

SECTION 08300

ACCESS DOORS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the access doors as indicated on the drawings and/or specified herein, including but not limited to, the following:

1. Frameless recessed panel access doors at drywall ceilings and walls.
2. Framed flush panel access doors at tile walls.
3. Provide access doors and frames for access from occupied spaces to the following, where indicated or required, and as directed by the trades of Divisions 15 and 16.
 - a. All shutoff or balancing valves.
 - b. Fire dampers, as required.
 - c. Points of duct access.
 - d. Pull boxes.
 - e. Controls of mechanical and electrical items.
 - f. Pipe spaces, if required.
 - g. Inlets of fans.
 - h. Fusible link and splitter damper at filter bank.
 - i. Automatic damper and motor.
 - j. Equipment not otherwise accessible.

1.3 RELATED SECTIONS

- A. Drywall - Section 09250.
- B. Ceramic tile - Section 09310.
- C. Valves and connections - Division 15.

1.4 QUALITY ASSURANCE

- A. For actual installation of the work of this Section, use only personnel who are thoroughly familiar with the manufacturer's recommended methods of installation and who are completely trained in the skills required.
- B. Fire-Resistance Ratings: Wherever a fire-resistance classification is shown, or for construction where access doors are installed, provide required access door assembly with panel door, frame, hinge and latch from manufacturers listed in Underwriters' Laboratories, Inc. "Classified Building Materials Index" for the rating shown.

1. Provide UL label on each access panel.
 2. Provide flush, key operated cylinder lock.
- C. Size Variations: Obtain Architect's acceptance of manufacturer's standard size units which may vary slightly from sizes shown or scheduled.

1.5 SUBMITTALS

- A. Before any materials of this Section are delivered to the job site, submit complete manufacturer's literature to the Architect. Submit plans and schedules showing size and location of each and every access door for Architect's acceptance prior to installation.

1.6 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

PART 2 PRODUCTS

2.1 MATERIALS AND FABRICATION

- A. Provide access door assembly manufactured by Milcor Inc, Nystrom Inc., Karp Associates, Inc., or approved equal. Assembly shall be an integral unit complete with all parts and ready for installation.
- B. Fabricate units of continuous welded steel construction. Grind welds smooth and flush with adjacent surfaces. Provide attachment devices and fasteners of the type required to secure access panels to the types of supports shown.
- C. Frames for Tile Wall (Flush Panel Units): Fabricate frame from 16 gauge steel. Provide frame with exposed flange not less than 1".
- D. Frameless Units for Drywall Surfaces (Recessed Panel Units): Provide access doors without exposed frames for drywall adhered to recessed panel.
- E. Panels: Fabricate from 14 gauge steel, with concealed spring hinges set to open to 175 degrees. Provide removable pin type hinges of the quantity required to support the access panel sizes used in the work. Finish with manufacturer's factory applied baked enamel prime coat applied over phosphate protective coating on steel.
- F. Locking Devices
1. For non-rated access doors, provide flush, screwdriver operated cam locks of number required to hold door in flush, smooth plane when closed.
 2. For fire rated doors, provide locks as described in paragraph 1.4, B. herein.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where access doors are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 COORDINATION

- A. Coordinate all work with the mechanical trades to insure proper locations and in a timely manner to permit orderly progress of the total work.
- B. Set frames accurately in position and securely attach to supports with face panels plumb or level in relation to adjacent finish surfaces.
- C. Adjust hardware and panels after installation for proper operation.
- D. Remove and replace panels or frames which are warped, bowed, or otherwise damaged.

END OF SECTION

SECTION 08700
DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following
 - 1. Commercial door hardware for the following:
 - a. Swinging Doors.
 - b. Sliding Doors.
 - c. Other doors to extent indicated.
- B. Related Sections include the following:
 - 1. Division 8 Section "Flush Wood Doors" for astragals provided as part of a fire-rated labeled assembly.
 - 2. Division 8 Section "Access Doors" for access door hardware, except cylinders.
 - 3. Division 8 Section "Aluminum Entrances and Storefronts" for entrance door hardware, except cylinders.
 - 4. Division 8 Section "All-Glass Entrances" for entrance door hardware, except cylinders.

1.2 SUBMITTALS

- A. Product Data: Include installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Details of electrified door hardware, indicating the following:
 - 1. Wiring Diagrams: Detail wiring for power, signal, and control systems and differential between manufacturer-installed and field-installed wiring. Include the following:
 - a. System schematic
 - b. Point-to-point wiring diagram.
 - c. Riser Diagram.
 - d. Elevation of each door.
- C. Samples: For exposed door hardware of each type indicated below, in specified finish, full size. Tag with full description for coordination with the Door Hardware Schedule. Submit samples before, or concurrent with,, submission of the final Door Hardware Schedule.
 - 1. Door Hardware: As follows:

- a. Locks and latches.
- b. Bolts.
- c. Exit devices.
- d. Cylinders and keys.
- e. Operating trim.
- f. Closers.
- g. Stops and holders.
- h. Protective trim.
- i. Door gasketing.
- j. Thresholds.

2. Samples will be returned to Contractor. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated into the work, within limitations of keying requirements.

D. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrications and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand function, and finish of door hardware.

1. Format: Comply with scheduling sequences and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening.
3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Description of each electrified door hardware function, including location, sequence of operation, and interface with other building control systems.

4. Submittal Sequence: Submit the final Door Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- E. Keying Schedule: Prepared by or under the supervision of supplier, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extend to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Supplier Qualifications: Door hardware supplier with warehousing facilities in Project's vicinity and who is or employs a qualified Architectural Hardware Consultant with a minimum of five (5) years experience, available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying. **The Supplier must be a 'factory authorized' distributor of all products listed herein.**
 1. Electrified Door Hardware Supplier Qualifications: An experienced door hardware supplier who has completed projects with electrified door hardware similar in material, design, and extend to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance, and who is acceptable to manufacturer of primary materials.
 - a. Engineering Responsibility: Prepare data for electrified door hardware, including Shop Drawings and Wiring Diagrams as necessary, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project. The supplier must be a 'factory authorized' distributor of all products listed herein.
 2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
- C. Architectural Hardware Consultant Qualifications: A person who is currently certified by the Door and Hardware Institute as an Architectural Hardware Consultant and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.
 1. Electrified Door Hardware Qualifications: Experienced in providing consulting services for electrified door hardware installations.
- D. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
 1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that are listed to perform electrical modifications, by a testing and inspecting agency acceptable to authorities having jurisdiction, are acceptable.
- E. Regulatory Requirements: Comply with provisions of the following:

1. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," as follows:
 - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
 - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
 - 1) Interior Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
 - 2) Sliding or Folding Doors: 5 lbf (22.2 N) applied parallel to door at latch.
 - 3) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
 - c. Thresholds: Not more than ½ inch (13 mm) high. Bevel raised thresholds with a slope of not more than 1:2.
 2. NFPA 101: Comply with the following for means of egress doors:
 - a. Latches, Locks, and Exit Devices: Not more than 15 lbf (133 N) to set door in motion and not more than 15 lbf (67 N) to open door to minimum required width.
 3. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- F. Fire-Rated Door Assemblies: Provide door hardware for assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
- G. Keying Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Administrative Requirements." Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:
1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 2. Preliminary key system schematic diagram.
 3. Requirements for key control system.
 4. Address for delivery of keys.
- H. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Review methods and procedures related to electrified door hardware including, but not limited to, the following:
1. Inspect and discuss electrical roughing-in and other preparatory work performed by other trades.
 2. Review sequence of operation for each type of electrified door hardware.

3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site. Secure lock-up to be furnished by the General Contractor.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver keys to Owner by registered mail or overnight package service.
 1. All master keys to be delivered to the owner via registered mail.

1.5 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing door hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- B. Electrical System Roughing-in: Coordinate layout and installation of electrified door hardware with connections to security system.
- C. Wiring Diagrams: To be furnished as required for each opening.

1.6 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty periods. Failures include, but are not limited to, the following:
 1. Structural failures including excessive deflection, cracking, or breakage.
 2. Faulty operation of operators and door hardware.
 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- C. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.
- D. Warranty Period for Electromagnetic Locks: Five years from date of Substantial Completion.
- E. Warranty Period for Manual Closers: Ten years from date of Substantial Completion.
- F. Warranty Period for Concealed Floor Closers: Five years from date of Substantial Completion.

1.7 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance and removal and replacement of door hardware.
- B. Maintenance Service: Beginning at Substantial Completion, provide six months full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door hardware operation. Provide parts and supplies as used in the manufacture and installation of original products.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in this Section, door hardware sets indicated in door and frame schedule, and the Door Hardware Schedule, **see hardware schedule at end of section.**
 - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturer's products.
 - 2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.
 - 3. The Architect as listed herein specifically selected manufactures products, **Substitutions will not be allowed.**
 - 4. All fire rated doors are to receive U.L. approved fire rated hardware whether called for in the Hardware Sets or not.
 - 5. All hardware shall be properly sized for all door thickness.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Schedule at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

2.2 FINISHES

- A. Standard: Comply with BHMA A156.18.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installations.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Steel Doors and Frames: Comply with DHI A115 series.
 - 1. Surface-Applied Door Hardware: Drill and tap doors and frames according to SDI 107.
- B. Wood Doors: Comply with DHI A115-W series.

3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
 - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installations and operation.
 - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Key Control System: Place keys on markers and hooks in key control system cabinet, as determined by final keying schedule. The price to master key is to be included in this section.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

3.4 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Door Closers: Adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.
- B. Six-Month Adjustment: Approximately six months after date of Substantial Completion, Installer shall perform the following:
 - 1. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware, and electrified door hardware.
 - 2. Consult with and instruct Owner's personnel on recommended maintenance procedures.
 - 3. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.

3.5 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.6 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

SECTION 08700
DOOR HARDWARE

HARDWARE SETS

NOTE:

1. HARDWARE SETS ARE ONE PER DOOR. COORDINATE W/ DOOR SCHEDULE FOR DOUBLE DOORS
2. COORDINATE WITH DOOR SCHEDULE FOR ADDITIONAL ITEMS TO BE ADDED TO DOORS.
3. PROVIDE UL FIRE RATED HARDWARE WHERE REQUIRED.

HARDWARE SET A – CLASSROOM

3 EA. HINGES	CB179 4 1/2X4	STANLEY
1 EA. LATCHSET	AL SERIES W/ JUPITER LEVER	SCHLAGE
1 EA. STOP	407	IVES
3 EA. SILENCERS	#20	IVES

HARDWARE SET B – RESTROOM

3 EA. HINGES	CB179 4 1/2X4	STANLEY
1 EA. LATCHSET	AL SERIES W/ JUPITER LEVER	SCHLAGE
1 EA. STOP	407	IVES
3 EA. SILENCERS	#20	IVES

HARDWARE SET C – PRACTICE ROOMS*

3 EA. HINGES	CB179 4 1/2X4	STANLEY
1 EA. LATCHSET	AL SERIES W/ JUPITER LEVER	SCHLAGE
1 EA. STOP	407	IVES
3 EA. SILENCERS	#20	IVES
1 EA. CLOSER	4040	LCN

*FOR PREFAB PRACTICE ROOMS 005, 006, 007, 008, 009, 010, 011, 012 BY IAC. IAC TO PROVIDE AND INSTALL ALL REQUIRED HARDWARE PER IAC SPECIFICATIONS. CONTRACTOR TO COORDINATE AND PROVIDE FINAL KEYING OF DOORS PER OWNER REQUIREMENTS.

HARDWARE SET D – EGRESS

3 EA. HINGES		STANLEY
1 EA. CLOSER	4040	LCN
1 EA. PANIC BAR	XP98/99 W/ LEVER AND LOCK	VON DUPRIN
1 EA. LOCKSET		TO SUIT
1 EA. KICKPLATE	8400	ROCKWOOD

HARDWARE SET E – J. CLOSET/MECH. ROOM

3 EA. HINGES	CB179 4 1/2X4	STANLEY
1 EA. LATCHSET	AL SERIES W/ JUPITER LEVER	SCHLAGE
1 EA. STOP	407	IVES

HARDWARE SET F – SPECIALTY

3 EA. HINGES	CB179 4 1/2X4	STANLEY
1 EA. LATCHSET	AL SERIES W/ JUPITER LEVER	SCHLAGE
1 EA. STOP	407	IVES
1 EA. CLOSER	4040	LCN

HARDWARE SET G – OFFICE

3 EA. HINGES	CB179 4 1/2X4	STANLEY
1 EA. LATCHSET	AL SERIES W/ JUPITER LEVER	SCHLAGE
1 EA. STOP	407	IVES

HARDWARE SET H – CLASSROOM STORAGE

3 EA. HINGES	CB179 4 1/2X4	STANLEY
1 EA. LATCHSET	AL SERIES W/ JUPITER LEVER DUMMY LEVER	SCHLAGE
1 EA. STOP	407	IVES

ADDITIONAL HARDWARE

NOTE:

1. WHERE INDICATED ON DOOR SCHEDULE PROVIDE ADDITIONAL HARDWARE.
- ~~2. FOR ELECTRIC DOOR OPENER PROVIDE FLUSH MOUNTED ACTUATOR AND REQUIRED HARDWARE FROM LCN.~~
- ~~3. ELECTRIC DOOR OPENER TO BE TIED TO HANDICAPPED LIFT. WHEN DOOR IS OPENED BY ACTUATOR, LIFT IS TO OPEN AND ARRIVE AT BOTTOM LANDING. WHEN LIFT IS CALLED AT THE TOP OF THE STAIRS, DOOR IS TO OPEN UNTIL LIFT CLOSES AGAIN.~~

1 EA. GASKET	475A	ZERO
1 EA. DOOR BOTTOM	861A	ZERO
1 EA. ELECTRIC DOOR HOLD OPEN		LCN
1 EA. ELECTRIC DOOR OPENER	8540	LCN

SECTION 08800

GLASS AND GLAZING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the glass and glazing as shown on the drawings and/or specified herein, including but not limited to glazing of the following:
 - 1. Aluminum entrances and storefront framing.
 - 2. Interior hollow metal doors.
 - 3. Interior hollow metal framing.

1.3 RELATED SECTIONS

- A. Hollow metal doors and frames - Section 08100.
- B. Aluminum entrances and storefronts - Section 08410.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thicknesses indicated on drawings and/or specified herein are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
 - 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
 - a. Specified Design Wind Loads: 30 psf or greater if required by Code.
 - 2. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.
 - a. Load Duration: 60 seconds or less.

3. Maximum Lateral Deflection: For glass supported on all four edges, provide thickness required that limits center deflection at design wind pressure to 1/100 times the short side length or 3/4", whichever is less.
4. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - a. Temperature Change (Range): 120 deg. F ambient; 180 deg F, material surfaces.
- C. Glass units shall be annealed, heat strengthened, fully tempered or laminated where required to meet wind load and safety glazing requirements, as shown, specified or recommended by the glass fabricator and as required by the New York City Building Code.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's printed product data, specifications, standard details, installation instructions, use limitations and recommendations for each material used. Provide certifications that materials and systems comply with specified requirements.
- B. Initial Selection Samples: Submit samples of each glass and glazing material showing complete range of colors, textures, and finishes available for each material used.
- C. Verification Samples: Submit representative samples of each glass and glazing material that is to be exposed in completed work. Show full color ranges and finish variations expected. Provide glass samples having minimum size of 144 sq. in. and 6 in. long samples of sealants and glazing materials; all samples shall bear the name of the manufacturer, brand name, thickness, and quality.
- D. Calculations: Provide wind load charts, calculations and certification of performance of this work. Indicate how design requirements for loading and other performance criteria have been satisfied.
- E. Test Reports: Provide certified reports for specified tests.
- F. Warranties: Provide written warranties as specified herein.

1.6 QUALITY ASSURANCE

- A. Source: For each glass and glazing type required for work of this Section, provide primary materials which are products of one manufacturer. Provide secondary or accessory materials which are acceptable to manufacturers of primary materials.
- B. Installer: A firm with a minimum of five years experience in type of work required by this Section and which is acceptable to manufacturers of primary materials; and with a successful record of in-service installations similar in size and scope to this Project.

- C. Glass Thickness: Glass thicknesses shown on drawings and/or specified herein are minimum thicknesses. Determine and provide size and thickness of glass products that are certified to meet or exceed performance requirements specified in this Section. Provide units with proper thickness, edge clearance and tolerance to comply with recommendations of glass manufacturer.
- D. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated.
 - 1. GANA Publications: GANA'S "Glazing Manual".
 - 2. SIGMA Publications: SIGMA TM-3000, "Vertical Glazing Guidelines for Sealed Insulating Glass Units".
- E. Glazing for Fire-Rated Door Assemblies: Glazing for assemblies that comply with NFPA 80 and that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252.
- F. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201 and, for wired glass, ANSI 97.1.
 - 1. Subject to compliance with requirements, obtain safety glazing products permanently marked with certification label of the Safety Glazing Certification Council.
 - 2. Where glazing units, including tempered glass, are specified in Part 2 articles for glazing lites more than 9 sq. ft. in exposed surface area of one side, provide glazing products that comply with Category II materials, for lites 9 sq. ft. or less in exposed surface area of one side, provide glazing products that comply with Category I or II materials, except for hazardous locations where Category II materials are required by 16 CFR 1201 and regulations of authorities having jurisdiction.
- G. Insulating Glass Certification Program: Permanently marked on spacers with appropriate certification label of the following testing and inspecting agency:
 - 1. Insulating Glass Certification Council.
 - 2. Associated Laboratories, Inc.

1.7 TESTS

- A. Preconstruction Sealant Test: Submit samples of materials to be used to glazing sealant manufacturer to determine sealant compatibility. Include samples of glass, gaskets, glazing materials, framing members, and other components and accessories of glazing work. Test in accordance with ASTM C 794 to verify what type of primers (if any) are required to ensure sealant adhesion to substrates.
 - 1. Submit minimum of nine pieces of each type and finish of framing member, and nine pieces of each type, class, kind, condition, and form of glass, including monolithic, laminated, and insulating glass for adhesion tests.

2. Provide manufacturer's written report and recommendations regarding proper installation.

1.8 PROJECT CONDITIONS

- A. Weather: Perform work of this Section only when existing or forecasted weather conditions are within limits established by manufacturers of materials and products used.
- B. Temperature Limits: Install sealants only when temperatures are within limits recommended by sealant manufacturer, except, never install sealants when temperatures are below 40 deg. F.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials and products in unopened, factory labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations and GANA Manual.
 1. Protect materials from moisture, sunlight, excess heat, sparks and flame.
 2. Sequence deliveries to avoid delays, but minimize on-site storage.

1.10 WARRANTIES

- A. General: Warranties shall be in addition to, and not a limitation of, other rights the Owner may have under the Contract Documents.
- B. Manufacturer's Special Project Warranty on Coated Glass Products: Provide written warranty signed by manufacturer of coated glass agreeing to furnish f.o.b. point of manufacture, freight allowed project site, within specified warranty period indicated below, replacements for those coated glass units which develop manufacturing defects. Manufacturing defects are defined as peeling, cracking or deterioration in metallic coating due to normal conditions and not due to handling or installation or cleaning practices contrary to glass manufacturer's published instructions.
 1. Warranty Period: Manufacturer's standard but not less than 5 years after date of substantial completion.
- C. Manufacturer's Special Project Warranty on Insulating Glass: Provide written warranty signed by manufacturer of insulating glass agreeing to furnish f.o.b. point of manufacture, freight allowed project site, within specified warranty period indicated below, replacements for those insulating glass units developing manufacturing defects. Manufacturing defects are defined as failure or hermetic seal of air space (beyond that due to glass breakage) as evidenced by intrusion of dirt or moisture, internal condensation or fogging, deterioration of protected internal glass coatings, if any, and other visual indications of seal failure or performance; provided the manufacturer's instructions for handling, installing, protecting and maintaining units have been complied with during the warranty period.
 1. Warranty Period: Manufacturer's standard but not less than 10 years after date of substantial completion.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS/FABRICATORS

- A. All glass shall be produced by the same manufacturer.

2.2 GLASS MATERIALS AND PRODUCTS - AS NOTED ON ARCHITECTURAL DRAWINGS

~~A. Clear Float Glass: ASTM C 1036, Type I-Transparent, Flat, Class 1-Clear, Quality q3, minimum 1/4" thick.~~

~~B. Clear Tempered Glass: ASTM C1048, Condition A-Uncoated, Type I-Transparent, Flat, Class 1-Clear, Quality q3, Kind FT, minimum 1/4" thick.~~

~~C. Low 'E' Coated Glass: Provide high performance, clear, metallic coating, Solarscreen 2000, as manufactured by Viracon. Provide Low 'E' coating which has the following performance characteristics when applied to the No. 2 surface of 1" insulating units, both lites 1/4" clear:~~

~~1. Visible Light Transmittance: 70%.~~

~~2. Shading Coefficient: 0.43.~~

~~3. Solar Energy Transmittance: 32%.~~

~~D. Insulating Glass: Provide 1 1/2" min. thick factory assembled units of organically sealed panes of glass enclosing a hermetically sealed dehydrated air space, complying with ASTM E 774, and as follows:~~

~~1. Sealing System: Dual Seal.~~

~~2. Primary Sealant: Polyisobutylene.~~

~~3. Secondary Sealant: Silicone, General Electric IGS 3204 or IGS 3100, Rhodorsil Rhodotherm 542 or 543, or Dow Corning 982.~~

~~4. Spacer: Clear finish aluminum with welded, soldered, or bent corners.~~

~~5. Desiccant: Molecular sieve, silica gel, or blend of both.~~

~~6. Air Space Thickness: 1/2".~~

~~7. Individual Glass Thickness: 1/4" minimum.~~

~~E. Wire Glass: ASTM C 1036, UL Listed, Fire Rated polished transparent wire glass complying with ANSI Z97.1. Provide Type II - Patterned and Wired Glass, Class 1 - Clear, Quality q8 - Glazing, Form 1, Polished Both Sides, and as follows:~~

~~1. Thickness: 1/4" unless otherwise indicated or required.~~

~~2. Square Pattern: Mesh M2.~~

2.3 GLAZING MATERIALS AND PRODUCTS

- A. General: Provide sealants and gaskets with performance characteristics suitable for applications indicated. Ensure compatibility of glazing sealants with insulated glass sealants, with laminated glass interlayers, and with any other surfaces in contact.
- B. General Glazing and Cap Bead Sealant: Provide sealant with maximum Shore A hardness of 50. Provide one of the following:
 - 1. Dow Corning 795.
 - 2. General Electric Silglaze N 2500 or Contractors SCS-1000.
 - 3. Rhodorsil 3B, 5C, or 6B.
 - 4. Tremco Spectrem 2.
- C. Weather Seal Sealant: Provide non-acid curing sealant with movement range $\pm 50\%$, ASTM C 719. Provide one of the following:
 - 1. Dow Corning 795.
 - 2. General Electric Silpruf.
 - 3. Rhodorsil 3B, 5C, or 6B.
 - 4. Tremco Spectrem 2.
- D. Dense Elastomeric Compression Seal Gaskets: Provide molded or extruded neoprene or EPDM gaskets, Shore A hardness of 75 ± 5 for hollow profile, and 60 ± 5 for solid profiles, ASTM C 864.
- E. Cellular, Elastomeric Preformed Gaskets: Provide extruded or molded closed cell, integral-skinned neoprene, Shore A 40 ± 5 , and 20% to 35% compression, ASTM C-509; Type II.
- F. Preformed Glazing Tape: Provide solvent-free butyl-polyisobutylene rubber with 100% solids content complying with ASTM C 1281 AAMA A 800 with integral continuous EPDM shim. Provide preformed glazing tape in extruded tape form. Provide Tremco "Polyshim II", or approved equal.
- G. Setting Blocks: Provide neoprene or silicone blocks with Shore A hardness of 80-90. Provide products certified by manufacturer to be compatible with silicone sealants. Length to be not less than 4". Width for setting blocks to be 1/16" more than glass thickness and high enough to provide the lite recommended by glass manufacturer. When thickness of setting block exceeds 3/4" the glass manufacturer must be consulted for sizes and configuration. In a vented system, setting block shall be designed so as to not restrict the flow of water within the glazing rabbet to the weep holes.
 - 1. Shims: For shims used with setting blocks, provide same materials, hardness, length and width as setting blocks.
- H. Edge Blocks: Provide neoprene or silicone as required for compatibility with glazing sealants. Provide blocks with Shore A hardness of 55 ± 5 .

- I. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place.
- J. Miscellaneous Glazing Materials: Provide sealant backer rods, primers, cleaners, and sealers of type recommended by glass and sealant manufacturers.

2.4 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.
- B. Grind smooth and polish exposed glass edges.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep system.
 - 3. Minimum required face or edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Shop Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.

- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where the length plus width is larger than 50 inches as follows:
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.
- L. Flush Glazing
 - 1. If the butt joint in the metal framing is in the vertical direction, the glazier shall run the tape initially on the head and sill members going directly over this joint. Should the butt joint in the metal framing run horizontally, tapes must first be applied to the jambs so that it crosses over the joint.
 - 2. Each tape section shall butt the adjoining tape and be united with a tool to eliminate any opening.
 - 3. Do not overlap the adjoining length of tape or rubber shim as this will prevent full contact around the perimeter of glass.
- M. Off-Set Glazing
 - 1. Where the glazing legs are off-set, the difference in the rabbet width shall be compensated by employing different glazing tapes with different diameter shims. The difference in shim shall be equal to the size of the off-set. The thinner tape shall be positioned first on the glazing leg closest to the interior.

The thicker tape shall be cut to the exact length of the dimension between the applied tapes, and installed on the outermost glazing leg.

2. Immediately prior to setting glass, paper backing shall be removed. Apply a toe bead of sealant 6" in each direction, from each corner.
3. Locate setting blocks in the sill member at quarter points, or if necessary to within 6" of each corner. Setting blocks must be set equal distance from center line of the glass and high enough to provide the recommended bite and edge clearances.
4. Set edge block according to glass manufacturer's recommendations.
5. Set Glass: Press the glass firmly against the tape to achieve full contact.
6. In a vented system, apply a heel bead (air seal) of sealant around the perimeter of glass, between the sole of the insulating glass unit and the base of the rabbet of the metal framing developing a positive bond to the unit and to the metal framing. The bead of the sealant shall be deep enough so that it will partially fill the channel to a depth of 1/4" between the glass edge and the base of the metal framing rabbet.
7. Interior stops shall be set, and glazing tape spline for the appropriate face clearance shall be rolled into place, compressing the glass to the shim within the glazing tape.

3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until just before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant as recommended by glass manufacturer or glass frame manufacturer.
- G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape where noted on approved shop drawings.

3.5 GASKET GLAZING (DRY)

- A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 PROTECTION AND CLEANING

- A. Protect glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkaline deposits, or stains; remove as recommended by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents, and vandalism, during construction period.

END OF SECTION

SECTION 09250
GYPSUM DRYWALL

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the gypsum drywall as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Gypsum board work for partitions, ceilings, column enclosures, furring, and elsewhere where gypsum drywall work is shown on drawings.
 - 2. Metal supports for gypsum drywall construction.
 - 3. Acoustical insulation for gypsum drywall work.
 - 4. Sealant for gypsum drywall work.
 - 5. Concealed metal reinforcing for attachment of railings and other items supported on drywall partitions and walls.
 - 6. Installing rings and frames in drywall surfaces for grilles, registers and lighting fixtures.
 - 7. Gypsum shaftwall construction.
 - 8. Bracing and connections.

1.3 RELATED SECTIONS

- A. Hollow metal door frames - Section 08100.
- B. Access doors - Section 08300.
- C. Painting - Section 09900.
- D. Rings for grilles, registers and light fixtures - Division 15 and 16.

1.4 QUALITY ASSURANCE

- A. The following standards as well as other standards which may be referred to in this Section, shall apply as applicable to the work of this Section:
 - 1. Gypsum Drywall Construction Handbook, latest edition, U.S. Gypsum Co.

2. ASTM C 645 "Standard Specification for Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels For Screw Application of Gypsum Board."
 3. ASTM A 568 "Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements For."
 4. ASTM C 1396 "Standard Specification for Gypsum Board."
 5. ASTM C 475 "Standard Specification for Joint Treatment Materials for Gypsum Wallboard Construction."
 6. ASTM C 840 "Standard Specification for Application and Finishing of Gypsum Board."
 7. ASTM C 919 "Standard Specification for Use of Sealants in Acoustical Applications."
 8. ASTM C 954 "Standard Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs From 0.033 in. to 0.112 in. in Thickness."
 9. ASTM C 1002 "Standard Specification for Steel Drill Screws for the Application of Gypsum Board."
 10. ASTM C 754 "Standard Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Board."
 11. ASTM D 3273 "Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber."
- B. Allowable Tolerances: 1/32" offsets between planes of board faces, and 1/16" in 8'-0" for plumb, level, warp and bow.
- C. System Design Load: Provide drywall assemblies designed and tested by manufacturer to withstand a lateral load of 5 lbs. per sq. ft. for the maximum wall height required, and with deflection limited to 1/240 of partition height.
1. Drywall assemblies with tile finish shall have a deflection limit of 1/360.
- D. Fire-Resistance Rating: Where gypsum drywall with fire resistance ratings are indicated, provide materials and installations which are identical with those of applicable assemblies tested per ASTM E 119 by fire testing laboratories, or to design designations in UL "Fire Resistance Directory" or in listing of other testing agencies acceptable to authorities having jurisdiction, and compliant with UL Test #2079; criteria for cycle movement for all field height wall sections requiring allowance for vertical deflection within framing details.
- E. Installer: Firm with not less than 5 years of successful experience in the installation of specified materials.

1.5 SUBMITTALS

- A. Submit shop drawing for each drywall partition, furring and ceiling system showing size and gauges of framing members, hanger and anchorage devices, wallboard types, insulation, sealant, methods of assembly and fastening, control joints indicating column lines, corner details, joint finishing and relationship of drywall work to adjacent work.
- B. Samples: Each material specified herein, 12" x 12", or 12" long, or in manufacturer's container, as applicable for type of material submitted.
- C. Manufacturer's Literature: Submit technical and installation instructions for each drywall partition, furring and ceiling system specified herein, and for each fire-rated and sound-rated gypsum board assembly. Submit other data as required to show compliance with these specifications.
- D. Test Reports: Submit test report, obtained by drywall manufacturer, indicating conformance of drywall assemblies to required fire ratings and sound ratings.

1.6 PRODUCT HANDLING AND PROTECTION

- A. Deliver, store and handle drywall work materials to prevent damage. Deliver materials in their original, unopened containers or bundles, and store where protected from moisture, damage and from exposure to the elements. Store wallboard in flat stacks.
- B. Protect wallboard from becoming wet.

1.7 ENVIRONMENTAL CONDITIONS

- A. Provide and maintain minimum temperature of 55 degrees F. and adequate ventilation to eliminate excessive moisture within the building in the area of the drywall work for at least 24 hours, prior to, during and after installation of drywall work. Installation shall not start until windows are glazed and doors are installed, unless openings are temporarily closed. Space above suspended ceilings shall be vented sufficiently to prevent temperature and pressure build up.

1.8 JOB MOCK-UP

- A. At a suitable location, where directed by the Architect, lay up a portion of a finished wall and ceiling demonstrating the quality of work, including finishing, to be obtained under this Section. Omit drywall boards in locations as directed by the Architect to show stud spacing and attachments; after acceptance, complete assembly.
- B. Adjust the finishing techniques as required to achieve the finish required by the Architect as described in this Section of these specifications.
- C. Upon approval of the mock-up, the mock-up may be left in place as a portion of the finished work of this Section.
- D. All drywall work shall be equal in quality to approved mock-up.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Materials specified below, unless noted otherwise or specified herein, are those of U.S. Gypsum Co. Equivalent materials of National Gypsum Co., Georgia Pacific and Lafarge meeting specification requirements are acceptable.

2.2 METAL SUPPORTS

A. Metal Floor and Ceiling Runners

1. Channel Type: Formed from 20 gauge (unless otherwise noted) galvanized steel, width to suit channel type metal studs. Use 20 gauge top runners with 1-1/4" minimum flanges.
2. Ceiling runners and head of wall connections at rated partitions shall conform to UL #2079 for cycle movement. Provide positive mechanical connection of framing to structure, allowing for vertical movement within connections. Minimum of 20 gauge galvanized steel for clips, 25 gauge galvanized steel for ceiling runners. Providing a friction free - anti-seizure movement capacity.
 - a. As manufactured by the Steel Network, VertiClip or VertiTrack.
 - b. FireTrak (including stud clips) by FireTrak Corp.
3. "J" Type: Formed from 20 gauge galvanized steel, 1" x 2-1/2" or 4" wide (to suit detail) x 2-1/4" (for shaft wall).

B. Metal Studs, Framing and Furring

1. Channel Type Studs: Channel type with holes for passage of conduit formed from minimum 20 gauge (unless heavier gauge is required to meet deflection limits) galvanized steel, width as shown on drawings.
2. Furring Channels: Hat shaped, formed from galvanized steel, 25 gauge.
3. "C-H" Type Stud: 1-1/2" x 2-1/2", 4" or 6" wide (to suit detail) galvanized steel. Use for shaft wall construction; gauge and size as required to meet deflection limits given herein.
4. Double "E" Type Stud: 2" x 2-1/2", 4" or 6" wide (to suit detail) galvanized steel. Use for shaft wall construction; gauge and size as required to meet deflection limits given herein.
5. Continuous 16 gauge x 8" wide steel wall plate screwed to studs as required for support of railings and other items supported on drywall partitions and walls.

C. Suspended Ceiling and Fascia Supports

1. Main Runners: 1-1/2" steel channels, cold rolled at 0.475 lbs. per ft., rust-inhibitive paint finish.
2. Furring Members: Screw-type hat-shaped furring channels of 25 gauge zinc-coated steel; comply with ASTM C 645.

3. Hangers: Galvanized, 1" x 3/16" flat steel slats capable of supporting 5x calculated load supported.
4. Hanger Anchorages: Provide inserts, clips, bolts, screws and other devices applicable to the required method of structural anchorage for ceiling hangers. Size devices for 5x calculated load supported.
5. Furring Anchorages: 16 gauge galvanized wire ties, manufacturer's standard clips, bolts or screws as recommended by furring manufacturer.

2.3 GYPSUM WALLBOARDS

- A. General: Provide boards in manufacturer's standard widths and in maximum lengths available to minimize end to end butt joints. Provide thicknesses as indicated on drawings; where not indicated provide 5/8" thickness.

~~B. Standard Gypsum Wall Board: "Sheetrock".~~

~~C. Fire Rated Gypsum Wall Board: "Sheetrock Firecode C".~~

~~D. Water Resistant Gypsum Wall Board (for areas scheduled to receive ceramic tile, or where fire rating is required): "Sheetrock W/R" or "Sheetrock Firecode C W/R".~~

~~E. Shaft Wall Liner: Solid gypsum board liner for shaft wall construction, 1" thick, with beveled edges, "Sheetrock Brand Liner Panel, Enhanced" or "DensGlass Ultra Shaft Guard" by Georgia Pacific.~~

- F. Mold Resistant Wall Board (~~at all perimeter walls and wet shafts~~): "DensArmour Plus" by Georgia Pacific ~~or approved equal that has a rating of 10 per ASTM-D 3279.~~ **AT ALL LOCATIONS EXCEPT RESTROOM**

2.4 ACCESSORIES

- A. Acoustic Insulation: Paper-less, non-combustible, semi-rigid mineral fiber mat, 2" thick, in walls (unless otherwise indicated), 3 lb./cu. ft. maximum density; Thermafiber LLC "Thermafiber," or approved equal.
- B. Fasteners for Wall Board: USG Brand Screws; Type S Bugle Head for fastening wallboard to lighter gauge interior metal framing (up to 20 gauge). Type S-12 Bugle Head for fastening wallboard to heavier gauge interior metal framing (20 gauge to 12 gauge); Type S and Type S-12 Pan Head for attaching metal studs to door frames and runners; and Type G Bugle Head for fastening wallboard to wall board. Lengths specified below under "Part 3 - Execution" Articles and as recommended by drywall manufacturer.
- C. Laminating Adhesive: "Sheetrock Brand Joint Compound."
- D. Metal Corner Beads: For 90 degree External Corners - "Dur-A-Bead" No. 103, 27 gauge galvanized steel, 1-1/4" x 1-1/4", for 90 degree external corners.
- E. Metal Edge Beads: "Sheetrock Brand Paper Faced Metal Bead and Trim."
- F. Metal Trim Treatment Materials and Joint Treatment Materials for Gypsum Drywall Boards: Paper tape for joint reinforcing; Setting Type (Durabond 90) or

Lightweight Setting Type Joint Compound for taping and topping; and Ready Mix Compound for finishing.

1. For areas to receive mold-resistant drywall, use tape with compounds as recommended by manufacturer.
- G. Control Joints: No. 0.093, USG.
- H. Acoustical Sealant: USG "Acoustical Sealant" or "Tremco Acoustical Caulking" of Tremco Mfg. Co., or approved equal.
- I. Neoprene Gaskets: Conform to ASTM D 1056.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where gypsum drywall is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. General

1. Install drywall work in accordance with drywall manufacturer's printed instructions and as indicated on drawings and specified herein.
 2. All metal framing for drywall partitions shall extend from floor to underside of structural deck above. Provide for vertical deflection with positive mechanical connections of framing members to structure.
 3. Provide concealed reinforcement, 16 gauge thick by 8" wide or as detailed or as recommended by manufacturer, for attachment of railings and other items to be supported on the partitions which cannot be attached to the metal framing members. Concealed reinforcement shall span between metal studs and be attached thereto using 2 self-tapping pan head screws at each stud.
 - a. Back of drywall shall be scored or notched to prevent bulging out where reinforcement plate occurs.
- B. Fire-Rated Assemblies: Install fire-rated assemblies in accordance with requirements of authorities having jurisdiction, Underwriters' Laboratories and test results obtained and published by the drywall manufacturer, for the fire-rated drywall assembly types indicated on the drawings.
- C. Acoustic Assemblies: Install acoustic rated assemblies to achieve a minimum STC as noted on drawings, in accordance with test results obtained and published by the drywall manufacturer, for the drywall assembly type indicated on the drawings.

D. Sealant

1. Install continuous acoustical sealant bead at top and bottom edges of wallboard where indicated or required for sound rating as wallboard is installed, and between metal trim edge beads and abutting construction.
2. Install acoustical sealant in 1/8" wide vertical control joints within the length of the wall or partitions, and in all other joints, specified below under "Control Joints." Install bead of acoustical sealant around electric switch and outlet boxes, piping, ducts, and around any other penetration in the wallboard; place sealant bead between penetrations and edge of wallboard.
3. Where sealant is exposed to view, protect adjacent surfaces from damage and from sealant material, and tool sealant flush with and in same plane as wallboard surface. Sealant beads shall be 1/4" to 3/8" diameter.

E. Wall Board Application

1. See drawings for all board types. Use fire-rated wallboard for fire-rated assemblies. Use water-resistant wallboard where indicated on drawings and where wallboard would be subject to moisture. Install water-resistant wallboard in full, large sheets (no scraps) to limit number of butt joints.
2. Apply wallboard with long dimension parallel to stud framing members, and with abutting edges occurring over stud flanges.
3. Install wallboard for partitions from floor to underside of structure above and secure rigidly in place by screw attachment, unless otherwise indicated.
4. Neatly cut wallboard to fit around outlets, switch boxes, framed openings, piping, ducts, and other items which penetrate wallboard; fill gaps with acoustic sealant.
5. Screw fasten wallboard with power-driven electric screw driver, screw heads to slightly depress surface of wallboard without cutting paper, screws not closer than 3/8" from ends and edges of wallboard.
6. Where studs are doubled-up, screw fasten wallboard to both studs in a staggered pattern.

F. Metal Trim: Install and mechanically secure in accordance with manufacturer's instructions; and finish with 3 coats of joint compound, feathered and finish sanded smooth with adjacent wallboard surface, in accordance with manufacturer's instructions.

1. Corner Beads: Install specified corner beads in single lengths at all external corners, unless corner lengths exceed standard stock lengths.
2. Edge Beads: Install specified edge beads in single lengths at all terminating edges of wallboard exposed to view, where edges abut dissimilar materials, where edges would be exposed to view, and elsewhere where shown on drawings. Where indicated on drawings, seal joint between metal edge bead and adjoining surface with specified gasket, 1/8" wide minimum and set back 1/8" from face of wallboard, unless other size and profile indicated on drawings.

3. Casing beads shall be set in long lengths, neatly butted at joints. Provide casing beads at juncture of board and vertical surfaces and at exposed perimeters.
- G. Control Joint Locations: Gypsum board surfaces shall be isolated with control joints where:
1. Ceiling abuts a structural element, dissimilar wall or other vertical penetration.
 2. Construction changes within the plane of the partition or ceiling.
 3. Ceiling dimensions exceed 30 feet in either direction.
 4. Wings of "L," "U," and "T" shaped ceiling areas are joined.
 5. Expansion or control joints occur in the structural elements of the building.
 6. Shaftwall runs exceed 30 feet without interruption.
 7. Partition or furring abuts a structural element or dissimilar wall or ceiling.
 8. Partition or furring runs exceed 30 feet without interruption.
 9. Shown on approved shop drawings.
 10. Where control joints are required, ceiling height door frames may be used as control joints. Less than ceiling height frames shall have control joints extending to the ceiling from both corners.
- H. Joint Treatment and Spackling
1. Joints between face wallboards in the same plane, joints at internal corners of intersecting partitions and joints at internal corners of intersections between ceilings and walls or partitions shall be filled with joint compound.
 2. Screw heads and other depressions shall be filled with joint compound. Joint compound shall be applied in 3 coats, feathered and finish surface sanded smooth with adjacent wallboard surface, in accordance with manufacturer's instructions. Treatment of joints and screw heads with joint compound is also required where wallboard will be covered by finish materials which require a smooth surface, such as vinyl wall coverings.

3.3 FURRED WALLS AND PARTITIONS

- A. Use specified metal furring channels. Run metal furring channel framing members vertically, space 16" o.c. maximum. Fasten furring channels to concrete or masonry surfaces with power-driven fasteners or concrete stub nails spaced 16" o.c. maximum through alternate wing flanges (staggered) of furring channel. Furring channels shall be shimmed as necessary to provide a plumb and level backing for wallboard. At inside of exterior walls, an asphalt felt protection strip shall be installed between each furring channel and the wall. Furring channel and splices shall be provided by nesting channels at least 8" and securely anchoring to concrete or masonry with 2 fasteners in each wing.
- B. Wallboard Installation: Same as specified under Article 3.4 - "Metal Stud Partitions."

3.4 METAL STUD PARTITIONS

- A. Runner Installation: Use channel type. Align accurately at floor according to partition layout. Anchor runners securely 16" o.c. maximum with power-driven anchors to floor slab, with power-driven anchors to structural slab above. See "Stud Installation" below for runners over heads of metal door frames. Where required, carefully remove sprayed-on fireproofing to allow partition to be properly installed.
- B. Stud Installation
1. Use channel type, positioned vertically in runners, spaced as noted on drawings, but not more than 16" o.c.
 2. Anchor studs to floor runners with screw fasteners. Provide snap-in or slotted hole slip joint bolt connections of studs to ceiling runners leaving space for movement. Anchor studs at partition intersections, partition corners and where partition abuts other construction to floor and ceiling runners with sheet metal screws through each stud flange and runner flange.
 3. Connection at ceiling runner for non-rated partitions shall be snap-in or slotted hole slip joint bolt connection that shall allow for movement. Seal studs abutting other construction with 1/8" thick neoprene gasket continuously between stud and abutting construction.
 4. Connections for fire rated partitions at ceiling runners shall conform to UL Design #2079.
 5. Install metal stud horizontal bracing wherever vertical studs are cut or wallboard is cut for passage of pipes, ducts or other penetrations, and anchor horizontal bracing to vertical studs with sheet metal screws.
 6. At jambs of door frames and framed openings, install doubled-up studs (not back to back) from floor to underside of structural deck, and securely anchor studs to jamb anchors of frames and to runners with screws. Provide cross braces from hollow metal frames to underside of slab.
 7. Over heads of door frames, install cut-to-length section of runner with flanges slit and web bent to allow flanges to overlap adjacent vertical studs, and securely anchor runner to adjacent vertical studs with sheet metal screws. Install cut-to-length vertical studs from runner (over heads of door frame) to ceiling runner 16" maximum o.c. and at vertical joints of wallboard, and securely anchor studs to runners with sheet metal screws.
 8. At control joints, in field of partition, install double-up studs (back to back) from floor to ceiling runner, with 1/4" thick continuous compressible gasket between studs. When necessary, splice studs with 8" minimum nested laps and attach flanges together with 2 sheet metal screws in each flange. All screws shall be self-tapping sheet metal screws.
- C. Runners and Studs at Chase Wall: As specified above for "Runners" and "Studs" and as specified herein. Chase walls shall have either a single or double row of floor and ceiling runners with metal studs 16" o.c. maximum and positioned vertically in the runners so that the studs are opposite each other in pairs with the flanges pointing in the same direction. Anchor all studs to runner flanges with sheet metal screws

through each stud flange and runner flange following requirements of paragraph 3.4, B. Provide cross bracing between the rows of studs by attaching runner channels or studs set full width of chase attached to vertical studs with one self-tapping screw at each end. Space cross bracing not over 36" o.c. vertically.

D. Wallboard Installation - Single Layer Application (Screw Attached)

1. Install wallboard with long dimension parallel to framing member and with abutting edge joints over web of framing member. Install wallboard with long dimension perpendicular to framing members above and below openings in drywall extending to second stud at each side of opening. Joints on opposite sides of wall shall be arranged so as to occur on different studs.
2. Boards shall be fastened securely to metal studs with screws as specified. Where a free end occurs between studs, back blocking shall be required. Center abutting ends over studs. Correct work as necessary so that faces of boards are flush, smooth, true.
3. Wallboard screws shall be applied with an electric screw gun. Screws shall be driven not less than 3/8" from ends or edges of board to provide uniform dimple not over 1/32" deep. Screws shall be spaced 12" o.c. in the field of the board and 8" o.c. staggered along the abutting edges.
4. All ends and edges of wallboard shall occur over screwing members (studs or furring channels). Boards shall be brought into contact but shall not be forced into place. Where ends or edges abut, they shall be staggered. Joints on opposite sides of a partition shall be so arranged as to occur on different studs.
5. At locations where piping receptacles, conduit, switches, etc., penetrate drywall partitions, provide non-drying sealant and an approved sealant stop at cut board locations inside partition.

E. Wallboard Installation - Double-Layer Application

1. First Layer (Screw Attached): Install as described above for single layer application.
2. Second Layer (Screw Attached): Screw attach second layer, unless laminating method of attachment indicated on drawings or necessary to obtain required sound rating or fire rating. Install wallboard vertically with vertical joints offset 34" from first layer joints and staggered on opposite sides of wall. Attach wallboard with 1-5/8" screws 16" o.c. along vertical joints and 16" o.c. in the field of the wallboard. Screw through first layer into metal framing members.
3. Second Layer (Laminated): Install wallboard vertically. Stagger joints of second layer from first layer joints. Laminate second layer with specified laminating adhesive in beads or strips running continuously from floor to ceiling in accordance with manufacturer's instructions. After laminating, screw wallboard to framing members with 1-5/8" screws, spaced 12" o.c. around perimeter of wallboard.

- F. Wallboard Installation - Laminated Application: Where laminated wallboard is indicated, use specified laminating adhesive, install wallboard vertically and maintain tolerances as specified for screw attached wallboard.
- G. Insulation Installation: Install where indicated on drawings. Place blanket tightly between studs.
- H. Deflection of Structure Above: To allow for possible deflection of structure above partitions, provide top runners for non-rated partitions with 1-1/4" minimum flanges and do not screw studs or drywall to top runner. Where positive anchorage of studs to top runner is required, anchorage device shall be by means of slotted hole (in clip connection with screw attachment to web of steel through bushings located in slots of clips), or other anchorage device approved by Architect.
- I. Control Joints
 - 1. Leave a 1/2" continuous opening between gypsum boards for insertion of surface mounted joint.
 - 2. Back by double framing members.
 - 3. Attach control joint to face layer with 9/16" galvanized staples 6" o.c. at both flanges along entire length of joint.
 - 4. Provide 2" wide gypsum panel strip or other adequate seal behind control joint in fire rated partitions and partitions with safing insulation.

3.5 DRYWALL FASCIAS AND CEILINGS

- A. Furnish and install inserts, hanger clips and similar devices in coordination with other work.
- B. Secure hangers to inserts and clips. Clamp or bolt hangers to main runners.
- C. Space main runners 4'-0" o.c. and space hangers 4'-0" o.c. along runners, except as otherwise shown.
- D. Level main runners to a tolerance of 1/4" in 12'-0", measured both lengthwise on each runner and transversely between parallel runners.
- E. Metal Furring Channels: Space 16" o.c. maximum. Attach to 1-1/2" main runner channels with furring channel clips (on alternate sides of main runner channels). Furring channels shall not be let into or come in contact with abutting masonry walls. End splices shall be provided by nesting furring channels no less than 8" and securely wire tying. At any openings that interrupt the furring channels, install additional cross reinforcing to restore lateral stability.
- F. Mechanical accessories, hangers, splices, runner channels and other members used in suspension system shall be of metal, zinc coated, or coated with rust inhibitive paint, of suitable design and of adequate strength to support units securely without sagging, and such as to bring unit faces to finished indicated lines and levels.
 - 1. Provide special furring where ducts are over 24" wide.

- G. Apply board with its long dimension at right angles to channels. Locate board butt joints over center of furring channels. Attach board with 1" self-drilling drywall screws 12" o.c. in field of board; 8" o.c. at butt joints located not less than 3/8" from edges.

3.6 SHAFT WALLS

- A. Runner Installation: Use "J" metal runners at floor and ceiling, with the short leg toward finish side of wall. Securely attach runners to structural supports with power-driven fasteners at both ends and 24" o.c.
- B. Shaft Wall Liner: Cut shaft wall liner panels 1" less from floor to ceiling height and erect vertically between J-runners.
- C. C-H Studs: Cut metal "C-H" studs 3/8" to not more than 1/2" less than floor to ceiling height and install between shaft wall liner panels so that panels are fitted snugly into the 1" wide "H" portion of the stud. Space studs 24" o.c., unless otherwise indicated on drawings. Install full-length steel E-Studs or runners vertically at T-intersections, corners, door jambs, and columns. Install full length E-Studs over shaft wall liner both sides of closure panels. Frame openings cut within a liner panel with J-Runner around perimeter. For openings, frame with vertical E-Stud or runner at edges, horizontal runner at head and sill, and reinforcing as shown on the drawings. Suitably frame all openings to maintain structural support for wall. Install floor-to-ceiling steel E-Studs each side of door frames to act as strut-studs. Attach strut-stud to floor and ceiling runners with two (2) 3/8" Type S screws, space 12" o.c. Over metal doors, install a cut to length section of runner and attach to strut-studs with clip angles and 3/8" Type S Screws space 12" o.c.
- D. Wallboard Installation - Double Layer Installation: Erect gypsum wallboard base layer horizontally one side of studs with end joints staggered. Fasten base layer panels to studs with 1" Type S screws 24" o.c. Caulk perimeter of base layer panels. Apply gypsum wallboard face layer vertically over base layer with joints staggered and attached with 1-5/8" Type S screws staggered from those in base, spaced 8" o.c. and driven into studs.
- E. Wallboard Installation (Where Both Sides of Shaft Wall are Finished): Apply gypsum wallboard face layers vertically both sides of studs. Stagger joints on opposite partition sides. Fasten panels with 1" or 2" Type S screws spaced 8" o.c. in field and along edges into studs.
- F. Support door frames independently of drywall shaft framing system, or reinforce system in accordance with system manufacturer's instructions.
- G. Where handrails are indicated for direct attachment to drywall shaft system, provide not less than a 16 gauge x 8" wide galvanized steel reinforcement strip, accurately positioned and secured to studs and concealed behind not less than one 1/2" thick course of gypsum board in the system.

3.7 ERECTION AT COLUMN ENCLOSURES

- A. Metal furring supports shall be provided under work of this Section, and shall be cut to lengths as necessary for tight fit such that spacing is not more than 16" o.c.

- B. Board shall be fastened securely to supports with screws as specified. Place boards in position with minimum amount of joints. Where free ends occur between supports, back-blocking or furring shall be required. Center abutting ends over supports. Correct work as necessary so that faces of boards are flush, smooth and true. Provide clips or cross furring for attachment as required.
- C. All layers shall be screw attached to furring.
- D. When column finish called for on drawings to be in the same plane as drywall finish layer, maintain even, level plane.

3.8 FINISHING

- A. Taping: A thin, uniform layer of taping compound shall be applied to all joints and angles to be reinforced. Reinforcing tape shall be applied immediately, centered over the joint, seated into the compound. A skim coat shall follow immediately, but shall not function as a fill or second coat. Tape shall be properly folded and embedded in all angles to provide a true angle.
- B. Filling: After taping compound has hardened, topping compound shall be applied, filling the board taper flush with the surface. The fill coat shall cover the tape and feather out slightly beyond the tape. On joints with no taper, the fill coat shall cover the tape and feather out at least 4" on either side of the tape. No fill coat is necessary on interior angles.
- C. After topping compound is set, a finishing coat of topping compound shall be spread evenly over and extending slightly beyond the fill coat on all joints and feathered to a smooth, uniform finish. Over tapered edges, the finished joint shall not protrude beyond the plane of the surface. All taped angles shall receive a finish coat to cover the tape and taping compound, and provide a true angle. Where necessary, sanding shall be done between coats and following the final application of compound to provide a smooth surface, ready for painting.
- D. Fastener Depressions: Taping compound shall be applied to all fastener depressions followed, when hardened by at least 2 coats of topping compound, leaving all depressions level with the plane of the surface.
- E. Finishing Beads and Trim: Taping compound shall be applied to all bead and trim and shall be feathered out from the ground to the plane of the surface. When hardened, this shall be followed by 2 coats of topping compound each extending slightly beyond the previous coat. The finish coat shall be feathered from the ground to the plane of the surface and sanded as necessary to provide a flat, smooth surface ready for decoration.
- F. Level of finish for surface exposed to view shall conform to Level 4 of ASTM C 840 and GA-214 of the Gypsum Association.
- G. Drywall construction with defects of such character which will mar appearance of finished work, or which is otherwise defective, will be rejected and shall be removed and replaced at no expense to the Owner.

3.9 CLEANING AND ADJUSTMENT

- A. At the completion of installation of the work, all rubbish shall be removed from the building leaving floors broom clean. Excess material, scaffolding, tools and other equipment shall be removed from the building.
- B. Work shall be left in clean condition ready for painting or wall covering. All work shall be as approved by Architect.
- C. Cutting and Repairing: Include all cutting, fitting and repairing of the work included herein in connection with all mechanical trades and all other trades which come in conjunction with any part of the work, and leave all work complete and perfect after all trades have completed their work.

3.10 PROTECTION OF WORK

- A. Installer shall advise Contractor of required procedures for protecting drywall work from damage and deterioration during remainder of construction period.

END OF SECTION

SECTION 09310

CERAMIC TILE

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the ceramic tile as shown on the drawings and/or specified herein, including, but not limited to, the following:
 - 1. Ceramic mosaic floor tile.
 - 2. Ceramic glazed wall tile and matching base.
 - 3. Marble saddles.
 - 4. Setting beds, grout, and scalant.

1.3 RELATED SECTIONS

- A. Concrete slabs - Existing.
- B. Gypsum drywall – Section 09250.

1.4 QUALITY ASSURANCE

- A. Qualifications of Installers: For cutting, installing and grouting of tile, use only thoroughly trained and experienced journeyman tile setters who are completely familiar with the requirements of this work, and the recommendations contained in the referenced standards.
- B. Codes and Standards: In addition to complying with all pertinent codes and regulations, comply with the following:
 - 1. Manufacture all tile in accordance with Standard Grade Requirements of ANSI A-137.1.
 - 2. Install tile in accordance with the recommendations contained in Handbook for Ceramic Tile Installation of the Tile Council of America, Inc., latest edition.

1.5 SUBMITTALS

- A. Samples
 - 1. Before any tile is delivered to the job site, submit sample panels, approx. 12" x 12", mounted on hardboard back-up with selected grout color for each color and pattern of tile and grout specified.

2. Submit 6" length of marble saddles.
- B. Master Grade Certificates: Prior to opening tile containers, submit to the Architect a Master Grade Certificate, signed by an officer of the firm manufacturing the tile used, and issued when the shipment is made, stating the grade, kind of tile, identification marks for tile containers, and the name and location of the project.
- C. Mock-ups
1. At an area on the site where approved by the Architect, provide a mock-up tile installation.
 - a. Make the mock-up approximately 4 feet x 4 feet in dimension.
 - b. Provide one mock-up for each type, class, and color of installation required under this Section.
 - c. The mock-ups may be used as part of the Work, and may be included in the finished Work, when so approved by the Architect.
 - d. Revise as necessary to secure the Architect's approval.
 2. The mock-ups, when approved by the Architect, will be used as datum for comparison with the remainder of the work of this Section for the purposes of acceptance or rejection.
 3. If the mock-up panels are not permitted to be part of the finished Work, completely demolish and remove them from the job site upon completion and acceptance of the work of this Section.

1.6 PRODUCT HANDLING

- A. Delivery and Storage
1. Deliver all materials of this Section to the job site in their original unopened containers with all labels intact and legible at time of use.
 2. Store materials under cover in a manner to prevent damage and contamination; store only the specified materials at the job site.
- B. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.
- C. Maintain temperatures at not less than 50 deg. F. in tiled areas during installation and for 7 days after completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS OF TILE

- A. Provide tile manufactured by Dal-Tile Corp., American Olean, United States Ceramic Tile Co., Summitville Tiles Inc., or approved equal meeting these specifications. The Architect reserves the right to pick tile from any price group.

2.2 WALL TILE AND BASE

- A. Provide vitreous, cushion edge units, 4-1/4" x 4-1/4" x 1/4" thick, matte glazed, in colors as selected by the Architect.
- B. Provide sanitary cove base to match wall tile.

2.3 FLOOR TILE

- A. Provide porcelain type ceramic mosaic floor tile with all-purpose edge in size, color and pattern as selected by the Architect. Tile to have water absorption not to exceed 0.5%.
- B. Provide non-slip tile where scheduled, of same characteristics as ceramic mosaics specified herein with the addition of 7-1/2% abrasive grain by weight.

2.4 TRIM AND SPECIAL SHAPES

- A. Provide external and internal corners, trim shapes at openings, and all other trim and special shapes to match the tile specified herein, as required by field conditions and drawing details.

2.5 MARBLE SADDLES

- A. Provide sound Group "A" white marble, min. 3/4" thick, with an abrasive hardness of not less than 10.0, when tested in accordance with ASTM C 241. Cut saddle to fit jamb profile, honed finish.

2.6 SETTING BEDS AND GROUT

- A. Latex Additives: As manufactured by Laticrete or Mapei as follows:
 - 1. Laticrete 272 premium floor and wall thin set mortar, fortified with Laticrete 333 Mortar Admix.
 - 2. Mapei Kerabond thin set mortar, fortified with Ker 310 Keralastic System additive.
- B. Wall and Base Tile: Over drywall use ANSI A136.1 Organic Adhesive for installation of Ceramic Tile, Type I. Shear strength shall be 50 psi minimum. Adhesive primer as recommended by adhesive manufacturer. Manufacturer shall certify, in writing, that adhesive and primer used are proper types for the intended tile types and application. Conform to TCA Detail W-242.
- C. Floor Tile and Marble Saddle - Thin Set: Set floor tile and marble saddle using latex modified dry set Portland Cement mortar conforming to ANSI A118.4 and TCA Detail F-113.

- D. Water: Clean, fresh and suitable for drinking.
- E. Grout: Commercial Portland cement grout made by Laticrete, Mapei, or approved equal; color as selected by the Architect. Add latex additive to grout made by same manufacturer as grout.
- F. Physical Properties: The setting beds and grouts must meet the following physical requirements:
 - 1. Compressive Strength - 3000 psi min.
 - 2. Shear Bond Strength - 500 psi min.
 - 3. Water Absorption - 4.0% max.
 - 4. Service Rating (ASTM C 627) - Extra Heavy Duty.

2.7 SEALANT

- A. Joint Backing: Preformed, compressible, resilient, non-extruding, non-staining strips of foam neoprene, foam polyethylene, or other material recommended by sealant manufacturer.
- B. Bond Breaker: Polyethylene tape, 3 mils thick, or other material recommended by sealant manufacturer.
- C. Sealant Primer: Colorless, non-staining, or type to suit substrate surface, as recommended by sealant manufacturer.
- D. Sealant: One-part silicone based sanitary sealant, conforming to ASTM C 920, Type S, NS, Class 25. Sealant hardness upon full cure shall be between 20-30 Shore "A" Durometer. Color of sealant to blend with or match adjacent materials, and as selected by the Architect. Sealant shall be equivalent to 1700 Sanitary Sealant made by General Electric or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where tile is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 CONDITION OF SURFACES

- A. Allowable Variations in Substrate Levels (Floors): + 1/8" in 10'-0" distance and 1/4" total max. variation from levels shown.
- B. Grind or fill concrete substrates as required to comply with allowable variations.

3.3 PREPARATION

- A. Etch concrete substrate as may be required to remove substances that would interfere with proper bond of setting bed. Rinse with water to remove all traces of treatment.
- B. Seal substrate with sealer as recommended by manufacturer of mortar or adhesive.

3.4 JOINTS IN TILE WORK

- A. Joint Widths: 1/16".
- B. Alignment: Wall, base and floor joints shall align through the field and trim. Direction and location of all joints as directed by Architect.
- C. Movement Joints: Conform to TCA Detail EJ171. Locate where movement joints are in back-up material. Provide movement joint at joints between mop receptors and tile. Provide 1/8" wide movement joint at all vertical internal joints of wall tile. Fill movement joints with specified backing and sealant. Use bond breaker where sufficient space for joint backing does not exist.
 - 1. Provide sealant between tile and plumbing fixtures, mirrors, pipes, countertops and other dissimilar materials penetrating or adjacent to tile.

3.5 INSTALLATION

- A. Comply with the following installation standards
 - 1. Wall tile over drywall using organic adhesive - ANSI A108.4 and A108.10.
 - 2. Floor tile using dry set mortar - ANSI A108.5 and A108.10.
- B. Allowable Variations in Finished Work: Do not exceed the following deviations from level and plumb, and from elevations, locations, slopes and alignment shown.
 - 1. Floors: 1/8" in 10'-0" run, any direction; +/- 1/8" at any location; 1/32" offset at any location.
 - 2. Walls: 1/8" in 8'-0" run, any direction; 1/8" at any location; offset at any location, 1/32".
 - 3. Joints: +/- 1/32" joint width variation of any location; 1/16" in 3'-0" run deviation from plumb and true.
- C. Handle, store, mix and apply setting and grouting materials in compliance with the manufacturer's instructions.
- D. Extend tile work into recesses and under equipment and fixtures, to form a complete covering without interruptions. Terminate work neatly at obstructions, edges and corners without disruption of pattern or joint alignment.
- E. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight, aligned joints. Fit tile closely to electrical outlets, piping and fixtures so that plates, collars, or covers overlap tile.

- F. Lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are the same size. Lay out tile work and center tile fields both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths.

3.6 INSTALLATION OF MARBLE SADDLES

- A. Install marble saddles cut to profiles and sizes shown, accurately fitted to jambs, coped at stops, set in full bed of mortar herein specified, and with grouted edge joints as specified for floor tile.

3.7 CLEANING AND PROTECTION

- A. Upon completion of placement and grouting, clean all tile surfaces so they are free of foreign matter. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but not sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
- B. Apply to all clean completed tile walls and floors a protective coating of neutral cleaner solution, 1 part cleaner to 1 part water.
- C. Leave finished installation clean and free of cracked, chipped, broken, unbonded or otherwise defective tile work.
- D. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent damage and wear. Prohibit foot and wheel traffic from using tiled floors for at least 3 days after grouting is completed. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION

SECTION 09660

RESILIENT TILE FLOORING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the resilient tile flooring, as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Linoleum tile.
2. Rubber base.
3. Rubber stair treads and risers.
4. Transition strips.
5. Accessories.

1.3 RELATED SECTIONS

- A. Gypsum board partitions - Section 09250.
- B. Carpeting - Section 09681.

1.4 QUALITY ASSURANCE

- A. Qualifications of Installers: Use only personnel who are thoroughly trained and experienced in the skills required and completely familiar with the requirements established for this work.

1.5 SUBMITTALS

- A. Manufacturer's Data: Submit manufacturer's technical information and installation instructions for resilient tile and accessories.
- B. Samples
 1. Submit full-size sample tiles for each type and color required, representative of the expected range of color and pattern variation. Sample submittals will be reviewed for color, texture and pattern only. Compliance with all other requirements is the exclusive responsibility of the Contractor.
 2. Submit 6" long samples of base and strips.
 3. Submit 6" long samples of stair treads and risers.

1.6 DELIVERY AND STORAGE

- A. Deliver materials to the project site in the manufacturer's original unopened containers, clearly marked to indicate pattern, gauge, lot number and sequence of materials.
- B. Carefully handle all materials and store in original containers at not less than 70 degrees F. for at least 48 hours before start of installation.

1.7 JOB CONDITIONS

- A. Continuously heat spaces to receive tile to a temperature of 70 degrees F. for at least 48 hours prior to installation, whenever project conditions are such that heating is required. Maintain 70 degrees F. temperature continuously during and after installation as recommended by the tile manufacturer, but for not less than 48 hours. Maintain a temperature of not less than 55 degrees F. in areas where work is completed.

PART 2 PRODUCTS

2.1 TILE

- A. Provide 13" x 13" x 1/10" thick linoleum tile conforming to ASTM F 2195 and (for performance characteristics) ASTM F 1700, in colors as selected by the Architect.
 - 1. Product (Basis for Project Design): "Marmoleum Dual Linoleum Tile" manufactured by Forbo Linoleum, Inc.
 - 2. Product Description: Homogeneous tile of primary natural materials consisting of linseed oil, wood, flour, and rosin binders, mixed and calendered onto a polyester backing. Pattern and color shall extend throughout total thickness of tile material.
 - 3. Product Performance Data:
 - a. Static Load Limit (ASTM F 790): 1500 psi.
 - b. Slip Resistance: Meets or exceeds Federal Standards and ADA recommendations of 0.6 for flat surfaces.
 - c. Fire Resistance:
 - 1). Smoke Density (ASTM E 662/NFPA 258): 450 or less.
 - 2). Critical Radiance Flux (ASTM E 648/NFPA 253): Class 1.
 - d. Resistance to Bacteria: Provides a self-sanitizing quality in the form of a bactericidal effect.
 - e. Cigarette Resistance: Resists cigarette burns; leaves only a brown mark, which can be rubbed out using steel wool or a scouring pad.
 - f. Chemical Resistance: No effect to diluted acids, soda solutions, mineral oils, etc., per manufacturer's published list.
 - g. Light Fastness (ASTM F 2034): At least 6, depending on color (Blue scale maximum is 8).
 - h. Impact Sound Reduction: 6dB.

2.2 BASE

- A. Provide 4" high x 1/8" thick, continuous rubber, top set cove base with pre-formed internal and external corner pieces, color as selected by the Architect. For areas to receive carpet, provide flat base, no cove. Base shall conform to ASTM F 1861, Type TS, Group 1 as manufactured by Burke Mercer, Marley Flexco, Armstrong, or approved equal.

2.3 RUBBER STAIR TREADS AND RISERS

- A. Provide raised square rubber treads with integrated risers conforming to ASTM F 1344, as manufactured by Johnsonite, or approved equal. Treads shall be Class A per ASTM E 84, in color as selected by the Architect.

1. Treads and risers may be one or two piece units per manufacturer's standard.

2.4 ACCESSORIES

- A. Adhesives: Waterproof, stabilized type, as recommended by the tile manufacturer for the type of service indicated.
- B. Concrete Slab Primer: Non-staining type recommended by the tile manufacturer.
- C. Leveling Compound: Latex/Portland cement flash patching and leveling compound equal to No. 226 with 3701 admixture made by Laticrete or equal made by Mapei, H.B. Fuller, or approved equal.
- D. Edging Strips: 1/8" thick, homogeneous vinyl or rubber composition, tapered or bullnose edge, color as selected by the Architect from manufacturer's standards.
- E. Finish
 - 1. Cleaner shall be equal to "Super Shine All" made by Hillyard Chemical Co., or approved equal.
 - 2. Wax shall be equal to "Super Hil-Brite" made by Hillyard Chemical Co., or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where resilient tile flooring is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 CONDITION OF SURFACES

- A. Allowable Variations in Substrate Levels (Floors): $\pm 1/8"$ in 10'-0" distance and 1/4" total maximum variation from levels shown.
- B. Grind or fill concrete substrates as required to comply with allowable variation.

3.3 PREPARATION

- A. Etch concrete substrate as may be required to remove curing compounds or other substances that would interfere with proper bond of adhesive for tile. Rinse with water to remove all traces of treatment.
- B. Perform moisture tests on concrete slabs to determine that concrete surfaces are sufficiently cured and are ready to receive tile installation.
- C. Concrete Primer: Apply concrete slab primer if recommended by tile manufacturer, prior to application of the adhesive. Apply in compliance with manufacturer's directions.

3.4 ALLOWABLE TOLERANCES

- A. Allowable Tolerances in Finished Work: Do not exceed the following deviations from level and plumb, and from elevations, locations, slopes and alignment shown.
 - 1. Floors: 1/8" in 10'- 0" run, any direction; 1/32" offset at any location.

3.5 INSTALLATION

- A. Install tile only after all finishing operations, including painting, have been completed and permanent heating system is operating. Moisture content of concrete slabs, building air temperature and relative humidity must be within limits recommended by tile manufacturer.
- B. Place tile units with adhesive cement in strict compliance with the manufacturer's recommendations. Butt tile units tightly to vertical surfaces, thresholds, nosings and edgings. Scribe around obstructions and to produce neat joints, laid tight, even and in straight, parallel lines. Extend tile units into toe spaces, door reveals, and into closet and similar openings.
- C. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on the finish tile as marked in the subfloor. Use chalk or other non-permanent marking devices.
- D. Lay tile from center marks established with principal walls, discounting minor off-sets, so that tile at opposite edges of the room are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise shown.
- E. Match tiles for color and pattern by using tile from cartons in the same sequence as manufactured and packaged. Cut tile neatly to and around all fixtures. Broken, cracked, chipped or deformed tile is not acceptable.
- F. Tightly cement tile to sub-base without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks through tile, or other surface imperfections.
- G. Lay tile with grain in all tile running in the same direction.
- H. Place resilient edge strips tightly butted to tile and secure with adhesive. Provide edging strips at all unprotected edges of tile, unless otherwise shown.

- I. Bases: In all spaces where base is indicated, install bases tight to walls, partitions, columns, built-in cabinets, etc., without gaps at top or bulges at bottom, with tight joints and flush edges, with molded corner pieces at internal and external corners. Provide end stops adjacent to flush type door frames and where base does not terminate against an adjacent surface. Keep base in full contact with walls until adhesive sets.
- J. Apply resilient treads and risers to stairs according to manufacturer's written installation instructions.

3.6 CLEANING AND PROTECTION

- A. Remove any excess adhesive or other surface blemishes from tile, using neutral type cleaners as recommended by the tile manufacturer. Protect installed flooring from damage by use of heavy Kraft paper or other covering.
- B. Finishing: After completion of the project and just prior to the final inspection of the work, thoroughly clean tile floors and accessories. Apply 2 coats of wax to tile flooring and buff using materials as specified herein.

END OF SECTION

**SECTION 09726
TACKABLE WALLCOVERINGS**

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

Edit items not included in the project.

1. Bulletin Board

B. Related Sections/Items:

1. Primer/sealer application on gypsum board substrate, refer to Section 09900.
2. Sheet vinyl wall covering, refer to Section 09950.
3. Markerboards and tackboards, refer to Division 10.

1.02 SUBMITTALS

A. Comply with Section 01330.

B. Product data indicating compliance with specified requirements.

C. Installation instructions.

D. Samples

1. 6"x9" (150mm x 225mm) samples of each type of Bulletin Board material required.

1.03 QUALITY ASSURANCE

A. Fire Performance Characteristics: Comply with fire performance characteristics indicated below. Identify components with markings from testing and inspection organization.

1. ASTM E-84 (Fuel Contribution) – Class B
2. NFPA 225 (Critical Radiant Flux) – Class II

B. Single Source Responsibility: Obtain tackable wall covering system components from a single source.

Delete paragraphs C and D below if Division 1 requirements satisfy project requirements.

C. Deliver materials in original factory wrappings and containers, clearly labeled with manufacturer, brand name, and fire hazard classification.

D. Store materials in original undamaged packages and containers inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1. Maintain room temperature within the storage area at not less than 70°F (21°C) during the period materials are stored.

E. Mock-ups: Prepare mock-ups for Architect's review and to establish requirements for seaming and finish trim.

1. Correct areas, modify method of application/installation, or adjust finish texture as directed by Architect to comply with specified requirements.
2. Maintain mock-ups accessible to serve as a standard of quality for this Section.
3. Install sample panel of each type wall covering specified.
4. Install panels in areas designated by Architect.

1.04 PROJECT CONDITIONS

A. Maintain ambient temperature within building at not less than 68°F (20°C) for a minimum of 72 hours prior to beginning installation.

1. Do not install Bulletin Board until the space is enclosed and weatherproof. The temperature of the building should not be less than 68°F (20°C) for a minimum of 72 hours prior to installation.
2. Do not install Bulletin Board until the temperature is stabilized and the permanent lighting is in place.

1.05 MAINTENANCE

A. Maintenance instructions: Include precautions against cleaning materials and methods that may be detrimental to finishes and performance.

1.06 WARRANTY

A. Manufacturer's standard 5-year limited warranty.

PART 2 – PRODUCTS

2.01 PRODUCTS

- A. Forbo Bulletin Board: Uni-color linoleum resilient homogeneous tackable surface consisting of linseed oil, granulated cork, rosin binders and dry pigments calendared onto a natural burlap backing. Color shall extend through thickness of material.

2.02 ACCESSORIES

- A. Adhesive: Solvent free, SBR type linoleum adhesive; or polyvinyl acetate dispersion type (contact cement) when used in press.
- B. Forbo L910 adhesive.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions in which Bulletin Board will be installed.
 - 1. Complete finishing operations, including painting, before beginning installation of Bulletin Board materials.
 - 2. Wall surfaces to receive Bulletin Board material shall be dry and free from dirt, grease, loose paint and scale.
 - 3. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Surface preparation: Remove hardware, accessories, plates and similar items to allow Bulletin Board to be installed.
 - 1. Plaster surface: Remove surface chalk. In new work use moisture meter to determine moisture content. Do not begin installation when moisture content is greater than five percent.
 - 2. Gypsum board surface: Recess nails and screws. Repair irregular tape joints, sand and remove dust.
 - 3. Painted surfaces: Remove loose paint or scale. Sand surface of enamel or gloss paint and rinse with clear water.
 - 4. Ensure gypsum wallboard surfaces scheduled to receive Bulletin Board are properly primed under Section 09900.
- B. Prime substrate as recommended by manufacturer.

3.03 APPLICATION

- A. Comply with manufacturers printed installation instructions.
- B. Apply adhesive with 1/16-inch square notch trowel to area to receive sheet.
- C. Work from top to bottom then side to side. Roll sheet firmly into adhesive for positive contact and to remove air bubbles.
- D. Remove adhesive residue immediately.
- E. Scribe, cut and fit material to butt tightly to adjacent surfaces, built-in casework and permanent fixtures and pipes.
- F. Lap and double cut seams.
- G. Joints: Butt joint.

3.04 CLEANING

- A. Clean wall covering using a sponge with a neutral pH cleaning solution. Do not use abrasive cleaners. Rinse thoroughly with water and let dry before using.
- B. Remove excess adhesive using methods and materials recommended by manufacturer.

3.05 PROTECTION

- A. Protect installed product and finish surfaces from damage during construction.

END OF SECTION

SECTION 09900

PAINTING AND FINISHING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the painting and finishing as shown on the drawings and/or specified herein, including but not limited to, the following:

1. Prime painting unprimed surfaces to be painted under this Section.
2. Painting all items furnished with a prime coat of paint, including touching up of or repairing of abraded, damaged or rusted prime coats applied by others.
3. Painting all ferrous metal (except stainless steel) exposed to view.
4. Painting all galvanized ferrous metals exposed to view.
5. Painting gypsum drywall exposed to view.
6. Painting of wood exposed to view, except items which are specified to be painted or finished under other Sections of these specifications. Back painting of all wood in contact with concrete, masonry or other moisture areas.
7. Painting concrete surfaces as indicated.
8. Painting pipes, pipe coverings, conduit, ducts, insulation, hangers, supports and other mechanical and electrical items and equipment exposed to view.
9. Painting surfaces above, behind or below grilles, gratings, diffusers, louvers, lighting fixtures, and the like, which are exposed to view through these items.
10. Incidental painting and touching up as required to produce proper finish for painted surfaces, including touching up of factory finished items.
11. Painting of any surface not specifically mentioned to be painted herein or on drawings, but for which painting is obviously necessary to complete the job, or work which comes within the intent of these specifications, shall be included as though specified.

1.3 RELATED SECTIONS

- A. Shop priming is required on some, but not all of the items scheduled to be field painted. Refer to other Sections of work for complete description.

- B. Shop coat on machinery and equipment: Refer to the Sections under which various items of manufactured equipment with factory applied shop prime coats are furnished, including, but not necessarily limited to, the following Sections. All items of equipment furnished with prime coat finish shall be finish painted under this Section.
 - 1. Heating, ventilation and air conditioning - Division 15.
 - 2. Plumbing - Division 15.
- C. Color Coding of Mechanical Piping and Electrical Conduits - Division 15.
 - 1. This Color Coding consists of an adhesive tape system and is in addition to painting of piping and conduits under this Section, as specified above.

1.4 MATERIALS AND EQUIPMENT NOT TO BE PAINTED

- A. Items of equipment furnished with complete factory finish, except for items specified to be given a finish coat under this Section.
- B. Non-ferrous metals, except for items specified and/or indicated to be painted.
- C. Finished hardware, excepting hardware that is factory primed.
- D. Surfaces not to be painted shall be left completely free of droppings and accidentally applied materials resulting from the work of this Section.

1.5 QUALITY ASSURANCE

- A. Job Mock-Up
 - 1. In addition to the samples specified herein to be submitted for approval, apply in the field, at their final location, each type and color of approved paint materials, applied 10' wide, floor to ceiling of wall surfaces, before proceeding with the remainder of the work, for approval by the Architect. Paint mock-ups to include door and frame assembly.
 - 2. These applications when approved will establish the quality and workmanship for the work of this Section.
 - 3. Repaint individual areas which are not approved, as determined by the Architect, until approval is received. Assume at least two paint mock-ups of each color and gloss for approval.
- B. Qualification of Painters: Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces.
- C. Paint Coordination: Provide finish coats which are compatible with the prime paints used. Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings system for the various substrates. Upon request from other subcontractors, furnish information on the characteristics of the finish materials proposed to be used, to ensure that compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify the Architect in writing of any anticipated problems using the coating systems as specified with substrates primed by others.

- D. All paints must conform to the Volatile Organic Compounds (VOC) standards of prevailing codes and ordinances.

1.6 SUBMITTALS

A. Materials List

1. Before any paint materials are delivered to the job site, submit to the Architect a complete list of all materials proposed to be furnished and installed under this portion of the work.
2. This shall in no way be construed as permitting substitution of materials for those specified or accepted for this work by the Architect.

B. Samples

1. Accompanying the materials list, submit copies of the full range of colors available in each of the proposed products.
2. Upon direction of the Architect, prepare and deliver two identical sets of Samples of each of the selected colors and glosses painted onto 8-1/2" x 11" x 1/4" thick material; whenever possible, the material for Samples shall be the same material as that on which the coating will be applied in the work.

- C. Manufacturer's Recommendations: In each case where material proposed is not the material specified or specifically described as an acceptable alternate in this Section of these specifications, submit the current recommended method of application published by the manufacturer of the proposed material.

1.7 PRODUCT HANDLING

- A. Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use.

B. Protection

1. Store only the approved materials at the job site, and store only in a suitable and designated area restricted to the storage of paint materials and related equipment.
2. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.
3. Use all means necessary to protect paint materials before, during and after application and to protect the installed work and materials of all other trades.

- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.8 EXTRA STOCK

- A. Upon completion of this portion of the Work, deliver to the Owner an extra stock of paint equaling approximately 10 percent of each color and gloss used and each coating material used, with all such extra stock tightly sealed in clearly labeled containers.

1.9 JOB CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 and 90 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 and 95 degrees F. unless otherwise permitted by the paint manufacturer's printed instructions.
- C. Do not apply paint when the relative humidity exceeds 85 percent or to damp or wet surfaces, unless otherwise permitted by the paint manufacturer's printed instructions.

PART 2 PRODUCTS

2.1 PAINT MANUFACTURERS

- A. Provide "Eco Spec" by Benjamin Moore Paints, or "Harmony" by Sherwin Williams, AFM Safecoat, or approved equal. Comply with number of coats and required minimum mil thicknesses as specified herein. Names used herein are those of Benjamin Moore or Sherwin Williams; equivalent paint of listed manufacturers or others are acceptable subject to the approval of the Architect.

2.2 MATERIALS

- A. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only to recommended limits.
- B. Colors and Glosses: All colors and glosses shall be as selected by the Architect. Certain colors will require paint manufacturer to prepare special factory mixes to match colors selected by the Architect. Color schedule (with gloss) shall be furnished by the Architect.
- C. Coloring Pigment: Products of or furnished by the manufacturer of the paint or enamel approved for the work.
- D. Linseed Oil: Raw or boiled, as required, of approved manufacture, per ASTM D 234 and D260, respectively.
- E. Turpentine: Pure distilled gum spirits of turpentine, per ASTM D 13.
- F. Shellac: Pure gum shellac (white or orange) cut in pure denatured alcohol using not less than 4 lbs. of gum per gallon of alcohol.
- G. Driers, Putty, Spackling Compound, Patching Plaster, Etc.: Best quality, of approved manufacture.
- H. Heat Resistant Paint: Where required, use heat resistant paint when applying paint to heating lines and equipment.

2.3 GENERAL STANDARDS

- A. The various surfaces shall be painted or finished as specified below in Article 2.4. However, the Architect reserves the right to change the finishes within the range of flat, semi-gloss or gloss, without additional cost to the Owner.
- B. All paints, varnishes, enamels, lacquers, stains and similar materials must be delivered in the original containers with the seals unbroken and label intact and with the manufacturer's instructions printed thereon.
- C. All painting materials shall bear identifying labels on the containers with the manufacturer's instructions printed thereon.
- D. Paint shall not be badly settled, caked or thickened in the container, shall be readily dispersed with a paddle to a smooth consistency and shall have excellent application properties.
- E. Paint shall arrive on the job color-mixed except for tinting of under-coats and possible thinning.
- F. All thinning and tinting materials shall be as recommended by the manufacturer for the particular material thinned or tinted.
- G. It shall be the responsibility of the Contractor to see that all mixed colors match the color selection made by the Architect prior to application of the coating.

2.4 SCHEDULE OF FINISHES

A. ~~Exterior Galvanized Ferrous Metal~~

~~First Coat: S-W EnviroSpec DTM Acrylic Coating
Second Coat: S-W EnviroSpec Aquaclad Water-based Alkyd.
Third Coat: Same as Second Coat.~~

B. Interior Ferrous Metal

Semi-Gloss Finish/Enamel

Primer: 1 coat Acrylic Metal Primer (M04), or touch-up shop primer
First Coat: 1 coat Pristine Eco Spec Interior Latex Enamel (224)
Second Coat: 1 coat Pristine Eco Spec Interior Latex Enamel (224)
Total DFT not less than: 3.0 mils

Semi-Gloss Finish/Alkyd

Primer: 1 coat EnviroSpec DTM Acrylic Coating
First Coat: 1 coat Harmony Interior Latex Semi-Gloss B10 Series
Second Coat: 1 coat Harmony Interior Latex Semi-Gloss B10 Series
Total DFT not less than: 4.0 mils

C. Interior Drywall

~~Flat Finish/Vinyl Acrylic Latex
Primer: 1 coat Pristine Eco Spec Primer / Sealer First Coat (231)
First Coat: 1 coat Pristine Eco Spec Interior Latex Flat (210)
Second Coat: 1 coat Pristine Eco Spec Interior Latex Flat (219)~~

~~Total DFT not less than: 2.0 mils~~

Eggshell Acrylic Latex Enamel

Primer: 1 coat Pristine Eco Spec Primer / Sealer First Coat (231)

First Coat: 1 coat Pristine Eco Spec Interior Latex eggshell enamel (223)

Second Coat: 1 coat Pristine Eco Spec Interior Latex eggshell enamel (223)

Total DFT not less than: 2.2 mils

D. Interior Painted Wood

~~Semi-Gloss Finish/Alkyd~~

~~Primer: 1 coat Harmony Interior Latex Primer B11W900~~

~~First Coat: 1 coat Harmony Interior Latex Semi-Gloss B10 Series~~

~~Second Coat: 1 coat Harmony Interior Latex Semi-Gloss B10 Series~~

~~Total DFT not less than: 3.6 mils~~

or

Eggshell Acrylic Latex Enamel (walls)

Primer: 1 coat Pristine Eco Spec Primer / Sealer First Coat (231)

First Coat: 1 coat Pristine Eco Spec Interior Latex eggshell enamel (223)

Second Coat: 1 coat Pristine Eco Spec Interior Latex eggshell enamel (223)

Total DFT not less than: 2.2 mils

~~E. Interior Concrete~~

~~Semi-Gloss Acrylic Latex Enamel~~

~~First Coat: 1 coat Pristine Eco Spec Interior Latex Semi-Gloss~~

~~Second Coat: 1 coat Pristine Eco Spec Interior Latex Semi-Gloss~~

~~Total DFT not less than: 2.2 mils~~

2.5 EXISTING SURFACES TO BE PAINTED

- A. Existing surfaces shall be painted in accordance with schedule given in Article 2.4 herein except that first or prime coat may be eliminated where existing paint is sound. Where existing paint must be removed down to base material, provide first or prime coat as specified.

2.6 PIPING AND MECHANICAL EQUIPMENT EXPOSED TO VIEW

- A. Paint all exposed piping, conduits, ductwork and mechanical and electrical equipment. Use heat resisting paint when applied to heating lines and equipment. Do not to paint or otherwise disturb moving parts in the mechanical systems. Mask or otherwise protect all parts as required to prevent damage.
- B. Exposed Uncovered Ductwork, Piping, Hangers and Equipment: Latex Enamel Undercoater and one coat Acrylic Latex Flat.
- C. Exposed Covered Piping, Duct Work and Equipment: Primer/Sealer and one coat Acrylic Latex Flat.
- D. Panel Boards, Grilles and Exposed Surfaces of Electrical Equipment: Latex Enamel Undercoater and two coats Latex Semi-Gloss.

- E. Equipment or Apparatus with Factory-Applied Paint: Refinish any damaged surfaces to match original finish. Do not paint over name plates and labels.
- F. All surfaces of insulation and all other work to be painted shall be wiped or washed clean before any painting is started.
- G. All conduit, boxes, distribution boxes, light and power panels, hangers, clamps, etc., are included where painting is required.
- H. All items of Mechanical and Electrical trades which are furnished painted under their respective Trades shall be carefully coordinated with the work of this Section so as to leave no doubt as to what items are scheduled to be painted under this Section.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where painting and finishing are to be applied and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 GENERAL WORKMANSHIP REQUIREMENTS

- A. Only skilled mechanics shall be employed. Application may be by brush or roller. Spray application only upon acceptance from the Architect in writing.
- B. The Contractor shall furnish the Architect a schedule showing when he expects to have completed the respective coats of paint for the various areas and surfaces. This schedule shall be kept current as the job progresses.
- C. Protect painting and finishing work at all times, and protect all adjacent work and materials by suitable covering or other method during progress of the work. Upon completion of the work, remove all paint and varnish spots from floors, glass and other surfaces. Remove from the premises all rubbish and accumulated materials of whatever nature not caused by others and leave the work in clean, orderly and acceptable condition.
- D. Remove and protect hardware, accessories, device plates, lighting fixtures, and factory finished work, and similar items, or provide ample in place protection. Upon completion of each space, carefully replace all removed items by workmen skilled in the trades involved.
- E. Remove electrical panel box covers and doors before painting walls. Paint separately and re-install after all paint is dry.
- F. Apply all materials under adequate illumination, evenly spread and flowed on smoothly to avoid runs, sags, holidays, brush marks, air bubbles and excessive roller stipple.
- G. Coverage and hide shall be complete. When color, stain, dirt or undercoats show through final coat of paint, cover the surface by additional coats until the paint film

is of uniform finish, color, appearance and coverage, at no additional cost to the Owner.

- H. All coats shall be dry to manufacturer's recommendations before applying succeeding coats.
- I. Do not apply paint behind frameless mirrors that use mastic for adhering to wall surface.

3.3 PREPARATION OF SURFACES

A. Existing Surfaces: Clean existing surfaces requiring paint or finishing, remove all loose and flaking paint or finish and sand surface smooth as required to receive new paint or finish. No "telegraphing" of lines, ridges, flakes, etc., through new surfacing is permitted. Where this occurs, Contractor shall be required to sand smooth and re-finish until surface meets with Architect's approval.

B. General

1. The Contractor shall be held wholly responsible for the finished appearance and satisfactory completion of painting work. Properly prepare all surfaces to receive paint, which includes cleaning, sanding, and touching-up of all prime coats applied under other Sections of the work. Broom clean all spaces before painting is started. All surfaces to be painted or finished shall be perfectly dry, clean and smooth.
2. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.
3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces.

C. Metal Surfaces

1. Weld Fluxes: Remove weld fluxes, splatters, and alkali contaminants from metal surfaces in an approved manner and leave surface ready to receive painting.
2. Bare Metal: Thoroughly clean off all foreign matter such as grease, rust, scale and dirt before priming coat is applied. Clean surfaces, where solder flux has been used, with benzene. Clean surfaces by flushing with mineral spirits. For aluminum surfaces, wipe down with an oil free solvent prior to application of any pre-treatment.
3. Shop Primed Metal: Clean off foreign matter as specified for "Bare Metal." Prime bare, rusted, abraded and marred surfaces with approved primer after proper cleaning of surfaces. Sandpaper all rough surfaces smooth.
4. Galvanized Metal: Prepare surface as per the requirements of ASTM D 6386.

5. Metal Filler: Fill dents, cracks, hollow places, open joints and other irregularities in metal work to be painted with an approved metal filler suitable for the purpose and meeting the requirements of the related Section of work; after setting, sand to a smooth, hard finish, flush with adjoining surface.
- D. Gypsum Drywall Surfaces: Scrape off all projections and splatters, spackles all holes or depressions, including taped and spackled joints, sand smooth. Conform to standards established in Section 09250 Gypsum Drywall.
- E. Wood Surfaces: Sand to remove all roughness, loose edges, splinters, or splinters and then brush to remove dust. Wash off grease or dirt with an approved cleaner. Fill all cracks, splits, nail holes, screw holes, and surface defects with putty after the priming coat has been applied. Putty shall be brought up flush with the surface and sanded smooth and touched-up with primer when dry.
- F. Concrete Surfaces: Thoroughly clean off all grit, grease, dirt mortar drippings or splatters, and other foreign matter. Remove nibs or projections from concrete surfaces. Fill cracks, holes or voids with Portland cement grout, and bag surface so that it has approximately the same texture as the adjacent concrete surface.
- G. Testing for Moisture Content: Test all concrete and drywall surfaces for moisture content using a reliable electronic moisture meter. Test latex type fillers for moisture content before application of top coats of paint. Do not apply any paint or sealer to any surface or to latex type filler where the moisture content exceeds 7 percent as measured by the electronic moisture meter.
- H. Touch-Up: Prime paint all patched portions in addition to all other specified coats.

3.4 MATERIALS PREPARATION

- A. Mix and prepare painting materials in strict accordance with the manufacturer's directions.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials. Do not stir any film which may form on the surface into the material. Remove the film and, if necessary, strain the material before using.
- D. Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are to be applied. Tint undercoats to match the color of the finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

3.5 APPLICATION

- A. General
 1. Apply paint by brush or roller in accordance with the manufacturer's directions. Use brushes best suited for the type of material being applied. Use

rollers of carpet, velvet back, or high pile sheep's wool as recommended by the paint manufacturer for material and texture required.

2. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Sand between each enamel or varnish coat application with fine sandpaper, or rub surfaces with pumice stone where required to produce an even, smooth surface in accordance with the coating manufacturer's directions.
3. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces.
4. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - a. "Exposed surfaces" is defined as those areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, etc., are in place in areas scheduled to be painted.
5. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint, before final installation of equipment.
6. Paint the back sides of access panels, removable or hinged covers to match the exposed surfaces.
7. Finish doors on tops, bottoms, and side edges the same as the faces, unless otherwise indicated.
8. Enamel finish applied to wood or metal shall be sanded with fine sandpaper and then cleaned between coats to produce an even surface.
9. Paste wood filler applied on open grained wood after beginning to flatten, shall be wiped across the grain of the wood, then with a circular motion, to secure a smooth, filled, clean surface with filler remaining in open grain only. After overnight dry, sand surface with the grain until smooth before applying specified coat.

B. Scheduling Painting

1. Apply the first coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
2. Allow sufficient time between successive coatings to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

- C. Prime Coats: Re-coat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
- D. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.
- E. "Touching-Up" of Factory Finishes: Unless otherwise specified or shown, materials with a factory finish shall not be painted at the project site. To "touch-up", the Contractor shall use the factory finished material manufacturer's recommended paint materials to repair abraded, chipped, or otherwise defective surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing, and repainting, as acceptable to the Architect.
- B. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

3.7 CLEAN UP

- A. During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day.
- B. Upon completion of painting work, clean window glass and other paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION

SECTION 10425

SIGNAGE

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the signage as shown on the drawings and/or specified herein, including the following:

- 1. Interior panel signs.

1.3 RELATED SECTIONS

- A. Exit signs - Division 16.

1.4 QUALITY ASSURANCE

- A. For actual installation of signage, use only personnel who are thoroughly familiar with the manufacturer's recommended methods of installation and who are completely trained in the required skills.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and installation instructions for each type of signage required.
- B. Samples: Submit samples of each type of signage showing finishes, colors, surface textures and qualities of manufacture and design of each sign component including graphics.
- C. Shop Drawings: Submit shop drawings for fabrication and erection of signage. Include plans, elevations, and large scale details of sign wording and lettering layout. Show anchorage and accessory items. Furnish location template drawings for items supported or anchored to permanent construction.

1.6 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

PART 2 PRODUCTS

2.1 PANEL SIGNS

- A. BEST Sign Systems Inc. , HC 300 ADA System
- B. Or approved equal
- C. Fire egress, floor, and other signs required by Code shall be as follows:
 - 1. Interior Panel Signs: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner, manufactured from 0.060-inch thick acrylic sheet, framed. Comply with requirements indicated for finishes, colors, designs, shapes, sizes, and details of construction (as selected by the Architect).
 - 2. Engraved Copy: Machine engrave letters, numbers, symbols, and other graphic devices into panel sign on face indicated to produce precisely formed copy, incised to uniform depth. Fill engraved copy with enamel.
 - 3. Tactile Characters: Characters and Grade 2 Braille raised 1/32 inch above surfaces, in contrasting color.
 - 4. At end of section ref

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where signage is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Install units and components at the locations directed by the Architect, securely mounted with concealed theft-resistant fasteners. Attach to substrates in accordance with the manufacturer's instructions.
- B. Install level, plumb, and at the proper height. Cooperate with other trades for installation of sign units to finish surfaces. Repair or replace damaged units as directed by the Architect.

END OF SECTION

SIGNAGE SCHEDULE

General Notes:

1. Architect to choose color from manufacturers standard colors.
2. Architect to choose font from manufacturers standard fonts.

Location	Type	Text	Notes
Cellar			
C1	B	EMERGENCY EXIT ONLY	
C2	A	ART ROOM A	
C3	A	ART ROOM B	
C4	A	MECHANICAL ROOM A	
C5	B	NOT AN EXIT	
C6	B	EMERGENCY EXIT ONLY	
C7	A	PRACTICE ROOM 14	
C8	A	PRACTICE ROOM 13	
C9	A	PRACTICE ROOM 12	
C10	A	PRACTICE ROOM 11	
C11	A	PRACTICE ROOM 10	
C12	A	PRACTICE ROOM 9	
C13	A	PRACTICE ROOM 8	
C14	A	PRACTICE ROOM 7	
C15	A	PRACTICE ROOM 6	
C16	A	PRACTICE ROOM 5	
C17	A	PRACTICE ROOM 4	
C18	A	PRACTICE ROOM 3	
C19	A	PRACTICE ROOM 2	
C20	A	PRACTICE ROOM 1	
C21	A	STORAGE A	
C22	C	RESTROOM	
C23	C	RESTROOM	A
C24	A	STORAGE B	
C25	B	EMERGENCY EXIT & HC ACCESS TO BUILDING 74	
C26	B	CHURCH STREET SCHOOL FOR MUSIC AND ART	
C27	B	EMERGENCY EXIT & HC ACCESS TO BUILDING 72	
C28	A	MECHANICAL ROOM B	

First Floor:

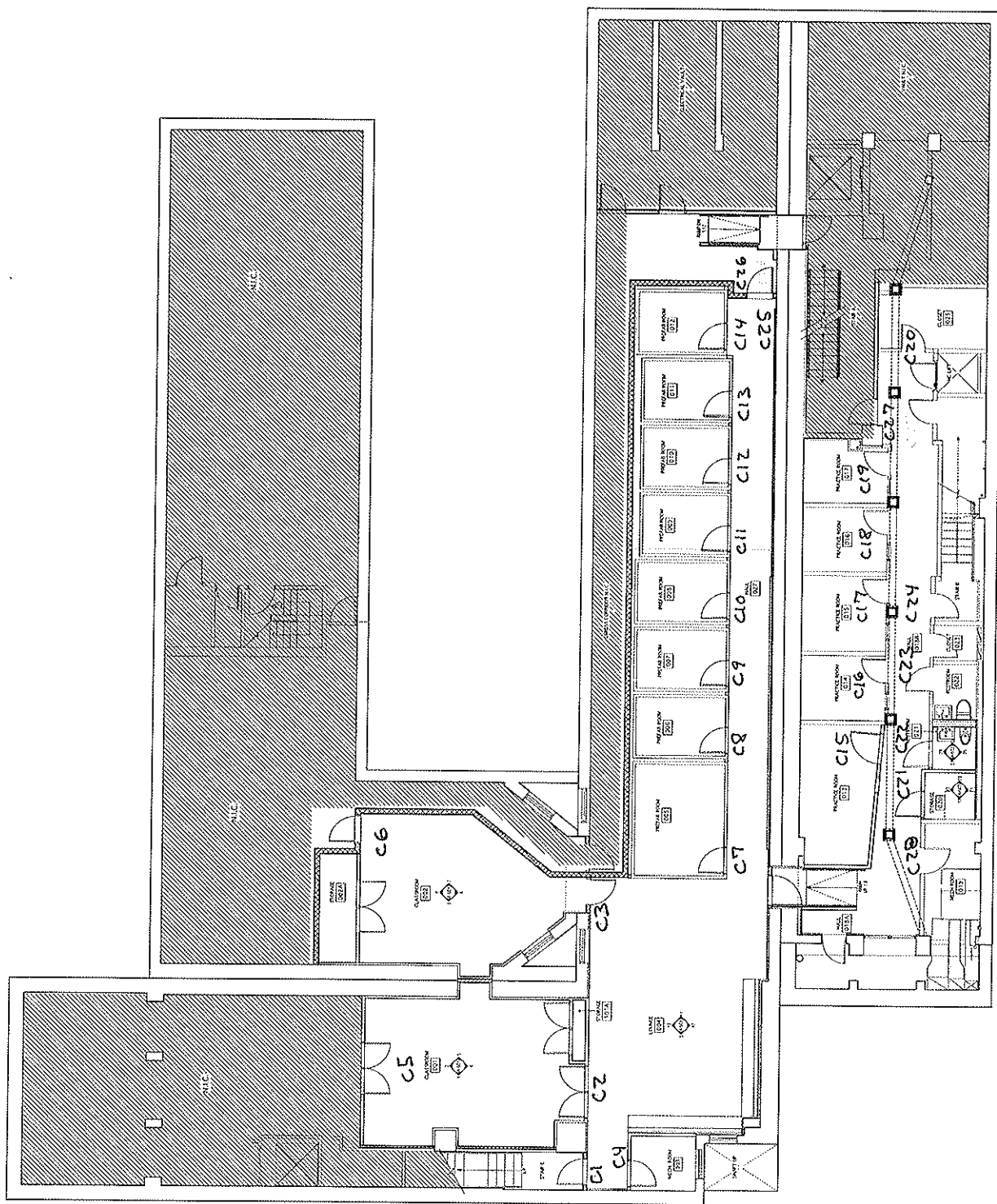
F1	C	RESTROOM	
F2	C	RESTROOM	
F3	C	RESTROOM	A
F4	A	CLASSROOM 2	
F5	A	CLASSROOM 1	
F6	A	CLASSROOM 1	
F7	B	CHURCH STREET SCHOOL FOR MUSIC AND ART	
F8	A	CLASSROOM 2	

Sign type:

- A ROOM DESIGNATION 6x6
- B EXIT SIGN 8x8
- C RESTROOM-PROVIDE WOMENS/MENS SYMBOL 6x8

Notes:

A- Provide ADA HC symbol



SECTION 10522

FIRE EXTINGUISHERS AND CABINETS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the fire extinguishers and cabinets as shown on the drawings and/or specified herein.

1.3 RELATED SECTIONS

- A. Gypsum drywall - Section 09250.
- B. Fire suppression systems - Division 15.
- C. Fire hose cabinets and valve cabinets - Division 15.

1.4 QUALITY ASSURANCE

- A. Provide portable fire extinguishers, cabinets and accessories by one manufacturer.
- B. UL-Listed Products: Provide new portable fire extinguishers which are UL-listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher indicated.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and installation instructions for all portable fire extinguishers required. For fire extinguisher cabinets include roughing-in dimensions, and details showing mounting methods, relationships to surrounding construction, door hardware, cabinet type and materials, trim style and door construction, style and materials. Where color selections by Architect are required, include color charts showing full range of manufacturer's standard colors and designs available.
- B. Samples: Submit samples, 6" square, of each required finish. Prepare samples on metal of same gauge as metal to be used in the work. Where normal color variations are to be expected, include 2 or more units in each sample showing the limits of such variations.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide products of one of the following, or approved equal:
 - 1. Larsen's Mfg. Co. (basis for project design).
 - 2. J.L. Industries.
 - 3. Potter Roemer.

2.2 EXTINGUISHERS

- A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard which comply with requirements of governing authorities.
- B. Abbreviations indicated below to identify extinguisher type related to UL classification and rating system and not necessarily to type and amount of extinguishing material contained in extinguisher.
- C. Multi-Purpose Dry Chemical Type: UL rated 2A-10B:C, 5 lb. nominal capacity, in enameled steel container, for Class A, Class B and Class C fires.

2.3 MOUNTING BRACKETS

- A. Provide manufacturer's standard bracket designed to prevent accidental dislodgment of extinguisher, of proper size for type and capacity of extinguisher specified, in manufacturer's standard enamel finish; color to match extinguisher.

2.4 CABINETS

- A. Type and Style: Fire extinguisher cabinets shall be metal, semi recessed, with plexiglass panel, sized to fit within the partition or wall depth. Provide fire rated cabinets within fire rated partitions.
 - 1. Basis for Project Design: Larsen's "Model G-2409-5R".
- B. Color: Fire extinguisher cabinets shall be factory pre-finished with baked enamel in the colors selected by the Architect from the standard range of colors of the selected manufacturer.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where fire extinguishers and cabinets are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Install items included in this Section in locations indicated and at heights to comply with applicable regulations of governing authorities.
 - 1. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.
 - 2. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.
- B. Where exact location of cabinets and bracket-mounted fire extinguishers is not indicated, locate as directed by the Architect.

3.3 IDENTIFICATION

- A. Identify fire extinguisher in cabinet with lettering spelling "FIRE EXTINGUISHER" painted on door by silk-screen process. Provide lettering on door as selected by Architect from manufacturer's standard letter sizes, styles, colors and layouts.
- B. Identify bracket-mounted extinguishers with red letter decals spelling 'FIRE EXTINGUISHER' applied to wall surface. Letter size, style and location as selected by the Architect.

3.4 SERVICE

- A. Determine the approximate completion date of the work and then inspect, charge, and tag the fire extinguishers at a date not more than 10 days before or not less than one day before actual completion date of the work.

END OF SECTION

SECTION 10800
TOILET ACCESSORIES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the toilet accessories as shown on the drawings and/or specified herein.

1.3 RELATED SECTIONS

- A. Gypsum board partitions - Section 09250.
- B. Ceramic tile - Section 09310.

1.4 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.
- B. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units. Height of accessories shall be installed in compliance with prevailing Handicap Code.
- C. Products: Unless otherwise noted, provide products of same manufacturer for each type of unit and for units exposed in same areas.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data, catalogue cuts and installation instructions for each toilet accessory.
- B. Setting Drawings: Provide setting drawings, templates, instructions, and directions for installation of anchorage devices in other work
- C. Submit schedule of accessories indicating quantity and location of each item.

1.6 PRODUCT HANDLING

- A. Deliver accessories to the site ready for use in the manufacturer's original and unopened containers and packaging, bearing labels as to type or material, manufacturer's name and brand name. Delivered materials shall be identical to approved samples.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 22 gauge minimum, unless otherwise indicated.
- B. Brass: ASTM B 19 flat products; ASTM B 16, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Galvanized Steel Sheet: ASTM A653, G60.
- D. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B456, Type SC 2.
- E. Mirrors: ASTM C1503, mirror glazing quality, clear glass mirrors, nominal 1/4" thick.

2.2 FASTENING DEVICES

- A. Exposed Fasteners: Theftproof type, chrome plated, or stainless steel; match finishes on which they are being used.
- B. Concealed Fasteners: Galvanized (ASTM A123) or cadmium plated.
- C. No exposed fastening devices permitted on exposed frames.
- D. For metal stud drywall partitions, provide 10 gauge galvanized sheet concealed anchor plates for securing surface mounted accessories.

2.3 FABRICATION

- A. General: Stamped names or labels on exposed faces of toilet accessory units are not permitted. Unobtrusive labels on surfaces not exposed to view are acceptable. Where locks are required for a particular type of toilet accessory, provide same keying throughout project. Furnish two keys for each lock.
- B. Surface-Mounted Toilet Accessories, General: Fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage.
- C. Recessed Toilet Accessories, General: Fabricate units of all welded construction, without mitered corners. Hang doors of access panels with full-length stainless steel piano hinge. Provide anchorage which is fully concealed when unit is closed.

2.4 MANUFACTURERS

- A. Provide products manufactured by Bobrick Washroom Equipment Co., American Specialties, Inc., Bradley Corp., or approved equal.

2.5 ACCESSORY SCHEDULE

- A. Refer to drawings for specific product requirements.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where toilet accessories are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 PREPARATION

- A. Furnish templates and setting drawings and anchor plates required for the proper installation of the accessories at gypsum drywall partitions. Coordinate the work to assure that base plates and anchoring frames are in the proper position to secure the accessories.
- B. Verify by measurements taken at the job site those dimensions affecting the work. Bring field dimensions which are at variance with those on the approved shop drawings to the attention of the Architect. Obtain decision regarding corrective measures before the start of fabrication of items affected.
- C. Cooperate in the coordination and scheduling of the work of this Section with the work of other Sections so as not to delay job progress.

3.3 INSTALLATION

- A. Install accessories at locations indicated on the drawings, using skilled mechanics, in a plumb, level and secure manner.
- B. Concealed anchor assemblies for gypsum drywall partitions shall be securely anchored to metal studs to accommodate accessories. Assemblies shall consist of plates and/or angles tack welded to studs.
- C. Secure accessories in place, at their designated locations by means of theftproof concealed set screws, so as to render removing of the accessory with a screwdriver impossible.
- D. Unless otherwise indicated, accessories shall conform to heights from the finished floor as shown on the drawings. Where locations are not indicated, such locations shall be as directed by the Architect.
- E. Installed accessories shall operate quietly and smoothly for use intended. Doors and operating hardware shall function without binding or unnecessary friction. Dispenser type accessories shall be keyed alike. Prior to final acceptance, master key and one duplicate key shall be given to Owner's authorized agent.
- F. The Architect shall be the sole judge of workmanship. Workmanship shall be of the highest quality. Open joints, weld marks, poor connections, etc., will not be permitted. The Architect has the right to reject any accessory if he feels the workmanship is below the standards of this project.
- G. Grab bars shall be installed so that they can support a 300 lb. load for five minutes per ASTM F446.

3.4 CLEANING AND PROTECTION

- A. Upon completion of the installation, clean accessories of dirt, paint and foreign matter.
- B. During the installation of accessories and until finally installed and accepted, protect accessories with gummed canvas or other means in order to maintain the accessories in acceptable condition.
- C. Replace and/or repair installed work which is damaged or defective to the Owner's satisfaction, at no additional cost.

END OF SECTION

SECTION 130340

SOUND CONDITIONED ROOMS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the sound conditioned rooms as shown on the drawings and/or specified herein, including but not limited to, the following:
 - 1. Furnish and install modular sound-isolating enclosures; standard module including:
 - a. Perimeter neoprene floor seal.
 - b. Door with vision light.
 - c. Corner posts with integrated speakers enclosures and wiring.
 - d. Wall panels with integrated wiring and mountings for microphones.
 - e. Ceiling frame.
 - f. Ceiling panels.
 - g. Integrated ventilation, illumination, system control and power and signal distribution systems.
 - h. Access raceways for signal distribution systems (i.e. smoke detectors, intercom, warning devices, etc.).

1.3 RELATED SECTIONS

- A. Directly connected HVAC system - Division 15.
- B. Electrical - Division 16.

1.4 REFERENCES

- A. American Society for Testing and Materials:
 - 1. UL Standard 723 "Test For Surface Burning Characteristics of Building Materials."
 - 2. ASTM C 423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - 3. ASTM E 336 - Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.
 - 4. ASTM E 90 - Laboratory Measurement of Airborne Sound Transmission of Building Partitions.

5. ASTM E 413 - Classification for Determination of Sound Transmission Class.
6. ASTM E 596 - Standard Test Method for Laboratory Measurement of the Noise Reduction of Sound-Isolating Enclosures.

B. Class C tolerance.

1.5 DEFINITIONS

- A. Noise Isolation Class (NIC): Single number rating used to describe noise reduction between two spaces through a complete structure. Because NIC is strongly affected by test environment, only NIC measured in strictly controlled independent laboratory environment may be used for comparing sound-isolating enclosures.

1.6 SYSTEM DESCRIPTION

- A. Design Requirements: Modular, sound-isolating enclosures with internal acoustical environments suitable for music instruction and rehearsal, voice announcements and tape recording, private consultation and remedial instruction; modular; expandable without component modification or loss of acoustical performance; individual panels removable and replaceable with only partial disassembly of module. Modules shall be easily demountable and relocated without loss of effectiveness. Wall and ceiling panels will meet Underwriters Laboratory (UL) Class 1 classification per UL Standard 723 for flame spread and smoke developed. Modules shall seal to any floor without being physically attached or with the use of caulking. Room electrical system shall be UL classified to NEC.

- B. Performance Requirements: Current production units with 410 cubic foot interior volume, 34 percent perforated interior panels, 12" airspace between modules, concrete floor construction:

1. Airborne noise reduction, laboratory installation: NIC 40 from exterior to interior of module; NIC 60 from interior of one module to interior of adjacent module.
2. Airborne noise reduction, typical field installation: NIC 41 from interior to exterior of module and NIC 65 from interior of one module to interior of adjacent module.
3. Ambient noise at center of module, lighting and ventilating systems operating: Not exceeding NC 25.
4. Reverberation time in contiguous octave bands, center frequencies from 125 to 4000 Hz: 0.45 plus or minus 0.1 second (based on a 640 cu. ft. interior volume).
5. Sound absorption coefficients of perforated wall and ceiling panels:

One-third Octave Band Center Frequency (Hz)	Absorption Coefficient (Sabins/sq. ft.)
125	0.57
250	0.98
500	1.13
1000	1.06

2000	1.06
4000	1.03

6. Lighting level: 80 foot-candles at 36 inches above floor at module center.
7. Internal room fan system typically exchanges ambient surrounding air every 1.5 to 2 minutes.

1.7 SUBMITTALS

- A. Shop Drawings: Submit assembly and installation drawings showing product components in assembly with adjacent materials and products.
- B. Contract Closeout Submittals:
 1. Operation and Maintenance Data.
 2. Warranty.

1.8 QUALITY ASSURANCE

- A. Installer's Qualifications: Installation, disassembly and reassembly shall be by the manufacturer or shall be under the direct supervision of the manufacturer.
- B. Provide test reports from an accredited independent laboratory showing one-third octave band airborne noise reduction data (NIC) to indicate manufacturer's capability of meeting performance requirements of this specification with production run components and modules. Field test data is not acceptable.
- C. Manufacturer shall submit evidence of extensive experience manufacturing sound-isolating music practice rooms, including number of installations of acoustically controlled music practice environments.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Pack and ship to avoid damage according to manufacturer's recommendations:
 1. Finish and assemble all components in the factory before shipment.
 2. Ship components in individual, sealed, labeled cartons.
 3. Deliver components to room designated for installation.
- B. Do not accept damaged products at the site. Do not install damaged products.
- C. Store products in heated indoor storage near point of installation. Retain protective packaging until installing.

1.10 PROJECT CONDITIONS

- A. Environmental Requirements: Do not install modules until all mortar, wet and dust producing trades have completed their work and finish floor is in place.
- B. Field Measurements: Obtain required field measurements from Contractor and indicate on shop drawings.

1.11 WARRANTY

- A. Provide manufacturer's written warranty that products found to be not in accordance with the requirements of the Contract Documents within a period of three years after date of commencement of warranties shall be corrected promptly after receipt of written notice from Owner.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide sound condition room assemblies as manufactured by one of the following, or approved equal:
 - 1. Industrial Acoustics Company (IAC).
 - 2. Wenger Corporation.

2.2 STANDARD MANUFACTURED COMPONENTS

- A. Wall Frame: 16 gauge steel channel with 1-1/4" thick neoprene pad adjustable plus or minus 3/8" to provide seal at floor and to compensate for 3/4" maximum variation in floor surface. Frame shall not lag, bolt or screw into building floor surface.
- B. Wall Panels: 15" x 30" wide and 4" thick; exterior face 16 gauge steel; interior face 22 gauge perforated or solid steel; filled with sound absorbing material; acoustical seal by two continuous gaskets at perimeter of each panel; alignment and compression seal between panels by mechanical locks. Integrated microphone mounts and wiring located behind perforated wall panels (2 per room).
- C. Door Panel: Righthand or lefthand, out-swinging or in-swinging prehung 36" door in frame; 2" thick; exterior face of 16 gauge steel; interior face of 14 gauge steel; filled with sound-absorbing material; 24" x 76" vision light glazed with 1/4" and 3/16" panes of laminated safety glass, 2" air space; frame of 16 gauge tubular steel filled with sound-absorbing material; 16 gauge door insert panels; double acoustical seal - magnetic and compression seal at head and jambs, adjustable sweep seal at bottom; hardware including ramped metal threshold, continuous hinge, handicapped approved handle, bumper, schoolhouse function lock. (Door shall be rated STC 43.)
- D. Corner Assembly: Same construction as wall panels. 11-1/2" wide on each outside face. Exterior face 16 gauge steel; interior face 22 gauge perforated steel. Filled with sound absorbing material; acoustical seal by two continuous gaskets at perimeter of each panel; alignment and compression seal between panels by mechanical locks. Integrated speaker enclosures and wiring in each corner assembly.
- E. Ceiling Panels: 15" wide and 4" thick same construction as wall panels. Ceiling spans greater than 105" require center support beam.
- F. Light Panels: U.L. classified to NEC with UL label on each light panel; same construction as ceiling panels; provide fluorescent luminaries with sound level "A" rated, electronic ballasts; all parts UL/CSA listed; provide thermal overload protection; 12 foot power cable.

- G. Ceiling Frame: 16 gauge steel channel to align ceiling and wall panels with clamping mechanism to compress ceiling panel acoustical gaskets.
- H. Vent Panel: 15" wide x 6" thick for intake air through acoustical plenum with 1-1/2" sound-absorbing duct liner and four 90 degree bends; number of vent panels equal to number of fan panels.
- I. Fan Panel (non-direct connect HVAC systems): UL classified to NEC with UL label on each fan panel; same construction as vent panel with six 90 degree bends; accessible from module interior; 12 foot power cable. Each fan panel typically provides 150 cfm exhaust to surrounding ambient environment.
- J. Light/Vent Panels (direct connected HVAC systems): UL classified to NEC with UL label on each light/vent panel; ceiling vent panel 15" wide x 6" thick for intake air through acoustical plenum with 1-1/2" sound-absorbing duct liner and four 90 degree bends; 8" round duct connection; use only flex duct for connection (to maintain sound isolation); provide fluorescent luminaries with sound level "A" rated. Maximum of 120 cfm per vent panel.
- K. Power Panel: UL classified to NEC with UL label on each power panel; same construction as wall panels; junction and electrical boxes with airtight cover plates; interior - one four-plex receptacles, toggle switches labeled "LIGHT," "AIR" and "SYSTEM" to control luminaire and fan; two four-plex boxes located 8" from the ceiling with two double cover plates for connections for alarms, warning devices, smoke detectors, etc.; exterior - three power receptacles; signal wiring raceway through 30" length 3/4" of conduit dropping vertically between exterior and interior junction boxes; 20 foot power cable. Electrical components shall be UL/CSA listed.
- L. Finishes: Hardware and electrical cover plates shall be satin chrome. All other components shall be iron phosphate precoat and epoxy powder thermoset (baked) finish; colors as selected by the Architect from manufacturer's standards.
- M. Closure Panel: Provide visual closure between modules without transmitting sound from one module to another.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where sound conditioned rooms are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.2 EXAMINATION

- A. Verification of Conditions: Confirm that substrate floor is flat within 1/4" measured from a 10 foot straight-edge (ACI Class C tolerance).
- B. Ceiling Clearance: Modules with direct connect HVAC shall be standard height with minimum clearance of 10'-7".

3.3 INSTALLATION

- A. Manufacturer shall install modules or directly supervise installation.
- B. Assemble and install modules without the use of caulking or other wet sealants, fillers, insulation, rivets, or sheet metal screws.
- C. All components are manufactured units, prewired where appropriate. Field modification, cutting, fitting and wiring are prohibited.

3.4 ADJUSTING

- A. Adjust all gaskets, seals and hardware for maximum performance.

3.5 CLEANING

- A. Clean all surfaces according to manufacturer's recommendations.
- B. Remove all packaging and construction rubbish and debris.

END OF SECTION

SECTION 15000
PLUMBING SCHEDULE

Note:
Reference cut sheets for additional information

TYPE	MANUFACTURER	MODEL #	NOTES
S-1	AMERICAN STANDARD	0373.050	2, 4
S-2	MUSTEE	27F 6 71031 00057 6	1
S-3	AMERICAN STANDARD	9141.011	4, 5
T-1	TOTO	CST744SL	3

NOTES:

- 1 PROVIDE S TRAP AND T&S BRASS AND BRONZE WORKS FAUCET #B1142
- 2 PROVIDE SPEAKMAN FAUCET S-4131
- 3 PROVIDE TOTO TOILET SEAT #SC134
- 4 PROVIDE WALL CARRIER AS REQUIRED
- 5 PROVIDE SPEAKMAN FAUCET S-4151

DIVISION 13 SPECIAL CONSTRUCTION SECTION 13040



SOUND ISOLATED MUSIC PRACTICE ROOMS SPECIFICATIONS

PART 1 – GENERAL

1.0 SUMMARY:

This specification prefabricated IAC Concert Series Music Practice Room is defined as a freestanding enclosure, covered by this specification includes all enclosure panels, components, wiring, light fixtures, ventilation silencers, etc for a complete structure.

2.0 ENCLOSURE CONFIGURATION AND SIZE:

- 2.1 A maximum four-inch tolerance is allowed on length and width to permit booth to fit into standard footages of space. Heights specified in section 2.2 are without ventilating units or discharge silencers, roof or wall mounted.
- 2.2 Exterior Enclosure Dimensions: Outside dimension of enclosure will be determined by the specified interior enclosure dimensions, the enclosure configuration, and the thickness of the enclosure panels are airspaces required to meet the specified acoustical performance criteria.
- 2.3 Exterior Dimensions of Suites with Common Outer Shells: Installations requiring multiple audiometric booths may be installed in common outer shells in order to conserve floor space. Installations involving common outer shells shall be designed such that the acoustical isolation between enclosures at least equals that specified for double wall enclosures in section 15.2 of this document. Specifications of audiometric rooms or suites to utilize a common outer shell shall be noted on the attachment.
- 2.4 Installation in Pits: For audiometric booth installations that are recessed into the facility floor, the overall outside dimension will be determined by the size of the pit, less the required clearances.

3.0 CONSTRUCTION:

3.1 Design: Music Practice rooms and all components thereof shall conform to the requirements specified herein. All parts of the booth having the same manufacturer's part number shall be completely interchangeable with respect to installation and performance. Booth shall consist basically of the following components:

- 3.1.1 Perimeter floor channel with neoprene seal
- 3.1.2 Perimeter ceiling channel
- 3.1.3 Perimeter roof apron
- 3.1.4 Wall and ceiling panels with integrated electrical devices
- 3.1.5 Noise Lock Cam Seal door with full vision glass
- 3.1.6 Acoustical window units
- 3.1.7 Assembly hardware, including connecting panel joints
- 3.1.8 Electrical and lighting wiring, components and fixtures
- 3.1.9 Roof mounted Ventilation silencers for HVAC hook-up
- 3.1.10 Carpeting
- 3.1.11 Paint and other specified finishes

4.0 REFERENCES: American Society for Testing and Materials:

1. ASTM C423-90A - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
2. ASTM E336-97 - Standard Test Method for Measurement of Airborne Sound insulation in Buildings.
3. ASTM E90-97 Laboratory Measurements of Airborne Sound Transmission of Building Partitions.
4. ASTM E 413-87 Classification for Determination of Sound Transmission Class.
5. ASTM E596-96 Standard Test Method for Laboratory Measurement of the Noise Reduction of Sound Isolating Enclosures.
6. Modular Enclosure shall be wired and bear the "UL" Underwriters Laboratory Labeled with the American Mark of Safety Classification, as a complete assembly.

4.1 QUALITY ASSURANCE:

1. Manufacturer shall have been engaged in the manufacture of Sound Conditioning Rooms for at least twenty years immediately prior to the start of this Work, and demonstrate a history of successful design, manufacture and installation acceptable to the, Owner and/or Architect.
2. References in this Section to industry-wide standards or nationally recognized testing agencies shall denote the latest edition of such publications.

4.2 SUBMITTALS:

1. General: Submit in accordance with General Conditions Division 1.
2. Product Data: Submit applicable reference standards, current performance data and application recommendations and product limitations.
3. Shop Drawings: Submit assembly and installation drawings showing product components and assembly detail with adjacent materials and products.
4. Contract Close-out documents (refer also to Section 01700):
 - A. Operation and Maintenance Data for all products provided under this section.
 - B. Warranty: Warranty documents in accordance with General Conditions Division 1 of this specification.
 - C. Submit for Owners acceptance, manufacturer's standard written warranty for a period of one year from date of completion.

4.3 PROJECT CONDITIONS:

1. Entire area where rooms are installed shall be free of debris and broom clean prior to beginning installation.
2. Floor shall be level and true to within ¼" non cumulative in 10 feet for the entire area supporting the room.

PART 2 - PRODUCTS

5.0 DESIGN:

- A. Design is based on Accu-Tone II and Noise-Lock products as manufactured by Industrial Acoustics Company, Inc., Bronx, NY 718-430-4532 (fax: 718-430-4530)

- 5.0.1**
1. Sound Isolated Music Practice Room shall be pre-engineered for environments suitable for music instruments and rehearsal, voice announcements and tape recording, private consultations testimony and remedial instructions.
 2. Enclosure shall be constructed from standard components to form an unlimited variety of configurations. Windows and door assemblies shall be interchangeable at locations within the wall system. Rooms shall be completely demountable and transportable to be reassembled without loss in acoustic performance. Caulking or gasketing shall be permitted but concealed at all locations including at panel joints.

5.1 WALL AND CEILING PANELS:

1. Wall panels shall be 4 in. thick incombustible panels with solid face sheet facing the exterior not less than **14 gauge** stucco embossed textured cold rolled steel and perforated interior face sheet to be **16 gauge** stucco textured galvanized steel with 3/32" diameter holes on 3/16" staggered centers, with minimum open area of 23%. *(No exceptions)*
2. Roof panel shall be 7" thick incombustible panels with solid face sheet facing the exterior not less than **14 gauge** stucco embossed textured cold rolled steel and perforated interior face sheet to be **16 gauge** stucco textured galvanized steel with 3/32" diameter holes on 3/16" staggered centers.
3. Panel shall be filled with sound absorbing dampening material, inert, mildew resistant, vermin-proof, with an Underwriter's Laboratories fire hazard classification per ASTM Specifications equal to or better than: Flame Spread – 15; Smoke Developed – 0; Fire Contributed – 0. Density shall be variable to meet a variety of acoustic applications.

5.2 ACOUSTICAL PERFORMANCE:

- A. The minimum allowable sound transmission loss (TL) and absorption coefficient (NRC) of the Sound Conditioned Room (SCR) components as tested in accordance with ASTM Standards in NVLAP accredited laboratory facilities and certified by a recognized independent and approved organizations shall be as follows:

PANEL COMPONENT SOUND TRANSMISSION LOSS

Octave band Center Frequency Hz	63	125	250	500	1K	2K	4K	8K	STC
30a Series	15	23	44	42	50	55	62	57	47
Standard 40a Series	17	29	46	53	58	63	64	60	55
Standard 40a Series Enhancement	18	29	46	55	62	69	72	63	55

5.3 JOINERS AND CONNECTORS:

- A. Panels shall be of welded construction, free of internal reinforcement, and form a rugged module. Panels shall be joined with a one-piece flexible "H" connector of not more than 20 ga. to insure flexibility to provide a tight seal. All joints shall form sound absorbing labyrinths and tight mechanical joints. Combined peripheral and panel joiners shall form structural member with a section modules of not less than 1.5 square inches to permit external roof load of 30 lb/ sq. ft. for roof spans up to 12 ft.
("three piece" welded "h" joiner is not acceptable)
- B. Cam-locks and similar externally operated mechanical fasteners and pressure gaskets shall not be permitted.
- C. Peripheral ceiling channel system shall be designed to frame all panels into unified structure without use of locking type fasteners.
- D. Floor framing channels shall have 3/16 in. thick sound/vibration seals attached to the underside for acoustical seal and compensation for uneven surfaces. Wall panels shall be set into channel frame in strict accordance with manufacturer's detailed instructions.

5.5 WINDOW:

- A. Noise-Lock Window panels shall have double-glazed 1/4" thick acoustical laminated safety glass with sound absorbing material in air space to dampen window resonance along with desiccant material to prevent condensation. Glazing shall be mounted in aluminum trimmed acoustically tight resilient rubber seals. Window replacement shall be possible without removing any panel or part of the sound room wall. Acoustic performance of the window assembly shall meet or exceed the wall. Exposed fasteners shall not be allowed! (no exceptions)

WINDOW SOUND TRANSMISSION LOSS

Octave band Center Frequency Hz	63	125	250	500	1K	2K	4K	8K	STC
Noise-Lock	17	31	40	53	59	62	60	58	53
Noise-Lock	25	39	47	52	60	68	77	70	57

5.6 DOOR:

- A. Noise-Lock Doors shall be flush mounted and pre-hung. Assemblies complete with leaf, frame, seal, cam-lift hinges, glass and glazing (when specified) and finish hardware. Door leaf shall be 2½ in. thick with a clear opening of 3'-0" wide x 7'-0" high. Door frame shall be a factory welded split design and filled with an acoustical dampening material. The assembly shall be designed to install after the room is completely assembled. Acoustic performance of the assembly shall meet or exceed the wall.
- B. Jambs and head of doors and frames shall have two (2) sets of self-aligning magnetic-sound absorptive compression seals. Latches shall not be required to hold the door closed or to achieve an acoustical seal. Bottom of door leaf shall contain continuous gravity compression seal and shall not have any moving parts. The door leaf shall compress against sill plate as door is closed by cam-lift action. Raised sills, threshold drop seals, and sweep seals shall not be permitted.
- C. Door leaves, frames, seals, and hinges shall be factory assembled, adjusted and shipped; ready for installation after the sound-conditioning booth is completely assembled.
- D. Doors shall be furnished with a minimum of two (2) cam-lift butt-type hinges finished in US 26D dull chrome. Hinges must meet fatigue test requirements of cycling a minimum of 125,000 times while supporting a door leaf of 550lb. Submit test report.
- E. Doors and frames shall be mortised, reinforced, drilled and tapped for mortise type hardware listed under the Finish Hardware Section of the Specification (Section 08710) and factory supplied and installed by the door manufacturer prior to shipment.

DOOR SOUND TRANSMISSION LOSS

Octave band Center Frequency Hz	63	125	250	500	1K	2K	4K	8K	STC
Noise-Lock STC-51	22	26	46	50	52	52	58	50	51
Noise-Lock STC-55	23	33	51	54	56	53	60	61	55
Noise-Lock STC-61	24	41	53	60	60	62	69	64	61
Noise-Lock STC-64	26	44	58	62	65	66	68	63	64

5.7 VENTILATION AND AIR CONDITIONING SYSTEMS:

- 5.7.1 Self-Contained Ventilation Systems:** (When specified) the audiometric booth will be provided with a self-contained, Tranquil-Aire® fan-forced ventilation system. Ventilation silencers and fan assemblies shall be roof mounted. The fan-forced ventilation system shall be designed so as to draw conditioned air from the facility area through the audiometric booth and to return it to the facility area. The fan-forced ventilation system shall provide a minimum of one complete air change every 10 minutes. Fans shall operate on 110 volt, 60 Hz. single-phase power. The fan system for each booth shall be provided with a wall mounted switch to operate the ventilation system.
- 5.7.2 Direct Coupled Ventilation Systems:** (When specified) the audiometric booth shall be provided with a ventilation system designed to be connected to the facility building HVAC systems. Audiometric booth silencers shall be equipped with 12" diameter flexible duct ring connection points to be used for connection to the building HVAC systems to provide vibration isolation from the duct work of the building HVAC system. Ventilation silencers shall be wall or roof mounted. Ventilation silencers shall accommodate an airflow rate that will allow for one complete air change every 10 minutes.
- 5.7.3 Pressure Drop in Direct Coupled HVAC Systems:** Audiometric booths which are connected to building HVAC systems shall be equipped with silencer systems that provide pressure drops that do not exceed 0.25 inches H₂O at an airflow rate corresponding to one complete air change every 10 minutes... all airflow and pressure drop measurements shall be in accordance with ASHRAE guidelines.

5.8 LIGHTING:

- A. Lighting Systems: Audiometric booths shall be provided with pre-wired, recessed fluorescent light fixtures.
- B. Standard Lighting Levels and Fixtures: Provide a sufficient number of fixtures so as to achieve a minimum of 80 foot-candles maintained at 36" above the booth floor. ETL-listed, UL-labeled 110 volt fluorescent fixtures, with 4-40 watt DTT lamps, electronic ballasts, and prismatic acrylic lenses shall be utilized.
- C. Light Switches: Standard overhead lighting fixtures shall be provided with one wall mounted, recessed light switch adjacent to the door to operate all lights in the enclosure. Exam room standard lighting shall also be operable from the control room with a recessed light switch. Supplemental lighting fixtures shall be operable from the control room with a recessed light switch at the view window wall.

5.9 ELECTRICAL:

- A. The Sound Room shall be fitted with a combination of electrical power and communication cabling, low profile raceway. The system shall install surface mounted at the baseboard (or chair rail height when specified) without penetration to the acoustic perimeter. The system shall be UL listed and CSA approved for min. 300 vac and manufactured of PVC (black) (with upgrades to vinyl or wood veneer) as shown on the drawings. Raceway system shall be furnished complete including base cover and trims, device brackets, cover clips, corner clips, couplings and wiring.
- B. Duplex receptacles, specification grade grounding type shall be field mounted to device brackets and complete with matching faceplates.
- C. RJ11 and RJ45 voice and data, type "F" coax connectors and category 5 UTP STP, coaxial, audio, and fiber optic inserts shall be available (when specified) for media interface and communication system designs.
- D. Power panels containing switches and/or fixtures shall be wired during the manufacturing process as per National Electrical Code requirements. Latest edition using UL approved components. Wiring shall be terminated in surface junction box mounted on exterior of Power Panel.
- E. The Industrial Acoustics Company Music Practice Rooms are "UL" Underwriters Laboratory Labeled with the American Mark of Safety Classification.

5.10 ENHANCEMENT PACKAGE: *(WHEN SPECIFIED)*

Enhancement package shall consist of the following: (no exceptions)

- A. 4" wide PVC black chair rail by 1" thick mounted approximately 3'-0" above isolated floor. Chair rail system shall come complete with factory molded corner and end caps. All components will assemble without any exposed fasteners. Chair rail shall overlap the bottom of fabric panel and top of metal panel by 1".
- B. 1" thick, scuff abusive, #16 gauge metal panel, perforated with 3/32" diameter. Holes staggered on 3/16" centers, with a 23% open area. Metal panel shall be mounted below chair rail, without the need of any exposed fasteners or joiner channels.
- C. 1" fabric wrapped rigid fiberglass panel shall be mounted above chair rail. Fabric wrapped panel shall be mounted without the need of fasteners. Fabric panels can be easily replaced without the need of any other components.
- D. Enhancement package is available in five (5) decorator colors.

5.12 FIRE RATING REQUIREMENTS: (WHEN SPECIFIED)

- A. Fire Protections Requirements: As a minimum, enclosures shall be constructed of fire rated components, as specified below, to obviate the need for a fire sprinkler system and the associated roof panel penetration necessary for installation.
1. Wall and ceiling panels and liner materials used in ventilation system, silencers and fan housings, tested in accordance with ASTM E84-87, shall not exceed a rating of 25 for Flame Spread and 50 Smoke Developed.
 2. Carpeting shall meet the requirements of the Federal Flammability of Concepts and rugs (Pill Test).
 3. Wall and ceiling panels, tested in accordance with ASTM E119-88 (or equivalent industry standard test method), shall be rated for a minimum of 60 minutes. Test data for both solid and perforated surfaces exposed to fire shall be provided.
 4. Door assemblies, tested in accordance with ASTM E152-81 (or equivalent industry standard test method), and shall be rated for a minimum of 45 minutes.
 5. Windows installed in wall assemblies, tested in accordance with NFPA 257, Standard for Fire Tests of Window Assemblies (or equivalent industry test method), shall be rated for a minimum of 60 minutes.

PART 3 – EXECUTION:

6.0 QUALITY ASSURANCE:

A. Noise Reduction* - The minimum allowable noise reduction of completely assembled rooms as tested in accordance with ASTM Designation: E596 shall be as shown in Table below:

NOISE REDUCTION, dB**

1/1 Octave Band Center Frequency, Hz.	125	250	500	1K	2K	4K	8K	NIC
Standard	25	37	48	55	59	60	58	50
Enhanced	28	41	50	58	59	61	62	53
800 Series	34	53	63	72	81	80	69	60
Double-Wall Rooms	47	62	83	91	99	97	>91	70

*Defined as the difference between sound-pressure-level in a reverberation room outside the booth and that inside the booth. Copy of Laboratory Report available on request.

Note:

**± 3dB actual mileage may vary.

NIC – Noise Isolation Class, single number rating system for noise-reduction characteristics.

Noise Reduction

Design	1/1 Octave Band Center Frequency, Hz.	125	250	500	1K	2K	4K	NIC
Standard	Room to Corridor	28	36	48	57	61	61	50
Standard	Room to Room	37	72	74	90	>90	>90	61

6.2 GENERAL:

- A. Sound Conditioned Rooms shall be installed by the manufacturer or an installer acceptable to the manufacturer and approved by the architect.
- B. Verify that all installation areas are dry and that all dust generating activities have terminated.
- C. Coordinate the installation with the work of other trades and as shown on the approved shop drawings.
- D. Check job site for as-built dimensions and compatibility of approved shop drawings prior to the start of construction. Maintain minimum clearances to partitions and adjacent rooms as required by the approved shop drawings and manufacturer's recommendations.
- E. Broom clean all areas prior to beginning installation.
- F. Install the work of this section in strict accordance with approved Shop Drawings positioning all components plumb and in accordance with the design criteria to insure acoustic integrity.
- G. Furnish and install vertical closure panels between Sound Conditioned Rooms and/or walls as shown on the Drawings. Closure panels shall be 16 gauge galvanized steel over ½" thick gypsum board backing and finished to match rooms. Closure panels shall be full length dampened and gasketed so as to minimize sound conduction.

6.3 TESTING:

- A. Rooms may be tested by the Owner to comply with the allowable noise reduction as specified. Should rooms fail to meet minimum standards, the manufacturer shall correct the deficiency and retest at the manufacturer's expense.

6.4 DEMONSTRATION:

- A. Instruct the owner's maintenance personnel regarding the operation and maintenance of IAC products and systems.

END OF THIS SECTION

S-1

American Standard

**PENLYN™
WALL-HUNG LAVATORY**
VITREOUS CHINA

PENLYN WALL-HUNG LAVATORY

- Wall-hung sink
- Vitreous china
- Front overflow
- Integral back splash
- Faucet ledge.
Shown with 2000.101 Ceramix faucet (not included)

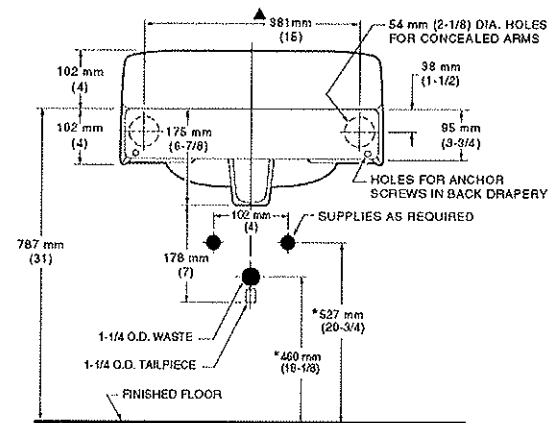
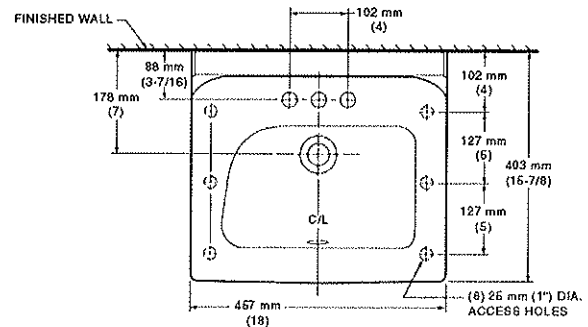
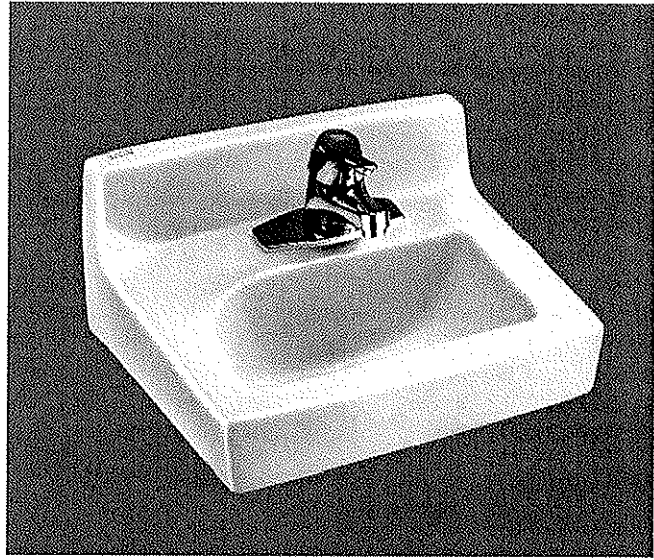
- Faucet holes on 102mm (4") centers:**
- 0373.027** For wall hanger (included)
 - 0373.050** For concealed arms support
 - 0373.950** For concealed arms support
 - Less overflow

Nominal Dimensions:
457 x 403mm (18" x 15-7/8")

Bowl sizes:
340mm (13-3/8") wide,
216mm (8-1/2") front to back,
127mm (5") deep

**Compliance Certifications -
Meets or Exceeds the Following Specifications:**

- ASME A112.19.2M for Vitreous China Fixtures



- To Be Specified**
- Color: White
 - Faucet*:
 - Faucet Finish:
 - Supplies:
 - 1-1/4" Trap:
 - Nipple:
 - Concealed Arms Support (by others):

* See faucet section for additional models available

NOTES:
 * DIMENSIONS SHOWN FOR LOCATION OF SUPPLIES AND "P" TRAP ARE SUGGESTED.
 ▲ REQUIRES CONCEALED SUPPORT ARMS TO BE SET 394mm (15-1/2) APART FOR PROPER INSTALLATION.
 CONCEALED ARM SUPPORT AS REQUIRED TO BE FURNISHED BY OTHERS.
 FITTINGS NOT INCLUDED AND MUST BE ORDERED SEPARATELY.
 PROVIDE SUITABLE REINFORCEMENT FOR ALL WALL SUPPORTS.
 IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.2.
 These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

27F and 27W UTILATUB® Laundry/Utility Tub Premier



27F and 27W UTILATWIN® Laundry/Utility tubs — Premier

- Sturdy, 1-Piece, Extra Deep Molded Tubs
- Made with Structural Thermoplastic — innovative cellular molding process makes these white tubs "literally indestructible"
- Include Twin Drain Waste connector — joins drain assemblies, assures rapid and uniform discharge of waste water, washers, slip nuts and stoppers provided
- 19 Gallon Capacity Per Tub, 13" Deep
- Hooks Up to Standard 1-1/2" P or S Trap
- Accommodate Single or Dual-handle Faucet with 4" or 8" Centers
- Floor Model Includes Adjustable Leg Levelers for Uneven Floors
- Wall Model Includes Wall Mounting Bracket, Side Supports and Hardware for Securing Tub to Concrete or Stud Wall
- Smooth Surface, Rust Resistant
- Easy to Assemble and Install
- Preferred by the "Pros"

Code Accepted

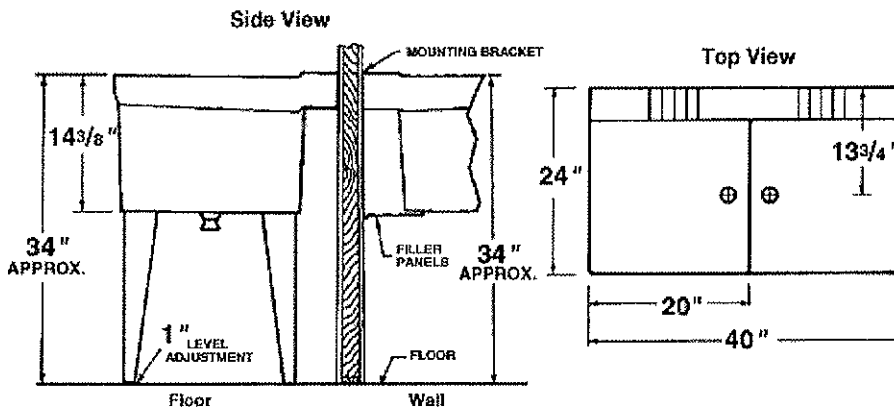
utility sinks meet or exceed performance requirements:

- International association of plumbing and mechanical officials (iapmo®)— listed file #0820
- Warnock hersey® (canada) — csa #b45.0 and #b45.5 — #B125
- American national standards institute (ansi)— specification z 124.6



SPECIFICATIONS

Model No.	Mounting	UPC	Installation Instructions
27F	Floor	6 71031 00057 6	Download Installation
27W	Wall	6 71031 00058 3	Download Installation



General: Furnish and install as shown on plans, UTILATWIN® Laundry/Utility Tubs model____(27F, 27W), as manufactured by E.L. Mustee & Sons, Inc. Unit shall be one-piece molded construction using DURASTONE®, a blend of natural crushed stone and polyester resins molded with matched metal molds under extreme heat and pressure. Complete drain assembly, twin drain waste coupling, recessed divider wall between tubs and floor or wall mounting hardware. Shall meet ANSI Specification Z. 124.6. White Color, 40 lbs.

100



WHEELCHAIR USERS LAVATORY

VITREOUS CHINA



WHEELCHAIR USERS LAVATORY

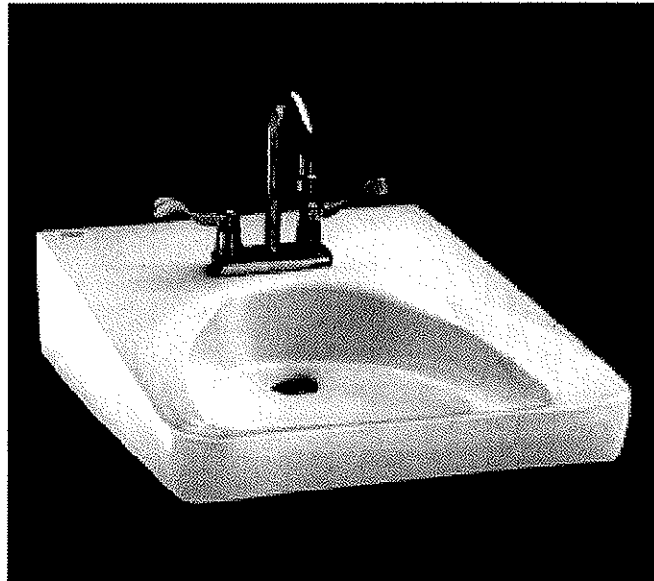
- Vitreous china
- Front overflow
- For concealed arms support (by others)
- Faucet ledge (faucet not included)

- 9141.011**
Faucet holes on 102mm (4") centers (Illustrated)
- 9141.029**
Faucet holes on 102mm (4") centers
• Extra right-hand hole
- 9141.035**
Faucet holes on 102mm (4") centers
• Extra left-hand hole
- 9141.911**
Faucet holes on 102mm (4") centers
• Less overflow
- 9140.013**
Faucet holes on 267mm (10-1/2") centers
- 9140.021**
Faucet holes on 267mm (10-1/2") centers
• Extra right-hand hole
- 9140.039**
Faucet holes on 267mm (10-1/2") centers
• Extra left-hand hole
- 9140.913**
Faucet holes on 267mm (10-1/2") centers
• Less overflow
- 9140.047**
Center hole only
- 9140.947**
Center hole only
*Less overflow

Nominal Dimensions:
508 x 686mm
(20" x 27")

**Compliance Certifications -
Meets or Exceeds the Following Specifications:**
• ASME A112.19.2 for Vitreous China Fixture

Top of front rim mounted 864mm (34") from finished floor.
MEETS THE AMERICAN DISABILITIES ACT GUIDELINES AND ANSI A117.1 ACCESSIBLE AND USEABLE BUILDINGS AND FACILITIES - CHECK LOCAL CODES.



NOTE: Roughing-in information shown on reverse side of page

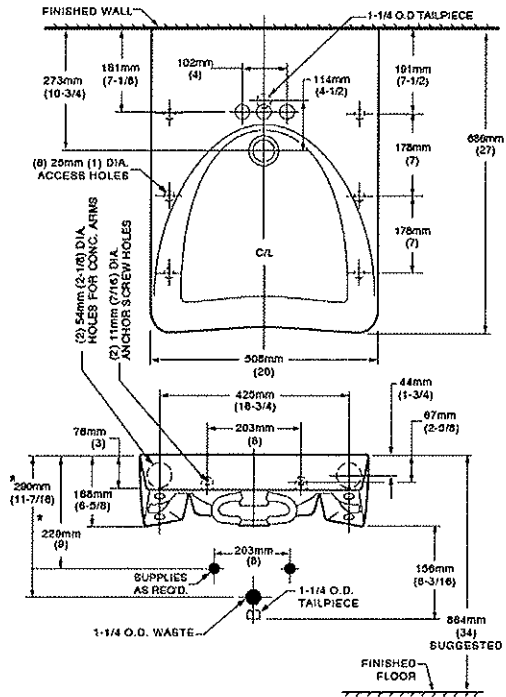
- To Be Specified

 - Color:
 - Faucet*:
 - Faucet Finish:
 - Supplies with Stop:
 - 1-1/4" Trap:
 - Nipple:
 - Concealed Arms Support (by others):
 - Offset Grid Drain Assembly: 7723.018

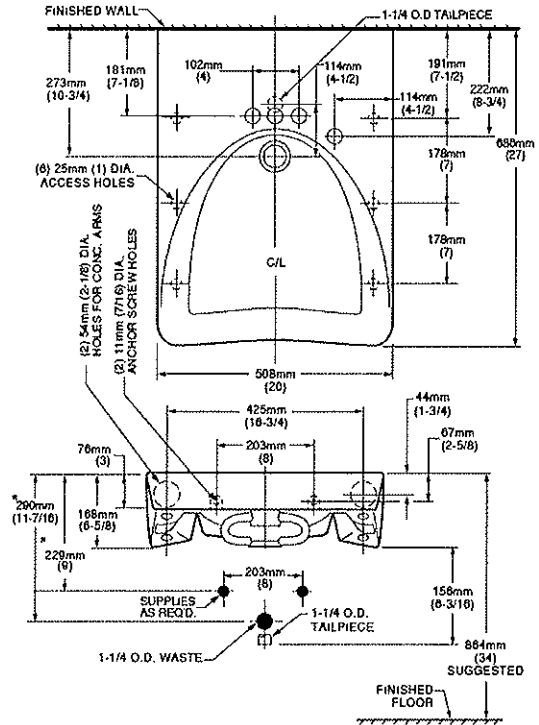
* See faucet section for additional models available



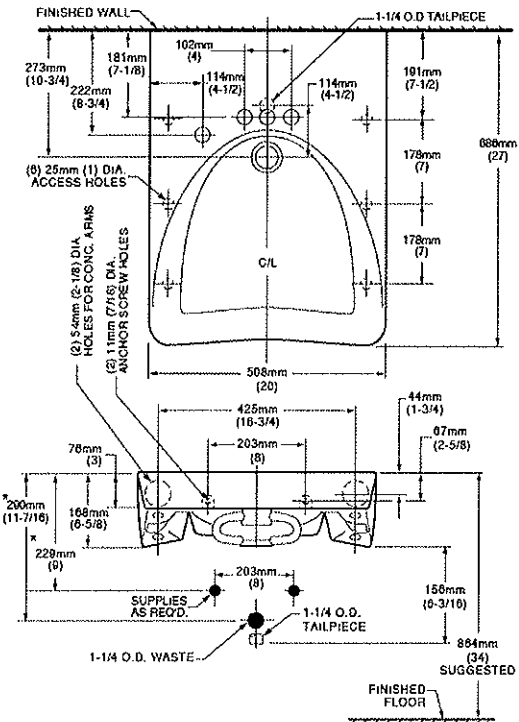
9141.011



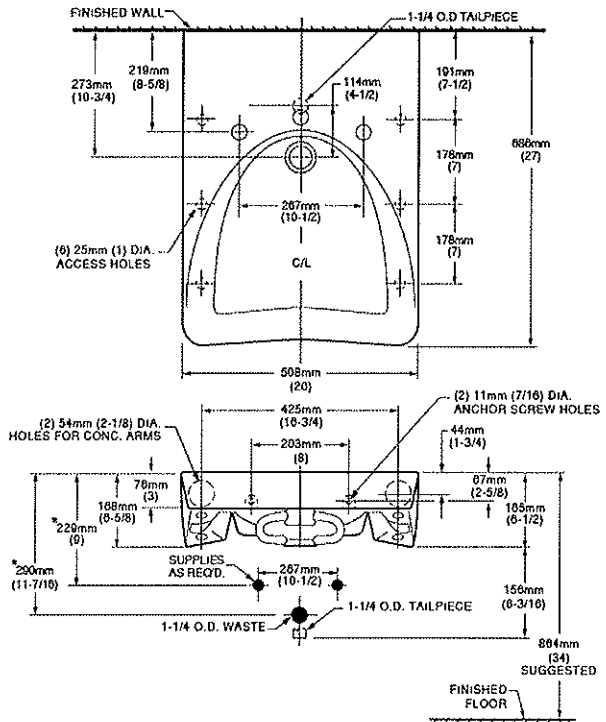
9141.029



9141.035



9140.013



T-1

TOTO®
Perfection by Design

CST744SL

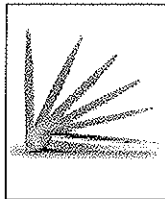
Drake Close Coupled Toilet, ADA, 1.6 GPF



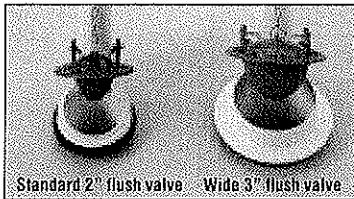
CST744SL - Drake Toilet, ADA Model
SS114 - SoftClose Seat



G-Max Technology: Quiet, powerful, commercial grade flushing performance.



Choose a SoftClose toilet seat, or upgrade to a Washlet.



Fast Flush: New, wide 3" flush valve is 125% larger than conventional 2" flush valves.

Colors:

Standard #01 Cotton

Optional See price book for additional colors

Trip Lever:

Standard #CP Chrome Plated

Optional See price book for additional finishes

- Contemporary, high profile design
- ADA Compliant
- G-Max Technology
- Powerful, quiet flush every time
- Wide, 2-1/8" computer designed trapway
- Large water surface

High profile, ADA compliant close coupled toilet. Low consumption (6 Lpf/1.6 Gpf) siphon jet flushing action.

Tank cover, fittings, chrome plated trip lever, less seat.

■ **CST744SL**

Elongated, 12" rough-in, less seat

□ **C744SL**

Elongated bowl only, 12" rough-in.

□ **ST743S**

Drake tank and cover only. Complete with tank trim and coupling components.

□ **ST743SB**

Drake tank and cover only. Complete with tank trim and coupling components. Bolt down lid.

□ **ST743SD**

Drake tank and cover only. Complete with tank trim and coupling components. Insulated tank.

□ **ST743SDB**

Drake tank and cover only. Complete with tank trim and coupling components. Bolt down lid and insulated tank.

□ **ST743SR**

Drake tank and cover only. Complete with tank trim and coupling components. Right hand trip lever.

□ **SS114**

SoftClose: Seat and lid gently close with a touch of a hand. Elongated, closed front seat with lid.

□ **SC134**

Elongated, open front seat with lid.

□ **SC534**

Elongated, open front seat less lid.

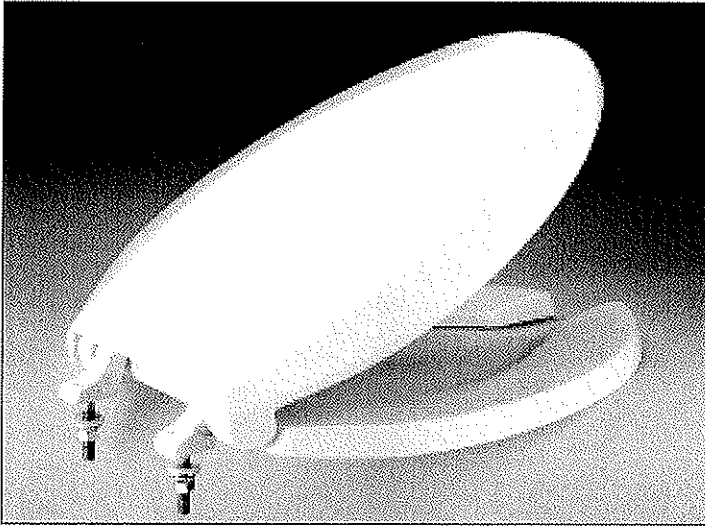


11

TOTO®

Perfection by Design

SC134 Commercial Toilet Seat



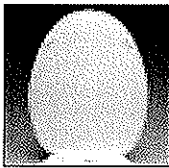
SC134 - Open Front With Cover For Elongated Bowl

- Injection molded with an extremely rugged, high impact solid plastic.
- Highly stain and chemical resistant for durability.
- One piece stainless steel hinges for secure installation.
- Integrally molded, permanent, color matched bumpers that never need replacing.
- Contemporary contoured cover designed with functional finger lift for convenient, sanitary handling.

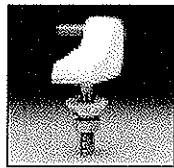
□ SC134

Open front toilet seat with cover, for elongated bowl. Complete with stainless steel hinges and mounting accessories.

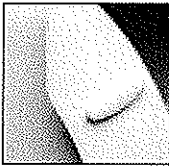
Colors:
Standard #01 Cotton



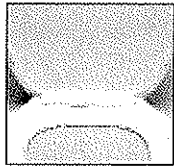
Four Bumpers



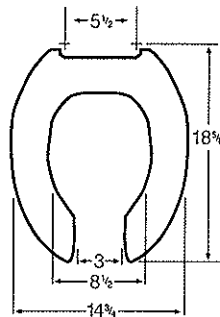
One Piece Stainless Steel Hinge



Integrally Molded Bumpers



Concealed Hinge



SC134 - Elongated

TOTO®
Perfection by Design

TOTO U.S.A., INC. • 1155 Southern Road, Morrow, GA 30260
Tel. (770) 282-8686 • Fax. (770) 282-8701 • www.totousa.com

Printed in U.S.A. © TOTO LTD. 1/01

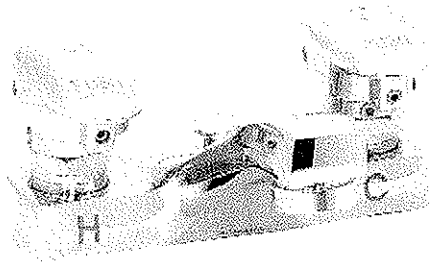
Printed on recycled paper ♻️

REV 01/01

Reliance Commercial Line

SPEAKMAN®

EASY-PUSH®



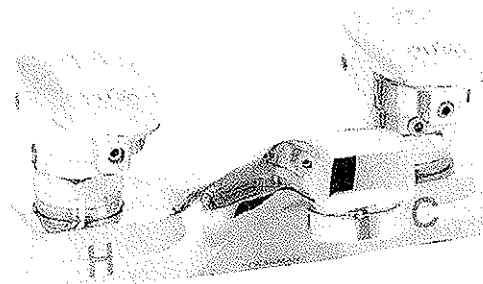
S-4131

Metering Lavatory Centerset Combinations

Speakman Easy-Push Metering Faucet cycle times will vary according to local water temperatures and pressures.



S-4141-LD

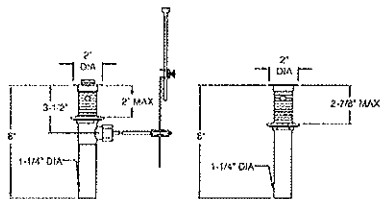
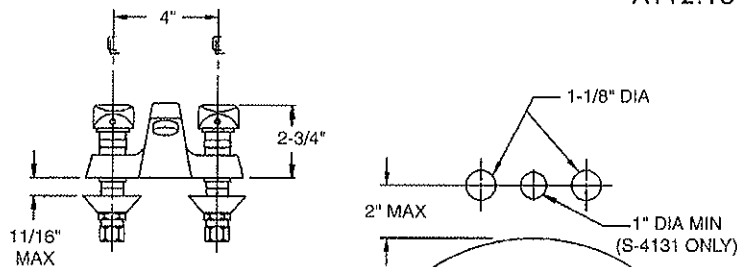


□ S-4131

Polished chrome plated all brass 4" centerset metering lavatory combination with rigid shanks. Easy-Push handles with brass yokes. Concealed cycle adjustment without shutting off water supply. 1-1/4" pop-up drain. Non-hammering operating units protected by monel mesh screens. Vandal-resistant standard. Water conserving Autoflo® device reduces flow to .25 gpc/.946 lpc, to meet existing ANSI A112.18.1M Standard.

□ S-4141-LD

Polished chrome plated all brass 4" centerset metering lavatory combination with rigid shanks. Easy-Push handles with brass yokes. Concealed cycle adjustment without shutting off water supply. Non-hammering operating units protected by monel mesh screens. Vandal-resistant standard. Less strainer drain. Water conserving Autoflo device reduces flow to .25 gpc/.946 lpc, to meet existing ANSI A112.18.1M Standard.



NOTE: Inlets are sized for either coupling or sweat connections. All dimensions are in inches and are subject to change without notice.

OPTIONS

SUFFIX	DESCRIPTION
□ BO	Vandal-resistant 0.5 gpm flow control
□ LD	Less drain assembly (S-4131 only)
□ LF	2.2 gpm laminar flow vandal-resistant flow control
□ PALM	Palm button (does not meet ADA)

72 This space for Architect/Engineer approval.

Speakman Company

P.O. Box 191, Wilmington, DE 19899-0191 USA
1-800-537-2107 Fax: 1-800-977-2747

www.speakmancompany.com



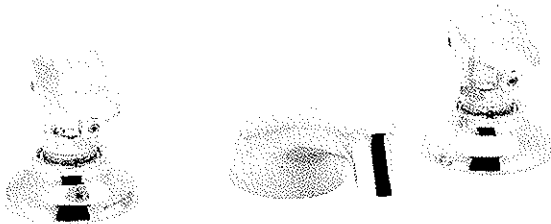
SPEAKMAN®

EASY-PUSH®



S-4151

Speakman Easy-Push Metering Faucet cycle times will vary according to local water temperatures and pressures.



S-4171-LD

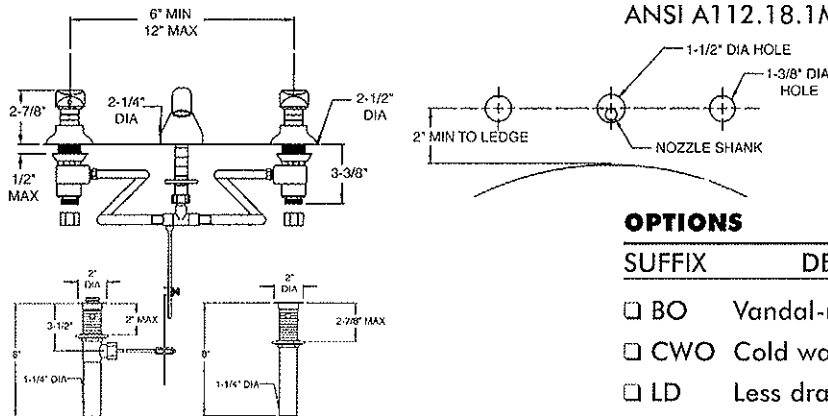
Metering Lavatory Widespread Combinations

□ S-4151

Polished chrome plated widespread metering lavatory combination. Brass spout measuring 4-3/4" from center of inlet to center of outlet. Easy-Push handles with brass yokes. Concealed cycle adjustment without shutting off water supply. 1-1/4" pop-up drain. Non-hammering operating units protected by monel mesh screens. Adjustable centers form 6" to 12". Vandal-resistant standard. Water conserving Autoflo® device reduces flow to .25 gpc/.946 lpc, to meet existing ANSI A112.18.1M Standard.

□ S-4171-LD

Polished chrome plated widespread metering lavatory combination. Brass spout measuring 4-3/4" from center of inlet to center of outlet. Easy-Push handles with brass yokes. Concealed cycle adjustment without shutting off water supply. Non-hammering operating units protected by monel mesh screens. Adjustable centers form 6" to 12". Vandal-resistant standard. Less strainer drain. Water conserving Autoflo device reduces flow to .25 gpc/.946 lpc, to meet existing ANSI A112.18.1M Standard.



NOTE: Inlets are sized for either coupling or sweat connections. All dimensions are in inches and are subject to change without notice.

OPTIONS

SUFFIX	DESCRIPTION
□ BO	Vandal-resistant 0.5 gpm flow control
□ CWO	Cold water only
□ LD	Less drain assembly (S-4151 only)
□ LF	2.2 gpm laminar flow vandal-resistant flow control
□ PALM	Palm button (does not meet ADA)

This space for Architect/Engineer approval.

Speakman Company

P.O. Box 191, Wilmington, DE 19899-0191 USA
1-800-537-2107 Fax: 1-800-977-2747

www.speakmancompany.com



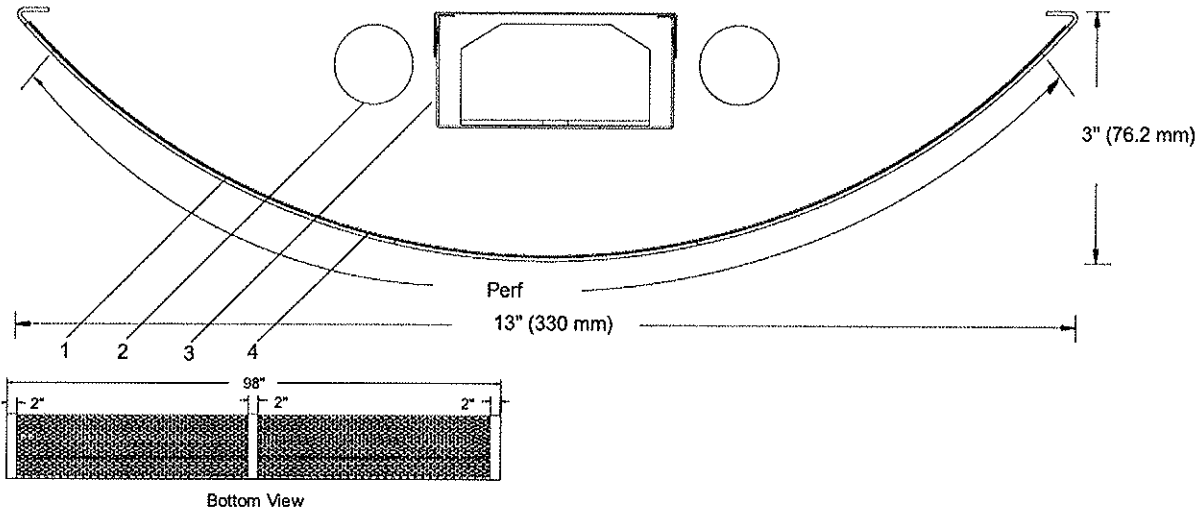
16000

LIGHTING SCHEDULE

SCHEDULE	MANUFACTURER	TYPE
F1	LIGHTOLIER	LINEAR PERFLYTE
F2	PRESCOLITE	CLASIC BELL
F3	FOCALPOINT	SKYDOME
F4	DELRAY	6" SEMI RECESSED
F5	LOUISPOULSEN	AJ EKLIPTA
F6	LOUIS POULSEN-	BALLERUP MICRO
F7	PRESCOLITE	9" SQUARE WALL MOUNT FIXTURE
F8	FOCAL POINT	GROVE C
F9	LEGION	VANGUARD 4309
F10	LEGION	DRUM PLEX
F11	COOPER LIGHTING	260 SERIES
F12	LEGION	CONTEMPO II
F13	LIGHTOLIER	LYNCASTER RECESSED DOWNLIGHT

GENERAL NOTES:

1. REFERENCE CUT SHEET FOR FIXTURE MODEL & NUMBER
2. CONTRACTOR TO SUPPLY ALL FIXTURES WITH LAMPS AS INDICATED ON CUT SHEET.
3. ALL RESTROOMS ARE TO HAVE UL APPROVED WET ROOM LABEL.
4. WHERE INDICATED ON ELECTRICAL PLANS PROVIDE FIXTURE WITH EM FUNCTION AND DIMMING BALLAST.



Module Ordering Information

Style	Series	Type	Lamps	Length	Ballast	Options
LP	2	C	2T8 2T8 = 2-F32T8	4 4 = 4 Foot 8 = 8 Foot		Blank = No Options DS = A-B Switch X4 = 4 Wire for Dimming & Switched Emergency

U = Universal Voltage
E = Emergency Pack
D1 = Dimming 120v
D2 = Dimming 277v

Complete ordering instructions below.

Features

- Housing:** 18 gauge perforated steel with 51% open hole pattern. Holes are 1/8" diameter on 5/32" staggered centers. Die-formed steel end cap with concealed access holes for through wiring. No exposed fasteners or hardware.
- Lamping:** Two T8 32 watt fluorescent lamps per 4' section. Provided by others.
- Reflector:** Precision die-formed CRS painted high reflectance white.
- Diffuser:** Opal acrylic.

Electrical

Ballast is universal voltage, <10% THD, .88 ballast factor, instant start. 3 conductor, 18 gauge wire. Color-coded quick connectors allow ease of connection for joiner modules. For special circuiting consult factory. Cord is 18/3 SJT.

Dimming: 120/277 VAC, 4 wire feed required.

Emergency Battery Pack: 32 watt: 450 lumens @ 90 minutes.

Labels

UL, cUL and I.B.E.W.

Mountings

Cable suspension (not shown) - 4 1/2" diameter flat canopy finished white enamel, 1/16" diameter stainless steel aircraft cable adjustable up to 36" without cutting. Overlap connector to provide 46" of perforated and 2" solid sections contiguously without the presence of hairline connections (see bottom view drawing above).

Finish

Powder coated baked white enamel. Custom colors available, consult factory.

Options

Dual Switching: Order the DS option for separate row switching. DS option automatically ships with the X4 option included.

Options (continued)

4 Wire: Order X4 modules for remainder of the run when using dimming and/or switched emergency battery pack modules. Also, order the 4 Wire Cord Power Feed End Sets (LP2EC36X4) when using 4 Wire Modules.

Emergency circuiting; special circuiting - consult factory.

Ordering Information

Individual Fixtures:

- Order number of MODULES required.
- Order one POWER FEED END SET per MODULE.

Continuous Rows:

- Determine run length.
- Order the appropriate number of MODULES for the complete run.
- Order one POWER FEED END SET per run.
- Order one CABLE ASSEMBLY per MODULE minus one per run.
- For runs that exceed amperage limits, order the appropriate number of SINGLE CABLE & CORD FEEDS.

Job Information	Type:
Job Name:	
Cat. No.:	
Lamp(s):	
Notes:	

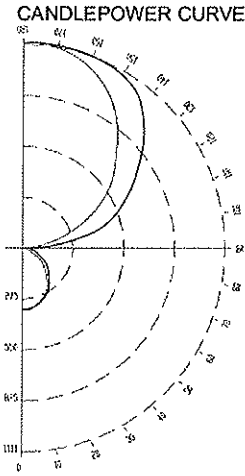
Lightolier a Genlyte Thomas Company www.lightolier.com
 631 Airport Road, Fall River, MA 02720 • (508) 679-8131 • Fax (508) 674-4710
 We reserve the right to change details of design, materials and finish.
 © 2002 Genlyte Thomas Group LLC (Lightolier Division) • A0902

LIGHTOLIER®

F-1



Performance



ZONE DEG.	CANDLEPOWER				
	0	22	45	67	90
180	1107	1107	1107	1107	1107
175	1109	1108	1111	1110	1110
165	1072	1079	1097	1107	1105
155	996	1015	1045	1084	1092
145	875	919	972	1032	1049
135	713	778	840	914	926
125	573	639	726	790	762
115	392	475	536	591	610
105	208	285	356	433	448
95	41	112	135	156	161
90	0	18	33	48	55
85	8	19	28	40	45
75	29	37	54	70	75
65	59	70	89	105	111
55	129	133	147	165	165
45	177	180	186	198	202
35	237	239	243	250	253
25	282	282	284	288	289
15	313	314	314	316	315
5	331	330	331	328	330
0	330	330	330	330	330

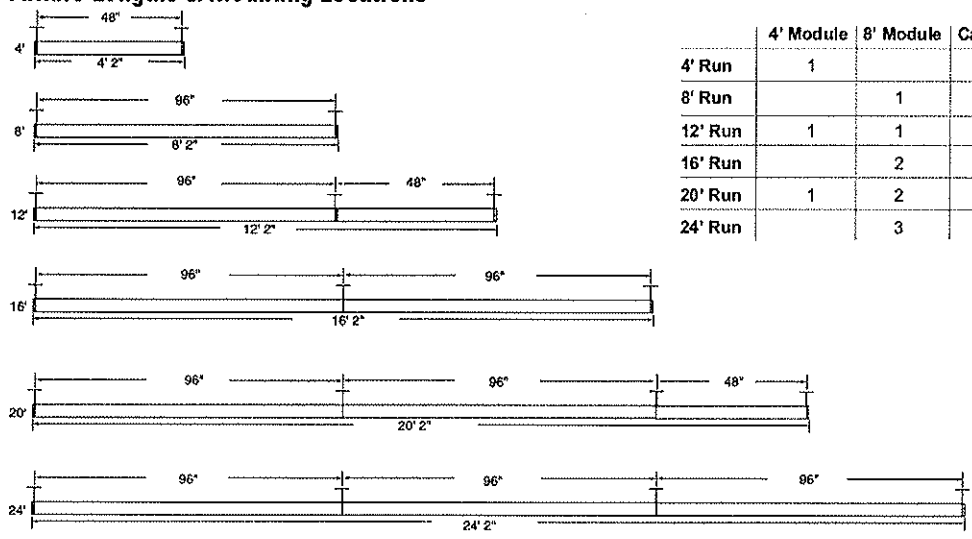
ROOM CAVITY RATIO	COEFFICIENTS OF UTILIZATION % EFFECTIVE CEILING CAVITY REFLECTANCE								
	80			70			50		
	WALL REFLECTANCE								
	70	50	30	70	50	30	50	30	10
0	80	80	80	71	71	71	53	53	53
1	73	70	67	64	62	59	46	45	43
2	67	61	57	59	54	50	41	38	36
3	61	54	49	54	48	43	36	33	31
4	56	48	42	49	42	37	32	29	26
5	51	42	36	45	38	32	29	25	22
6	47	38	32	41	34	28	26	22	19
7	43	34	28	38	30	25	23	20	17
8	40	31	25	35	27	22	21	17	15
9	37	28	22	33	25	20	19	16	13
10	34	25	20	30	22	18	17	14	11

20% FLOOR CAVITY REFLECTANCE

REPORT NO: LRL 1199-5A
 CAT NO: LP2C2T84U
 LAMPS: 2 F32T8
 LUMENS: 2900
 EFFICIENCY: 80.7%

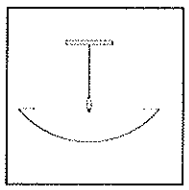
DISTRIBUTION			
Zone	Lumens	% Lamp	% Luminaire
0-90	859	14.8	18.3
90-180	3822	65.9	81.7
0-180	4681	80.7	100.0

Fixture Lengths & Mounting Locations

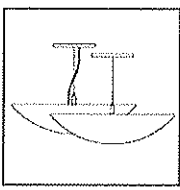


	4' Module	8' Module	Cable/Joiner	End Set
4' Run	1			1
8' Run		1		1
12' Run	1	1	1	1
16' Run		2	1	1
20' Run	1	2	2	1
24' Run		3	2	1

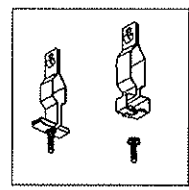
Mounting Accessories



Cable/Joiner Assembly
 Standard Cable Length is 36"
 Single Cable: LP2C36
 Single Cable & Cord: LP2CC36
 Single Cable & 4 Wire Cord: LP2CC36X4



Power Feed End Set
 Standard Cable Length is 36"
 Straight Cord: LP2EC36
 4 Wire Cord*: LP2EC36X4
 * use for dimming and/or emergency battery packs



Ceiling Grid Kit
 CGK
 Includes both Standard 1"
 Tee Bar Clip & Slot Tee Clip

Job Information **Type:**

Lightolier a Genlyte Thomas Company www.lightolier.com
 631 Airport Road, Fall River, MA 02720 • (508) 679-8131 • Fax (508) 674-4710
 We reserve the right to change details of design, materials and finish.
 © 2002 Genlyte Thomas Group LLC (Lightolier Division) • A0902

LIGHTOLIER®



Classic Bell
AKTCB
 One Line Voltage Lamp
 Up to 150W

DATE: _____ TYPE: _____

FIRM NAME: _____

PROJECT: _____

ArchiTrak®

For conversion to millimeters,
 multiply inches by 25.4
 Not to Scale

APPLICATIONS:

Prescolite's offering of classic bell fixtures are ideal for blending with more traditional and "old-American" interiors where surface mounted accent lighting is desired. This style of track head lends itself to many commercial applications where the theme is traditional.

TRACK FIXTURE:

Fixture has outer spun housing with integral glare reducing black baffle. Rotates 90° vertically and 358° horizontally. Connector has solid copper contact bars, fixed for one or two circuit connection without modification. Baked on powder coat finish is available in black, or white.

LAMP:

- * AKTCBP20: Use one (1) 50W Par20 medium base lamp.
 - AKTCBP30: Use one (1) 75W Par30 medium base lamp.
 - AKTCBP38: Use one (1) 150W Par38 medium base lamp.
- Lamps furnished by others.

SOCKET:

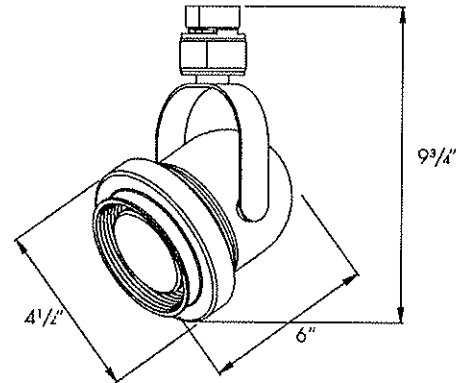
One (1) medium base porcelain socket with nickel-plated screw shell.

INSTALLATION:

Easy installation onto ArchiTrak one/two circuit track.

LABELS:

CSA NRTL/C Listed



CATALOG NUMBER:

EXAMPLE: AKTCBP30 BL

TRAK FIXTURE

FINISH

- AKTCBP20**
PAR-20 classic bell
- AKTCBP30**
PAR-30 classic bell
- AKTCBP38**
PAR-38 classic bell

- BL**¹
Black
- WH**
White

Notes:

¹ Not available for AKTCBP20



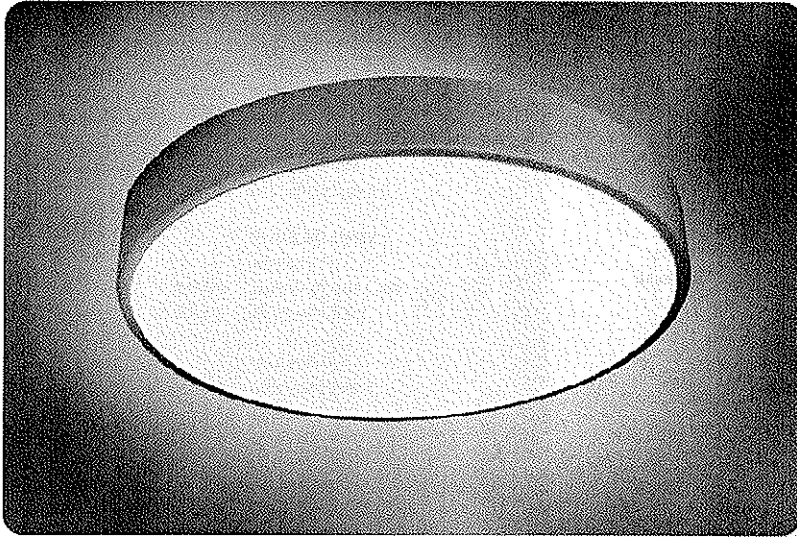
In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product.
 Web: www.prescolite.com • Tech Support: (888) 777-4832

ATRK-024

FZ

F-2

surface mount skydome™



FEATURES

2', 3' and 4' diameter surface mount direct fluorescent with frosted acrylic lens.

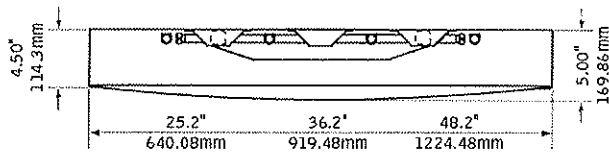
Frosted acrylic lens is textured on one side to provide smooth distribution and eliminate lamp image.

Multiple lamp options provide a variety of light output.

Convex lens design and precision lamp placement ensures an evenly illuminated diffuser.

Skydome™ is an excellent choice for open public spaces such as airport concourses, large lobbies, reception areas and meeting rooms.

DIMENSIONAL DATA

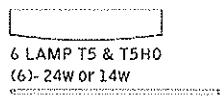


lamping options

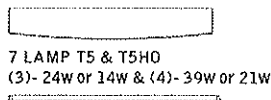
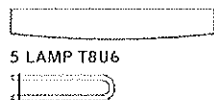
2' diameter



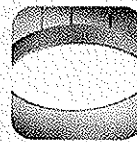
3' diameter



4' diameter

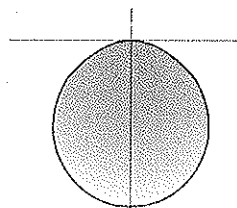


companion luminaire



pendant

PERFORMANCE



3' Diameter
6-Lamp T5H0
59% Efficiency
3877 cd @ 0°

See Photometric section for additional performance data.

august 2005

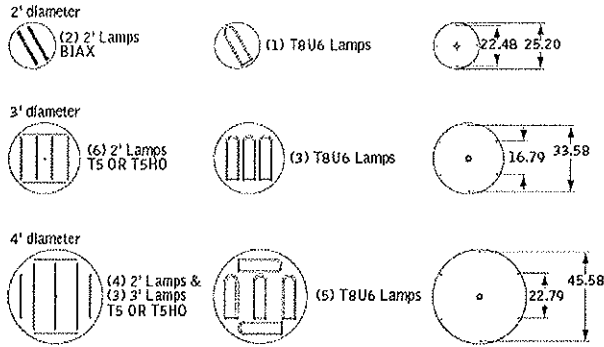
F3

F-3

fixture type:
project name:

DETAILS

lamping options



SPECIFICATIONS

construction

One-piece 16 Ga. spun steel housing.
One-piece 18 Ga. spun steel mounting plate.
Housing and lens is secured to mounting plate by torsion springs.
Bottom access to ballast compartment.

2' unit weight: 37 lbs.
3' unit weight: 53 lbs.
4' unit weight: 78 lbs.

optic

One-piece 20 Ga. steel reflector finished in High Reflectance White powder coat.
Convex lens of .125" thick white acrylic is secured to housing and removed with torsion springs.

electrical

Electronic ballasts are thermally protected and have a Class "P" rating.
Optional DALI and other dimming ballasts available.
Consult factory for dimming specifications and availability.
UL and cUL listed.

emergency

Emergency battery packs provide 90 minutes of illumination.
Initial lumen output for lamp types are as follows:

T8U6 Lamps: Up to 475 lumens
T5 Lamps: Up to 550 lumens
T5HO Lamps: Up to 825 lumens

Battery pack requires unswitched hot from same branch circuit as AC ballast.

finish

Polyester powder coat applied over a 5-stage pre-treatment.
Standard luminaire housing finished in Matte Satin White or Titanium Silver.

ORDERING

luminaire series FSD
Skydome FSD

nominal size

2' Diameter 22
3' Diameter 33
4' Diameter 44

distribution

Direct Symmetrical D

lamp quantity

2' Diameter
Two Lamp 55W BiAx 2BX55
One Lamp T8U6 1T8U6

3' Diameter

Three Lamp T8U6 3T8U6
Six Lamp T5 6T5
Six Lamp T5HO 6T5HO

4' Diameter

Five Lamp T8U6 5T8U6
(3) 21W T5 & (4) 14W T5 7T5
(3) 39W T5HO & (4) 24W T5HO 7T5HO

ballast

Electronic Instant Start <20% THD E
(Not available for T5/T5HO)
Electronic Program Start <10% THD S
(T5/T5HO only)
Electronic Dimming Ballast D
(Consult factory for dimming availability)

voltage

120 Volt 120
277 Volt 277
347 Volt 347
(Consult factory for availability)

mounting

Surface Mount SM

shielding

Convex CX

factory options

Emergency Battery Pack EM
HLR/GLR Fuse FU
Include 3000K Lamp L830
Include 3500K Lamp L835
Include 4100K Lamp L841
Separate Circuit SC

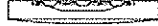
finish

Matte Satin White WH
Titanium Silver TS

Focal Point L.L.C. 4201 South Pulaski Rd, Chicago, Illinois 60632 | T: 773.247.9494 | F: 773.247.8484 | info@focalpointlights.com | www.focalpointlights.com
Focal Point L.L.C. reserves the right to change specifications for product improvement without notification.

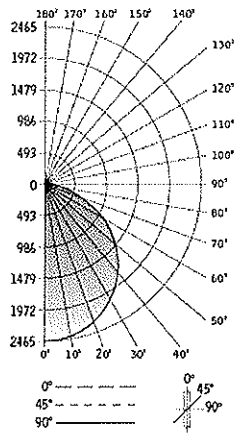
RECEIVED

surface mount skydome™



Filename: FSD336T5H.IES
 Catalog #: FSD-33-D-6T5HO-E-120-SM-CX-WH
 Efficiency: 59%
 Test #: 12353.0

CANDLEPOWER DISTRIBUTION



Spacing: 1.3
 Criterion: 1.3

Vertical Angle	Horizontal Angle				Zonal Lumens
	0°	22.5°	45°	67.5°	
0°	2462	2462	2462	2462	2462
5°	2461	2451	2451	2449	234
15°	2379	2370	2369	2368	672
25°	2211	2198	2210	2206	1021
35°	1969	1956	1961	1963	1233
45°	1655	1642	1655	1648	1278
55°	1277	1278	1282	1281	1148
65°	894	873	882	880	877
75°	479	469	483	472	502
85°	146	139	140	134	153
90°	48	49	43	45	45
95°	6	5	3	6	7
105°	0	0	0	0	0
115°	0	0	0	0	0
125°	0	0	0	0	0
135°	0	0	0	0	0
145°	0	0	0	0	0
155°	0	0	0	0	0
165°	0	0	0	0	0
175°	0	0	0	0	0
180°	0	0	0	0	0

LUMEN SUMMARY

Zone	Lumens	% Lamp	% Fixt
0°-30°	1927	16.1	27.1
0°-40°	3160	26.3	44.4
0°-60°	5586	46.6	78.4
0°-90°	7117	59.3	99.9
Total Luminaire	7123	59	100.0

LUMINANCE DATA (CD/M²)

Vertical Angle	0°	45°	90°
45°	4130	3889	3903
55°	3929	3623	3620
65°	3733	3250	3316
75°	3266	2674	2591
85°	2956	1658	1729

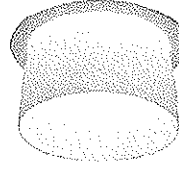
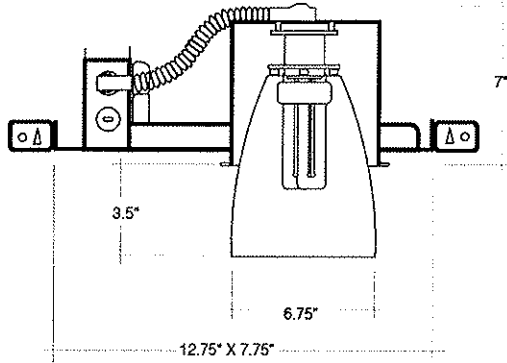
CO-EFFICIENTS OF UTILIZATION

Floor	Ceiling													
	80	70	50	30	10	00								
Wall	70	50	30	10	70	50	10	50	10	50	10	50	10	00
RCR 0	71	71	71	71	69	69	69	66	66	63	63	61	61	59
1	65	62	60	58	63	61	57	58	55	56	53	54	52	50
2	59	55	51	48	58	54	47	52	46	50	45	48	44	43
3	54	48	44	40	53	48	40	46	39	44	38	43	38	36
4	50	43	38	34	49	42	34	41	33	39	33	38	33	31
5	46	38	33	29	44	37	29	36	28	35	28	34	28	27
6	42	34	29	25	41	33	25	32	25	31	24	30	24	23
7	39	31	25	22	38	30	22	29	21	28	21	27	21	20
8	35	27	22	19	35	27	19	26	19	25	18	25	18	17
9	33	24	20	16	32	24	16	23	16	23	16	22	16	15
10	30	22	17	14	29	22	14	21	14	21	14	20	14	13

Numbers indicate percentage values of reflectivity.

Go to www.localpointlights.com for additional photometric data.

6" SEMI RECESSED DOWNLIGHT



**DELRAY
LIGHTING
INCORPORATED**

4740

SPECIFICATION INFORMATION

HOUSING ASSEMBLY

Mounting Frame and J-box are galvanized, pre-coated steel. Telescopic bar hangers are supplied and provide for off center mounting. Socket has twist lock mechanism for re-lamping with a pole. Can is spun aluminum with self flange trim, finish is matte white powder coat. Fixture is prewired with ground wire included.

GLASS

The glass is hand blown and available in four colors, glass color must be specified.

- I - indigo
- M - marine
- O - opal
- T - tangerine

BALLAST

Electronic ballasts use 4 pin lamps and provide rapid start .99 power factor with THD<10%. Standard ballast operates 26, 32 or 42W lamps. Outboard mounting provides quiet cool operation. Dimming ballast controls lumen output down to + 5% . All require compatible dimmers.

ELECTRICAL

Allows 4-in / 4-out #12 AWG conductors rated at minimum 90° C. For use in damp locations. J-box and ballast are accessible through fixture. U.L. Listed for use in damp locations.

ACCESSORIES

- CHANGER for re-lamp pole
- D1 Lutron Hi-Lume dimming ballast (specify wattage)
- D3 Advance Mark X dimming ballast (specify wattage and voltage)
- D4 Lutron Tu-Wire dimming ballast 120V only
- D5 Advance Mark VII dimming (specify wattage and voltage)
- EM emergency power pack

ORDERING INFORMATION

LAMP

- 1-26 26 watt triple tube
- 1-32 32 watt triple tube
- * 1-42 42 watt triple tube
- 1-150 150 A19

120V ELECTRONIC

- 4740.I.1 120V indigo
- 4740.M.1 120V marine
- 4740.O.1 120V opal
- 4740.T.1 120V tangerine

277V ELECTRONIC

- 4740.I.2 277V indigo
- 4740.M.2 277V marine
- 4740.O.2 277V opal
- 4740.T.2 277V tangerine

SUBMITTAL INFORMATION

TYPE:

PROJECT:

NOTES:

DESCRIPTION:

BURBANK,
CALIFORNIA,
91505
WWW.
DELRAY
LIGHTING.
COM

F4

F-4

FLUORESCENT

1-32W PLT

INCANDESCENT

1-150W A21

BALLAST INFO**STANDARD OUTPUT****1E** (120V)**2E** (277V)

Mfr. Energy Savings, Motorola

Lamp wattage: 26, 32, 42

Input watts: 30 - 26W lamp

36 - 32W lamp

44 - 42W lamp

Power factor: >.98

THD: <10%

End of life protection: Yes

DIMMING BALLASTS**D3** Advance Mark X

wattage: 1-26,32,42

voltage: 120 or 277

voltage must be specified

range: 5% - 100%

control wires: none

dimmers: standard incandescent

recommended Advance C500A

D4 Lutron Tu-Wire

Scene control dimming

wattage: 1-32

voltage: 120 only

range: 5% - 100%

control wires: none

dimmers: Lutron Grafik Eye,

Nova T, Diva, Skylark

D5 Advance Mark VII

wattage: 1-26,32,42

voltage: 120 or 277

voltage must be specified

range: 5% - 100%

control wires: 2 low voltage

dimmers: 1-10V analog

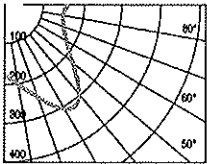
EMERGENCY BATTERY**EM** Emergency ballast provides

650 lumens for 90 minutes. Charge

indicator light and test switch are

visible from below. Voltage must be

specified

CP DISTRIBUTION**CP DISTRIBUTION****COEFFICIENTS OF UTILIZATION****% CEILING 80 (20% FLOOR)**

% WALL 70	% CEILING 80 (20% FLOOR)	
	50	30
0	96	96
1	85	80
2	77	69
3	70	61
4	64	54
5	59	48
6	54	43
7	50	38
8	46	34
9	43	31
10	39	28

% CEILING 80 (20% FLOOR)

% WALL 70	% CEILING 80 (20% FLOOR)	
	50	30
0	99	99
1	88	82
2	79	72
3	72	63
4	66	56
5	61	49
6	56	44
7	52	40
8	48	36
9	44	33
10	41	29

NOTES**4740.0**

1-32 watt triple twin tube
G24q-3 electronic socket
Total lumens-2400
Spacing criteria-1.7

NOTES**4740.0.INC**

1-150 watt A19
Medium base socket
Total lumens-2850
Spacing criteria-1.5

Aj Eklipta

compact fluorescent

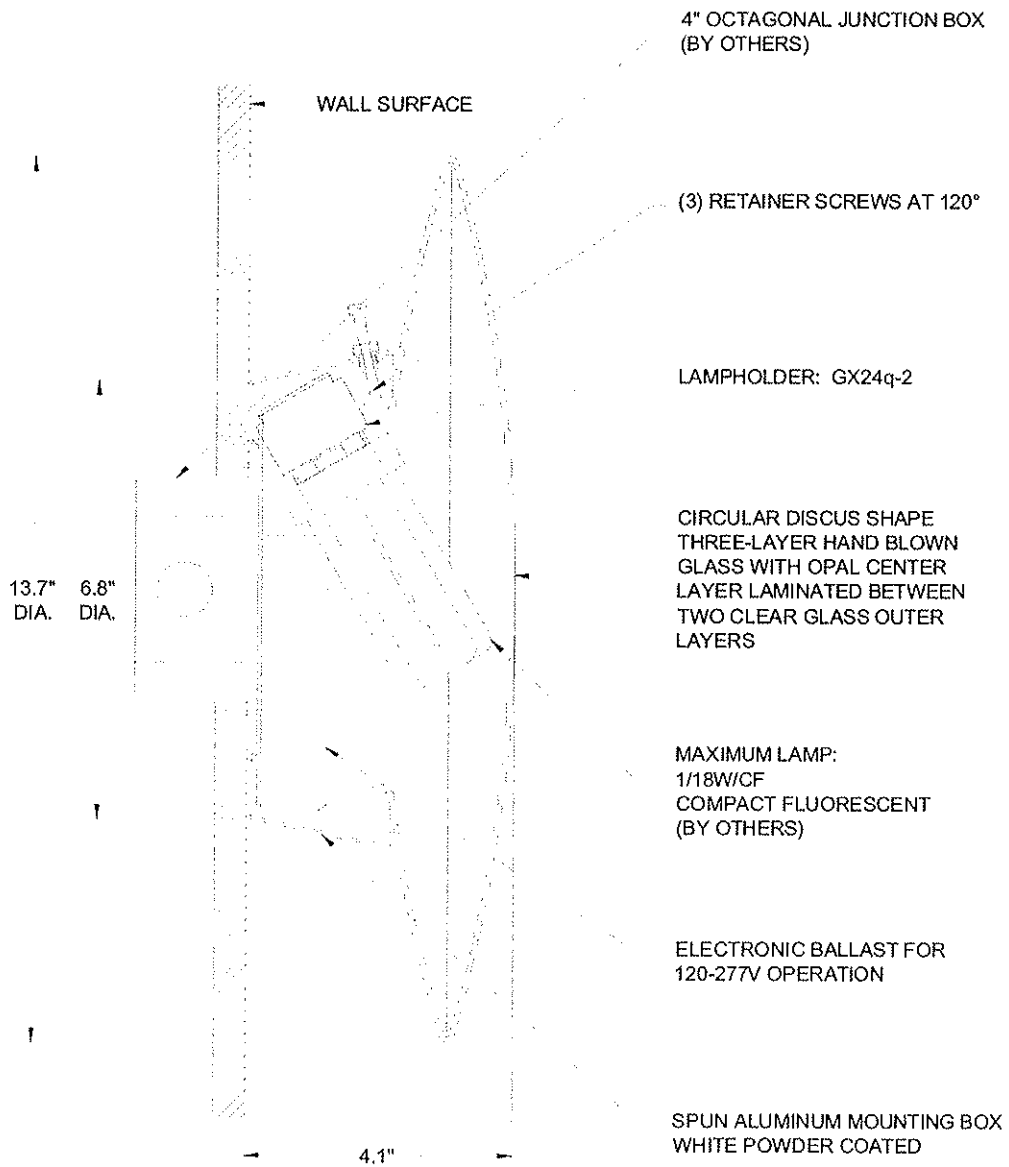
Design: Arne Jacobsen

Type:

Project:

Catalog Number:

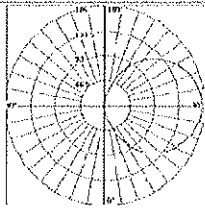
NOTES:
SUITABLE FOR CEILING AND WALL APPLICATION



Aj Eklipta

wall

compact fluorescent



Photometric Report: AJE-13.7-1-18W-CF.IES
 Report No.: LP3512
 Poulsen Report No.: AJE-13.7-1-18W-CF.IES
 Luminaire: AJE-13.7-1-18W-CF
 Lamp: 1/18W/GX24q-2
 Efficiency: 53.0%
 Description: All data shown are per 1200 lumens. This report can be used for calculation on all versions. Use only actual lumen data when calculating.

Candlepower Distribution

Vertical Angle	Candela
0	7
5	13
10	23
25	69
40	113
55	149
70	174
85	188
90	188
120	159
150	85
180	2

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0-30	18	1.5	2.8
0-40	41	3.4	6.4
0-60	126	10.5	19.4
0-90	327	27.2	50.5
90-120	200	16.7	30.9
90-130	247	20.6	38.2
90-150	304	25.3	47.0
90-180	321	28.7	49.5
0-180	617	53.0	100.0

Coefficients of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%	80			70			50			30			10			0			
	70	50	30	70	50	30	50	30	10	50	30	10	50	30	10	0			
Room Cavity Ratio	0	58	58	58	58	53	53	53	53	45	45	45	37	37	37	31	31	31	27
	1	50	46	43	40	45	42	39	37	35	33	31	28	26	24	22	21	20	17
	2	44	38	34	30	40	35	31	28	20	26	23	23	21	18	18	16	14	11
	3	39	33	28	24	36	30	25	22	24	21	18	19	17	14	15	13	11	8
	4	36	28	23	19	32	26	21	17	21	17	14	17	14	11	13	10	8	6
	6	32	25	20	16	29	23	18	14	18	15	12	15	12	9	11	9	7	5
	8	30	22	17	13	27	20	15	12	16	13	10	13	10	8	10	7	6	4
	7	27	20	15	11	25	18	13	10	15	11	8	12	9	7	9	6	5	3
	9	25	18	13	10	23	16	12	9	13	10	7	10	8	6	8	6	4	3
	9	23	16	11	8	21	15	11	8	12	9	6	10	7	5	7	5	3	2
	10	22	15	10	7	20	13	9	7	11	8	6	9	6	4	7	5	3	2

Design

Arne Jacobsen

Concept

Aj Eklipta provides the space with soft and diffuse illumination. The construction of the glass ensures an evenly lit surface. The three layer handblown glass shade has a clear edge, creating a halo of light around the perimeter.

Finish

White, powder coated. White opal glass.

Material

Ceiling/Wall box: Spun aluminum. Diffuser: Handblown white opal glass.

Mounting

Surface: Mounted directly to finished surface over a recessed 4" octagonal junction box.

Weight

Max. 6 lbs.

Label

cUL, Damp location, Wet location. IBEW.

Product code	Dimension	Light source	Voltage	Finish	Mounting
AJE	8.7" 13.7" 17.7"	1/18W/CF GX24q-2 2/18W/CF GX24q-2 2/26W/CF GX24q-3 1/60W/A-19/IF medium 1/100W/A-19/IF medium 1/40W/T-4/IF G9	120-277V 120V	WHT	WALL WALL AND CEILING

Specification notes:

- 8.7" variant only available in 1/40W/T-4/IF G9.
- 13.7" variant available in 1/18W/CF or 1/60W incandescent.
- 17.7" wall variant available in 2/26W/CF or 1/100W incandescent.
- 17.7" ceiling variant only available in 2/18W/CF or 1/100W incandescent.
- CF variants provided with one 120-277V electronic ballast.
- Incandescent variants only available in 120V.

Info notes:

- The comparable EU version has the following classification: ingress Protection Code: IP44.

Ballerup Micro

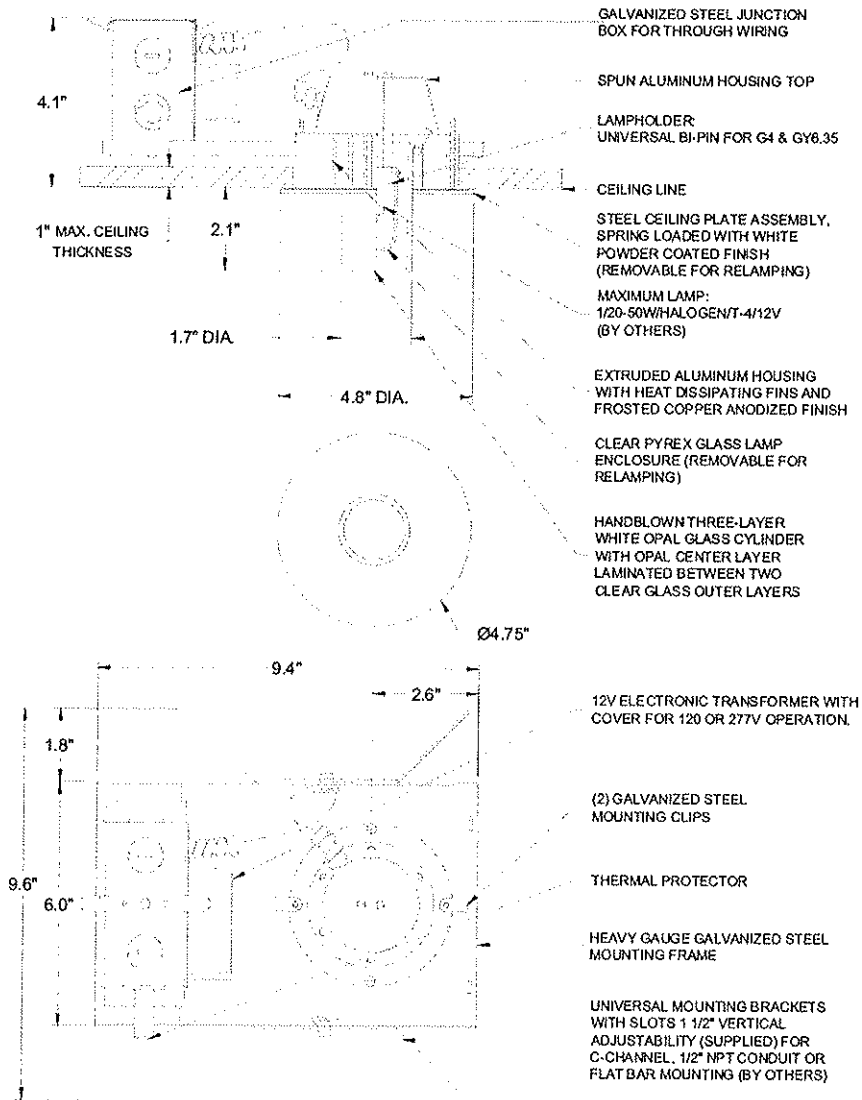
halogen

Design: C. J. Norgaard Pedersen
and P. Hougaard Nielsen

Type:
Project:
Catalog Number:

NOTES:

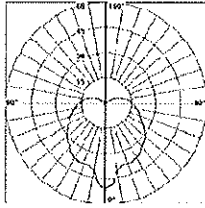
1. SUITABLE FOR ACCESSIBLE AND NON-ACCESSIBLE CEILINGS
2. CEILING CUTOUT = 4.1" DIAMETER



Ballerup Micro

semi-recessed & surface

halogen



Photometric Report: BAL-MIC-1-50W-HALOGEN-T4-GY6.53 IES
 Report No.: LP2701
 Poulsen Report No.: BAL-MIC-1-50W-HALOGEN-T4-GY6.53 IES
 Luminaire: Ballerup Micro Ceiling, Opal
 Lamp: 1/20W/Halogen
 Efficiency: 60.6%

All data shown are per 340 lumens. This report can be used for calculation on all versions listed below. Use only actual lumen data when calculating.

Candlepower Distribution

Vertical Angle	Candela
0	52
5	49
10	41
25	39
40	33
55	29
70	22
85	18
90	16
120	4
150	0
180	0

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0-30	33	9.74	16.0
0-40	55	16.2	26.7
0-60	106	31.2	51.5
0-90	171	50.3	83.0
90-120	33	9.7	16.0
90-130	35	10.3	17.0
90-150	35	10.3	17.0
90-180	35	10.3	17.0
0-180	206	60.6	100.0

Coefficients of Utilization - Zonal Cavity Method
 Effective Floor Cavity Reflectance 20%

Ceiling Reflectance (%)	80				70				50				30				10				0		
	70	60	30	10	70	60	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
Wall Reflectance (%)	70	60	30	10	70	60	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
Room Cavity Ratio	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10	
	70	70	70	70	67	67	67	67	62	62	62	57	57	57	52	52	52	50	50	50	50	50	50
	61	57	54	51	58	55	52	49	50	48	45	46	44	42	42	41	39	37	37	37	37	37	37
	55	49	44	40	52	47	42	38	43	39	36	39	36	33	36	33	31	29	29	29	29	29	29
	45	37	31	26	47	40	35	31	37	33	29	34	30	27	31	28	25	24	24	24	24	24	24
	41	33	27	22	39	31	26	22	32	28	24	30	26	23	27	24	21	20	20	20	20	20	20
	38	29	23	19	36	28	23	19	28	21	18	24	20	17	22	19	16	14	14	14	14	14	14
	35	26	21	17	33	25	20	16	23	19	16	22	18	15	20	17	14	12	12	12	12	12	12
	32	24	18	15	31	23	18	14	21	17	14	20	16	13	18	15	12	11	11	11	11	11	11
	30	22	17	13	29	21	16	13	20	15	12	18	14	12	17	14	11	10	10	10	10	10	10
	28	20	15	12	27	19	15	12	18	14	11	17	13	11	16	12	10	9	9	9	9	9	9

Design

C. J. Nørgaard Pedersen & P. Hougaard Nielsen

Concept

Ballerup Micro creates symmetrical down light illumination. The vertical two layer opal glass cylinder provides both the ceiling and the rest of the space with soft, diffuse illumination, with the majority of light directed downward.

Finish

White, powder coated. White opal glass.

Material

Diffuser: Handblown white opal glass. Ring: Die cut steel.

Mounting

Semi-recessed: Mounting frame with two vertically adjustable brackets spaced equally at 180° to be installed prior to closing the ceiling. Ceiling types: Accessible and non-accessible ceilings. Ceiling cutout: 4.1" diameter.

Weight

Max. 3 lbs.

Label

cUL, Damp location, IBEW.

Product code	Light source	Voltage	Finish
BAL-MIC	1/50W/Halogen/T-4 GY6.35	120/12V 277/12V	WHT

Specification notes:

a. 120/12V or 277/12V variants provided with one electronic transformer.

Info notes:

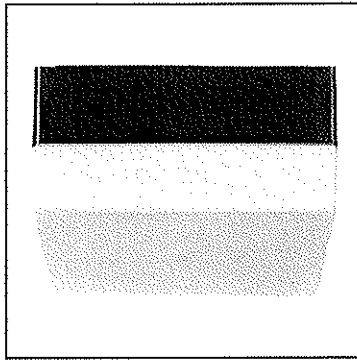
I. Lamp Is covered by a tempered glass enclosure.

II. The comparable EU version has the following classification: Ingress Protection Code: IP20.

**louis
poulsen**

Louis Poulsen Lighting, Inc., 3260 Meridian Parkway, Fort Lauderdale, FL 33331 Telephone: (954) 349-2525 Fax: (954) 349-2550

www.louis Poulsen.com



9" Square Ceiling/Wall
Mount Fixture

9426-13

One 13W Twin Tube Lamp
Wet Location
120V or 277V

DATE: _____ TYPE: _____

FIRM NAME: _____

PROJECT: _____

LiteForms

For conversion to millimeters,
multiply inches by 25.4
Not to Scale

APPLICATIONS:

The 9426, 9" square polycarbonate drum light is ideal for a wide variety of commercial and residential applications including kitchen, bath, hall and laundry areas.

HOUSING:

Injection molded unbreakable Acropol® black canopy. Wall or ceiling mount. Snap-on injection molded unbreakable Acropol opal diffuser.

BALLAST:

One (1) encased and potted compact fluorescent Class 'P' NPF or HPF ballast suitable for operating 13W twin tube lamps. Minimum starting temperature 32° F.

LAMP:

One (1) 13W twin tube with GX23 base lamp. Lamp furnished by others.

SOCKET:

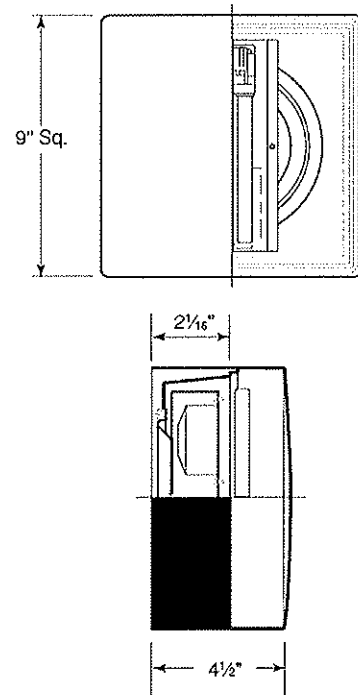
One (1) injection molded socket.

INSTALLATION:

Easy installation onto standard J-box.

LABELS:

UL, CSA listed for wet locations



CATALOG NUMBER:

EXAMPLE: 9426-13HPF120V

CYLINDER

VOLTAGE

- 9426-13 NPF**
9" Square ceiling/
wall mount fixture,
13W CFL twin tube
- 9426-13 HPF**
9" Square ceiling/
wall mount fixture,
13W CFL twin tube

- 120V**
- 277V**



In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product.
Web: www.prescolite.com • Tech Support: (888) 777-4832

LFO-CFL-021

F7

F-7

PHOTOMETRIC DATA

LiteForms® - 9" Square Ceiling/Wall Mount Fixture - 9426-13

BALLAST DATA	13W	
	120V	277V
Total System Watts	17W	18W
Input Current (Amps)	0.16	0.07
Power Factor	91%	90%

LAMP DATA	
Rated Watts	13W Twin
Rated Lumens	900
Efficacy (LPW)	69
Rated Life	10,000 hours
CRI	82
Minimum Starting Temp.	32° F

Contact factory for photometrics

NOTES

Refer to www.prescolite.com for additional photometric tests (IES Files).

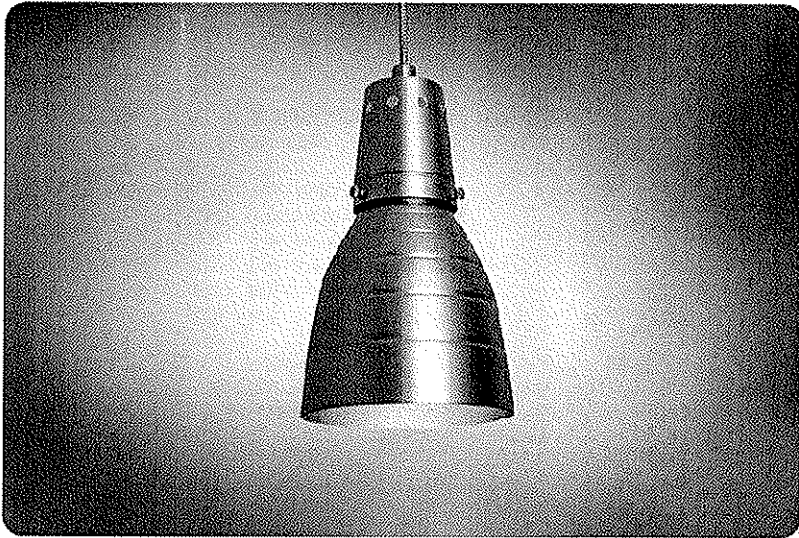


Web: www.prescolite.com • Tech Support: (888) 777-4832
701 Millennium Boulevard • Greenville, SC 29607 U.S.A. • Phone (864) 678-1000
Copyright ©2007 Prescolite, Inc., a division of Hubbell Lighting, Inc. All Rights Reserved
Specifications subject to change without notice. • Printed in U.S.A. • HRCFL021 • 07/26/07



Hubbell Lighting, Inc.

groove™ c



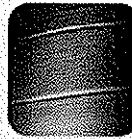
FEATURES

Pendant mount decorative luminaire available with compact fluorescent or Incandescent lamps

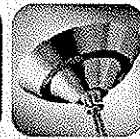
Housing, reflector and canopy are spun with high quality aluminum.

Ideally suited for retail, hospitality, lobbies, corridors, open ceiling areas and other specialty applications.

details



decorative grooves



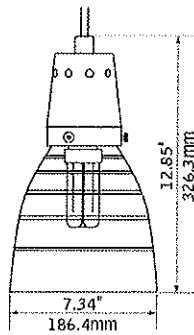
stepped canopy & single point suspension

companion luminaire



sconce

DIMENSIONAL DATA



lamping options

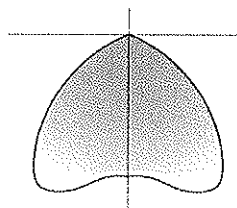


18W & 26W TRIPLE TUBE



A15, A19 & A20 LAMPS

PERFORMANCE



1-Lamp 26W Triple Tube
66.1% Efficiency
473 cd @ 25°

See Photometric section for additional performance data.

august 2005

fixture type:

project name:

SPECIFICATIONS

construction

Housing, reflector and canopy are each one-piece precision-spun 14Ga., 3002-0 aluminum, (.063" min. thickness).

Housing: 5.51"H x 3.68" Dia.

Reflector: 8.14"H x 7.34" Dia. aperture with grooved cylindrical pattern.

Canopy: 1.32"H x 4.52" Dia. stepped design with #8-32 recessed set screw.

weight: 6 lbs

optic

14Ga., 3002-0 anodized aluminum reflector with diffuse satin matte surface for lamp image reduction.

electrical

Luminaires are pre-wired for single circuit with thermally protected Class "P" electronic ballast.

Factory Installed decorative metal braided power cord is included.

144" cord is provided on all luminaires and may be cut to length in field.

Incandescent:

Medium base porcelain socket.

For lamp types A15, A19 and A21, 100W max.

Fluorescent Lamp:

Single lamp triple tube compact fluorescent, 4-pin, 18W-(GX24q-2) or 26W-(GX24q-3).

UL and cUL listed.

finish

Luminaire housing, reflector and canopy are clear anodized with polished satin finish.

Reflector interior has matte diffuse finish.

ORDERING

luminaire series		<u>FGR</u>
Groove	FGR	
profile		<u>C</u>
Profile	C	
lamp quantity		<u>1</u>
One Lamp	1	
lamp type		<u>Z6</u>
18W Triple Tube, GX24q-2	18TT	
26W Triple Tube, GX24q-3	26TT	
120V Only, 60W Max., A15-Med	A15	
120V Only, 100W Max., A19-Med	A19	
120V Only, 100W Max., A21-Med	A21	
ballast		<u>E</u>
Electronic<15% THD	E	
(Leave blank for Incandescent)		
voltage		<u>120</u>
120 Volt	120	
277 Volt	277	
suspension		<u>C144</u>
Cable, Straight Feed	C144	
(144" cable, cut in field)		
factory options		
Include 3000K Lamp	L830	
Include 3500K Lamp	L835	
Include 4100K Lamp	L841	
(fluorescent lamps only)		
finish		<u>NA</u>
Natural Anodized	NA	
(contact factory for paint color options)		

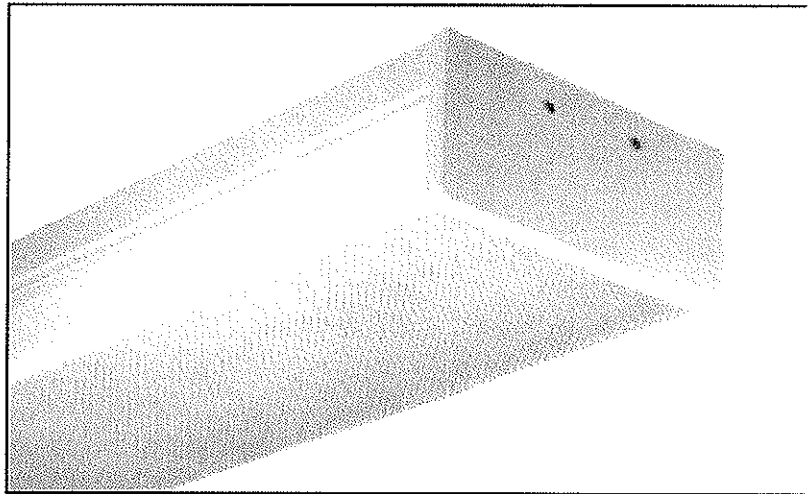
PENDANT

Focal Point L.L.C. 4201 South Pulaski Rd. Chicago, Illinois 60632 | T: 773.247.0494 | F: 773.247.8483 | info@focalpointlights.com | www.focalpointlights.com
Focal Point L.L.C. reserves the right to change specifications for product improvement without notification.

APPLICATIONS

The VANGUARD Prismatic wraparound offers a simple look in a wraparound yet delivers a positive functional design providing effective illumination.

This rugged unit is made for areas of abuse in Public Buildings, Schools, Hotels, Parking Garages, Terminals, Hallways, and Hospitals.



SPECIFICATIONS

CONSTRUCTION: Die formed of 20 gauge cold rolled prime steel, rigidly fabricated to insure true and perfect alignment. Socket plate securely mounted and readily removable for socket maintenance.

Reflector CAD formed to optically correct contour to provide maximum efficiency, removable to access wiring without the use of tools. XTA-XTRALUME® energy efficient reflector available (see OPTIONS).

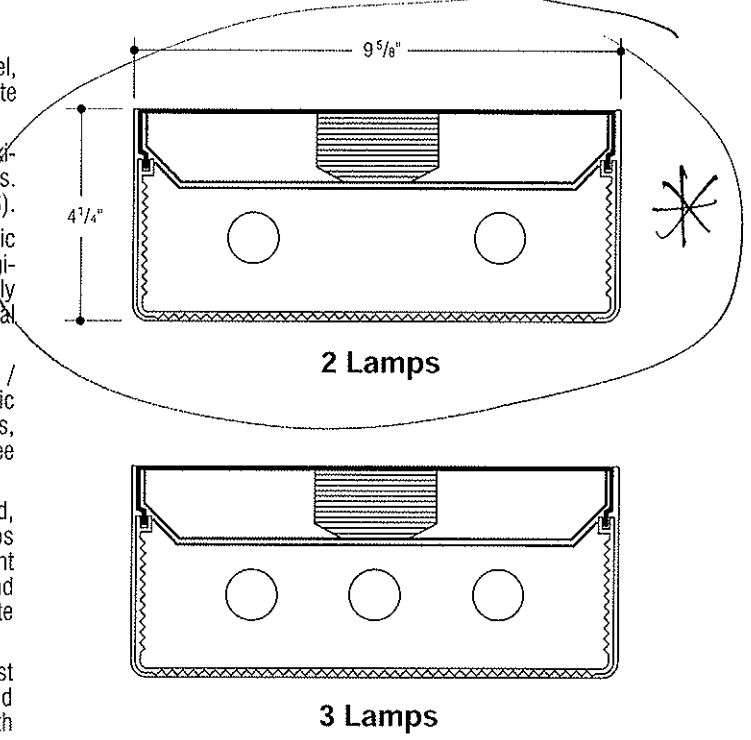
SHIELDING: One piece heavy gauge precision extruded acrylic prismatic refractor with linear prisms on sides and optically engineered debossed hexagonal prism on bottom. The lens is positively held in place by the end caps which are screwed in place. Optional 100% "DR" acrylic lens and "TP" tamperproof screws.

ELECTRICAL: Thermally protected Class "P" Energy Saving Rapid / Instant Start HPF 270MA-BiAx (Twin Tube), 265MA-T8 electronic ballasts for 118V 60 Hz operation standard. Other electronic ballasts, other voltages and frequencies available, consult factory. (See OPTIONS).

MOUNTING: Installed flush with ceiling surface or stem mounted, singly or in continuous rows. For continuous row mounting, end caps are eliminated and replaced with a joiner band to prevent light leakage between the two diffuser ends. Specify row lengths. End caps are used at the ends of rows and on individual units. Adequate knockouts and holes are provided for mounting and feeds.

FINISH: All steel component parts are completely protected against rust and discoloration after fabrication through an automated conveyerized multi-stage phosphate bonding process. Finished with an electrostatic baked white polyester thermosetting powder coating. This electronic computer controlled integrated system assures consistent 88%+ reflectance efficiency and maximum durability.

CERTIFICATION: The VANGUARD Series 4309 is U.L. and C.U.L. listed and bears the label of the I.B.E.W./AFL-CIO, Local #3. Optionally listed for Damp Locations "DL".



XTRALUME® and LEGION® are registered trademarks of LEGION LIGHTING CO., INC.

10/06



221 Glenmore Ave., Brooklyn, NY 11207 • Tel: 718/498-1770 • Fax: 718/498-0128
E-mail: sales@legionlighting.com • Website: www.legionlighting.com • Toll Free Fax: 800/4-LEGION

Section A - Page 39

F-9

ORDERING DATA

Catalog No.	No. and Type Lamps	Nominal Dimensions	Wt.
4309-217-ACP EBO	2-F017-OCT-T8	4 1/4" x 24"	10
4309-317-ACP EBO	3-F017-OCT-T8		12
4309-1BX40-ACP EBX	** 1-F40W-TT/RS		4 1/4" x 36"
4309-2BX40-ACP EBX	** 2-F40W-TT/RS	20	
4309-225-ACP EBO	2-F025-OCT-T8	4 1/4" x 48"	20
4309-325-ACP EBO	3-F025-OCT-T8		23
4309-232-ACP EBO	2-F032-OCT-T8	4 1/4" x 72"	33
4309-332-ACP EBO	3-F032-OCT-T8		36
4309-225-6T-ACP EBO	4-F025-OCT-T8		4 1/4" x 96"
4309-325-6T-ACP EBO	6-F025-OCT-T8	43	
4309-232-8T-ACP EBO	4-F032-OCT-T8	4 1/4" x 96"	40
4309-332-8T-ACP EBO	6-F032-OCT-T8		43

UNITS FOR 5T LAMPS - CONSULT FACTORY

** F40TT/RS is the ANSI designation of various lamp manufacturers, i.e.: G.E. Lighting "BIAX™", Phillips "PL", Osram "DULUX L", Sylvania "TWIN TUBE". For F50T1/RS change cat. number. Example: 4309-1BX50-ACP and CONSULT FACTORY.

ADVISE RUN LENGTHS WHEN USED IN CONTINUOUS ROWS.

BIAX™ is a trademark of G.E. Lighting.
OCTRON™ is a trademark of SYLVANIA LIGHTING

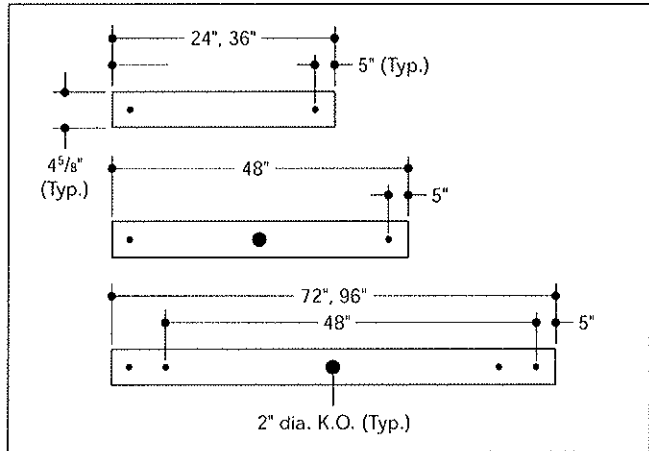
OPTIONS

Suffix "LT" after catalog no. for cold weather ballast.
Suffix "EM" after cat. no. for emergency battery packs and see price list for types.
Suffix "DL" after catalog no. for damp location.
Suffix "TP" after catalog no. for tamperproof screws.
Suffix "XTA" after cat. no. for XTRALUME® reflector standard with 85% reflectance, for 95% reflectance specify your requirements. Change suffix "ACP" to "ACPDR" for 100% DR acrylic prismatic lens. (Consult factory for availability).

ELECTRONIC

"EBO"- Electronic T8 Octron Ballast
"EBDO"- Electronic T8 Oct. Dimming Ballast
"EBX"- Electronic (BIAX) Twin Tube Ballast
"EBDX"- Electronic (BIAX) Twin Tube Dimming Ballast

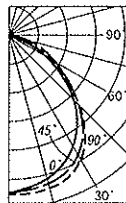
BACK PLANS



PHOTOMETRIC DATA - Illuminance (Footcandles)

Cat. No. 4309-232-ACP
Extruded Wrap Around with Molded Ends
Lamps: (2) F032T8/CW
each rated 2800 lumens.

Total Luminaire Efficiency = 69.1%
Plane 0-Deg. 90-Deg.
Spacing Criteria 1.25 1.39



Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixt.
0-30	1019	17.0	24.6
0-40	1697	28.3	41.0
0-60	2879	48.0	69.5
0-90	3553	59.2	85.7
90-120	443	7.4	10.7
90-130	501	8.3	12.1
90-150	570	9.5	13.8
90-180	591	9.8	14.3
0-180	4144	69.1	100.0

Average Luminance (Footlamberts)		
Vertical Angle	Horizontal Plane	
	0°	90°
0	351	351
45	301	266
55	211	155
65	144	97
75	91	62
85	21	22

Coefficients of Utilization - Zonal Cavity Method											
Floor	20%										
	80%				70%			50%			
Ceiling	Walls										
	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%
0	80	80	80	80	77	77	77	77	71	71	71
1	72	69	66	63	70	67	64	61	62	60	58
2	66	60	56	52	63	58	54	51	54	51	48
3	60	53	48	44	58	51	47	43	48	44	40
4	55	47	42	37	53	46	40	36	43	38	35
5	51	42	36	32	49	41	35	31	38	34	30
6	47	38	32	28	45	37	31	27	35	30	26
7	44	35	29	25	42	33	28	24	32	27	23
8	40	31	26	22	39	31	25	21	29	24	21
9	38	29	23	20	36	28	23	19	26	22	19
10	35	26	21	18	34	26	21	17	24	20	17

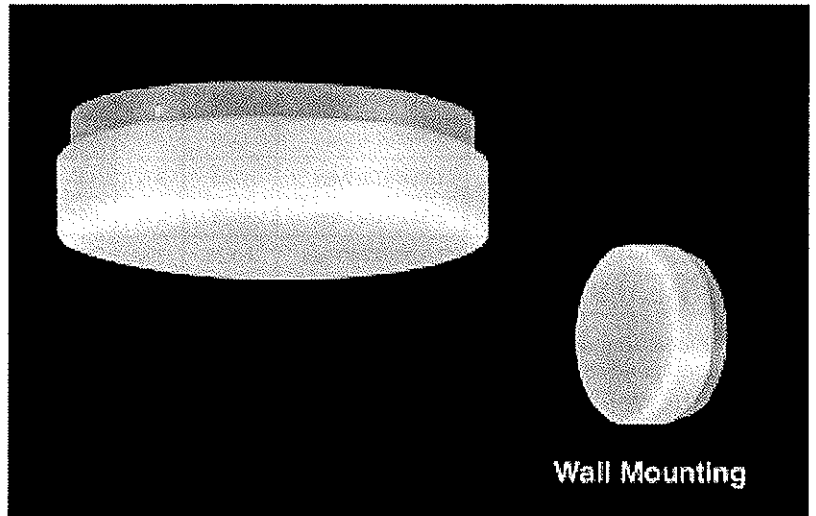
Information supplied primarily for illustrative purposes, subject to change. Consult factory for verification and minimum quantity orders.



APPLICATIONS

The DRUM-PLEX™ compact fluorescent luminaire series 520 offered in three sizes, utilizes energy efficient Circline, Twin Tube, Quad Tube, 2D and Biax lamps providing high light output combined with clean unobtrusive design. For wall or ceiling mounting.

For Corridors, Stair Wells, Bathrooms and Kitchens, in Public Buildings, Schools, Hotels, Hospitals and Residences.



SPECIFICATIONS

CONSTRUCTION: Formed of heavy gauge cold rolled steel.

SHIELDING: Molded, one piece of cast white acrylic material, retained to housing by screws, easily removable for relamping. Optionally available in white polycarbonate high impact plastic with tamper proof screws (see Options listing).

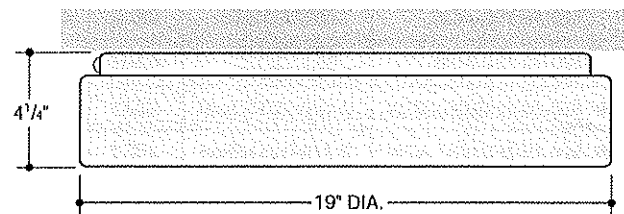
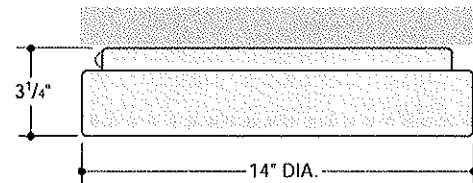
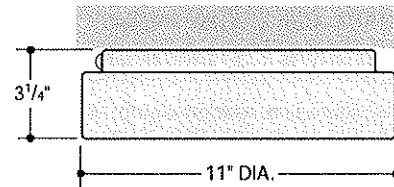
MOUNTING: By means of keyhole slots to outlet box, with hole for center lock-up, provided with bushed hole for wire feed. Can be mounted on wall or ceiling.

BALLAST: Single and/or Two lamp ballast for Circline, Twin Tube and 2D lamps, for 118 volt 60 Hz operation, class "P", (consult factory for other voltages and frequencies).

FINISH: All steel component parts are completely protected against rust and discoloration by an Anchored Process and coated with 365° baked white synthetic enamel for maximum durability, providing a high reflectance efficiency. Available in BLACK finish (see Options listing).

CERTIFICATION: The Drum-Plex™ Series 520 luminaire is U.L. and C.U.L. listed and bears the label of the I.B.E.W./AFL-CIO, Local #3..

DRUM-PLEX™ is a trademark of LEGION LIGHTING CO., INC.
LEGION® is a registered trademark of LEGION LIGHTING CO., INC.

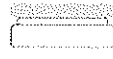


10/00

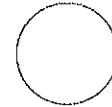
ORDERING DATA

Catalog No.	No. and Type Lamps	Socket Base	Nom. Dims.		Wt.
			Depth	Dia.	
520-11-22C-ACW	1-22W/FC8T9	G10q	3 1/4"	11"	6
520-11-1F7TTC-ACW	1-7W/5T4/Twin	G23	3 1/4"	11"	6
520-11-2F7TTC-ACW	2-7W/5T4/Twin	G23	3 1/4"	11"	7
520-11-1F9TTC-ACW	1-9W/6T4/Twin	G23	3 1/4"	11"	7
520-11-2F9TTC-ACW	2-9W/6T4/Twin	G23	3 1/4"	11"	8
520-11-1F13TTC-ACW	1-13W/7T4/Twin	GX23	3 1/4"	11"	7
520-11-2F13TTC-ACW	2-13W/7T4/Twin	GX23	3 1/4"	11"	8

Since lamp technology is ever changing, consult factory for lamping configurations and types other than shown.



11" ROUND



OPTIONS

Suffix "BLK" after cat. no. for black finish exterior housing.
 Suffix "EXC" after cat. no. for extension collar.
 Suffix "LT" after cat. no. for low temperature ballast (consult factory for availability).

Suffix "DL" after cat. no. for damp location.
 Suffix "TP" after cat. no. for tamperproof spanner head or Torx screws. Tamperproof screw driver available.

Change suffix "ACW" to "UBW" for unbreakable vandal resistant white Smooth Polycarbonate Plastic. (Consult factory for availability and minimum quantity order).

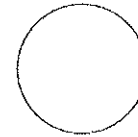
ORDERING DATA

Catalog No.	No. and Type Lamps	Socket Base	Nom. Dims.		Wt.
			Depth	Dia.	
520-14-32C-ACW	1-32W/FC12T9	G10q	3 1/4"	14"	7
520-14-54C-ACW	1-32W/FC12T9 1-22W/FC8T9	G10q	3 1/4"	14"	8
520-14-2F13TTC-ACW	2-13W/7T4/Twin	GX23	3 1/4"	14"	9
520-14-3F13TTC-ACW	3-13W/7T4/Twin	GX23	3 1/4"	14"	10

Since lamp technology is ever changing, consult factory for lamping configurations and types other than shown.



14" ROUND



OPTIONS

Suffix "BLK" after cat. no. for black finish exterior housing.
 Suffix "EXC" after cat. no. for extension collar.
 Suffix "LT" after cat. no. for low temperature ballast (consult factory for availability).

Suffix "DL" after cat. no. for damp location.
 Suffix "TP" after cat. no. for tamperproof spanner head or Torx screws. Tamperproof screw driver available.

Change suffix "ACW" to "UBW" for unbreakable vandal resistant white Smooth Polycarbonate Plastic. (Consult factory for availability and minimum quantity order).

ORDERING DATA

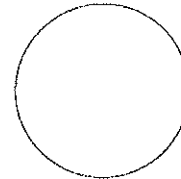
Catalog No.	No. and Type Lamps	Socket Base	Nom. Dims.		Wt.
			Depth	Dia.	
520-19-40C-ACW	1-40W/FC16T9	G10q	4 1/4"	19"	9
520-19-72C-ACW	1-32W/FC12T9 1-40W/FC16T9	G10q	4 1/4"	19"	10
● 520-19-2F18TTC-ACW	2-18W/10T5/Twin	2G11	4 1/4"	19"	11
● 520-19-2F27TTC-ACW	2-27W/12T5/Twin	2G11	4 1/4"	19"	11
● 520-19-1F282D-ACW	1-28W/8/2D	GR10q-4	4 1/4"	19"	9
● 520-19-1F382D-ACW	1-38W/8/2D	GR10q-4	4 1/4"	19"	9

● Electronic "HPF" Ballast for 4-pin lamps supplied in all 18W, 27W, and 2D Units. Consult factory for availability of electronic ballasts for other units.

Since lamp technology is ever changing, consult factory for lamping configurations and types other than shown.



19" ROUND



OPTIONS

Suffix "BLK" after cat. no. for black finish exterior housing.
 Suffix "EXC" after cat. no. for extension collar.
 Suffix "LT" after cat. no. for low temperature ballast (consult factory for availability).

Suffix "DL" after cat. no. for damp location.
 Suffix "TP" after cat. no. for tamperproof spanner head or Torx screws. Tamperproof screw driver available.

Change suffix "ACW" to "UBW" for unbreakable vandal resistant white Smooth Polycarbonate Plastic. (Consult factory for availability and minimum quantity order).

Information supplied primarily for illustrative purposes, subject to change.
 Consult factory for verification and minimum quantity orders.



DESCRIPTION

260 Solid Aluminum Cylinder features a direct downlight component.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Material

Solid aluminum construction.

Finish

Standard: Natural Aluminum (NA) [Sustainable Design].
Premium: Matte White (MW),
Lacquered Satin Aluminum (SAL),
Clear Anodized Aluminum (CAL) or
Custom Color (CC).

Optics

Refer to www.shaperlighting.com
for complete photometrics.

Ballast

Integral electronic HPF, multi-volt
120/277V (347V Canada), thermally
protected with end-of-life circuitry
to accommodate the specified
lamp wattage.

Lamp/Socket

One (1) 18W (GX24q-2) or 26W
(GX24q-3) 4-pin triple CFL lamp, or
100W A-19, 50PAR20H, 75PAR30LH
or 90PAR38H lamp. CFL socket
injection molded plastic. INC
socket fired ceramic rated for
660W-250V. Lamps furnished by
others.

Installation

Supplied with a universal circular
strap for a standard 4" J-box or
plaster ring.

Options

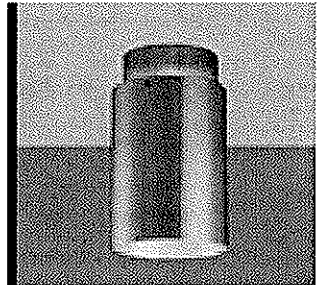
Damp Location (DL): All Painted
Finishes only, Remote Emergency
Battery - Supplied by others (REM),
MRI applications, INC only-
Contact factory. Energy Star
Rating- Consult Factory.

Labels

U.L. and C.U.L. approved for
indoor and damp location. See
options for damp location finishing
requirements.

Modifications

Shaper's skilled craftspeople with
their depth of experience offer the
designer the flexibility to modify
standard surface luminaires for
project specific solutions. Contact
the factory regarding scale options,
unique finishes, mounting,
additional materials/colors, or
decorative detailing.



260 SERIES

Surface Luminaire
Starter Collection Solid Aluminum
Cylinder



ORDERING INFORMATION

Sample Number: 260-INC/1/100-120V-CAL

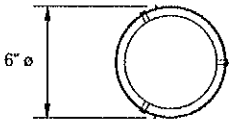
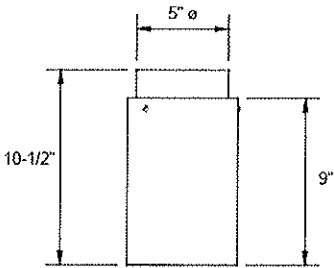
Series 260=Solid Aluminum Cylinder Surface	Lamp CFL/1/18 CFL/1/26 INC/1/100 PARH/1/90	Voltage 120V 277V ¹ 347V ¹	Finish Standard: NA=Natural Aluminum Premium: CAL=Clear Anodized Aluminum CC=Custom Color MW=Matte White SAL=Lacquered Satin Aluminum	Options DL=Damp Location ² REM=Remote Emergency Battery ²
---	--	---	--	---

Notes: 1 Available with CFL only.
2 Supplied by others.
3 Interior applications only.

PH

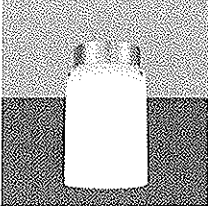
F-11

Dimensions

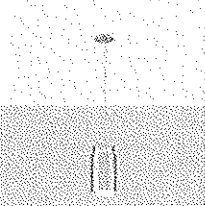


260 STANDARD

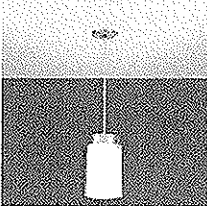
COMPANION PRODUCTS



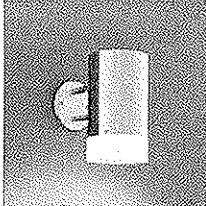
260-A



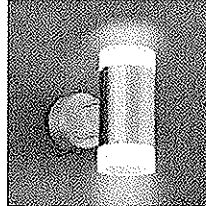
461



461-A



652

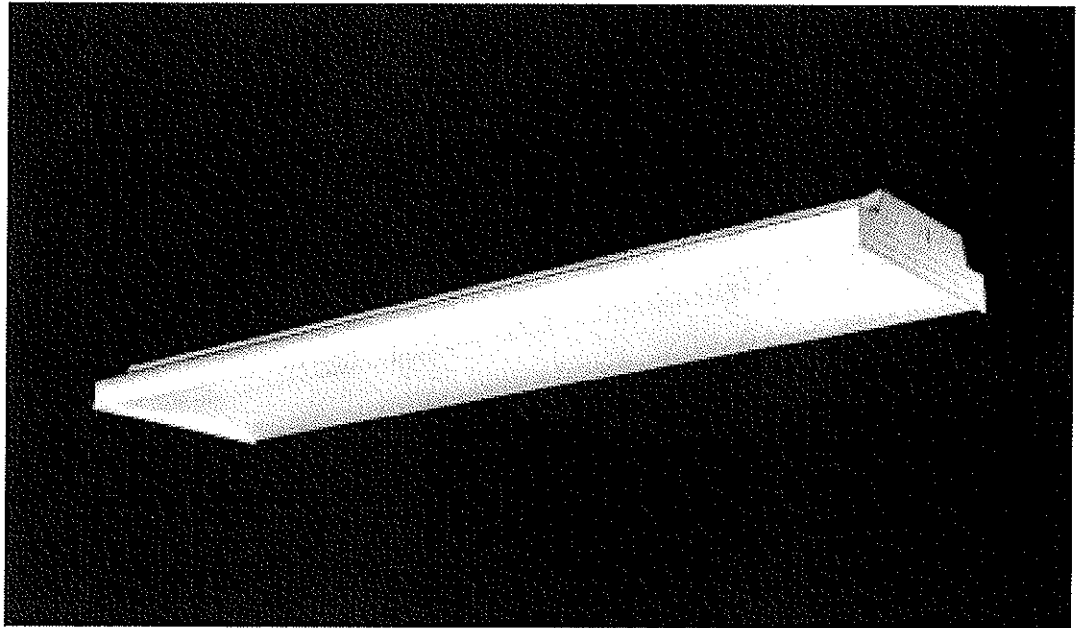


653

2004 513

APPLICATIONS

The essential function of a lighting unit is to provide effective illumination. We believe that proper lighting creates a harmonious blending of this functional and decorative atmosphere. Versatility provides the solution to any performance or budget requirements for offices, stores, schools, residences and public buildings.



SPECIFICATIONS

CONSTRUCTION: Die formed of 20 gauge cold rolled prime steel, rigidly fabricated, to insure true and perfect alignment.

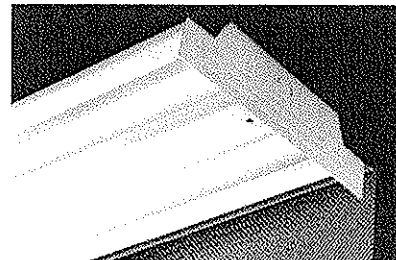
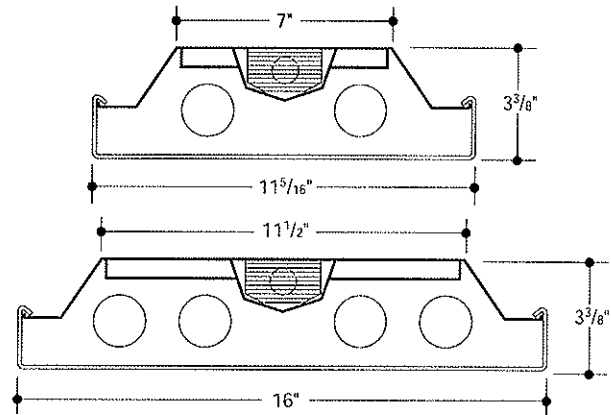
MOUNTING: Installed flush with ceiling surface or stem mounted, singly or in continuous rows. For continuous mounting, end knockouts may be removed and units joined together. Adequate knockouts and holes are provided for mounting and feeds.

ELECTRICAL: Thermally protected Class "P" Energy Saving Rapid/Instant Start HPF 270MA Bix (Twin Tube), 265MA-T8 Electronic Ballasts, 430MA Rapid Start HPF, Trigger Start LPF, and 425MA Slimline HPF-T12 magnetic ballasts for 118V 60 Hz operation standard. Other electronic ballasts, other voltages and frequencies available, consult factory. (See Options listing).

SHIELDING: One piece heavy gauge precision extruded acrylic prismatic refractor with linear prisms on sides and an optically engineered debossed hexagonal prisms on bottom. Hinges from either side for ease of installation and maintenance, by lifting up, sliding towards you and swinging down.

FINISH: All steel component parts are completely protected against rust and discoloration by an Anchored Process and coated with 365° sprayed baked white synthetic enamel for maximum durability and shall provide high reflectance efficiency.

CERTIFICATION: The Contempo II® is U.L. and C.U.L. listed and bears the label of the I.B.E.W./AFL-CIO, Local #3.



Information supplied primarily for illustrative purposes, subject to change. Consult factory for verification and minimum quantity orders.

LEGION® and CONTEMPO® are registered trademarks of LEGION LIGHTING CO., INC.

06/02



221 Glenmore Ave., Brooklyn, NY 11207 • Tel: 718/498-1770 • Fax: 718/498-0128
Toll Free Fax: 800/4-LEGION

Section A - Page 15

F-12

ORDERING DATA

Catalog No.	No. and Type Lamps	Nom. Dims.	Wt.
4340-220-ACP	2-20W-TS-T12	11" x 24"	10
4340-217-ACP EBO	2-FO17-OCT-T8	11" x 24"	10
4340-420-ACP	4-20W-TS-T12	16" x 24"	15
4340-417-ACP EBO	4-FO17-OCT-T8	16" x 24"	15
● 4340-2BX40-ACP	** 2-F40TT/RS	16" x 24"	10
4340-240-ACP	2-40W-RS-T12	11" x 48"	17
4340-232-ACP EBO	2-FO32-OCT-T8	11" x 48"	17
4340-440-ACP	4-40W-RS-T12	16" x 48"	25
4340-432-ACP EBO	4-FO32-OCT-T8	16" x 48"	25
4340-240-8T-ACP	4-40W-RS-T12	11" x 96"	34
4340-232-8T-ACP EBO	4-FO32-OCT-T8	11" x 96"	34
4340-440-8T-ACP	8-40W-RS-T12	16" x 96"	50
4340-432-8T-ACP EBO	8-FO32-OCT-T8	16" x 96"	50
4340-296-ACP	2-75W-SL-T12	11" x 96"	34
4340-296SL-ACP EBO	2-FO96-OCT-T8	11" x 96"	34
4340-496-ACP	4-75W-SL-T12	16" x 96"	50
4340-496SL-ACP EBO	4-FO96-OCT-T8	16" x 96"	50

- Consult factory for availability and minimum quantity order.
- ** F40TT/RS is the ANSI designation of various lamp manufacturers, i.e.: G.E. Lighting "Biax", Philips "PL", Osram "DULUX-L", Sylvania Twin Tube. For F50TT/RS change cat. no. Ex.: **4340-2BX50**.

OCTRON™ is a registered trademark of SYLVANIA.
 BIAx™ is a trademark of General Electric Co.

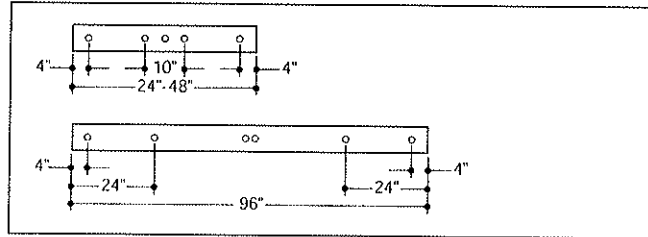
OPTIONS

Suffix "DIM" after catalog no. for dimming ballast.
 Suffix "LT" after catalog no. for cold weather ballast.
 Suffix "EM" after cat. no. for emerg. battery pack, see price list for types.
 Suffix "DL" after catalog no. for damp location.

ENERGY SAVING BALLASTS Where applicable (consult factory).
 Suffix "ESB" after catalog number, then / and one of the following:

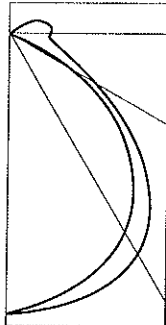
- | | |
|------------------------------------|--|
| MAGNETIC | ELECTRONIC |
| "SLH"-Super Low Heat T12 Ballast | "EB"-Electronic T12 Ballast |
| "MM-I"-Maxi Miser I T12 Ballast | "EBO"-Electronic T8 Octron Ballast |
| "PRE"-Premium III T12 Ballast | "EBD"-Electronic T12 Dimming Ballast |
| "OCT"-Octron T8 Ballast | "EBDD"-Elect. T8 Octron Dimming Ballast |
| "OPT"-Optimizer Ballast | "EBX"-Electronic (BIAX) Twin Tube Ballast |
| "DIM"-Magnetic T12 Dimming Ballast | "EBDX"-Elect. (BIAX) Twin Tube Dimming Ballast |

BACK PLANS



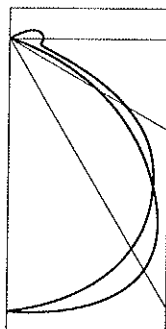
PHOTOMETRICS

Cat. No. 4340
 (2) F40/T12/CW/RS
 3110 Lumens each



Floor	20%											
Ceiling	80%			50%			30%			10%		
Walls	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%
ZONAL CAVITY METHOD												
1	.70	.67	.64	.63	.61	.59	.59	.57	.55	.54	.53	.52
2	.62	.58	.54	.56	.54	.50	.52	.50	.47	.49	.47	.45
3	.55	.50	.46	.50	.46	.43	.47	.44	.41	.44	.41	.39
4	.49	.44	.39	.45	.41	.37	.42	.38	.35	.39	.36	.33
5	.44	.38	.34	.40	.35	.32	.37	.34	.31	.35	.32	.29
6	.39	.34	.29	.37	.31	.27	.34	.30	.27	.32	.28	.25
7	.35	.30	.25	.32	.28	.24	.30	.26	.23	.28	.25	.22
8	.31	.29	.22	.29	.24	.21	.27	.23	.20	.26	.22	.20
9	.28	.23	.19	.26	.22	.18	.24	.20	.17	.23	.20	.17
10	.26	.21	.16	.23	.19	.16	.22	.18	.14	.21	.18	.15

Cat. No. 4340
 (4) F40/T12/CW/RS
 3110 Lumens each

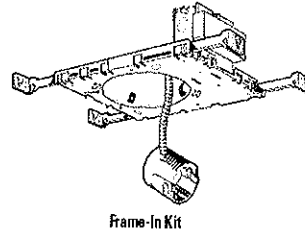
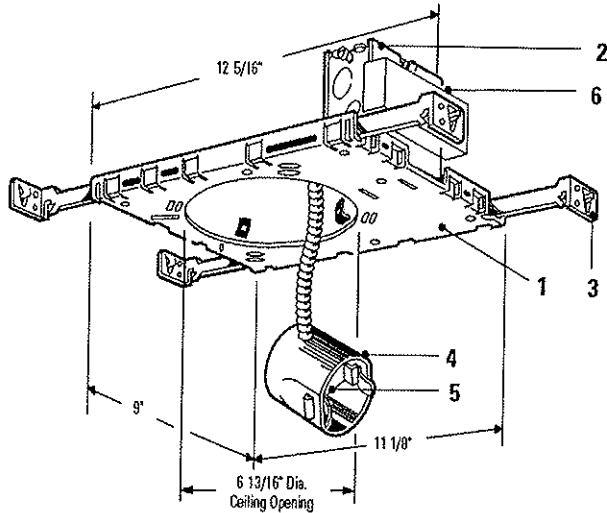


Floor	20%											
Ceiling	80%			50%			30%			10%		
Walls	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%
ZONAL CAVITY METHOD												
1	.65	.62	.60	.59	.57	.56	.56	.54	.53	.53	.52	.51
2	.58	.54	.50	.53	.50	.47	.50	.48	.45	.47	.45	.44
3	.51	.47	.43	.47	.44	.40	.45	.42	.39	.43	.40	.38
4	.46	.41	.37	.42	.38	.35	.40	.37	.34	.38	.35	.33
5	.41	.35	.31	.38	.33	.30	.36	.32	.29	.34	.31	.28
6	.37	.31	.28	.34	.30	.26	.33	.29	.25	.31	.28	.25
7	.33	.28	.24	.31	.26	.23	.29	.25	.22	.28	.24	.22
8	.30	.24	.21	.28	.23	.20	.26	.23	.20	.25	.22	.19
9	.27	.21	.18	.25	.20	.17	.24	.20	.17	.23	.19	.16
10	.24	.19	.16	.23	.18	.15	.22	.18	.15	.21	.18	.14

Lytecaster® Recessed Downlighting **1100FTUES**

Page 1 of 1

6 3/4" Aperture 1 Light, 120V 26/32W Triple Tube Fluorescent Frame-In Kit



Frame-In Kit



Reflector Trim

Note: Ballast is 120V only



Complete Fixture consists of Reflector Trim & Frame-In Kit.

Frame-In Kit		Reflector Trims — See Individual Reflector Trim Specification Sheets								
Voltage	Lamp	Open Downlight							Enclosed Diffusers	Wall Washer
		Reflector	Cone	Satin Cone	Baffles	Basic White	Cross Blade			
1100FTUES	120V 26W and 32W triple tube	1143	1112	1108	1105	1171	1132	1121	1135	
		1144	1112NM	1108NM	1105WH	1170M1		1124	1135WH	
		1144CD	1113	1110	1105BNM	1126		1185		
		1145	1113BK	1110NM	1105NM	1128		1186		
		1146	1113CD	1176	1176WH	1134		1186WH		
		1146CD	1113WH	1176WH	1177SH	1177SH		1195		
			1113NM	1179M1	1178SH	1178SH		1196		
			1113CDNM	1179WH	1190	1190		1196CD		

Features

- Mounting Frame:** 0.036" (#20 ga.) galvanized steel. Accommodates all ceilings up to 1" thick; including existing or inaccessible areas. Breakout section and anchor nails for existing ceilings. Push-in/twist-out rotoclips hold reflector flush to ceiling.
- Junction Box:** 0.063" (#14 ga.) 4" x 3 1/2" x 2" galvanized steel. U.L. listed for maximum of 8 No. 12 ga., 75°C through branch circuit conductors. Integral cable clamps permit attachment of nonmetallic Romex® or Armored cable without the need for separate connectors.
- Mounting Bars:** 0.059" (#16 ga.) galvanized steel. 13" long bars extend to 27", rotatable and lockable, with integral T-bar tabs. Attaches to wood joist or T-bar ceilings without need of accessories.
- Socket Housing:** Steel precisely attached to reflector by spring clip.
- Socket:** Four-pin base, molded thermoplastic. Prewired with No. 18 AWM leads to junction box.
- Ballast:** Electronic 120V, end of lamp life protected, FCC class "B" consumer limits, class "A" sound rating. Energy Star® qualified. Insulation must be kept 3' away from fixture sides and wiring compartment and must not be placed above fixture in a manner which will entrap heat.

Electrical

	26W	32W
Input Volts:	120V	120V
Input Watts:	29	36
Amps:	.24	0.31

Minimum starting temperature is 0°F.

Options & Accessories

- Mounting Bars:** 1964 - 20' set of (2)
T-Bar Anchor Clips: 1956 - set of (4) for use with above bars
Concealed Spline Ceiling Kit: 1965 - set of (4), 1 1/2" to 2 1/2" Mtg. Ht.
Plaster Ceiling Ring: 1960 - 7/8" depth for wet plaster ceilings.
Extra-Thick Ceiling Mounting Ring: 1967A - up to 2" thick ceilings.
Remoteler Anchor Clip: 1985S

Labels

UL (Suitable for Damp Locations), I.B.E.W.
 Romex® is a registered trademark of General Cable Industries Inc.
 US Patent No's.: 5,045,985

Job Information	Type:
Job Name:	
Cat. No.:	
Lamp(s):	
Notes:	

Lightolier a Genlyte company www.lightolier.com
 631 Airport Road, Fall River, MA 02720 • (508) 679-8131 • Fax (508) 674-4710
 We reserve the right to change details of design, materials and finish.
 © 2006 Genlyte Group LLC • C0906

LIGHTOLIER®

