

DIVISION 01**SECTION 01 0000****GENERAL REQUIREMENTS: R&I PROJECT**

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SECTION 01 1000 SUMMARY

- A. Provisions contained in Division 01 apply to all other sections and divisions of Specifications. All instructions contained in Specifications are directed to Contractor. Unless specifically provided otherwise, all obligations set forth in Specifications are obligations of Contractor.
- B. Comply with applicable laws and regulations.
- C. Owner may provide furnishings and/or equipment for Project. Contractor will receive, store, and protect such items on site until the date Owner accepts Project.

SECTION 01 1200 MULTIPLE CONTRACT SUMMARY

- A. Separate contracts may be issued by Owner for performance of certain construction operations at Project site. Contractor will afford other contractors reasonable opportunity to place and store their materials and equipment on site and to perform their work and will properly connect and coordinate its work with theirs where applicable.

SECTION 01 1400 WORK RESTRICTIONS

- A. During construction period, Contractor will have use of premises for construction operations. Contractor will ensure that Contractor, its employees, subcontractors, and employees comply with following requirements:
 - 1. Confine operations to areas within the existing building shown on Drawings. Do not disturb portions of site beyond Contract limits.
 - 2. Do not allow alcoholic beverages, illegal drugs, or persons under their influence on Project Site.
 - 3. Do not allow use of tobacco in any form on Project Site.
 - 4. Do not allow pornographic or other indecent materials on site.
 - 5. Do not allow work on Project Site on Sundays except for emergency work.
 - 6. Refrain from using profanity or being discourteous or uncivil to others on Project Site or while performing The Work.
 - 7. Wear shirts with sleeves, wear shoes, and refrain from wearing immodest, offensive, or obnoxious clothing, while on Project Site.

8. Do not allow playing of obnoxious and loud music on Project Site. Do not allow playing of any music within existing facilities.
9. Do not build fires on Project Site.
10. Do not allow weapons on Project Site, except those carried by law enforcement officers and/or other uniformed security personnel who have been retained by Owner or Contractor to provide security services.

B. Existing Facilities:

1. If Owner will occupy existing building, reasonably accommodate use of existing facilities by Owner.

SECTION 01 3000 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate construction activities to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations that are dependent upon each other for proper installation, connection, and operation. Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

SECTION 01 3100 PROJECT MANAGEMENT AND COORDINATION

A. Multiple Contract Coordination:

1. Contractor shall be responsible for coordination of Construction Waste Management and Disposal services, and Final Cleaning for entire Project unless directed otherwise by Owner's Representative for those who perform work on Project from Notice to Proceed to date of Substantial Completion.

SECTION 01 3300 SUBMITTAL PROCEDURES

- A. Coordination preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently before performance of related construction activities to avoid delay.
- B. Allow sufficient review time so installation will not be delayed by time required to process submittals.
- C. Place permanent label or title block on each submittal for identification. Include name of entity that prepared each submittal on label or title block.
- D. Package each submittal appropriately for transmittal and handling.

SECTION 01 3500 SPECIAL PROCEDURES

A. Hot Work Permit (Available from Owner's Representative):

1. Required for doing hot work involving open flames or producing heat or sparks such as:
 - a. Brazing.
 - b. Cutting.
 - c. Grinding.
 - d. Soldering.
 - e. Thawing pipe
 - f. Torch applied roofing.
 - g. Welding.

SECTION 01 4000 QUALITY REQUIREMENTS

- A. Testing and inspecting services are used to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- B. Conflicting Requirements: If compliance with two or more standards is specified and standards establish different or conflicting requirements for minimum quantities or quality levels, comply with most stringent requirement.

- C. Minimum Quantity or Quality Levels: Quantity or quality level shown or specified shall be the minimum provided or performed. Actual installation may comply exactly with minimum quantity or quality specified, or it may exceed minimum within reasonable limits.
- D. Quality Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to verify compliance and guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- E. Submit to Owner permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records establishing compliance with standards and regulations bearing upon performance of the Work.
- F. Repair And Protection:
 - 1. On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 2. Protect construction exposed by or for Quality Assurance and Quality Control activities.
 - 3. Repair and protection are Contractor's responsibility, regardless of assignment of responsibility for Quality Assurance and Quality Control Services.

SECTION 01 4301 QUALITY ASSURANCE - QUALIFICATIONS

- A. Qualifications: Qualifications in this Section establish minimum qualification levels required; individual Specification Sections specify additional requirements:
 - 1. Installer Qualifications:
 - a. Firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with record of successful in-service performance.

SECTION 01 4523 TESTING AND INSPECTION SERVICES

- A. Submittals:
 - 1. Certificates: Testing Agency will submit certified written report of each inspection, test, or similar service.
 - 2. Tests and Evaluation Reports:
 - a. Testing Agency or Agencies will prepare logs, test reports, and certificates applicable to specific tests and inspections and deliver copies to Owner's Representative and to each of following if involved on project: Architect, Consulting Engineers (Engineer of Record), General Contractor, Authorities Having Jurisdiction (if required).
 - 3. Testing Agency:
 - a. Qualifications of Testing Agency management, personnel, inspector and technicians designated to project.
 - b. Provide procedures for non-destructive testing, equipment calibration records, personnel training records, welding inspection, bolting inspection, shear connector stud inspection, and seismic connection inspections.
- B. Quality Control:
 - 1. Quality Control will be sole responsibility of Contractor. Contractor will be responsible for testing, coordination, start-up, operational checkout, and commissioning of all items of the Work included in Project. All costs for these services will be included in Contractor's cost of the Work:
- C. Tests And Inspections - General:
 - 1. Tests include but not limited to those described in detail in 'Field Quality Control' in Part 3 of Individual Sections in Divisions 01 through Division 50.

SECTION 01 6100 PRODUCT REQUIREMENTS

- A. Provide products that comply with Contract Documents, new, are undamaged, and, unless otherwise indicated, are new and unused at time of installation. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for complete installation and for intended use and effect:

SECTION 01 6600 DELIVERY, STORAGE, AND HANDLING REQUIREMENTS

- A. Deliver, store, and handle products according to manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
- B. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
- C. Deliver products to site in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
- D. Inspect products upon delivery to ensure compliance with Contract Documents, and to ensure that products are undamaged and properly protected.
- E. Store products at site in manner that will simplify inspection and measurement of quantity or counting of units.
- F. Store heavy materials away from Project structure so supporting construction will not be endangered.
- G. Store products subject to damage by elements above ground, under cover in weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

SECTION 01 7000 EXECUTION REQUIREMENTS

- A. Design, furnish, and install all shoring, bracing, and sheathing as required for safety and for proper execution of the Work and, unless otherwise required, remove same when the Work is completed.
- B. Require installer of each major component to inspect both substrate and conditions under which the Work is to be done. Notify Owner in writing of unsatisfactory conditions. Do not proceed until unsatisfactory conditions have been corrected.
- C. Provide attachment and connection devices and methods necessary for securing the Work. Secure the Work true to line and level. Allow for expansion and building movement.
- D. Recheck measurements and dimensions before starting each installation.
- E. Where mounting heights are not shown, install individual components at standard mounting heights recognized within industry or local codes for that application. Refer questionable mounting height decisions to Owner for final decision.
- F. Cover and protect furniture, equipment, and fixtures from soiling and damage when demolition the Work is performed in rooms and areas from which such items have not been removed.
- G. Completion Inspection:
 - 1. Upon 100 percent completion of Project, Contractor will request Substantial Completion Inspection.
 - 2. Owner will conduct Substantial Completion Inspection in presence of Contractor and furnish list of items to be corrected.
 - 3. Contractor will notify Owner in writing when items have been corrected.

SECTION 01 7400 CLEANING AND WASTE MANAGEMENT

- A. Disposal Of Waste:
 - 1. Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in landfill or incinerator acceptable to authorities having jurisdiction:
 - a. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site
 - b. Remove and transport debris in manner that will prevent spillage on adjacent surfaces and areas.

2. Burning: Do not burn waste materials.
 3. Disposal: Transport waste materials off Owner's property and legally dispose of them.
- B. Progress Cleaning:
1. Keep premises broom-clean during progress of the Work.
 2. During handling and installation, protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from soiling, damage, or deterioration until Substantial Completion.
 3. Clean and maintain completed construction as frequently as necessary throughout construction period.
 4. Remove waste materials and rubbish caused by employees, subcontractors, and contractors under separate contract with Owner and dispose of legally.
- C. Final Cleaning:
1. Clean each surface or unit to condition expected in normal, commercial-building cleaning and maintenance program. Comply with manufacturer's instructions. Remove all rubbish from under and about building and leave building clean and habitable.
 2. In addition to general cleaning noted above, perform cleaning for all trades at completion of the Work in areas where construction activities have occurred.
 3. If Contractor fails to clean up, Owner may do so and charge cost to Contractor.

SECTION 01 7700 CLOSEOUT PROCEDURES

- A. General:
1. Closeout process consists of three specific project closeout inspections. Contractor shall plan sufficient time in construction schedule to allow for required inspections before expiration of Contract Time.
 2. Contractor shall conduct his own inspections of The Work and shall not request closeout inspections until The Work of the contract is reasonably complete and correction of obvious defects or omissions are complete or imminent.
 3. Date of Substantial Completion shall not occur until completion of construction work, unless agreed to by Architect / Owner's Representative and included on Certificate of Substantial Completion.
- B. Preliminary Closeout Review:
1. When Architect, Owner and Contractor agree that project is ready for closeout, Pre-Substantial Inspection shall be scheduled. Preparation of floor substrate to receive carpeting and any work which could conceivably damage or stain carpet must be completed, as carpet installation will be scheduled immediately following this inspection.
- C. Substantial Completion Inspection:
1. When Owner and Contractor agree that project is ready for Substantial Completion, an inspection is held. Punch list created at Pre-Substantial Inspection is to be substantially complete.
 2. Prior to this inspection, Contractor shall discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups and similar elements.
 3. Owner and Contractor review completion of punch list items. When Owner and Architect confirm that Contractor has achieved Substantial Completion of The Work, Owner, Architect and Contractor will execute Certificate of Substantial Completion that contains:
 - a. Date of Substantial Completion.
 - b. Punch List Work not yet completed, including seasonal and long lead items.
 - c. Amount to be withheld for completion of Punch List Work.
 - d. Time period for completion of Punch List Work.
 - e. Amount of liquidated damages set forth in Supplementary Conditions to be assessed if Contractor fails to complete Punch List Work within time set forth in Certificate.
- D. Final Acceptance Meeting:
1. When punch list items except for any seasonal items or long lead items which will not prohibit occupancy are completed, Final Acceptance Meeting is held.
 2. Owner, and Contractor execute Owner's Project Closeout - Final Acceptance form, and verify:
 - a. All seasonal and long lead items not prohibiting occupancy, if any, are identified, with committed to completion date and amount to be withheld until completion.

- b. Final cleaning requirements have been completed.
3. When Owner confirm that The Work is satisfactorily completed, Owner will authorize final payment.

SECTION 01 7800 CLOSEOUT SUBMITTALS**E. Warranties:**

1. When written guarantees beyond one (1) year after substantial completion are required by Contract Documents, secure such guarantees and warranties properly addressed and signed in favor of Owner. Delivery of guarantees and warranties will not relieve Contractor from obligations assumed under other provisions of Contract Documents.

F. Project Record Documents:

1. Do not use record documents for construction purposes. Protect from deterioration and loss in secure, fire-resistive location. Provide access to record documents for reference during normal Working hours.
2. Maintain clean, undamaged set of Drawings. Mark set to show actual installation where installation varies from the Work as originally shown. Give particular attention to concealed elements that would be difficult to measure and record at later date:
 - a. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
 - b. Mark new information that is important to Owner, but was not shown on Drawings.
 - c. Note related Change Order numbers where applicable.

END OF SECTION

SECTION 06 4005**PLASTIC LAMINATE****PART 1 - GENERAL****1.1 SUMMARY**

- A. Products Furnished But Not Installed Under This Section:
 - 1. Wall-hung counters.
 - 2. Countertops for custom casework.

- B. Related Requirements:
 - 1. Section 06 2001: 'Common Finish Carpentry Requirements':
 - a. Installation of wall-hung counters.
 - b. Installation of countertops for custom casework.
 - 2. Section 06 4001: 'Common Architectural Woodwork Requirements':
 - a. Approved Fabricators.
 - b. General standards for materials and fabrication of Architectural Woodwork.

1.2 REFERENCES

- A. Association Publications:
 - 1. Architectural Woodwork Institute / Architectural Woodwork Manufacturers Association of Canada / Woodwork Institute, 46179 Westlake Drive, Suite 120, Potomac Falls, VA www.awinet.org.
 - a. Architectural Woodwork Standards (AWS), 1st Edition, 2009.

- B. Definitions:
 - 1. Flame Spread: The propagation of flame over a surface.
 - 2. Flame Spread Index: The numerical value assigned to a material tested in accordance with ASTM E84 or UL 723 or CAN/ULC-S102.2.
 - 3. Grade: Unless otherwise noted, this term means Grade rules for Economy, Custom, and/or Premium Grade.
 - a. Premium Grade: Highest Grade available in both material and workmanship where highest level of quality, materials, workmanship, and installation is required.
 - 4. High-Pressure Decorative Laminate (HPDL): Laminated thermosetting decorative sheets intended for decorative purposes. Sheets consist essentially of layers of fibrous sheet material, such as paper, impregnated with thermosetting condensation resin and consolidation under heat and pressure. Top layers have decorative color or printed design. Exposed surface has attractive exposed surface that is durable and resistant to damage from abrasion and mild alkalis, acids, and solvents.
 - 5. Smoke-Developed Index: The numerical value assigned to a material tested in accordance with ASTM E84 or UL 723 or CAN/ULC-S102.2.

- C. Reference Standards:
 - 1. ASTM International:
 - a. ASTM E84-12, 'Standard Test Method for Surface Burning Characteristics of Building Materials'.
 - b. ASTM E162-12a, 'Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source'.
 - 2. Kitchen Cabinet Manufacturers Association:
 - a. ASTM/KCMA A161.1-2000 (R2006), 'Performance And Construction Standards For Kitchen And Vanity Cabinets'.
 - b. ANSI/KCMA A161.2-1998, 'Performance Standards for Fabricated High Pressure Decorative Laminate Countertops'.

3. National Electrical Manufacturer's Association / American National Standards Institute:
 - a. ANSI/NEMA LD-3-2005, 'High Pressure Decorative Laminates'.
4. Underwriters Laboratories, Inc.:
 - a. UL 723: 'Standard for Safety Test for Surface Burning Characteristics of Building Materials'; Tenth Edition September 10 2008 (Revision: September 13, 2010).

1.3 SUBMITTALS

- A. Action Submittals:
 1. Product Data:
 - a. Color selections.
 - b. Manufacturer's technical data sheet.
- B. Informational Submittals:
 1. Certificates:
 - a. Provide Manufacturer's certification of compliance to ANSI/NEMA LD 3.
 2. Test And Evaluation Reports:
 - a. Test reports: Certified test reports showing compliance with specified performance characteristics and physical properties for Quality Assurance if requested by Owner or Architect.
- C. Closeout Submittals:
 1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Record Documentation:
 - 1) Manufacturers documentation:
 - a) Manufacturer's literature for plastic laminate.
 - b) Color selections.

1.4 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 1. Fire-Test-Response Characteristics: Provide plastic laminate with surface burning characteristics as determined by testing identical products by qualified testing agency.
 - a. Surface-Burning Characteristics:
 - 1) Plastic Laminate shall have Class A flame spread rating in accordance with ASTM E84 or UL 723 Type 1.
 - a) Class A (Flame spread index 0-25; Smoke-developed index 0-450).
 - b) Flash point: None.

1.5 WARRANTY

- A. Manufacturer Extended Warranty:
 1. Approved Fabricator's written guarantee that all Goods and Services will be free from defects in materials and workmanship for a period of five (5) years from date of substantial completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Fabricators:
 1. Approved Fabricators. See Section 06 4001 for Approved Fabricators.
- B. Manufacturers:
 1. Type Two Acceptable Manufacturers:

- a. Formica, Cincinnati, OH www.formica.com or Formica Canada Inc, St Jean sur Richelieu, PQ (450) 347-7541, all matte finish.
 - b. Nevamar, Odenton, MD www.nevamar.com.
 - c. Pionite Decorative Surfaces, Auburn, ME www.pionite.com.
 - d. WilsonArt, Temple, TX www.wilsonart.com or WilsonArt International Inc, Mississauga, ON (905) 565-1255.
 - e. Equal as approved by Architect before bidding. See Section 01 6200.
- C. Plastic Laminates:
1. Design Criteria:
 - a. Countertops:
 - 1) Post-formed front edge and backsplash, except where detailed otherwise, with plastic laminate meeting requirements of ANSI/NEMA LD 3: PF 42.
 - a) Vertical Applications: GP 28.
 - b) Horizontal (other than countertops): GP 38.
 - 2) No raised lip on front edge.
 - b. Balancing Material: BK 20.
 - c. AWS Quality Grade: Premium.
 2. Assemblies:
 - a. Countertops shall meet requirements of KCMA A161.1 and A161.2.
 - b. Adhesives for other than post-formed types shall be spray grade, high heat resistant, neoprene contact adhesive.
 3. Category Four Approved Colors. See Section 01 6200 for definition of Categories:
 - a. Formica: 300-58.
 - b. Nevamar: ES2001, TQ2001, MR7001, MR7002.
 - c. Pionite: AT951-5, LG110-S, AT161.
 - d. **WilsonArt: 2932-60**, 4810-60, 4170-60.

PART 3 - EXECUTION: Not Used

END OF SECTION

SECTION 26 0501**COMMON ELECTRICAL REQUIREMENTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. General electrical system requirements and procedures.
 - 2. Furnish and install Penetration Firestop Systems at electrical system penetrations as described in Contract Documents.

- B. Related Requirements:
 - 1. Section 07 8400: 'Firestopping' for quality of Penetration Firestop Systems to be used on Project and submittal requirements.

1.2 REFERENCES

- A. Reference Standards:
 - 1. National Fire Protection Association / American National Standards Institute:
 - a. NFPA 70-2011, National Electric Code (NEC).
 - 2. National Electrical Manufacturing Association Standards (NEMA):
 - a. NEMA 250-2008, 'Enclosure for Electrical Equipment (1000 Volts Maximum)'.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate with Owner for equipment and materials to be removed by Owner.

1.4 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data:
 - a. Provide following information for each item of equipment:
 - 1) Catalog Sheets.
 - 2) Assembly details or dimension drawings.
 - 3) Installation instructions.
 - 4) Manufacturer's name and catalog number.
 - 5) Name of local supplier.
 - b. Furnish such information for following equipment:
 - 1) Section 26 5100: 'Interior Lighting Fixtures'.
 - 2)
 - c. Do not purchase equipment before approval of product data.

- B. Informational Submittals:
 - 1. Test And Evaluation Reports:
 - a. Report of site tests, before Substantial Completion.
 - 2. Qualification Statement:
 - a. Electrical Subcontractor:
 - 1) Provide Qualification documentation if requested by Architect or Owner.

- b. Installer:
 - 1) Provide Qualification documentation if requested by Architect or Owner.
(1)

1.5 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 - 1. NEC and local ordinances and regulations shall govern unless more stringent requirements are specified.
 - 2. Material and equipment provided shall meet standards of NEMA or UL and bear their label wherever standards have been established and label service is available.
- B. Qualifications:
 - 1. Electrical Subcontractor:
 - a. Company specializing in performing work of this section.
 - 1) Minimum five (5) years experience in electrical installations.
 - 2) Minimum five (5) satisfactorily completed installations in past three (3) years of projects similar in size, scope, and complexity required for this project before bidding.
 - b. Upon request, submit documentation.
 - 2. Installer:
 - a. Licensed for area of Project.
 - b. Designate one (1) individual as project foremen who shall be on site at all times during installation and experienced with installation procedures required for this project.
 - c. Upon request, submit documentation.

PART 2 - PRODUCTS

2.1 SYSTEMS

- A. Not Applicable

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification Of Conditions:
 - 1. Confirm dimensions, ratings, and specifications of equipment to be installed and coordinate these with site dimensions and with other Sections.
- B. Evaluation And Assessment:
 - 1. All relocations, reconnections, and removals are not necessarily indicated on Drawings. Include such work without additional cost to Owner.

3.2 PREPARATION

- A. Disconnect equipment that is to be removed or relocated. Carefully remove, disassemble, or dismantle as required, and store in approved location on site, existing items to be reused in completed work.
- B. Where affected by demolition or new construction, relocate, extend, or repair raceways, conductors, outlets, and apparatus to allow continued use of electrical system. Use methods and materials as specified for new construction.

- C. Perform drilling, cutting, block-offs, and demolition work required for removal of necessary portions of electrical system. Do not cut joists, beams, girders, trusses, or columns without prior written permission from Owner.
- D. Remove concealed wiring abandoned due to demolition or new construction. Remove circuits, conduits, and conductors that are not to be re-used back to next active fixture, device, or junction box.
- E. Patch, repair, and finish surfaces affected by electrical demolition work, unless work is specifically specified to be performed under other Sections of the specifications.

3.3 INSTALLATION

- A. General:
 - 1. Locations of electrical equipment shown on Drawings are approximate only. Field verify actual locations for proper installation. Coordinate exact locations of equipment with the owner before roughing in.
 - 2. Coordinate electrical equipment locations and conduit runs with those providing equipment to be served before installation or rough in.
 - a. Notify Owner of conflicts before beginning work.

3.4 FIELD QUALITY CONTROL

- A. Field Tests:
 - 1. Test systems and demonstrate equipment as working and operating properly. Notify Owner before test. Rectify defects at no additional cost to Owner.

3.5 CLEANING

- A. Remove obsolete raceways, conductors, apparatus, and lighting fixtures promptly from site and dispose of legally, unless otherwise indicated.
- B. Site shall be cleaned and vacuumed daily before leaving the site each day.

END OF SECTION

SECTION 26 0519**LINE-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Quality of conductors used on Project except as excluded below.
- B. Related Requirements:
 - 1. Section 26 0501: Common Electrical Requirements.

1.2 REFERENCES

- A. Definitions:
 - 1. Line Voltage: Over 70 Volts.

PART 2 - PRODUCTS**2.1 SYSTEMS**

- A. Line Voltage Conductors:
 - 1. Copper with AWG sizes as shown:
 - a. Minimum size shall be No. 12 except where specified otherwise.
 - b. Conductor size No. 8 and larger shall be stranded.
 - 2. Insulation:
 - a. Standard Conductor Size No. 10 And Smaller: 600V type THWN or XHHW (75 deg C).
 - b. Standard Conductor Size No. 8 And Larger: 600V Type THW, THWN, or XHHW (75 deg C).
 - c. Higher temperature insulation as required by NEC or local codes.
 - 3. Colors:
 - a. 208Y / 120 V System:
 - 1) Black: Phase A.
 - 2) Red: Phase B.
 - 3) Blue: Phase C.
 - 4) Green: Ground.
 - 5) White: Neutral.
 - b. Conductors size No. 10 and smaller shall be colored full length. Tagging or other methods for coding of conductors size No. 10 and smaller not allowed.
- B. Line Voltage Cables:
 - 1. Metal Clad Cable (MC) may be used as restricted below:
 - a. Copper conductors.
 - b. Sizes #12 through #8.
 - c. Where permitted by NFPA 70.
 - d. Use only in indoor dry locations where:
 - 1) Not subject to damage.
 - 2) Not in contact with earth.
 - 3) Not in concrete.

SECTION 26 0519**LINE-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Quality of conductors used on Project except as excluded below.
- B. Related Requirements:
 - 1. Section 26 0501: Common Electrical Requirements.

1.2 REFERENCES

- A. Definitions:
 - 1. Line Voltage: Over 70 Volts.

PART 2 - PRODUCTS**2.1 SYSTEMS**

- A. Line Voltage Conductors:
 - 1. Copper with AWG sizes as shown:
 - a. Minimum size shall be No. 12 except where specified otherwise.
 - b. Conductor size No. 8 and larger shall be stranded.
 - 2. Insulation:
 - a. Standard Conductor Size No. 10 And Smaller: 600V type THWN or XHHW (75 deg C).
 - b. Standard Conductor Size No. 8 And Larger: 600V Type THW, THWN, or XHHW (75 deg C).
 - c. Higher temperature insulation as required by NEC or local codes.
 - 3. Colors:
 - a. 208Y / 120 V System:
 - 1) Black: Phase A.
 - 2) Red: Phase B.
 - 3) Blue: Phase C.
 - 4) Green: Ground.
 - 5) White: Neutral.
 - b. Conductors size No. 10 and smaller shall be colored full length. Tagging or other methods for coding of conductors size No. 10 and smaller not allowed.
- B. Line Voltage Cables:
 - 1. Metal Clad Cable (MC) may be used as restricted below:
 - a. Copper conductors.
 - b. Sizes #12 through #8.
 - c. Where permitted by NFPA 70.
 - d. Use only in indoor dry locations where:
 - 1) Not subject to damage.
 - 2) Not in contact with earth.
 - 3) Not in concrete.

PART 3 - EXECUTION**3.1 INSTALLATION****A. General:**

1. Conductors and cables shall be continuous from outlet to outlet.

B. Line Voltage Conductors:

1. Install conductors in raceway where indicated on Drawings
Neutrals:
 - a. On three-phase, 4-wire systems, do not use common neutral for more than three circuits.
 - b. On single-phase, 3-wire systems, do not use common neutral for more than two circuits.
 - c. Run separate neutrals for each circuit where specifically noted on Drawings.
 - d. Where common neutral is run for two or three home run circuits, connect phase conductors to breakers in panel which are attached to separate phase legs so neutral conductors will carry only unbalanced current. Neutral conductors shall be of same size as phase conductors unless specifically noted otherwise.
2. Pulling Conductors:
 - a. Do not pull conductors into conduit until raceway system is complete and cabinets and outlet boxes are free of foreign matter and moisture.
 - b. Do not use heavy mechanical means for pulling conductors.
 - c. Use only listed wire pulling lubricants.

C. Line Voltage Cables:

1. Route circuits at own discretion, however, circuiting and numbering shall be as shown in Panel Schedules.
2. Support cables using approved staples, cable ties, straps, hangers, or similar fittings, spaced as required.
3. Where installing in framing, do not bore holes in joists or beams outside center 1/3 of member depth or within 24 inches (600 mm) of bearing points. Do not bore holes in vertical framing members outside center 1/3 of member width. Holes shall be one inch diameter maximum.
4. Conceal cables within ceilings and walls of finished areas. Cables may be exposed in unfinished areas but not run on floors of mechanical equipment spaces or in such a way that they obstruct access to, operation of, or servicing of equipment.
5. Install exposed cables parallel to or at right angles to building structure lines.
6. Keep cables 6 inches (150 mm) minimum from hot water pipes.
7. Do not support cables from mechanical ducts or duct supports without Architect's written approval.
8. Prohibited procedures:
 - a. Boring holes for installation of cables in vertical truss members.
 - b. Notching of structural members for installation of cables.

END OF SECTION

SECTION 26 0526

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Furnish and install grounding for electrical installation as described in Contract Documents except as excluded below.

1.2 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Installers Qualifications:
 - a. Grounding and Bonding:
 - 1) Licensed electrical contractor shall perform installation and termination of main bonding conductor to building service entrance ground.
 - 2) Licensed in State that Work is to be performed.

PART 2 - PRODUCTS

2.1 SYSTEM

- A. Performance:
 - 1. Design Criteria:
 - a. Size materials as shown on Drawings and in accordance with applicable codes.
 - b. Bonding System Workmanship:
 - 1) The ground/earthing system shall be designed for high reliability and shall meet following criteria:
 - a) Local electrical codes shall be adhered to.
 - b) All grounding/earthing conductors shall be copper.
 - c) Regulatory Agency Sustainability Approvals requirements are required.
- B. Materials:
 - 1. Grounding And Bonding Jumper Conductors: Bare copper or with green insulation.
 - 2. Make grounding conductor connections to ground rods and water pipes using approved bolted clamps listed for such use.
 - 3. Service Grounding Connections And Cable Splices: Make by exothermic process.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Grounding conductors and bonding jumper conductors shall be continuous from terminal to terminal without splice. Provide grounding for following.
 - 1. Electrical service, its equipment and enclosures.
 - 2. Conduits and other conductor enclosures.
 - 3. Neutral or identified conductor of interior wiring system.
 - 4. Main panelboard, power and lighting panelboards.

5. Non-current-carrying metal parts of fixed equipment such as motors, starter and controller cabinets, instrument cases, and lighting fixtures.
- B. Provide grounding bushings on all feeder conduit entrances into panelboards and equipment enclosures.
- C. Bond conduit grounding bushings to enclosures with minimum #10 AWG conductor.
- D. Connect equipment grounds to building system ground.
 1. Use same size equipment grounding conductors as Phased conductors up through #10 AWG.
 2. Use NEC Table 250-95 for others unless noted otherwise in Drawings.
- E. Run separate insulated grounding cable from each equipment cabinet to electrical panel. Do not use intermediate connections or splices. Affix directly to cabinet.

END OF SECTION

SECTION 26 0533**RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Quality of material and installation procedures for raceway, boxes, and fittings used on Project but furnished under other Divisions.
 - 2. Furnish and install raceway, conduit, and boxes used on Project not specified to be installed under other Divisions.
- B. Related Requirements:
 - 1. Section 26 0501: 'General Electrical Requirements'.

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. Cooper B-Line, Highland, IL www.b-line.com.
 - b. Hubbell Incorporated, Milford, CT www.hubbell-wiring.com or Hubbell Canada Inc, Pickering, ON (905) 839-4332.
 - c. Square D, Palatine, IL www.squared.com.
 - d. Thomas & Betts, Memphis, TN www.tnb.com or Thomas & Betts Ltd, Iberville, PQ (450) 347-5318.
 - e. Walker Systems Inc, Williamstown, WV (800) 240-2601 or Walker Systems Inc / Wiremold Canada Inc, Fergus, ON (519) 843-4332.
 - f. Wiremold Co, West Hartford, CT www.wiremold.com.
- B. Materials:
 - 1. Raceway And Conduit:
 - a. Sizes:
 - 1) 1/2 inch (13 mm) for interior use, unless indicated otherwise.
 - b. Types: Usage of each type is restricted as specified below by product.
 - 1) Galvanized rigid steel or galvanized intermediate metal conduit (IMC) is allowed for use in all areas. Where in contact with earth or concrete, wrap buried galvanized rigid steel and galvanized IMC conduit and fittings completely with vinyl tape.
 - 2) Galvanized Electrical Metallic Tubing (EMT) and Flexible Steel Conduit:
 - a) Allowed for use only in indoor dry locations where it is:
 - (1) Not subject to damage.
 - (2) Not in contact with earth.
 - (3) Not in concrete.
 - b) For metal conduit systems, flexible steel conduit is required for final connections to indoor mechanical equipment.
 - 3) Listed, Liquid-Tight Flexible Metal Conduit:
 - a) Use in outdoor final connections to mechanical equipment, length not to exceed 36 inches (900 mm).
 - 4) Pre-wired 3/8 Inch (9.5 mm) Flexible Fixture Whips: Allowed only for connection to recessed lighting fixtures, lengths not to exceed 72 inches (1 800 mm).
 - c. Prohibited Raceway Materials:

5. Non-current-carrying metal parts of fixed equipment such as motors, starter and controller cabinets, instrument cases, and lighting fixtures.
- B. Provide grounding bushings on all feeder conduit entrances into panelboards and equipment enclosures.
- C. Bond conduit grounding bushings to enclosures with minimum #10 AWG conductor.
- D. Connect equipment grounds to building system ground.
 1. Use same size equipment grounding conductors as Phased conductors up through #10 AWG.
 2. Use NEC Table 250-95 for others unless noted otherwise in Drawings.
- E. Run separate insulated grounding cable from each equipment cabinet to electrical panel. Do not use intermediate connections or splices. Affix directly to cabinet.

END OF SECTION

SECTION 26 2726**WIRING DEVICES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install wiring devices complete with plates as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 26 0501: 'Common Electrical Requirements'.

PART 2 - PRODUCTS**2.1 COMPONENTS**

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. Cooper Wiring Devices, Peachtree City, GA www.cooperwiringdevices.com.
 - b. General Electric Industrial Systems, Charlotte, NC www.geindustrial.com.
 - c. Hubbell Building Automation, Austin, TX www.hubbell-automation.com.
 - d. Hubbell Inc, Milford, CT www.hubbell-wiring.com or Hubbell Canada Inc, Pickering, ON (800) 263-4622 or (905) 839-4332.
 - e. Hunt Control Systems Inc, Fort Collins, CO www.huntdimming.com.
 - f. Intermatic Inc, Spring Grove, IL www.intermatic.com.
 - g. Leviton Manufacturing Co, Little Neck, NY www.leviton.com or Leviton Manufacturing of Canada Ltd, Pointe-Claire, QB (800) 461-2002 or (514) 954-1840.
 - h. Lightolier Controls, Dallas, TX www.lolcontrols.com or Lightolier CFI, Lachine, QB (800) 565-5486 or (514) 636-0670.
 - i. Lutron Electronics Co Inc, Coopersburg, PA www.lutron.com.
 - j. Novitas Inc, Peachtree City, GA www.novitas.com.
 - k. Ortronics, New London, CT www.ortronics.com.
 - l. Paragon Electric Co Inc, Carol Stream, IL www.icca.invensys.com/paragon or Paragon Electric, Mississauga, ON (800) 951-5526 or (905) 890-5956.
 - m. Pass & Seymour, Syracuse, NY www.passandseymour.com or Pass & Seymour Canada Inc, Concord, ON (905) 738-9195.
 - n. Red Dot div of Thomas & Betts, Memphis, TN www.tnbcom.
 - o. Schneider Electric North America, Palatine, IL www.schneider-electric.com (847) 397-2600.
 - p. Sensorswitch, Wallingford, CT www.sensorswitch.com.
 - q. Siemon Company, Watertown, CT www.siemon.com.
 - r. Square D Co, Palatine, IL www.squared.com.
 - s. Suttle, Hector, MN www.suttleonline.com.
 - t. Tork Inc, Mount Vernon, NY www.tork.com.
 - u. Watt Stopper Inc, Santa Clara, CA www.wattstopper.com.
 - 2. Product Options:
 - a. Faces shall be nylon where available.
 - b. Devices of single type shall be from same Manufacturer.
 - c. Devices are listed as white. Use white devices on light colored walls, brown on dark colored walls, and black on black walls.
- B. Switches:
 - 1. Match Existing.

- a. Category Four Approved Products. See Section 01 6200 for definitions of Categories:
 - 1) 20 AMP, single pole:
 - a) Cooper: 2221V.
 - b) Hubbell: HBL1221-I.
 - c) Pass & Seymour: 20AC1-I.
 - d) Leviton: 1221-2I.
 - 2) Two Pole:
 - a) Cooper: 2222V.
 - b) Hubbell: HBL1222-I.
 - c) Pass & Seymour: 20AC2-I.
 - d) Leviton: 1222-2I.
 - 3) Three Way:
 - a) Cooper: 2223V.
 - b) Hubbell: HBL1223-I.
 - c) Pass & Seymour: 20AC3-I.
 - d) Leviton: 1223-2I.
 - 4) Four Way:
 - a) Cooper: 2224V.
 - b) Hubbell: HBL1224-I.
 - c) Pass & Seymour: 20AC4-I.
 - d) Leviton: 1224-2I.
 - 5) Pilot Switch:
 - a) Hubbell: HBL1221-PL.
 - b) Pass & Seymour: 20AC1-RPL.
 - c) Leviton: 1221-PLR.
 - 6) Lighted Toggle Switch:
 - a) Single Pole:
 - (1) Cooper: 2221-LTV.
 - (2) Hubbell: HBL1221-IL.
 - (3) Pass & Seymour: 20AC1-ISL.
 - (4) Leviton: 1221-LHI.
 - b) Three Way:
 - (1) Cooper: 2223-LTV.
 - (2) Hubbell: HBL1223-IL.
 - (3) Pass & Seymour: 20AC3-ISL.
 - (4) Leviton: 1223-7LC.
 2. Digital Time/Timer Switch:
 - a. As shown in small Storage, Mechanical and Electrical Rooms.
 - b. Automatic countdown type:
 - 1) Category Four Approved Products. See Section 01 6200 for definitions of Categories:
 - a) Leviton: LTT60-1L.
 - b) Hubbell: TD200.
 - c) Pass & Seymour: RT1W.
 - d) Tork: SSA100.
 - e) Watt Stopper: TS-400-W.
 3. Dimmer Switches:
 - a. Vertical slide control with faceplate.
 - b. Preset, ON-OFF switch, 1000VA.
 - c. Category Four Approved Products. See Section 01 6200 for definitions of Categories:
 - 1) Hubbell: AS101/AS1I.
 - 2) Hunt: DAP-10-IV.
 - 3) Leviton: IPI10-I.
 - 4) Lightolier: MP1000-I.
 - 5) Lutron: N-1003P-IV.
 - 6) Pass & Seymour: 91180-I.
 - 7) Watt Stopper: AD-1103-I.
- C. Receptacles:
1. Rectangular Face Designer Style:
 - a. 15 AMP, specification grade, back and side wired, self grounding.

- b. Category Four Approved Products. See Section 01 6200 for definitions of Categories:
 - 1) Cooper: 6262W.
 - 2) Hubbell: HBL2152WA.
 - 3) Leviton: 16252-W.
 - 4) Pass & Seymour: 26252-W.
 - 2. Ground Fault Circuit Interrupter (GFCI):
 - a. 15 AMP, specification grade.
 - b. Category Four Approved Products. See Section 01 6200 for definitions of Categories:
 - 1) Cooper: GF15W.
 - 2) Hubbell: GF5252WA.
 - 3) Leviton: 8599-W.
 - 4) Pass & Seymour: 1594-W.
 - 5) .
- D. Plates:
- 1. Standard Cover Plates:
 - a. Office / Occupied Areas:
 - 1) Nylon or high impact resistant thermoplastic.
 - 2) Color shall match wiring device.
 - b. All Other: Steel.
 - c. Ganged switches shall have gang plates.
 - d. Category Four Approved Manufacturers. See Section 01 6200 for definitions of Categories:
 - 1) Cooper.
 - 2) Hubbell.
 - 3) Leviton.
 - 4) Pass & Seymour.
 - 2. Weatherproof In-Use Receptacle Covers:
 - a. NEMA 3R rated.
 - b. Cast aluminum.
 - c. Compatible with GFCI receptacles.
 - d. Complete with weather resistant gaskets and stainless steel screws.
 - e. Category Four Approved Products. See Section 01 6200 for definitions of Categories:
 - 1) Hubbell: WP26MH, horizontal; WP26M, vertical.
 - 2) Intermatic: WP1010HMC, horizontal; WP1010MC, vertical.
 - 3) Red Dot: CKMG, horizontal; CKMGV, vertical.
- E. Surge Protective Device (for landscape irrigation controller):
- 1. Type 3 as defined in UL 1449 and approved for exterior application.
 - 2. Parallel metal oxide varistors, MOV, from each line to ground: 120 / 240 VAC. UV resistant construction with epoxy encapsulation of electrical connections.
 - 3. Include **1/2 inch** (12.7 mm) mounting nipple and locknut.
 - 4. Category Four approved Products. See Section 01 6200 for definitions of Categories:
 - a. ASZ175B1 by Cooper Power Systems.
 - b. AG2401C by Intermatic.
 - c. 54175-SSA by Leviton.
 - d. TDS120XR50S by Square D.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install devices flush with walls, straight, and solid to box.

EDIT REQUIRED: Include following paragraph if dimmer switches are used.

- B. Label dimmer switch groupings with **1/16 inch** (1.6 mm) thick laminated plastic composition material with contrasting color core. Engraved letter shall be **1/4 inch** (6 mm) high.

END OF SECTION

SECTION 26 2913**ENCLOSED CONTROLLERS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install motor starters and thermal units as described in Contract Documents, except those furnished as integral part of mechanical equipment.
- B. Related Requirements:
 - 1. Division 23: Motor starters and thermal units included as part of mechanical equipment.
 - 2. Section 26 0501: Common Electrical Requirements

PART 2 - PRODUCTS**2.1 ASSEMBLIES**

- A. Manufacturers:
 - 1. Category Four Approved Manufacturer. See Section 01 6200 for definitions of Categories.
 - a. Same manufacturer as Project's main panelboard.
- B. Material:
 - 1. Motor Starters:
 - a. General:
 - 1) Full voltage magnetic type rated in accordance with NEMA / CEMA standards, sizes, and horsepower ratings. Each starter shall include 100 VA control transformer rated 120/24 v. Fuse as required for class 2 wiring.
 - 2) Provide auxiliary contacts as required by Division 23.
 - 3) Provide solid state overload protection which includes but is not limited to:
 - a) Phase unbalance and phase loss protection.
 - b) Visible trip indication.
 - c) Trip test function.
 - d) Current adjustment over full range if starter's capacity.
 - e) Adjustment dial tamper guard.
 - 4) HAND-OFF-AUTO selector switch.
 - b. Include for Single Speed Starters:
 - 1) Red run light.
 - 2. Enclosures: When not installed in motor control center, provide NEMA / CEMA Type 1 or, where required to be weatherproof, NEMA / CEMA Type 3R.

PART 3 - EXECUTION**3.1 INSTALLATION**

- A. Interface With Other Work:
 - 1. Coordinate with appropriate Sections of Divisions 23 to determine necessary auxiliary contacts.
- B. Size overload units based on nameplate full load current of actual motors installed.

- C. Install each overload unit so catalog number is visible.
- D. If starter is mounted separate from disconnect, provide label on starter indicating equipment served, such as Condensing Unit CU-1. Use 1/16 inch (1.6 mm thick) laminated plastic composition material with contrasting color core. Engraved letters shall be 1/4 inch (6 mm).

END OF SECTION

SECTION 26 5100**INTERIOR LIGHTING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install lighting system as described in Contract Documents, complete with lamps.
- B. Related Requirements:
 - 1. Section 26 0501: 'Common Electrical Requirements'.
 - 2. Section 26 5121: 'Interior Lighting: LED Dimming Drivers'.
- C. Reference Standards:
 - 1. American National Standards Institute (ANSI) / American National Standard Lighting Group (ANSLG):
 - a. ANSI/ANSLG C78.377-2011, 'American National Standard for Electric Lamps: Specification for the Chromaticity of Solid State Lighting Products'.
 - 2. Federal Communications Commission (FCC):
 - a. Code of Federal Regulations (CFR):
 - 1) FCC 47 CFR Part 18, 'Industrial, Scientific, and Medical Equipment'.
 - 3. Institute of Electrical and Electronics Engineers (IEEE) / American National Standards Institute (ANSI):
 - a. IEEE / ANSI C62.41.1-2002, 'Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits'.

PART 2 - PRODUCTS**2.1 ASSEMBLIES**

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. Advance Transformer Co, Rosemont, IL www.advancetransformer.com.
 - b. Cooper Wiring Devices by Eaton, Peachtree City, GA www.cooperindustries.com.
 - c. General Electric Lighting, Hendersonville, NC or General Electric Lighting Canada Inc, Mississauga, ON www.gelighting.com/na.
 - d. Howard Lighting Products, Laurel, MS www.howard-ind.com.
 - e. Novitas Inc, Peachtree City, GA www.novitas.com.
 - f. Osram Sylvania, Danvers, MA www.sylvania.com or Osram Sylvania Ltd, Mississauga, ON (905) 673-6171.
 - g. Philips Lighting Co, Somerset, NJ www.lighting.philips.com/nam or Philips Lighting Canada, Scarborough, ON (416) 292-3000.
 - h. Universal Lighting Technologies, Nashville, TN www.universalballast.com.
 - i. Venture Lighting International, Solon, OH www.venturelighting.com.
 - j. Watt Stopper Inc, Santa Clara, CA www.wattstopper.com.
 - k. Westinghouse Lighting Corp, Philadelphia, PA www.westinghouselightbulbs.com.
 - 2. Product Options: When several lighting fixtures are specified by name for one use on Drawings, select any one of those specified. Do not mix fixtures from different manufacturers specified for one use.
- B. Materials
 - 1. Lighting Fixtures:

- a. Type One Acceptable Products:
 - 1) See Fixture Schedule on Drawings for acceptable manufacturers and models.
 - 2) Equals as approved by Architect before bidding. See Section 01 6200.
- b. See 'Light Fixture Schedule' provided by Owner's Representative.
2. Fluorescent Ballasts:
 - a. Energy saving electronic for T8 lamps:
 - 1) Program rapid start type.
 - 2) Parallel circuit type.
 - 3) Minimum power factor of 95 percent.
 - 4) Maximum total harmonic distortion of 10 percent.
 - 5) Operation of lamps in compliance with Lamp Manufacturer's recommendations.
 - 6) Minimum starting temperature 0 deg F (minus 17.8 deg C) for T8 lamps.
 - 7) Class A sound rating.
 - 8) Transient protection in accordance with IEEE / ANSI C62.41.1, Category A.
 - 9) Comply with FCC 47 CFR Part 18.
 - 10) Ballast factor of 0.78.
 - 11) Maximum crest factor of 1.7.
 - 12) Five year full replacement warranty including labor allowance for replacement.
 - 13) Input voltage to match system voltage.
 - 14) Category Four Approved Products and Manufacturers. See Section 01 6200 for definitions of Categories:
 - a) IOP2PSP32LWSC by Advance.
 - b) GE32-MVPS-L by General Electric.
 - c) QHE-UNV-PSX-SC by Osram / Sylvania.
3. Fluorescent Dimming Ballasts:
 - a. Electronic for T8 lamps:
 - 1) Programmed rapid start type.
 - 2) Series circuit type.
 - 3) Minimum power factor of 95 percent.
 - 4) Maximum total harmonic distortion of 20 percent.
 - 5) Operation of lamps in compliance with Lamp Manufacturer's recommendations.
 - 6) Minimum starting temperature 60 deg F (15.6 deg C).
 - 7) Class A sound rating.
 - 8) Transient protection in accordance with IEEE / ANSI C62.41.1, Category A.
 - 9) Comply with FCC 47 CFR Part 18.
 - 10) Maximum crest factor of 1.7.
 - 11) Five year full replacement warranty including labor allowance for replacement.
 - 12) Input voltage to match system voltage.
 - 13) Compatible with 0-10 VDC two-wire slide dimmer controller.
 - 14) Category Approved Products and Manufacturers. See Section 01 6200 for definitions of Categories:
 - a) VZT-3S32 by Advance.
 - b) B332SSR77V5 by Universal Lighting Technologies.
 - c) QTP3x32T8/277 DIM5-Q by Osram / Sylvania.
4. Lamps:
 - a. T8 Fluorescent Lamps:
 - 1) Minimum initial output of 3100 Lumens.
 - 2) Rated life of 40,000 hrs at 3 hrs per start for lamps operated on instant start ballasts.
 - 3) Minimum CRI 85.
 - 4) Meet Federal TCLP criteria.
 - 5) Category Four approved Manufacturers. See Section 01 6200 for definitions of Categories:
 - a) General Electric.
 - b) Howard.
 - c) North American Philips.
 - d) Osram / Sylvania.
 - 6) Correlated Color Temperature: 4100k.
 - b. Other Lamps:
 - 1) Category Four Approved Manufacturers. See Section 01 6200 for definitions of Categories:

- a) General Electric.
- b) North American Philips.
- c) Osram / Sylvania.
- c. LED Lamps and Fixtures:
 - 1) Replacement Lamps shall have minimum efficiency of 70 lm / W per LM 79.
 - 2) Integral LED Lamps shall have minimum efficiency of 90 lm / W per LM 79.
 - 3) Provide minimum rated life of 50,000 per LM 80 and LM 70 standards.
 - 4) Color Temperature: 3000k.
 - 5) Provide full spectrum color index of 65.
5. Daylight Lighting Switching System:
 - a. Complete system enabling control of up to six 277V circuits by daylighting photocell mounted in skylight.
 - b. System components include, but are not limited to, following items. Except for photocell, install components in single, locking enclosure:
 - 1) 20 to 2000 foot candle photocell with necessary mounting hardware.
 - 2) Control relays or contactors and transformers for up to six circuits
 - 3) Sensor controller with HIGH, LOW, and DEAD BAND adjustments.
 - c. Category Four Approved Manufacturers. See Section 01 6200 for definitions of Categories:
 - 1) Cooper Lighting.
 - 2) Watt Stopper.
- C. Factory Assembly:
 1. Fixtures shall be fully assembled complete with necessary wiring, sockets, lamps, reflectors, ballasts, auxiliaries, plaster frames, recessing boxes, hangers, supports, lenses, diffusers, and other accessories essential for complete working installation.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Interface With Other Work:
 1. Coordinate with Sections under 09 5000 heading to obtain symmetrical arrangement of fixtures in acoustic tile ceiling as shown on Reflected Ceiling Plan in Contract.
 2. Coordinate with Sections under 09 9000 heading to ensure that light coves are properly painted before installation of light fixtures.
 3. In mechanical equipment rooms, coordinate locations of light fixtures with equipment locations to provide proper room illumination without obstruction. Suspend fixtures that must be mounted below pipes, ducts, etc, with chains or other Architect approved method.
- B. Securely mount fixtures. Support fixtures weighing 50 lbs (23 kg) or more from building framing or structural members.
- C. Where recessed fixtures are to be installed, provide openings, plaster rings, etc, of exact dimensions for such fixtures to be properly installed. Coordinate fixture installation with ceiling type and thickness. Terminate circuits for recessed fixtures in an extension outlet box near fixture and connect with specified flexible conduit.

3.2 ADJUSTMENT

- A. Repair scratches or nicks on exposed surfaces of fixtures to match original undamaged conditions.

END OF SECTION

SECTION 26 5121**INTERIOR LIGHTING: LED Dimming Drivers****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
1. Furnish and install Interior Lighting LED Dimming Drivers as described in Contract Documents, complete with lamps.
- B. Related Requirements:
1. Section 26 0501: 'Common Electrical Requirements'.
 2. Section 26 0924, 'Lighting Control System'.
 3. Section 26 2726: 'Wiring Devices'.
 4. Section 26 5100: 'Interior Lighting'.
- C. Reference Standards:
1. American National Standards Institute (ANSI) / American National Standard Lighting Group (ANSLG):
 - a. ANSI/ANSLG C78.377-2011, 'American National Standard for Electric Lamps: Specification for the Chromaticity of Solid State Lighting Products'.
 - b. ANSI/ANSLG C82.11-2011, 'High-Frequency Fluorescent Lamp Ballasts'.
 2. American National Standards Institute (ANSI) / Illuminating Engineering Society (IES):
 - a. ANSI/IES RP-16-10, 'Nomenclature and Definitions for Illuminating Engineering'.
 3. Federal Communications Commission (FCC):
 - a. Code of Federal Regulations (CFR):
 - 1) FCC 47 CFR Part 15, 'Class B: Radio Frequency Devices'.
 4. Institute of Electrical and Electronics Engineers (IEEE) / American National Standards Institute (ANSI):
 - a. IEEE/ANSI C62.41.1-2002, 'Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits'.
 5. International Electrotechnical Commission (IEC):
 - a. IEC 60929 ED. 4.0 B:2011, 'AC and/or DC Supplied Electronic Control Gear for Tubular Fluorescent Lamps - Performance Requirements'.
 - b. IEC 61000-3-2:2005, 'Electromagnetic Compatibility (EMC) - Part 3-2: Limits for Harmonic Current Emissions (Equipment Input Current \leq 16 A per phase)'.
 - c. IEC 61347-1 ED. 2.2 B:2012, 'Lamp Controlgear - Part 1: General and Safety Requirements'.
 - d. IEC 61347-2-13 ED. 1.0 B:2006, 'Lamp Controlgear - Part 2-13: Particular Requirements for d.c. or a.c. Supplied Electronic Controlgear for LED modules'.
 - e. IEC 61547 ED. 2.0 B:2009, 'Equipment for General Lighting Purposes - EMC Immunity Requirements'.
 - f. IEC 62384:2006, 'D.C. or A.C. Supplied Electronic Control Gear for LED Modules - Performance Requirements'.
 - g. IEC 62386-101 ED.1.0 B:2009, 'Digital Addressable Lighting Interface - Part 101: General Requirements - System'.
 6. National Electrical Manufacturers Association (NEMA):
 - a. NEMA 410-2011, 'Performance Testing for Lighting Controls and Switching Devices with Electronic Drivers and Discharge Ballasts'.
 7. Underwriters Laboratories (UL):
 - a. UL 1310: 'Class 2 Power Units' (2011).
 8. Underwriters Laboratories (UL) / Underwriters Laboratories of Canada (ULC):
 - a. UL 8750: 'Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products' (2009).

1.2 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data:
 - a. Manufacturer's published product data on dimensions, ratings, catalog numbers and identification of products and accessories for products included for project. Include performance data.
 - 2. Shop Drawings:
 - a. Provide fixture type(s) list for each specific driver.
 - b. Provide wiring diagrams as needed for special operation or interaction with other system(s).
- B. Informational Submittals:
 - 1. Qualification Statements:
 - a. Manufacturer: Provide experience compliance documentation.
 - b. Products: Provide compliance documentation with UL / ULC requirements.
- C. Closeout Submittals:
 - 1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Warranty Documentation:
 - 1) Final, executed copy of Warranty on drivers.

1.3 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 - 1. Meet UL / ULC requirements.
- B. Qualifications. Requirements of Section 01 4301 applies but not limited to following:
 - 1. Manufacturer:
 - a. Manufacture with five (5) years experience in manufacture of dimmable electronic lighting drivers.
 - b. Provide experience documentation.

1.4 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. General:
 - a. Proceed with installation only when following ambient conditions can be maintained:
 - 1) Install when the temperature is between minus 4 deg F (minus 20 deg C) minimum and 122 deg. F (50 deg. C) maximum and relative humidity is ninety (90) percent, non-condensing.
 - 2) Protect from dust and excess moisture during installation.

1.5 WARRANTY

- A. Manufacturer Warranty:
 - 1. Provide five (5) year warranty on drivers to operate driver at or below required driver warranty temperature.

PART 2 - PRODUCTS

2.1 ASSEMBLIES

- A. Manufacturers:
 - 1. Category Four Approved Manufacturers. See Section 01 6200 for definitions of Categories:

- a. eldoLED America, San Jose, CA www.eldoled.com.
 - b. General Electric Lighting, Hendersonville, NC or General Electric Lighting Canada Inc, Mississauga, ON www.gelighting.com/na.
 - c. Howard Lighting Products, Laurel, MS www.howard-ind.com.
 - d. OSRAM Sylvania, Danvers, MA or OSRAM Sylvania LTD, Mississauga, Ontario Canada www.Sylvania.com.
 - e. Philips Lighting Co, Somerset, NJ www.lighting.philips.com/nam or Philips Lighting Canada, Scarborough, ON (416) 292-3000.
- B. LED Dimming Driver:
1. Description:
 - a. LED Dimming Driver:
 - 1) 4 wire (010V DC Voltage Controlled) Dimming Drivers.
 - 2) Digital (DALI Low Voltage Controlled) Dimming Drivers.
 - 3) Integral Diming Driver for replacement lamp.
 2. Design Criteria:
 - a. Driver:
 - 1) Driver must be able to operate for (+/- 10 percent) supply voltage of 120V through 277VAC at 60Hz.
 - 2) Driver to be UL / ULC recognized under component program and shall be modular for simple field replacement. Drivers that are not UL / ULC recognized or not suited for field replacement will not be used.
 - 3) Driver shall have ability to provide no light output when analog control signal drops below 0.5 V, or DALI digital signal calls for light to be extinguished and shall consume 0.5 watts or less in this standby. Control deadband between 0.5V and 0.65V shall be included to allow for voltage variation of incoming signal without causing noticeable variation in fixture to fixture output.
 - b. Range and Quality:
 - 1) LED dimming to be equal in range and quality to commercial grade incandescent dimmer:
 - a) Quality of dimming to be defined by dimming range, freedom from perceived flicker or visible stroboscopic flicker, smooth and continuous change in level (no visible steps in transitions), natural square law response to control input, and stable when input voltage conditions fluctuate over what is typically experience in commercial environment.
 - 2) Ten-year expected life while operating at maximum case temperature and 90 percent non-condensing relative humidity.
 - c. Inrush Current:
 - 1) Driver must limit inrush current as followings:
 - a) Minimum Requirement: Meet or exceed NEMA 410 driver inrush standard of 430 amps per 10 amps load with maximum of 370 amps² per second.
 - b) Preferred Requirement: Meet or exceed 30mA²s at 277VAC for up to 50 watts of load and 75A at 240us at 277VAC for 100 watts of load.
 - d. Withstand up to 1,000 volt surge without impairment of performance as defined by IEEE/ANSI C62.41.1 Category A.
 - e. Light Output:
 - 1) No visible change in light output with variation of plus/minus 10 percent line voltage input.
 - f. Harmonic Distortion:
 - 1) Total Harmonic Distortion less than 20 percent and meet ANSI/ANSLG C82.11 maximum allowable THD requirements at full output.
 - 2) THD shall at no point in dimming curve allow imbalance current to exceed full output THD.
 - g. Automatic Adaptation:
 - 1) Driver must support automatic adaptation, allowing for future luminaire upgrades and enhancements and deliver improved performance.
 - a) Adjustment of forward LED voltage, supporting 3V through 55V.
 - b) Adjustment of LED current from 200mA to 1.05A at the 100 percent control input point in increments of 1 mA.

- c) Adjustment for operating hours to maintain constant lumens (within 5 percent) over 50,000 hour design life of system, and deliver up to 20 percent energy savings early in life cycle.
- h. Light Quality:
 - 1) Over entire range of available drive currents, driver shall provide step-free, continuous dimming to black from 100 - 1 percent light output and step to 0 percent where indicated. Driver shall respond similarly when raising from 0 percent to 100 percent.
 - 2) Drivers to track evenly across multiple fixtures at all light levels, and shall have input signal to output light level that allows smooth adjustment over entire dimming range.
 - 3) Driver and luminaire electronics shall deliver illumination that is free from objectionable flicker as measured by flicker index (ANSI/IES RP-16-10). At all points within dimming range from 100-0.1 percent luminaire shall have:
 - a) LED dimming driver shall provide continuous step-free, flicker free dimming similar to incandescent source.
 - b) Minimum Requirement: Flicker index shall less that 5 percent at all frequencies below 1000 Hz.
 - c) Preferred specification: Flicker index shall be equal to incandescent, less that 1 percent at all frequencies below 1000 Hz.
- i. Control Input:
 - 1) 4-Wire (0-10V DC Voltage Controlled) Dimming Drivers:
 - a) Must meet IEC 60929 ED. 4.0 B Annex E for General White Lighting LED drivers.
 - b) Connect to devices compatible with 0 to 1 OV Analog Control Protocol, Class 2, capable of sinking 0.6 ma per driver at low end of 0.3V. Limit number of drivers on each 0-1 OV control output based on voltage drop and control capacity.
 - c) Control relays or contactors and transformers for up to six circuits
 - d) Sensor controller with HIGH, LOW, and DEADBAND adjustments.
 - 2) Digital (DALI Low Voltage Controlled) Dimming Drivers:
 - a) Must meet requirements of IEC 62386-101 ED.1.0 B.
 - 3) Integral Dimmer Driver for replacement lamps:
 - a) LED Driver shall not cause shadows.
 - b) LED Driver shall be line voltage controlled and shall be compatible with any universal dimmer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation of driver to meet Manufacturer's prescribed methods and instructions.
- B. Meet Ambient Conditions requirements for installation.
- C. Driver may be remote mounted up to 300 ft (90 m) depending on power level and wire gauge.
- D. 0-10V input shall be protected from line voltage miswire, and immune and output unresponsive to induced AC voltage on control leads.

END OF SECTION

SECTION 26 5200**EMERGENCY LIGHTING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install emergency battery units as described in Contract Documents.
- B. Related Requirements:
 - 1. Section 26 0501: 'Common Electrical Requirements'.

PART 2 - PRODUCTS**2.1 SYSTEMS**

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. Beghelli, Miramar, FL www.beghelliusa.com.
 - b. Bodine Emergency Lighting, Collierville, TN www.bodine.com
 - c. Dual-Lite, Cheshire, CT www.dual-lite.com.
 - d. Iota Engineering Co, Tucson, AZ www.iotaengineering.com
 - e. Lightolier, Fall River, MA www.lightolier.com.
 - f. Lithonia Lighting, Conyers, GA www.lithonia.com.
 - g. McPhilben / Day-Brite Lighting, Tupelo, MS www.mcphilben.com.
 - h. Sure-Lites / Cooper Lighting, Elk Grove, IL www.cooperlighting.com.
- B. Materials:
 - 1. Fluorescent Battery Packs:
 - a. Design Criteria:
 - 1) Batteries shall be long life nickel cadmium type.
 - 2) Complete with charging indicator light and test switch.
 - 3) Components shall be fully concealed and easily accessible for maintenance or replacement.
 - 4) Factory installed in lighting fixture, or field installed to same standards.
 - b. Linear Fluorescent Lighting Fixtures:
 - 1) Battery pack shall operate one (1) lamp at approximately 600 lumens initially and 60 percent minimum of initial lumens after ninety (90) minutes.
 - 2) Charger shall be capable of full recharge in twenty four (24) hours.
 - c. Class Two Quality Products: See Section 01 4301 for Manufacturer Qualifications and Section 01 6200:
 - 1) Any Manufacturer that conforms to Contract Documents requirements.
 - 2. Emergency Lighting Units And Fixtures:
 - a. Design Criteria:
 - 1) Shall operate indicated number of lamps for ninety (90) minutes of emergency operation.
 - 2) Sealed, maintenance free, lead calcium type battery.
 - 3) Painted steel housing and complete with power indicator light and test switch.
 - 4) Lamps to be designed for wet locations and with full vertical and horizontal adjustment of lamps.
 - b. Category Four Approved Products. See Section 01 6200 for definitions of Categories:

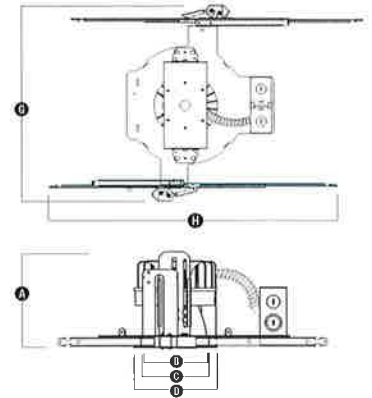
- 1) See Contract Drawings for approved fixtures. Coordinate emergency lighting unit and fixture so that systems function as required.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Battery Packs:
 1. General:
 - a. Wire so unit can be tested with lights on.
 - b. Wire so lamps in normal mode are switched off with other lighting in area. Connect unit to unswitched conductor of normal lighting circuit.
 2. Linear Fluorescent Lighting Fixtures:
 - a. Install in ballast channel of fixture with charging indicator light and test switch mounted on fixture end, or visible and accessible through lens.
- B. Lighting Heads:
 1. Aim lamps to maximize lighting of first **50 feet (15 meters)** of egress path.
 2. Wire so lamps are normally off and operate upon loss of normal building power.
- C. Emergency Lighting Units:
 1. Aim lamps to maximize lighting of first **50 feet (15 meters)** of egress path.
 2. Wire so lamps are normally off and operate upon loss of normal building power.
 3. Connect units to un-switched conductor of normal lighting circuit.

END OF SECTION



- A Height = 7"
- B Trim Aperture = 6"
- C Cut-out = 6-1/2"
- D Trim Outside Dia. = 7-1/8"
- G Width = 16"
- H Length (Bar Hanger) =
Max: 32" Min: 21"

3000
LUMENS
LUMENS

Smart Dimming Technology
dims smoothly and warm

* Delivered lumens depend on programmed color desired.

DESCRIPTION - 6" LED dedicated Architectural New Construction Downlight. Smart Dim by Maxilume offers the brilliance of incandescent dimming all while adhering to the most demanding energy codes today's market. Using Smart Dim, you can dim smoothly from 2700K to 1800K.

FEATURES - MAXILUME LED luminaires are ideally suited for use in hospitality, health care, commercial, academic institutions, retail and other architectural applications.



OPTICS - MAXILUME LED Optilux technology combines unmatched performance with visual comfort. Spun 0.05" thick 1-step anodized reflector has been designed to gather the light scattered by the LED chip and shape it into functional beams that minimize brightness and glare, while eliminating lamp image. Reflector offers a 45-55 degree cutoff and smooth frost Solite diffuser distributes light even throughout the workplace in 3 different distribution; Wide(WD), Medium(MD) and Narrow(ND).

PERFORMANCE - Smart dimming is a new technology to mimic a traditional incandescent technology through dimming. Using Smart Dim, you can dim smoothly from 2700K to 1800K. It is ideal for hospitality and residential application, all while maintaining high lumen output for the most stringent energy codes today's legislation requires. Smart dimming comes pared with high CRI of 90+ and superior lumen output of 95 lumens per watt. This game changing technology delivers rich and warm light to enhance each environment. Offered in 4 lumens outputs 850, 1250, 2000, and 3000 you have the choice to manipulate many different application requirements while maintaining the beauty of traditional dimming.

THERMAL MANAGEMENT SYSTEM - Using a proprietary coolLED Advanced Thermodynamic Design, Die-cast aluminum housing and heat management system are engineered for extremely long life and service period. Heat sink is attached to top of reflector. The LED light engine is attached to the die-cast heat sink and is easily replaceable and upgradable. Our die-cast system pulls the heat form the LED chip, allowing continued cool operation for years. Life tests have shown the MAXILUME light engine output will be maintained at 70% of initial at 50,000hrs of operation.

DIMMABLE - The MAXILUME LED system is fully dimmable down to 1% of initial light output with a 0-10 Volt dimmer when ordered with the following options (DIM10-120, DIM10-277). Fixtures can be shipped with a Lutron Hi-lume A series Driver which can be dimmed with Lutron Dimming Systems when ordered with the following options (LUTH-120, LUTH-277). Consult Factory for details.

LED DRIVER/JUNCTION BOX - The LED driver is rated for 50 to 60Hz at 120V /277V input, produces less than 20%THD, and has a power factor between 90% and 100% and is thermally protected for additional safety. MAXILUME's LED driver is installed on the junction box cover so it may be serviced from below the ceiling. UL Listed for through-branch circuit wiring, provided with four 1/2" knockouts, one 3/4" knockout and four Romex knockouts with true pryout slots and strain clamps. Designed for straight through conduit runs.

MOUNTING FRAME - Die-formed construction for maximum heat dissipation and rust protection.

MOUNTING BRACKET - Constructed from 16 gauge steel and is supplied with C-channel that are adjustable up to 28". Mounting bracket maybe adjusted up to 2-3/4" vertically from inside the housing.

OUR WORD - The MAXILUME LED lighting system carries a five-year carefree warranty for parts and components. (Labor not included.)

LISTING

c-UL-us / c-ETL-us - listed for Damp location.
c-UL-us / c-ETL-us - listed for feed Through Wiring.
LM79 / LM80
U.S Patent No. - D685,118S

DIMMING INFORMATION

DIM10 (0-10V Dimming)
LUTH (Lutron® Hi-lume® Dimming)

LED Driver options:



Example: MC6-LED-900L-DIM10-120-MD-CW-MC6-6501-CL-WH

MC6-LED	- 3000L	- LUTH-120	- MD	- 27K	- MC6-6501	- CL-WH	- WH		
TYPE	LUMEN SERIES	DIMMING	OPTICS	CCT	EMERGENCY	TRIM TYPE	REFLECTOR/RING FINISH	DISC	
MC6-LED	<input type="checkbox"/> 850L <input type="checkbox"/> 1250L <input type="checkbox"/> 2000L <input checked="" type="checkbox"/> 3000L	<input type="checkbox"/> DIM10-120 <input type="checkbox"/> DIM10-277 <input checked="" type="checkbox"/> LUTH-120 <input type="checkbox"/> LUTH-277	<input checked="" type="checkbox"/> MD (Medium)	<input checked="" type="checkbox"/> 27K	<input type="checkbox"/> EMG-LED <small>Typical lumen output of the fixture is up to 1000L in emergency mode. Contact the factory for details.</small>	<input checked="" type="checkbox"/> MC6-6501 <input type="checkbox"/> MC6-6507 <input type="checkbox"/> MC6-6509 <input type="checkbox"/> MC6-6510 <input type="checkbox"/> MC6-6511 <input type="checkbox"/> MC6-6521	<input type="checkbox"/> MC6-6522 <input type="checkbox"/> MC6-6523 <input type="checkbox"/> MC6-6525 <input type="checkbox"/> MC6-6528 <input type="checkbox"/> MC6-6577	<input checked="" type="checkbox"/> CL-WH <input type="checkbox"/> CL-SCH <input type="checkbox"/> SHZ-SHZ <input type="checkbox"/> SHZ-WH <input type="checkbox"/> W-WH <input type="checkbox"/> MB-WH <input type="checkbox"/> WT-WH	<input type="checkbox"/> BLUE <input type="checkbox"/> RED <input type="checkbox"/> GREEN <input type="checkbox"/> FROST <input type="checkbox"/> AL <input type="checkbox"/> BZ <input checked="" type="checkbox"/> WH

MC6-LED 6" ARCHITECTURAL HIGH LUMEN 6" LED OPTICS



FOR
WET
LOCATION

EXAMPLE: MC6-6501-CL-WH
MC6-6501 - REFLECTOR WITH DIFFUSE LENS
REFLECTOR/RING FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH



A = 7-1/4"



EXAMPLE: MC6-6521-CL-WH
MC6-6521 - STARDUST DECO RING GLASS WITH DIFFUSE LENS
REFLECTOR/RING FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH



A = 7-1/4"
B = 1"



EXAMPLE: MC6-6507-CL-WH
MC6-6507 - WALL WASH REFLECTOR WITH DIFFUSE LENS
REFLECTOR/RING FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH



A = 7-1/4"



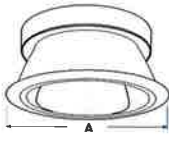
EXAMPLE: MC6-6523-CL-WH
MC6-6523 - PRISM DECO RING GLASS WITH DIFFUSE LENS
REFLECTOR/RING FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH



A = 7-1/4"
B = 1"



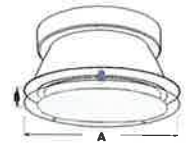
EXAMPLE: MC6-6577-CL-WH
MC6-6577 - DOUBLE WALL WASH REFLECTOR WITH DIFFUSE LENS
REFLECTOR/RING FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH



A = 7-1/4"



EXAMPLE: MC6-6522-CL-WH
MC6-6522 - EURO DECO RING GLASS WITH DIFFUSE LENS
REFLECTOR/RING FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH



A = 7-1/4"
B = 1"



EXAMPLE: MC6-6509-CL-WH
MC6-6509 - DECO GLASS REFLECTOR WITH DIFFUSE LENS
REFLECTOR/RING FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH
GLASS FINISH:
BLUE, RED, GREEN, FROST



A = 7-1/4"
B = 1"



EXAMPLE: MC6-6525-CL-WH
MC6-6525 - CENTRAL ETCHED FLOAT GLASS WITH DIFFUSE LENS
REFLECTOR/RING FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH



A = 7-1/4"
B = 1"



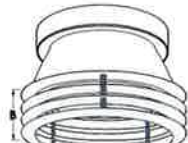
EXAMPLE: MC6-6510-CL-WH
MC6-6510 - DOUBLE RING GLASS WITH DIFFUSE LENS
REFLECTOR/RING FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH
GLASS FINISH:
BLUE, RED, GREEN, FROST



A = 7-1/4"
B = 1-7/8"



EXAMPLE: MC6-6511-CL-WH
MC6-6511 - TRIPLE RING GLASS WITH DIFFUSE LENS
REFLECTOR/RING FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH
GLASS FINISH:
BLUE, RED, GREEN, FROST



A = 7-1/4"
B = 2-3/4"



ALUMINIUM
DISC

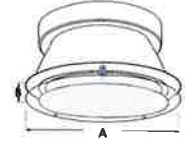
EXAMPLE: MC6-6528-CL-WH-AL
MC6-6528 - REFLECTOR WITH ALUMINIUM DISC AND DIFFUSE LENS
REFLECTOR FINISH:
CL-WH CL-SCH WT-WH SHZ-WH W-WH SHZ-SHZ MB-WH
DISC FINISH:
AL, WH, BZ



MC6-6528-CL-W-WH



MC6-6528-CL-WH-BZ

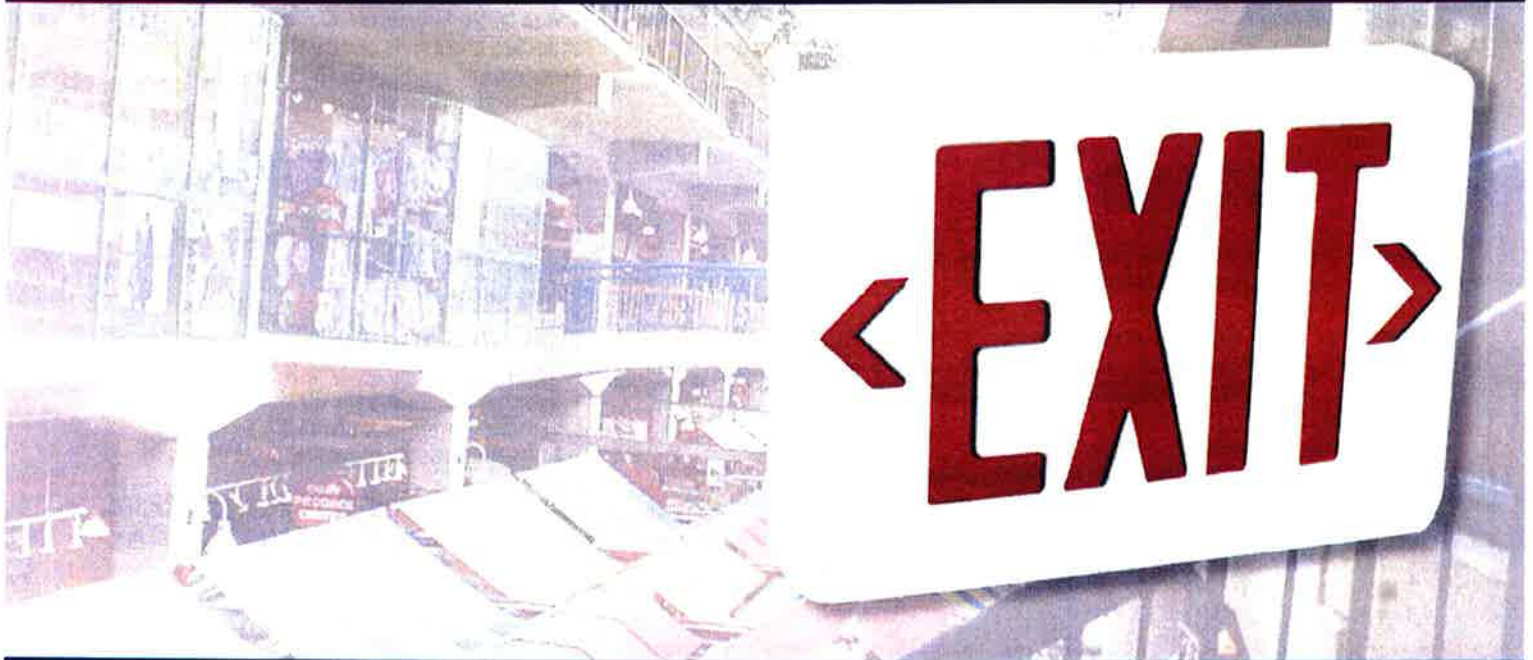


A = 7-1/4"
B = 1"

6 INCH ARCHITECTURAL HIGH LUMEN LED OPTICS



THERMOPLASTIC LED EXIT SIGN



Additional Reliance Series Products



RLC Exit Sign / Emergency Light Combo



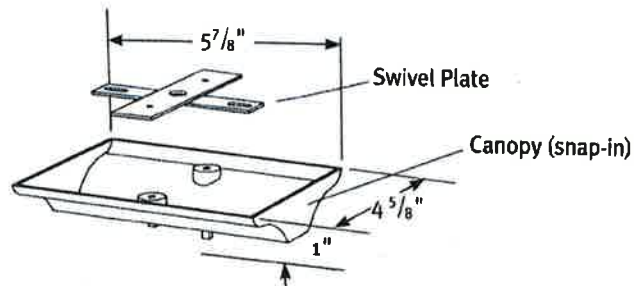
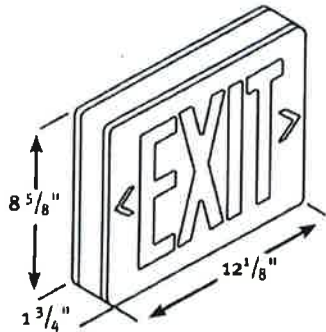
RL2 Emergency Light

- Standard sign includes:
 - Universal Mounting
 - Single or Double Face
 - Dual Voltage
 - Universal Chevrons
- Snap-on canopy for easy installation
- Super-Bright, Long-life LEDs have a rated life up to 20+ years
- 3-Year Warranty
- Listed by UL to UL 924 Standard; meets NFPA Life Safety Code 101



ISOLITE RL SERIES THERMOPLASTIC LED EXIT SIGN

Dimensions



Specifications

Overall Size: 12 1/8" x 8 5/8" x 1 3/4" – Single or Double

Canopy Size: 5 7/8" x 4 5/8" x 1"

Weight: AC model: 3.25 lbs.
EM model: 3.5 lbs.

Construction: UV stabilized, UL94V-O flame retardant ABS injection-molded thermoplastic

Letters: 6" high; 3/4" stroke

Arrows: NFPA, universal field-selectable chevrons

Input power: 120 Volt
AC models: red= 2.0 Watts; green= 2.3 Watts
EM models: red= 2.4 Watts; green= 3.8 Watts
277 Volt
AC models: red= 1.7 Watts; green= 1.9 Watts
EM models: red= 2.2 Watts; green= 3.1 Watts

Approvals: Listed by Underwriters Laboratories to UL 924 Standard and meets or exceeds all performance standards as required by NFPA 70, NFPA 101, EPA Energy Star, and OSHA

Features:

- Zero current low voltage disconnect
- Line-latch prevents unnecessary discharge of battery during installation
- Nickel Cadmium battery that provides 3 hours of emergency operation
- Brownout protection
- 120 or 277 VAC field-selectable Inputs
- Quick-connect components
- LED AC present
- Optional self-diagnostic SD circuit – SD option comes standard with 2+ hour emergency run time and fire alarm interface

Warranty: Isolite offers a 3-year limited warranty. For further details, refer to General Warranty and Obligations in Isolite manual.



Infra-red Remote Tester

Ordering Information

Series	Battery	LEDS	Housing Color	Options	
RL	AC = AC Only EM = NiCad Battery	R = Red G = Green	WW = White BB = All Black	PA = 12" Swivel Pendant PB = 24" Swivel Pendant PC = 36" Swivel Pendant PD = 48" Swivel Pendant RM = Infra-Red Remote Tester ¹ (Includes SD Option) (order Remote Control Separately = RC) USA = Meets ARRA Requirements	VR = Vandal Resistant Shield DL = Damp Location RLWG = Wire Guard (surface mount only) 2C = Dual Circuit ² SD = Self-Diagnostics (includes Fire Alarm Interface)

Example: RL-EM-G-WW-VR Note: 1 = EM Unit Only Note: 2 = AC only

Project _____

Date _____ Type _____

Catalog Number _____

Remarks _____

Visit us on the web at www.isolite.com or email sales@isolite.com



Call the Isolite office nearest you.

HEADQUARTERS
31 Waterloo Avenue
Berwyn, PA 19312
800-888-5483
610-647-8200
610-296-8952 Fax

WESTERN OFFICE
3563 Sueldo, Suite M
San Luis Obispo, CA 93401
800-799-5343
805-546-9669
805-546-9564 Fax