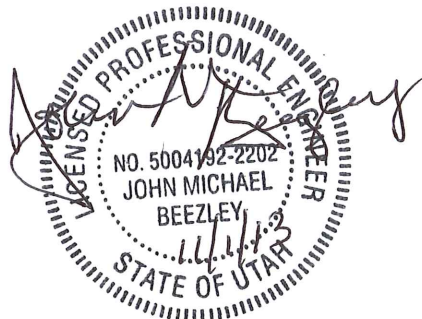
**George E. Wahlen VA Medical Center
Lighting Renovation**

Project No. # 660-14-106

Project Specifications

Prepared

November 1, 2013



George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

APPENDIX A
SPACE DETIALS

DESCRIPTION

The following spreadsheets outline the existing conditions of each room where lighting and occupancy controls are being modified and the new fixtures and occupancy controls to be installed within each room. Drawings floor plans of each floor and details for guidance in installing light fixtures and controls are provided in the project drawing package.

Replacement fixture types are described on the light fixture schedule on sheet E-001.

Details for installing lighting controls are included in the drawing package. The following details describe the number of switching points and the number and type of control devices to be installed within each room. Lighting control types are described on the interior lighting legend on drawing sheet E-001 and the lighting controls specification section.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

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	08-30
00 01 25	Functional Description	
	DIVISION 01 - GENERAL REQUIREMENTS	
01 00 00	General Requirements	08-30
01 32 16.15	Project Schedules (Small Projects - Design/Bid/Build	04-13
01 33 23	Shop Drawings, Product Data, and Samples	08-30
01 42 19	Reference Standards	08-30
01 74 19	Construction Waste Management	08-30
	DIVISION 7 - THERMAL AND MOISTURE PROTECTION	
07 84 00	Firestopping	08-30
	DIVISION 13 - SPECIAL CONSTRUCTION	
13 05 41	Seismic Restraint Requirements for Non-Structural Components	08-11
	DIVISION 26 - ELECTRICAL	
26 05 11	Requirements for Electrical Installations	08-30
26 05 19	Low-Voltage Electrical Power Conductors and Cables (600 Volts and Below)	08-30
26 05 26	Grounding and Bonding for Electrical Systems	08-30
26 05 33	Raceway and Boxes for Electrical Systems	08-30
26 09 23	Lighting Controls	08-30
26 27 26	Wiring Devices	08-30
26 51 00	Interior Lighting	08-30

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

SECTION 00 01 15
LIST OF DRAWING SHEETS

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

<u>Drawing No.</u>	<u>Title</u>
GENERAL	
G-001	COVER SHEET
GC001	RISK ASSESSMENT
GC002	IT SECURITY CHECKLIST
ELECTRICAL	
E-001	GENERAL NOTES, LEGEND, LIGHTING FIXTURE SCHEDULE
E-401	TYPICAL ROOM DIAGRAMS
E-501	ELECTRICAL WIRING AND MOUNTING DIAGRAMS
E-502	ELECTRICAL WIRING AND MOUNTING DIAGRAMS
KEY PLANS	
E-101	BUILDING 14 BASEMENT FLOOR
E-102	BUILDING 14 GROUND FLOOR
E-103	BUILDING 14 1ST FLOOR
E-104	BUILDING 14 2ND FLOOR
E-105	BUILDING 14 3RD FLOOR
E-106	BUILDING 14 PENTHOUSE FLOOR
E-107	BUILDING 1 2ND FLOOR
E-108	BUILDING 1 3RD FLOOR
E-109	BUILDING 1 4TH FLOOR
E-110	BUILDING 1 5TH FLOOR

- - - END - - -

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

**SECTION 00 01 25
FUNCTIONAL DESCRIPTION**

FUNCTIONAL DESCRIPTION

This work involves the installation of occupancy sensor and/or dimmer controls for lighting as well as lighting replacement. The purpose of project is to assist in reaching energy reduction mandates, and provide for control of lighting levels.

Contractor will be required to assist the VA in applying for and providing requisite documentation for the "Self Direct" Incentive programs provided to the VA by Rocky Mountain Power. Items provided by contractor to include final unit cost pricing divided by labor and materials of each motion sensor and light fixture type provided and a finalized cost summary listing the numbers of fixtures and occupancy sensors installed throughout the course of this project. Successful completion of the contract will not be established until this documentation is provided as required by Rocky Mountain Power.

The contractor shall refer to the Electrical Drawings for general notes, typical room diagrams, and details. Included in the project documents are reference key plans for assistance in identifying room locations.

The contractor shall utilize Specifications Appendix A: Space Details, to determine the quantity and type of devices to install in each room. Contractor shall refer to project specifications for project performance and quality standards.

OCCUPANCY SENSORS FOR LIGHTING CONTROL

The works involves the installation and application of occupancy sensor controls. Appendix A "Space Details" defines the number and type of sensor devices to install in each room.

Sensors will be installed in the following room types:

1. Administrative areas throughout each facility: offices, storage rooms, closets, conference rooms, classrooms, and rest rooms.
2. Outpatient care areas: storage rooms, closets, and public rest rooms
3. Inpatient areas: storage and non-essential rooms

Bathrooms should include an "occupancy" sensor w/minimum 30 minute on-times.

Occupancy/Vacancy Sensors are generally not being installed in the following areas as to ensure we do not impose on the primary mission of the medical facility or inconvenience those receiving services from the facility:

- a. waiting rooms
- b. corridors

No Occupancy/Vacancy sensors shall be considered for the following areas as not to impose a risk to the staff or patients:

- a. Emergency lights and emergency exiting
- b. Exam/procedure Rooms
- c. Electrical and Mechanical equipment rooms

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

Occupancy/Vacancy sensor controls for lighting may consist of switch and/or a combination of ceiling sensors depending on type and use of the room being installed.

See drawing sheets for typical room diagrams and details.

DIMMER SWITCHES FOR LIGHTING CONTROL

The works involves the installation and application of dimmer switches. Appendix A "Space Details" defines the number and type of dimmer switches to install in each room.

Dimmer switches will be installed in the following administrative areas throughout each facility:

- a. Offices
- b. Conference rooms
- c. Classrooms
- d. Corridors with switching
- e. Nurses stations and similar work spaces

See drawing sheets for typical room diagrams and details.

DAYLIGHT HARVESTING SENSORS FOR LIGHTING CONTROL

The works involves the installation and application of Daylight-Harvesting Sensors. Appendix A "Space Details" defines the number and type of sensors to install in corridors.

See drawing sheets for typical room diagrams and details.

OCCUPANCY/VACANCY SENSOR MODE SETTINGS

All bathrooms shall be set in Occupancy mode versus vacancy mode
All other rooms shall be set in Vacancy Mode.

LIGHTING FIXTURE REPLACEMENT

The project consists of "one for one" light fixture replacement as identified by the Appendix A schedule in the specifications and the plans provided.

The work involves replacement of various existing fixture types with LED "equivalents" as identified in the schedules/plans/specifications.

See drawing sheets for typical room diagrams and details.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

SECTION 01 00 00
GENERAL REQUIREMENTS

TABLE OF CONTENTS

1.1 GENERAL INTENTION	1
1.2 STATEMENT OF BID ITEM(S)	2
1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR	3
1.4 CONSTRUCTION SECURITY REQUIREMENTS.....	3
1.5 FIRE SAFETY.....	5
1.6 OPERATIONS AND STORAGE AREAS.....	8
1.7 ALTERATIONS.....	12
1.8 INFECTION PREVENTION MEASURES.....	13
1.9 DISPOSAL AND RETENTION	16
1.10 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS.....	17
1.11 RESTORATION	18
1.11 AS-BUILT DRAWINGS.....	19
1.12 USE OF ROADWAYS.....	19
1.13 TEMPORARY USE OF EXISTING ELEVATORS.....	20
1.14 TEMPORARY TOILETS.....	20
1.15 AVAILABILITY AND USE OF UTILITY SERVICES.....	20
1.16 TESTS.....	21
1.17 INSTRUCTIONS.....	22
1.19 CONSTRUCTION SIGN.....	23
1.20 HISTORIC PRESERVATION	23

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

SECTION 01 00 00
GENERAL REQUIREMENTS

1.1 GENERAL INTENTION

- A. Contractor shall completely prepare site for building operations, including demolition and removal of existing structures, and furnish labor and materials and perform work for Lighting Renovation as required by drawings and specifications.
- B. Visits to the site by Bidders may be made only by appointment with the Medical Center Engineering Officer.
- C. Offices of Apogee Consulting Group, PA, as Architect-Engineers, will render certain technical services during construction. Such services shall be considered as advisory to the Government and shall not be construed as expressing or implying a contractual act of the Government without affirmations by Contracting Officer or his duly authorized representative.
- D. Before placement and installation of work subject to tests by testing laboratory retained by Department of Veterans Affairs, the Contractor shall notify the Contracting Officer Representative (COR) in sufficient time to enable testing laboratory personnel to be present at the site in time for proper taking and testing of specimens and field inspection. Such prior notice shall be not less than three work days unless otherwise designated by the COR.
- E. All employees of general contractor and subcontractors shall comply with VA security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.
- F. Prior to commencing work, general contractor shall provide proof that a OSHA designated "competent person" (CP) (29 CFR 1926.20(b)(2)) will maintain a presence at the work site whenever the general or subcontractors are present.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

G. Training:

1. All employees of general contractor or subcontractors shall have the 10-hour or 30-hour OSHA Construction Safety course and other relevant competency training, as determined by RE/COR acting as the Construction Safety Officer with input from the facility Construction Safety Committee.
2. Submit training records of all such employees for approval before the start of work.

H. VHA Directive 2011-36, Safety and Health during Construction, dated 9/22/2011 in its entirety is made a part of this section

1.2 STATEMENT OF BID ITEM(S)

A. **Base Bid:** Install Interior lighting sensors and replacement fixtures.

COR Provide 5% "attic stock" of Occupancy/Vacancy Sensors and LED "Tube" replacements.

Deliver "attic stock" as directed by the COR.

B. **Bid Deduct 1:** Corridor Light replacement and related dimmers in Building #1. Note: Corridor lights as identified at "command Centers" (Nurses stations) as identified for those areas on the Appendix A Space Details shall NOT be considered as part of this Deduct.

C. **Bid Deduct 2 (A (Second floor), B (Third Floor), C (Fourth Floor), D (Fifth Floor)):** Provide Bid breakdown "by floor" in Building #1 (exclusive of Bid Deduct #1) as defined as a unit cost for VA's consideration for inclusion into the scope of the bid.

D. **BID DEDUCT 3:** Provide unit cost breakdown with labor/(related demolition/disposal) and new material, separated include mark-up as applicable. Unit cost shall NOT be floor or Building dependent (Note applicable to Bldg 1 and 14 only.

Provide unit cost breakdown as follows:

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

1. Occupancy/Vacancy Sensors, Dimmers: In increments of 25
2. 2x4, 2x2 & 1x4 Light fixtures In increments of 25

1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

- A. AFTER AWARD OF CONTRACT, 3 sets of specifications and drawings will be furnished by the VA.
- B. Additional sets of drawings may be made by the Contractor, at Contractor's expense, from reproducible prints furnished by Issuing Office. Such prints shall be returned to the Issuing Office immediately after printing is completed.

1.4 CONSTRUCTION SECURITY REQUIREMENTS

- A. Security Plan:
 1. The security plan defines both physical and administrative security procedures that will remain effective for the entire duration of the project.
 2. The General Contractor is responsible for assuring that all sub-contractors working on the project and their employees also comply with these regulations.
- B. Security Procedures:
 1. General Contractor's employees shall not enter the project site without appropriate badge. They may also be subject to inspection of their personal effects when entering or leaving the project site.
 2. For working outside the "regular hours" as defined in the contract, The General Contractor shall give 3 days notice to the Contracting Officer so that security arrangements can be provided for the employees. This notice is separate from any notices required for utility shutdown described later in this section.
 3. No photography of VA premises is allowed without written permission of the Contracting Officer.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

4. VA reserves the right to close down or shut down the project site and order General Contractor's employees off the premises in the event of a national emergency. The General Contractor may return to the site only with the written approval of the Contracting Officer.

C. Guards:

1. The General Contractor shall provide unarmed guards at the project site after construction hours.
2. The guard shall have communication devices to report events as directed by VA police.
3. The general Contractor shall install equipment for recording guard rounds to ensure systematic checking of the premises.

D. Key Control:

1. The General Contractor shall provide duplicate keys and lock combinations to the COR for the purpose of security inspections of every area of project including tool boxes and parked machines and take any emergency action.
2. The General Contractor shall turn over all permanent lock cylinders to the VA locksmith for permanent installation. See Section 08 71 00, DOOR HARDWARE and coordinate.

E. Document Control:

1. Before starting any work, the General Contractor/Sub Contractors shall submit an electronic security memorandum describing the approach to following goals and maintaining confidentiality of "sensitive information".
2. The General Contractor is responsible for safekeeping of all drawings, project manual and other project information. This information shall be shared only with those with a specific need to accomplish the project.
3. Certain documents, sketches, videos or photographs and drawings may be marked "Law Enforcement Sensitive" or "Sensitive Unclassified". Secure such information in separate containers and limit the access

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

to only those who will need it for the project. Return the information to the Contracting Officer upon request.

4. These security documents shall not be removed or transmitted from the project site without the written approval of Contracting Officer.
5. All paper waste or electronic media such as CD's and diskettes shall be shredded and destroyed in a manner acceptable to the VA.
6. Notify Contracting Officer and Site Security Officer immediately when there is a loss or compromise of "sensitive information".
7. All electronic information shall be stored in specified location following VA standards and procedures using an Engineering Document Management Software (EDMS).
 - a. Security, access and maintenance of all project drawings, both scanned and electronic shall be performed and tracked through the EDMS system.
 - b. "Sensitive information" including drawings and other documents may be attached to e-mail provided all VA encryption procedures are followed.

F. Motor Vehicle Restrictions

1. Vehicle authorization request shall be required for any vehicle entering the site and such request shall be submitted 24 hours before the date and time of access. Access shall be restricted to picking up and dropping off materials and supplies.
2. Separate permits shall be issued for General Contractor and its employees for parking in designated areas only.

1.5 FIRE SAFETY

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

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

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

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

2. National Fire Protection Association (NFPA):

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

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

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

70-2011.....National Electrical Code

241-2009.....Standard for Safeguarding Construction,
Alteration, and Demolition Operations

3. Occupational Safety and Health Administration (OSHA):

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

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

C. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.

D. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

accordance with NFPA 241. For small facilities with less than 6 m (20 feet) exposing overall length, separate by 3m (10 feet).

E. Temporary Construction Partitions:

1. Install and maintain temporary construction partitions to provide smoke-tight separations between construction areas and adjoining areas. Construct partitions of gypsum board or treated plywood (flame spread rating of 25 or less in accordance with ASTM E84) on both sides of fire retardant treated wood or metal steel studs. Extend the partitions through suspended ceilings to floor slab deck or roof. Seal joints and penetrations. At door openings, install Class C, ¾ hour fire/smoke rated doors with self-closing devices.
2. Install temporary construction partitions to maintain integrity of existing exit stair enclosures, exit passageways, fire-rated enclosures of hazardous areas, horizontal exits, smoke barriers, vertical shafts and openings enclosures.
3. Close openings in smoke barriers and fire-rated construction to maintain fire ratings. Seal penetrations with listed through-penetration firestop materials in accordance with Section 07 84 00, FIRESTOPPING.

F. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.

G. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with Engineer and facility Safety Manager .

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

I. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.

J. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

- M. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Provide fire watch for impairments more than 4 hours in a 24-hour period. Request interruptions in accordance with Article, OPERATIONS AND STORAGE AREAS, and coordinate with Engineer and facility Safety Manager. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested as coordinated with the medical center. Parameters for the testing and results of any tests performed shall be recorded by the medical center and copies provided to the COR.
- N. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with Engineer and facility Safety Manager.
- O. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with Engineer. Obtain permits from facility Safety Manager Officer at least 72 hours in advance.
- P. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to Engineer and facility Safety Manager.
- Q. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.
- R. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.
- S. Perform other construction, alteration and demolition operations in accordance with 29 CFR 1926.
- T. If required, submit documentation to the COR that personnel have been trained in the fire safety aspects of working in areas with impaired structural or compartmentalization features.

1.6 OPERATIONS AND STORAGE AREAS

- A. The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government,

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

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. Workmen are subject to rules of Medical Center applicable to their conduct.
- E. Execute work so as to interfere as little as possible with normal functioning of Medical Center as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others. Use of equipment and tools that transmit vibrations and noises through the building structure, are not permitted in buildings that are occupied, during construction, jointly by patients or medical personnel, and Contractor's personnel, except as permitted by 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

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

- Veterans Affairs in quantities sufficient for not more than two work days. Provide unobstructed access to Medical Center areas required to remain in operation.
3. Where access by Medical Center personnel to vacated portions of buildings is not required, storage of Contractor's materials and equipment will be permitted subject to fire and safety requirements.
- F. Phasing: 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 two weeks 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 in successive phases mutually agreeable to Medical Center Director, COR and Contractor, as follows:
- G. Building(s) No.(s) 1 and 14 will be occupied during performance of work.
1. Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used in the Medical Centers operations will not be hindered. Contractor shall permit access to Department of Veterans Affairs personnel and patients through other construction areas which serve as routes of access to such affected areas and equipment. Coordinate alteration work in areas occupied by Department of Veterans Affairs so that Medical Center operations will continue during the construction period.
- H. Utilities Services: Maintain existing utility services for Medical Center at all times. Provide temporary facilities, labor, materials, equipment, connections, and utilities to assure uninterrupted services. Where necessary to cut existing water, steam, gases, sewer or air pipes, or conduits, wires, cables, etc. of utility services or of fire protection systems and communications systems (including telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by COR.
1. No utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems may be

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

interrupted without prior approval of COR. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished, work on any energized circuits or equipment shall not commence without the Medical Center Director's prior knowledge and written approval. Refer to specification Sections 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS

2. Contractor shall submit a request to interrupt any such services to COR, in writing, 48 hours in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.
 3. Contractor will be advised (in writing) of approval of request, or of which other date and/or time such interruption will cause least inconvenience to operations of Medical Center. Interruption time approved by Medical Center may occur at other than Contractor's normal working hours.
 4. Major interruptions of any system must be requested, in writing, at least 15 calendar days prior to the desired time and shall be performed as directed by the COR.
 5. In case of a contract construction emergency, service will be interrupted on approval of COR. Such approval will be confirmed in writing as soon as practical.
 6. Whenever it is required that a connection fee be paid to a public utility provider for new permanent service to the construction project, for such items as water, sewer, electricity, gas or steam, payment of such fee shall be the responsibility of the Government and not the Contractor.
- J. Abandoned Lines: All service lines such as wires, cables, conduits, ducts, pipes and the like, and their hangers or supports, which are to be abandoned but are not required to be entirely removed, shall be sealed, capped or plugged. The lines shall not be capped in finished areas, but shall be removed and sealed, capped or plugged in ceilings, within furred spaces, in unfinished areas, or within walls or partitions; so that they are completely behind the finished surfaces.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

K. 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.
2. Method and scheduling of required cutting, altering and removal of existing roads, walks and entrances must be approved by the COR.
- L. Coordinate the work for this contract with other construction operations as directed by COR. This includes the scheduling of traffic and the use of roadways, as specified in Article, USE OF ROADWAYS.

1.7 ALTERATIONS

A. Survey: Before any work is started, the Contractor shall make a thorough survey with the COR of areas of buildings in which alterations occur and areas which are anticipated routes of access, and furnish a report, signed by both, to the Contracting Officer. This report shall list by rooms and spaces:

1. Existing condition and types of resilient flooring, doors, windows, walls and other surfaces not required to be altered throughout affected areas of buildings.
2. Existence and conditions of items such as plumbing fixtures and accessories, electrical fixtures, equipment, venetian blinds, shades, etc., required by drawings to be either reused or relocated, or both.
3. Shall note any discrepancies between drawings and existing conditions at site.
4. Shall designate areas for working space, materials storage and routes of access to areas within buildings where alterations occur and which have been agreed upon by Contractor and COR.

B. Any items required by drawings to be either reused or relocated or both, found during this survey to be nonexistent, or in opinion of COR to be in such condition that their use is impossible or impractical, shall be furnished and/or replaced by Contractor with new items in accordance with specifications which will be furnished by Government. Provided the

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

contract work is changed by reason of this subparagraph B, the contract will be modified accordingly, under provisions of clause entitled "DIFFERING SITE CONDITIONS" (FAR 52.236-2) and "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).

C. Re-Survey: Thirty days before expected partial or final inspection date, the Contractor and COR together shall make a thorough re-survey of the areas of buildings involved. They shall furnish a report on conditions then existing, of resilient flooring, doors, windows, walls and other surfaces as compared with conditions of same as noted in first condition survey report:

1. Re-survey report shall also list any damage caused by Contractor to such flooring and other surfaces, despite protection measures; and, will form basis for determining extent of repair work required of Contractor to restore damage caused by Contractor's workmen in executing work of this contract.

D. Protection: Provide the following protective measures:

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

1.8 INFECTION PREVENTION MEASURES

A. Implement the requirements of VAMC's Infection Control Risk Assessment (ICRA) team. ICRA Group may monitor dust in the vicinity of the construction work and require the Contractor to take corrective action immediately if the safe levels are exceeded.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

B. Establish and maintain a dust control program as part of the contractor's infection preventive measures in accordance with the guidelines provided by ICRA Group. Prior to start of work, prepare a plan detailing project-specific dust protection measures, including periodic status reports, and submit to Engineer and Facility ICRA team for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

1. All personnel involved in the construction or renovation activity shall be educated and trained in infection prevention measures established by the medical center.

C. Medical center Infection Control personnel shall monitor for airborne disease (e.g. aspergillosis) as appropriate during construction. A baseline of conditions may be established by the medical center prior to the start of work and periodically during the construction stage to determine impact of construction activities on indoor air quality. In addition:

1. The RE and VAMC Infection Control personnel shall review pressure differential monitoring documentation to verify that pressure differentials in the construction zone and in the patient-care rooms are appropriate for their settings. The requirement for negative air pressure in the construction zone shall depend on the location and type of activity. Upon notification, the contractor shall implement corrective measures to restore proper pressure differentials as needed.
2. In case of any problem, the medical center, along with assistance from the contractor, shall conduct an environmental assessment to find and eliminate the source.

D. In general, following preventive measures shall be adopted during construction to keep down dust and prevent mold.

1. Dampen debris to keep down dust and provide temporary construction partitions in existing structures where directed by COR. Blank off ducts and diffusers to prevent circulation of dust into occupied areas during construction.
2. Do not perform dust producing tasks within occupied areas without the approval of the COR. For construction in any areas that will remain

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

jointly occupied by the medical Center and Contractor's workers, the Contractor shall:

- a. Provide dust proof fire-rated temporary drywall construction barriers to completely separate construction from the operational areas of the hospital in order to contain dirt debris and dust. Barriers shall be sealed and made presentable on hospital occupied side. Install a self-closing rated door in a metal frame, commensurate with the partition, to allow worker access. Maintain negative air at all times. A fire retardant polystyrene, 6-mil thick or greater plastic barrier meeting local fire codes may be used where dust control is the only hazard, and an agreement is reached with the COR and Medical Center.
- b. HEPA filtration is required where the exhaust dust may reenter the breathing zone. Contractor shall verify that construction exhaust to exterior is not reintroduced to the medical center through intake vents, or building openings. Install HEPA (High Efficiency Particulate Accumulator) filter vacuum system rated at 95% capture of 0.3 microns including pollen, mold spores and dust particles. Insure continuous negative air pressures occurring within the work area. HEPA filters should have ASHRAE 85 or other prefilter to extend the useful life of the HEPA. Provide both primary and secondary filtrations units. Exhaust hoses shall be heavy duty, flexible steel reinforced and exhausted so that dust is not reintroduced to the medical center.
- c. Adhesive Walk-off/Carpet Walk-off Mats, minimum 600mm x 900mm (24" x 36"), shall be used at all interior transitions from the construction area to occupied medical center area. These mats shall be changed as often as required to maintain clean work areas directly outside construction area at all times.
- d. Vacuum and wet mop all transition areas from construction to the occupied medical center at the end of each workday. Vacuum shall utilize HEPA filtration. Maintain surrounding area frequently. Remove debris as they are created. Transport these outside the construction area in containers with tightly fitting lids.
- e. The contractor shall not haul debris through patient-care areas without prior approval of the COR and the Medical Center. When,

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

approved, debris shall be hauled in enclosed dust proof containers or wrapped in plastic and sealed with duct tape. No sharp objects should be allowed to cut through the plastic. Wipe down the exterior of the containers with a damp rag to remove dust. All equipment, tools, material, etc. transported through occupied areas shall be made free from dust and moisture by vacuuming and wipe down.

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

E. Final Cleanup:

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

1.9 DISPOSAL AND RETENTION

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

- 1. Reserved items which are to remain property of the Government are noted on drawings or in specifications 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

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

would be detrimental to re-installation and reuse. 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.
3. Items of portable equipment and furnishings located in rooms and spaces in which work is to be done under this contract shall remain the property of the Government. When rooms and spaces are vacated by the Department of Veterans Affairs during the alteration period, such items which are NOT required by drawings and specifications to be either relocated or reused will be removed by the Government in advance of work to avoid interfering with Contractor's operation.

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

- A. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees 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 the work site and on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

(FAR 52.236-9)

C. Refer to FAR clause 52.236-7, "Permits and Responsibilities," which is included in General Conditions. A National Pollutant Discharge Elimination System (NPDES) permit is required for this project. The Contractor is considered an "operator" under the permit and has extensive responsibility for compliance with permit requirements. VA will make the permit application available at the (appropriate medical center) office. The apparent low bidder, contractor and affected subcontractors shall furnish all information and certifications that are required to comply with the permit process and permit requirements. Many of the permit requirements will be satisfied by completing construction as shown and specified. Some requirements involve the Contractor's method of operations and operations planning and the Contractor is responsible for employing best management practices. The affected activities often include, but are not limited to the following:

- Designating areas for equipment maintenance and repair;
- Providing waste receptacles at convenient locations and provide regular collection of wastes;
- Locating equipment wash down areas on site, and provide appropriate control of wash-waters;
- Providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials; and
- Providing adequately maintained sanitary facilities.

1.11 RESTORATION

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

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

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

1.11 AS-BUILT DRAWINGS

- A. The contractor shall maintain two full size sets of as-built drawings which will be kept current during construction of the project, to include all contract changes, modifications and clarifications.
- B. All variations shall be shown in the same general detail as used in the contract drawings. To insure compliance, as-built drawings shall be made available for the COR's review, as often as requested.
- C. Contractor shall deliver two approved completed sets of as-built drawings to the COR within 15 calendar days after each completed phase and after the acceptance of the project by the COR.
- D. Paragraphs A, B, & C shall also apply to all shop drawings.

1.12 USE OF ROADWAYS

- A. For hauling, use only established public roads and roads on Medical Center property and, when authorized by the COR, such temporary roads which are necessary in the performance of contract work. Temporary roads shall be constructed by the Contractor at Contractor's expense. When necessary to cross curbing, sidewalks, or similar construction, they must be protected by well-constructed bridges.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

1.13 TEMPORARY USE OF EXISTING ELEVATORS

- A. Use of existing elevators for handling building materials and Contractor's personnel will be permitted subject to following provisions:
1. Contractor makes all arrangements with the COR for use of elevators. The COR will ascertain that elevators are in proper condition. Personnel for operating elevators will not be provided by the Department of Veterans Affairs.
 3. Government will accept hoisting ropes of elevator and rope of each speed governor if they are worn under normal operation. However, if these ropes are damaged by action of foreign matter such as sand, lime, grit, stones, etc., during temporary use, they shall be removed and replaced by new hoisting ropes.

1.14 TEMPORARY TOILETS

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

1.15 AVAILABILITY AND USE OF UTILITY SERVICES

- A. The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. The amount to be paid by the Contractor for chargeable electrical services shall be the prevailing rates charged to the Government. The Contractor shall carefully conserve any utilities furnished without charge.
- B. The Contractor, at Contractor's expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of electricity used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

- C. Contractor shall install meters at Contractor's expense and furnish the Medical Center a monthly record of the Contractor's usage of electricity as hereinafter specified.
- D. Heat: Furnish temporary heat necessary to prevent injury to work and materials through dampness and cold. Use of open salamanders or any temporary heating devices which may be fire hazards or may smoke and damage finished work, will not be permitted. Maintain minimum temperatures as specified for various materials:
 - 1. Obtain heat by connecting to Medical Center heating distribution system.
 - a. Steam is available at no cost to Contractor.
- E. Electricity (for Construction and Testing): Furnish all temporary electric services.
 - 1. Obtain electricity by connecting to the Medical Center electrical distribution system. The Contractor shall meter and pay for electricity required for electric cranes and hoisting devices, electrical welding devices and any electrical heating devices providing temporary heat. Electricity for all other uses is available at no cost to the Contractor.

1.16 TESTS

- A. Pre-test electrical equipment and systems and make corrections required for proper operation of such systems before requesting final tests. Final test will not be conducted unless pre-tested.
- B. Conduct final tests required in various sections of specifications in presence of an authorized representative of the Contracting Officer. Contractor shall furnish all labor, materials, equipment, instruments, and forms, to conduct and record such tests.
- C. Individual test result of any component, where required, will only be accepted when submitted with the test results of related components and of the entire system.

1.17 INSTRUCTIONS

- A. Contractor shall furnish Maintenance and Operating manuals (hard copies and electronic) and verbal instructions when required by the various sections of the specifications and as hereinafter specified.
- 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 of the equipment to the job site. Manuals shall be complete, detailed guides for the maintenance and operation of equipment. They shall include complete information necessary for starting, adjusting, maintaining in continuous operation for long periods of time and dismantling and reassembling of the complete units and sub-assembly components. Manuals shall include an index covering all component parts clearly cross-referenced to diagrams and illustrations. Illustrations shall include "exploded" views showing and identifying each separate item. Emphasis shall be placed on the use of special tools and instruments. The function of each piece of equipment, component, accessory and control shall be clearly and thoroughly explained. All necessary precautions for the operation of the equipment and the reason for each precaution shall be clearly set forth. Manuals must reference the exact model, style and size of the piece of equipment and system being furnished. Manuals referencing equipment similar to but of a different model, style, and size than that furnished will not be accepted.
- C. Instructions: Contractor shall provide qualified, factory-trained manufacturers' representatives to give detailed instructions to assigned Department of Veterans Affairs personnel in the operation and complete maintenance for each piece of equipment. All such training will be at the job site. These requirements are more specifically detailed in the various technical sections. Instructions for different items of equipment that are component parts of a complete system, shall be given in an integrated, progressive manner. All instructors for every piece of component equipment in a system shall be available until instructions for all items included in the system have been completed. This is to assure proper instruction in the operation of inter-related systems. All instruction periods shall be at such times as scheduled by the COR and shall be considered concluded only when the COR is satisfied in regard to complete and thorough coverage. The Department of Veterans Affairs

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

reserves the right to request the removal of, and substitution for, any instructor who, in the opinion of the COR, does not demonstrate sufficient qualifications in accordance with requirements for instructors above.

1.19 CONSTRUCTION SIGN

- A. Provide a Construction Sign where directed by the COR. All wood members shall be of framing lumber. Cover sign frame with 0.7 mm (24 gage) galvanized sheet steel nailed securely around edges and on all bearings. Provide three 100 by 100 mm (4 inch by 4 inch) posts (or equivalent round posts) set 1200 mm (four feet) into ground. Set bottom of sign level at 900 mm (three feet) above ground and secure to posts with through bolts. Make posts full height of sign. Brace posts with 50 x 100 mm (two by four inch) material as directed.
- B. Paint all surfaces of sign and posts two coats of white gloss paint. Border and letters shall be of black gloss paint, except project title which shall be blue gloss paint.
- C. Maintain sign and remove it when directed by the COR.

1.20 HISTORIC PRESERVATION

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

- - - E N D - - -

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

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

PART 1- GENERAL

1.1 DESCRIPTION:

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

1.2 CONTRACTOR'S REPRESENTATIVE:

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

1.3 CONTRACTOR'S CONSULTANT:

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

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

within 10 calendar days for renewed consideration. The Contractor shall have their scheduling consultant approved prior to submitting any schedule for approval.

1.4 COMPUTER PRODUCED SCHEDULES

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

1.5 THE COMPLETE PROJECT SCHEDULE SUBMITTAL

- A. Within 45 calendar days after receipt of Notice to Proceed, the Contractor shall submit for the Contracting Officer's review; three blue line copies of the interim schedule on sheets of paper 765 x 1070 mm (30 x 42 inches) and an electronic file in the previously approved CPM schedule program. The submittal shall also include three copies of a computer-produced activity/event ID schedule showing project duration; phase completion dates; and other data, including event cost. Each activity/event on the computer-produced schedule shall contain as a minimum, but not limited to, activity/event ID, activity/event description, duration, budget amount, early start date, early finish date, late start date, late finish date and total float. Work activity/event relationships shall be restricted to finish-to-start or

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

start-to-start without lead or lag constraints. Activity/event date constraints, not required by the contract, will not be accepted unless submitted to and approved by the Contracting Officer. The contractor shall make a separate written detailed request to the Contracting Officer identifying these date constraints and secure the Contracting Officer's written approval before incorporating them into the network diagram. The Contracting Officer's separate approval of the Project Schedule shall not excuse the contractor of this requirement. Logic events (non-work) will be permitted where necessary to reflect proper logic among work events, but must have zero duration. The complete working schedule shall reflect the Contractor's approach to scheduling the complete project. **The final Project Schedule in its original form shall contain no contract changes or delays which may have been incurred during the final network diagram development period and shall reflect the entire contract duration as defined in the bid documents.** These changes/delays shall be entered at the first update after the final Project Schedule has been approved. The Contractor should provide their requests for time and supporting time extension analysis for contract time as a result of contract changes/delays, after this update, and in accordance with Article, ADJUSTMENT OF CONTRACT COMPLETION.

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

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

F. The Complete Project Schedule shall contain approximately 75 work activities/events.

1.6 WORK ACTIVITY/EVENT COST DATA

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

1.7 PROJECT SCHEDULE REQUIREMENTS

- A. Show on the project schedule the sequence of work activities/events required for complete performance of all items of work. The Contractor Shall:
 - 1. Show activities/events as:
 - a. Contractor's time required for submittal of shop drawings, templates, fabrication, delivery and similar pre-construction work.
 - b. Contracting Officer's and Architect-Engineer's review and approval of shop drawings, equipment schedules, samples, template, or similar items.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

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

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

required for the performance of this contract shall not excuse the Contractor from completing all work required within any applicable completion date of each phase regardless of the COR's approval of the Project Schedule.

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

1.8 PAYMENT TO THE CONTRACTOR:

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

1.9 PAYMENT AND PROGRESS REPORTING

- A. Monthly schedule update meetings will be held on dates mutually agreed to by the COR and the Contractor. Contractor and their CPM consultant (if applicable) shall attend all monthly schedule update meetings. The Contractor shall accurately update the Project Schedule and all other data required and provide this information to the COR three work days in advance of the schedule update meeting. Job progress will be reviewed to verify:
1. Actual start and/or finish dates for updated/completed activities/events.
 2. Remaining duration for each activity/event started, or scheduled to start, but not completed.
 3. Logic, time and cost data for change orders, and supplemental agreements that are to be incorporated into the Project Schedule.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

4. Changes in activity/event sequence and/or duration which have been made, pursuant to the provisions of following Article, ADJUSTMENT OF CONTRACT COMPLETION.
 5. Completion percentage for all completed and partially completed activities/events.
 6. Logic and duration revisions required by this section of the specifications.
 7. Activity/event duration and percent complete shall be updated independently.
- B. After completion of the joint review, the contractor shall generate an updated computer-produced calendar-dated schedule and supply the Contracting Officer's representative with reports in accordance with the Article, COMPUTER PRODUCED SCHEDULES, specified.
- C. After completing the monthly schedule update, the contractor's representative or scheduling consultant shall rerun all current period contract change(s) against the prior approved monthly project schedule. The analysis shall only include original workday durations and schedule logic agreed upon by the contractor and resident engineer for the contract change(s). When there is a disagreement on logic and/or durations, the Contractor shall use the schedule logic and/or durations provided and approved by the resident engineer. After each rerun update, the resulting electronic project schedule data file shall be appropriately identified and submitted to the VA in accordance to the requirements listed in articles 1.4 and 1.7. This electronic submission is separate from the regular monthly project schedule update requirements and shall be submitted to the resident engineer within fourteen (14) calendar days of completing the regular schedule update. **Before inserting the contract changes durations, care must be taken to ensure that only the original durations will be used for the analysis, not the reported durations after progress. In addition, once the final network diagram is approved, the contractor must recreate all manual progress payment updates on this approved network diagram and associated reruns for contract changes in each of these update periods as outlined above for regular update periods. This will require detailed record keeping for each of the manual progress payment updates.**
- D. Following approval of the CPM schedule, the VA, the General Contractor, its approved CPM Consultant, RE office representatives, and all subcontractors needed, as determined by the SRE, shall meet to discuss the monthly updated schedule. The main emphasis shall be to address work activities to avoid slippage of project schedule and to identify any

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

necessary actions required to maintain project schedule during the reporting period. The Government representatives and the Contractor should conclude the meeting with a clear understanding of those work and administrative actions necessary to maintain project schedule status during the reporting period. This schedule coordination meeting will occur after each monthly project schedule update meeting utilizing the resulting schedule reports from that schedule update. If the project is behind schedule, discussions should include ways to prevent further slippage as well as ways to improve the project schedule status, when appropriate.

1.10 RESPONSIBILITY FOR COMPLETION

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

1.11 CHANGES TO THE SCHEDULE

- A. Within 30 calendar days after VA acceptance and approval of any updated project schedule, the Contractor shall submit a revised electronic file (s) and a list of any activity/event changes including predecessors and successors for any of the following reasons:
 - 1. Delay in completion of any activity/event or group of activities/events, which may be involved with contract changes, strikes, unusual weather, and other delays will not relieve the Contractor from the requirements specified unless the conditions are shown on the CPM as the direct cause for delaying the project beyond the acceptable limits.
 - 2. Delays in submittals, or deliveries, or work stoppage are encountered which make rescheduling of the work necessary.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

3. The schedule does not represent the actual prosecution and progress of the project.
 4. When there is, or has been, a substantial revision to the activity/event costs regardless of the cause for these revisions.
- B. CPM revisions made under this paragraph which affect the previously approved computer-produced schedules for Government furnished equipment, vacating of areas by the VA Facility, contract phase(s) and sub phase(s), utilities furnished by the Government to the Contractor, or any other previously contracted item, shall be furnished in writing to the Contracting Officer for approval.
- C. Contracting Officer's approval for the revised project schedule and all relevant data is contingent upon compliance with all other paragraphs of this section and any other previous agreements by the Contracting Officer or the VA representative.
- D. The cost of revisions to the project schedule resulting from contract changes will be included in the proposal for changes in work as specified in FAR 52.243 - 4 (Changes) and VAAR 852.236 - 88 (Changes - Supplemental), and will be based on the complexity of the revision or contract change, man hours expended in analyzing the change, and the total cost of the change.
- E. The cost of revisions to the Project Schedule not resulting from contract changes is the responsibility of the Contractor.

1.12 ADJUSTMENT OF CONTRACT COMPLETION

- A. The contract completion time will be adjusted only for causes specified in this contract. Request for an extension of the contract completion date by the Contractor shall be supported with a justification, CPM data and supporting evidence as the COR may deem necessary for determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof based on revised activity/event logic, durations (in work days) and costs is obligatory to any approvals. The schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved in this request. The Contracting Officer's determination as to the total number of days of contract extension will be based upon the current computer-produced calendar-dated schedule for the time period in question and all other relevant information.
- B. Actual delays in activities/events which, according to the computer-produced calendar-dated schedule, do not affect the extended and predicted contract completion dates shown by the critical path in the network, will not be the basis for a change to the contract completion

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

date. The Contracting Officer will within a reasonable time after receipt of such justification and supporting evidence, review the facts and advise the Contractor in writing of the Contracting Officer's decision.

- C. The Contractor shall submit each request for a change in the contract completion date to the Contracting Officer in accordance with the provisions specified under FAR 52.243 - 4 (Changes) and VAAR 852.236 - 88 (Changes - Supplemental). The Contractor shall include, as a part of each change order proposal, a sketch showing all CPM logic revisions, duration (in work days) changes, and cost changes, for work in question and its relationship to other activities on the approved network diagram.
- D. All delays due to non-work activities/events such as RFI's, WEATHER, STRIKES, and similar non-work activities/events shall be analyzed on a month by month basis.

- - - E N D - - -

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

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

- 1-1. Refer to Articles titled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR 52.236-21) and, SPECIAL NOTES (VAAR 852.236-91), in GENERAL CONDITIONS.
- 1-2. For the purposes of this contract, samples , test reports, certificates, and manufacturers' literature and data shall also be subject to the previously referenced requirements. The following text refers to all items collectively as SUBMITTALS.
- 1-3. Submit for approval, all of the items specifically mentioned under the separate sections of the specification, with information sufficient to evidence full compliance with contract requirements. Materials, fabricated articles and the like to be installed in permanent work shall equal those of approved submittals. After an item has been approved, no change in brand or make will be permitted unless:
 - A. Satisfactory written evidence is presented to, and approved by Contracting Officer, that manufacturer cannot make scheduled delivery of approved item or;
 - B. Item delivered has been rejected and substitution of a suitable item is an urgent necessity or;
 - C. Other conditions become apparent which indicates approval of such substitute item to be in best interest of the Government.
- 1-4. Forward submittals in sufficient time to permit proper consideration and approval action by Government. Time submission to assure adequate lead time for procurement of contract - required items. Delays attributable to untimely and rejected submittals will not serve as a basis for extending contract time for completion.
- 1-5. Submittals will be reviewed for compliance with contract requirements by Architect-Engineer, and action thereon will be taken by Contracting Officer Representative (COR) on behalf of the Contracting Officer.
- 1-6. Upon receipt of submittals, Architect-Engineer will assign a file number thereto. Contractor, in any subsequent correspondence, shall refer to this file and identification number to expedite replies relative to previously approved or disapproved submittals.
- 1-7. The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract. If additional

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

submittals beyond those required by the contract are furnished pursuant to request therefor by Contracting Officer, adjustment in contract price and time will be made in accordance with Articles titled CHANGES (FAR 52.243-4) and CHANGES - SUPPLEMENT (VAAR 852.236-88) of the GENERAL CONDITIONS.

- 1-8. Schedules called for in specifications and shown on shop drawings shall be submitted for use and information of Department of Veterans Affairs and Architect-Engineer. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The Contracting Officer and Architect- Engineer assumes no responsibility for checking schedules or layout drawings for exact sizes, exact numbers and detailed positioning of items.
- 1-9. Submittals must be submitted by Contractor only and shipped prepaid. Contracting Officer assumes no responsibility for checking quantities or exact numbers included in such submittals.
 - A. Submit samples required by Section 09 06 00, SCHEDULE FOR FINISHES, in quadruplicate. Submit samples in single units unless otherwise specified. Submit shop drawings, schedules, manufacturers' literature and data, and certificates in quadruplicate, except where a greater number is specified.
 - B. Submittals will receive consideration only when covered by a transmittal letter signed by Contractor. Letter shall be sent via first class mail and shall contain the list of items, name of Medical Center , name of Contractor, contract number, applicable specification paragraph numbers, applicable drawing numbers (and other information required for exact identification of location for each item), manufacturer and brand, ASTM or Federal Specification Number (if any) and such additional information as may be required by specifications for particular item being furnished. In addition, catalogs shall be marked to indicate specific items submitted for approval.
 1. A copy of letter must be enclosed with items, and any items received without identification letter will be considered "unclaimed goods" and held for a limited time only.
 2. Each sample, certificate, manufacturers' literature and data shall be labeled to indicate the name and location of the Medical Center , name of Contractor, manufacturer, brand, contract number and ASTM or Federal Specification Number as applicable and location(s) on project.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

3. Required certificates shall be signed by an authorized representative of manufacturer or supplier of material, and by Contractor.
- 1-10. Samples shop drawings, test reports, certificates and manufacturers' literature and data, shall be submitted for approval to

Apogee Consulting Group, c/o Ken Noel

7330 Chapel Hill Road, Suite 202

Raleigh, NC 20607

(Architect-Engineer)

(A/E P.O. Address)

(City, State and Zip Code)

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

- 1-12. Samples for approval shall be sent to Architect-Engineer, in care of COR, VA Medical Center,

(P.O. Address)

(City, State and Zip Code)

- - - E N D - - -

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

----- INTENTIONALLY BLANK -----

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

**SECTION 01 42 19
REFERENCE STANDARDS**

PART 1 - GENERAL

1.1 DESCRIPTION

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

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

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

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

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

DEPARTMENT OF VETERANS AFFAIRS
Office of Construction & Facilities Management
Facilities Quality Service (00CFM1A)
425 Eye Street N.W, (sixth floor)
Washington, DC 20001
Telephone Numbers: (202) 632-5249 or (202) 632-5178
Between 9:00 AM - 3:00 PM

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

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
ACGIH	American Conference of Governmental Industrial Hygienists http://www.acgih.org
ADC	Air Diffusion Council http://flexibleduct.org
AGA	American Gas Association http://www.aga.org
AGC	Associated General Contractors of America http://www.agc.org
AHAM	Association of Home Appliance Manufacturers http://www.aham.org
AISC	American Institute of Steel Construction http://www.aisc.org
AISI	American Iron and Steel Institute http://www.steel.org
AMCA	Air Movement and Control Association, Inc. http://www.amca.org
ANSI	American National Standards Institute, Inc. http://www.ansi.org
ARI	Air-Conditioning and Refrigeration Institute http://www.ari.org
ASCE	American Society of Civil Engineers http://www.asce.org

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers http://www.ashrae.org
ASME	American Society of Mechanical Engineers http://www.asme.org
ASSE	American Society of Sanitary Engineering http://www.asse-plumbing.org
ASTM	American Society for Testing and Materials http://www.astm.org
AWS	American Welding Society http://www.aws.org
AWWA	American Water Works Association http://www.awwa.org
CISCA	Ceilings and Interior Systems Construction Association http://www.cisca.org
CLFMI	Chain Link Fence Manufacturers Institute http://www.chainlinkinfo.org
EGSA	Electrical Generating Systems Association http://www.egsa.org
EEI	Edison Electric Institute http://www.eei.org
EPA	Environmental Protection Agency http://www.epa.gov
ETL	ETL Testing Laboratories, Inc. http://www.etl.com
GANA	Glass Association of North America http://www.cssinfo.com/info/gana.html/
FM	Factory Mutual Insurance http://www.fmglobal.com

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

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

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

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

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

RFCI	The Resilient Floor Covering Institute http://www.rfci.com
RIS	Redwood Inspection Service See - CRA
RMA	Rubber Manufacturers Association, Inc. http://www.rma.org
SCMA	Southern Cypress Manufacturers Association http://www.cypressinfo.org
SDI	Steel Door Institute http://www.steeldoor.org
IGMA	Insulating Glass Manufacturers Alliance http://www.igmaonline.org
SJI	Steel Joist Institute http://www.steeljoist.org
SMACNA	Sheet Metal and Air-Conditioning Contractors National Association, Inc. http://www.smacna.org
SSPC	The Society for Protective Coatings http://www.sspc.org
STI	Steel Tank Institute http://www.steeltank.com
SWI	Steel Window Institute http://www.steelwindows.com
TCA	Tile Council of America, Inc. http://www.tileusa.com
TEMA	Tubular Exchange Manufacturers Association http://www.tema.org
TPI	Truss Plate Institute, Inc. 583 D'Onofrio Drive; Suite 200 Madison, WI 53719 (608) 833-5900

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

UBC The Uniform Building Code
 See ICBO

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

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

WCLIB West Coast Lumber Inspection Bureau
 6980 SW Varns Road, P.O. Box 23145
 Portland, OR 97223
 (503) 639-0651

WRCLA Western Red Cedar Lumber Association
 P.O. Box 120786
 New Brighton, MN 55112
 (612) 633-4334

WWPA Western Wood Products Association
 <http://www.wwpa.org>

- - - E N D - - -

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

----- INTENTIONALLY BLANK -----

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

**SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT**

PART 1 - GENERAL

1.1 DESCRIPTION

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

1.2 RELATED WORK

- B. Section 01 00 00, GENERAL REQUIREMENTS.

1.3 QUALITY ASSURANCE

- A. Contractor shall practice efficient waste management when sizing, cutting and installing building products. Processes shall be employed to ensure the generation of as little waste as possible. Construction /Demolition waste includes products of the following:
 - 1. Excess or unusable construction materials.
 - 2. Packaging used for construction products.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

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

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

1.4 TERMINOLOGY

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

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

1. On-site Recycling - Materials that are sorted and processed on site for use in an altered state in the work, i.e. concrete crushed for use as a sub-base in paving.
 2. Off-site Recycling - Materials hauled to a location and used in an altered form in the manufacture of new products.
- M. Recycling Facility: An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of new products. Depending on the types of materials accepted and operating procedures, a recycling facility may or may not be required to have a solid waste facilities permit or be regulated by the local enforcement agency.
- N. Reuse: Materials that are recovered for use in the same form, on-site or off-site.
- O. Return: To give back reusable items or unused products to vendors for credit.
- P. Salvage: To remove waste materials from the site for resale or re-use by a third party.
- Q. Source-Separated Materials: Materials that are sorted by type at the site for the purpose of reuse and recycling.
- R. Solid Waste: Materials that have been designated as non-recyclable and are discarded for the purposes of disposal.
- S. Transfer Station: A facility that can legally accept solid waste for the purpose of temporarily storing the materials for re-loading onto other trucks and transporting them to a landfill for disposal, or recovering some materials for re-use or recycling.

1.5 SUBMITTALS

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES, furnish the following:
- B. Prepare and submit to the Contracting Officer Representative (COR) a written demolition debris management plan. The plan shall include, but not be limited to, the following information:
1. Procedures to be used for debris management.
 2. Techniques to be used to minimize waste generation.
 3. Analysis of the estimated job site waste to be generated:
 - a. List of each material and quantity to be salvaged, reused, recycled.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

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

1.6 APPLICABLE PUBLICATIONS

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

1.7 RECORDS

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

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 COLLECTION

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

3.2 DISPOSAL

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

3.3 REPORT

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

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

fees, manifests, invoices. Include the net total costs for each disposal.

- - - E N D - - -

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

----- INTENTIONALLY BLANK -----

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

SECTION 07 84 00
FIRESTOPPING

PART 1 GENERAL

1.1 DESCRIPTION

- A. Closures of openings in walls, floors, and roof decks against penetration of flame, heat, and smoke or gases in fire resistant rated construction.
- B. Closure of openings in walls against penetration of gases or smoke in smoke partitions.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturers literature, data, and installation instructions for types of firestopping and smoke stopping used.
- C. List of FM, UL, or WH classification number of systems installed.
- D. Certified laboratory test reports for ASTM E814 tests for systems not listed by FM, UL, or WH proposed for use.

1.4 DELIVERY AND STORAGE

- A. Deliver materials in their original unopened containers with manufacturer's name and product identification.
- B. Store in a location providing protection from damage and exposure to the elements.

1.5 WARRANTY

Firestopping work subject to the terms of the Article "Warranty of Construction", FAR clause 52.246-21, except extend the warranty period to five years.

1.6 QUALITY ASSURANCE

FM, UL, or WH or other approved laboratory tested products will be acceptable.

1.7 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - E84-10.....Surface Burning Characteristics of Building Materials
 - E814-11.....Fire Tests of Through-Penetration Fire Stops

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

- C. Factory Mutual Engineering and Research Corporation (FM):
Annual Issue Approval Guide Building Materials
- D. Underwriters Laboratories, Inc. (UL):
Annual Issue Building Materials Directory
Annual Issue Fire Resistance Directory
1479-10.....Fire Tests of Through-Penetration Firestops
- E. Warnock Hersey (WH):
Annual Issue Certification Listings

PART 2 - PRODUCTS

2.1 FIRESTOP SYSTEMS

- A. Use either factory built (Firestop Devices) or field erected (through-Penetration Firestop Systems) to form a specific building system maintaining required integrity of the fire barrier and stop the passage of gases or smoke.
- B. Through-penetration firestop systems and firestop devices tested in accordance with ASTM E814 or UL 1479 using the "F" or "T" rating to maintain the same rating and integrity as the fire barrier being sealed. "T" ratings are not required for penetrations smaller than or equal to 100 mm (4 in) nominal pipe or 0.01 m² (16 sq. in.) in overall cross sectional area.
- C. Products requiring heat activation to seal an opening by its intumescence shall exhibit a demonstrated ability to function as designed to maintain the fire barrier.
- D. Firestop sealants used for firestopping or smoke sealing shall have following properties:
 - 1. Contain no flammable or toxic solvents.
 - 2. Have no dangerous or flammable out gassing during the drying or curing of products.
 - 3. Water-resistant after drying or curing and unaffected by high humidity, condensation or transient water exposure.
 - 4. When used in exposed areas, shall be capable of being sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.
- E. Firestopping system or devices used for penetrations by glass pipe, plastic pipe or conduits, unenclosed cables, or other non-metallic materials shall have following properties:

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

1. Classified for use with the particular type of penetrating material used.
 2. Penetrations containing loose electrical cables, computer data cables, and communications cables protected using firestopping systems that allow unrestricted cable changes without damage to the seal.
 3. Intumescent products which would expand to seal the opening and act as fire, smoke, toxic fumes, and, water sealant.
- F. Maximum flame spread of 25 and smoke development of 50 when tested in accordance with ASTM E84.
- G. FM, UL, or WH rated or tested by an approved laboratory in accordance with ASTM E814.
- H. Materials to be asbestos free.

2.2 SMOKE STOPPING IN SMOKE PARTITIONS

- A. Use silicone sealant in smoke partitions as specified in Section 07 92 00, JOINT SEALANTS.
- B. Use mineral fiber filler and bond breaker behind sealant.
- C. Sealants shall have a maximum flame spread of 25 and smoke developed of 50 when tested in accordance with E84.
- D. When used in exposed areas capable of being sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.

PART 3 - EXECUTION

3.1 EXAMINATION

Submit product data and installation instructions, as required by article, submittals, after an on site examination of areas to receive firestopping.

3.2 PREPARATION

- A. Remove dirt, grease, oil, loose materials, or other substances that prevent adherence and bonding or application of the firestopping or smoke stopping materials.
- B. Remove insulation on insulated pipe for a distance of 150 mm (six inches) on either side of the fire rated assembly prior to applying the firestopping materials unless the firestopping materials are tested and approved for use on insulated pipes.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

3.3 INSTALLATION

- A. Do not begin work until the specified material data and installation instructions of the proposed firestopping systems have been submitted and approved.
- B. Install firestopping systems with smoke stopping in accordance with FM, UL, WH, or other approved system details and installation instructions.
- C. Install smoke stopping seals in smoke partitions.

3.4 CLEAN-UP AND ACCEPTANCE OF WORK

- A. As work on each floor is completed, remove materials, litter, and debris.
- B. Do not move materials and equipment to the next-scheduled work area until completed work is inspected and accepted by the Contracting Officer Representative (COR).
- C. Clean up spills of liquid type materials.

- - - E N D - - -

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

**SECTION 13 05 41
SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS**

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. Provide seismic restraint in accordance with the requirements of this section in order to maintain the integrity of nonstructural components of the building so that they remain safe and functional in case of seismic event.
- B. Definitions: Non-structural building components are components or systems that are not part of the building's structural system whether inside or outside, above or below grade. Non-structural components of buildings include:
 - 1. Architectural Elements: suspended ceilings.
 - 2. Electrical Elements: Power and lighting systems;

1.2 RELATED WORK:

- A. Section No. 260533 Raceways for Boxes and Electrical Systems
- B. Section No. 265100 Interior Lighting

1.3 QUALITY CONTROL:

- A. Coordination:
 - 1. Do not install seismic restraints until seismic restraint submittals are approved by the Contracting Officer Representative (COR).

1.4 SUBMITTALS:

- A. Submit a coordinated set of equipment anchorage drawings prior to installation including:
 - 1. Description, layout, and location of items to be anchored or braced with anchorage or brace points noted and dimensioned.
 - 2. Provide Manufacturers requirements for seismic bracing, for each fixture type, for this zone.
- B. Submit prior to installation, bracing drawings for seismic protection of suspended electrical light fixtures, include:
 - 1. Details illustrating all support and bracing components, methods of connection, and specific anchors to be used.
 - 2. Manufacturer's documentation for seismic bracing compliance.
- 2. Maximum spacing of hangers and bracing.

1.5 APPLICABLE PUBLICATIONS:

- 13 05 41 - 2

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

E488-96(R2003).....Standard Test Method for Strength of Anchors in
Concrete and Masonry Element

- E. American Society of Civil Engineers (ASCE 7) Latest Edition.
- F. International Building Code (IBC) Latest Edition
- G. VA Seismic Design Requirements, H-18-8, February 2011
- H. National Uniform Seismic Installation Guidelines (NUSIG)
- I. Sheet Metal and Air Conditioning Contractors National Association
(SMACNA): Seismic Restraint Manual - Guidelines for Mechanical Systems,
1998 Edition and Addendum

1.6 REGULATORY REQUIREMENT:

- A. IBC 2009.

PART 2 - PRODUCTS

.

PART 3 - EXECUTION

3.1 LIGHTING FIXTURES

- A. Independently support and laterally brace all lighting fixtures. Refer
to applicable portion of lighting specification, Section 26 51 00,
INTERIOR LIGHTING.

- - - E N D - - -

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

----- INTENTIONALLY BLANK -----

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

**SECTION 26 05 11
REQUIREMENTS FOR ELECTRICAL INSTALLATIONS**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section applies to all sections of Division 26.
- B. Furnish and install electrical systems, materials, equipment, and accessories in accordance with the specifications and drawings. Capacities and ratings of motors, transformers, conductors and cable, switchboards, switchgear, panelboards, motor control centers, generators, automatic transfer switches, and other items and arrangements for the specified items are shown on the drawings.
- C. Electrical service entrance equipment and arrangements for temporary and permanent connections to the electric utility company's system shall conform to the electric utility company's requirements. Coordinate fuses, circuit breakers and relays with the electric utility company's system, and obtain electric utility company approval for sizes and settings of these devices.
- D. Conductor ampacities specified or shown on the drawings are based on copper conductors, with the conduit and raceways sized per NEC. Aluminum conductors are prohibited.

1.2 MINIMUM REQUIREMENTS

- A. The International Building Code (IBC), National Electrical Code (NEC), Underwriters Laboratories, Inc. (UL), and National Fire Protection Association (NFPA) codes and standards are the minimum requirements for materials and installation.
- B. The drawings and specifications shall govern in those instances where requirements are greater than those stated in the above codes and standards.

1.3 TEST STANDARDS

- A. All materials and equipment shall be listed, labeled, or certified by a Nationally Recognized Testing Laboratory (NRTL) to meet Underwriters Laboratories, Inc. (UL), standards where test standards have been established. Materials and equipment which are not covered by UL standards will be accepted, providing that materials and equipment are listed, labeled, certified or otherwise determined to meet the safety requirements of a NRTL. Materials and equipment which no NRTL accepts,

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

certifies, lists, labels, or determines to be safe, will be considered if inspected or tested in accordance with national industrial standards, such as ANSI, NEMA, and NETA. Evidence of compliance shall include certified test reports and definitive shop drawings.

B. Definitions:

1. Listed: Materials and equipment included in a list published by an organization that is acceptable to the Authority Having Jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production or listed materials and equipment or periodic evaluation of services, and whose listing states that the materials and equipment either meets appropriate designated standards or has been tested and found suitable for a specified purpose.
2. Labeled: Materials and equipment to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the Authority Having Jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled materials and equipment, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.
3. Certified: Materials and equipment which:
 - a. Have been tested and found by a NRTL to meet nationally recognized standards or to be safe for use in a specified manner.
 - b. Are periodically inspected by a NRTL.
 - c. Bear a label, tag, or other record of certification.
4. Nationally Recognized Testing Laboratory: Testing laboratory which is recognized and approved by the Secretary of Labor in accordance with OSHA regulations.

1.4 QUALIFICATIONS (PRODUCTS AND SERVICES)

- A. Manufacturer's Qualifications: The manufacturer shall regularly and currently produce, as one of the manufacturer's principal products, the materials and equipment specified for this project, and shall have manufactured the materials and equipment for at least three years.
- B. Product Qualification:
 1. Manufacturer's materials and equipment shall have been in satisfactory operation, on three installations of similar size and type as this project, for at least three years.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

2. The Government reserves the right to require the Contractor to submit a list of installations where the materials and equipment have been in operation before approval.

C. Service Qualifications: There shall be a permanent service organization maintained or trained by the manufacturer which will render satisfactory service to this installation within four hours of receipt of notification that service is needed. Submit name and address of service organizations.

1.5 APPLICABLE PUBLICATIONS

A. Applicable publications listed in all Sections of Division 26 are the latest issue, unless otherwise noted.

B. Products specified in all sections of Division 26 shall comply with the applicable publications listed in each section.

1.6 MANUFACTURED PRODUCTS

A. Materials and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items, and for which replacement parts shall be available.

B. When more than one unit of the same class or type of materials and equipment is required, such units shall be the product of a single manufacturer.

C. Equipment Assemblies and Components:

1. Components of an assembled unit need not be products of the same manufacturer.

2. Manufacturers of equipment assemblies, which include components made by others, shall assume complete responsibility for the final assembled unit.

3. Components shall be compatible with each other and with the total assembly for the intended service.

4. Constituent parts which are similar shall be the product of a single manufacturer.

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

E. When Factory Testing Is Specified:

1. The Government shall have the option of witnessing factory tests.

The Contractor shall notify the Government through the Contracting

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

Officer Representative (COR) a minimum of 15 working days prior to the manufacturer's performing the factory tests.

2. Four copies of certified test reports shall be furnished to the COR two weeks prior to final inspection and not more than 90 days after completion of the tests.
3. When materials and equipment fail factory tests, and re-testing and re-inspection is required, the Contractor shall be liable for all additional expenses for the Government to witness re-testing.

1.7 VARIATIONS FROM CONTRACT REQUIREMENTS

- A. Where the Government or the Contractor requests variations from the contract requirements, the connecting work and related components shall include, but not be limited to additions or changes to branch circuits, circuit protective devices, conduits, wire, feeders, controls, panels and installation methods.

1.8 MATERIALS AND EQUIPMENT PROTECTION

- A. Materials and equipment shall be protected during shipment and storage against physical damage, vermin, dirt, corrosive substances, fumes, moisture, cold and rain.
1. Store materials and equipment indoors in clean dry space with uniform temperature to prevent condensation.
 2. During installation, equipment shall be protected against entry of foreign matter, and be vacuum-cleaned both inside and outside before testing and operating. Compressed air shall not be used to clean equipment. Remove loose packing and flammable materials from inside equipment.
 3. Damaged equipment shall be repaired or replaced, as determined by the COR.
 4. Painted surfaces shall be protected with factory installed removable heavy kraft paper, sheet vinyl or equal.
 5. Damaged paint on equipment shall be refinished with the same quality of paint and workmanship as used by the manufacturer so repaired areas are not obvious.

1.9 WORK PERFORMANCE

- A. All electrical work shall comply with the requirements of NFPA 70 (NEC), NFPA 70B, NFPA 70E, OSHA Part 1910 subpart J - General Environmental Controls, OSHA Part 1910 subpart K - Medical and First

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

Aid, and OSHA Part 1910 subpart S - Electrical, in addition to other references required by contract.

- B. Job site safety and worker safety is the responsibility of the Contractor.
- C. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished in this manner for the required work, the following requirements are mandatory:
 - 1. Electricians must use full protective equipment (i.e., certified and tested insulating material to cover exposed energized electrical components, certified and tested insulated tools, etc.) while working on energized systems in accordance with NFPA 70E.
 - 2. Before initiating any work, a job specific work plan must be developed by the Contractor with a peer review conducted and documented by the COR and Medical Center staff. The work plan must include procedures to be used on and near the live electrical equipment, barriers to be installed, safety equipment to be used, and exit pathways.
 - 3. Work on energized circuits or equipment cannot begin until prior written approval is obtained from the COR.
- D. For work that affects existing electrical systems, arrange, phase and perform work to assure minimal interference with normal functioning of the facility. Refer to Article OPERATIONS AND STORAGE AREAS under Section 01 00 00, GENERAL REQUIREMENTS.
- E. New work shall be installed and connected to existing work neatly, safely and professionally. Disturbed or damaged work shall be replaced or repaired to its prior conditions, as required by Section 01 00 00, GENERAL REQUIREMENTS.
- F. Coordinate location of equipment and conduit with other trades to minimize interference.

1.10 EQUIPMENT INSTALLATION AND REQUIREMENTS

- A. Equipment location shall be as close as practical to locations shown on the drawings.
- B. Working clearances shall not be less than specified in the NEC.
- C. Inaccessible Equipment:
 - 1. Where the Government determines that the Contractor has installed equipment not readily accessible for operation and maintenance, the

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

equipment shall be removed and reinstalled as directed at no additional cost to the Government.

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

- D. Electrical service entrance equipment and arrangements for temporary and permanent connections to the electric utility company's system shall conform to the electric utility company's requirements. Coordinate fuses, circuit breakers and relays with the electric utility company's system, and obtain electric utility company approval for sizes and settings of these devices.

1.11 EQUIPMENT IDENTIFICATION

- A. In addition to the requirements of the NEC, install an identification sign which clearly indicates information required for use and maintenance of items such as switchboards and switchgear, panelboards, cabinets, motor controllers, fused and non-fused safety switches, generators, automatic transfer switches, separately enclosed circuit breakers, individual breakers and controllers in switchboards, switchgear and motor control assemblies, control devices and other significant equipment.
- B. Identification signs for Normal Power System equipment shall be laminated black phenolic resin with a white core with engraved lettering. Identification signs for Essential Electrical System (EES) equipment, as defined in the NEC, shall be laminated red phenolic resin with a white core with engraved lettering. Lettering shall be a minimum of 12 mm (1/2 inch) high. Identification signs shall indicate equipment designation, rated bus amperage, voltage, number of phases, number of wires, and type of EES power branch as applicable. Secure nameplates with screws.
- C. Install adhesive arc flash warning labels on all equipment as required by NFPA 70E. Label shall indicate the arc hazard boundary (inches), working distance (inches), arc flash incident energy at the working distance (calories/cm²), required PPE category and description including the glove rating, voltage rating of the equipment, limited approach distance (inches), restricted approach distance (inches),

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

prohibited approach distance (inches), equipment/bus name, date prepared, and manufacturer name and address.

1.12 SUBMITTALS

- A. Submit to the COR in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. The Government's approval shall be obtained for all materials and equipment before delivery to the job site. Delivery, storage or installation of materials and equipment which has not had prior approval will not be permitted.
- C. All submittals shall include six copies of adequate descriptive literature, catalog cuts, shop drawings, test reports, certifications, samples, and other data necessary for the Government to ascertain that the proposed materials and equipment comply with drawing and specification requirements. Catalog cuts submitted for approval shall be legible and clearly identify specific materials and equipment being submitted.
- D. Submittals for individual systems and equipment assemblies which consist of more than one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered for approval.
 - 1. Mark the submittals, "SUBMITTED UNDER SECTION_____".
 - 2. Submittals shall be marked to show specification reference including the section and paragraph numbers.
 - 3. Submit each section separately.
- E. The submittals shall include the following:
 - 1. Information that confirms compliance with contract requirements. Include the manufacturer's name, model or catalog numbers, catalog information, technical data sheets, shop drawings, manuals, pictures, nameplate data, and test reports as required.
 - 2. Submittals are required for all equipment anchors and supports. Submittals shall include weights, dimensions, center of gravity, standard connections, manufacturer's recommendations and behavior problems (e.g., vibration, thermal expansion, etc.) associated with equipment or piping so that the proposed installation can be properly reviewed. Include sufficient fabrication information so

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

that appropriate mounting and securing provisions may be designed and attached to the equipment.

3. Elementary and interconnection wiring diagrams for communication and signal systems, control systems, and equipment assemblies. All terminal points and wiring shall be identified on wiring diagrams.
4. Parts list which shall include information for replacement parts and ordering instructions, as recommended by the equipment manufacturer.

F. Maintenance and Operation Manuals:

1. Submit as required for systems and equipment specified in the technical sections. Furnish in hardcover binders or an approved equivalent.
2. Inscribe the following identification on the cover: the words "MAINTENANCE AND OPERATION MANUAL," the name and location of the system, material, equipment, building, name of Contractor, and contract name and number. Include in the manual the names, addresses, and telephone numbers of each subcontractor installing the system or equipment and the local representatives for the material or equipment.
3. Provide a table of contents and assemble the manual to conform to the table of contents, with tab sheets placed before instructions covering the subject. The instructions shall be legible and easily read, with large sheets of drawings folded in.
4. The manuals shall include:
 - a. Internal and interconnecting wiring and control diagrams with data to explain detailed operation and control of the equipment.
 - b. A control sequence describing start-up, operation, and shutdown.
 - c. Description of the function of each principal item of equipment.
 - d. Installation instructions.
 - e. Safety precautions for operation and maintenance.
 - f. Diagrams and illustrations.
 - g. Periodic maintenance and testing procedures and frequencies, including replacement parts numbers.
 - h. Performance data.
 - i. Pictorial "exploded" parts list with part numbers. Emphasis shall be placed on the use of special tools and instruments. The list shall indicate sources of supply, recommended spare and replacement parts, and name of servicing organization.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

- j. List of factory approved or qualified permanent servicing organizations for equipment repair and periodic testing and maintenance, including addresses and factory certification qualifications.
- G. Approvals will be based on complete submission of shop drawings, manuals, test reports, certifications, and samples as applicable.
- H. After approval and prior to installation, furnish the COR with one sample of each of the following:
 - 1. A minimum 300 mm (12 inches) length of each type and size of wire and cable along with the tag from the coils or reels from which the sample was taken. The length of the sample shall be sufficient to show all markings provided by the manufacturer.
 - 2. Each type of conduit coupling, bushing, and termination fitting.
 - 3. Conduit hangers, clamps, and supports.
 - 4. Duct sealing compound.
 - 5. Each type of receptacle, toggle switch, lighting control sensor, outlet box, manual motor starter, device wall plate, engraved nameplate, wire and cable splicing and terminating material, and branch circuit single pole molded case circuit breaker.

1.13 SINGULAR NUMBER

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

1.14 POLYCHLORINATED BIPHENYL (PCB) EQUIPMENT

- A. This project requires the removal, transport, and disposal of electrical equipment containing Polychlorinated Biphenyls (PCB) in accordance with the Federal Toxic Substances Control Act (TSCA).
- B. The equipment to be removed is shown on the drawings.
- C. The selective demolition shall be in accordance with Section 02 41 00, DEMOLITION.

1.15 ACCEPTANCE CHECKS AND TESTS

- A. The Contractor shall furnish the instruments, materials, and labor for tests.
- B. Where systems are comprised of components specified in more than one section of Division 26, the Contractor shall coordinate the

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

installation, testing, and adjustment of all components between various manufacturer's representatives and technicians so that a complete, functional, and operational system is delivered to the Government.

- C. When test results indicate any defects, the Contractor shall repair or replace the defective materials or equipment, and repeat the tests. Repair, replacement, and retesting shall be accomplished at no additional cost to the Government.

1.16 WARRANTY

- A. All work performed and all equipment and material furnished under this Division shall be free from defects and shall remain so for a period of one year from the date of acceptance of the entire installation by the Contracting Officer for the Government.

1.17 INSTRUCTION

- A. Instruction to designated Government personnel shall be provided for the particular equipment or system as required in each associated technical specification section.
- B. Furnish the services of competent instructors to give full instruction in the adjustment, operation, and maintenance of the specified equipment and system, including pertinent safety requirements. Instructors shall be thoroughly familiar with all aspects of the installation, and shall be trained in operating theory as well as practical operation and maintenance procedures.
- C. A training schedule shall be developed and submitted by the Contractor and approved by the COR at least 30 days prior to the planned training.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

---END---

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

**SECTION 26 05 19
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the furnishing, installation, connection, and testing of the electrical conductors and cables for use in electrical systems rated 600 V and below, indicated as cable(s), conductor(s), wire, or wiring in this section.

1.2 RELATED WORK

- A. Section 07 84 00, FIRESTOPPING: Sealing around penetrations to maintain the integrity of fire-resistant rated construction.
- B. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: Requirements that apply to all sections of Division 26.
- C. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path for possible ground fault currents.
- D. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduits for conductors and cables.
- E. Section 26 05 41, UNDERGROUND ELECTRICAL CONSTRUCTION: Installation of conductors and cables in manholes and ducts.

1.3 QUALITY ASSURANCE

- A. Refer to Paragraph, QUALIFICATIONS (PRODUCTS AND SERVICES), in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 FACTORY TESTS

- A. Conductors and cables shall be thoroughly tested at the factory per NEMA to ensure that there are no electrical defects. Factory tests shall be certified.

1.5 SUBMITTALS

- A. Submit six copies of the following in accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.
 - 1. Shop Drawings:
 - a. Submit sufficient information to demonstrate compliance with drawings and specifications.
 - b. Submit the following data for approval:
 - 1) Electrical ratings and insulation type for each conductor and cable.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

- 2) Splicing materials and pulling lubricant.
2. Certifications: Two weeks prior to final inspection, submit the following.
 - a. Certification by the manufacturer that the conductors and cables conform to the requirements of the drawings and specifications.
 - b. Certification by the Contractor that the conductors and cables have been properly installed, adjusted, and tested.

1.6 APPLICABLE PUBLICATIONS

- A. Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are reference in the text by designation only.
- B. American Society of Testing Material (ASTM):
 - D2301-10.....Standard Specification for Vinyl Chloride
Plastic Pressure-Sensitive Electrical
Insulating Tape
 - D2304-10.....Test Method for Thermal Endurance of Rigid
Electrical Insulating Materials
 - D3005-10.....Low-Temperature Resistant Vinyl Chloride
Plastic Pressure-Sensitive Electrical
Insulating Tape
- C. National Electrical Manufacturers Association (NEMA):
 - WC 70-09.....Power Cables Rated 2000 Volts or Less for the
Distribution of Electrical Energy
- D. National Fire Protection Association (NFPA):
 - 70-11.....National Electrical Code (NEC)
- E. Underwriters Laboratories, Inc. (UL):
 - 44-10.....Thermoset-Insulated Wires and Cables
 - 83-08.....Thermoplastic-Insulated Wires and Cables
 - 467-07.....Grounding and Bonding Equipment
 - 486A-486B-03.....Wire Connectors
 - 486C-04.....Splicing Wire Connectors
 - 486D-05.....Sealed Wire Connector Systems
 - 486E-09.....Equipment Wiring Terminals for Use with
Aluminum and/or Copper Conductors
 - 493-07.....Thermoplastic-Insulated Underground Feeder and
Branch Circuit Cables
 - 514B-04.....Conduit, Tubing, and Cable Fittings

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Conductors and cables shall be in accordance with NEMA, UL, as specified herein, and as shown on the drawings.
- B. All conductors shall be copper.
- C. Single Conductor and Cable:
1. No. 12 AWG: Minimum size, except where smaller sizes are specified herein or shown on the drawings.
 2. No. 8 AWG and larger: Stranded.
 3. No. 10 AWG and smaller: Solid; except shall be stranded for final connection to motors, transformers, and vibrating equipment.
 4. Insulation: THHN-THWN and XHHW-2. XHHW-2 shall be used for isolated power systems.
- E. Color Code:
1. No. 10 AWG and smaller: Solid color insulation or solid color coating.
 2. No. 8 AWG and larger: Color-coded using one of the following methods:
 - a. Solid color insulation or solid color coating.
 - b. Stripes, bands, or hash marks of color specified.
 - c. Color using 19 mm (0.75 inches) wide tape.
 4. For modifications and additions to existing wiring systems, color coding shall conform to the existing wiring system.
 5. Conductors shall be color-coded as follows:

208/120 V	Phase	480/277 V
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray *
* or white with colored (other than green) tracer.		

6. Lighting circuit "switch legs", and 3-way and 4-way switch "traveling wires," shall have color coding that is unique and distinct (e.g., pink and purple) from the color coding indicated above. The unique color codes shall be solid and in accordance with

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

the NEC. Coordinate color coding in the field with the Contracting Officer Representative (COR).

7. Color code for isolated power system wiring shall be in accordance with the NEC.

2.2 SPLICES

- A. Splices shall be in accordance with NEC and UL.
- B. Above Ground Splices for No. 10 AWG and Smaller:
 1. Solderless, screw-on, reusable pressure cable type, with integral insulation, approved for copper and aluminum conductors.
 2. The integral insulator shall have a skirt to completely cover the stripped conductors.
 3. The number, size, and combination of conductors used with the connector, as listed on the manufacturer's packaging, shall be strictly followed.
- C. Above Ground Splices for No. 8 AWG to No. 4/0 AWG:
 1. Compression, hex screw, or bolt clamp-type of high conductivity and corrosion-resistant material, listed for use with copper and aluminum conductors.
 2. Insulate with materials approved for the particular use, location, voltage, and temperature. Insulation level shall be not less than the insulation level of the conductors being joined.
 3. Splice and insulation shall be product of the same manufacturer.
 4. All bolts, nuts, and washers used with splices shall be steel.
- D. Above Ground Splices for 250 kcmil and Larger:
 1. Long barrel "butt-splice" or "sleeve" type compression connectors, with minimum of two compression indents per wire, listed for use with copper and aluminum conductors.
 2. Insulate with materials approved for the particular use, location, voltage, and temperature. Insulation level shall be not less than the insulation level of the conductors being joined.
 3. Splice and insulation shall be product of the same manufacturer.
- G. Plastic electrical insulating tape: Per ASTM D2304, flame-retardant, cold and weather resistant.

2.3 CONNECTORS AND TERMINATIONS

- A. Mechanical type of high conductivity and corrosion-resistant material, listed for use with copper and aluminum conductors.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

- B. Long barrel compression type of high conductivity and corrosion-resistant material, with minimum of two compression indents per wire, listed for use with copper and aluminum conductors.
- C. All bolts, nuts, and washers used to connect connections and terminations to bus bars or other termination points shall be cadmium-plated steel.

2.4 CONTROL WIRING

- A. Unless otherwise specified elsewhere in these specifications, control wiring shall be as specified herein, except that the minimum size shall be not less than No. 14 AWG.
- B. Control wiring shall be sized such that the voltage drop under in-rush conditions does not adversely affect operation of the controls.

2.5 WIRE LUBRICATING COMPOUND

- A. Lubricating compound shall be suitable for the wire insulation and conduit, and shall not harden or become adhesive.
- B. Shall not be used on conductors for isolated power systems.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install conductors in accordance with the NEC, as specified, and as shown on the drawings.
- B. Install all conductors in raceway systems.
- C. Splice conductors only in outlet boxes, junction boxes, pullboxes, manholes, or handholes.
- D. Conductors of different systems (e.g., 120 V and 277 V) shall not be installed in the same raceway.
- E. Install cable supports for all vertical feeders in accordance with the NEC. Provide split wedge type which firmly clamps each individual cable and tightens due to cable weight.
- F. In panelboards, cabinets, wireways, switches, enclosures, and equipment assemblies, neatly form, train, and tie the conductors with non-metallic ties.
- G. For connections to motors, transformers, and vibrating equipment, stranded conductors shall be used only from the last fixed point of connection to the motors, transformers, or vibrating equipment.
- H. Use expanding foam or non-hardening duct-seal to seal conduits entering a building, after installation of conductors.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

I. Conductor and Cable Pulling:

1. Provide installation equipment that will prevent the cutting or abrasion of insulation during pulling. Use lubricants approved for the cable.
2. Use nonmetallic pull ropes.
3. Attach pull ropes by means of either woven basket grips or pulling eyes attached directly to the conductors.
4. All conductors in a single conduit shall be pulled simultaneously.
5. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

J. No more than three branch circuits shall be installed in any one conduit.

K. When stripping stranded conductors, use a tool that does not damage the conductor or remove conductor strands.

3.3 SPLICE AND TERMINATION INSTALLATION

A. Splices and terminations shall be mechanically and electrically secure, and tightened to manufacturer's published torque values using a torque screwdriver or wrench.

B. Where the Government determines that unsatisfactory splices or terminations have been installed, replace the splices or terminations at no additional cost to the Government.

3.4 CONDUCTOR IDENTIFICATION

A. When using colored tape to identify phase, neutral, and ground conductors larger than No. 8 AWG, apply tape in half-overlapping turns for a minimum of 75 mm (3 inches) from terminal points, and in junction boxes, pullboxes, and manholes. Apply the last two laps of tape with no tension to prevent possible unwinding. Where cable markings are covered by tape, apply tags to cable, stating size and insulation type.

3.5 FEEDER CONDUCTOR IDENTIFICATION

A. In each interior pullbox and each underground manhole and handhole, install brass tags on all feeder conductors to clearly designate their circuit identification and voltage. The tags shall be the embossed type, 40 mm (1-1/2 inches) in diameter and 40 mils thick. Attach tags with plastic ties.

3.6 EXISTING CONDUCTORS

A. Unless specifically indicated on the plans, existing conductors shall not be reused.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

3.7 CONTROL WIRING INSTALLATION

- A. Unless otherwise specified in other sections, install control wiring and connect to equipment to perform the required functions as specified or as shown on the drawings.
- B. Install a separate power supply circuit for each system, except where otherwise shown on the drawings.

3.8 CONTROL WIRING IDENTIFICATION

- A. Install a permanent wire marker on each wire at each termination.
- B. Identifying numbers and letters on the wire markers shall correspond to those on the wiring diagrams used for installing the systems.
- C. Wire markers shall retain their markings after cleaning.
- D. In each manhole and handhole, install embossed brass tags to identify the system served and function.

3.10 ACCEPTANCE CHECKS AND TESTS

- A. Perform in accordance with the manufacturer's recommendations. In addition, include the following:
 - 1. Visual Inspection and Tests: Inspect physical condition.
 - 2. Electrical tests:
 - a. After installation but before connection to utilization devices, such as fixtures, motors, or appliances, test conductors phase-to-phase and phase-to-ground resistance with an insulation resistance tester. Existing conductors to be reused shall also be tested.
 - b. Applied voltage shall be 500 V DC for 300 V rated cable, and 1000 V DC for 600 V rated cable. Apply test for one minute or until reading is constant for 15 seconds, whichever is longer. Minimum insulation resistance values shall not be less than 25 megohms for 300 V rated cable and 100 megohms for 600 V rated cable.
 - c. Perform phase rotation test on all three-phase circuits.

---END---

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

----- INTENTIONALLY BLANK -----

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

**SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the furnishing, installation, connection, and testing of grounding and bonding equipment, indicated as grounding equipment in this section.
- B. "Grounding electrode system" refers to grounding electrode conductors and all electrodes required or allowed by NEC, as well as made, supplementary, and lightning protection system grounding electrodes.
- C. The terms "connect" and "bond" are used interchangeably in this section and have the same meaning.

1.2 RELATED WORK

- A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: Requirements that apply to all sections of Division 26.
- B. Section 26 05 19, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES: Low-voltage conductors.
- C. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduit and boxes.
- D. Section 26 12 19, PAD-MOUNTED, LIQUID-FILLED, MEDIUM-VOLTAGE TRANSFORMERS: pad-mounted, liquid-filled, medium-voltage transformers.
- E. Section 26 13 13, MEDIUM-VOLTAGE CIRCUIT BREAKER SWITCHGEAR: Medium-voltage circuit breaker switchgear.
- F. Section 26 23 13, GENERATOR PARALLELING CONTROLS: Generator paralleling controls.
- G. Section 26 13 16, MEDIUM-VOLTAGE FUSIBLE INTERRUPTER SWITCHES: Medium-voltage fusible interrupter switches.
- H. Section 26 22 00, LOW-VOLTAGE TRANSFORMERS: Low-voltage transformers.
- I. Section 26 23 00, LOW-VOLTAGE SWITCHGEAR: Low-voltage switchgear.
- J. Section 26 24 13, DISTRIBUTION SWITCHBOARDS: Low-voltage distribution switchboards.
- K. Section 26 24 16, PANELBOARDS: Low-voltage panelboards.
- L. Section 26 24 19, MOTOR CONTROL CENTERS: Motor control centers.
- M. Section 26 32 13, ENGINE GENERATORS: Engine generators.
- N. Section 26 36 23, AUTOMATIC TRANSFER SWITCHES: Automatic transfer switches.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

O. Section 26 41 00, FACILITY LIGHTNING PROTECTION: Lightning protection.

1.3 QUALITY ASSURANCE

A. Refer to Paragraph, QUALIFICATIONS (PRODUCTS AND SERVICES), in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS

A. Submit six copies of the following in accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1. Shop Drawings:

- a. Submit sufficient information to demonstrate compliance with drawings and specifications.
- b. Submit plans showing the location of system grounding electrodes and connections, and the routing of aboveground and underground grounding electrode conductors.

2. Test Reports:

- a. Two weeks prior to the final inspection, submit ground resistance field test reports to the COR.

3. Certifications:

- a. Certification by the Contractor that the grounding equipment has been properly installed and tested.

1.5 APPLICABLE PUBLICATIONS

A. Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by designation only.

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

B1-07.....Standard Specification for Hard-Drawn Copper
Wire

B3-07.....Standard Specification for Soft or Annealed
Copper Wire

B8-11.....Standard Specification for Concentric-Lay-
Stranded Copper Conductors, Hard, Medium-Hard,
or Soft

C. Institute of Electrical and Electronics Engineers, Inc. (IEEE):

81-83.....IEEE Guide for Measuring Earth Resistivity,
Ground Impedance, and Earth Surface Potentials
of a Ground System Part 1: Normal Measurements

D. National Fire Protection Association (NFPA):

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

70-11.....National Electrical Code (NEC)
70E-12.....National Electrical Safety Code
99-12.....Health Care Facilities

E. Underwriters Laboratories, Inc. (UL):

44-10Thermoset-Insulated Wires and Cables
83-08Thermoplastic-Insulated Wires and Cables
467-07Grounding and Bonding Equipment

PART 2 - PRODUCTS

2.1 GROUNDING AND BONDING CONDUCTORS

- A. Equipment grounding conductors shall be insulated stranded copper, except that sizes No. 10 AWG and smaller shall be solid copper. Insulation color shall be continuous green for all equipment grounding conductors, except that wire sizes No. 4 AWG and larger shall be identified per NEC.
- B. Bonding conductors shall be bare stranded copper, except that sizes No. 10 AWG and smaller shall be bare solid copper. Bonding conductors shall be stranded for final connection to motors, transformers, and vibrating equipment.
- C. Conductor sizes shall not be less than shown on the drawings, or not less than required by the NEC, whichever is greater.
- D. Insulation: THHN-THWN and XHHW-2. XHHW-2 shall be used for isolated power systems.

2.2 GROUND CONNECTIONS

- A. Above Grade:
 - 1. Bonding Jumpers: Listed for use with aluminum and copper conductors. For wire sizes No. 8 AWG and larger, use compression-type connectors. For wire sizes smaller than No. 8 AWG, use mechanical type lugs. Connectors or lugs shall use cadmium-plated steel bolts, nuts, and washers. Bolts shall be torqued to the values recommended by the manufacturer.
 - 2. Connection to Building Steel: Exothermic-welded type connectors.
 - 3. Connection to Grounding Bus Bars: Listed for use with aluminum and copper conductors. Use mechanical type lugs, with cadmium-plated steel bolts, nuts, and washers. Bolts shall be torqued to the values recommended by the manufacturer.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

4. Connection to Equipment Rack and Cabinet Ground Bars: Listed for use with aluminum and copper conductors. Use mechanical type lugs, with cadmium-plated steel bolts, nuts, and washers. Bolts shall be torqued to the values recommended by the manufacturer.

2.3 EQUIPMENT RACK AND CABINET GROUND BARS

- A. Provide solid copper ground bars designed for mounting on the framework of open or cabinet-enclosed equipment racks. Ground bars shall have minimum dimensions of 6.3 mm (0.25 inch) thick x 19 mm (0.75 inch) wide, with length as required or as shown on the drawings. Provide insulators and mounting brackets.

2.4 GROUND TERMINAL BLOCKS

- A. At any equipment mounting location (e.g., backboards and hinged cover enclosures) where rack-type ground bars cannot be mounted, provide mechanical type lugs, with cadmium-plated steel bolts, nuts, and washers. Bolts shall be torqued to the values recommended by the manufacturer.

2.5 GROUNDING BUS BAR

- A. Pre-drilled rectangular copper bar with stand-off insulators, minimum 6.3 mm (0.25 inch) thick x 100 mm (4 inches) high in cross-section, length as shown on the drawings, with hole size, quantity, and spacing per detail shown on the drawings. Provide insulators and mounting brackets.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install grounding equipment in accordance with the NEC, as shown on the drawings, and as specified herein.
- B. System Grounding:
 1. Secondary service neutrals: Ground at the supply side of the secondary disconnecting means and at the related transformer.
 2. Separately derived systems (transformers downstream from the service entrance): Ground the secondary neutral.
- C. Equipment Grounding: Metallic piping, building structural steel, electrical enclosures, raceways, junction boxes, outlet boxes, cabinets, machine frames, and other conductive items in close proximity with electrical circuits, shall be bonded and grounded.
- D. For patient care area electrical power system grounding, conform to NFPA 99 and NEC.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

3.2 INACCESSIBLE GROUNDING CONNECTIONS

- A. Make grounding connections, which are normally buried or otherwise inaccessible, by exothermic weld.

3.3 SECONDARY VOLTAGE EQUIPMENT AND CIRCUITS

- A. Main Bonding Jumper: Bond the secondary service neutral to the ground bus in the service equipment.
- B. Metallic Piping, Building Structural Steel, and Supplemental Electrode(s):
 - 1. Provide a grounding electrode conductor sized per NEC between the service equipment ground bus and all metallic water pipe systems, building structural steel, and supplemental or made electrodes. Provide jumpers across insulating joints in the metallic piping.
 - 2. Provide a supplemental ground electrode as shown on the drawings and bond to the grounding electrode system.
- C. Switchgear, Switchboards, Unit Substations, Panelboards, Motor Control Centers, Engine-Generators, Automatic Transfer Switches, and other electrical equipment:
 - 1. Connect the equipment grounding conductors to the ground bus.
 - 2. Connect metallic conduits by grounding bushings and equipment grounding conductor to the equipment ground bus.
- D. Transformers:
 - 1. Exterior: Exterior transformers supplying interior service equipment shall have the neutral grounded at the transformer secondary. Provide a grounding electrode at the transformer.
 - 2. Separately derived systems (transformers downstream from service equipment): Ground the secondary neutral at the transformer. Provide a grounding electrode conductor from the transformer to the nearest component of the grounding electrode system.

3.4 RACEWAY

- A. Conduit Systems:
 - 1. Ground all metallic conduit systems. All metallic conduit systems shall contain an equipment grounding conductor.
 - 2. Non-metallic conduit systems, except non-metallic feeder conduits that carry a grounded conductor from exterior transformers to interior or building-mounted service entrance equipment, shall contain an equipment grounding conductor.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

3. Metallic conduit that only contains a grounding conductor, and is provided for its mechanical protection, shall be bonded to that conductor at the entrance and exit from the conduit.
 4. Metallic conduits which terminate without mechanical connection to an electrical equipment housing by means of locknut and bushings or adapters, shall be provided with grounding bushings. Connect bushings with a equipment grounding conductor to the equipment ground bus.
- B. Feeders and Branch Circuits: Install equipment grounding conductors with all feeders, and power and lighting branch circuits.
- C. Boxes, Cabinets, Enclosures, and Panelboards:
1. Bond the equipment grounding conductor to each pullbox, junction box, outlet box, device box, cabinets, and other enclosures through which the conductor passes (except for special grounding systems for intensive care units and other critical units shown).
 2. Provide lugs in each box and enclosure for equipment grounding conductor termination.
- D. Wireway Systems:
1. Bond the metallic structures of wireway to provide electrical continuity throughout the wireway system, by connecting a No. 6 AWG bonding jumper at all intermediate metallic enclosures and across all section junctions.
 2. Install insulated No. 6 AWG bonding jumpers between the wireway system, bonded as required above, and the closest building ground at each end and approximately every 16 M (50 feet).
 3. Use insulated No. 6 AWG bonding jumpers to ground or bond metallic wireway at each end for all intermediate metallic enclosures and across all section junctions.
 4. Use insulated No. 6 AWG bonding jumpers to ground cable tray to column-mounted building ground plates (pads) at each end and approximately every 15 M (49 feet).
- E. Receptacles shall not be grounded through their mounting screws. Ground receptacles with a jumper from the receptacle green ground terminal to the device box ground screw and a jumper to the branch circuit equipment grounding conductor.
- F. Ground lighting fixtures to the equipment grounding conductor of the wiring system. Fixtures connected with flexible conduit shall have a

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

green ground wire included with the power wires from the fixture through the flexible conduit to the first outlet box.

- G. Fixed electrical appliances and equipment shall be provided with a ground lug for termination of the equipment grounding conductor.
- H. Raised Floors: Provide bonding for all raised floor components as shown on the drawings.
- I. Panelboard Bonding in Patient Care Areas: The equipment grounding terminal buses of the normal and essential branch circuit panel boards serving the same individual patient vicinity shall be bonded together with an insulated continuous copper conductor not less than No. 10 AWG, installed in rigid metal conduit.

3.5 CORROSION INHIBITORS

- A. When making grounding and bonding connections, apply a corrosion inhibitor to all contact surfaces. Use corrosion inhibitor appropriate for protecting a connection between the metals used.

3.6 CONDUCTIVE PIPING

- A. Bond all conductive piping systems, interior and exterior, to the grounding electrode system. Bonding connections shall be made as close as practical to the equipment ground bus.
- B. In operating rooms and at intensive care and coronary care type beds, bond the medical gas piping and medical vacuum piping at the outlets directly to the patient ground bus.

3.7 ACCEPTANCE CHECKS AND TESTS

- A. Resistance of the grounding electrode system shall be measured using a four-terminal fall-of-potential method as defined in IEEE 81. Ground resistance measurements shall be made before the electrical distribution system is energized or connected to the electric utility company ground system, and shall be made in normally dry conditions not fewer than 48 hours after the last rainfall.
- B. Resistance measurements of separate grounding electrode systems shall be made before the systems are bonded together. The combined resistance of separate systems may be used to meet the required resistance, but the specified number of electrodes must still be provided.
- C. Below-grade connections shall be visually inspected by the COR prior to backfilling. The Contractor shall notify the COR 24 hours before the connections are ready for inspection.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

---END---

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

SECTION 26 05 33
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the furnishing, installation, and connection of conduit, fittings, and boxes, to form complete, coordinated, grounded raceway systems. Raceways are required for all wiring unless shown or specified otherwise.
- B. Definitions: The term conduit, as used in this specification, shall mean any or all of the raceway types specified.

1.2 RELATED WORK

- C. Section 07 84 00, FIRESTOPPING: Sealing around penetrations to maintain the integrity of fire rated construction.
- F. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements and items that are common to more than one section of Division 26.
- G. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path for possible ground fault currents.

1.3 QUALITY ASSURANCE

Refer to Paragraph, QUALIFICATIONS, in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS

In accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, submit the following:

- A. Manufacturer's Literature and Data: Showing each cable type and rating. The specific item proposed and its area of application shall be identified on the catalog cuts.
- B. Shop Drawings:
 - 1. Size and location of main feeders.
 - 2. Size and location of panels and pull-boxes.
 - 3. Layout of required conduit penetrations through structural elements.
- C. Certifications:
 - 1. Two weeks prior to the final inspection, submit four copies of the following certifications to the COR:
 - a. Certification by the manufacturer that the material conforms to the requirements of the drawings and specifications.
 - b. Certification by the contractor that the material has been properly installed.

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by designation only.
- B. American National Standards Institute (ANSI):
- C80.1-05.....Electrical Rigid Steel Conduit
 - C80.3-05.....Steel Electrical Metal Tubing
 - C80.6-05.....Electrical Intermediate Metal Conduit
- C. National Fire Protection Association (NFPA):
- 70-08.....National Electrical Code (NEC)
- D. Underwriters Laboratories, Inc. (UL):
- 1-05.....Flexible Metal Conduit
 - 5-04.....Surface Metal Raceway and Fittings
 - 6-07.....Electrical Rigid Metal Conduit - Steel
 - 50-95.....Enclosures for Electrical Equipment
 - 360-093.....Liquid-Tight Flexible Steel Conduit
 - 467-07.....Grounding and Bonding Equipment
 - 514A-04.....Metallic Outlet Boxes
 - 514B-04.....Conduit, Tubing, and Cable Fittings
 - 514C-96.....Nonmetallic Outlet Boxes, Flush-Device Boxes and
Covers
 - 651-05.....Schedule 40 and 80 Rigid PVC Conduit and
Fittings
 - 651A-00.....Type EB and A Rigid PVC Conduit and HDPE Conduit
 - 797-07.....Electrical Metallic Tubing
 - 1242-06.....Electrical Intermediate Metal Conduit - Steel
- E. National Electrical Manufacturers Association (NEMA):
- TC-2-03.....Electrical Polyvinyl Chloride (PVC) Tubing and
Conduit
 - TC-3-04.....PVC Fittings for Use with Rigid PVC Conduit and
Tubing
 - FB1-07.....Fittings, Cast Metal Boxes and Conduit Bodies
for Conduit, Electrical Metallic Tubing and
Cable

PART 2 - PRODUCTS

2.1 MATERIAL

- A. Conduit Size: In accordance with the NEC, but not less than 0.5 in [13 mm] unless otherwise shown. Where permitted by the NEC, 0.5 in [13 mm] flexible conduit may be used for tap connections to recessed lighting fixtures.

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

B. Conduit:

1. Rigid steel: Shall conform to UL 6 and ANSI C80.1.
3. Rigid intermediate steel conduit (IMC): Shall conform to UL 1242 and ANSI C80.6.
4. Electrical metallic tubing (EMT): Shall conform to UL 797 and ANSI C80.3. Maximum size not to exceed 4 in [105 mm] and shall be permitted only with cable rated 600 V or less.
5. Flexible galvanized steel conduit: Shall conform to UL 1.
6. Liquid-tight flexible metal conduit: Shall conform to UL 360.
7. Direct burial plastic conduit: Shall conform to UL 651 and UL 651A, heavy wall PVC or high density polyethylene (PE).
8. Surface metal raceway: Shall conform to UL 5.

C. Conduit Fittings:

1. Rigid steel and IMC conduit fittings:
 - a. Fittings shall meet the requirements of UL 514B and NEMA FB1.
 - b. Standard threaded couplings, locknuts, bushings, conduit bodies, and elbows: Only steel or malleable iron materials are acceptable. Integral retractable type IMC couplings are also acceptable.
 - c. Locknuts: Bonding type with sharp edges for digging into the metal wall of an enclosure.
 - d. Bushings: Metallic insulating type, consisting of an insulating insert, molded or locked into the metallic body of the fitting. Bushings made entirely of metal or nonmetallic material are not permitted.
 - e. Erickson (union-type) and set screw type couplings: Approved for use in concrete are permitted for use to complete a conduit run where conduit is installed in concrete. Use set screws of case-hardened steel with hex head and cup point to firmly seat in conduit wall for positive ground. Tightening of set screws with pliers is prohibited.
 - f. Sealing fittings: Threaded cast iron type. Use continuous drain-type sealing fittings to prevent passage of water vapor. In concealed work, install fittings in flush steel boxes with blank cover plates having the same finishes as that of other electrical plates in the room.
3. Electrical metallic tubing fittings:
 - a. Fittings and conduit bodies shall meet the requirements of UL 514B, ANSI C80.3, and NEMA FB1.
 - b. Only steel or malleable iron materials are acceptable.

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

- c. Compression couplings and connectors: Concrete-tight and rain-tight, with connectors having insulated throats.
- d. Indent-type connectors or couplings are prohibited.
- e. Die-cast or pressure-cast zinc-alloy fittings or fittings made of "pot metal" are prohibited.
- 4. Flexible steel conduit fittings:
 - a. Conform to UL 514B. Only steel or malleable iron materials are acceptable.
 - b. Clamp-type, with insulated throat.
- 5. Liquid-tight flexible metal conduit fittings:
 - a. Fittings shall meet the requirements of UL 514B and NEMA FB1.
 - b. Only steel or malleable iron materials are acceptable.
 - c. Fittings must incorporate a threaded grounding cone, a steel or plastic compression ring, and a gland for tightening. Connectors shall have insulated throats.
- 6. Direct burial plastic conduit fittings:

Fittings shall meet the requirements of UL 514C and NEMA TC3.
- 7. Surface metal raceway fittings: As recommended by the raceway manufacturer. Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, conduit entry fittings, accessories, and other fittings as required for complete system.
- 8. Expansion and deflection couplings:
 - a. Conform to UL 467 and UL 514B.
 - b. Accommodate a 0.75 in [19 mm] deflection, expansion, or contraction in any direction, and allow 30 degree angular deflections.
 - c. Include internal flexible metal braid, sized to guarantee conduit ground continuity and a low-impedance path for fault currents, in accordance with UL 467 and the NEC tables for equipment grounding conductors.
 - d. Jacket: Flexible, corrosion-resistant, watertight, moisture and heat-resistant molded rubber material with stainless steel jacket clamps.
- D. Conduit Supports:
 - 1. Parts and hardware: Zinc-coat or provide equivalent corrosion protection.
 - 2. Individual Conduit Hangers: Designed for the purpose, having a pre-assembled closure bolt and nut, and provisions for receiving a hanger rod.

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

3. Multiple conduit (trapeze) hangers: Not less than 1.5 x 1.5 in [38 mm x 38 mm], 12-gauge steel, cold-formed, lipped channels; with not less than 0.375 in [9 mm] diameter steel hanger rods.
4. Solid Masonry and Concrete Anchors: Self-drilling expansion shields, or machine bolt expansion.

E. Outlet, Junction, and Pull Boxes:

1. UL-50 and UL-514A.
2. Cast metal where required by the NEC or shown, and equipped with rustproof boxes.
3. Sheet metal boxes: Galvanized steel, except where otherwise shown.
4. Flush-mounted wall or ceiling boxes shall be installed with raised covers so that the front face of raised cover is flush with the wall. Surface-mounted wall or ceiling boxes shall be installed with surface-style flat or raised covers.

F. Wireways: Equip with hinged covers, except where removable covers are shown. Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for a complete system.

PART 3 - EXECUTION

3.1 PENETRATIONS

A. Cutting or Holes:

1. Cut holes in advance where they should be placed in the structural elements, such as ribs or beams. Obtain the approval of the COR prior to drilling through structural elements.
2. Cut holes through concrete and masonry in new and existing structures with a diamond core drill or concrete saw. Pneumatic hammers, impact electric, hand, or manual hammer-type drills are not allowed, except where permitted by the COR as required by limited working space.

B. Firestop: Where conduits, wireways, and other electrical raceways pass through fire partitions, fire walls, smoke partitions, or floors, install a fire stop that provides an effective barrier against the spread of fire, smoke and gases as specified in Section 07 84 00, FIRESTOPPING.

3.2 INSTALLATION, GENERAL

A. In accordance with UL, NEC, as shown, and as specified herein.

.

B. Essential (Emergency) raceway systems shall be entirely independent of other raceway systems, except where shown on drawings.

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

C. Install conduit as follows:

1. In complete mechanically and electrically continuous runs before pulling in cables or wires.
2. Unless otherwise indicated on the drawings or specified herein, installation of all conduits shall be concealed within finished walls, floors, and ceilings.
3. Flattened, dented, or deformed conduit is not permitted. Remove and replace the damaged conduits with new undamaged material.
4. Assure conduit installation does not encroach into the ceiling height head room, walkways, or doorways.
5. Cut square, ream, remove burrs, and draw up tight.
6. Independently support conduit at 8 ft [2.4 M] on centers. Do not use other supports, i.e., suspended ceilings, suspended ceiling supporting members, lighting fixtures, conduits, mechanical piping, or mechanical ducts.
7. Support within 12 in [300 mm] of changes of direction, and within 12 in [300 mm] of each enclosure to which connected.
8. Close ends of empty conduit with plugs or caps at the rough-in stage until wires are pulled in, to prevent entry of debris.
9. Conduit installations under fume and vent hoods are prohibited.
10. Secure conduits to cabinets, junction boxes, pull-boxes, and outlet boxes with bonding type locknuts. For rigid and IMC conduit installations, provide a locknut on the inside of the enclosure, made up wrench tight. Do not make conduit connections to junction box covers.
11. Flashing of penetrations of the roof membrane is specified in Section 07 60 00, FLASHING AND SHEET METAL.
12. Conduit bodies shall only be used for changes in direction, and shall not contain splices.

D. Conduit Bends:

1. Make bends with standard conduit bending machines.
2. Conduit hickey may be used for slight offsets and for straightening stubbed out conduits.
3. Bending of conduits with a pipe tee or vise is prohibited.

E. Layout and Homeruns:

1. Install conduit with wiring, including homeruns, as shown on drawings.
2. Deviations: Make only where necessary to avoid interferences and only after drawings showing the proposed deviations have been submitted approved by the COR.

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

3.3 CONCEALED WORK INSTALLATION

A. In Concrete:

1. Conduit: Rigid steel, IMC, or EMT. Do not install EMT in concrete slabs that are in contact with soil, gravel, or vapor barriers.
2. Align and run conduit in direct lines.
3. Install conduit through concrete beams only:
 - a. Where shown on the structural drawings.
 - b. As approved by the COR prior to construction, and after submittal of drawing showing location, size, and position of each penetration.
4. Installation of conduit in concrete that is less than 3 in [75 mm] thick is prohibited.
 - a. Conduit outside diameter larger than one-third of the slab thickness is prohibited.
 - b. Space between conduits in slabs: Approximately six conduit diameters apart, and one conduit diameter at conduit crossings.
 - c. Install conduits approximately in the center of the slab so that there will be a minimum of 0.75 in [19 mm] of concrete around the conduits.
5. Make couplings and connections watertight. Use thread compounds that are UL approved conductive type to ensure low resistance ground continuity through the conduits. Tightening setscrews with pliers is prohibited.

B. Above Furred or Suspended Ceilings and in Walls:

1. Conduit for conductors above 600 V: Rigid steel. Mixing different types of conduits indiscriminately in the same system is prohibited.
2. Conduit for conductors 600 V and below: Rigid steel, IMC, or EMT. Mixing different types of conduits indiscriminately in the same system is prohibited.
3. Align and run conduit parallel or perpendicular to the building lines.
4. Connect recessed lighting fixtures to conduit runs with maximum 6 ft [1.8 M] of flexible metal conduit extending from a junction box to the fixture.
5. Tightening setscrews with pliers is prohibited.

3.4 EXPOSED WORK INSTALLATION

- A.** Unless otherwise indicated on the drawings, exposed conduit is only permitted in mechanical and electrical rooms.

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

- B. Conduit for Conductors above 600 V: Rigid steel. Mixing different types of conduits indiscriminately in the system is prohibited.
- C. Conduit for Conductors 600 V and Below: Rigid steel, IMC, or EMT. Mixing different types of conduits indiscriminately in the system is prohibited.
- D. Align and run conduit parallel or perpendicular to the building lines.
- E. Install horizontal runs close to the ceiling or beams and secure with conduit straps.
- F. Support horizontal or vertical runs at not over 8 ft [2.4 M] intervals.
- G. Surface metal raceways: Use only where shown.
- H. Painting:
 - 1. Paint exposed conduit as specified in Section 09 91 00, PAINTING.
 - 2. Paint all conduits containing cables rated over 600 V safety orange. Refer to Section 09 91 00, PAINTING for preparation, paint type, and exact color. In addition, paint legends, using 2 in [50 mm] high black numerals and letters, showing the cable voltage rating. Provide legends where conduits pass through walls and floors and at maximum 20 ft [6 M] intervals in between.

3.5 DIRECT BURIAL INSTALLATION

Refer to Section 26 05 41, UNDERGROUND ELECTRICAL CONSTRUCTION.

3.6 HAZARDOUS LOCATIONS

- A. Use rigid steel conduit only, notwithstanding requirements otherwise specified in this or other sections of these specifications.
- B. Install UL approved sealing fittings that prevent passage of explosive vapors in hazardous areas equipped with explosion-proof lighting fixtures, switches, and receptacles, as required by the NEC.

3.7 WET OR DAMP LOCATIONS

- A. Unless otherwise shown, use conduits of rigid steel or IMC.
- B. Provide sealing fittings to prevent passage of water vapor where conduits pass from warm to cold locations, i.e., refrigerated spaces, constant-temperature rooms, air-conditioned spaces, building exterior walls, roofs, or similar spaces.
- C. Unless otherwise shown, use rigid steel or IMC conduit within 5 ft [1.5 M] of the exterior and below concrete building slabs in contact with soil, gravel, or vapor barriers. Conduit shall be half-lapped with 10 mil PVC tape before installation. After installation, completely recoat or retape any damaged areas of coating.

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

3.8 MOTORS AND VIBRATING EQUIPMENT

- A. Use flexible metal conduit for connections to motors and other electrical equipment subject to movement, vibration, misalignment, cramped quarters, or noise transmission.
- B. Use liquid-tight flexible metal conduit for installation in exterior locations, moisture or humidity laden atmosphere, corrosive atmosphere, water or spray wash-down operations, inside airstream of HVAC units, and locations subject to seepage or dripping of oil, grease, or water. Provide a green equipment grounding conductor with flexible metal conduit.

3.9 EXPANSION JOINTS

- A. Conduits 3 in [75 mm] and larger that are secured to the building structure on opposite sides of a building expansion joint require expansion and deflection couplings. Install the couplings in accordance with the manufacturer's recommendations.
- B. Provide conduits smaller than 3 in [75 mm] with junction boxes on both sides of the expansion joint. Connect conduits to junction boxes with sufficient slack of flexible conduit to produce 5 in [125 mm] vertical drop midway between the ends. Flexible conduit shall have a bonding jumper installed. In lieu of this flexible conduit, expansion and deflection couplings as specified above for conduits 15 in [375 mm] and larger are acceptable.
- C. Install expansion and deflection couplings where shown.
- D. Seismic Areas: In seismic areas, provide conduits rigidly secured to the building structure on opposite sides of a building expansion joint with junction boxes on both sides of the joint. Connect conduits to junction boxes with 15 in [375 mm] of slack flexible conduit. Flexible conduit shall have a copper green ground bonding jumper installed.

3.10 CONDUIT SUPPORTS, INSTALLATION

- A. Safe working load shall not exceed one-quarter of proof test load of fastening devices.
- B. Use pipe straps or individual conduit hangers for supporting individual conduits.
- C. Support multiple conduit runs with trapeze hangers. Use trapeze hangers that are designed to support a load equal to or greater than the sum of the weights of the conduits, wires, hanger itself, and 200 lbs [90 kg]. Attach each conduit with U-bolts or other approved fasteners.
- D. Support conduit independently of junction boxes, pull-boxes, fixtures, suspended ceiling T-bars, angle supports, and similar items.

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

- E. Fasteners and Supports in Solid Masonry and Concrete:
 - 1. New Construction: Use steel or malleable iron concrete inserts set in place prior to placing the concrete.
 - 2. Existing Construction:
 - a. Steel expansion anchors not less than 0.25 in [6 mm] bolt size and not less than 1.125 in [28 mm] embedment.
 - b. Power set fasteners not less than 0.25 in [6 mm] diameter with depth of penetration not less than 3 in [75 mm].
 - c. Use vibration and shock-resistant anchors and fasteners for attaching to concrete ceilings.
- E. Hollow Masonry: Toggle bolts.
- F. Bolts supported only by plaster or gypsum wallboard are not acceptable.
- G. Metal Structures: Use machine screw fasteners or other devices specifically designed and approved for the application.
- H. Attachment by wood plugs, rawl plug, plastic, lead or soft metal anchors, or wood blocking and bolts supported only by plaster is prohibited.
- I. Chain, wire, or perforated strap shall not be used to support or fasten conduit.
- J. Spring steel type supports or fasteners are prohibited for all uses except horizontal and vertical supports/fasteners within walls.
- K. Vertical Supports: Vertical conduit runs shall have riser clamps and supports in accordance with the NEC and as shown. Provide supports for cable and wire with fittings that include internal wedges and retaining collars.

3.11 BOX INSTALLATION

- A. Boxes for Concealed Conduits:
 - 1. Flush-mounted.
 - 2. Provide raised covers for boxes to suit the wall or ceiling, construction, and finish.
- B. In addition to boxes shown, install additional boxes where needed to prevent damage to cables and wires during pulling-in operations.
- C. Remove only knockouts as required and plug unused openings. Use threaded plugs for cast metal boxes and snap-in metal covers for sheet metal boxes.
- D. Outlet boxes mounted back-to-back in the same wall are prohibited. A minimum 24 in [600 mm] center-to-center lateral spacing shall be maintained between boxes.

VA - Lighting Renovation UT
Lighting Renovation
Project No. # VA259-13-0158

- E. Minimum size of outlet boxes for ground fault interrupter (GFI) receptacles is 4 in [100 mm] square x 2.125 in [55 mm] deep, with device covers for the wall material and thickness involved.
- F. Stencil or install phenolic nameplates on covers of the boxes identified on riser diagrams; for example "SIG-FA JB No. 1."
- G. On all branch circuit junction box covers, identify the circuits with black marker.

- - - E N D - - -

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

----- INTENTIONALLY BLANK -----

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

**SECTION 26 09 23
LIGHTING CONTROLS**

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies the furnishing, installation and connection of the lighting controls.

1.2 RELATED WORK

- B. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General requirements that are common to more than one section of Division 26.
- C. Section 26 05 19, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW): Cables and wiring.
- D. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path to ground for possible ground fault currents.
- F. Section 26 27 26, WIRING DEVICES: Wiring devices used for control of the lighting systems.

1.3 QUALITY ASSURANCE

Refer to Paragraph, QUALIFICATIONS, in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS

- A. In accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, submit the following:
- B. Product Data: For each type of lighting control, submit the following information.
 - 1. Manufacturer's catalog data.
 - 2. Wiring schematic and connection diagram.
 - 3. Installation details.
- C. Manuals:
 - 1. Submit, simultaneously with the shop drawings companion copies of complete maintenance and operating manuals including technical data sheets, and information for ordering replacement parts.
 - 2. Two weeks prior to the final inspection, submit four copies of the final updated maintenance and operating manuals, including any changes, to the Resident Engineer.
- D. Certifications:
 - 1. Two weeks prior to final inspection, submit four copies of the following certifications to the Resident Engineer:
 - a. Certification by the Contractor that the equipment has been properly installed, adjusted, and tested.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by designation only.
- B. Green Seal (GS):
 - GC-12.....Occupancy Sensors
- C. Illuminating Engineering Society of North America (IESNA):
 - IESNA LM-48.....Guide for Calibration of Photoelectric Control Devices
- D. National Electrical Manufacturer's Association (NEMA)
 - C136.10.....American National Standard for Roadway Lighting Equipment-Locking-Type Photocontrol Devices and Mating Receptacles - Physical and Electrical Interchangeability and Testing
 - ICS-1.....Standard for Industrial Control and Systems General Requirements
 - ICS-2.....Standard for Industrial Control and Systems: Controllers, Contractors, and Overload Relays Rated Not More than 2000 Volts AC or 750 Volts DC: Part 8 - Disconnect Devices for Use in Industrial Control Equipment
 - ICS-6.....Standard for Industrial Controls and Systems Enclosures
- E. Underwriters Laboratories, Inc. (UL):
 - 20.....Standard for General-Use Snap Switches
 - 773.....Standard for Plug-In Locking Type Photocontrols for Use with Area Lighting
 - 773ANonindustrial Photoelectric Switches for Lighting Control
 - 98.....Enclosed and Dead-Front Switches
 - 917.....Clock Operated Switches

PART 2 - PRODUCTS

2.5 CEILING-MOUNTED PHOTOELECTRIC SWITCHES

- A. Solid-state, light-level sensor unit, with separate relay unit.
 - 1. Sensor Output: Contacts rated to operate the associated relay. Sensor shall be powered from the relay unit.
 - 2. Relay Unit: Dry contacts rated for 20A ballast load at 120V and 277V, for 13A tungsten at 120V, and for 1 hp at 120V.
 - 3. Monitoring Range: 10 to 200 fc [108 to 2152 lx]100 to 1000 fc, with an adjustment for turn-on and turn-off levels.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

4. Time Delay: Adjustable from 5 to 300 seconds, with deadband adjustment.
5. Indicator: Two LEDs to indicate the beginning of on-off cycles.
6. Confirmed compatible with area lighting controls and lighting fixtures.

2.7 INDOOR CEILING OCCUPANCY SENSORS

- A. Ceiling-mounting, solid-state units suitable for interconnection with a room controller unit, and suitable for the environmental conditions in which installed.
 1. Operation: Unless otherwise indicated, turn lights on when manually directed to do so and off when unoccupied; with a 1 to 30 minute adjustable time delay for turning lights off.
 2. Sensor Output: Communicates to a connected room controller unit via Category 5e wiring.
 3. Mounting:
 - a. Sensor: Suitable for mounting in any position on a standard outlet box.
 - b. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.
 5. Indicator: LED, to show when motion is being detected during testing and normal operation of the sensor.
 6. Confirmed compatible with area lighting controls and lighting fixtures.
 7. Ceiling sensor equivalent to a Wattstopper LMDC-100 series occupancy sensor.
- B. Dual-technology Type: Ceiling mounting; combination PIR and ultrasonic detection methods, field-selectable.
 1. Sensitivity Adjustment: Separate for each sensing technology.
 2. Detector Sensitivity: Detect occurrences of 6-inch [150mm] minimum movement of any portion of a human body that presents a target of not less than 36 sq. in. [232 sq. cm], and detect a person of average size and weight moving not less than 12 inches [305 mm] in either a horizontal or a vertical manner at an approximate speed of 12 inches/s [305 mm/s].
 3. Detection Coverage: 360 degree coverage unless otherwise noted on the design documents.

2.8 INDOOR WALL MOUNTED OCCUPANCY SENSOR SWITCH

- A. Wall-mounting, solid-state units suitable for interconnection into a room controller unit, and suitable for the environmental conditions in which installed.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

1. Operation: Unless otherwise indicated, turn lights on when manually directed to do so and off when unoccupied; with a 1 to 30 minute adjustable time delay for turning lights off.
2. Sensor Output: Communicates to a connected room controller unit via Category 5e wiring.
3. Mounting:
 - a. Sensor: Suitable for mounting in any position on a standard outlet box.
 - b. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.
4. Indicator: LED, to show when motion is being detected during testing and normal operation of the sensor.
5. Bypass Switch: Override the on function in case of sensor failure.
6. Faceplate for Wall-Switch Replacement Type: Refer to wall plate material and color requirements for toggle switches, as specified in Section 26 27 26, WIRING DEVICES.
7. Confirmed compatible with area lighting controls and lighting fixtures.
8. Wall switch equivalent to a Wattstopper LMPW-100 series PIR Wall Switch Occupancy Sensor.

2.9 DIGITAL ON/OFF ROOM CONTROLLER (NON-DIMMED)

- A. Solid-state plenum-rated units suitable for controlling, via one or two integral relay(s), system devices and suitable for the environmental conditions in which installed.
 1. Operation: Accepts input from connected room communicating devices and configures system components in response to these received inputs.
 2. Relay Unit: Dry contacts rated for 20A ballast load at 120V and 277V, for 13A tungsten at 120V, and for 1 hp at 120V.
 2. Input: Communicates to connected room communicating devices via Category 5e wiring.
 3. Mounting:
 - a. Sensor: Suitable for mounting in any position on a standard outlet box.
 4. Confirmed compatible with area lighting controls and lighting fixtures.
 5. Digital room controller equivalent to a Wattstopper LMRC-100 series room controller.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

2.10 DIGITAL ON/OFF/0-10 VOLT DIMMING ROOM CONTROLLER

- A. Solid-state plenum-rated units suitable for controlling, via one, two or three integral relay(s) and 0-10 volt dimming outputs, system devices and suitable for the environmental conditions in which installed.
 - 1. Operation: Accepts input from connected room communicating devices and configures system components in response to these received inputs.
 - 2. Relay Unit: Dry contacts rated for 20A ballast load at 120V and 277V, for 13A tungsten at 120V, and for 1 hp at 120V, and 0-10 volt dimming output to compatible 0-10 volt lighting loads.
 - 2. Input: Communicates to connected room communicating devices via Category 5e wiring.
 - 3. Dimming: When a dimming input is received from a room communicating device, the relay switches on when the dimmed level rises above zero and off when it reaches zero.
 - 3. Mounting:
 - a. Sensor: Suitable for mounting in any position on a standard outlet box.
 - 4. Confirmed compatible with area lighting controls and lighting fixtures.
 - 5. Digital room controller equivalent to a Wattstopper LMRC-210 series room controller.

2.11 INDOOR WALL MOUNTED DIGITAL WALL SWITCH

- A. Wall-mounting, solid-state units suitable for interconnection into a room controller unit, and suitable for the environmental conditions in which installed.
 - 1. Operation: Unless otherwise indicated, turn lights on and off when manually directed to do so.
 - 2. Sensor Output: Communicates to a connected room controller unit via Category 5e wiring.
 - 3. Mounting:
 - a. Sensor: Suitable for mounting in any position on a standard outlet box.
 - b. Adjustments: Recessed and concealed behind hinged door.
 - 4. Indicator: LED, customizable status indicator.
 - 5. Faceplate for Wall-Switch Replacement Type: Refer to wall plate material and color requirements for toggle switches, as specified in Section 26 27 26, WIRING DEVICES.
 - 6. Confirmed compatible with area lighting controls and lighting fixtures.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

7. Wall switch equivalent to a Wattstopper LMSW-100 series Digital Wall Switch.

2.12 INDOOR WALL MOUNTED DIGITAL WALL DIMMING SWITCH

- A. Wall-mounting, solid-state units suitable for interconnection into a room controller unit, and suitable for the environmental conditions in which installed.
 1. Operation: Unless otherwise indicated, turn lights on and off when manually directed to do so, as well as provides 0-10 volt dimming level output to a connected room dimming controller.
 2. Sensor Output: Communicates to a connected room controller unit via Category 5e wiring.
 3. Mounting:
 - a. Sensor: Suitable for mounting in any position on a standard outlet box.
 - b. Adjustments: Recessed and concealed behind hinged door.
 4. Indicator: LED, customizable status indicator with 7 LED dimming level indicators.
 5. Faceplate for Wall-Switch Replacement Type: Refer to wall plate material and color requirements for toggle switches, as specified in Section 26 27 26, WIRING DEVICES.
 6. Confirmed compatible with area lighting controls and lighting fixtures.
 7. Wall switch equivalent to a Wattstopper LMDM-101 series Digital Dimming Wall Switch.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Installation shall be in accordance with the NEC, manufacturer's instructions and as shown on the drawings or specified.
- B. Aim outdoor photocell switch according to manufacturer's recommendations. Set adjustable window slide for 1 footcandle photocell turn-on.
- C. Aiming for wall-mounted and ceiling-mounted motion sensor switches shall be per manufacturer's recommendations.
- D. Occupancy sensors shall be set to "Vacancy" mode with "on" duration set at 15 minutes unless noted otherwise. E. Locate light level sensors as indicated and in accordance with the manufacturer's recommendations. Adjust sensor for the scheduled light level at the typical work plane for that area.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

F. Label time switches and contactors with a unique designation.

3.2 ACCEPTANCE CHECKS AND TESTS

- A. Perform in accordance with the manufacturer's recommendations.
- B. Upon completion of installation, conduct an operating test to show that equipment operates in accordance with requirements of this section.
- C. Test for full range of dimming ballast and dimming controls capability. Observe for visually detectable flicker over full dimming range.
- D. Test occupancy sensors for proper operation. Observe for light control over entire area being covered.

3.3 FOLLOW-UP VERIFICATION

Upon completion of acceptance checks and tests, the Contractor shall show by demonstration in service that the lighting control devices are in good operating condition and properly performing the intended function.

- - - E N D - - -

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

----- INTENTIONALLY BLANK -----

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

**SECTION 26 27 26
WIRING DEVICES**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the furnishing, installation, connection, and testing of wiring devices.

1.2 RELATED WORK

- A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements that are common to more than one section of Division 26.
- B. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduit and boxes.
- C. Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES: Cables and wiring.
- D. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path to ground for possible ground fault currents.
- E. Section 26 51 00, INTERIOR LIGHTING: Fluorescent ballasts and LED drivers for use with manual dimming controls.

1.3 QUALITY ASSURANCE

- A. Refer to Paragraph, QUALIFICATIONS (PRODUCTS AND SERVICES), in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS

- A. Submit six copies of the following in accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.
 - 1. Shop Drawings:
 - a. Submit sufficient information to demonstrate compliance with drawings and specifications.
 - b. Include electrical ratings, dimensions, mounting details, construction materials, grade, and termination information.
 - 2. Manuals:
 - a. Submit, simultaneously with the shop drawings, companion copies of complete maintenance and operating manuals, including technical data sheets and information for ordering replacement parts.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

- b. If changes have been made to the maintenance and operating manuals originally submitted, submit updated maintenance and operating manuals two weeks prior to the final inspection.
- 3. Certifications: Two weeks prior to final inspection, submit the following.
 - a. Certification by the manufacturer that the wiring devices conform to the requirements of the drawings and specifications.
 - b. Certification by the Contractor that the wiring devices have been properly installed and adjusted.

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by basic designation only.
- B. National Fire Protection Association (NFPA):
 - 70-11.....National Electrical Code (NEC)
 - 99-12.....Health Care Facilities
- C. National Electrical Manufacturers Association (NEMA):
 - WD 1-10.....General Color Requirements for Wiring Devices
 - WD 6-08Wiring Devices - Dimensional Specifications
- D. Underwriter's Laboratories, Inc. (UL):
 - 5-11.....Surface Metal Raceways and Fittings
 - 20-10.....General-Use Snap Switches
 - 231-07.....Power Outlets
 - 467-07.....Grounding and Bonding Equipment
 - 498-07.....Attachment Plugs and Receptacles
 - 943-11.....Ground-Fault Circuit-Interrupters
 - 1449-07.....Surge Protective Devices
 - 1472-96.....Solid State Dimming Controls

PART 2 - PRODUCTS

2.1 TOGGLE SWITCHES

- A. Toggle switches shall be totally enclosed tumbler type with nylon bodies. Handles shall be ivory in color unless otherwise specified or shown on the drawings.
 - 1. Switches installed in hazardous areas shall be explosion-proof type in accordance with the NEC and as shown on the drawings.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

2. Shall be single unit toggle, butt contact, quiet AC type, heavy-duty general-purpose use with an integral self grounding mounting strap with break-off plaster ears and provisions for back wiring with separate metal wiring clamps and side wiring with captively held binding screws.
3. Switches shall be rated 20 amperes at 120-277 Volts AC.

2.2 MANUAL DIMMING CONTROL

- A. Electronic full-wave manual slide dimmer with on/off switch and audible frequency and EMI/RFI suppression filters.
- B. Manual dimming controls shall be fully compatible with LED dimming driver and be approved by the driver manufacturer, shall operate over full specified dimming range, and shall not degrade the performance or rated life of the electronic dimming ballast and lamp.
- C. Provide single-pole or three-way, as shown on the drawings.
- D. Manual dimming control and faceplates shall be ivory in color unless otherwise specified.

2.3 WALL PLATES

- A. Wall plates for switches and receptacles shall be type 302 stainless steel smooth nylon . Oversize plates are not acceptable.
- B. Color shall be ivory unless otherwise specified.
- C. For receptacles or switches mounted adjacent to each other, wall plates shall be common for each group of receptacles or switches.
- D. In areas requiring tamperproof wiring devices, wall plates shall be type 302 stainless steel, and shall have tamperproof screws and beveled edges.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall be in accordance with the NEC and as shown as on the drawings.
- B. Install wiring devices after wall construction and painting is complete.
- C. The ground terminal of each wiring device shall be bonded to the outlet box with an approved green bonding jumper, and also connected to the branch circuit equipment grounding conductor.
- D. Outlet boxes for toggle switches and manual dimming controls shall be mounted on the strike side of doors.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

- E. Provide barriers in multigang outlet boxes to comply with the NEC.
- F. Coordinate the electrical work with the work of other trades to ensure that wiring device flush outlets are positioned with box openings aligned with the face of the surrounding finish material. Pay special attention to installations in cabinet work, and in connection with laboratory equipment.
- G. Exact field locations of floors, walls, partitions, doors, windows, and equipment may vary from locations shown on the drawings. Prior to locating sleeves, boxes and chases for roughing-in of conduit and equipment, the Contractor shall coordinate exact field location of the above items with other trades.
- H. Install wall switches 1.2 M (48 inches) above floor, with the toggle OFF position down.
- I. Install wall dimmers 1.2 M (48 inches) above floor.
- J. Install receptacles 450 mm (18 inches) above floor, and 152 mm (6 inches) above counter backsplash or workbenches. Install specific-use receptacles at heights shown on the drawings.
- K. Install vertically mounted receptacles with the ground pin up. Install horizontally mounted receptacles with the ground pin to the right.
- L. When required or recommended by the manufacturer, use a torque screwdriver. Tighten unused terminal screws.
- M. Label device plates with a permanent adhesive label listing panel and circuit feeding the wiring device.

3.2 ACCEPTANCE CHECKS AND TESTS

- A. Perform manufacturer's required field checks in accordance with the manufacturer's recommendations. In addition, include the following:
 - 1. Visual Inspection and Tests:
 - a. Inspect physical and electrical condition.
 - b. Vacuum-clean surface metal raceway interior. Clean metal raceway exterior.
 - c. Test wiring devices for damaged conductors, high circuit resistance, poor connections, inadequate fault current path, defective devices, or similar problems using a portable receptacle tester. Correct circuit conditions, remove malfunctioning units and replace with new, and retest as specified above.
 - d. Test GFCI receptacles.

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

2. Healthcare Occupancy Tests:

- a. Test hospital grade receptacles for retention force per NFPA 99.

---END---

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

----- INTENTIONALLY BLANK -----

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

**SECTION 26 51 00
INTERIOR LIGHTING**

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section specifies the furnishing, installation, and connection of the interior lighting systems. The terms "lighting fixture," "fixture," and "luminaire" are used interchangeably.

1.2 RELATED WORK

- A. Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT: Disposal of lamps.
- B. Section 02 41 00, DEMOLITION: Removal and disposal of lamps and ballasts.
- D. Section 13 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS: Requirement for seismic restraint for nonstructural components.
- C. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: Requirements that apply to all sections of Division 26.
- D. Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES: Low-voltage conductors.
- E. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path to ground for possible ground fault currents.
- F. Section 26 27 26, WIRING DEVICES: Wiring devices used for control of the lighting systems.

1.3 QUALITY ASSURANCE

- A. Refer to Paragraph, QUALIFICATIONS (PRODUCTS AND SERVICES), in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS

- A. Submit six copies of the following in accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.
 - 1. Shop Drawings:
 - a. Submit the following information for each type of lighting fixture designated on the LIGHTING FIXTURE SCHEDULE, arranged in order of lighting fixture designation.
 - b. Material and construction details, include information on housing and optics system.
 - c. Physical dimensions and description.

- d. Wiring schematic and connection diagram.
- e. Installation details.
- f. Energy efficiency data.
- g. Photometric data based on laboratory tests complying with IES Lighting Measurements testing and calculation guides.
- h. Lamp data including lumen output (initial and mean), color rendition index (CRI), rated life (hours), and color temperature (degrees Kelvin).
- i. Ballast data including ballast type, starting method, ambient temperature, ballast factor, sound rating, system watts, and total harmonic distortion (THD).
- j. For LED lighting fixtures, submit US DOE LED Lighting Facts label, and IES L70 rated life.

- a. Submit, simultaneously with the shop drawings, complete maintenance and operating manuals, including technical data sheets, wiring diagrams, and information for ordering replacement parts.
- b. If changes have been made to the maintenance and operating manuals originally submitted, submit updated maintenance and operating manuals two weeks prior to the final inspection.

a. Certification by the Contractor that the interior lighting systems have been properly installed and tested.

C78.1-91.....Fluorescent Lamps - Rapid-Start Types -
Dimensional and Electrical Characteristics
C78.376-01.....Chromaticity of Fluorescent Lamps

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

- C. American Society for Testing and Materials (ASTM):
C635-07.....Manufacture, Performance, and Testing of Metal
Suspension Systems for Acoustical Tile and Lay-
in Panel Ceilings
- D. Environmental Protection Agency (EPA):
40 CFR 261.....Identification and Listing of Hazardous Waste
- E. Federal Communications Commission (FCC):
CFR Title 47, Part 15...Radio Frequency Devices
CFR Title 47, Part 18...Industrial, Scientific, and Medical Equipment
- F. Illuminating Engineering Society (IES):
LM-79-08.....Electrical and Photometric Measurements of
Solid-State Lighting Products
LM-80-08.....Measuring Lumen Maintenance of LED Light
Sources
LM-82-12.....Characterization of LED Light Engines and LED
Lamps for Electrical and Photometric Properties
as a Function of Temperature
- G. Institute of Electrical and Electronic Engineers (IEEE):
C62.41-91.....Surge Voltages in Low Voltage AC Power Circuits
- H. International Code Council (ICC):
IBC-12.....International Building Code
- I. National Fire Protection Association (NFPA):
70-11.....National Electrical Code (NEC)
101-12.....Life Safety Code
- J. National Electrical Manufacturer's Association (NEMA):
C82.1-04.....Lamp Ballasts - Line Frequency Fluorescent Lamp
Ballasts
C82.2-02.....Method of Measurement of Fluorescent Lamp
Ballasts
C82.4-02.....Lamp Ballasts - Ballasts for High-Intensity
Discharge and Low-Pressure Sodium (LPS) Lamps
(Multiple-Supply Type)
C82.11-11.....Lamp Ballasts - High Frequency Fluorescent Lamp
Ballasts
LL-9-09.....Dimming of T8 Fluorescent Lighting Systems
SSL-1-10.....Electronic Drivers for LED Devices, Arrays, or
Systems

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

K. Underwriters Laboratories, Inc. (UL):

496-08.....Lampholders
542-0599.....Fluorescent Lamp Starters
844-12.....Luminaires for Use in Hazardous (Classified)
Locations
924-12.....Emergency Lighting and Power Equipment
935-01.....Fluorescent-Lamp Ballasts
1029-94.....High-Intensity-Discharge Lamp Ballasts
1029A-06.....Ignitors and Related Auxiliaries for HID Lamp
Ballasts
1598-08.....Luminaires
1574-04.....Track Lighting Systems
2108-04.....Low-Voltage Lighting Systems
8750-09.....Light Emitting Diode (LED) Light Sources for
Use in Lighting Products

PART 2 - PRODUCTS

2.1 LIGHTING FIXTURES

- A. Shall be in accordance with NFPA, UL, as shown on drawings, and as specified.
- B. Sheet Metal:
 - 1. Shall be formed to prevent warping and sagging. Housing, trim and lens frame shall be true, straight (unless intentionally curved), and parallel to each other as designed.
 - 2. Wireways and fittings shall be free of burrs and sharp edges, and shall accommodate internal and branch circuit wiring without damage to the wiring.
 - 3. When installed, any exposed fixture housing surface, trim frame, door frame, and lens frame shall be free of light leaks.
 - 4. Hinged door frames shall operate smoothly without binding. Latches shall function easily by finger action without the use of tools.
- C. Ballasts and lamps shall be serviceable while the fixture is in its normally installed position. Ballasts shall not be mounted to removable reflectors or wireway covers unless so specified.
- E. Recessed fixtures mounted in an insulated ceiling shall be listed for use in insulated ceilings.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

- F. Mechanical Safety: Lighting fixture closures (lens doors, trim frame, hinged housings, etc.) shall be retained in a secure manner by captive screws, chains, aircraft cable, captive hinges, or fasteners such that they cannot be accidentally dislodged during normal operation or routine maintenance.
- G. Metal Finishes:
1. The manufacturer shall apply standard finish (unless otherwise specified) over a corrosion-resistant primer, after cleaning to free the metal surfaces of rust, grease, dirt and other deposits. Edges of pre-finished sheet metal exposed during forming, stamping or shearing processes shall be finished in a similar corrosion resistant manner to match the adjacent surface(s). Fixture finish shall be free of stains or evidence of rusting, blistering, or flaking, and shall be applied after fabrication.
 2. Interior light reflecting finishes shall be white with not less than 85 percent reflectances, except where otherwise shown on the drawing.
 3. Exterior finishes shall be as shown on the drawings.
- H. Lighting fixtures shall have a specific means for grounding metallic wireways and housings to an equipment grounding conductor.
- I. Light Transmitting Components for LED Fixtures:
1. Shall be 100 percent virgin acrylic.
 2. Flat lens panels shall have not less than 3 mm (1/8 inch) of average thickness.
 3. Unless otherwise specified, lenses, reflectors, diffusers, and louvers shall be retained firmly in a metal frame by clips or clamping ring in such a manner as to allow expansion and contraction without distortion or cracking.
- J. Lighting fixtures in hazardous areas shall be suitable for installation in Class and Division areas as defined in NFPA 70.
- K. LED fixtures shall be manufactured specifically for LED lamps with driver integral to the fixture. Assemblies designed to retrofit incandescent fixtures are prohibited except when specifically indicated for renovation of existing fixtures.

2.2 LED LIGHT FIXTURES

- A. General:

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

1. LED light fixtures shall be in accordance with IES, NFPA, UL, as shown on the drawings, and as specified.
 2. LED light fixtures shall be Reduction of Hazardous Substances (RoHS)-compliant.
 3. LED drivers shall include the following features unless otherwise indicated:
 - a. Minimum efficiency: 85% at full load.
 - b. Minimum Operating Ambient Temperature: -20° C. (-4° F.)
 - c. Input Voltage: 120 - 277V (±10%) at 60 Hz.
 - d. Integral short circuit, open circuit, and overload protection.
 - e. Power Factor: ≥ 0.95 .
 - f. Total Harmonic Distortion: $\leq 20\%$.
 - g. Comply with FCC 47 CFR Part 15.
 4. LED modules shall include the following features unless otherwise indicated:
 - a. Comply with IES LM-79 and LM-80 requirements.
 - b. Minimum CRI 80 and color temperature 3000° K unless otherwise specified in LIGHTING FIXTURE SCHEDULE.
 - c. Minimum Rated Life: 50,000 hours per IES L70.
 - d. Light output lumens as indicated in the LIGHTING FIXTURE SCHEDULE.
 5. Correlated Color Temperature (CCT): 3500K.
 6. Color Rendering Index (CRI): ≥ 80 .
 7. The manufacturer shall have performed JEDEC (Joint Electron Devices Engineering Council) reliability tests on the LEDs as follows: High Temperature Operating Life (HTOL), Room Temperature Operating Life (RTOL), Low Temperature Operating Life (LTOL), Powered Temperature Cycle (PTMCL), Non-Operating Thermal Shock (TMSK), Mechanical Shock Variable Vibration Frequency, and Solder Heat Resistance (SHR).
 8. Dimmable to 50% lighting output.
 9. LED light fixtures shall be fully compatible with LED dimming driver and lighting controls and be approved by the driver manufacturer, shall operate over full specified dimming range, and shall not degrade the performance or rated life of the electronic dimming ballast and lamp.
- B. LED Downlights:

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

1. Housing, LED driver, and LED module shall be products of the same manufacturer.

C. LED Troffers:

1. LED drivers, modules, and reflector shall be accessible, serviceable, and replaceable from below the ceiling.
2. Housing, LED driver, and LED module shall be products of the same manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall be in accordance with the NEC, manufacturer's instructions, and as shown on the drawings or specified.
- B. Align, mount, and level the lighting fixtures uniformly.
- C. Wall-mounted fixtures shall be attached to the studs in the walls, or to a 20 gauge metal backing plate that is attached to the studs in the walls. Lighting fixtures shall not be attached directly to gypsum board.
- D. Lighting Fixture Supports:
 1. Shall provide support for all of the fixtures. Supports may be anchored to channels of the ceiling construction, to the structural slab or to structural members within a partition, or above a suspended ceiling.
 2. Shall maintain the fixture positions after cleaning and relamping.
 3. Shall support the lighting fixtures without causing the ceiling or partition to deflect.
4. Hardware for recessed lighting fixtures:
 - a. All fixture mounting devices connecting fixtures to the ceiling system or building structure shall have a capacity for a horizontal force of 100 percent of the fixture weight and a vertical force of 400 percent of the fixture weight.
 - b. Mounting devices shall clamp the fixture to the ceiling system structure (main grid runners or fixture framing cross runners) at four points in such a manner as to resist spreading of these supporting members. Each support point device shall utilize a screw or approved hardware to "lock" the fixture housing to the ceiling system, restraining the fixture from movement in any

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

direction relative to the ceiling. The screw (size No. 10 minimum) or approved hardware shall pass through the ceiling member (T-bar, channel or spline), or it may extend over the inside of the flange of the channel (or spline) that faces away from the fixture, in a manner that prevents any fixture movement.

- c. In addition to the above, the following is required for fixtures exceeding 9 kg (20 pounds) in weight.
 - 1) Where fixtures mounted in ASTM Standard C635 "Intermediate Duty" and "Heavy Duty" ceilings and weigh between 9 kg and 25 kg (20 pounds and 56 pounds), provide two 12 gauge safety hangers hung slack between diagonal corners of the fixture and the building structure.
 - 2) Where fixtures weigh over 25 kg (56 pounds), they shall be independently supported from the building structure by approved hangers. Two-way angular bracing of hangers shall be provided to prevent lateral motion.
 - d. Where ceiling cross runners are installed for support of lighting fixtures, they must have a carrying capacity equal to that of the main ceiling runners and be rigidly secured to the main runners.
5. Surface mounted lighting fixtures:
- a. Fixtures shall be bolted against the ceiling independent of the outlet box at four points spaced near the corners of each unit. The bolts (or stud-clips) shall be minimum 6 mm (1/4 inch) bolt, secured to main ceiling runners and/or secured to cross runners. Non-turning studs may be attached to the main ceiling runners and cross runners with special non-friction clip devices designed for the purpose, provided they bolt through the runner, or are also secured to the building structure by 12 gauge safety hangers. Studs or bolts securing fixtures weighing in excess of 25 kg (56 pounds) shall be supported directly from the building structure.
 - b. Where ceiling cross runners are installed for support of lighting fixtures, they must have a carrying capacity equal to that of the main ceiling runners and be rigidly secured to the main runners.
 - c. Fixtures less than 6.8 kg (15 pounds) in weight and occupying less than 3715 sq cm (two square feet) of ceiling area may, when designed for the purpose, be supported directly from the outlet box when all the following conditions are met.

**George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106**

- 1) Screws attaching the fixture to the outlet box pass through round holes (not key-hole slots) in the fixture body.
- 2) The outlet box is attached to a main ceiling runner (or cross runner) with approved hardware.
- 3) The outlet box is supported vertically from the building structure.
- d. Fixtures mounted in open construction shall be secured directly to the building structure with approved bolting and clamping devices.
6. Outlet boxes for support of lighting fixtures (where permitted) shall be secured directly to the building structure with approved devices or supported vertically in a hung ceiling from the building structure with a nine gauge wire hanger, and be secured by an approved device to a main ceiling runner or cross runner to prevent any horizontal movement relative to the ceiling.
- E. Furnish and install the new lamps as specified for all lighting fixtures installed under this project, and for all existing lighting fixtures reused under this project.
- F. The electrical and ceiling trades shall coordinate to ascertain that approved lighting fixtures are furnished in the proper sizes and installed with the proper devices (hangers, clips, trim frames, flanges, etc.), to match the ceiling system being installed.
- G. Bond lighting fixtures to the grounding system as specified in Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS.
- H. At completion of project, replace all defective components of the lighting fixtures at no cost to the Government.
- I. Dispose of lamps per requirements of Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT, and Section 02 41 00, DEMOLITION.

3.2 ACCEPTANCE CHECKS AND TESTS

- A. Perform the following:
 1. Visual Inspection:
 - a. Verify proper operation by operating the lighting controls.
 - b. Visually inspect for damage to fixtures, lenses, reflectors, diffusers, and louvers. Clean fixtures, lenses, reflectors, diffusers, and louvers that have accumulated dust, dirt, or fingerprints during construction.
 2. Electrical tests:

George E Wahlen VA Medical Center
Lighting Renovation
Project No. # 660-14-106

- a. Exercise dimming components of the lighting fixtures over full range of dimming capability by operating the control devices(s) in the presence of the Contracting Officer Representative (COR). Observe for visually detectable flicker over full dimming range, and replace defective components at no cost to the Government.
- b. Burn-in all lamps that require specific aging period to operate properly, prior to occupancy by Government. Burn-in period to be 40 hours minimum, unless specifically recommended otherwise by the lamp manufacturer. Burn-in dimmed fluorescent and compact fluorescent lamps for at least 100 hours at full voltage, unless specifically recommended otherwise by the lamp manufacturer. Replace any lamps and ballasts which fail during burn-in.

3.3 FOLLOW-UP VERIFICATION

- A. Upon completion of acceptance checks and tests, the Contractor shall show by demonstration in service that the lighting systems are in good operating condition and properly performing the intended function.

---END---

VA-Lighting Renovation-Salt Lake City																						
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED							REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Existing Conditions Comments	
Building 14: Basement																						
BA02-14	MECHANICAL ROOM	1	Y	1	DT/S	1	N	4' Strip, 2-tube	5					D2	5					NONE		
BA03-14	OFFICE (136,15-WRKSTNS)	1	Y	1	DT/C	3	Y	2x4, 2-tube, Prismatic	17					B2	17					2X2		
BA03A-14	OFFICE (136,SUPERVISOR)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
BA03B-14	OFFICE (136,SUPERVISOR)	1	Y	1	DT/S	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
BA04-14	ENTRY (MORGUE STAFF)	1	N		NONE		NA	2x4, 2-tube, Prismatic	2					B2	2					2X2		
BA04A-14	TOILET/SHOWER (WOMEN)	1	N		DT/C	2	N	4' WM Strip 2-tube	1					C2	1					2X2		
BA04B-14	HAC	1	N		DT/S	1	N	4' Surface 2-tube	1					D2	1					2X2		
BA04C-14	TOILET/SHOWER (MEN)	1	N		DT/S	1	N	4' WM Strip 2-tube	1					C2	1					2X2		
BA04E-14	OFFICE ()	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
BA04F-14	OFFICE ()	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
BA05-14	TELEPHONE/DATA	1	N		DT/C	2	N	4' Strip, 1-tube	1					D1	1					None		
BA06-14	ELECTRICAL	1	N		NONE		NA	4' Strip, 1-tube	1					D1	1					NONE		
BA08-14	MECHANICAL ROOM	1	N		NONE		NA	4' Strip, 2-tube	10					D2	10					NONE		
BA11-14	OFFICE (142,ISO)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2	3					2x2		
BB02-14	MECHANICAL ROOM		N		NONE		NA	4' Strip, 2-tube	25					D2	25					None		
BB03-14	MAILROOM (142)	3	N		DT/C	2	Y	2x4, 2-tube, Prismatic	7					B2	7					2X2		
BB03A-14	OFFICE (142)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
BB03B-14	STORAGE (142)	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	2					B2	2					2X2		
BB03C-14	OFFICE (142)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
BB03D-14	OFFICE (142,4-WRKSTNS)	1	N		DT/C	2	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
BB04-14	STORAGE (04)	2	Y	3	DT/C	7	N	4' Strip, 2-tube	78	2x4, 2-tube, Prismatic	3			G	78	B2	3			2x2		
BB04A-14	STORAGE, GENERAL	1	N		DT/C	1	N	4' Strip, 2-tube	20					G	20					2X2		
BB05-14	MECHANICAL ROOM	1	N		NONE		NA	4' Strip, 2-tube	25					D2	25					NONE		
BB07-14	TOILET (WOMEN)	1	Y	1	DT/C	3	N	4' Strip, 2-tube	5					C2	5					2X2		
BB08-14	HAC	1	N		DT/S	1	N		1					A1S	1					Hard		
BB09-14	TOILET (MEN)	1	Y	1	DT/C	3	N	4' Strip, 2-tube	5					C2	5					2X2		
BB10-14	OFFICE (136,PRIVACY OFFICER)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
BB11-14	OFFICE (2-WRKSTNS,136)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2	4					2x2		
BB11.02-14	WRKSTN #02 (136,VENDOR)	0	Y	3	DT/C	3	Y	4' Strip, 2-tube	9	2x4, 2-tube, Prismatic	8			G	9	B2	8			2X2		
BB11A-14	OFFICE (136,FILES SUPERVISOR)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2		
BB11B-14	OFFICE (PATIENT RECORDS)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	6					B2	6					2X2		
BB12-14	WAITING (CLOTHING RM)	0	Y	3	DT/C	3	N	4' Strip, 2-tube	24	2x4, 2-tube, Prismatic	1	2x2, 2-Utube, Prismatic	2	G	24	B2	1	A2	1	2X2		
BB12C-14	STORAGE (PATIENT EFFECTS)	1	N		NONE		NA	2x2, 2-Utube, Prismatic	2					A2	2					2X2		
BB13-14	SHOP (LOCKS/KEYS)	1	N		DT/C	1	Y	4' Strip, 2-tube	6					G	6					2X2		
BB14-14	MECHANICAL RM (138,WRKSTN #01)	1	N		NONE		NA	4' Strip, 2-tube	6					D2	6					NONE		
BB15-14	MECHANICAL ROOM	0	N		NONE		NA	4' Strip, 2-tube	11					D2	11					NONE		
BC00A-14	LOBBY (ELEVATOR)	0	N		NONE		NA	2X4, 1-TUBE, PRISMATIC	1					B1	1					2X4		
BC00F-14	LOBBY (ELEVATORS)		N		NONE		NA	2X4, 1-TUBE, PRISMATIC	4					B1	4					2x4		
BC01-14	EXTRASTITIAL (MECH/ELECT)	0	N		NONE		NA	2X4, 1-TUBE, PRISMATIC	7					B1	7					2X4		
BC02-14	TRASH COLLECTION	1	Y	1	DT/S	1	N	4' Strip, 2-tube	2					D2	2					None		
BC03-14	MECHANICAL ROOM	1	Y	1	DT/C	1	N	4' Strip, 2-tube	9					D2	9					NONE		
BC04-14	LINEN ROOM, SOILED	1	N		DT/S	1	N	4' Strip, 2-tube	2					D2	2					None		
BC05-14	STORAGE, GENERAL	1	N		NONE		NA	4' Strip, 2-tube	1					D2	1					NONE		
BC06-14	STORAGE (PHARMACY)	2	N		DT/C	1	N	2X4. 3-tube Prismatic	3					B3	3					2x4		
BC07-14	TELEPHONE/DATA	1	N		DT/C	1	N	4' Strip, 2-tube	4					D2	4					None		
BC08-14	ELECTRICAL	2	N		NONE		NA	4' Strip, 2-tube	13					D2	13					NONE	3 WAY SWITCH	
BC08A-14	ELECTRICAL	2	N		NONE		NA	4' Strip, 2-tube	6					D2	6					NONE	4 WAY SWITCH	
BC08B-14	ELECTRICAL	2	N		NONE		NA	4' Strip, 2-tube	6					D2	6					NONE	3 WAY SWITCH	
BC09-14	STORAGE (138E)	1	Y	1	DT/S	1	N	4' Strip, 2-tube	15					D2	15					NONE		
BC10-14	TOILET (UNISEX)	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1					2X4		
BD00-14	VESTIBULE (DELI/B.14)	1	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	6					B2	6					2X2		
BD01-14	CON(PATIENT EDUCATION CTR,PH1)	4	N		DT/C	1	Y	2x2, 2-Utube, Prismatic	13	6" CFL CANS	6			A2	13	E	6			2X2		
BD01A-14	CON(PATIENT EDUCATION CTR,PH1)	2	Y	2	DT/C	2	Y	2x4, 2-tube, Prismatic	15	6" CFL CANS	6			B2	15	E	6			2X2		
BD02-14	MECHANICAL ROOM	2	N		DT/S	2	N	4' Strip, 2-tube	4					D2	4					None		
BD03A-14	ELECTRICAL	1	Y	1	NONE		NA	4' Strip, 2-tube	2					D2	2					None		
BD03B-14	TEL/DATA	1	N	1	DT/S	1	N	4' Strip, 2-tube	1					D2	1					None		
BD03C-14	TEL/DATA EMPTY	1	Y	1	DT/S	1	N	4' Strip, 2-tube	1					D2	1					None		
	CORRIDOR B-1		N		NONE		NA	2x4, 2-tube, Prismatic	6					B2	6					2x4		
	CORRIDOR B-2		N		NONE		NA	2x4, 2-tube, Prismatic	9					B2	9					2x4		
	CORRIDOR B-3		N		NONE		NA	2X4, 1-TUBE, PRISMATIC	8					B2	8					2x4		
	CORRIDOR B-4		N		NONE		NA	2X4, 1-TUBE, PRISMATIC	2					B2	2					2x4		

VA-Lighting Renovation-Salt Lake City																					
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED							REPLACEMENT FIXTURES						
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Existing Conditions Comments
Building 14: Basement																					
	CORRIDOR B-5		N		NONE		NA	2X4, 1-TUBE, PRISMATIC	2					B2	2					2x4	
	CORRIDOR B-AA		N		NONE		NA	2x4, 2-tube, Prismatic	4					B2	4					2x4	
	CORRIDOR B-BB		N		NONE		NA	2X4, 1-TUBE, PRISMATIC	6					B2	6					2x4	
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																					
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																					
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																					
TYPICAL COVER PLATE IN ALMOND COLOR.																					

VA-Lighting Renovation-Salt Lake City																					
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Comments
Building: 14 Floor: GROUND																					
GA00A-14	LOBBY (MAIN ENTRANCE)	1	N		NONE		NA	2x4, 2-tube, Prismatic	3	2x2, 2-Utube, Prismatic	2			B2	3	A2	2			2X4	
GA00AA-14	VESTIBULE (MAIN ENTRANCE)		N		NONE		NA	2X2, 2-LAMP, PARABOLIC	4					A1	4						
GA00B-14	INFO DESK (MAIN)		N		NONE		NA	6" Incandescent Can	7											HARD	
GA00BB-14	ELECTRICAL	1	Y	1	NONE		NA	2X4, 1-TUBE, PRISMATIC	3					B1	3					Hard	
GA01-14	VENDOR (COFFEEBAR)	1	N		DT/C	1	Y	2x4, 2-tube, parabolic	2	2X2 1-ULAMP	2			B2	2	A1	2			2X4	
GA02-14	WAITING (ECU)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	19	2x2, 2-Utube, Prismatic	3	6" CFL CANS	2	B2	19	A1	3	E	2	2X4	
GA03-14	CONFERENCE (07,INTERVIEW)	0	N		NONE		NA	2x4, 2-tube, Prismatic	1					B2	1					2x2	
GA04-14	RECEPTION/CONTROL (ECU)	1	N		DM	1	Y	2x2, 2-Utube, Prismatic	6					A2	6					2X2	
GA05-14	OFFICE (POLICE)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
GA05A-14	OFFICE (CCTV 07)	2	N		DM	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
GA05B-14	HOLDING (POLICE)	2	N		DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	1	1X4. 2-TUBE, PRISMATIC	1			B1	1	F	1			2x2	
GA05C-14	ARMORY (07)	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	2					B2	2					2x4	
GA06-14	EXAM (WALK-IN)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X4	
GA07-14	ENTRY (TO TOILET)	2	N		DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1	4' WM Strip 2-tube	1	2' STRIP 2-LAMP	1	B1	1	C2	1	C1	1	2X4	
GA08-14	OFFICE (ECU)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X4	
GA09-14	TOILET, FEMALE	1	N	1	DT/C	1	N	4' Strip, 2-tube	1	2' STRIP 2-LAMP	1			C2	1	C1	1			2X4	
GA10-14	OFFICE, CHIEF	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X4	
GA11-14	HAC	1	N		DT/S	1	N	4' Strip, 1-tube	1					D1	1					2x2	
GA12-14	SOILED UTILITY	1	N		DT/C	1	N	4' Strip, 2-tube	1					G	1					2X4	
GA13-14	OFFICE (116,ACT TEAM)	1	N		DT/C	1	Y	4' Strip, 1-tube	1					B1S	1					2x4	
GA14-14	TOILET (UNISEX)	1	Y	1	DT/S	1	N	4' Strip, 2-tube	1					C2	1					2x4	
GA15-14	OFFICE ()	1	N		DT/C	1	Y	4' Strip, 2-tube	1					B2	1					2X4	
GA17-14	OFFICE (ECU)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2X4	
GA18-14	OFFICE (ADMIN)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X4	
GA18A-14	TOILET (UNISEX)	1	Y	1	DT/S	1	N	4' Strip, 2-tube	1					C1	1					HARD	
GA19-14	STORAGE (ECU)	1	N		DT/S	1	N	2X4, 1-TUBE, PRISMATIC	1					B1	1					2X4	
GA20-14	TOILET (WOMEN)	1	N		DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1	2' STRIP 2-LAMP	2			B1	1	C1	2			2X4	
GA21-14	OFFICE (C&P)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2	3					2X4	
GA22-14	TOILET (MEN)	1	N		DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1	2' STRIP 2-LAMP	2			B1	1	C1	2			2X4	
GA23-14	OFFICE (C&P)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2	3					2X4	
GA25-14	OFFICE (VIC EQPMT)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
GA27-14	OFFICE (04P INTERVIEW)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	3					B3	3					2X2	
GA29-14	OFFICE (INTERVIEW)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2S	4					2X2	
GA31-14	OFFICE (INTERVIEW)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2S	4					2X2	
GA33-14	STORAGE (110,+ICE MACHINE)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2					2x2	
GA35-14	BREAKROOM	1	Y	1	DT/C	1	N	2x4, 2-tube, Prismatic	2					B2	2					2X4	
GA37-14	AMBULANCE (FUTURE ECU OFFICES)		N		NONE		NA	2x4, 2-tube, Prismatic	3					B2	3					2x2	
GA37A-14	OFFICE (111)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2					2x2	
GA37B-14	OFFICE (110E)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2					2x2	
GA37C-14	TOILET (110E,STAFF)	1	Y	1	DT/S	1	N		1					G	1					Hard	
GA37D-14	CONFERENCE (110E)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	4					B3	4					2x2	
GA37E-14	OFFICE (110E)	1	Y	1	DT/C	1	N	2X4. 3-tube Prismatic	2					B3	2					2x2	
GA37G-14	ELECTRICAL	1	N		NONE		NA	4' Strip, 2-tube	1					D2	1					None	
GA39-14	STORAGE (EQUIPMENT)	2	N		DT/S	1	N	2x4, 2-tube, Prismatic	4					B2	4					2X4	
GA41A-14	MEDICATION PREP.	1	N		DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	1					B1	1					2X4	
GA49-14	WORKROOM (NURSE)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					HARD	
GA51-14	OFFICE (RESIDENTS)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X4	
GB03-14	TOILET, MALE VISITOR	1	N		DT/C	1	N	2x2, 2-Utube, Prismatic	3	2X4. 3-tube Prismatic	1			A2	3	B3	1			2X2	
GB04-14	WAITING (RED TEAM)	3	N		NONE	NA	Y	2x2, 2-Utube, Prismatic	17	1X4, 1-LAMP, Prismatic	13			A2	17	F1	13			2X2	
GB05-14	TOILET, FEMALE VISITOR	1	N		DT/C	1	N	2x2, 2-Utube, Prismatic	3	2X4. 3-tube Prismatic	1			A2	3	B3	1			2X2	
GB07-14	RECEPTION (RED TEAM)	2	Y	1	DT/C	2	Y	2x2, 2-Utube, parabolic	11	6" CFL CANS	11	2X4, 3-TUBE, PARABOLIC	8	A2	11	E	11	B3	8	2X2	
GB07C-14	STORAGE (COPIER/EQUIPMT)	1	N		DT/C	1	N	2X4. 3-tube Prismatic	3	2x2, 2-Utube, Prismatic	1			B3	3	A2	1			2X2	
GB15-14	TOILET (STAFF)	1	N		DT/S	1	N	4' Surface 2-tube	1					C2	1					2X2	
GB20-14	UTILITY ROOM, SOILED	1	Y	1	DT/S	1	N	2X4, 4-TUBE, PRISMATIC	2					B2	2					2X2	
GB25-14	UTILITY ROOM, CLEAN	1	Y	1	DT/S	1	N	2X4. 3-tube Prismatic	3					B3	3					2X2	
GB28-14	CONFERENCE ROOM	2	N		DT/C	2	Y	2x2, 2-Utube, Prismatic	8					A2	8					2X2	
GB30-14	MEDICATION PREP.	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2	
GB33-14	OFFICE (PHARMACIST)	1	Y	1	DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	1					B1	1					2X4	
GB34-14	TELEPHONE/DATA	1	Y	1	DT/S	1	N	2X4. 3-tube Prismatic	1					B3	1					NONE	
GB35-14	MEDICATIONS	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2X4	
GB36-14	CLOSET (AUX.SYSTEMS)	1	Y	1	DT/S	1	N	2X4. 3-tube Prismatic	1					B3	1					None	
GB38-14	OFFICE (6-WORKSTATIONS)	2	Y	1	DT/C	2	Y	2x2, 2-Utube, Prismatic	5	4' Strip, 2-tube	4	2' STRIP 2-LAMP	2	A2	5	G	2	J	2	2X2	
GB39-14	UTILITY ROOM, SOILED	2	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2					2X2	
GB40-14	WAITING	1	N		NONE		NA	2x4, 2-tube, Prismatic	1					B2	1					2X4	
GB41-14	CONFERENCE ROOM	2	N		DT/C	2	Y	2x4, 2-tube, Prismatic	5					B2	5					2X2	3-WAY SWITCHES
GB42-14	STORAGE (SOUND SYSTEM)	1	N		DT/S	1	N	2X4, 1-TUBE, PRISMATIC	1					B1	1					2X4	

VA-Lighting Renovation-Salt Lake City																						
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES								
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Comments	
Building: 14 Floor: GROUND																						
GB43-14	CONFERENCE ROOM	2	N		DT/C	2	Y	2x4, 2-tube, Prismatic	3					B2	3					2X2	3-WAY SWITCHES	
GB44-14	TOILET (UNISEX)	1	Y	1	DT/S	1	N	4' Strip, 1-tube	1	2' Strip 1 lamp	1			C1	1	C2	1			HARD		
GB45-14	HAC	1	N		DT/S	1		4' Strip, 1-tube	1					D1	1					2x4		
GB46-14	OFFICE (NURSE)	1	Y	1	DT/C	1		2X4. 3-tube Prismatic	3					B3S	3					2X4		
GB47A-14	TOILET (VISITOR/STAFF)	1	N		DT/S	1		4' Strip, 1-tube	1					G	1					2X4		
GB51-14	OFFICES (111,20-WRKSTNS)	6	Y	1	DT/C	4		2x4, 2-tube, Prismatic	15					B2	15					2X4	4-WAY SWITCHES	
GB51A-14	TEL/DATA	1	N		DT/S	1		4' Surface 2-tube	1					D2	1					2x4		
GB53-14	OFFICE (118,OEf-OIF)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	2					B2	2					2X4		
GB53A-14	STORAGE, EQUIPMENT	1	Y	1	DT/S	1		2x4, 2-tube, Prismatic	2					B2	2					2X4		
GB55-14	OFFICE (120,1-WRKSTN)	1	Y	1	DT/C	1		2x4, 2-tube, Prismatic	2					B2	2					2X4		
GB59-14	OFFICES/CONFERENCE (STAFF)	2	N		DT/C	2		2x4, 2-tube, Prismatic	6					B2S	6					2X4		
GB59A-14	STORAGE, EQUIPMENT	1	N		DT/S	1		2X4, 1-TUBE, PRISMATIC	1					B1	1					2x4		
GB64-14	TELEPHONE/DATA	1	N		DT/S	1		4' Strip, 1-tube	1					D1	1					None		
GB66-14	ELECTRICAL	1						4' Strip, 1-tube	3					D1	3					NONE		
GB72-14	OFFICE (FOLLOW-UP)	2	N		DT/C	1		2x4, 2-tube, Prismatic	2					B2S	2					2X4		
GB80-14	TOILET (UNISEX)	1	N		DT/S	1		4' Surface 2-tube	1					C2	1					2X4		
GC01-14	WAITING ROOM	4	N		NONE	1	NA	2X4, 1-TUBE, PRISMATIC	3	2x4, 2-tube, Prismatic	8			B1	3	B2	8			2X4	2-3WAY SWITCHES	
GC02-14	OFFICE (111,CHEIF RESIDENTS)	1	Y	1	DT/C	1		2x4, 2-tube, Prismatic	2					B2	2					2X4		
GC03-14	OFFICE (111,TRANSCIENT FTE)	4	N		DT/C	1		2x4, 2-tube, Prismatic	6					B2	6						2-3WAY SWITCHES	
GC04-14	TOILET, MALE	1	N		DT/S	1		4' WM Strip 2-tube	1	2' STRIP 2-LAMP	1			C2	1	C1	1			2X4		
GC05-14	CONFERENCE (07,INTERVIEW)	2	Y	1	DT/S	1		2x4, 2-tube, Prismatic	3					B2S	3					2X4		
GC06-14	TOILET, FEMALE	1	N		DT/S	1		4' WM Strip 2-tube	1	2' STRIP 2-LAMP	1			C2	1	C1	1			2X4		
GC07-14	CONFERENCE (07,INTERVIEW)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	3					B2S	3					2X4		
GC08-14	CONFERENCE (07,INTERVIEW)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	3					B2S	3					2X4		
GC09-14	CONFERENCE (07,INTERVIEW)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	3					B2S	3					2X4		
GC10-14	CONFERENCE (07,INTERVIEW)	1	Y	1	DT/C	1		2x4, 2-tube, Prismatic	2					B2S	2					2X4		
GC14-14	CONFERENCE (07,INTERVIEW)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	3					B2	3					2X4		
GC16-14	CONFERENCE (07,INTERVIEW)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	3					B2	3					2X4		
GC18-14	CONFERENCE (07,INTERVIEW)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	3					B2	3					2X4		
GC19-14	OFFICE (111,PHYSICIANS)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	3					B2S	3					2X4		
GC23-14	OFFICE (120,OPC DIETITIAN)	1	N		DT/C	1		2X4, 1-TUBE, PRISMATIC	2					B1	2					2x2		
GC25-14	STORAGE (112,NTE 09/2014)	1	N		DT/S	1		2X4, 1-TUBE, PRISMATIC	1					B1	1					2X4		
GC27-14	COPYROOM (HOPTEL)	1	N		DT/C	1		2X4, 1-TUBE, PRISMATIC	1					B1	1					2X4		
GC29-14	HAC	1	N		DT/S	1		4' Strip, 1-tube	1					D1	1					2x4		
GC30-14	OFFICE (116,CONSULT)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	4					B2	4					2X2		
GC30A-14	OFFICE (116,CONSULT)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	2					B2	2					2X2		
GC30AA-14	OFFICE (116,CONSULT)	2	N		DT/C	1		2x4, 2-tube, Prismatic	3					B2	3					2x2		
GC31-14	LINEN COLLECTION	1	N		DT/S	1		4' Strip, 1-tube	1					D1	1					2x4		
GC32-14	OFFICE (116,CONSULT)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	2					B2	2					2X2		
GC33-14	STORAGE (110)	1	N		DT/S	1		4' Strip, 1-tube	1					D1	1					2x4		
GC34-14	OFFICE (116,CONSULT)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	2					B2	2					2X2		
GC35-14	TOILET, FEMALE	1	Y	1	DT/C	2		2' STRIP 2-LAMP	2					C2	2					2X4		
GC36-14	OFFICE (116,CONSULT)	2	Y	1	DT/C	1		2x4, 2-tube, Prismatic	2					B2	2					2X2		
GC40-14	TOILET, MALE	1	Y	1	DT/C	1		2' STRIP 2-LAMP	2					C2	2					2X4		
	CORRIDOR G-1							2X2, 2-LAMP, PARABOLIC	9	1X4, 1-LAMP, PARABOLIC	16			A1	9	F1	16					
	CORRIDOR G-2							2X4, 1-TUBE, PRISMATIC	7					B2	7							
	CORRIDOR G-3							2x4, 2-tube, Prismatic	3	2X2, 2-LAMP, PRISMATIC	2			B2	3	A1	2					
	CORRIDOR G-4							2X4, 1-TUBE, PRISMATIC	2					B2	2							
	CORRIDOR G-5							2x4, 2-tube, Prismatic	3					B2	3							
	CORRIDOR G-6							2x2, 2-Utube, Prismatic	1	2X4, 1-TUBE, PRISMATIC	5			A2	1	B2	5					
	CORRIDOR G-7							2X4, 1-TUBE, PRISMATIC	7					B2	7							
	CORRIDOR G-8							2x2, 2-Utube, Prismatic	2					A2	2							
	CORRIDOR G-9							2X4, 1-TUBE, PRISMATIC	6	2X4. 3-tube Prismatic	1			B2	6	B3	1					
	CORRIDOR G-10							2x2, 2-Utube, Prismatic	8					A2	8							
	CORRIDOR G-11							2x2, 2-Utube, Prismatic	2					A2	2							
	CORRIDOR G-12							2X4. 3-tube Prismatic	5					B3	5							
	CORRIDOR G-13							2x2, 2-Utube, Prismatic	8					A2	8							
	CORRIDOR G-14							2X4, 1-TUBE, PRISMATIC	3					B2	3							
	CORRIDOR G-15							2x4, 2-tube, Prismatic	16					B2	16							
	CORRIDOR G-16							2X2 1-ULAMP	2					A2	2							
	CORRIDOR G-17							6" CFL CANS	8					E	8							
	CORRIDOR G-18							2x4, 2-tube, Prismatic	1	2X4, 1-TUBE, PRISMATIC	6			B2	1	B2	6					
	CORRIDOR G-19							2X4, 1-TUBE, PRISMATIC	2					B2	2							
	CORRIDOR G-20							2X4. 3-tube Prismatic	18					B3	18							
	CORRIDOR G-21							2X4, 1-TUBE, PRISMATIC	5					B2	5							

VA-Lighting Renovation-Salt Lake City																					
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Comments
Building: 14 Floor: GROUND																					
	CORRIDOR G-22							2x4, 2-tube, Prismatic	10	2X4, 1-TUBE, PRISMATIC	1			B2	10	B2	1				
	CORRIDOR G-23							2X4, 1-TUBE, PRISMATIC	3					B2	3						
	CORRIDOR G-24							2x4, 2-tube, Prismatic	2					B2	2						
	CORRIDOR G-25							2X4, 1-TUBE, PRISMATIC	4					B2	4						
	CORRIDOR G-26							2X4, 1-TUBE, PRISMATIC	5					B2	5						
	STIARCASE AA							4' WM Strip 2-tube	6	4' Surface 2-tube	5			C2	6	G	5				
	STAIRCASE BB							4' WM Strip 2-tube	6	4' Surface 2-tube	5			C2	6	G	5				
	STAIRCASE AB							4' WM Strip 2-tube	4	4' Surface 2-tube	2	2X4, 3-TUBE, PARABOLIC	4	C2	4	G	2	B3S	4		
	STAIRCASE BA							4' WM Strip 2-tube	4	4' Surface 2-tube	2	2X4, 3-TUBE, PARABOLIC	4	C2	4	G	2	B3S	4		
	CORRIDOR G-AA							2X4, 1-TUBE, PRISMATIC	7					B2	7						
	CORRIDOR G-BB							2X4, 1-TUBE, PRISMATIC	9					B2	9						
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																					
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																					
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																					
TYPICAL COVER PLATE IN ALMOND COLOR.																					

VA-Lighting Renovation-Salt Lake City																					
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Comments
Building: 14 Floor: 1																					
1A01-14	CONFERENCE ()	2	Y	1	DT/C	1	Y	4' Strip, 2-tube	2					G	2					2x4	
1A02-14	WAITING (111,HOLISTIC MED)	2	N		DT/C	2	N	2x4, 2-tube, Prismatic	10					B2	10					2x2	
1A02A-14	OFFICE (111,1-WRKSTN)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
1A02B-14	OFFICE (111)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
1A02C-14	OFFICE (111,2-APRNS)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
1A02D-14	OFFICE (111,CHIEF)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
1A03-14	OFFICE ()	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4	
1A04-14	ENTRY (TO LOCKERS)		N		NONE		NA	2X2, 2-LAMP, PRISMATIC	1					A1	1					2x4	
1A04A-14	PREP (AUTOPSY)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4	
1A04B-14	ENTRY (MEN LOCKERS)	1	N	1	DT/C	1	N	100W Incandescent	1					A1S	1					2x4	
1A04BA-14	LOCKERS/SHOWER	1	N	1	DT/C	1	N	4' Strip, 2-tube	2	100W Incandescent	1	2' STRIP 2-LAMP	1	C2	2	A1S	1	C1	1	2x4	
1A04C-14	ENTRY (WOMEN LOCKERS)	1	N	1	DT/C	1	N	100W Incandescent	1					A1S	1					2x4	
1A04CA-14	LOCKERS/SHOWER	1	N	1	DT/C	1	N	4' Strip, 2-tube	2	100W Incandescent	1	2' STRIP 2-LAMP	1	C2	2	A1S	1	C1	1	2x4	
1A05-14	OFFICE ()	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	6					B2S	6					2x4	
1A06-14	ENTRY (TO AUTOPSY)		N		NONE		NA	2X4, 1-TUBE, PRISMATIC	1					B1	1					2x4	
1A06A-14	LAB (113,CYSTOLOGY)	1	N		NONE		NA	2x4, 2-tube, Prismatic	8					B2	8					Hard	
1A06AA-14	OFFICE (113)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	1	2x2, 2-Utube, parabolic	2			B2	1	A2	2			Hard	
1A06B-14	LAB (DEMONSTRATION)	2	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	5					B2S	5					Hard	
1A06D-14	STORAGE ()	1	N	1	DT/S	1	N	100W Incandescent	1					A1S	1					2x4	
1A07-14	OFFICE, CHIEF	2	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	6					B2S	6					2x4	
1A08-14	ENTRY (TOILET)	1	N	1	DT/C	1	N		1					A1S	1					2x4	
1A08A-14	TOILET (WOMEN)	2	N	1	DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1	2' STRIP 2-LAMP	2			B1	1	C1	2			2x4	
1A09-14	OFFICE ()	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
1A10-14	WATER MASSAGE	1	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
1A11-14	OFFICE ()	2	N	1	DT/C	3	Y	2x4, 2-tube, Prismatic	5					B2S	5					2x4	
1A12-14	OFFICE (123,CONSULTATION)	1	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4	
1A12A-14	OFFICE (111,PSA)	1	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
1A13-14	OFFICE, PHYSICIAN	2	Y	1	DT/C	1	Y	4' Strip, 2-tube	2					B2S	2					2x4	
1A15-14	OFFICE, PHYSICIAN	2	Y	1	DT/C	1	Y	4' Strip, 2-tube	2					B2S	2					2x4	
1A17-14	OFFICE ()	1	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	5					B2S	5					2x4	
1A19-14	OFFICE (001,RESIDENTS)	2	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	5					B2	5					2x4	
1A21-14	OFFICE, PHYSICIAN	2	Y	1	DT/C	1	Y	4' Strip, 1-tube	2					B2S	2					2x4	
1A23-14	OFFICE, PHYSICIAN	2	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	6					B2S	6					2x4	
1B01-14	TELEPHONE/DATA	1	N	1	DT/S	1	N	4' Strip, 1-tube	1					D1	1					None	
1B02-14	STORAGE (FILES)	2	N	1	DT/C	1	N	2x4, 2-tube, Prismatic	2					B2S	2					2x4	
1B03-14	ELECTRICAL	1	N		NONE		NA	4' Strip, 1-tube	2					D1	1					None	
1B04-14	LOUNGE	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
1B05-14	OFFICE (HR-LINKS)	2	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2S	2					2x4	
1B06-14	OFFICE ()	2	N	1	DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	2					B1S	2					2x4	
1B07-14	OFFICE ()	2	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2S	2					2x4	
1B08-14	LAB (MICROBIOLOGY)	3	Y	2	DT/C	2	Y	2x4, 2-tube, Prismatic	13					B2S	13					2x4	
1B08A-14	LAB (TRANSFER)	1	Y	1	DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	4					B1S	4					2x4	
1B08C-14	STORAGE ()	1	N	1	DT/S	1	N	4' Strip, 1-tube	1					D1	1					2x4	
1B09-14	OFFICE (CHIEF MED TECH)	2	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2S	2					2x4	
1B11-14	HAC	1	N	1	DT/S	1	N	4' Strip, 1-tube	1					D1	1					2x4	
1B12-14	LAB (HISTOLOGY)	2	Y	1	DT/C	2	Y	2x4, 2-tube, Prismatic	8					B2S	8					2x4	
1B13-14	HAC	1	N	1	DT/S	1	N	4' Strip, 1-tube	1					D1	1					2x4	
1B14-14	TOILET, MALE	1	N	1	DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1	4' Strip, 2-tube	1			B1	1	G	1			2x4	
1B15-14	LAB ()	1	Y	1	DT/C	2	Y	2x4, 2-tube, Prismatic	5	2X4, 1-TUBE, PRISMATIC	6			B2S	5	B1S	6			2x4	
1B16-14	STORAGE (LAB)	2	N	1	DT/C	1	N	2x4, 2-tube, Prismatic	2					B2S	2					2x4	
1B16A-14	STORAGE (LAB)	2	Y	1	DT/C	1	N	2x4, 2-tube, Prismatic	6					B2S	6					2x4	
1B17-14	STORAGE (BLOOD BANK)	3	Y	1	DT/C	2	N	2x4, 2-tube, Prismatic	15					B2	15					2x4	
1B18-14	LAB/OFFICE	1	N		NONE		Y	2x4, 2-tube, Prismatic	8					B2S	8					2x4	
1B18A-14	LAB/OFFICE	3	Y	1	DT/C	3	Y	2x4, 2-tube, Prismatic	5					B2S	5					2x4	
1B20-14	LAB (113)	1	N		NONE		Y	2x4, 2-tube, Prismatic	10					B2S	10					2x4	
1B21-14	BLOOD COLLECTION	1	N		NONE		N	2x4, 2-tube, Prismatic	11					B2	11					2x4	
1B21A-14	TOILET, FEMALE	1	N	1	DT/S	1	N	4' WM Strip 2-tube	1					C2	1					2x4	
1B21B-14	TOILET, MALE	1	N	1	DT/S	1	N	4' WM Strip 2-tube	1					C2	1					2x4	
1B22-14	WASHING (GLASS)	1	Y	1	DT/C	1	N	4' Strip, 2-tube	12					H	12					Hard	
1B24-14	STORAGE ()	1	Y	1	DT/C	3	N	4' Strip, 1-tube	20					D1	1					2x4	
1B24A-14	DUMBWAITER	1	N		NONE		NA	100W Incandescent	1					A1S	1					None	
1B25-14	TELEPHONE/DATA	1	N	1	DT/S	1	N	4' Strip, 1-tube	1					D1	1					None	
1B26-14	ELEVATOR PIT	1	N	1	DT/C	1	N	4' Strip, 1-tube	1					D1	1					None	
1B27-14	ELECTRICAL	1	N		NONE		NA	4' Strip, 1-tube	1					D1	1					None	
1B28-14	LAB (RESEARCH)	2	Y	1	DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	9					B1	9					2x4	
1B29-14	ELECTRICAL	1	N		NONE		NA	4' Strip, 2-tube	1					D2	1					None	

VA-Lighting Renovation-Salt Lake City																							
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES									
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Comments		
Building: 14 Floor: 1																							
1B30-14	LAB ()		N		NONE		NA	2x4, 2-tube, Prismatic	4	2X4, 1-TUBE, PRISMATIC	9			B2	4	B1	9			2x4			
1B31-14	LAB ()	3	N		NONE		NA	2x4, 2-tube, Prismatic	55					B2	55					2x4			
1B31A-14	LAB (IMMUNOLOGY)	2	N		NONE		NA	2x4, 2-tube, Prismatic	5					B2S	5					2x4			
1B31B-14	WAITING (113,PATIENT)	1	N		NONE		NA	2x4, 2-tube, Prismatic	6					B2	6					2x4			
1B33-14	LAB (HISTOLOGY)	3	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	14					B2S	14					2x4			
1B35-14	OFFICE (113)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	4	2X4, 1-TUBE, PRISMATIC	2			B2	4	B1	2			2x4			
1B35A-14	LAB ()	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3	2X4, 1-TUBE, PRISMATIC	1			B2	3	B1	1			2x4			
1C01-14	LAB (151)	3	N	1	DT/C	2	Y	2X4, 1-TUBE, PRISMATIC	6	2x4, 2-tube, Prismatic	4			B1S	6	B2S	4			2x4			
1C02-14	OFFICE (11,COE)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2S	2					2x4			
1C03-14	LAB (151)	2	N	1	DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	7					B1S	7					2x2			
1C05-14	WORKROOM (11,SC-PACT)	3	N	1	DT/C	3	Y	2X4, 1-TUBE, PRISMATIC	11	2x4, 2-tube, Prismatic	4			B1S	11	B2S	4			2x4			
1C06-14	WORKROOM (ELECTRON MICROSCOPE)	1	N	1	DT/C	1	Y		2					A2	2					2x2			
1C07-14	LAB (151)	3	N	1	DT/C	2	Y	2X4, 1-TUBE, PRISMATIC	7	2x4, 2-tube, Prismatic	4			B1S	7	B2S	4			2x4			
1C08-14	DEVELOPING (PHOTO)	1	N	1	DT/C	1	Y		1					A2	1					2x2			
1C09-14	WASHING (GLASS)	2	Y	1	DT/C	1	N	2x4, 2-tube, Prismatic	6					B2S	6					Hard			
1C10-14	LAB (TISSUE CULTURE)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4			
1C11-14	DARK ROOM	2	N	1	DT/C	1	N	4' Strip, 2-tube	1					G	1					Hard			
1C12-14	LAB (WARMROOM)	1	N	1	DT/C	1	N	4' Strip, 2-tube	2					B2S	2					Hard			
1C13-14	COMPUTER ROOM	2	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	6					B2	6					2x4			
1C14-14	ANTE ROOM	1	N	1	DT/S	1	N	4' Strip, 2-tube	1					G	1					2x4			
1C14A-14	LAB (TUSSUE CULTURE)	2	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2S	2					2x4			
1C15-14	ANTE ROOM	1	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2S	1					2x2			
1C15A-14	LAB (TISSUE CULTURE)	1	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	6					B2S	6					2x4			
1C16-14	LAB (151)	1	N	1	DT/C	1	N	4' Strip, 2-tube	2					B2S	2					2x4			
1C17-14	LAB (151)	3	N	1	DT/C	2	Y	2x4, 2-tube, Prismatic	4	2X4, 1-TUBE, PRISMATIC	6			B2S	4	B1S	6			2x4			
1C18-14	COLD ROOM	1	N		NONE		NA	4' Strip, 2-tube	1					H	1					Hard			
1C19-14	LAB (151)	3	N	1	DT/C	3	Y	2X4, 1-TUBE, PRISMATIC	11	2x4, 2-tube, Prismatic	4	2X2, 2-LAMP, PRISMATIC	1	B1S	11	B2S	4	A1S	1	2x4			
1C20-14	OFFICE (11,PSA)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2	4					2x4			
1C20A-14	OFFICE (11,MD)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2S	2					2x4			
1C20B-14	OFFICE (11,INFO SPLST)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2S	2					2x4			
1C20C-14	COPIER/STORAGE (11)	1	N	1	DT/S	1	N	4' Strip, 2-tube	1					G	1					2x4			
1C20D-14	OFFICE (11,ACOS EDU)	1	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2S	2					2x4			
1C21-14	LAB/STORAGE (116)	3	N	1	DT/C	2	N	2x4, 2-tube, Prismatic	8					B2S	8					2x4			
1C22-14	CONFERENCE ROOM (11)	3	N	1	DT/C	1	Y	2x4, 2-tube, Prismatic	6	4' Strip, 2-tube	1			B2	7					2x4			
1C22A-14	OFFICE (11,PSA)	1	Y	2	DT/C	2	N	2x4, 2-tube, Prismatic	2					B2S	2					2x4			
1C22B-14	KITCHEN (11)	1	N	1	DT/S	1	N	100W Incandescent	1					A1S	1					2x4			
1C22C-14	OFFICE (11,6-WRKSTNS)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2	3					2x4			
1C24-14	CHUTE (TRASH)	1	N	1	DT/S	1	N	4' Strip, 1-tube	1					D1	1					2x4			
1C26-14	CHUTE (LINEN)	1	N	1	DT/S	1	N	4' Strip, 1-tube	1					D1	1					2x4			
1C28-14	TOILET, MALE	1	N	1	DT/C	1	N	2' STRIP 2-LAMP	2	2X4, 1-TUBE, PRISMATIC	1			C1	1	B1	1			2x4			
1C30-14	TOILET, FEMALE	1	N	1	DT/C	1	N	2' STRIP 2-LAMP	2	2X4, 1-TUBE, PRISMATIC	1			C1	1	B1	1			2x4			
	CORRIDOR 1-1							2X4, 1-TUBE, PRISMATIC	3					B2	3					2x4			
	CORRIDOR 1-2							2X4, 1-TUBE, PRISMATIC	7					B2	7					2x4			
	CORRIDOR 1-3							2X4, 1-TUBE, PRISMATIC	3	2x4, 2-tube, Prismatic	1			B2	3	B2	1			2x4			
	CORRIDOR 1-4							2X4, 1-TUBE, PRISMATIC	9					B2	9					2x4			
	CORRIDOR 1-5							2X4, 1-TUBE, PRISMATIC	3					B2	3					2x4			
	CORRIDOR 1-6							2X4, 1-TUBE, PRISMATIC	4					B2	4					2x4			
	CORRIDOR 1-7							2X4, 1-TUBE, PRISMATIC	7					B2	7					2x4			
	CORRIDOR 1-8							2X4, 1-TUBE, PRISMATIC	9					B2	9					2x4			
	CORRIDOR 1-9							2X4, 1-TUBE, PRISMATIC	1					B2	1					2x4			
	CORRIDOR 1-10							2X4, 1-TUBE, PRISMATIC	1					B2	1					2x4			
	CORRIDOR 1-11							2X4, 1-TUBE, PRISMATIC	7					B2	7					2x4			
	CORRIDOR 1-12							2X4, 1-TUBE, PRISMATIC	3					B2	3					2x4			
	CORRIDOR 1-13							2X4, 1-TUBE, PRISMATIC	2					B2	2					2x4			
	CORRIDOR 1-14							2X4, 1-TUBE, PRISMATIC	1					B2	1					2x4			
	CORRIDOR 1-15							2X4, 1-TUBE, PRISMATIC	2					B2	2					2x4			
	CORRIDOR 1-AA							2X4, 1-TUBE, PRISMATIC	4					B2	4					2x4			
	CORRIDOR 1-BB							2X4, 1-TUBE, PRISMATIC	9		1			B2	9					2x4			
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																							
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																							
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																							
TYPICAL COVER PLATE IN ALMOND COLOR.																							

VA-Lighting Renovation-Salt Lake City																					
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Comments
Building: 14 Floor: 2																					
2A00D-14	AT MICU BEDS) CORRIDOR	4	N		NONE		NA	2x4, 2-tube, Prismatic	11					B2	11					2x4	
2A01-14	OFFICE ()	3	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2	3					2x4	
2A02-14	OFFICE, HEAD NURSE	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2S	2					2x4	
2A03-14	OFFICE (111,STAFF)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2	3					2x4	
2A04-14	MEDICATION PREP.	2	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	3	4' Wraparound 2-lamp	1			B2S	3	G	1			2x4	
2A05-14	OFFICE (118,1-WRKSTN)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2	3					2x4	
2A06A-14	WORKROOM (NURSE)	1	Y	1	DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1	4' Wraparound 2-lamp	2			B1	1	B2S	2			2x4	
2A06B-14	LINEN ROOM, CLEAN	1	N		DT/S	1	N	2X4, 1-TUBE, PRISMATIC	2					B1	2					2x2	
2A07-14	BREAKROOM (& HR-LINKS)	2	Y	1	DT/C	1	N	2x4, 2-tube, Prismatic	4					B2S	4					2x4	
2A08-14	STORAGE, EQUIPMENT	1	N		DT/S	1	N	2X4, 1-TUBE, PRISMATIC	1					B1	1					2x4	
2A09-14	CONFERENCE ROOM	2	Y	1	DT/C	2	Y	2x4, 2-tube, Prismatic	6					B2S	6					2x4	
2A11-14	OFFICE ()	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2A13-14	OFFICE (111,STAFF)	2	Y	1	DT/C	1	Y	4' Wraparound 2-lamp	14					B2S	14					2x4	
2A15-14	WAITING ()	2	Y	1	DT/C	1	N	2x4, 2-tube, Prismatic	4					B2S	4					2x4	
2A17-14	OFFICE (118,NURSE MGR)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4	
2A19-14	STORAGE ()	1	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	1	4' Strip, 2-tube	2			B2	1	G	2			2x4	
2A37-14	STORAGE, GENERAL	1	N		DT/S	1	N	4' Strip, 1-tube	1					G	1					2x4	
2A39-14	ON-CALL BEDROOM	1	N		DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	1					B1	1					2x4	
2A39A-14	CLOSET	1	N		DT/C	1	N	100W Incandescent	1					A1S	1					2x4	
2A39B-14	TOILET (ON-CALL)	2	N		DT/S	1	N	2' STRIP 2-LAMP	1	6" CFL CANS	1			C1	1					Hard	
2A41-14	TOILET (UNISEX)	1	N		DT/S	1	N	2' STRIP 2-LAMP	1					C1	1					2x4	
2A43		1					NA	100W Incandescent	1					A1S	1					2x4	
2A43A-14	LOCKER ROOM	1	N		DT/C	1	N	2X4, 1-TUBE, PRISMATIC	2					B1	2					2x4	
2A43AA-14	TOILET (UNISEX)	1	N		DT/S	1	N	2' STRIP 2-LAMP	1					C1	1					2x4	
2A45-14	HAC	1	N		DT/S	1	N	4' Strip, 1-tube	1					D1	1					2x4	
2A47-14	TOILET, FEMALE	1	N		DT/S	1	N	2' STRIP 2-LAMP	1					C1	1					2x4	
2B01-14	OFFICE (111)	2	N		DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B02-14	TELEPHONE/DATA	1	N		DT/S	1	N	4' Strip, 1-tube	1					D1	1					None	
2B03-14	OFFICE (ONCOLOGY)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B04-14	ELECTRICAL	1	N		NONE		NA	4' Strip, 1-tube	2					D1	1					None	
2B05-14	OFFICE (111,1-WRKSTN)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B06-14	UTILITY ROOM, SOILED	1	Y	1	DT/C	1	N	4' Wraparound 2-lamp	2					G	2					2x4	
2B07-14	OFFICE (111,2-WRKST)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B08-14	STORAGE (BOTTLED GAS)	1	N		DT/S	1	N	4' Wraparound 2-lamp	2					G	2					Hard	
2B09-14	OFFICE ()	2	N		DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2S	4					2x4	
2B10-14	STORAGE (PULMONARY)	1	N		DT/S	1	N	4' Wraparound 2-lamp	2					G	2					2x4	
2B11-14	TEAMROOM (111,RHEUMATOLOGY)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B12	OFFICE	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B13-14	OFFICE	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B14-14	TRAINING RM (111)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2S	3					2x4	
2B15-14	OFFICE (118,1-WRKSTN)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B16-14	OFFICE (118)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B17-14	OFFICE (111,3-WRKSTNS)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2S	4					2x4	
2B17.01-14	WRKSTN #01 (111)													B2S	3						
2B17.02-14	WRKSTN #02 (111)													B2S	3						
2B17.03-14	WRKSTN #03 (111)													B2S	3						
2B18-14	OFFICE ()	2	N		DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B19-14	OFFICE (111,3-WRKSTNS)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B19.01-14	WRKSTN #01 (111)													B2S	3						
2B19.02-14	WRKSTN #02 (111,MD)													B2S	3						
2B19.03-14	WRKSTN #03 (111)													B2S	3						
2B20-14	OFFICE (CLERICAL)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B21-14	OFFICE (111,STAFF)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B21.01-14	OFFICE (111,WRKSTN #01)													B2S	3						
2B21.02-14	WRKSTN #02 (111)													B2S	3						
2B21.03-14	WRKSTN #03 (111)													B2S	3						
2B22-14	OFFICE (111)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B22.02-14	WRKSTN #02 (111)													B2S	3						
2B23-14	OFFICE (111,3-WRKSTNS)	2	N		DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B23.01-14	WRKSTN #01 (111)													B2S	3						
2B23.02-14	WRKSTN #02 (111)													B2S	3						
2B23.03-14	WRKSTN #03 (111)													B2S	3						
2B24-14	OFFICE ()	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B25-14	OFFICE (2-WRKSTNS,118)	2	N		DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4	
2B25.01-14	WORKSTATION (118)													B2S	3						
2B25.02-14	WORKSTATION (118)													B2S	3						
2B26-14	OFFICE ()	2	Y	3	DT/C	3	Y	2x4, 2-tube, Prismatic	3					B2	3					2x4	

VA-Lighting Renovation-Salt Lake City																						
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED							REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Comments	
Building: 14 Floor: 2																						
2B27-14	STORAGE, EQUIPMENT	1	N		DT/S	1	N	2X4, 1-TUBE, PRISMATIC	2					B1	2					2x4		
2B28-14	OFFICE ()	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4		
2B31	PULMONARY FUNCTION LAB	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	5					B2S	5					2x4		
2B30-14	OFFICE (136,1-WRKSTN)	2	N		DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4		
2B32-14	OFFICE (111,3-WRKSTN)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2	3					2x4		
2B33-14	STORAGE (GAS)	2	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	3					B2S	3					2x4		
2B34-14	OFFICE (136)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4		
2B35-14	WORKRM/BREAKRM (111)	2	Y	2	DT/C	2	N	2X4, 1-TUBE, PRISMATIC	4	2x4, 2-tube, Prismatic	1			B1S	4	B2S	1			2x4		
2B36-14	OFFICE (118)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4		
2B37	PROCEDURE	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2	4					2x4		
2B38-14	TOILET, MALE	1	N		DT/C	2	N	2X4, 1-TUBE, PRISMATIC	1	2' STRIP 2-LAMP	2			B1	1	C1	2			2x4		
2B39-14	CONFERENCE ROOM	1	N		DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	5					B1	5					2x4		
2B40-14	WAREHOUSE (BREAKDOWN)	0	N		DT/C	3	N	2x4, 2-tube, Prismatic	8					B2	8					2x4		
2B41-14	OFFICE (118,SPD,1-WRKSTN)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4		
2B41A-14	OFFICE (118,SPD, 1-WRKSTN)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4		
2B41B-14	OFFICE (118,SPD,2-WRKSTNS)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2S	4					2x4		
2B42-14	WAREHOUSE (SPD)	0	Y	2	DT/C	6	N	2x4, 2-tube, Prismatic	40					B2	40					2x2		
2B42A-14	WAREHOUSE (STERILE)	1	N		DT/C	3	N	2x4, 2-tube, Prismatic	5					B2	5					2x2		
2B42B-14	WORKROOM (STERILE PREP)	1	N		NONE		NA	4' Wraparound 2-lamp	15					H	15					Hard		
2B42C-14	STORAGE, EQUIPMENT	1	N		DT/S	1	N	4' Strip, 1-tube	1					G	1					2x4		
2B43-14	TELEPHONE/DATA	1	N		DT/C	1	N	4' Strip, 1-tube	1					D1	1					None		
2B44-14	BREAKROOM (STAFF)	1	N	2	DT/C	2	N	2X4, 1-TUBE, PRISMATIC	3					B1	3					2x2		
2B45-14	ELECTRICAL	1	N		NONE		NA	4' Strip, 2-tube	1					D2	1					None		
2B46-14	RECEIVING/DECONTAMINATION	1	N		NONE		NA	4' Wraparound 2-lamp	21					H	21					Hard		
2B46B-14	STORAGE (SOAP)	1	Y	1	IT/S	1	N	4' Wraparound 2-lamp	1					H	1					Hard		
2B46D-14	HAC	1	Y	1	DT/S	1	N	4' Strip, 1-tube	1					D1	1					2x4		
2B47-14	STORAGE (112,CRYO TISSUE)																					
2B49-14	ANTE ROOM (MALE TOILET)	1	N		DT/C	1	N	4' Wraparound 2-lamp	1					G	1					2x4		
2B49A-14	TOILET, MALE	1	N		DT/C	1	N	4' Wraparound 2-lamp	1					G	1					2x4		
2B51-14	ANTE ROOM (FEMALE TOILET)	1	N		DT/C	1	N	4' Wraparound 2-lamp	1					G	1					2x4		
2B51A-14	TOILET, FEMALE	1	N		DT/C	1	N	4' Wraparound 2-lamp	1					G	1					2x4		
2C01-14	OFFICE (118)	2	N		DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	2					B1S	2					2x4		
2C03-14	OFFICE ()	2	Y	1	DT/S	1	Y	4' Wraparound 2-lamp	2					B2S	2					2x4		
2C04-14	OFFICE (120,CONSULT)	2	Y	1	DT/S	1	Y	2x4, 2-tube, Prismatic	4					B2S	4					2x4		
2C05-14	OFFICE ()	2	Y	1	DT/S	1	Y	4' Wraparound 2-lamp	2					B2S	2					2x4		
2C06-14	OFFICE, RESIDENT	2	Y	1	DT/S	1	Y	2x4, 2-tube, Prismatic	3					B2S	3					2x4		
2C07-14	OFFICE ()	2	Y	1	DT/S	1	Y	4' Wraparound 2-lamp	2					B2S	2					2x4		
2C08A-14	MECHANICAL RM (138)	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	2					D2	2					2x4		
2C08-14	WORKROOM (138)	1	N		DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	2					B1S	2					2x4		
2C08AA-14	MECHANICAL ROOM	2	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	4					D2	2					2x4		
2C09-14	OFFICE (SOCIAL WRK)	2	Y	1	DT/S	1	Y	4' Wraparound 2-lamp	2					B2S	2					2x4		
2C10-14	UTILITY ROOM, CLEAN	2	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	2					B2S	2					2x4		
2C12-14	OFFICE (MULTI-BED UNIT)	2	N		NONE		Y	4' Wraparound 2-lamp	2					B2S	2					2x4		
2C13-14	CLEAN STORAGE (EQUIPMENT)	1	N		DT/C	1	N	4' Wraparound 2-lamp	2					G	2					2x4		
2C14-14	OFFICE (MULTI-BED UNIT)	2	N		NONE		NA	4' Wraparound 2-lamp	2					B2S	2					2x4		
2C15-14	CLEAN STORAGE (EQUIPMENT)	1	N		NONE		NA	4' Wraparound 2-lamp	2					G	2					2x4		
2C16-14	HAC	1	N		DT/S	1	N	4' Strip, 1-tube	1					D1	1							
2C17-14	UTILITY ROOM, CLEAN	1	N		DT/C	1	N	4' Wraparound 2-lamp	1					G	1					2x4		
2C18-14	LOCKER/TOILET (WOMEN)	4	N		DT/C	3	N	2' STRIP 2-LAMP	1	6" CFL CANS	1	4' Wraparound 2-lamp	1	C1	1			G	1	2x4		
2C18-14	LOCKER/TOILET (WOMEN)							100W Incandescent	1					AS1	1							
2C20-14	LOCKERS/TOILET (MEN)	4	N		DT/C	3	N	2' STRIP 2-LAMP	1	6" CFL CANS	1	4' Wraparound 2-lamp	1	C1	1			G	1	2x4		
2C20-14	LOCKERS/TOILET (MEN)							100W Incandescent	1					AS1	1							
2C22-14	STORAGE, WARD SUPPLIES	2	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2					2x4		
2C24-14	UTILITY ROOM, SOILED	1	N		DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1					B1	1					2x4		
2C26-14	STORAGE (111,SUPPLIES)	1	N		DT/C	1	N	4' Wraparound 2-lamp	1					G	1					2x4		
2C28-14	COMMUNICATION CTR (DIALYSIS)	1	N		NONE		NA	4' Wraparound 2-lamp	5					B2S	5					2x4		
2C28A-14	MEDICATION PREP.	1	N		DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1					B1	1					2x4		
2B29	BLOOD GAS LAB	2	N		DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	8					B1S	8					2x4		
2C30-14	TOILET (PATIENT)	1	N		DT/S	1	N	2X4, 1-TUBE, PRISMATIC	1					B1	1					2x4		
2C30A-14	LOCKERS (PATIENT)	1	N		DT/S	1	N	2X4, 1-TUBE, PRISMATIC	1					B1	1					2x4		
2C32-14	LINEN CHUTE	1	N		DT/S	1	N	4' Strip, 1-tube	1					G	1					2x4		
2C34-14	TRASH CHUTE	1	N		DT/S	1	N	4' Strip, 1-tube	1					G	1					2x4		
2C36-14	HAC	1	N		DT/S	1	N	4' Strip, 1-tube	1					G	1					2x4		
2C38-14	TOILET (MEN)	1	N		DT/S	1	N	4' WM Strip 2-tube	1	2X4, 1-TUBE, PRISMATIC	1			C2	1	B1	1			2x4		
2C40-14	TOILET (WOMEN)	1	N		DT/S	1	N	4' WM Strip 2-tube	1	2X4, 1-TUBE, PRISMATIC	1			C2	1	B1	1			2x4		

VA-Lighting Renovation-Salt Lake City																					
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Comments
Building: 14 Floor: 2																					
	CORRIDOR 2-1							2X4, 1-TUBE, PRISMATIC	2					B2	2					2x4	
	CORRIDOR 2-2							2X4, 1-TUBE, PRISMATIC	9					B2	9					2x4	
	CORRIDOR 2-3							2X4, 1-TUBE, PRISMATIC	1					B2	1					2x4	
	CORRIDOR 2-4							2X4, 1-TUBE, PRISMATIC	7					B2	7					2x4	
	CORRIDOR 2-5							2X4, 1-TUBE, PRISMATIC	2					B2	2					2x4	
	CORRIDOR 2-6							2X4, 1-TUBE, PRISMATIC	9					B2	9					2x4	
	CORRIDOR 2-7							2X4, 1-TUBE, PRISMATIC	9					B2	9					2x4	
	CORRIDOR 2-8							2X4, 1-TUBE, PRISMATIC	3					B2	3					2x4	
	CORRIDOR 2-9							2X4, 1-TUBE, PRISMATIC	1					B2	1					2x4	
	CORRIDOR 2-10							2X4, 1-TUBE, PRISMATIC	9					B2	9					2x4	
	CORRIDOR 2-11							2X4, 1-TUBE, PRISMATIC	3					B2	3					2x4	
	CORRIDOR 2-12							2X4, 1-TUBE, PRISMATIC	3					B2	3					2x4	
	CORRIDOR 2-13							2X4, 1-TUBE, PRISMATIC	2					B2	1					2x4	
	CORRIDOR 2-14							2X4, 1-TUBE, PRISMATIC	2					B2	1					2x4	
	CORRIDOR 2-15							2X4, 1-TUBE, PRISMATIC	7					B2	7					2x4	
	CORRIDOR 2-16							4' Wraparound 2-lamp	6					G	6					2x4	
	CORRIDOR 2-AA							2X4, 1-TUBE, PRISMATIC	4					B2	4					2x4	
	CORRIDOR 2-BB							2X4, 1-TUBE, PRISMATIC	10					B2	10					2x4	
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																					
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																					
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																					
TYPICAL COVER PLATE IN ALMOND COLOR.																					

VA-Lighting Renovation-Salt Lake City																					
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Comments
Building: 14 Floor: 3																					
3A01-14	WAITING ROOM	1	N		NONE		NA	2x4, 2-tube, parabolic	4	6" CFL CANS	4			B2	4	E	4			2x2	
3A02-14	OFFICE (112)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
3A03-14	RECEPTION (112)	1	N		NONE		NA	2x4, 2-tube, parabolic	1	6" CFL CANS	3			B2	1	E	3			2x2	
3A04-14	OFFICE (112)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
3A06-14	OFFICE (112)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4	
3A07-14	TOILET (PATIENT)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1					2x2	
3A10-14	HAC	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1					2x2	
3A12	DISCHARGE INSTRUCTIONS	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1					2x2	
3A14-14	UTILITY ROOM, SOILED	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	1					B2	1					2x2	
3A16-14	TOILET (PATIENT)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2					2x2	
3A21-14	TOILET (UNISEX,STAFF)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1					2x2	
3A22	NURSE STATION	1	N		NONE		NA	2x4, 2-tube, parabolic	6	6" CFL CANS	3			B2	6	E	3			2x2	
3A23-14	BREAKRM	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	2					B2	2					2x2	
3A24-14	UTILITY (CLEAN)	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	2					B2	2					2x4	
3A26-14	CHANGING RM	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	1					B2	1					2x2	
3A28-14	CHANGING RM	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	1					B2	1					2x2	
3A32-14	MEDICATION PREP.	1	N		DT/C	1	N	2X4, 3-tube Prismatic	3					B3	3					2x2	
3A34-14	COMMUNICATION CTR (PRE-OP)	2	N		NONE		NA	2x4, 2-tube, parabolic	4	6" CFL CANS	3			B2	4	E	3			2x2	
3A45-14	ELECTRICAL	1	N		NONE		NA	4' Strip, 2-tube	2					D2	2					None	
3B00DA-14	LOCKER RM WEST-ENTRY (MALE)	1	N		DT/C		N														
3B02-14	TELE-DATA	1	N		DT/S	1	NA	4' Strip, 1-tube	1					D1	1					None	
3B03-14	HAC	1	N		DT/S	1	NA	4' Strip, 2-tube	1					D2	1						
3B04-14	ELECTRICAL	1	N		NONE		NA	4' Strip, 1-tube	2	4' Strip, 2-tube	1			D1	2	D2	1			None	
3B06-14	FAMILY CONFERENCE	1	N		DT/C	1	Y													2x2	
3B08-14	WAITING (FAMILY)	1	N		NONE		NA													2x4	
3B08A-14	TOILET (PUBLIC)	1	N		DT/C	1	NA													2x2	
3B10A-14	LAB (BLOOD)	1	N		DT/C	1	NA													2x2	
3B10B-14	LOCKER RM ENTRY (MALE)	1	N		DT/C	1	NA													2x2	
3B10BA-14	LOCKER RM (MALE)	1	N		DT/C	2	NA													2x2	HARD CLG IN SHOWER 6 CLF CANS
3B10C-14	LOCKER RM ENTRY (FEMALE)	1	N		DT/C	1	NA														SAME AS ABOVE
3B10CA-14	LOCKER RM (FEMALE)	1	N		DT/C	2	NA														SAME AS ABOVE
3B10D-14	STORAGE (ANESTHESIA)	1	N		DT/S	1	NA													Hard	
3B12-14	ELECTRICAL	1	N		NONE		NA													None	
3B22-14	ENTRY (NURSE CENTER)	2	N		DT/C	2	Y													None	
3B22A-14	NURSING STATION	2	N		NONE		NA													2x2	
3B22C-14	OFFICE (NURSE)	1	N		DT/C	1	Y													2x2	
3B22D-14	OFFICE (SCHEDULER)	1	N		DT/C	1	Y													2x2	
3B22E-14	OFFICE (HEAD NURSE)	1	N		DT/C	1	Y													2x2	
3B22F-14	OFFICE (CRNA NURSES)	1	N		DT/C	1	Y													2x2	
3B26-14	LOUNGE (STAFF)	2	N		DT/C	2	N														
3C02-14	STORAGE (112)	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	6					B2	6					2x4	
3C02A-14	STORAGE (112)	1	Y	1	DT/C	1	N	2x4, 2-tube, Prismatic	6					B2	6					2x4	
3C04-14	BREAKRM (112,OR&CRNA)	1	Y	1	DT/C	1	N	2x4, 2-tube, Prismatic	6					B2	6						
3C06-14	HAC	1	N		DT/S	1	N	4' Strip, 1-tube	1					G	1					2x4	
3C08-14	OFFICES (SPINE TEAM,112)	2	Y	2	DT/C	2	Y	2x4, 2-tube, Prismatic	8					B2	8					2x2	
3C08A-14	OFFICE (112A,STAFF)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
3C08B-14	OFFICE ()	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
3C08C-14	OFFICE (112A,PRIVATE)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1					2x2	
3C08D-14	OFFICE (AO,112)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1					2x2	
3C08E-14	OFFICE (PLASTICS)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1					2x2	
3C08F-14	OFFICE (112A)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
3C08G-14	OFFICE (112A)	3	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x2	
3C10-14	OFFICE (MD WORKROOM)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4	SMF
3C12-14	OFFICE, TECHNICIAN	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4	SMF
3C14-14	OFFICE (3-WRKSTNS)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	7					B2	7					2x4	
3C16-14	TRASH COLLECTION	1	N		DT/C	1	N	4' Strip, 1-tube	1					G	1					2x4	
3C18-14	LINEN (SOILED)	1	N		DT/S	1	N	4' Strip, 1-tube	1					G	1					2x4	
3C20-14	OFFICE (STAFF)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4	
3C22-14	OFFICES	1	Y	2	DT/C	2	Y	2x4, 2-tube, Prismatic	9					B2	9					2x4	
3C22A-14	OFFICE (112A)	1	N		DT/C	2	Y	2X4, 1-TUBE, PRISMATIC	2					B1	2					2x4	SMF
3C22B-14	COPY/FAX (112)	1	N		DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1					B1	1					2x4	SMF
3C22C-14	OFFICE (CRNA,112A)	1	N		DT/C	1	Y	2X4, 1-TUBE, PRISMATIC	2					B1	2					2x4	SMF
3C22D-14	OFFICE (MD WORKROOM)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4	SMF

VA-Lighting Renovation-Salt Lake City																				
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES						
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling
Building: 14 Floor: 3																				
3C24-14	OFFICE (112,A)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4
3C26-14	OFFICE (112,A)	2	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	5					B2	5					2x4
3C28-14	OFFICE (112,3-WRKSTN)	1	Y	2	DT/C	2	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4
3C30-14	OFFICE (112A)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2x4
3C32-14	TOILET (MEN)	1	Y	1	DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1	2' STRIP 2-LAMP	2			B1	1	C1	2			2x4
3C34-14	TOILET (WOMEN)	1	Y	1	DT/C	1	N	2X4, 1-TUBE, PRISMATIC	1	2' STRIP 2-LAMP	2			B1	1	C1	2			2x4 SAME AS ABOVE
	CORRIDOR 3-1							2x4, 2-tube, Prismatic	2					B2	2					
	CORRIDOR 3-2							2x4, 2-tube, Prismatic	7					B2	7					
	CORRIDOR 3-3							2x4, 2-tube, Prismatic	2					B2	2					
	CORRIDOR 3-4							2x4, 2-tube, Prismatic	2					B2	2					
	CORRIDOR 3-5							2x4, 2-tube, Prismatic	8					B2	8					
	CORRIDOR 3-6							2x4, 2-tube, Prismatic	6					B2	6					
	CORRIDOR 3-7							2x4, 2-tube, Prismatic	2					B2	2					
	CORRIDOR 3-8							2x4, 2-tube, Prismatic	1					B2	1					
	CORRIDOR 3-9							2x4, 2-tube, Prismatic	8					B2	8					
	CORRIDOR 3-10							2X4, 1-TUBE, PRISMATIC	2					B2	2					
	CORRIDOR 3-11							2X4, 3-TUBE, PARABOLIC	4					B3	4					
	CORRIDOR 3-12							2x2, 2-Utube, Prismatic	2					A2	2					
	CORRIDOR 3-13							2x4, 2-tube, Prismatic	9					B2	9					
	CORRIDOR 3-14							2X4, 1-TUBE, PRISMATIC	10					B2	10					
	CORRIDOR 3-15							2X4, 1-TUBE, PRISMATIC	1	2x2, 2-Utube, Prismatic	2			B2	1	A2	2			
	CORRIDOR 3-AA							2X4, 1-TUBE, PRISMATIC	5					B2	5					
	CORRIDOR 3-BB							2X4, 1-TUBE, PRISMATIC	9					B2	9					
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																				
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																				
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																				
TYPICAL COVER PLATE IN ALMOND COLOR.																				

VA-Lighting Renovation-Salt Lake City																					
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Comments
Building: 14 Floor: 4																					
4AB-14	STAIR (TO ROOF,SW)	0	N		NONE		NA	2X4, 1-TUBE, PRISMATIC	1					B2	1					None	
4B100-14	ELEVATOR P/H EAST SIDE CENTER	1	N	1	DT/C	1	N	4' Strip, 2-tube	2					D2	2					None	
C4D09-14	PENTHOUSE (DUMB WAITER)	1	N		NONE		NA	4' Strip, 2-tube	9					D2	9						
4CB-14	STAIR (TO ROOF,SE)	0	N		NONE		NA	2X4, 1-TUBE, PRISMATIC	1					B2	1					None	
C4D04-14	ELEVATOR P/H SW	1	N	1	DT/C	1	N	4' Strip, 2-tube	2					D2	2					None	
C4D05-14	MECHANICAL P/H SW	1	N		NONE		NA	4' Strip, 2-tube	7					D2	7					None	
C4D06-14	ELEVATOR P/H (DUMB WAITER)	1	N	1	DT/C	1	N	4' Strip, 2-tube	2					D2	2					None	
C4D07-14	ELEVATOR P/H NW	1	N	1	DT/C	1	N	4' Strip, 2-tube	2					D2	2					None	
C4D08-14	MECHANICAL P/H NW	1	N		NONE		NA	4' Strip, 2-tube	9					D2	9					None	
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																					
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																					
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																					
TYPICAL COVER PLATE IN ALMOND COLOR.																					

VA-Lighting Renovation-Salt Lake City																						
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED							REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Existing Conditions Comments	
Building 1: Corridors and Stairways																						
ALCOVE 2A00	ALCOVE	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	3					K	3							
CORR 2D00	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	16					K	16							
CORR 2D01	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	14					K	14							
CORR 2D02	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	7					K	7							
CORR 2A00	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	40					K	40							
CORR 2B30C	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	15	2x4, 2-tube, Prismatic	2			K	15	B2	2					
CORR 2B00	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	50					K	50							
CORR 2C00	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	39					K	39							
CORR 3A00	CORRIDOR	2	-	-	-	-	-	6"X4', 1-tube, Prismatic	43					K	43							
CORR 3A00B	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	17					K	17							
CORR 3D37A	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	2					K	2							
CORR 3D00C	CORRIDOR	1	-	-	-	-	-	6"X4', 1-tube, Prismatic	5					K	5							
CORR 3D00B	CORRIDOR	0	-	-	-	-	-	2x4, 2-tube, Prismatic	8					B2	8							DIMMER ONLY
CORR 3D00A	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	5					K	5							
CORR 3D00	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	56					K	56							
CORR 3C00	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	44					K	44							
CORR 4B00D	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	10					K	10							
CORR 4B00E	CORRIDOR	0	-	-	-	-	-	2x4, 2-tube, Prismatic	3					B2	3							
CORR 4C00	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	45					K	45							
CORR 4B00	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	44					K	44							
CORR 4A00B	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	17					K	17							
CORR 4D00	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	44					K	44							
CORR 4D0F	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	17					K	17							
CORR 4D0E	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	8					K	8							
CORR 4D00	CORRIDOR	0	-	-	-	-	-	6"X4', 1-tube, Prismatic	19	2X2, 2-LAMP, PRISMATIC	2			K	19	A1	2					
														K								
STAIR 5AA	STAIR	0	-	-	-	-	-	1X4. 2-TUBE, PRISMATIC	12	2x4, 2-tube, Prismatic	3			F1	12	B2	3					
STAIR 5BA	STAIR	0	-	-	-	-	-	1X4. 2-TUBE, PRISMATIC	10					F1	10							
STAIR 5CA	STAIR	0	-	-	-	-	-	1X4. 2-TUBE, PRISMATIC	16					F1	16							
STAIR 5EA	STAIR	0	-	-	-	-	-	1X4. 2-TUBE, PRISMATIC	3					F1	3							
STAIR 5BB	STAIR	0	-	-	-	-	-	1X4. 2-TUBE, PRISMATIC	6					F1	6							
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																						
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																						
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																						
TYPICAL COVER PLATE IN ALMOND COLOR.																						

VA-Lighting Renovation-Salt Lake City																							
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED							REPLACEMENT FIXTURES								
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Existing Conditions Comments		
Building: 1 Floor: 2																							
2A08-1	INFUSION ROOM	2	N		DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2	4					2X4			
2A09-1	INFUSION ROOM	2	N		DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2	4								
2A10-1	COMMUNICATION CTR (2W)	6	N		DM	6	NA	2x4, 2-tube, Prismatic	7	6"X4', 1-tube, Prismatic	8			B2	7	L	11			2X2	4 LAMP FIXTURES. 2 LAMPS REMOVED, 6 - Dimmer / 6 - circuits		
2A10A-1	OFFICE (118)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1								
2A10D-1	MEDICATION PREP.	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1					2X4			
2A11-1	WORKROOM (HOUSE STAFF)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	4					B3	4					2X4			
2A14-1	UTILITY ROOM, CLEAN	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1					2X4			
2A15-1	ENTRY (UTILITY CORE)	1	N		NONE	-	NA	4' Strip, 2-tube	1					D2	1					NONE	Hall Switch		
2A15B-1	ELECTRICAL	1	N		NONE	-	NA	4' Strip, 2-tube	1					D2	1					NONE			
2A16-1	UTILITY ROOM, SOILED	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1					2X4			
2A17-1	LINEN ROOM, CLEAN	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1					2X4			
2A18-1	LINEN ROOM, SOILED	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					F1	1					2X4			
2A20-1	STORAGE, EQUIPMENT	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1					2X4			
2A22-1	OFFICE (122,SOCIAL WORKER)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X4			
2A25-1	HOUSEKEEPING AID CLOSET	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
2A27-1	TOILET, FEMALE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1					2X4			
2A27-1	TOILET, MALE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1					2X4			
2B01-1	COMMUNICATION CTR (2E)	3	N		DM	3	Y	6"X4', 1-tube, Prismatic	11	2X4. 3-tube Prismatic	10			L	11	B2	10			2X2			
2B01A-1	UTILITY ROOM, SOILED	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1					2X4			
2B01B-1	UTILITY ROOM, CLEAN	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1					2X4			
2B01C-1	LINEN ROOM, CLEAN	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
2B01D-1	MEDICATION PREP.	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1								
2B01E-1	KITCHEN, NOURISHMENT	2	N		DT/S	1	Y	2X4. 3-tube Prismatic	1					B2	1					2X2			
2B02-1	WAITING ROOM AND ADJACENT CORRIDOR	-	N		NONE	-	NA	6"X4', 1-tube, Prismatic	10					K	10								
2B03-1	LINEN ROOM, SOILED	1	Y	1	DT/S	1	N	1X4. 2-TUBE, PRISMATIC	2					F2	2					2x4			
2B04-1	TOILET, MALE	1	Y	1	DT/S	1	N	18" STRIP 2-LAMP	2					C1	2					2X2			
2B07-1	TELEPHONE/DATA	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1					HARD			
2B08-1	OFFICE/ DAYROOM	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2	4					2X2			
2B09-1	AUXILLIARY SYSTEMS	1	N		NONE	-	NA	100W Screw-in CFL	1					A1S	1								
2B10-1	MECHANICAL ROOM	1	Y	1	DT/S	1	N	4' Strip, 2-tube	2					D2	2					NONE			
2B12-1	STORAGE (BLDG MNGMT)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2								
2B17-1	OFFICE (TEL OPERATORS)	2	N		DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2					2X4			
2B21-1	STORAGE, EQUIPMENT	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B1	1					2X4			
2B23-1	WORKROOM (HR-LINKS)	2	N		DT/C	2	Y	2X4. 3-tube Prismatic	8					B3	8					2X4			
2B25-1	OFFICE (117,4-WRKSTNS)	1	N		DT/C	2	Y	2X4, 4-TUBE, PRISMATIC	3					B3	3					2X4			
2B30-1	CLASSRM/STATIONS (TSAGARIS)	2	N		DT/C	1	Y	2x4, 2-tube, Prismatic	6					B2	6					2X4			
2B30A-1	CLASSROOM (TSAGARIS)	2	N		DT/C	1	Y	2x4, 2-tube, Prismatic	6					B2	6								
2C00A-1	WAITING	-	N		NONE	-	NA	6"X4', 1-tube, Prismatic	9					K	9								
2C08-1	LOUNGE/LOCKERS	1	Y	1	DT/S	1	N	2X4, 4-TUBE, PRISMATIC	3					B3	3								
2C09-1	OFFICE (118)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	1					B3	1								
2C10-1	TOILET (PUBLIC UNISEX)	1	N		DT/S	1	N	18" STRIP 2-LAMP	2					C1	2					2X2			
2C11-1	OFFICE (122,2-WRKSTNS)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2					2X4			
2C12-1	OFFICE (FELLOWS)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
2C13-1	OFFICE (118)	2	N		DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2								
2C15-1	TOILET, FEMALE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1					2X4			
2C17-1	TOILET, MALE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1					2X4			
2D01-1	TOILET, FEMALE	1	N		DT/S	1	N	4' Strip, 2-tube						C2	1					2x4			
2D02-1	WAITING ROOM	0	N		NONE		NA	2x4, 2-tube, Prismatic	1	6"X4', 1-tube, Prismatic	13			B2	1	K	13			2X2			
2D02A-1	LOCKERS	1	N		DT/S	1	N	6"X4', 1-tube, Prismatic	4					K	4					2X2			
2D03-1	ELECTRICAL	1	N		NONE	-	NA	4' Strip, 2-tube	2					D2	2					NONE			
2D04-1	RESTROOM (HANDICAPPED MEN)	1	Y	1	DT/S	1	N							C1	1								
2D05-1	TELEPHONE/DATA	-	N		NONE	-	NA	-	-														
2D06-1	OFFICE	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2					2X4			
2D07-1	AUX.SYS	1	N		DT/C	1	N	4' Strip, 2-tube	1					C2	1								
2D08-1	OFFICE (CHF RESIDENTS,111)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2								
2D09-1	WORKROOM (NURSES)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	4					B3	4					2X4			
2D10-1	LINEN ROOM, CLEAN	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					F2	1					2X4			
2D12-1	UTILITY ROOM	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					F2	1					2X4			
2D14-1	KITCHEN, NOURISHMENT	1	N		DT/S	1	N	2X4. 3-tube Prismatic	1					B3	1					2X4			
2D16-1	COMMUNICATION CTR (2NT)	4	N		DM	2	NA	2X4, 4-TUBE, PRISMATIC	10	6"X4', 1-tube, Prismatic	42			B2	10	L	42			2X2	MAX WATTAGE, , COMBINE SWITCH LEGS		
2D16A-1	MEDICATION PREP.	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2					2X2			

VA-Lighting Renovation-Salt Lake City																						
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED							REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Existing Conditions Comments	
Building: 1 Floor: 2																						
2D17-1	OFFICE/CONFRM (111)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2					2X4		
2D18-1	OFFICE (S.QUAAL)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X4		
2D20-1	STORAGE, EQUIPMENT	1	Y	1	DT/C	1	N	2x4, 2-tube, Prismatic	2					B2	2					2X4		
2D22-1	LOUNGE (STAFF)	1	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2					2X4		
2D22A-1	TOILET (STAFF)	1	N		DT/S	1	N	2' STRIP 2-LAMP	1					C1	1					2X4		
2D29-1	UTILITY ROOM, SOILED	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					G	1					2X4		
2D39-1	OFFICE, HEAD NURSE	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X4		
2D41-1	HOUSEKEEPING AID CLOSET	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					D2	1					2X4		
2D43-1	LINEN (SOILED)	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					G	1					2X4		
2D45-1	LOCKERS (NURSE)	1	Y	1	DT/C	1	N	2x4, 2-tube, Prismatic	2					B2	2					2X4		
2D47-1	LOCKERS (2W NURSES)	1	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2					2X4		
2E00B-1	THERAPY/OFFICE (117,3-WRKSTNS)	1	N		DT/C	4	Y	2x4, 2-tube, Prismatic	7					B2	7					2X4		
2E01-1	OFFICE (111,2-WRKSTNS)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	2					B2	2					2X2		
2E03-1	OFFICE (111)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	2					B2	2					2X2		
2E04-1	OFFICE (111,NURSE)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2							
2E05-1	OFFICE (CHIEF)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
2E06-1	OFFICE (MNGR,111)	1	Y	1	DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2					2X2		
2E07-1	OFFICE (111,PHYSICIAN)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
2E08-1	OFFICES (SECRETARY)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	4					B3	4					2X2		
2E09-1	OFFICE ()	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
2E10A-1	CONTROL	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2							
2E10B-1	STORAGE, EQUIPMENT	-	N		-	-	0	-	-													
2E12-1	STERILE PREP	2	N		-	-	0	2X4. 3-tube Prismatic	3					B3	3					2X2		
2E14-1	TOILET (UNISEX)	1	N		DT/C	1	N	6" Incandescent Can	3											HARD	MAY BE PATIENT TOILET, VERIFY BEFORE CONSTRUCTION	
2E15-1	OFFICE (MONITORING)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2	4					2X2		
2E16A-1	CONTROL	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2							
2E16B-1	STORAGE, EQUIPMENT	1	Y	1	DT/S	1	N	1X4, 1-LAMP, Prismatic	2					F1	2							
2E17-1	INSTRUMENTS (CLEANING)	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1							
2E18-1	OFFICE (111)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
2E19-1	HAC	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1					HARD		
2E20-1	OFFICE ()	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
2E22-1	OFFICE (111,1-WRKSTN)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
2E23-1	LINEN ROOM, CLEAN	1	N		DT/C	1	N	2X4. 3-tube Prismatic	1					B3	1							
2E24-1	OFFICE (111)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2					2X2		
2E25-1	UTILITY ROOM, SOILED	1	N		DT/C	1	N	2X4. 3-tube Prismatic	1					B3	1							
2E27-1	LOCKERS (MEN)	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	1					B2	1					2X2		
2E29-1	LOCKERS (WOMEN)	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	1					B2	1					2X2		
2E31-1	OFFICE (PROVIDERS,111)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1					2X2		
2E33-1	BREAKROOM ()	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	3	6" CFL CANS	1			B2	3	E	1			2X2		
2E35-1	READING (11, ECHO)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	6					B2	6					2X2		
2EAA-1	ELECTRICAL	1	Y	1	SW	1	N	4' Strip, 2-tube	3					D2	3					NONE		
2EAB-1	ENTRY (UTILITIES)	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1					NONE		
2EAC-1	TELEPHONE/DATA	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1							
2EAD-1	AUXILLIARY SYSTEMS	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1					NONE		
														D2	1							
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																						
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																						
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																						
TYPICAL COVER PLATE IN ALMOND COLOR.																						

VA-Lighting Renovation-Salt Lake City

		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED							REPLACEMENT FIXTURES								
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Existing Conditions Comments		
Building: 1 Floor: 3																							
3A08-1	LINEN	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	4					B2	4								
3A10-1	NURSING STN (118, 11-WRKSTN)	4	N		-	-	NA	2x4, 2-tube, Prismatic	8	6"X4', 1-tube, Prismatic	7			B2	8	K	7						
3A10A-1	OFFICE ((DIETETIC HEALTH TECH)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1						6/3 DUAL SWITCH LEGS		
3A10B-1	WORKROOM (NURSE)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3A10C-1	OFFICE, HEAD NURSE	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3A10D-1	MEDICATION PREP.	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
3A11-1	WORKROOM (HOUSE STAFF)	1	Y	1	DT/C	1	Y	2X4, 4-TUBE, PRISMATIC	4					B3	4								
3A22-1	LINEN ROOM, CLEAN	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2								
3A23-1	HOUSEKEEPING AID CLOSET	1	N		DT/S	1	N	1X4, 2-TUBE, PRISMATIC	1	18" STRIP 2-LAMP	1			G	1	J	1						
3A25-1	TOILET, FEMALE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1								
3A27-1	TOILET, MALE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1								
3A33-1	OFFICE (PHYSICAL THERAPISTS)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3B01-1	COMM CTR (3E CLINICS)	4	N		-	-	NA	2x4, 2-tube, parabolic	10	6"X4', 1-tube, Prismatic	14			B2	10	L	14						
3B01A-1	UTILITY ROOM, SOILED	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1						6/3 DUAL SWITCH LEGS		
3B01B-1	UTILITY ROOM, CLEAN	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
3B01C-1	LINEN ROOM, CLEAN	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
3B01D-1	MED PREP (118)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
3B01E-1	KITCHEN, NOURISHMENT	1	N		DT/S	1	N	2X4, 4-TUBE, PRISMATIC	1					B3	1								
3B02-1	WAITING ROOM	-	N		-	-	NA	6"X4', 1-tube, Prismatic	10					K	10								
3B03-1	LINEN ROOM, SOILED	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
3B04-1	TOILET, MALE	1	N		DT/S	1	N	18" STRIP 2-LAMP	2					J	2								
3B05-1	ELECTRICAL	1	Y	1	SW	1	N	4' Strip, 2-tube	2					D2	2								
3B06-1	TOILET, FEMALE	1	N		DT/S	1	N	18" STRIP 2-LAMP	2					J	2								
3B07-1	AUXILIARY SYSTEMS	1	N		DT/S	1	N	100W Screw-in CFL	1					A1S	1								
3B08-1	WAITING (112/111/110)	1	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	4					B2	4								
3B09-1	TELEPHONE/DATA	1	N		DT/S	1	N	18" STRIP 2-LAMP	1														
3B10-1	ELECTRICAL	1	Y	1	SW	1	N	4' Strip, 2-tube	2					D2	1								
3B12-1	STORAGE (BLDG MNGMT)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
3B13-1	OFFICE (117)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3B26-1	OFFICE (127)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3B28-1	OFFICE (127)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3B30-1	OFFICE (127)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3B32-1	MECHANICAL ROOM	1	Y	4	DT/C	4	N	4' Strip, 2-tube	13					D2	13								
3C00A-1	WAITING	-	N		-	-	NA	6"X4', 1-tube, Prismatic	10					K	10								
3C02-1	WORKROOM (112/111/110)	1	-		-	-	NA	2x4, 2-tube, Prismatic	2					B2	2								
3C02A-1	STORAGE (112/111/110)	1	N		DT/S	1	N	2' STRIP 2-LAMP	2					J	2								
3C04A-1	STORAGE (112/111/110)	1	N		DT/S	1	N	2' STRIP 2-LAMP	2					J	2								
3C11-1	WORKROOM (118,2-WRKSTNS)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3C13-1	LOUNGE/LOCKERS	1	Y	1	DT/C	1	N	2X4, 4-TUBE, PRISMATIC	2					B3	2								
3C15-1	TOILET, FEMALE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1								
3C17-1	TOILET, MALE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1								
3C18-1	OFFICE (11,ETHICS)	1	N		DT/S	1	Y	2x4, 2-tube, Prismatic	1					B2	1								
3C20-1	ENTRY (UTILITIES)	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1								
3C20A-1	ELECTRICAL	1	N		-	-	NA	4' Strip, 2-tube	1					D2	1								
3C22-1	OFFICE (122,2-WRKSTNS)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3C23-1	WORKROOM	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2	4								
3C24-1	OFFICE (118,PHYSICIANS ASSIST)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3C25-1	OFFICE (112/111/110)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3C26-1	OFFICE (11)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
3C27-1	STORAGE (118,CYSTO EQUIPMENT)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
3C28-1	HAC	1	N		DT/S	1	N	2X4 1-tube Prismatic	1					B2	1								
3D00-1	NURSE STATION	4	N		-	-	NA	2x4, 2-tube, parabolic	4	6"X4', 1-tube, Prismatic	7			B2	4	K	7						
3D04-1	TOILET	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
3D05-1	ELECTRICAL	1	Y	1	SW	1	N	4' Strip, 2-tube	2					D2	2								
3D09-1	WORKROOM	1	N		DT/C	2	Y	2x4, 2-tube, Prismatic	2					B2	2								
3D10A-1	TOILET	1	N		DT/S	1	N	18" STRIP 2-LAMP	1	6" Incandescent Can	1			C1	1								
3D14A-1	TOILET	2	N		DT/S	1	N	18" STRIP 2-LAMP	1	6" Incandescent Can	1			C1	1								
3D18-1	NURSE STATION	3	N		DT/C	4	Y	2x4, 2-tube, Prismatic	14	6"X4', 1-tube, Prismatic	42			B2	14	K	42						
3D18C-1	OFFICE (PHYSICIANS ASSISTANT)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1								
3D20-1	OFFICE (PHYSICIANS ASSISTANT)	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1								
3D22-1	LOCKERS (STAFF)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2								
3D22A-1	TOILET (STAFF)	1	N		DT/S	1	N	18" STRIP 2-LAMP	2					C1	1						EXISTING 3-WAY		
3D24-1	OFFICE	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	1					B2	1								
3D26-1	OFFICE	1	N		DT/C	1	Y	2x4, 2-tube, Prismatic	4					B2	4								
3D37-1	LOCKERS (STAFF)	1	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2								

VA-Lighting Renovation-Salt Lake City																						
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED							REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Existing Conditions Comments	
Building: 1 Floor: 3																						
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																						
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																						
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																						
TYPICAL COVER PLATE IN ALMOND COLOR.																						

VA-Lighting Renovation-Salt Lake City																							
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED							REPLACEMENT FIXTURES								
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Existing Conditions Comments		
Building: 1 Floor: 4																							
4A10-1	OFFICE (118,3-WKRSTNS)	4	N		DT/C	3	Y	2X4, 4-TUBE, PARABOLIC	7					B2	7							RECOMMEND 2 TUBE, 8/4 DUAL CIRCUIT	
4A10A-1	OFFICE (118,1-WRKSTN)	1	N		DT/C	1	Y	2X4, 4-TUBE, PARABOLIC	2					B3	2								
4A10B-1	OFFICE (118,2-WRKSTNS)	1	N		DT/C	1	Y	2X4, 4-TUBE, PRISMATIC	2					B3	2								
4A12-1	KITCHEN (STAFF AMB CARE)	1	N		DT/S	1	N	2X4, 4-TUBE, PRISMATIC	1					B3	1								
4A13-1	CLOSET (FIRE RISER)	-	-		-	-	0	-	-													NO LIGHTS	
4A14-1	UTILITY ROOM, CLEAN	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4A15-1	ENTRY (UTILITY CORE)	1	N		DT/S	1	N	2X2, 2-LAMP, PRISMATIC	1					A1	1								
4A15A-1	AUXILLIARY SYSTEMS	1	N		DT/S	1	N	2X4, 4-TUBE, PRISMATIC	1					B3	1							SWITCHED ON BY 4A15	
4A15B-1	SHOP, ELEC.	1	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4A15C-1	ELECTRICAL	1	N		-	-	N	4' Strip, 2-tube	1					D2	1								
4A15D-1	TELEPHONE/DATA	1	N		DT/C	1	N	18" STRIP 2-LAMP	1														
4A16-1	UTILITY ROOM, SOILED	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4A18-1	LINEN ROOM, SOILED	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4B01-1	WAITING ROOM	3	N		-	-	NA	2X4, 4-TUBE, PARABOLIC	7	6"X4', 1-tube, Prismatic	9			B3	7	K	9					RECOMMEND 2 TUBE	
4B01A-1	OFFICE (CHIEF,112)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	1					B3	1							PATIENT SPACE - VERIFY PRIOR TO CONSTRUCTION	
4B01B-1	OFFICE (INTERVIEW)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4B03-1	OFFICE (136,1-WRKSTN)	1	N		DT/C	1	Y	2X4, 4-TUBE, PRISMATIC	1					B2	1							SWITCHED BY 4B01, RECOMMEND 2 TUBE	
4B03A-1	OFFICE (136,PRIVATE)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	1					B3	1								
4B04-1	RESTROOM (HANDICAPPED MEN)	1	Y	1	DT/S	1	N	18" STRIP 2-LAMP	2					C1	1								
4B06-1	RESTROOM (HANDICAPPED WOMEN)	1	Y	1	DT/S	1	N	18" STRIP 2-LAMP	2					C1	1								
4B07-1	HAC	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2								
4B12-1	HOUSEKEEPING AID CLOSET	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					F1	1								
4B13-1	AUXILLIARY SYSTEMS	1	N		DT/S	1	N	100W Screw-in CFL	1					A1S	1								
4B22-1	BREAKROOM (111)	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	6					B2	6								
4B23-1	OFFICE (117)	1	N		DT/C	2	Y	2X4, 4-TUBE, PARABOLIC	6					B3	6							RECOMMEND 2 TUBE	
4B23A-1	OFFICE (11A)	3	N		DT/C	1	Y	2x4, 2-tube, T5 FLOUR.	2	100W Screw-in CFL	2	UNDERCABINET	N/A			A1S	1					CFL ARE INTERIOR GLOBES, PROVIDE DT/S FOR	
4B24-1	OFFICE (117,LOW VISION)	1	N		DT/C	1	Y	2x4, 2-tube, T5 FLOUR.	2														
4B26-1	OFFICE (117,LOW VISION)	1	N		DT/C	1	Y	2x4, 2-tube, T5 FLOUR.	2														
4B28-1	OFFICE (117,LOW VISION)	2	N		DT/C	1	Y	2x4, 2-tube, T5 FLOUR.	4	TRACK	4											WITH DIMMERS FOR 2X4'S	
4B30-1	STORAGE	1	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4C13-1	OFFICE (ENT)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4C15-1	WORKROOM (HOUSE STAFF)	1	N		-	-	NA	2x4, 2-tube, Prismatic	1	6"X4', 1-tube, Prismatic	7			B2	1	K	7						
4C15-1	WAITING	1	Y	-	-	-	NA	2X4, 4-TUBE, PARABOLIC	2	6"X4', 1-tube, Prismatic	3			B2	2	K	3					RECOMMEND 2 TUBE	
4C20-1	UTILITY ROOM, SOILED	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					F2	1								
4C21-1	MEDICATION PREP.	1	N		DT/S	1	N	2x4, 1-tube, Prismatic	1					B1	1								
4C22-1	ENTRY (UTILITIES)	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1								
4C22A-1	ELECTRICAL	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1								
4C22B-1	AUXILLIARY SYSTEMS	-	-		-	-	NA	-	-													NO LIGHTS	
4C22C-1	TELEPHONE/DATA	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1								
4C24-1	OFFICE (AMB CARE)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4C25-1	STORAGE, GENERAL	1	N		DT/S	1	N	2x4, 1-tube, Prismatic	1					B1	1								
4C30-1	HOUSEKEEPING AID CLOSET	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					F2	1								
4C31-1	LINEN ROOM, SOILED	1	N		DT/C	2	N	2x4, 2-tube, Prismatic	6					B2	6								
4C32-1	TOILET, CONGREGATE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1								
4D01A-1	WORKSTATION (136,CLINICS)	1	N		-	-	NA	2X4. 3-tube Prismatic	2	6"X4', 1-tube, Prismatic	6			B3	2	K	6						
4D02-1	WORKROOM (G.I.)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	4					B3	4								
4D05-1	TELEPHONE/DATA	-	-		-	-	N	-	-													NO LIGHTS	
4D11-1	CONFERENCE/BREAKROOM	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2	6"X4', 1-tube, Prismatic	9			B2	2	K	9						
4D11A-1	TOILET (STAFF)	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1								
4D13-1	OFFICE (G.I.)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4D15-1	OFFICE (G.I.)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4D17-1	OFFICE (118,GI/INFECTIOUS)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4D19-1	TOILET (UNISEX)	1	N		DT/S	1	N	4' Strip, 2-tube	1					C2	1							WALL MOUNT VANITY FIXTURE	
4D21-1	STORAGE (GAS)	1	N		DT/S	1	N	4' Strip, 2-tube	1					C2	1								
4D27-1	STORAGE (CLEAN SCOPES,118)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4BE2-14	ELEV. LVL	1			-	-	NA	4' Strip, 2-tube	9					D2	1							INCLUDES 4BE1, 3,4-14	
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																							
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																							
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																							

VA-Lighting Renovation-Salt Lake City

		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED							REPLACEMENT FIXTURES								
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Existing Conditions Comments		
Building: 1 Floor: 4																							
4A10-1	OFFICE (118,3-WKRSTNS)	4	N		DT/C	3	Y	2X4, 4-TUBE, PARABOLIC	7					B2	7								
4A10A-1	OFFICE (118,1-WRKSTN)	1	N		DT/C	1	Y	2X4, 4-TUBE, PARABOLIC	2					B3	2								
4A10B-1	OFFICE (118,2-WRKSTNS)	1	N		DT/C	1	Y	2X4, 4-TUBE, PRISMATIC	2					B3	2								
4A12-1	KITCHEN (STAFF AMB CARE)	1	N		DT/S	1	N	2X4, 4-TUBE, PRISMATIC	1					B3	1								
4A14-1	UTILITY ROOM, CLEAN	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4A15-1	ENTRY (UTILITY CORE)	1	N		DT/S	1	N	2X2, 2-LAMP, PRISMATIC	1					A1	1								
4A15A-1	AUXILLIARY SYSTEMS	1	N		DT/S	1	N	2X4, 4-TUBE, PRISMATIC	1					B3	1								
4A15B-1	SHOP, ELEC.	1	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4A15C-1	ELECTRICAL	1	N		-	-	N	4' Strip, 2-tube	1					D2	1								
4A15D-1	TELEPHONE/DATA	1	N		DT/C	1	N	18" STRIP 2-LAMP	1														
4A16-1	UTILITY ROOM, SOILED	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4A18-1	LINEN ROOM, SOILED	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4B01-1	WAITING ROOM	3	N		-	-	NA	2X4, 4-TUBE, PARABOLIC	7	6"X4', 1-tube, Prismatic	9			B3	7	K	9						
4B01A-1	OFFICE (CHIEF,112)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	1					B3	1								
4B01B-1	OFFICE (INTERVIEW)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4B03-1	OFFICE (136,1-WRKSTN)	1	N		DT/C	1	Y	2X4, 4-TUBE, PRISMATIC	1					B2	1								
4B03A-1	OFFICE (136,PRIVATE)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	1					B3	1								
4B04-1	RESTROOM (HANDICAPPED MEN)	1	Y	1	DT/S	1	N	18" STRIP 2-LAMP	2					C1	2								
4B06-1	RESTROOM (HANDICAPPED WOMEN)	1	Y	1	DT/S	1	N	18" STRIP 2-LAMP	2					C1	2								
4B07-1	HAC	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	2					B2	2								
4B12-1	HOUSEKEEPING AID CLOSET	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					F1	1								
4B13-1	AUXILLIARY SYSTEMS	1	N		DT/S	1	N	100W Screw-in CFL	1					A1S	1								
4B22-1	BREAKROOM (111)	1	N		DT/C	1	N	2x4, 2-tube, Prismatic	6					B2	6								
4B23-1	OFFICE (117)	1	N		DT/C	2	Y	2X4, 4-TUBE, PARABOLIC	6					B3	6								
4B23A-1	OFFICE (11A)	3	N		DT/C	1	Y	2x4, 2-tube, T5 FLOUR.	2	100W Screw-in CFL	2	UNDERCABINET	N/A			A1S	1						
4B24-1	OFFICE (117,LOW VISION)	1	N		DT/C	1	Y	2x4, 2-tube, T5 FLOUR.	2					B2	2								
4B26-1	OFFICE (117,LOW VISION)	1	N		DT/C	1	Y	2x4, 2-tube, T5 FLOUR.	2					B2	2								
4B28-1	OFFICE (117,LOW VISION)	2	N		DT/C	1	Y	2x4, 2-tube, T5 FLOUR.	4	TRACK	4			B2	4								
4B30-1	STORAGE	1	Y	1	DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4C13-1	OFFICE (ENT)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4C15-1	WORKROOM (HOUSE STAFF)	1	N		-	-	NA	2x4, 2-tube, Prismatic	1	6"X4', 1-tube, Prismatic	7			B2	1	K	7						
4C15-1	WAITING	1	Y	-	-	-	NA	2X4, 4-TUBE, PARABOLIC	2	6"X4', 1-tube, Prismatic	3			B2	2	K	3						
4C20-1	UTILITY ROOM, SOILED	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					F2	1								
4C21-1	MEDICATION PREP.	1	N		DT/S	1	N	2x4, 1-tube, Prismatic	1					B1	1								
4C22-1	ENTRY (UTILITIES)	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1								
4C22A-1	ELECTRICAL	1	N		NONE		NA	4' Strip, 2-tube	1					D2	1								
4C22C-1	TELEPHONE/DATA	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1								
4C24-1	OFFICE (AMB CARE)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4C25-1	STORAGE, GENERAL	1	N		DT/S	1	N	2x4, 1-tube, Prismatic	1					B1	1								
4C30-1	HOUSEKEEPING AID CLOSET	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					F2	1								
4C31-1	LINEN ROOM, SOILED	1	N		DT/C	2	N	2x4, 2-tube, Prismatic	6					B2	6								
4C32-1	TOILET, CONGREGATE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1								
4D01A-1	WORKSTATION (136,CLINICS)	1	N		-	-	NA	2X4. 3-tube Prismatic	2	6"X4', 1-tube, Prismatic	6			B3	2	K	6						
4D02-1	WORKROOM (G.I.)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	4					B3	4								
4D11-1	CONFERENCE/BREAKROOM	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2	6"X4', 1-tube, Prismatic	9			B2	2	K	9						
4D11A-1	TOILET (STAFF)	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1								
4D13-1	OFFICE (G.I.)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4D15-1	OFFICE (G.I.)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4D17-1	OFFICE (118,GI/INFECTIOUS)	1	Y	1	DT/C	1	Y	2x4, 2-tube, Prismatic	2					B2	2								
4D19-1	TOILET (UNISEX)	1	N		DT/S	1	N	4' Strip, 2-tube	1					C2	1								
4D21-1	STORAGE (GAS)	1	N		DT/S	1	N	4' Strip, 2-tube	1					C2	1								
4D27-1	STORAGE (CLEAN SCOPES,118)	1	N		DT/S	1	N	2x4, 2-tube, Prismatic	1					B2	1								
4BE2-14	ELEV. LVL	1			-	-	NA	4' Strip, 2-tube	9					D2	9								
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																							
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																							
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																							
TYPICAL COVER PLATE IN ALMOND COLOR.																							

VA-Lighting Renovation-Salt Lake City																					
		EXISTING SWITCHING			SENSORS TO BE INSTALLED			EXISTING LIGHT FIXTURES TO BE REPLACED						REPLACEMENT FIXTURES							
Room #	Room Description	# Of Existing Switches	Existing Occupancy Sensor Type	OS Qty	New Occupancy Sensor Type	OS Qty	Dimmable	Light Type 1	LT Qty	Light Type 2	LT 2 Qty	Light Type 3	LT 3 Qty	New Light Type 1	LT 1 Qty	New Light Type 2	LT 2 Qty	New Light Type 3	LT 3 Qty	Ceiling	Existing Conditions Comments
Building: 1 Floor: 5																					
5A01-1	MECHANICAL ROOM	2	N		-	-	NA	4' Strip, 2-tube	29					D2	29					NONE	
5B01-1	OFFICE(122,2-WRKSTINS)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	2					B2	2					2X4	
5B02-1	HOUSEKEEPING AID CLOSET	1	N		DT/S	1	N	1X4. 2-TUBE, PRISMATIC	1					F2	1						
5B03-1	OFFICE (122,ADMIN)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	4					B2	4					2X4	
5B04-1	RECEPTION/OFFICE (122)	1	Y		DT/S	1	Y	2X4. 3-tube Prismatic	2					B2	2						
5B05-1	TOILET, FEMALE	1	N		DT/S	1	N	4' Strip, 1-tube	1					C2	1					2X4	
5B06-1	OFFICE (122)	1	Y	1	DT/S	1	Y	2X4. 3-tube Prismatic	2					B2	2						
5B06B-1	MECHANICAL ROOM	1	Y	1	DT/S	1	N	4' Strip, 2-tube	2					D2	2						
5B08-1	OFFICES (118,4-WRKSTNS)	1	N		DT/C	4	Y	2X4. 3-tube Prismatic	6					B3	6						
5B09-1	MECHANICAL ROOM	1	Y	1	DT/S	1	N	4' Strip, 2-tube	2					D2	2						
5B10-1	WORKROOM (SUTTER+RESIDENTS)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	4					B3	4						
5B12-1	STORAGE, GENERAL	1	Y	1	DT/S	1	N	1X4. 2-TUBE, PRISMATIC	2					F2	2						
5B13-1	ENTRY (UTILITY CORE)	1	N		DT/S	1	N	4' Strip, 2-tube	1					D2	1						
5B13A-1	ELECTRICAL	1	N		NONE		NA	4' Strip, 2-tube	1					D2	1						
5B13B-1	AUXILLIARY SYSTEMS	1	N		DT/S	1	N	100W Screw-in CFL	1					A1S	1						
5B14-1	OFFICE, STAFF	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2						
5B15-1	OFFICE (116,PROVIDER)	1	N		DT/C	1	Y	4' Strip, 2-tube	1					B2S	1						
5B15A-1	TOILET, CONGREGATE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1	6" Incandescent Can	1			C1	1						
5B16-1	OFFICE, STAFF	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	2						
5B17-1	LINEN ROOM, CLEAN	1	N		DT/S	1	N	18" STRIP 2-LAMP	1					C1	1						
5B18-1	OFFICE (122,SOCIAL WORKER)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	2					B3	1						
5B19-1	OFFICE (122,2-WRKSTNS)	1	N		DT/C	1	Y	4' Strip, 2-tube	1					C2	1					2X4	
5B20-1	LOUNGE/WRKSTNS (122)	1	N		DT/C	1	Y	2X4. 3-tube Prismatic	4					B3	4						
5B21-1	BEDROOM - RESIDENT ON-CALL	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1						
5B21A-1	TOILET, CONGREGATE	1	N		DT/S	1	N	18" STRIP 2-LAMP	2					C1	2						
5B23-1	BEDROOM - RESIDENT ON-CALL	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1						
5B25-1	BEDROOM - RESIDENT ON-CALL	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1						
5B25A-1	TOILET, CONGREGATE	1	N		DT/S	1	N	18" STRIP 2-LAMP	2					C1	2						
5B27-1	BEDROOM - RESIDENT ON-CALL	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1						
5B29-1	BEDROOM - RESIDENT ON-CALL	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1						
5B29A-1	TOILET, CONGREGATE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1	6" Incandescent Can	1			C1	1						
5B31-1	BEDROOM - RESIDENT ON-CALL	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1						
5B33-1	BEDROOM - RESIDENT ON-CALL	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1						
5B33A-1	TOILET, CONGREGATE	1	N		DT/S	1	N	18" STRIP 2-LAMP	1	6" Incandescent Can	1			C1	1						
5B35-1	BEDROOM - RESIDENT ON-CALL	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1						
5B37-1	BEDROOM - RESIDENT ON-CALL	1	N		DT/S	1	N	4' Strip, 2-tube	1					G	1						
5B37A-1	TOILET, CONGREGATE	1	N		DT/S	1	N	18" STRIP 2-LAMP	2					C1	2						
5C01-1	MECHANICAL ROOM	1	N		-	-	0	4' Strip, 2-tube	29					D2	29						
5D01-1	MECHANICAL ROOM	1	N		-	-	0	4' Strip, 2-tube	56					D2	56						
NOTES: DT/C FIXTURES TO BE INSTALLED WITH DIMMER AS SPECIFIED. SEE ELETRICAL DETAILS FOR WIRING CONFIGURATIONS																					
MULTIPLE DUMMY SWITCHES ARE USED. DUAL SWITCHES WHERE ONLY ONE WORKS IS TYPICAL.																					
SEE SHEET E-001 FOR SCHEDULE OF REPLACEMENT LIGHT FIXTURES																					
TYPICAL COVER PLATE IN ALMOND COLOR.																					