

SECTION 265100 – INTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

1. This Section specifies the interior light fixtures for buildings and structures.
2. Provide all labor, materials, and equipment as necessary to complete all work as indicated on the drawings, and as specified herein.
3. The Contractor shall furnish and install all light fixtures, as shown on the drawing. Light fixtures shall conform to the types and manufacturers as hereinafter specified.
4. The Contractor shall furnish all lamps and necessary hangers, supports, wiring, etc., for installation of light fixtures.

- B. Related Sections include the following:

1. Applicable sections of Division 26 – Electrical

It is the intent of MSU that all interior lighting installations will comply with the performance standard of LEED™ v3.0. The standard shall be implemented to the extent feasible and practicable in all new buildings and major renovation projects in existing buildings. Refer to LEED™ in Design Guidelines – General Section for more information.

1.3 SUBMITTALS

- A. Shop Drawings:

1. Light fixtures

1.4 QUALITY ASSURANCE

- A. Light fixtures: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70, "National Electrical Code"

1.5 DESIGN REQUIREMENTS

- A. Light fixtures and lenses must comply with School Fire Safety Regulations adopted January 3, 1973. Certification shall accompany shop drawing submittal.

PART 2 - PRODUCTS

2.1 LENSES

- A. Lenses shall be flat, 0.125 inch thick, 100% virgin acrylic plastic, clear, with a prismatic pattern, and mounted in hinged metal frames.

2.2 MANUFACTURERS

The following paragraph may have to be modified for specific luminaires types, such as, H.E. Williams is the only approved manufacturer of Fixture Types SMC-3 and RGC-3.

- A. The following manufactures shall be considered as approved equal for the following luminaire types: Day-Brite, Lithonia, Metalux, Hubbell Columbia.
- B. Refer to Section 265113 Lighting Accessories for lamp and ballast specifications.

2.3 LIGHT FIXTURE SCHEDULE

A. LED Light Fixtures

Type LE Recessed grid type, lay-in light emitting diode light fixture, 2 x 4 foot, LED, shall be CREE CR series catalog no. CR24-40L-40K-10V-HD, Lithonia VT series catalog no. 2VTL4-40L-ADP-EZ1-LP840, or Cooper Arcline series catalog no. 24ALN-G-LD4-42-UNV-L840-CD-1.

Type LD Recessed 6" LED down light shall be Cooper Portfolio LD6B series catalog no. LD6B-20-D010-EU6B-1020-90-40-6LB-W-O-H, Gotham EVO series catalog no. EVO-40/20-6AR-WD-LSS-MVOLT-EZ1-CRI90, or Philips Calculite series catalog no. C6-R-N-C6L-20-9-40-W-Z10-U-C6-R-DL-CC.

Type LVL Recessed grid type, volumetric, lay-in light emitting diode light fixture, 2 x 4 foot, LED, shall be Cree Commercial series catalog no. ZR24C-40L-40K-10V-FD, Lithonia Avante series catalog no. 2AVL4-40L-SBL-EZ1-LP840, Philips Arioso series catalog no. 2-AVE-G-43L-840-4-ACR-UNV-DIM, Metalux Cruze series catalog no. 24CZ-LD5-40-UNV-L840-CD-1, Columbia Contemporary Architectural series LCAT-24-10-LW-G-ED1-U or approved equal.

B. Fluorescent Light Fixtures

Type VOL-2 Recessed, grid type, lay-in volumetric fluorescent fixture, 2 x 4 foot, 2 lamp, 32 watt T8, with one ballast, Lithonia Avante catalog no. 2AV-G-2-32-SBL, Philips Arioso catalog no. 2-AV-G-2-32-LMWS, or approved equal.

Type VOL-3 Recessed, grid type, lay-in volumetric fluorescent fixture, 2 x 4 foot, 3 lamp, 32 watt T8, with two ballasts for two level switching, Lithonia Avante catalog no. 2AV-G-3-32-SBL, Philips Arioso catalog no. 2-AV-G-3-32-LMWS, or approved equal.

Type SS-1 Surface mounting, 4 foot, 1 lamp, 32 watt T8, fluorescent strip light, Lithonia catalog no. S 132, Metalux catalog no. SN 132, Hubbell Columbia catalog no. CS132, or approved equal.

Type SS-2 Surface mounting, 4 foot, 2 lamp, 32 watt T8, fluorescent strip light, Lithonia catalog no. C 232, Metalux catalog no. SS 232, Hubbell Columbia catalog no. CS232, or approved equal.

Type SM Surface mounting 1 x 4 foot, 2 lamp, 32 watt T8, fluorescent fixture, Lithonia catalog no. M 232 A125, Metalux catalog no. MC 232 A125, H.E. Williams catalog no. 11-4-232-SA12125, Hubbell Columbia catalog no. SM14-232-FSA12.125, or approved equal.

Type SM-2 Surface mounting 2 x 4 foot, 2 lamp, 32 watt T8, fluorescent fixture, Lithonia catalog no. 2M 232 A125, Metalux catalog no. 2M 232 A125, H.E. Williams catalog no. 12-4-232-SA12125, Hubbell Columbia catalog no. SM24-232-FSA12.125, or approved equal.

Type SM-3 Surface mounting 2 x 4 foot, 3 lamp, 32 watt T8, fluorescent fixture, with two ballasts for two level switching, Lithonia catalog no. 2M 332 A125, Metalux catalog no. 2M 332 A125, H.E. Williams catalog no. 12-4-332-SA12125, Hubbell Columbia catalog no. SM24-332-FSA12.125, or approved equal.

Type SP-2 Surface mounting 2 x 4 foot, 2 lamp, 32 watt T8, fluorescent fixture, 3" deep parabolic with a low iridescent silver finish, Lithonia 2PM3X 232 12 D, Metalux 2EP3MX 232S3I, or approved equal.

Type SP-3 Surface mounting 2 x 4 foot, 3 lamp, 32 watt T8, fluorescent fixture, 3" deep parabolic with a low iridescent silver finish, Lithonia 2PM3X 332 18 D, Metalux 2EP3G 332S48I, or approved equal.

Type SP-4 Surface mounting 2 x 4 foot, 4 lamp, 32 watt T8, fluorescent fixture, 3" deep parabolic with a low iridescent silver finish, Lithonia 2PM3X 432 24 D, Metalux 2EP3MX 432S26I, or approved equal.

The following three surface mount paracube luminaires are for use in classrooms when a light level gradient from high to low footcandles from back to front is created using the paracube louvers.

Type SC1-3 Surface mounting 2 x 4 foot, 3 lamp, 32 watt T8, fluorescent fixture, with 1/2" paracube acrylic louver, specular silver finish, with two ballasts for two level switching, Lithonia catalog no. 2M 332 PC1SA, Metalux catalog no. 2M 332 PB1SA, or approved equal.

Type SC2-3 Surface mounting 2 x 4 foot, 3 lamp, 32 watt T8, fluorescent fixture, with 3/4" paracube acrylic louver, specular silver finish, with two ballasts for two level switching, Lithonia catalog no. 2M 332 PC3SA, Metalux catalog no. 2M 332 PT4SA, or approved equal.

Type SC3-3 Surface mounting 2 x 4 foot, 3 lamp, 32 watt T8, fluorescent fixture, with 1-1/2" paracube acrylic louver, specular silver finish, with two ballasts for two level switching, Lithonia catalog no. 2M 332 PC2SA, Metalux catalog no. 2M 332 PB2SA, or approved equal.

Type SD-2 Industrial fluorescent fixture with porcelain reflector, nominal 20% up-light, turret sockets, 2 lamp, 32 watt T8, Lithonia catalog no. AF-2320 PO, Metalux catalog no. DIM 232 POR, Day-Brite catalog no. 2F232-PR, Hubbell Columbia catalog no. KL4-232-PR, or approved equal.

Type SD-3 Industrial fluorescent fixture with porcelain reflector, nominal 20% up-light, turret sockets, 3 lamp, 32 watt T8, with two ballasts for two level switching, Lithonia catalog no. AF-332 PO, Metalux catalog no. DIM 332 POR, Hubbell Columbia catalog no. KL4-332-PR, or approved equal.

Type RG Recessed grid type, lay-in fluorescent fixture, 1 x 4 foot, 2 lamp, 32 watt T8, Lithonia catalog no. SP8G 232 A125, Metalux catalog no. GC8 232 A125, Hubbell Columbia catalog no. ST814-232-G-FSA12.125, or approved equal.

Type RG-2 Recessed, grid type, lay-in fluorescent fixture, 2 x 4 foot 2 lamp, 32 watt T8, Lithonia catalog no. 2SP8G 232 A125, Metalux catalog no. 2GC8 232 A125, Hubbell Columbia catalog no. ST824-232-G-FSA12.125, H.E. Williams catalog no. T8T-24-232-SA12, or approved equal.

Type RG-3 Recessed, grid type, lay-in fluorescent fixture, 2 x 4 foot, 3 lamp, 32 watt T8, with two ballasts for two level switching, Lithonia catalog no. 2SP8G 332 A125, Metalux

catalog no. 2GC8G 332 A125, Hubbell Columbia catalog no. ST824-332-G-FSA12.125, H.E. Williams catalog no. T8T-24-332-SA12, or approved equal.

The following three recessed grid type luminaires are 3" deep parabolic.

- Type RP-2 Recessed, grid type, lay-in fluorescent fixture, 2 x 4 foot, 2 lamp, 32 watt T8, 3" deep parabolic with a low iridescent silver finish, Lithonia 2PM3NGB 232 12 LD, Metalux 2EP3GX 232S26I, or approved equal.
- Type RP-3 Recessed, grid type, lay-in fluorescent fixture, 2 x 4 foot, 3 lamp, 32 watt T8, 3" deep parabolic with a low iridescent silver finish, with two ballasts for two level switching, Lithonia 2PM3NGB 332 18 LD, Metalux 2EP3GX 332S36I, or approved equal.

The following three recessed grid type paracube luminaires are for use in classrooms when a light level gradient from high to low footcandles from back to front is created using the paracube louvers.

- Type RC1-3 Recessed, grid type, lay-in, 2 x 4 foot, 3 lamp, 32 watt T8, fluorescent fixture, with 1/2" paracube acrylic louver, specular silver finish, with two ballasts for two level switching, Lithonia catalog no. 2SPG8 332 PC1SA, Metalux catalog no. 2GC8 332 PB1SA, Hubbell Columbia catalog no. ST824-332G-FSPCA1, or approved equal.
- Type RC2-3 Recessed, grid type, lay-in, 2 x 4 foot, 3 lamp, 32 watt T8, fluorescent fixture, with 3/4" paracube acrylic louver, specular silver finish, with two ballasts for two level switching, Lithonia catalog no. 2SPG8 332 PC3SA, Metalux catalog no. 2GC8 332 PT4SA, Hubbell Columbia catalog no. ST824-332G-FSPCA4, or approved equal.
- Type RC3-3 Recessed, grid type, lay-in, 2 x 4 foot, 3 lamp, 32 watt T8, fluorescent fixture, with 1-1/2" paracube acrylic louver, specular silver finish, with two ballasts for two level switching, Lithonia catalog no. 2SPG8 332 PC2SA, Metalux catalog no. 2GC8 332 PB2SA, Hubbell Columbia catalog no. ST824-332G-FSPCA2, or approved equal.
- Type RF Recessed, flange type, fluorescent fixture, 1 x 4 foot, 2 lamp 32 watt T8, Lithonia catalog no. SP8F 232 A125, Metalux catalog no. FC8 232 A125, Hubbell Columbia catalog no. ST814-232F-FSA12.125, or approved equal.
- Type RF-2 Recessed, flange type, fluorescent fixture, 2 x 4 foot 2 lamp, 32 watt T8, Lithonia catalog no. 2SP8F 232 A125, Metalux catalog no. 2FC8 232 A125, Hubbell Columbia catalog no. ST824-232F-FSA12.125, or approved equal.
- Type RF-3 Recessed, flange type, fluorescent fixture, 2 x 4 foot, 3 lamp, 32 watt T8, with two ballasts for two level switching, Lithonia catalog no. 2SP8F 332 A125, Metalux catalog no. 2FC8 332 A125, Hubbell Columbia catalog no. ST824-332F-FSA12.125, or approved equal.
- Type RF-4 Recessed, flange type, fluorescent fixture, 2 x 4 foot, 4 lamp, 32 watt T8, Lithonia catalog no. 2SP8F 432 A125, Metalux catalog no. 2FC8 432 A125, Hubbell Columbia catalog no. ST824-4232F-FSA12.125, or approved equal.

Type RW-2 Recessed, flange type, fluorescent fixture, 1 x 4 foot, 2 lamp, 32 watt T8, baked white enamel finish on fixture body; frame, door, hinges and latches to be stainless steel. Fixture flange and door shall be gasketed water tight. Guth catalog no. FG1-1424F-1TAK1, or approved equal.

Type RW-3 Recessed, flange type, fluorescent fixture, 1 x 4 foot, 3 lamp, 32 watt T8, baked white enamel finish on fixture body; frame, door, hinges and latches to be stainless steel. Fixture flange and door shall be gasketed water tight. Provide two ballasts for two level switching. Guth catalog no. FG1-1434F-1TAK1, or approved equal..

C. Incandescent Light Fixtures

Type A Recessed down light, 150 watt, R-40 lamp, Halo catalog no. H7T-410, or Prescolite catalog no. PBX-TB11.

Type B Recessed wallwasher, 150 watt, R-40 lamp, Halo catalog no. H44-440, or Prescolite catalog no. 1285-928.

Type C Recessed square, 150 watt, A-21 I.F. lamp, Halo catalog no. H2-23, or Prescolite catalog no. 1015HS-7.

Type D Recessed square incandescent fixture, 150 watt with an opal bowl and white acrylic enameled stainless steel door, Kirilin catalog no. 1203-14-40, or Prescolite catalog no. 488HS-3. Fixture to have U.L. label for wet location.

Type E Recessed mounting incandescent square fixture 150 watt with an additional medium base socket for a 15 watt lamp, Kirilin catalog no. 1208-10-40-48.

Type F Porcelain lampholder, 660 watt, 250 volt keyless for 4 inch box mounting, Pass and Seymour catalog no. 272, or approved equal.

Type G Porcelain lampholder, 250 watt, 250 volt for 4 inch box mounting with flexible plastic pull and cord, Pass and Seymour catalog no. 282 or approved equal.

Type HF Flush mounting "ROOM IN USE" sign, McPhilben style B, catalog no. 50R-T6-2B2WB, or Prescolite catalog no. 916XX-B/BA "ROOM IN USE".

Type HS Surface mounting "ROOM IN USE" sign, McPhilben style B, catalog no. 50W-T6-2B2WB, or Prescolite catalog no. 917XX-B/BA "ROOM IN USE".

Type J Ceiling mounting 150-300 watt incandescent explosion proof fixture, Appleton type A-51 with guard, or General Electric H8 30F with KK globe and guard.

Type K Surface mounting adjustable safe light, Kodak model B.

Type L-1 Recessed mounting, single compartment, darkroom fixture with wratten filter number as specified on drawing. Fixture to be Alkco catalog no. R-2058-1, or Morris Kurtzon catalog no. DS-78-1-88.

Type L-3 Recessed mounting 3 compartment, darkroom fixture, 2 filter and 1 lens compartments. Filter compartments to have wratten series filter numbers as specified on drawing. Fixture to be Alkco catalog no. R-2058-3, or Morris Kurtzon catalog no. DS-7873-SS.

Type M Recessed eyeball, 150 watt, R-40 lamp, Halo catalog no. H8T-88, Prescolite catalog no. 98HF, or approved equal.

D. High Intensity Discharge Light Fixtures

Provide spacing criteria in place of XX for fixture Type P.

Type N Industrial luminaire to operate one 400 watt, high pressure sodium lamp from a nominal 120 volt, 60 hertz power source, General Electric, catalog no. DGL-40-S-1-M-6-XX-V7-JF, with catalog no. WGNH-17V wireguard, and catalog no. LOOPM male loop, and catalog no. HOOKFG female grommated hook with safety screw; or LuMark catalog no. HPSS-SA15M-400-120-WG15-FL-1-FN-1-Q250-F1.

Furnish number of light fixtures as noted on drawing with automatically-switched instant/on safety lighting-quartz lamp.

All light fixtures shall be furnished complete with 400 watt Lucalox high pressure sodium lamp and fusing.

Type P 70 watt high pressure sodium luminaire, enclosed and gasketed one piece, heavy wall, die cast aluminum housing, pendant mounting with acrylic lens and polyester powder coated spun aluminum reflector, Day-Brite catalog no. LLB70HS-12-LRA, or General Electric catalog no. C1S70S1A5TA2.

Type Q 150 watt high pressure sodium luminaire, enclosed and gasketed one piece, heavy wall, die cast aluminum housing, pendant mounting with acrylic lens and polyester powder coated spun aluminum reflector, Day-Brite catalog no. LLB15HS-12-LRA, or General Electric catalog no. C1S15S1A5TA2.

Type R 250 watt high pressure sodium luminaire, enclosed and gasketed one piece, heavy wall, die cast aluminum housing, pendant mounting with acrylic lens and polyester powder coated spun aluminum reflector, Day-Brite catalog no. LC25HS12CRA, or General Electric catalog no. V2G25S1A4EA2.

Type VP Incandescent vapor-proof luminaire, 60-150 watt A21 lamp, with guard, Appleton type V-51, catalog no. VC1075G, General Electric catalog no. H7-1-15F-3C-DD, or approved equal.

Type VPF 4 foot, 2 lamp, 32 watt T8, vaporproof, surface mounting fluorescent fixture, UL listed and labeled for wet location, with fully gasketed, 100% impact-resistant acrylic diffuser, secured by continuous interlocking flange, 0 deg F. cold weather ballast, Lithonia catalog no. DMW 232 AR WLF, Metalux VT2-232DR-100-WL, or Hubbell Columbia LUN4-232-WL.

PART 3 - EXECUTION

- 3.1 Framing members of suspended ceiling systems used to support light fixtures shall be securely fastened to each other and shall be securely attached to the building structure at appropriate intervals.
- 3.2 Light fixtures so supported shall be securely fastened to the ceiling framing member by clips identified for use with the type of ceiling framing member and fixture. Bolts, screws, or rivets are not acceptable.
- 3.3 Light fixtures shall be served from a junction box, they shall not be daisy chained together. Light fixtures that share the same ballast may be tandem wired.

END OF SECTION 265100