BAR TYPE CABLE TRAY

Optional Width

<table>
<thead>
<tr>
<th>Width</th>
<th>5”</th>
<th>12”</th>
<th>24”</th>
</tr>
</thead>
<tbody>
<tr>
<td>6”</td>
<td>15”</td>
<td>25”</td>
<td></td>
</tr>
<tr>
<td>9”</td>
<td>18”</td>
<td>27”</td>
<td></td>
</tr>
<tr>
<td>10”</td>
<td>20”</td>
<td>30”</td>
<td></td>
</tr>
<tr>
<td>11”</td>
<td>21”</td>
<td>36”</td>
<td></td>
</tr>
</tbody>
</table>

Scale: 1-1/2” = 1’-0”
CHANNEL TYPE CABLE TRAY

SCALE: 1-1/2” = 1’-0”

TABLE A - SOLID SIDE BAR

<table>
<thead>
<tr>
<th>OPTIONAL WIDTH</th>
<th>5”</th>
<th>12”</th>
<th>24”</th>
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</thead>
<tbody>
<tr>
<td>6”</td>
<td>15”</td>
<td>25”</td>
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<tr>
<td>9”</td>
<td>18”</td>
<td>27”</td>
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<tr>
<td>10”</td>
<td>20”</td>
<td>30”</td>
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</tr>
<tr>
<td>11”</td>
<td>21”</td>
<td>36”</td>
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</tbody>
</table>

TABLE B - TUBULAR SIDE BAR

<table>
<thead>
<tr>
<th>OPTIONAL WIDTH</th>
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</thead>
<tbody>
<tr>
<td>6”</td>
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<td>25”</td>
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</tr>
<tr>
<td>9”</td>
<td>18”</td>
<td>27”</td>
<td></td>
</tr>
<tr>
<td>10”</td>
<td>20”</td>
<td>30”</td>
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</tr>
<tr>
<td>11”</td>
<td>21”</td>
<td>36”</td>
<td></td>
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</tbody>
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PAN (.025 ALUM.)
ORDER PER TABLE “B”
SUPPLIED UNPAINTED

CABLE RACK, ORDER PER TABLE “A”

<table>
<thead>
<tr>
<th>OPTIONAL WIDTH</th>
<th>OPTIONAL HEIGHT</th>
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<tr>
<td>5”</td>
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<td>12”</td>
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<tr>
<td>15”</td>
<td>8”</td>
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<tr>
<td>18”</td>
<td>8”</td>
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<td>22”</td>
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</tr>
<tr>
<td>30”</td>
<td>8”</td>
</tr>
<tr>
<td>36”</td>
<td>8”</td>
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TABLE "B"

FOR CABLE RACK

<table>
<thead>
<tr>
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<tr>
<td>5”</td>
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<tr>
<td>24”</td>
</tr>
<tr>
<td>30”</td>
</tr>
<tr>
<td>36”</td>
</tr>
</tbody>
</table>

TROUGH TYPE CABLE TRAY
N.I.S.
CLOSED CHANNELING

N.T.S.

(WHEN COVER IS ON)
CHANNEL SPLICE

N.T.S.

2-25/64" (WHEN COVER IS ON)

6"

2-3/16"
SINGLE-MODE FIBER OPTIC

NOTE: MINIMUM BEND RADIUS
LOADED - 5.0 cm
INSTALLED - 3.0 cm
MULTI-MODE FIBER OPTIC

NOTE: MINIMUM BEND RADIUS
LOADED - 5.0 cm
INSTALLED - 3.0 cm
COAXIAL CABLE RG-58/U
N. T. S.
SHIELDED TELEPHONE/STATION CABLE

N. T. S.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>NO. OF CONDUCTORS</th>
<th>WIRE ORDER</th>
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<tbody>
<tr>
<td>RJ-11</td>
<td>4</td>
<td>YELLOW, GREEN, RED, BLACK</td>
</tr>
<tr>
<td>RJ-12</td>
<td>6</td>
<td>BLUE, YELLOW, GREEN, RED, BLACK, WHITE</td>
</tr>
<tr>
<td>RJ-45</td>
<td>8</td>
<td>BROWN, BLUE, YELLOW, GREEN, RED, BLACK, ORANGE, GRAY</td>
</tr>
</tbody>
</table>

Samples from www.AutoCADDetails.net
SHIELDED COPPER TWISTED PAIR

N. T. S.
SOLID BARE COPPER - 18 AWG

INSULATION THICKNESS - .017”

JACKET THICKNESS - .037”

NOMINAL O.D. - .228”

UNSHIELDED COPPER TWISTED PAIR

N. T. S.
<table>
<thead>
<tr>
<th>SPLICE CASE DIMENSION</th>
<th>'A'</th>
<th>'B'</th>
<th>'C'</th>
<th>'D'</th>
<th>'E'</th>
<th>'F'</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0&quot;x25.8&quot; (7.62x65.53)</td>
<td>25.8&quot; (65.53)</td>
<td>20.3&quot; (51.56)</td>
<td>3.6&quot; (9.14)</td>
<td>3.5&quot; (8.89)</td>
<td>3.0&quot; (7.62)</td>
<td>1.06&quot; (2.69)</td>
</tr>
<tr>
<td>4.0&quot;x25.8&quot; (10.16x65.53)</td>
<td>25.8&quot; (65.53)</td>
<td>20.3&quot; (51.56)</td>
<td>4.6&quot; (11.68)</td>
<td>4.4&quot; (11.18)</td>
<td>4.0&quot; (10.16)</td>
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<tr>
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<td>28.4&quot; (72.14)</td>
<td>22.7&quot; (57.66)</td>
<td>7.1&quot; (18.03)</td>
<td>6.8&quot; (17.27)</td>
<td>6.5&quot; (16.51)</td>
<td>4.1&quot; (10.41)</td>
</tr>
<tr>
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<td>21.7&quot; (55.12)</td>
<td>10.1&quot; (25.65)</td>
<td>9.8&quot; (24.89)</td>
<td>9.5&quot; (24.13)</td>
<td>7.1&quot; (18.03)</td>
</tr>
<tr>
<td>6.5&quot;x38.5&quot; (16.51x97.79)</td>
<td>38.5&quot; (97.79)</td>
<td>32.8&quot; (83.31)</td>
<td>7.1&quot; (18.03)</td>
<td>6.8&quot; (17.27)</td>
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<td>9.8&quot; (24.89)</td>
<td>9.5&quot; (24.13)</td>
<td>7.1&quot; (18.03)</td>
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AERIAL SPLICE CASE
N. T. S.
### STEEL CASE

**STAINLESS STEEL SPLICE CASE**

**Dimensions**

<table>
<thead>
<tr>
<th>SPICE CASE DIMENSION</th>
<th>'A'</th>
<th>'B'</th>
<th>'C'</th>
<th>'D'</th>
<th>'E'</th>
<th>'F'</th>
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<tr>
<td>4.0&quot;x25.8&quot;(10.16x65.53)</td>
<td>25.8&quot;(65.53)</td>
<td>20.3&quot;(51.56)</td>
<td>6.0&quot;(15.24)</td>
<td>4.5&quot;(11.43)</td>
<td>4.0&quot;(10.16)</td>
<td>2.2&quot;(5.59)</td>
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<tr>
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<td>7.0&quot;(17.78)</td>
<td>6.5&quot;(16.51)</td>
<td>4.1&quot;(10.41)</td>
</tr>
<tr>
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<td>28.4&quot;(72.14)</td>
<td>22.7&quot;(57.66)</td>
<td>9.25&quot;(23.50)</td>
<td>7.0&quot;(17.78)</td>
<td>6.5&quot;(16.51)</td>
<td>4.1&quot;(10.41)</td>
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<tr>
<td>8.0&quot;x28.4&quot;(20.32x72.14)</td>
<td>28.4&quot;(72.14)</td>
<td>22.7&quot;(57.66)</td>
<td>10.5&quot;(26.67)</td>
<td>8.5&quot;(21.59)</td>
<td>8.0&quot;(20.32)</td>
<td>5.6&quot;(14.22)</td>
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<tr>
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<td>28.4&quot;(72.14)</td>
<td>21.6&quot;(54.86)</td>
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<td>9.5&quot;(24.13)</td>
<td>7.1&quot;(18.03)</td>
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<td>12.5&quot;x28.4&quot;(31.75x72.14)</td>
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<td>21.6&quot;(54.86)</td>
<td>15.5&quot;(39.37)</td>
<td>13.0&quot;(33.02)</td>
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<td>9.3&quot;(23.62)</td>
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<td>7.0&quot;(17.78)</td>
<td>6.5&quot;(16.51)</td>
<td>4.1&quot;(10.41)</td>
</tr>
<tr>
<td>8.0&quot;x38.4&quot;(20.32x97.54)</td>
<td>38.4&quot;(97.54)</td>
<td>32.7&quot;(83.06)</td>
<td>10.5&quot;(26.67)</td>
<td>8.5&quot;(21.59)</td>
<td>8.0&quot;(20.32)</td>
<td>5.6&quot;(14.22)</td>
</tr>
<tr>
<td>9.5&quot;x38.4&quot;(24.13x97.54)</td>
<td>38.4&quot;(97.54)</td>
<td>31.6&quot;(80.26)</td>
<td>12.5&quot;(31.75)</td>
<td>10.0&quot;(25.40)</td>
<td>9.5&quot;(24.13)</td>
<td>7.1&quot;(18.03)</td>
</tr>
<tr>
<td>12.5&quot;x38.4&quot;(31.75x97.54)</td>
<td>38.4&quot;(97.54)</td>
<td>31.6&quot;(80.26)</td>
<td>15.5&quot;(39.37)</td>
<td>13.0&quot;(33.02)</td>
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<td>9.3&quot;(23.62)</td>
</tr>
<tr>
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<td>8.5&quot;(21.59)</td>
<td>8.0&quot;(20.32)</td>
<td>5.6&quot;(14.22)</td>
</tr>
<tr>
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<td>45.2&quot;(114.81)</td>
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<td>10.0&quot;(25.40)</td>
<td>9.5&quot;(24.13)</td>
<td>7.1&quot;(18.03)</td>
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<tr>
<td>12.5&quot;x45.2&quot;(31.75x114.81)</td>
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<tr>
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<td>13.0&quot;(33.02)</td>
<td>12.5&quot;(31.75)</td>
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## Clear Plastic Splice Case

### Splice Sizes

<table>
<thead>
<tr>
<th>Splice Size (D x L)</th>
<th>End Cap Port Diameters</th>
<th>Maximum Splice Openings Single Sheath</th>
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<tr>
<td></td>
<td>SINGLE ENTRY MAX. DIA.</td>
<td>MULTIPLE ENTRY MAX. DIA.</td>
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<tr>
<td></td>
<td>In.</td>
<td>MM</td>
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<tr>
<td>2” x 12”</td>
<td>1.2</td>
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<tr>
<td>2” x 24”</td>
<td>1.2</td>
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<td>41</td>
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<td>51</td>
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<tr>
<td>5” x 26”</td>
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<td>61</td>
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<td>6” x 26”</td>
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<td>7” x 26”</td>
<td>3.6</td>
<td>92</td>
</tr>
<tr>
<td>9” x 26”</td>
<td>3.8</td>
<td>97</td>
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</table>

**N. T. S.**
(2) MTG HOLES FOR #6-32 SCREW

BNC WALL PLATE JACK AND CONNECTOR

FULL SIZE
FIBER OPTIC WALL PLATE JACK AND CONNECTOR

FULL SIZE

(2) MTG HOLES FOR #6-32 SCREW

FIBER OPTIC COUPLER

FIBER OPTIC CONNECTOR

Samples from www.AutoCADDetails.net
SINGLE SIDED EQUIPMENT RACK

FASTENERS SUPPLIED

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>5/16”-18 x 4 1/2” H.H.C.S.</td>
</tr>
<tr>
<td>5/16”-18 x 1” F.H.M.S.</td>
</tr>
<tr>
<td>5/16”-18 HEX NUT</td>
</tr>
<tr>
<td>5/16” FLAT WASHER</td>
</tr>
<tr>
<td>5/16” LOCK WASHER</td>
</tr>
</tbody>
</table>

HEIGHT 16 5/16" / 1/2":

- 1/2"
- 1 1/4” MOUNTING SPACES

SPACES / 12-24

IJ - 7”

18 5/16”

12-24

3/8” - 16

12 1/2”

16”

16”

20 5/16”

15”
BOLTED EQUIPMENT RACK WITH CHANNEL UPRIGHT
DOUBLE SIDE DRILLED, FLOOR SUPPORTED
STEEL AND ALUMINUM

HEIGHT MOUNTINGS FRONT & REAR

7'–0" 42
7'–6" 46
8'–0" 49
9'–0" 56
11'–6" 73
11'–8" 74

TABLE "A" (STEEL)

HEIGHT
5/16"–18 x 4 1/2" H.H.C.S.
5/16"–18 x 1" F.H.M.S.
5/16"–18 HEX NUT
5/16" FLAT WASHER
5/16" LOCK WASHER

TABLE "B" (ALUMINUM)
INTERMEDIATE DISTRIBUTING FRAME

N. T. S.
Universal Distributing Frame (Double Sided)

Table:

<table>
<thead>
<tr>
<th>DIM. 'A'</th>
<th>NUMBER OF VERT.</th>
<th>DIM. 'A'</th>
<th>NUMBER OF VERT.</th>
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</thead>
<tbody>
<tr>
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<td>47 7/8&quot;</td>
<td>6</td>
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<td>15 7/8&quot;</td>
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<td>55 7/8&quot;</td>
<td>7</td>
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<td>23 7/8&quot;</td>
<td>3</td>
<td>63 7/8&quot;</td>
<td>8</td>
</tr>
<tr>
<td>31 7/8&quot;</td>
<td>4</td>
<td>71 7/8&quot;</td>
<td>9</td>
</tr>
<tr>
<td>39 7/8&quot;</td>
<td>5</td>
<td>79 7/8&quot;</td>
<td>10</td>
</tr>
</tbody>
</table>

- End Guard
- Guide Loop
- Top Angle
- Splice Plate
- Ground Bar
- 8" Typical
- Universal Distributing Frame (Double Sided)
WALL FRAME

SCALE: 3" = 1'-0"

DIM. 'A'

<table>
<thead>
<tr>
<th>DIM. 'A'</th>
<th>NUMBER OF VERT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 7/8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>15 7/8&quot;</td>
<td>2</td>
</tr>
<tr>
<td>23 7/8&quot;</td>
<td>3</td>
</tr>
</tbody>
</table>
PRE-WIRED 66 BLOCK TO MODULAR JACK

SCALE: 6” = 1’-0”
BNC TERMINATOR

FULL SIZE
GASKETED FRONT DOOR WITH:
- KEY LOCK
- MAGNETIC CLOSURE
- LIFT-OFF HINGES
- 16" W x 18 3/4" H SMOKED PLEXIGLASS WINDOW

4" O.C. CABLE ENTRY
FAN KNOCKOUTS (3)
22 1/4" MOUNTING AREA
27 3/8" (H)
30.0" (D)
24.0" (W)
GASKETED FRONT DOOR WITH:
- KEY LOCK
- MAGNETIC CLOSURE
- LIFT-OFF HINGES
- 22.1” W x 76.3” H SMOKED PLEXIGLASS WINDOW

TELCOM STANDARD HEAVY CABINET
N.T.S.
1. RJ45 using 4-pair twisted copper house cable

2. Fiber optic connectors type determined by user requirements

WIRE FIBER OUTLET

N.T.S.
TYP. MODULAR TELEPHONE JACK
N.T.S.
MINIMUM DOOR
SIZE = 3’–0” x 7’–0”

WALL TYPES MUST MEET
STANDARD BUILDING CODE
SPECIFICATIONS.

TYP. MULTI-USER COMM CLOSET
N.T.S.

Samples from www.AutoCADDetails.net
**FIBER PANEL**

**INCOMING FIBER OPTIC CABLE**

**ANGLE IRON FOR RACK MOUNTING**

---

### DESCRIPTION

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions 'H' x 'W' x 'D' cm (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-FIBER CAPACITY CONNECTOR MODULE HOUSING;</td>
<td>13.3 x 43 x 28 (5.25 x 17 x 11)</td>
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<tr>
<td>ACCEPTS ONLY 6-FIBER PANELS OR MODULES</td>
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</tr>
<tr>
<td>72-FIBER CAPACITY CONNECTOR MODULE HOUSING;</td>
<td>22 x 43 x 28 (8.75 x 17 x 11)</td>
</tr>
<tr>
<td>ACCEPTS ONLY 6-FIBER PANELS OR MODULES</td>
<td></td>
</tr>
<tr>
<td>96-FIBER CAPACITY CONNECTOR MODULE HOUSING;</td>
<td>22 x 43 x 28 (8.75 x 17 x 11)</td>
</tr>
<tr>
<td>ACCEPTS ONLY 8-FIBER PANELS</td>
<td></td>
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</tbody>
</table>

### NOTES:

1. STANDARD 5.25” FRONTAL PROJECTION, AVAILABLE WITH LOCKING DOOR
2. LABELED CONNECTOR PORTS
3. REAR FIBER ORGANIZATION SHELF
4. 24 TO 96 FIBERS; STACKABLE FOR HIGHER FIBER COUNTS OR FUTURE EXPANSION
5. RACK-MOUNT, 19” OR 23” OPTION
6. TERMINATION OF BACKBONE CABLES AT MAIN OR INTERMEDIATE CROSS-CONNECT (72-FIBER VERSION); TERMINATION OF HORIZONTAL CABLES AT HORIZONTAL CROSS-CONNECT (96-FIBER VERSION)
7. FIELD CONNECTORIZATION OR PIGTAIL SPlicing IN CONJUNCTION WITH SPLICE MODULE HOUSINGS
8. OPTIONAL BRACKETS FOR WALL MOUNT
NOTES:
1. 24-FIBERS FLUSH-MOUNTED IN ONLY TWO RACK SPACES
2. CABLE STRAIN-RELIEF AND GROUNDING PROVISIONS; REAR SHELF AND ROUTING GUIDES FOR STORING CABLE SLACK
3. LABELED CONNECTOR PORTS
4. RACK-MOUNT; 19" OR 23" FRAME
5. INTRABUILDING Backbone TERMINATIONS IN HORIZONTAL CROSS-CONNECT OR EQUIPMENT ROOM
6. FIELD CONNECTORIZATION
7. STACKABLE

INTERMEDIATE/HORIZ. CROSS CONNECT (IC/HC)
N.T.S.
(2) MTG HOLES FOR #6-32 SCREW

RJ-11 WALL PLATE JACK AND CONNECTOR

FULL SIZE
RJ-45 WALL PLATE JACK AND CONNECTOR

FULL SIZE
TYP. TV OUTLET JACK
N.T.S.
NOTE:
ALL MANHOLES TO HAVE 8' LADDERS.

12'-0"

ELEVATION

SECTION A-A

TELEPHONE MANHOLE

N.T.S.
NOTES:

1. INSTALL PRECAST COLLAR.
2. ALL MANHOLES TO HAVE 3/4 x 10' COPPER CLAD GROUND RODS.
3. SEE PLATE FOR MANHOLE ACCESSORY DETAILS.

38Y PRECAST TELEPHONE MANHOLES
N.T.S.
NOTES:
1. REINFORCING BAR: 1/2" ROUND, DEFORMED WALLS AND BOTTOM MAX. 12" C TO C. BOTH WAYS. TOP AS SHOWN.
2. THICKNESS OF CONCRETE: MANHOLE WALLS, TOP & BOTTOM 8" SUMP WALLS AND BOTTOM 6"

PLAN
FINISHED GRADE

SECTION A-A

* NOTES:
  CHANGE ANGLES TO MAKE SIZE CHANGE 4" TO 6'
** MAKE CIRCLE
SYMMETRICAL ABOUT CENTERLINE

TYPICAL TOP REINFORCEMENT

POURED IN PLACE COMMUNICATION MANHOLE N.T.S.
COMMUNICATION DUCT ENTRANCE
N.T.S.
VIEW WITH FRONT DOOR REMOVED

RIGHT SIDE VIEW OF VERTICAL SECTION

(NEWTON 7060)

EXTERIOR TELECOMM PLANT ENCLOSURE

SCALE: 1 1/2” = 1’ - 0”
MAIN EQUIPMENT COMPARTMENT INCLUDES ONE FIXED EQUIPMENT RACK. RACK PROVIDES 22” OF VERTICAL MOUNTING SPACE, 19” WIDTH; 250 LB. CAPACITY.

CABLE ACCESS

CROSS CONNECT / PROTECTION PROVISION AREA FOR MOUNTING A VARIETY OF CABLE TERMINATION, CROSS-CONNECT, AND/OR VF/HF PROTECTION DEVICES (SOLID STATE OR GAS TUBE).

(NEWTON 7060)
EXTERIOR TELECOMM PLANT ENCLOSURE

N.T.S.
TYPICAL HANDHOLE

SCALE: 1 1/2" = 1'-0"
CONCRETE ENCASEMENT  

HANDHOLE  

FINISH GRADE  

24" MIN. BURIAL DEPTH  

END BELL  

24" MIN. BURIAL DEPTH  

GRANU DRAIN FILL  

* 22-1/2 36" RADIUS SWEEP ELBOW  

TYPICAL HANDHOLE ENTRY  

N.T.S.
TYPICAL GROUND ROD 6" AWAY FROM WALLS

6" MIN.

CABLE RACKS

6" MIN.

GROUND ROD 6" AWAY FROM WALLS

3'-5" MANHOLE OPENING

SLOPE IS 1/4"/1'-0" TOWARD SUMP

TYPICAL MANHOLE
N. T. S.
FINISH GRADE

PLASTIC WARNING TAPE

2'-6" MIN.

CONCRETE

4" TYPE EB PVC DUCT. TYP OF 3

4" TYPE EB PVC DUCT WITH 3-1 1/4" INNER DUCTS

4#4 BARS, #3 TIES 4 ON CENTER. PROVIDE 3" CONCRETE COVER.

DUCTS ENCASED IN CONCRETE

SCALE: 3" = 1'-0"

Samples from www.AutoCADDetails.net
CONC. SLAB

4-6" FROM WALL

EXTERNAL WALL

GROUND LEVEL

FOOTING

36" MINIMUM UNDER FOOTING

36" MINIMUM RADIUS

DUCTS ENTERING BUILDING

DUCT ENTRY INTO BUILDING

www.AutoCADDetails.net

Samples from www.AutoCADDetails.net
TYPICAL 4” PVC PIPE

MAXIMUM INNERDUCTS IN 4” PIPE

INNERDUCT INSTALLATION IN DUCT

N. T. S.
CONTROL LEGEND;

K 15A CIRCUIT BREAKER
B 50VA 277-48V CONTROL TRANSFORMER
C 15A SPSY RELAY
D1, D2 CONTROL CIRCUIT CIRCUIT CONNECTOR
M SIZE 4, 3P, 30|600V CONTACOR (15 AMPS)
M CONTACOR COIL

NOTES:
1. CONTROL CIRCUIT TYPICAL FOR 8 TOTAL POSITIONS.
2. EACH CONTACOR TO HAVE HAND-OFF-AUTO SWITCH WITH RED PILOT FOR CLOSED POSITION. GREEN FOR OPEN LINE. SWITCH SHALL BE LOCKABLE IN OFF POSITION.

CONTROL DIAGRAM FOR RECEPTACLE
N.T.S.
NOTE:
DIE CAST ZINC GASKETED ENCLOSURE FOR MAXIMUM WEATHERPROOFING WITH CADIUM SULPHIDE 1" DIAMETER HERMETICALLY SEALED CELL. MOUNTED ON 1/2" CONDUIT NIPPLE WITH DELAY TO PREVENT FALSE SWITCHING.

PHOTOELECTRIC CONTROL DETAIL
N.T.S.
## Panel "A" Square D Type 100 Amp Main

120/240V, 1 OHM, 3W Mounted

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<th>CR. No.</th>
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**Load Per Phase**

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**Panel Schedule**

Not to Scale

01C-6003
### Panel Schedule - TP

**PANEL TYPE:** PANELBOARD  
**PHASES:** 3  
**VOLTAGE:** 120/208 V  
**PHASE A CONNECTED:** 4394 W  
**PHASE B CONNECTED:** 4394 W  
**PHASE C CONNECTED:** 4800 W  
**BUS SIZE:** 100 A  
**MOUNTING:** SURFACE  
**DEMAND:** 13984 W  

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### Panel Schedule - HP

**PANEL TYPE:** PANELBOARD  
**PHASES:** 3  
**VOLTAGE:** 120/208 V  
**PHASE A CONNECTED:** 18725 W  
**PHASE B CONNECTED:** 18522 W  
**PHASE C CONNECTED:** 17275 W  
**BUS SIZE:** 400 A  
**MOUNTING:** SURFACE  
**DEMAND:** 63064 W  

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**Panel Schedule**  
**Scale:** Not to Scale  
**Sample from www.AutoCADDetails.net**
# Panel Schedule

## TP Retail Space Panel

<table>
<thead>
<tr>
<th>Panel Type</th>
<th>Panelboard</th>
<th>Phases</th>
<th>Voltage</th>
<th>Connected</th>
<th>Phase A Connected</th>
<th>Phase B Connected</th>
<th>Phase C Connected</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS SIZE</td>
<td>100 A</td>
<td>3</td>
<td>120/7248 V</td>
<td>1358 W</td>
<td>4364 W</td>
<td>4364 W</td>
<td>4800 W</td>
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<table>
<thead>
<tr>
<th>Load Type and Description</th>
<th>Phase</th>
<th>Circuit</th>
<th>Load Type</th>
<th>Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mech. Heat: UNIT FC-1</td>
<td>1</td>
<td>1P</td>
<td>Lighting</td>
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</tr>
<tr>
<td>Mech. Heat: SECOND FLOOR LIGHTING</td>
<td>2</td>
<td>3P</td>
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</tr>
<tr>
<td>Mech. Heat: CANOPY</td>
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<tr>
<td>Mech. Heat: ELEVATOR LOBBY</td>
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</tr>
<tr>
<td>Mech. Heat: MECHANICAL</td>
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<td>1P</td>
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<tr>
<td>Mech. Heat: UNIT UH-1</td>
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## HP House Panel

<table>
<thead>
<tr>
<th>Panel Type</th>
<th>Panelboard</th>
<th>Phases</th>
<th>Voltage</th>
<th>Connected</th>
<th>Phase A Connected</th>
<th>Phase B Connected</th>
<th>Phase C Connected</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS SIZE</td>
<td>400 A</td>
<td>3</td>
<td>120/7248 V</td>
<td>1358 W</td>
<td>18725 W</td>
<td>18725 W</td>
<td>17275 W</td>
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<th>Circuit</th>
<th>Load Type</th>
<th>Circuit</th>
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<tr>
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<td>1</td>
<td>1P</td>
<td>Lighting</td>
<td>Main Level</td>
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<tr>
<td>Lighting: Exit</td>
<td>2</td>
<td>3P</td>
<td>Lighting</td>
<td>Garage</td>
</tr>
<tr>
<td>Lighting: Storage / Electric Room</td>
<td>3</td>
<td>5 P</td>
<td>Lighting</td>
<td>Garage</td>
</tr>
<tr>
<td>Lighting: Exit</td>
<td>4</td>
<td>7 P</td>
<td>Lighting</td>
<td>Garage</td>
</tr>
<tr>
<td>Lighting: Exit</td>
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<td>9 P</td>
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<td>Garage</td>
</tr>
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<td>Mech. Heat: Unit FC-1</td>
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<td>Mech. Heat: Unit FC-2</td>
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<td>Mech. Heat: Storage / Electric Room</td>
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<td>Lighting</td>
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<td>Mech. Heat: Unit FC-5</td>
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<td>Mech. Heat: Unit FC-6</td>
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</tr>
<tr>
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<td>Mech. Heat: Unit FC-11</td>
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<tr>
<td>Mech. Heat: Unit FC-12</td>
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<tr>
<td>Mech. Heat: Unit FC-13</td>
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<td>Mech. Heat: Unit FC-14</td>
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<td>16P</td>
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<td>Mech. Heat: Unit FC-17</td>
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</tr>
<tr>
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<td>Mech. Heat: Unit FC-23</td>
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<td>Mech. Heat: Unit FC-29</td>
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</tr>
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</table>

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*Panel Schedule - Not to Scale* 01C-6004
**Panel Schedule “A” Cutler Hammer**

**Location:**

**Voltage:** 120/240V/1φ, 3W

**Main:** MTS 200 AMP

**Circuit Description:**

<table>
<thead>
<tr>
<th>Circuit No.</th>
<th>Circuit</th>
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<th>B</th>
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<tbody>
<tr>
<td>20-1</td>
<td>Lights Warehouse 1</td>
<td>20-2</td>
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<tr>
<td>3</td>
<td>Lights Office 4</td>
<td>3-6</td>
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<tr>
<td>5</td>
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<td>7</td>
<td>Lights Office 8</td>
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<td>9</td>
<td>Recepts Office 10</td>
<td>9-12</td>
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<td>11</td>
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<td>Heat Pump 16</td>
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<td>17</td>
<td>Roof A/C 18</td>
<td>17-20</td>
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<tr>
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<td>21-24</td>
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<td>39</td>
<td>Bussed Space 42</td>
<td>39-42</td>
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**Total Load:**

- **12984**
- **12384**

**Total Load Calculation:**

\[ \frac{2538}{240} = 105.6 \text{ AMP} \]

**Min. C/B AIC:** 10,000

*New Load*
<table>
<thead>
<tr>
<th>Panel Schedule</th>
<th>Cutler Hammer</th>
<th>Location</th>
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<tbody>
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<td>VOLTAGE: 120/240V, 3Ph 4W</td>
<td>LOAD VA</td>
<td>MAINS: MLO MTS: 400A</td>
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<tr>
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<td>100</td>
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<td>TOTAL LOAD φ</td>
<td>4992</td>
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<tr>
<td>TOTAL LOAD</td>
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<tr>
<td>MIN. C/B MCB: 10,000</td>
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</table>

Samples from www.AutoCADDetails.net
**Panel Schedule**

**Panel "C3"**
- 150 AMP
- 120/208V, 3P, 4W
- Location: East Truck Dock (Existing)

### Surface Mounted

<table>
<thead>
<tr>
<th>Type</th>
<th>100 AMP Mains</th>
<th>Breaker 45A/3P</th>
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<td>RECEPTS - 100</td>
<td>30A</td>
<td>204</td>
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<td>RECEPTS - 102</td>
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<td>RECEPTS - 104</td>
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<td>RECEPTS - 1102</td>
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<td>TOTAL CONNECTED LOAD</td>
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**% of Continuous**
- 25% of continuous
- Total Code
- Total Code

**INTERGRATED EQUIP. RATING:** 22,000

**LOAD AS PER**
- 1020V = 43.75 AMPS

**Panel Schedule**
- Not to Scale
- 01C=6007
<table>
<thead>
<tr>
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<th>CATALOG NUMBER</th>
<th>MANUFACTURER CATALOG NUMBER</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>LITHONIA</td>
<td>LB240A 120 ES</td>
<td>446-L-SLH—TC-P FLUORESCENT</td>
<td>10&quot; W X 3&quot; D X 48&quot; L SURFACE MOUNTED WRAPAROUND WITH ACRYLIC PRISMATIC LENS; STD. LAMPS &amp; ENERGY EFFICIENT BALLAST.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>446-L-SLH—TC-P F40CW</td>
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</tr>
<tr>
<td>LITHONIA</td>
<td>LD240A 120 ES</td>
<td>446-L-SLH—TC-P FLUORESCENT</td>
<td>10&quot; W X 3&quot; D X 48&quot; L SURFACE MOUNTED WRAPAROUND WITH ACRYLIC PRISMATIC LENS; STD. LAMPS &amp; COLD WEATHER BALLAST.</td>
</tr>
<tr>
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<td>446-L-SLH—TC-P F40CW</td>
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<tr>
<td>LITHONIA</td>
<td>2GT-240 A12 120 ES</td>
<td>446-L-SLH—TC-P FLUORESCENT</td>
<td>24&quot; W X 48&quot; L X 4 1/2&quot; H TRUSS</td>
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<tr>
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<td>446-L-SLH—TC-P F40CW</td>
<td>BASE LAMPS &amp; ENERGY EFFICIENT BALLAST.</td>
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<tr>
<td>LITHONIA</td>
<td>0240 120 ES</td>
<td>446-L-SLH—TC-P FLUORESCENT</td>
<td>4 3/16&quot; W X 48&quot; L X 3 3/4&quot; H STRIP WITH STANDARD LAMPS &amp; ENERGY EFFICIENT BALLAST.</td>
</tr>
<tr>
<td></td>
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<td>446-L-SLH—TC-P F40CW</td>
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</tr>
<tr>
<td>LITHONIA</td>
<td>MG 2343A12 120 ES</td>
<td>ELECTRONIC &amp; EMER</td>
<td>4 5/8&quot; W X 48&quot; L X 4 5/8&quot; H WALL MOUNTED LIGHT FIXTURE WITH ACRYLIC DIFFUSER ELECTRONIC AND 300 LUMEN BATTERY BALLASTS.</td>
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<td>F2T72BBP91</td>
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<td>GF80-100NW-120</td>
<td>120 SURFACE</td>
<td>14 1/4&quot; SQUARE X 1 1/4&quot; DE-CAST ALUMINUM HOUSING WITH A POLYCARBONATE LENS. TYPE V DISTRIBUTION PATTERN.</td>
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<td>120 CEILING SURF</td>
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<td>120 CEILING SURF</td>
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<td>DEVINS</td>
<td>BCO14-50MH-120CS</td>
<td>WALL SURFACE</td>
<td>14 1/4&quot; SQUARE X 1 1/4&quot; DE-CAST ALUMINUM HOUSING WITH A POLYCARBONATE LENS. TYPE V DISTRIBUTION PATTERN.</td>
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<td></td>
<td>14 1/4&quot; SQUARE X 1 1/4&quot; DE-CAST ALUMINUM HOUSING WITH A POLYCARBONATE LENS. TYPE V DISTRIBUTION PATTERN.</td>
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</tr>
<tr>
<td>DEVINS</td>
<td>LES2G120ELN</td>
<td>SURFACE LED BRUSHED ALUMINUM. UNIVERSAL MOUNTING CANOPY; ARROWS &amp; BATTERY.</td>
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### Panel Schedule

**Panel "B"**

**120/208 V, 3φ, 4W**

**200 Ampere Bussing**

**No Main Breaker**

**All Breakers 10,000 AIC**

**Surface Mounting (Existing)**

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**Non LCL:**

- 16,000
- 1000

**Spare Non LCL:**

- 640

**LCL:**

- 2000
- 400

**Spare LCL:**

- 190

**Total:**

- 18,500 W
- LINE TOTALS: 6000, 7440, 6000

- **NEW LOAD**
  - 7440 @ 120V
  - NEW BREAKER
  - LOAD @ 125%

**Panel Schedule**

*Not to Scale*

01C-6009
DEDICATED CIRCUIT WITH GROUND

LOW VOLTAGE CONTACTOR FOR SMOKE DAMPER CONTROL

TO THE REMAINING SMOKE DAMPERS

TO THE REMAINING AUDIO/VISUAL DEVICES

LOCATED IN THE GARAGE

TYPICAL WIRING FOR EACH CONDO UNIT

MINI SOUNDER

THE HORNS LIGHT IS LOCATED OVER THE SIAMESE CONNECTION

DEVICES IN THE GARAGE AND UPPER LEVEL

INSTALL IN EACH RETAIL SPACE

NOTES:
1. EACH RESIDENTIAL UNIT IS TO BE A SEPARATE ZONE.
2. EACH RESIDENTIAL UNIT IS TO HAVE A COMBINATION DETECTOR AND MINI-SOUNDER LOCATED WITHIN EACH BEDROOM AND ADJACENT HALLWAY TIED TO THE CENTRAL SYSTEM.
3. ELEVATOR LOBBY DEVICES ARE TO HAVE AUXILIARY CONTACTS FOR ELEVATOR CAPTURE VERIFY WIRING REQUIREMENTS WITH THE ELEVATOR COMPANY PRIOR TO INSTALLING THE WIRE.
4. SEE THE MECHANICAL PLANS FOR THE EXACT NUMBER OF SMOKE DAMPERS THAT WILL BE REQUIRED.

FIRE ALARM BLOCK DIAGRAM

N.T.S. 01C-6010
**GENERAL NOTES:**

OUTLETS - MH

1'-6" TO CENTER LIGHTING FIXTURES

CONDUIT FIRE ALARM SYSTEM EQUIPMENT

CONCEALED IN WALLS OR CEILING

SEE THE SPECIFICATIONS FOR WPCW/DURLEX RECERTACLE

FLUORESCENT - LENDED MASTER PANEL

A - CIRCUIT TYPE - LH-7

SEE SCHEDULE 1 - CIRCUIT DESIGNATION

LIGHTING FIXTURES

1. FLUORESCENT - LENDED

A - CIRCUIT TYPE - SEE SCHEDULE 1 - CIRCUIT DESIGNATION

CONTACT

CONCEALED IN WALLS OR CEILING

UNDER FLOOR OR UNDERGROUND

ONE LINE DIAGRAM

FEEDER: NO. OF CONDUITS - SIZE AND MATERIAL

3 W/0 THW - AL

1/4 O/D THW - CU

WALL BOXES - BASE PLATE SIZE

POLE MOUNTED - SINGLE

MOTOR

PANELBOARD

ROOM NUMBER

ELEVATIONS BEFORE INSTALLING SWITCH

GROUND SIZE (IF USED)

SERVICE ENTRANCE

WATER

MH = 4'-0" TO CENTER

FAN/LIGHT HEATER WALL SWITCH

BIF - ISOLATED GROUND REVISION

SPRINKLER VALVE

FUSIBLE DISCONNECT

MH = 4'-6" TO TOP

WATER TERMINAL

MH = 4'-6" TO CENTER

PAD MOUNTED TRANSFORMER

WATER DISTRIBUTION CENTER
**Motor Control Center (MCC) - Elevation**

N.T.S.

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CHAMFER EDGES TYP.

CONCRETE PAD

6" ALL SIDES

30" 20" TYP.

Samples from www.AutoCADDetails.net
SCHEDULE OF POLE EQUIPMENT

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<td>5/8” THRU-BOLT OF REQUIRED LENGTH, WITH LOCKNUTS AND 2 1/4” WASHER</td>
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<td>PROVIDE SIDE TIE</td>
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NOTE: GUY WIRES NOT SHOWN

TYPICAL THREE PHASE POLE (0° – 9°)
### TYPICAL THREE PHASE POLE (10° – 30°)

N.T.S.

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#### SCHEDULE OF POLE EQUIPMENT

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<td>ALUMINUM POLE CAP 15” IN DIA. NAILS IN SIDE ONLY – USE 1-1/4” ALUMINUM NAILS</td>
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**NOTES:**

1. SCHEDULE ABOVE LISTS THE MAJOR ITEMS OF EQUIPMENT ONLY. ALL OTHER EQUIPMENT NECESSARY FOR PURPOSE INDICATED SHALL BE PROVIDED UNDER THIS CONTRACT.
DOUBLE DEAD END, DOUBLE RISER POLE
N.T.S.

### SCHEDULE OF POLE EQUIPMENT

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<td>TRI MOUNT BRACKET FOR 1/C POTheads AND LIGHTNING ARRESTORS</td>
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### NOTES:

1. SCHEDULE ABOVE LISTS THE MAJOR ITEMS OF EQUIPMENT ONLY. ALL OTHER EQUIPMENT NECESSARY FOR PURPOSE INDICATED SHALL BE PROVIDED UNDER THIS CONTRACT.
2. RISER CONDUIT (POLE EQUIPMENT ITEM NO. 8) SHALL BE RIGID STEEL CONDUIT UP TO 9 FEET ABOVE GROUND LEVEL, BUT MAY BE SCHEDULE 40 PVC THEREAFTER.
### PRIMARY RISER POLE

**N.T.S.**

### SCHEDULE OF POLE EQUIPMENT

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**NOTES:**

1. SCHEDULE ABOVE LISTS THE MAJOR ITEMS OF EQUIPMENT ONLY. ALL OTHER EQUIPMENT NECESSARY FOR PURPOSE INDICATED SHALL BE PROVIDED UNDER THIS CONTRACT.
ALTERNATE DEAD-END CLAMPS
N.T.S.
60" STEEL CROSSARM

FRONT VIEW

SIDE VIEW

RISER POLE DETAIL
N.T.S.

SCHEDULE OF POLE EQUIPMENT

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</table>

NOTES:
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SCHEDULE OF POLE EQUIPMENT

<table>
<thead>
<tr>
<th>NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horizontal Line Post Insulators, Tie Top 15/25 KV</td>
</tr>
<tr>
<td>2</td>
<td>Pole Top Pin Pressed Steel and Porcelain Insulator 15/25 KV</td>
</tr>
<tr>
<td>3</td>
<td>Two Post Insulator Bracket</td>
</tr>
<tr>
<td>4</td>
<td>Insulator Suspension Type 15/25 KV</td>
</tr>
<tr>
<td>5</td>
<td>Secondary Clevis with SPDOL Insulator</td>
</tr>
<tr>
<td>7</td>
<td>5/8” Thru-Bolt of Required Length, with Locknuts and 2 1/4” Washer</td>
</tr>
<tr>
<td>10</td>
<td>Primary Conductor</td>
</tr>
<tr>
<td>14</td>
<td>Down Guy, 7 Strand Steel, Galvanized High Strength Grade, as indicated</td>
</tr>
<tr>
<td>17</td>
<td>Guy Fitting</td>
</tr>
<tr>
<td>19</td>
<td>Aluminum Pole Cap 15” in Dia. Nails in side only – use 1-1/4” Aluminum Nails</td>
</tr>
<tr>
<td>26</td>
<td>NO. 4 Solid Copper</td>
</tr>
<tr>
<td>27</td>
<td>Ground Rod</td>
</tr>
<tr>
<td>28</td>
<td>Ground Rod Clamp</td>
</tr>
<tr>
<td>30</td>
<td>Provide Side Tie</td>
</tr>
<tr>
<td>31</td>
<td>Porcelain Standoff Insulator, 15/25 KV</td>
</tr>
<tr>
<td>41</td>
<td>Steel Crossarm</td>
</tr>
<tr>
<td>50</td>
<td>Straight Strain Deadend Clamp</td>
</tr>
</tbody>
</table>

NOTES:

1. SCHEDULE ABOVE LISTS THE MAJOR ITEMS OF EQUIPMENT ONLY. ALL OTHER EQUIPMENT NECESSARY FOR PURPOSE INDICATED SHALL BE PROVIDED UNDER THIS CONTRACT.
## TANGENT RISER POLE

N.T.S.

### SCHEDULE OF POLE EQUIPMENT

<table>
<thead>
<tr>
<th>NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HORIZONTAL LINE POST INSULATORS, TIE TOP 15/25 KV</td>
</tr>
<tr>
<td>2</td>
<td>POLE TOP PIN PRESSED STEEL AND PORCELAIN INSULATOR 15/25 KV</td>
</tr>
<tr>
<td>3</td>
<td>TWO POST INSULATOR BRACKET</td>
</tr>
<tr>
<td>5</td>
<td>SECONDARY CLEVIS WITH SPOOL INSULATOR</td>
</tr>
<tr>
<td>7</td>
<td>5/8&quot; THRU-BOLT OF REQUIRED LENGTH, WITH LOCKNUTS AND 2 1/4&quot; WASHER</td>
</tr>
<tr>
<td>8</td>
<td>RIGID CONDUIT RISER WITH END FITTING, 5&quot; UNLESS OTHERWISE INDICATED, WITH LENGTH AS REQ'D.</td>
</tr>
<tr>
<td>9</td>
<td>1/C TERMINATION, 15/25 KV</td>
</tr>
<tr>
<td>10</td>
<td>PRIMARY CONDUCTOR</td>
</tr>
<tr>
<td>11</td>
<td>STEEL SEALING BUSHING</td>
</tr>
<tr>
<td>19</td>
<td>ALUMINUM POLE CAP 15&quot; IN DIA. NAILS IN SIDE ONLY – USE 1-1/4&quot; ALUMINUM NAILS</td>
</tr>
<tr>
<td>21</td>
<td>FUSED CUT OUT 15/25 KV</td>
</tr>
<tr>
<td>23</td>
<td>LIGHTNING ARRESTER 9 KV METAL OXIDE, DISTRIBUTION CLASS</td>
</tr>
<tr>
<td>24</td>
<td>POTHEAD MOUNTING BRACKET</td>
</tr>
<tr>
<td>25</td>
<td>STIRRUP, COMPRESSION TYPE AND HOT LINE CLAMP</td>
</tr>
<tr>
<td>26</td>
<td>NO. 4 SOLID COPPER</td>
</tr>
<tr>
<td>27</td>
<td>GROUND ROD</td>
</tr>
<tr>
<td>28</td>
<td>GROUND ROD CLAMP</td>
</tr>
<tr>
<td>30</td>
<td>PROVIDE SIDE TIE</td>
</tr>
<tr>
<td>33</td>
<td>TRI MOUNT BRACKET FOR FUSED CUT-OUTS AND LIGHTNING ARRESTORS</td>
</tr>
</tbody>
</table>

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2. RISER CONDUIT (POLE EQUIPMENT ITEM NO. 8) SHALL BE RIGID STEEL CONDUIT UP TO 9 FEET ABOVE GROUND LEVEL, BUT MAY BE SCHEDULE 40 PVC THEREAFTER.
OVERHEAD PRIMARY, UNDERGROUND SECONDARY TRANSFORMER POLE
N.T.S.

<table>
<thead>
<tr>
<th>NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>5/8&quot; THRU-BOLT OF REQUIRED LENGTH, WITH LOCKNUTS AND 2 1/4&quot; WASHER</td>
</tr>
<tr>
<td>13</td>
<td>COMPRESSION CONNECTOR</td>
</tr>
<tr>
<td>21</td>
<td>FUSED CUT OUT 15/25 KV</td>
</tr>
<tr>
<td>25</td>
<td>STIRRUP, COMPRESSION TYPE AND HOT LINE CLAMP</td>
</tr>
<tr>
<td>26</td>
<td>NO. 4 SOLID COPPER</td>
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</tr>
<tr>
<td>28</td>
<td>GROUND ROD CLAMP</td>
</tr>
</tbody>
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**NOTE:**

USE PREDRILLED HOLES WHERE MARKED PDH. DRILL OTHER HOLES TO MISS PREDRILLED HOLES AT RIGHT ANGLES.

---

**VERTICAL THREE PHASE DEAD END POLE**

**N.T.S.**

---

**SCHEDULE OF POLE EQUIPMENT**

<table>
<thead>
<tr>
<th>NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>INSULATOR SUSPENSION TYPE 15/25 KV</td>
</tr>
<tr>
<td>5</td>
<td>SECONDARY CLEVIS WITH SPOOL INSULATOR</td>
</tr>
<tr>
<td>7</td>
<td>5/8&quot; THRU-BOLT OF REQUIRED LENGTH, WITH LOCKNUTS AND 2 1/4&quot; WASHER</td>
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<td>COMPRESSION CONNECTOR</td>
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</tr>
<tr>
<td>26</td>
<td>NO. 4 SOLID COPPER</td>
</tr>
<tr>
<td>27</td>
<td>GROUND ROD</td>
</tr>
<tr>
<td>28</td>
<td>GROUND ROD CLAMP</td>
</tr>
<tr>
<td>47</td>
<td>5/8&quot; CLEVIS BOLT OF REQUIRED LENGTH, WITH COTTER PIN AND HEX NUT</td>
</tr>
<tr>
<td>49</td>
<td>5/8&quot; THIMBLE BOLT OF REQUIRED LENGTH, WITH WASHER AND NUT</td>
</tr>
<tr>
<td>50</td>
<td>STRAIGHT STRAIN DEADEND CLAMP</td>
</tr>
</tbody>
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<tr>
<td>9</td>
<td>1/C TERMINATION, 15/25 KV</td>
</tr>
<tr>
<td>10</td>
<td>PRIMARY CONDUCTOR</td>
</tr>
<tr>
<td>12</td>
<td>SCREW LAG 1/2&quot; X 4&quot;</td>
</tr>
<tr>
<td>19</td>
<td>ALUMINUM POLE CAP 15&quot; IN DIA. NAILS IN SIDE ONLY – USE 1-1/4&quot; ALUMINUM NAILS</td>
</tr>
<tr>
<td>20</td>
<td>LAG BOLT 1/4&quot;</td>
</tr>
<tr>
<td>21</td>
<td>FUSED CUT OUT 15/25 KV</td>
</tr>
<tr>
<td>24</td>
<td>POTHEAD MOUNTING BRACKET</td>
</tr>
<tr>
<td>25</td>
<td>STIRRUP, COMPRESSION TYPE AND HOT LINE CLAMP</td>
</tr>
<tr>
<td>26</td>
<td>NO. 4 SOLID COPPER</td>
</tr>
<tr>
<td>27</td>
<td>GROUND ROD</td>
</tr>
<tr>
<td>28</td>
<td>GROUND ROD CLAMP</td>
</tr>
<tr>
<td>29</td>
<td>HALF ROUND WOOD, PLASTIC OR FIBER MOLDING</td>
</tr>
<tr>
<td>33</td>
<td>TRI MOUNT BRACKET FOR FUSED CUT-OUTS AND LIGHTNING ARRESTORS</td>
</tr>
<tr>
<td>35</td>
<td>WOOD CROSSARM – TREATED – DRILLED AS REQUIRED</td>
</tr>
<tr>
<td>36</td>
<td>CROSSARM BRACE</td>
</tr>
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</table>
THREE PHASE LINE POLE
N.T.S.

SCHEDULE OF POLE EQUIPMENT

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<thead>
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<tbody>
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<tr>
<td>5</td>
<td>SECONDARY CLEVIS WITH SPOOL INSULATOR</td>
</tr>
<tr>
<td>6</td>
<td>STRAIN CLAMP</td>
</tr>
<tr>
<td>19</td>
<td>ALUMINUM POLE CAP 15” IN DIA. NAILS IN SIDE ONLY – USE 1-1/4” ALUMINUM NAILS</td>
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<td>23</td>
<td>LIGHTNING ARRESTOR 9 KV METAL OXIDE, DISTRIBUTION CLASS</td>
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<td>NO. 4 SOLID COPPER</td>
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<td>GROUND ROD</td>
</tr>
<tr>
<td>28</td>
<td>GROUND ROD CLAMP</td>
</tr>
<tr>
<td>41</td>
<td>STEEL CROSSARM</td>
</tr>
<tr>
<td>44</td>
<td>GANG OPERATED LOAD BREAK (GOLB) SWITCH, 15/25 KV, 600 A</td>
</tr>
</tbody>
</table>

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TRANSFORMER PAD DETAIL
N.T.S.
GROUNDING DETAIL AT THE PAD MOUNTED TRANSFORMER

N.T.S.

2'-0" TO TRANSFORMER NEUTRAL

1 #2 AWG COPPER CONNECT TO PRIMARY DUCT GROUND

2'-0" (TYP.)

1 #1/0 AWG COPPER CONNECT TO TRANSFORMER NEUTRAL

#4 AWG COPPER BOND TO ENCLOSURE

PRIMARY COMPARTMENT ENTRY

SECONDARY COMPARTMENT ENTRY
GROUND ROD #4 @ 12" E.W. U.N.O.

SEE NOTE PLAN

EXISTING GRADE

SUMP 12" DEEP 1'-6'

MANHOLE FRAME AND COVER

THICKNESS OF CONCRETE:
MANHOLE WALLS, TOP & BOTTOM 10"
SUMP WALLS AND BOTTOM 8"

SECTION A-A

NOTE:

ELECTRIC MANHOLE DETAIL

ROOF PLAN TOP REINFORCEMENT

#4 @ 4" E.W.

#4 @ 4" E.W.

#4 @ 12" E.W.

#4 @ 12" E.W.
MANHOLE DETAIL NOTES:

1. PROVIDE A DUCTBANK WINDOW (AS DETAILED) ON EACH UNUSED DUCT ENTRANCE FACE.

2. THE MANHOLE COVER INSCRIPTION SHALL READ "TELEPHONE" INSTEAD OF "ELECTRIC" ON ALL TELEPHONE MANHOLES.

3. FRAME AND COVER DIMENSIONS SHALL BE AS TABULATED BELOW (IN INCHES) UNLESS OTHERWISE INDICATED.

4. WHERE NOTED, PROVIDE #4/0 BARE COPPER CONDUCTOR AROUND MANHOLE PERIMETER, AND BOND TO ALL EXPOSED HARDWARE AND CABLE SHIELDS.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
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</thead>
<tbody>
<tr>
<td>MANHOLE</td>
<td>31-7/8</td>
<td>2</td>
<td>3-1/4</td>
<td>32</td>
<td>2</td>
<td>30</td>
<td>41</td>
<td>49</td>
<td>10</td>
</tr>
</tbody>
</table>

MANHOLE NECK DETAIL

FRAME AND COVER

BRICK EXTENSION (AS REQUIRED TO BRING COVER TO GRADE LEVEL)
NOTE:
FASTEN BY MEANS OF 2 1/2"x1/2"
BOLTS AND EXPANSION SHIELDS

CABLE RACK DETAIL

COVER HANDLE
(2 HANDLES REQUIRED)

SUMP FRAME

MANHOLE WALL

PULLING IRON DETAIL

TYPICAL SUMP FRAME
AND COVER DETAIL

MANHOLE ACCESSORIES
N.T.S.
NOTE: WINDOW MAY BE POURED SOLID WITH DUCT BANK IN LIEU OF BRICK AND MORTAR (CONTRACTOR’S OPTION)

DUCTBANK WINDOW

N.T.S.
NEUTRAL/GROUND CONNECTION IN MANHOLE
N.T.S.

SEAL 600V CABLE WITH TAPE

600V GROUNDED NEUTRAL

4/0 BARE COPPER GROUND

SAMPLES FROM www.AutocADDetails.net
TELEPHONE & SIGNAL SECTION

12" SQUARE BY 12" DEEP SUMP

7/8" 0/PULLING-IN IRON

LIGHT & POWER SECTION

PLAN

DUCT ENTRANCE. LOCATION TO BE AS INDICATED

FOR MANHOLE FRAME & COVER, SEE FED. SPEC. RR-F-621C, FIG. 1, SIZE 30A AND FIG. 8, SIZE 30A, RESPECTIVELY

BRICK COLLAR LINED UP WITH CEMENT MORTAR

REINFORCING FOR TELEPHONE AND SIGNAL SECTION SAME AS FOR LIGHT AND POWER SECTION

DUCT ENTRANCE

GROUND ROD & CLAMP

SECTION A-A

CONCRETE OR BLACK TOP ROADWAY

NO. 5 @ 6" EW, T&B

NO. 4 @ 6" EW EF

7/8" 0 PULLING-IN IRON

PITCH 1" IN 3' TO SUMP

NO. 5 @ 6" T&B

MANHOLE DIMENSIONS

<table>
<thead>
<tr>
<th>MANHOLE</th>
<th>POWER SECTION</th>
<th>SIGNAL SECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>6'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>4</td>
<td>6'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>5</td>
<td>6'-0&quot;</td>
<td>8'-0&quot;</td>
</tr>
<tr>
<td>6</td>
<td>6'-0&quot;</td>
<td>8'-0&quot;</td>
</tr>
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</table>

STANDARD ELECTRICAL MANHOLE (TRAFFIC) TYPES 3, 4, 5, AND 6
1/2” FLOOR PLATE RAISED PATTERN

HINGE-WELDED TO FRAME & COVER

PLAN OF COVER

SEAL DETAIL

2-1/2” X 3/8” SEAL WELDED TO ONE SIDE OF THE DOOR

SECTION B-B

SEAL, SEE DETAIL ABOVE

SECTION OF FRAME

DUCT ENTRANCE LOCATION TO BE AS INDICATED

7/8” Ø PULLING-IN IRONS
NO. 3 RODS AT 12” O.C.

GROUND ROD & CLAMP

SECTION A-A

DUCT ENTRANCE

7/8” Ø PULLING-IN IRONS

ANCHORS

PLAN

(HCOVER NOT SHOWN)

STANDARD ELECTRICAL HANDHOLE (NONTRAFFIC) TYPES 1 AND 2

<table>
<thead>
<tr>
<th>HANDHOLE</th>
<th>TYPE 1</th>
<th>TYPE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3’-0”</td>
<td>4’-0”</td>
</tr>
</tbody>
</table>

N.T.S.
TELEPHONE & SIGNAL SECTION

12" SQUARE BY 12" DEEP SUMP

LIGHT & POWER SECTION

FOR MANHOLE FRAME & COVER, SEE FED. SPEC. RR-F-621C FIG. 4, SIZE 28 AND FIG. 12, SIZE 28 RESPECTIVELY

DUCT ENTRANCE LOCATION TO BE AS INDICATED
7/8" PULLING-IN IRON

NO. 4 RODS AT 6" EW TOP, SIDES & BOTTOM

PITCH 1" IN 3' TO SUMP

BRICK COLLAR LINED UP WITH CEMENT MORTAR

REINFORCING FOR TELEPHONE & SIGNAL SECTION SAME AS FOR LIGHT & POWER SECTION

GROUND ROD & CLAMP

2" PIPE SLEEVE (DRAIN)

SECTION A-A

<table>
<thead>
<tr>
<th>MANHOLE TYPE</th>
<th>POWER SECTION</th>
<th>SIGNAL SECTION</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
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<tr>
<td>1</td>
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<td>8'-0&quot;</td>
</tr>
<tr>
<td>2</td>
<td>6'-0&quot;</td>
<td>8'-0&quot;</td>
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</tbody>
</table>

STANDARD ELECTRICAL MANHOLE (NON-TRAFFIC) TYPES 1 AND 2

N.T.S.
DETAILS — PULLING-IN IRONS, CABLE RACKS, AND DUCT ENTRANCE

N.T.S.
NOTE:

THIS DETAIL IS TYPICAL FOR ALL CONDUIT TERMINATIONS AT THE PAD MOUNTED TRANSFORMER, IN THE ELECTRICAL EQUIPMENT ROOMS, AND AT RISER POLES.

CONVERSION FROM PVC TO STEEL CONDUIT

N.T.S.
ELECTRICAL NOTES

A. ALL CONDUCTORS TO BE TYPE THHN.
B. ALL CONDUIT TO BE EMT.
C. "OVERLOAD PROTECTION" TO BE 1 PULL 20 AMP BREAKERS.
D. BOND WIRE IS REQUIRED ON ALL CIRCUIT SYSTEMS.
E. ALL CONDUCTOR SIZE TO BE #12 UNLESS NOTED OTHERWISE.
F. ALL CONDUIT TO BE 1/2" UNLESS NOTED OTHERWISE.
G. LIGHTS:
   1. "LITHONIA" #2GT 2 40 A12 120, AMPERAGE: 80 WATT, LAY-IN.
   2. "LITHONIA" #10994 1-40, AMPERAGE: 40 WATT, SURFACE MOUNTED.
   3. "LITHONIA" #AFST 2 96 120, AMPERAGE: 75 WATT, CHAIN SUSPENDED.
ENERGY NOTES

1. USE LOW FLOW PLUMBING FIXTURES THROUGHOUT.

2. INSULATION PROVISIONS:
   - CEILING: R-33
   - WALLS: R-19
   - FLOORS: R-13
   - EXTERIOR DOORS: R-5
   - WINDOWS: THERMOpane, WITH THERMAL BREAK.

3. CONTRACTOR TO SIZE BOILER AND DESIGN BASEBOARD SIZES, ADJUST OUTPUT RATING AS REQUIRED FOR HIGH ALTITUDE.

4. SILICON CAULKING, SEALANT AND WEATHERSTRIPPING TO BE USED AT ALL OPENINGS.

5. ALL PLUMBING FIXTURES ARE TO BE LOW FLOW ENERGY SAVING LOW WATER USAGE PRODUCTS.

6. EXTERIOR LIGHTING WILL BE BY (ONE) 1 WALL MOUNT FIXTURE WITH PHOTO CELL CONTROL AT EACH GARAGE DOOR LOCATION.
FINISH CEILING

PROVIDE 1 x HARD WOOD EDGE BAND CONTINUOUS AROUND TOP EDGE OF LIGHT VALANCE

1 1/2" ROUND WOOD BULLNOSE MOULDING STAIN TO MATCH PWD. WALL PANELS

WALL COVERING

5/8" DRYWALL

3 1/2" WOOD CROWN MOULDING

1/2" GYP. BOARD GLUE APPLIED TO EXISTING CONC. WALL

36" LONG FLUORESCENT LIGHT

METAL STUD

COVE LIGHTING

SCALE: 1 1/2" = 1'-0"
NOTES:

1. PORTABLE HANDLAMP SHALL CONFORM TO CLASS I, DIVISION 1, GROUP C, D OF THE NEC. THE LAMP SHALL BE 100 WATT INCANDESCENT LONG LIFE. THE GUARD AND GLOBE HOLDER SHALL BE COPPER FREE ALUMINUM. THE GLOBE GLASS SHALL BE HEAT AND IMPACT RESISTANT. THE HANDLE SHALL BE MOLDED PHENOLIC COMPOSITION.

2. THE AUTOMATIC REWIND CABLE REEL SHALL BE WEATHERPROOF. THE REELS SHALL HAVE LIFETIME LUBRICATED BEARINGS AND REPLACEABLE SPRING CARTRIDGE. THE REEL SHALL HAVE EASY ACCESS TO THE COLLECTOR RINGS AND BRUSHES LOCATED IN THE REEL DRUM. THE REELS SHALL HAVE A BUILT-IN LOCKING RATCHET.

3. THE CABLE SHALL BE 3-CONDUCTOR, NUMBER 14, TYPE SO CABLE, 80 FT. LONG.

4. THE REEL, THE CABLE AND THE PORTABLE HANDLAMP SHALL ALL BE COMPATIBLE AND SHALL BE PROVIDED WITH AN ADJUSTABLE STOP ON THE CABLE TO PREVENT THE AUTOMATIC REWIND REEL FROM RETRACTING THE LAMP OUT OF REACH OF THE MECHANICS.

FIXTURE TYPE T

N.T.S.
RETRACTABLE RECEPTACLE DETAIL

N.T.S.

CONTINUOUS (360 DEGREE) SWIVEL GROUNDED RETRACTABLE POWER CORD WITH SINGLE RECEPTACLE ON END.

FURNISHED WITH 12 FEET OF 16-3 SJO CORD (2 CONDUCTOR PLUS GROUND)

ENCLOSED STEEL CONSTRUCTION, UL LISTED, LOCKING RATCHET TO HOLD CORD AT DESIRED LENGTH.

MOUNTS ON 4" OCTAGONAL OUTLET BOX
BACK BOX, ANGLE ADAPTER, RECEPTACLE BODY, SHALL BE MADE OF CAST ALUMINUM. PLUG CONTACTS IN THE RECEPTACLE SHALL BE SOLDERLESS LUGS FOR WIRE TERMINATION. RECEPTACLE SHALL BE PROVIDED WITH SPRING DOOR. RECEPTACLE SHALL BE THE HIGH IMPACT TYPE.

RECEPTACLE - DETAIL

N.T.S.

PIN CONFIGURATION FOR RECEPTACLE

N.T.S.
NOTE:
CONDUIT RUN TO JUNCTION BOXES IN ROOMS (TYP.).

TYPICAL CABLE TRAY
N.T.S.
HEAVY DUTY CAST BASE AND DOME WITH THREE MOUNTING LUGS

SPECULAR DUAL INCLINED REVOLVING REFLECTOR

HIGH STRENGTH RED POLYCARBONATE CYLINDER

THREE WIRED TERMINAL FOR MOTOR AND LAMP LEADS, FACTORY WIRED FOR FAST INSTALLATION

FIXTURE TYPE "Y"

N.T.S.
FIXTURE TYPE "M", "ME"

N.T.S.

FIXTURE SHALL CONFORM TO UL 1570. HOUSING SHALL BE COMPLETE WITH INTEGRAL SIDE TRIM FLANGES AND SHALL BE SUITABLE FOR MOUNTING IN CONTINUOUS ROWS. HOUSING AND TRIM FLANGES SHALL BE COLD ROLLED STEEL. THE LENS OR LOUVER SHALL BE INSTALLED IN A MANNER THAT WILL PREVENT IT FROM COMING LOOSE DUE TO VIBRATION. THE BALLAST AND WIRING SHALL BE ENCLOSED IN A WIREWAY THAT IS CONTINUOUS THROUGHOUT THE LENGTH OF THE FIXTURE AND WHICH FORMS A WIREWAY FOR CIRCUITS THROUGH THE FIXTURE. ALL METAL PARTS SHALL RECEIVE A RUST INHIBITIVE COATING BEFORE APPLICATION OF THE FINISH COAT. THE FINISH COAT SHALL BE BAKED ENAMEL. THE ACRYLIC LENS SHALL BE FLAT, 0.125 INCH NOMINAL THICKNESS, LOW BRIGHTNESS, WITH SMOOTH TOP SURFACE HAVING A REGULAR ARRAY OF PRISMATIC ELEMENTS. STANDARD BALLAST SHALL BE OF THE CLASS P, HIGH POWER FACTOR TYPE THAT HAS BEEN APPROVED BY THE CERTIFIED BALLAST MANUFACTURERS FOR THE APPLICATION. FIXTURE SHALL BE PREWIRED.
NOTE:

18 CELL-2 LAMP PARABOLIC TROFFER CONSTRUCTED OF DIE-FORMED STAINLESS STEEL WITH WHITE BAKED ENAMEL FINISH.
TYPES "S" AND "T" FIXTURE

N.T.S.

FIXTURE TYPE R, S AND T SPECIFICATION

CONSTRUCTION
5 1/2" DEEP RECESSED HOUSING, ONE PIECE DIE FORMED CODE GAUGEPRIME COLD ROLLED STEEL.
FULL LENGTH DIE FORMED INTEGRAL STIFFENERS. BALLAST COVER EASILY REMOVED WITHOUT TOOLS.
DIE FORMED LAMPHOLDER BRACKET. HEAVY END PLATES.

FINISH
ELECTROSTATICALLY APPLIED BAKED WHITE ALKYD ENAMEL. MINIMUM REFLECTANCE 89 %.

LOUVER
FORMED OF SEMI-SPECULAR ANODIZED ALUMINUM. FINISH IS ANODIC OXIDE COATING. ACCURATE
PARABOLIC CELLS ARE HELD IN PLACE WITH INTERLOCKING FEATURE. BLACK REVEAL AROUND ENTIRE
PERIMETER OF LOUVER ON RETURN AIR TYPE. POSITIVE CAM ACTION SPRING LOADED LATCHES. SAFETY
LOCK T-HINGES ALLOWING HINGING AND LATCHING EITHER SIDE.

TYPE "R" FIXTURE

N.T.S.
1/2" THRU 1" CONDUIT TO BEAM CLAMP WITH 3/8" SET SCREW AND CAPTIVE THREADED NUT

4" SQ. CAST OUTLET BOX OR "T" CONDULET AS REQUIRED

LIGHT FIXTURE TYPE "AA" (TYP)

FIXTURE SHALL BE SUITABLE FOR WET LOCATIONS

CANOPY LIGHT DETAIL

N.T.S.
NOTE:

FIXTURE SHALL CONFORM TO UL 1572. THE FIXTURE SHALL BE DESIGNED FOR INSTALLATION IN A PLASTER TYPE CEILING. THE FIXTURE HOUSING SHALL BE STEEL. ALL FERROUS METALS SHALL RECEIVE A RUST INHIBITIVE COATING AND BE FINISHED WITH BAKED WHITE ENAMEL. THE REFLECTOR SHALL BE ALUMINUM. REFLECTOR FINISH SHALL BE MANUFACTURER'S STANDARD COMMERCIAL PRODUCT FINISH SUITABLE FOR THE LIGHT SOURCE PROVIDED. THE FRAMING ENCLOSING THE DIFFUSER OR LENS SHALL BE CONSTRUCTED OF EXTRUDED ALUMINUM WITH A BAKED WHITE FINISH AND SHALL ENCLOSE A PRISMATIC GLASS LENS WHICH DOES NOT REQUIRE A HEAT SHIELD. LENS FRAME SHALL BE HINGED AND SHALL HAVE CONCEALED SPRING-LOADED LATCHES. THE LAMPHOLDER SHALL BE MOGUL BASE GLAZED PORCELAIN. FIXTURE SHALL BE PREWIRED. BALLAST SHALL BE OF THE HIGH POWER FACTOR TYPE. FIXTURE DEPTH SHALL NOT EXCEED 13 INCHES.

TYPE "H", "HE" FIXTURE

N.T.S.
100% VIRGIN ACRYLIC PLASTIC WRAPAROUND LENS.

NOTES:

FIXTURE SHALL CONFORM TO UL 1570. SURFACE MOUNTED ENCLOSED HIGH GLOSS BAKED ENAMEL MINIMUM 86% REFLECTIVITY 22 GAUGE STEEL.

22 GAUGE STEEL END PLATES, WHITE COLOR.

100% VIRGIN ACRYLIC PLASTIC WRAPAROUND LENS.

TYPE "C", "CE" FIXTURE

N.T.S.
NOTE:
FIXTURE SHALL HAVE A THROUGH-HOLE FOR RELAMPING AND ADJUSTABLE MOUNTING BRACKETS.

DETAIL - FIXTURE TYPE "C"
N.T.S.
NOTE:
FIXTURE SUPPORTED IN ACCORDANCE WITH SPEC. 16W1 PAR 7.2.5 (TYP)

BEAM CLAMP

STRUCTURAL TEE

THREADED ROD

3/4" RIGID STEEL CONDUIT

3/4" RIGID STEEL CONDUIT
(LENGTH AS REQUIRED)

DIE CAST ALUMINUM RECEPTACLE
HOLE/BOX, LOOP, CORD AND PLUG ASSEMBLY

CONDUIT HANGER WITH BOLT

CUSHION HANGER RATED FOR 120 LBS. MIN.

BALLAST CAPSULE

TYPES "H", "CC" FIXTURE
N.T.S.
TYPE "G" FIXTURE
N.T.S.
NOTE:
EXPLOSION PROOF EXIT FIXTURE. CAST ALUMINUM CONSTRUCTION WHICH IS SWIVAL MOUNTED AND DIRECTIONALLY ADJUSTABLE. FURNISHED WITH STANDARD BATTERY CHARGER, FULLY SUPERVISED CIRCUIT, TEST SWITCH AND MONITOR LIGHT.
NOTE:

EXPLOSION PROOF EMERGENCY LIGHT FIXTURE. CAST ALUMINUM CONSTRUCTION WHICH IS SWIVAL MOUNTED AND DIRECTIONALLY ADJUSTABLE WITH GLOBE AND WIRE GUARD. FURNISHED WITH STANDARD BATTERY CHARGER, FULLY SUPERVISED CIRCUITRY, TEST SWITCH AND MONITOR LIGHT.
REFLECTORS ARE TO BE EASILY REMOVABLE FOR CLEANING OR REPLACEMENT USING ONLY A SCREW DRIVER.

EXPLOSION-PROOF HIGH IMPACT AND HEAT RESISTANT GLASS TUBES

PROVIDE EXPLOSION PROOF FIXTURE HANGERS & J-BOXES.

FIXTURE SHALL BE OF THE TYPE FOR USE INSIDE PAINT SPRAY BOOTHs WHERE HAZARDOUS FUMES, GASES AND PAINT RESIDUE ARE PRESENT. ALL EXTERIOR MATERIAL ARE TO BE NON-SPARKING. ALL EXPOSED HARDWARE IS STAINLESS STEEL. FIXTURE TO BE FACTORY SEALED. FIXTURES ARE TO COMPLY WITH NEC 516-3(C) AND NFPA NO 33.

TYPE "P" FIXTURE (CLASS 1 DIV. 1)

N.T.S.
TYPE "U" FIXTURE FLUSH MOUNTED IN CONCRETE

GALVANIZED RIGID STEEL CONDUIT

PIT LIGHT DETAIL
N.T.S.
CORPS OF ENGINEERS

DEPARTMENT OF THE ARMY

TYPE: WF8

FEATURES

LAMP TYPE: F32T8/75 CRI
PROFILE: 2 LAMP
SHIELDING: PRISMATIC ACRYLIC
BALLAST: ELECTRONIC

OPTIONS

LAMP TYPE: F25T8/RS
PROFILE: 1 LAMP
BALLAST: HIGH POWER FACTOR MAGNETIC, DIMMING, EMERGENCY

NOM. DIMENSIONS 92 mm X 1219 mm X 84 mm
(3 5/8 ” D X 4’ L X 3 5/16 ” H)

GENERAL DESCRIPTION

HOUSING: DIE FORMED 20 GAUGE COLD ROLLED STEEL WITH END PLATES

REFLECTORS: HIGHLY REFLECTIVE WHITE BAKED ENAMEL

ELECTRICAL: 120 OR 277 VOLT BALLAST

FINISH: WHITE POLYESTER POWDER COAT

FLUORESCENT WALL MOUNT
BEACON WALL BRACKET  
N.T.S.  

FLASHING BEACON  
N.T.S.
18 GAUGE STEEL HOUSING

MONITORING PANEL

- POWER ON INDICATOR
- HIGH CHARGE INDICATOR
- EMERGENCY ON INDICATOR
- LOW VOLTAGE INDICATOR
- NORMAL VOLTAGE INDICATOR
- HIGH VOLTAGE INDICATOR

KNOCKOUTS TYP.
- BOTH SIDES

TYPE "K" FIXTURE

NOTES:
1. FIXTURE SHALL CONFORM TO UL 924.
2. 277 VOLT INPUT; 12 VOLT DC OUTPUT.
3. 170 W CAPACITY FOR 1 1/2 HOURS (BATTERY DISCHARGED TO 87% OF NOMINAL VOLTAGE).
4. CABINET SHALL PROVIDE FOR ELECTRICAL CONNECTION OF REMOTE HEADS.
5. UNIT SHALL HAVE LOW VOLTAGE DISCONNECT.
6. SEALED, 2V, LEAD ACID, RECHARGEABLE (2 PER UNIT).
7. UNIT SHALL BE PREWIRED, AND FURNISHED WITH A TEST SWITCH.
FIXTURE TYPE "W"
N.T.S.
FIXTURE TYPE "T", "TE"

N.T.S.
LUMINAIRE REQUIREMENTS

1. 0.032" MINIMUM THICKNESS STEEL CHANNEL AND COVER HOUSING BALLAST AND SUPPORTING WOOD SHIELDING. CHEMICALLY TREAT FOR RUST PREVENTION AND FINISHED WITH BAKED WHITE ENAMEL FINISH. HOUSING SHALL HAVE INTERNAL PROVISIONS FOR GROUNDING.

2. PROVIDE SHIELD SUPPORT SUCH THAT NO FASTENERS, SCREWS, TABS OR UNNECESSARY PROVISIONS FOR GROUNDING.

3. SHIELD SHALL BE 1/4" MOLDED PLYWOOD CURVED TO PROVIDE OPTIMUM LIGHT DISTRIBUTION. FINISH WITH WALNUT VENEER AND CLEAR MATT LACQUER. PROVIDE MATCHING WOOD END CAPS AT EACH END OF EACH RUN TO COVER STEEL CHANNEL.

4. BALLAST SHALL BE HIGH POWER FACTOR ( > .9) ETL CBM APPROVED RAPID START ENERGY SAVING TYPE CLASS P WITH A SOUND RATING OF A.

5. PROVIDE SPRING LOADED PLUNGER TYPE LAMP SOCKETS.

TYPE A - 2 LAMP 4 FT (NOMINAL)
TYPE B - 4 LAMP 8 FT (NOMINAL)

WALL MOUNTED INDIRECT FLUORESCENT WITH WOOD SHIELDING

N.T.S.
LUMINAIRE REQUIREMENTS

1. HOUSING SHALL BE 0.032" MINIMUM THICKNESS DIE FORMED COLD ROLLED STEEL, CHEMICALLY TREATED FOR RUST PREVENTION AND FINISHED WITH WHITE BAKED ENAMEL OR POLYESTER FINISH. PROVIDE TOP AND END KNOCKOUTS.

2. HOUSING WELDED OR SECURED BY SCREWS OR RIVETS INTO A SINGLE ASSEMBLY. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

3. REFLECTOR SHALL BE 0.026" MINIMUM THICKNESS STEEL (SOLID WHEN LUMINAIRE IS MOUNTED BELOW CATWALKS, ETC. 10-25% APERTURED WHEN PROTECTED FROM FALLING OBJECTS). PROVIDE 30 SHIELDING CENTER VEE. CHEMICALLY TREAT FOR RUST PREVENTION AND FINISH WITH WHITE BAKED ENAMEL, PORCELAIN ENAMEL, OR POLYESTER FINISH. MINIMUM REFLECTANCE SHALL BE 85%.

4. THE LUMINAIRE SHALL NOT PERMANENTLY DISTORT WHEN LIFTED BY ONE CORNER.

5. SPACING TO MOUNTING HEIGHT RATIO = 1.3.

6. LUMINAIRE SHALL BE CAPABLE OF CONTINUOUS ROW AND SINGLE UNIT PLACEMENT WITH PENDANT OR SURFACE MOUNTING.

7. PROVIDE SPRING LOADED PLUNGER TYPE LAMP SOCKETS.

8. BALLAST SHALL BE HIGH POWER FACTOR (> .9) ETL, CBM APPROVED CLASS P ENERGY SAVING BALLAST WITH A SOUND RATING OF B (RAPID START OR SLIMLINE).

9. MINIMUM COEFFICIENT OF UTILIZATION (CU) WITH THE FOLLOWING CAVITY REFLECTANCE OF: CEILING = 80% WALL = 50% FLOOR = 20% LUMINANCE USING 3100 LAMP WITH AVG:MAX RATIO NOT TO EXCEED 1:5.

<table>
<thead>
<tr>
<th>ROOM CAVITY RATIO</th>
<th>CU</th>
<th>AVG. LUMINANCE (FL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.85</td>
<td>45 - 1350</td>
</tr>
<tr>
<td>2</td>
<td>0.73</td>
<td>55 - 1250</td>
</tr>
<tr>
<td>3</td>
<td>0.68</td>
<td>65 - 1250</td>
</tr>
<tr>
<td>4</td>
<td>0.60</td>
<td>75 - 850</td>
</tr>
</tbody>
</table>

TYPE A - 48" 2 LAMP 430 MA.
TYPE B - 96" 2 LAMP 430 MA.

INDUSTRIAL FLUORESCENT
N.T.S.
LUMINAIRE REQUIREMENTS

1. 0.026" MIN. THICKNESS FORMED

STEEL HOUSING. CHEMICAL TREATMENT FOR RUST PREVENTION. BAKE WHITE ENAMEL FINISH. 85% MIN. REFLECTANCE (INTERIOR). ENTIRE HOUSING SHALL BE PAINTED WHITE. HOUSING SHALL NOT PERMANENTLY DEFORM NOR SHALL IT DEFLECT MORE THAN THE FOLLOWING WHEN LIFTED BY ONE CORNER: TYPE A - 1/2", TYPE B - 1", TYPE C - 2".

2. SECURE HOUSING ENDS BY RIVETS OR SCREWS. PROVIDE A KNOCKOUT IN EACH END AND TWO IN TOP OF HOUSING. HOUSING SHALL HAVE INTERNAL PROVISIONS FOR GROUNDING.

3. OVERALL LUMINAIRE NOMINAL DIMENSIONS (+ 10%) SHALL BE:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>LENGTH</th>
<th>WIDTH</th>
<th>DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>48&quot;</td>
<td>7&quot;</td>
<td>4 1/2&quot;</td>
</tr>
<tr>
<td>B</td>
<td>48&quot;</td>
<td>10&quot;</td>
<td>3 1/2&quot;</td>
</tr>
<tr>
<td>C</td>
<td>48&quot;</td>
<td>15&quot;</td>
<td>3 1/2&quot;</td>
</tr>
</tbody>
</table>

4. LENS SHALL BE CLEAR EXTRUDED 100% ACRYLIC HAVING A MINIMUM OVERALL (BOTTOM OF LENS) THICKNESS OF 0.10 INCHES WITH A MAXIMUM PRISM PENETRATION DEPTH OF 0.07 INCHES (0.055 INCH MINIMUM OVERALL SIDE THICKNESS) AND WELDED END PLATES TO FORM A SINGLE PIECE, 5 SIDED BASKET.

5. LENS SHALL BE PRISMATIC TYPE.

6. LENS SHALL HINGE ALONG ENTIRE LENGTH OF FIXTURE (LIFT AND SHIFT TYPE). LENS SHALL BE CAPABLE OF HINGING FROM BOTH SIDES OF FIXTURE.

7. BALLAST: HIGH POWER FACTOR (> .9) ETL, CBM APPROVED RAPID START CLASS P ENERGY SAVING BALLAST WITH SOUND RATING OF "A". SECURE BALLAST TO HOUSING WITH AT LEAST ONE SCREW AND SLIP-ON BRACKET OR 2 SCREWS - ONE AT EACH END.

8. PHOTOMETRICS: MINIMUM COEFFICIENT OF UTILIZATION (CU) FOR THE FOLLOWING CAVITY REFLECTANCES: CEILING = 80% WALL = 50% FLOOR = 20%

<table>
<thead>
<tr>
<th>ROOM CAVITY RATIO</th>
<th>TYPE A</th>
<th>TYPE B</th>
<th>TYPE C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CU = 0.76</td>
<td>0.69</td>
<td>0.67</td>
</tr>
<tr>
<td>2</td>
<td>0.66</td>
<td>0.62</td>
<td>0.60</td>
</tr>
<tr>
<td>3</td>
<td>0.59</td>
<td>0.55</td>
<td>0.54</td>
</tr>
<tr>
<td>4</td>
<td>0.52</td>
<td>0.49</td>
<td>0.48</td>
</tr>
</tbody>
</table>

9. SPACING TO MOUNTING HEIGHT RATIO SHALL BE NOT LESS THAN 1.3.

TYPE A - 1 LAMP
TYPE B - 2 LAMP
TYPE C - 4 LAMP

SURFACE MOUNTED WRAP AROUND LUMINAIRE FOR OTHER THAN OFFICE TYPE SPACES

N.T.S.
LUMINAIRE REQUIREMENTS

1. 0.032" MIN. THICKNESS FORMED STEEL HOUSING. CHEMICAL TREATMENT FOR RUST PREVENTION. BAKED WHITE ENAMEL FINISH. 85% MIN. REFLECTANCE (INTERIOR). ENTIRE HOUSING SHALL BE PAINTED WHITE AFTER FABRICATION. HOUSING SHALL NOT PERMANENTLY DEFORM NOR SHALL IT DEFLECT MORE THAN ONE INCH (TWO INCHES FOR TYPE B) WHEN LIFTED BY ONE CORNER.

2. SECURE HOUSING ENDS BY RIVETS OR SCREWS. PROVIDE A KNOCKOUT IN EACH END AND TWO IN TOP OF HOUSING. HOUSING SHALL HAVE INTERNAL PROVISIONS FOR GROUNDING.

3. OVERALL LUMINAIRE LENGTH SHALL BE 48 INCHES NOMINAL. OVERALL WIDTH SHALL BE 12 INCHES MINIMUM FOR 2 LAMP, 15-1/2 INCHES MINIMUM FOR 4 LAMP. OVERALL HEIGHT SHALL BE 3-1/2 INCHES MAXIMUM.

4. LENS SHALL BE CLEAR 100% ACRYLIC HAVING A MINIMUM OVERALL (BOTTOM OF LENS) THICKNESS OF 0.140 INCH WITH A MAXIMUM PRISM PENETRATION DEPTH OF 0.07 INCHES (0.55 INCH MIN. OVERALL SIDE THICKNESS).

5. LENS SHALL BE PRISMATIC TYPE, INJECTION MOLDED INTO A SINGLE 5 SIDED UNIT WITH 1/2 INCH MINIMUM RE-ENTRANT FLANGE ON EACH LONG SIDE FOR ADDITIONAL STRENGTH.

6. LENS SHALL BE CAPABLE OF HINGING AND LATCHING FROM EITHER SIDE OF FIXTURE.

7. LUMINAIRE SHALL HAVE LUMINOUS ENDS.

8. BALLAST: HIGH POWER FACTOR (> .9) ETL, CBM APPROVED RAPID START CLASS P ENERGY SAVING BALLAST WITH SOUND RATING OF "A". SECURE BALLASTS TO HOUSING WITH AT LEAST ONE SCREW AND SLIP ON BRACKET OR TWO SCREWS - ONE AT EACH END.

9. PHOTOMETRICS: MINIMUM COEFFICIENT OF UTILIZATION (CU) FOR THE FOLLOWING CAVITY REFLECTANCES: CEILING = 80% WALL = 50% FLOOR = 20% LUMINANCE USING 3100L LAMP WITH AVG:MAX RATIO NOT TO EXCEED 1:5.

<table>
<thead>
<tr>
<th>RCR</th>
<th>TYPE A</th>
<th>TYPE B</th>
<th>AVG. LUMINANCE (FL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.71</td>
<td>0.67</td>
<td>45 = 2250</td>
</tr>
<tr>
<td>2</td>
<td>0.64</td>
<td>0.60</td>
<td>55 = 1605</td>
</tr>
<tr>
<td>3</td>
<td>0.57</td>
<td>0.54</td>
<td>65 = 1125</td>
</tr>
<tr>
<td>4</td>
<td>0.51</td>
<td>0.48</td>
<td>75 = 750</td>
</tr>
<tr>
<td>MIN. EFFICIENCY</td>
<td>69%</td>
<td>62%</td>
<td>85 = 495</td>
</tr>
</tbody>
</table>

10. MINIMUM SPACING TO MOUNTING HEIGHT RATIO: 1.35 (TYPE A), 1.3 (TYPE B).

TYPE A - 2 LAMP
TYPE B - 4 LAMP

SURFACE MOUNTED WRAP-AROUND LUMINAIRE FOR OFFICE/CLASSROOM TYPE SPACES

N.T.S.
LUMINAIRE REQUIREMENTS

1. HOUSING SHALL BE MINIMUM 0.026 THICK STEEL, OR STEEL AND ALUMINUM CONSTRUCTION, AND SHALL BE CHEMICALLY TREATED FOR RUST PREVENTION AND PAINT ADHESION. HOUSING SHALL BE ASSEMBLED WITH SCREWS OR BY WELDED JOINTS.

2. INTERIOR OF HOUSING SHALL BE PAINTED WITH MINIMUM 85% REFLECTANCE HIGH GLOSS WHITE ENAMEL.

3. REFLECTOR SHALL BE SEMI-SPECULAR NATURAL ANODIZED ALUMINUM.

4. PARABOLIC LOUVER SHALL BE ANODIZED NATURAL ALUMINUM AND SHALL HAVE POSITIVE ACTION SPRING LOADED LATCHES AND SAFETY HINGES.

5. PROVIDE INTERNAL GROUNDING SCREW.

6. BALLAST: HIGH POWER FACTOR (.9) ETL, CBM APPROVED RAPID START CLASS P ENERGY SAVING BALLAST WITH SOUND RATING OF "A". SECURE BALLASTS TO HOUSING WITH AT LEAST ONE SCREW AND SLIP ON BRACKET OR TWO SCREWS – ONE AT EACH END.

7. PROVIDE COLORS AS INDICATED:
   - TYPE A - DIRECT - 1 LIGHT
   - TYPE B - DIRECT - 2 LIGHT
   - TYPE C - INDIRECT - 1 LIGHT
   - TYPE D - INDIRECT - 2 LIGHT
   - TYPE E - DIRECT/INDIRECT - 1 LIGHT
   - TYPE F - DIRECT/INDIRECT - 2 LIGHT
   - TYPE G - DIRECT ASYMMETRIC

NOTE: TYPES C, D, E & F MAY ONLY BE PENDANT OR BRACKET MOUNTED.
LUMINAIRE REQUIREMENTS

1. 0.032" MINIMUM THICKNESS STEEL HOUSING WITH CORNERS WELDED. ALL 4 SIDES SHALL BE SOLID STEEL WITHOUT HOLES OR PANELS. 4-1/2" MAXIMUM FIXTURE HEIGHT. FINISH WITH RUST INHIBITOR AND BAKED WHITE ENAMEL. (PAINT AFTER FABRICATION.) PROVIDE GROUND LUG.

2. 0.032" MINIMUM THICKNESS STEEL OR ALUMINUM DOOR HELD TOGETHER BY SCREWS (FOR LENS REPLACEMENT). THE DOOR SHALL BE LIGHT TIGHT WITHOUT RelyING ON GASKETS, DOORS SHALL BE HELD IN PLACE BY 2 "T" TYPE Hinges AND 2 SLOT HEAD, CAPTIVE SCREws.

3. LENS SHALL BE 0.156" PLUS OR MINUS 10% OVERALL (0.09 MAXIMUM PRISM PENETRATION) CLEAR PRISMATIC 100% ACRYLIC. WHEN INDICATED, PROVIDE AN ADDITIONAL 1/4" THICK POLYCARBONATE SHEET BELOW AND ATTACHED TO THE ACRYLIC LENS. (REDUCE LENS THICKNESS TO 0.10 MINIMUM.)

4. BALLAST SHALL BE HIGH POWER FACTOR (.9) ETL; CBM APPROVED RAPID START CLASS P ENERGY SAVING BALLAST WITH SOUND RATING OF "A". SECURE BALLAST TO HOUSING WITH AT LEAST ONE SCREW AND SLIP-ON BRACKET OR 2 SCREWS (ONE AT EACH END).

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions</th>
<th>Lamps</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2' X 2'</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>1' X 4'</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>2' X 4'</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>2' X 4'</td>
<td>3</td>
</tr>
<tr>
<td>E</td>
<td>2' X 4'</td>
<td>4</td>
</tr>
</tbody>
</table>

STEEL SIDED SURFACE FLUORESCENT

N.T.S.
LUMINAIRE REQUIREMENTS

1. ALUMINUM HOUSING WITH MATTE BLACK FINISH.

2. POLYCARBONATE OR ACRYLIC OPAL GLOBE.

3. PROVIDE SPRING STEEL CLIPS, SET SCREWS OR TORSION SPRINGS TO KEEP GLOBE IN PLACE.

4. PROVIDE DAMP LABEL WHEN INDICATED.

5. PROVIDE CIRCLINE LAMPS AS INDICATED, WITH LUMINAIRE MAXIMUM SIZES AS FOLLOWS:

<table>
<thead>
<tr>
<th>LAMP WATTAGE</th>
<th>LUMINAIRE DEPTH</th>
<th>LUMINAIRE DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 TO 22</td>
<td>4&quot;</td>
<td>11&quot;</td>
</tr>
<tr>
<td>32 OR 22+32</td>
<td>4&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td>40 OR 32+40</td>
<td>5&quot;</td>
<td>20&quot;</td>
</tr>
</tbody>
</table>

ROUND SURFACE FLUORESCENT

N.T.S.
MIN. 0.54" ONE PIECE STEEL BACKPLATE WITH WHITE BAKED ENAMEL FINISH.

SECURE LENS TO BACKPLATE WITH MINIMUM 6 STAINLESS STEEL TAMPROOF SCREWS

1 - 35W, T-12, RS, CW ENERGY SAVING LAMP

MOUNT BACKPLATE WITH MINIMUM OF 6 SCREWS OR ANCHORS PER FIXTURE TO WALL OR CEILING AS INDICATED SEE SPECS FOR TYPES.

PROVIDE INTERNAL GROUNDING SCREW

VANDALPROOF MIN. .125" THICK CLEAR PRISMATIC INJECTION MOLDED WRAPAROUND LENS

BALLAST SHALL BE HIGH POWER FACTOR (9) ETL; CBM APPROVED RAPID START CLASS P, WITH SOUND RATING OF "A".

SURFACE MOUNTED 1-LAMP NONBREAKABLE LUMINAIRE

N.T.S.
LUMINAIRE REQUIREMENTS

1. HOUSING EXTRUDED ALUMINUM - PRIME PAINT AND PAINT WITH BAKED ENAMEL OF COLOR INDICATED.

2. REFLECTOR - DIE FORMED HIGH GLOSS BAKED WHITE ENAMEL WITH MINIMUM 85% REFLECTANCE.

3. SHIELDING - CLEAR PRISMATIC LENS TOP AND BOTTOM - 100% ACRYLIC.

4. RAPID START H.P.F. BALLAST; CLASS "P" CBM CERTIFIED BY ETL.

5. END PLATES WITH PROVISIONS FOR THROUGH WIRING.

6. 90 ELBOW CONNECTOR OF CAST ALUMINUM WITH CABLE SUPPORT PROVISIONS. COLOR TO MATCH FIXTURE.

7. IN-LINE CONNECTOR FOR CABLE SUPPORT OF FIXTURE.

8. PROVIDE FIXTURES, ELBOWS, AND IN-LINE CONNECTORS AS INDICATED.

DECORATIVE SPECIALTY

1-LAMP LUMINAIRE

N.T.S.
LUMINAIRE REQUIREMENTS

1. 24" X 24" (NOMINAL) SQUARE, 13" MAXIMUM HEIGHT. PROVIDE HARDWARE SUITABLE FOR CEILING MATERIAL USED.

2. STEEL OR ALUMINUM HOUSING WITH CORROSION RESISTANT FINISH.

3. ALUMINUM REFLECTOR.

4. FULL GASKETED PRISMATIC (OR CLEAR WHEN INDICATED) TEMPERED GLASS LENS SECURED BY CAPTIVE SCREWS OR CAM LATCHES.

5. HIGH POWER FACTOR (0.9) ENCAPSULATED PRESSURE SODIUM BALLAST AS INDICATED IN THE SPECIFICATIONS.

TYPE A - 150W TO 250W HIGH PRESSURE SODIUM BALLAST AS INDICATED IN THE SPECIFICATIONS.

TYPE B - 175W - 400W METAL HALIDE

6. PROVIDE AUXILIARY QUARTZ LAMP AND ARC SENSING RELAY WHERE INDICATED.

7. PROVIDE LAMP AS INDICATED.

8. LAMP AND BALLAST SHALL BE SERVICEABLE FROM THE BOTTOM OF THE FIXTURE UNLESS OTHERWISE NOTED. PROVIDE INTERNAL GROUNDING PROVISIONS.

9. SPACING TO MOUNTING HEIGHT RATIO SHALL NOT BE LESS THAN 1:0.

10. FOR REFLECTANCES OF 80% CEILING, 50% WALLS, 20% FLOORS. THE COEFFICIENT OF UTILIZATION SHALL NOT BE LESS THAN THE FOLLOWING:

<table>
<thead>
<tr>
<th>RCR</th>
<th>TYPE A</th>
<th>TYPE B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.63</td>
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<td>.54</td>
</tr>
<tr>
<td>5</td>
<td>---</td>
<td>.49</td>
</tr>
</tbody>
</table>

RECESS MOUNTED COMMERCIAL H.I.D.

N.T.S.
LUMINAIRE REQUIREMENTS

1 STEEL OR ALUMINUM BALLAST HOUSING. SPUM ALUMINUM REFLECTOR PROVIDE VENTILATION OPENINGS AT TOP OF REFLECTOR. PROVIDE INTERNAL GROUNDING PROVISIONS.

2 PROVIDE CUSHIONED, SHOCK ABSORBING FIXTURE HANGER. PROVIDE CUSHIONED POWER HOOK WHEN INDICATED.

3 PROVIDE WIRE GUARD OR TEMPERED GLASS LENS WHEN INDICATED.

4 PROVIDE QUARTZ AUXILIARY LAMP AND ARC SENSING RELAY WHEN INDICATED.

5 PROVIDE HIGH POWER FACTOR ENCAPSULATED (0.9) BALLAST AS INDICATED ON PLANS AND SPECIFICATION.

6 MINIMUM COEFFICIENTS OF UTILIZATION (CU) FOR CAVITY REFLECTANCES OF 80% CEILING, 50% WALLS, 20% 20% FLOOR SHALL BE:

<table>
<thead>
<tr>
<th>ROOM CAVITY RATIO</th>
<th>TYPE</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cu</td>
<td>A</td>
<td>0.93</td>
<td>0.89</td>
</tr>
<tr>
<td>2</td>
<td>A</td>
<td>0.85</td>
<td>0.80</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>0.93</td>
<td>0.70</td>
</tr>
<tr>
<td>MIN. EFFICIENCY</td>
<td>B</td>
<td>84 %</td>
<td>80 %</td>
</tr>
<tr>
<td>MIN. SPACING/MTG. HT. RATIO</td>
<td>0.95</td>
<td>0.95</td>
<td></td>
</tr>
</tbody>
</table>

7 PROVIDE LAMP AS INDICATED.

HIGH BAY INDUSTRIAL H.I.D.

N.T.S.
LUMINAIRE REQUIREMENTS

1. SHEET OR CAST ALUMINUM HOUSING. FINISH WITH ENAMEL OR EPOXY. PROVIDE INTERNAL GROUNDING PROVISIONS.

2. ACRYLIC REFRACCTOR OR THERMAL AND SHOCK RESISTANT

3. PROVIDE CUSHIONED FIXTURE HANGAR. PROVIDE CUSHIONED POWER HOOK WHEN INDICATED.

4. PROVIDE QUARTZ AUXILIARY LAMP AND ARC SENSING RELAY WHEN INDICATED.

5. PROVIDE ENCAPSULATED HIGH POWER FACTOR (.9) BALLAST AS INDICATED ON PLANS AND IN SPECIFICATION.

6. MINIMUM COEFFICIENT OF UTILIZATION (CU) WITH CAVITY REFLECTANCES OF 80% CEILING, 50% WALL, 20% FLOOR SHALL BE:

<table>
<thead>
<tr>
<th>RCR</th>
<th>TYPE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>0.79</td>
<td>0.85</td>
<td>0.79</td>
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<tr>
<td>2</td>
<td>CU.</td>
<td>0.68</td>
<td>0.73</td>
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<tr>
<td>3</td>
<td></td>
<td>0.59</td>
<td>0.60</td>
<td>0.60</td>
<td>0.6</td>
</tr>
</tbody>
</table>

MIN. EFFICIENCY 80% 85% 80% 85%
MIN. SPACING/MTG HT RATIO 1.8 1.8 1.8 1.8

7. PROVIDE LAMP AS INDICATED.

LOW BAY INDUSTRIAL H.I.D.

N.T.S.
LUMINAIRE REQUIREMENTS

1. 0.032" MINIMUM THICKNESS STEEL HOUSING WITH ALL SEAMS WELDED AND GROUND SMOOTH. CHEMICALLY TREAT FOR RUST PREVENTION AND PROVIDE BAKED ENAMEL, OR POLYESTER FINISH (BEIGE UNLESS INDICATED OTHERWISE).

2. ALUMINUM REFLECTOR WITH TEMPERED GLASS LENS.

3. PROVIDE 175, 250, 400 WATT METAL HALIDE OR 150, 250, 400 WATT HIGH PRESSURE SODIUM LAMPS (SINGLE OR TWIN) AS INDICATED ON THE PLANS.

4. HIGH POWER FACTOR (.9) ENCAPSULATED BALLAST AND AS INDICATED IN THE SPECIFICATIONS.

5. PROVIDE COMPUTER GENERATED DOCUMENTATION OF THE MAXIMUM, MINIMUM AND AVERAGE INITIAL FOOTCANDLE LEVELS FOR THE SYSTEM AS INDICATED ON THE PLANS. ASSUME REFLECTANCES OF 80%, 50%, 20% FOR CEILINGS, WALLS AND FLOORS RESPECTIVELY.

6. PROVIDE 60% MINIMUM FIXTURE LUMEN OUTPUT BETWEEN 30" TO 90" FROM VERTICAL.

7. PROVIDE INTERNAL GROUNDING PROVISIONS.

TYPE A (NOT SHOWN)
CEILING MOUNTED
30 INCH MAXIMUM DISTANCE FROM BOTTOM OF FIXTURE TO CEILING UNLESS OTHERWISE INDICATED.

<table>
<thead>
<tr>
<th>RCR</th>
<th>MIN. CU 150W-250W</th>
<th>MIN. CU 400W</th>
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</tr>
<tr>
<td>4</td>
<td>0.33</td>
<td>0.38</td>
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</table>

WALL MOUNTED LUMINAIRE - (RIGIDLY MOUNT TO WALL)
FORWARD THROW OPTICS

<table>
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<tr>
<th>RCR</th>
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<tr>
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<td>3</td>
<td>0.28</td>
</tr>
<tr>
<td>4</td>
<td>0.24</td>
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</tbody>
</table>

INDIRECT H.I.D. LUMINAIRE

N.T.S.
LUMINAIRE REQUIREMENTS
UTILITY
TYPE A, B, C,

1. CAST ALUMINUM OR 1/8" MIN. THICKNESS EXTRUDED ALUMINUM HOUSING FOR HIGH PRESSURE SODIUM (HPS) AND METAL HALIDE (M.H.) LUMINAIRES.

2. CAST ALUMINUM, 1/8" MIN. THICKNESS EXTRUDED ALUMINUM ABS PLASTIC OR POLYCARBONATE HOUSING FOR LOW PRESSURE SODIUM (LPS) AND 35/50/70W HPS LUMINAIRES.

3. HINGED, U.V. STABILIZED POLYCARBONATE LENS OR HINGED TEMPERED GLASS WITH POLYCARBONATE SHIELD.

4. LAMP SIZE AS INDICATED IN FIXTURE SCHEDULE.

ARCHITECTURAL TYPE D, E

5. PROVIDE ALUMINUM REFLECTOR.

6. BALLAST SHALL BE HIGH POWER FACTOR TYPE (.85) WITH CHARACTERISTICS AS INDICATED.

7. PROVIDE PHOTO ELECTRIC CONTROL WHEN INDICATED.

8. PROVIDE INTERNAL GROUNDING PROVISIONS.

NOTE: TYPES D AND E MAY BE SUBSTITUTED FOR TYPES A AND B RESPECTIVELY BUT NOT VICE VERSA.

H.I.D. WALL MOUNTED LUMINAIRE
N.T.S.
LUMINAIRE REQUIREMENTS

1. CAST OR EXTRUDED ALUMINUM SOCKET HOUSING WITH PORCELAIN SOCKET FOR VERTICAL BURNING LAMP.

2. 18 GAGE (U.S. STD) SPECULAR ALUMINUM REFLECTOR.

3. WHITE TRIM RING SUITABLE FOR USE WITH CEILING MATERIAL INSTALLED (CAST ALUMINUM ON LENS UNITS).

4. ENCAPSULATED HPF (0.9): BALLAST ARRANGED FOR MAINTENANCE FROM BELOW CEILING.

5. WIRING JUNCTION BOX SUITABLE FOR 75 C BRANCH CIRCUIT THROUGH WIRING.

6. PROVIDE QUARTZ AUXILIARY LAMP AND ARC SENSING RELAY WHEN INDICATED.

7. PROVIDE PROTECTIVE LAMP SHATTER SHIELD FOR METAL HALIDE FIXTURES (175 AND 250W).

8. MULTI GROOVE BAFFLES SHALL BE FLAT BLACK PHENOLIC OR CAST ALUMINUM.

9. LENS SHALL BE TEMPERED GLASS WITH FRESNEL OR PRISMATIC PATTERN.

10. PROVIDED LAMP AS INDICATED ON DRAWING HIGH PRESSURE SODIUM (HPS) OR METAL HALIDE (MH).

11. PROVIDE INTERNAL GROUNDING LUG.

12. MINIMUM PHOTOMETRICS SHALL BE AS FOLLOWS:

BRIGHTNESS CUTOFF ANGLE ABOVE NADIR (500 FOOTLAMBERT LINE) SHALL BE 65 OR LESS ° FOR OPEN AND BAFFLE FIXTURES AND 85 OR LESS ° FOR LENS TYPE FIXTURES

USING REFLECTANCES OF 80% CEILING, 50% WALLS AND 20% FLOOR, MINIMUM COEFFICIENTS OF UTILIZATION SHALL BE AS FOLLOWS:

<table>
<thead>
<tr>
<th>RCR</th>
<th>TYPE</th>
<th>A</th>
<th>A1</th>
<th>B</th>
<th>B1</th>
<th>C</th>
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<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td>3</td>
<td>C</td>
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<tr>
<td>4</td>
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<td>0.50</td>
<td>0.60</td>
<td>0.35</td>
<td>0.40</td>
<td>0.40</td>
</tr>
<tr>
<td>S/MH RATIO</td>
<td>1.2</td>
<td>1.0</td>
<td>1.2</td>
<td>1.2</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>
LUMINAIRE REQUIREMENTS

1. MINIMUM 0.026" THICK DIE FORMED STEEL HOUSING WELDED OR PUT TOGETHER WITH SCREWS TO FORM A RIGID UNIT.

2. ENTIRE LUMINAIRE SHALL BE FLUSH WITH CEILING, NO PROTRUDING FASTENERS OR HINGES.

3. STEEL DOOR FRAME MINIMUM 0.032" THICK STEEL WITH BAKED WHITE ENAMEL FINISH.

4. REFLECTOR SHALL BE CLEAR ANODIZED ALUMINUM.

5. TEMPERED IMPACT RESISTANT PRISMATIC GLASS LENS.

6. PORCELAIN LAMPHOLDER.

7. ALL STEEL PARTS SHALL BE CHEMICALLY TREATED FOR RUST PREVENTION AND PAINT ADHESION AND SHALL BE PAINTED WITH WHITE BAKED ENAMEL FINISH.

8. BALLAST SHALL BE SOUND RATED AND ENCAPSULATED, CWA TYPE, VOLTAGE AS INDICATED.

   TYPE A - 250 WATT METAL HALIDE
   TYPE B - 400 WATT METAL HALIDE
   TYPE C - 150 WATT HIGH PRESSURE SODIUM
   TYPE D - 250 WATT HIGH PRESSURE SODIUM
   TYPE E - 400 WATT HIGH PRESSURE SODIUM

HANDBALL AND RACQUETBALL COURT LUMINAIRE

N.T.S.
LUMINAIRE REQUIREMENTS

1. 0.054 INCH MINIMUM THICK STEEL OR ALUMINUM BACK PLATE.

2. POLYCARBONATE PRISMATIC OR OPAL LENS HELD IN PLACE WITH 4 STAINLESS STEEL SCREWS.

3. FULLY GASKETED AROUND LENS AND BETWEEN LUMINAIRE AND CEILING WITH DOUBLE BAKED NEOPRENE GASKETS.

4. U.L. LISTED FOR DAMP LOCATIONS.

5. MOUNT BACKPLATE TO CEILING WITH 4-1/4”Ø SCREWS OR ANCHORS.

6. PROVIDE WIRING COMPARTMENT SUITABLE FOR USE WITH 60° C WIRE INSULATION. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

TYPE A - UP TO 2-100W A-19 INCANDESCENT LAMPS
MAX. DIMENSIONS 12”X12”X6” D

TYPE B - 35W, 50W OR 70W HIGH PRESSURE SODIUM LAMP AS INDICATED
MAX. DIMENSIONS 12-1/2”X12-1/2”X8-1/2” D

TYPE C - 20 OR 22W FLUORESCENT CIRCLINE
MAX. DIMENSIONS = 12”X12”X6” D

CEILING MOUNTED
VANDAL-RESISTANT LUMINAIRE
N.T.S.

Samples from www.AutoCADDetails.net
LUMINAIRE REQUIREMENTS

1. 0.054 INCH MINIMUM THICK STEEL TEMPERED ALUMINUM OR POLYCARBONATE BACK PLATE.

2. POLYCARBONATE PRISMATIC DIFFUSER HELD IN PLACE WITH STAINLESS STEEL SCREWS.

3. FULLY GASKETED AROUND LENS AND BETWEEN WALL AND LUMINAIRE WITH DOUBLE BAKED NEOPRENE GASKETS.

4. U.L. LISTED FOR WET LOCATIONS.

5. MOUNT BACKPLATE TO WALL WITH 4-1/4”Φ SCREWS OR ANCHORS.

6. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

TYPE A - UP TO 100W INCANDESCENT
MAXIMUM DIMENSIONS 6”WX9”HX5”D

TYPE B - 7, 8, 9, 12, 13W FLUORESCENT LAMP
(MFG. STD. FLUOR. LAMP FOR FIXTURE)
MAXIMUM DIMENSIONS 6”WX9”HX5”D WITHOUT BALLAST

TYPE C - 35W, 50W OR 70W HIGH PRESSURE SODIUM LAMP AS INDICATED
MAXIMUM DIMENSIONS 6-1/2”WX9-1/2”HX7-1/2”D

WALL MOUNTED VANDAL-RESISTANT LUMINAIRE
N.T.S.
LUMINAIRE REQUIREMENTS

1. LETTERS SHALL BE 6” TALL WITH 3/4” STROKES FORMED BY A STENCIL FACE.

2. PROVIDE RED FIBERGLASS PANEL BEHIND STENCIL FACE.

3. PROVIDE 2 LONG LIFE INCANDESCENT LAMPS.

4. PROVIDE DOWN LIGHT PANEL IN FIXTURE.

5. PROVIDE ILLUMINATED ARROWS AS INDICATED.

6. PROVIDE SINGLE OR DOUBLE FACE AS INDICATED.

7. PROVIDE CEILING, END WALL, BACK WALL OR PENDANT MOUNTING AS INDICATED.

8. UNITS MOUNTED EXPOSED TO THE ENVIRONMENT SHALL HAVE A DAMP OR WET U.L. LABEL AS APPROPRIATE AND SHALL NOT BE CONSTRUCTED OF STEEL.

9. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

10. PROVIDE INTERNATIONAL SYMBOL OF ACCESS ON SIGN WHEN INDICATED.

TYPE A - ALUMINUM OR PAINTED STEEL HOUSING AND STENCIL FACE. (SEE NOTE 8.)

TYPE B - PLASTIC HOUSING ENCLOSED IN POLYCARBONATE WITH STENCIL ON INSIDE OF POLYCARBONATE HOUSING. (SEE NOTE 8.)

EXIT SIGN
N.T.S.
LUMINAIRE REQUIREMENTS

1. LUMINAIRE SHALL MEET U.L. 844 OR FACTORY MUTUAL (FM) STANDARD FOR HAZARDOUS LOCATIONS.

2. HOUSING SHALL BE COPPER FREE CAST ALUMINUM WITH LACQUER OR EPOXY FINISH.

3. ALL JOINTS SHALL BE OF THE THREADED TYPE.

4. HEAT AND IMPACT RESISTANT PRESTRESSED GLASS GLOBE.

5. PROVIDE WHITE PORCELAIN ENAMEL STEEL, FIBERGLASS REINFORCED POLYESTER OR GLASS COATED DOME REFLECTOR.

6. PROVIDE GLOBE GUARD WHEN INDICATED.

7. PROVIDE LAMPS AS INDICATED.

8. MOUNTING AS INDICATED.

9. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

TYPE A 60–200 WATT INCANDESCENT LUMINAIRE RATED FOR CLASS 1 DIVISION 1 GROUP D ATMOSPHERE.

TYPE B 60–200 WATT INCANDESCENT LUMINAIRE RATED FOR CLASS 1 DIVISION 1 GROUP D ATMOSPHERE.

TYPE C 70–250 WATT HPS OR 175–400 WATT MET. HALIDE LUMINAIRE RATED FOR CLASS 1 DIVISION 1 GROUP D ATMOSPHERE.

TYPE D 70–250 WATT HPS OR 175–400 WATT MET. HALIDE LUMINAIRE RATED FOR CLASS 1 DIVISION 2 GROUP D ATMOSPHERE.

EXPLOSION—PROOF LUMINAIRE
N.T.S.
LUMINAIRE REQUIREMENTS

1. SEALED BATTERY, SPECIFICALLY DESIGN FOR EMERGENCY LIGHTING, SOLID STATE FULLY AUTOMATIC – THREE RATE CHARGER FOR NICKEL CADMIUM BATTERY AND TWO RATE HIGH/LOW CHARGER FOR LEAD CALCIUM OR LEAD ACID SEALED BATTERIES.

2. MINIMUM 0.032” THICK BAKED ENAMEL PAINTED BEIGE, OR NONMETALIC PLASTIC HOUSING WITH DECORATIVE WOOD GRAIN FRONT PANEL ON EITHER HOUSING.

3. TEST SWITCH

4. “AC ON” PILOT LIGHT.

5. AUTOMATIC OVERLOAD PROTECTION – FUSE OR CIRCUIT BREAKER.

6. HEADS SHALL BE FULLY ADJUSTABLE VERTICALLY AND HORIZONTALLY.

7. SEALED BEAM HALOGEN LAMPS MINIMUM 8 WATT OR WATTAGE AS INDICATED IN SCHEDULE.

8. INPUT VOLTAGE AS INDICATED IN SCHEDULE.

9. VOLTOMETER.

10. 3/C #16, SO CORD SET – (HARD WIRE TO CIRCUIT)

11. PROVIDE MINIMUM 0.032” THICK STEEL WALL MOUNTING SHELF, OR MOUNTING BRACKETS OR HOLES IN HOUSING FOR MOUNTING UNIT ON WALL.

12. LOW VOLTAGE, DEEP DISCHARGE DISCONNECT.

EMERGENCY LIGHTING UNIT
N.T.S.
LUMINAIRE REQUIREMENTS

1. HOUSING – STEEL PAINTED SATIN BLACK HOUSING AND MATTE WHITE FRAME OR IMPACT
   AND FIRE RESISTANT POLYCARBONATE OR THERMOPLASTIC.

2. LENS SHALL BE PRISMATIC ACRYLIC APPROXIMATELY 9” X 9”. REFLECTOR SHALL BE
   SPECULAR ALZAK.

3. BATTERY SHALL BE MAINTENANCE FREE, 6 VOLT NICKEL CADMIUM WITH FULL 5 YEAR
   WARRANTY.

4. UNIT SHALL HAVE SOLID STATE AUTOMATIC TWO RATE CHARGER, CAPABLE OF FULLY
   RECHARGING IN 12 HOURS.

5. SWITCHING AND CONTROLS – AUTO TRANSFER SWITCH, TEST SWITCH, SHORT CIRCUIT
   PROTECTION AND LOW VOLTAGE, DEEP DISCHARGE DISCONNECT, HIGH CHARGE INDICATING
   LIGHT.

6. LAMPS – MINIMUM – TWO 8 WATT TUNGSTEN HALOGEN LAMPS.

7. SUITABLE FOR WALL OR CEILING MOUNTING.

LENS TYPE

EMERGENCY LIGHTING UNIT

N.T.S.
LUMINAIRE REQUIREMENTS

1. ALUMINUM FINISHED CHANNEL MOUNTING BASE WITH TEST SWITCH AND PILOT OR HIGH RATE INDICATING LIGHT.

2. CYLINDERS FOR LIGHTS AND BATTERY AND CHARGER SHALL BE PAINTED, MATTE WHITE AND SHALL BE FULLY ADJUSTABLE.

3. BATTERY SHALL BE MAINTENANCE FREE NICKEL CADMIUM WITH FULL 5 YEAR WARRANTY.

4. UNIT SHALL HAVE AUTOMATIC TWO RATE CHARGER.

5. SWITCHING AND CONTROLS – COMPLETELY SOLID STATE WITH AUTO TRANSFER AND LOW VOLTAGE CUTOFF. TEST SWITCH AND HIGH RATE INDICATING LIGHT.

6. 9 WATT TUNGSTEN HALOGEN LAMP.

CYLINDER TYPE

EMERGENCY LIGHTING UNIT

N.T.S.
LUMINAIRE REQUIREMENTS

1. HOUSING SHALL BE 0.026" MIN. THICKNESS, 5" MAX. HEIGHT AND SHALL NOT PERMANENTLY DEFORM WHEN LIFTED BY ONE CORNER WITH LENS DOOR IN PLACE NOR WITH LENS DOOR REMOVED. LENS DOOR SHALL NOT OPEN WHEN LUMINAIRE IS LIFTED BY ONE CORNER. LUMINAIRE SHALL HAVE LESS THAN THE FOLLOWING DEFLECTION WHEN LIFTED BY ONE CORNER WITH LENS DOOR REMOVED.

TYPE: A: B 3" 1/2" C, D & E 4"

2. HOUSING SHALL BE CHEMICALLY TREATED FOR RUST PREVENTION AND HAVE BAKED WHITE ENAMEL FINISH 85% MIN. REFLECTANCE (INTERIOR). ENDS SHALL BE SECURED BY RIVETS OR SCREWS. PAINT ENTIRE HOUSING AND LENS DOOR WHITE, AFTER FABRICATION.

3. LATCHES SHALL BE A 0.032" MINIMUM THICKNESS STEEL OR 0.015" MINIMUM THICKNESS SPRING STEEL. DIRECTION OF TRAVEL TO OPEN SHALL BE STamped ON LENS FRAME WHEN NOT OBVIOUS.

4. LENS DOOR SHALL BE 0.032" MINIMUM THICKNESS STEEL, SHALL BE ASSEMBLED WITH SCREWS (FOR LENS REPLACEMENT). PROVIDE LIGHT TIGHT FIT WITHOUT MOVABLE BAFIFLES. GASKETING SHALL NOT BE A MEANS OF ACHIEVING LIGHT TIGHT DOOR.

5. LENS SHALL BE 0.156" (FOR TYPES A, C, D, E) AND 0.125" (FOR TYPE B) PLUS OR MINUS 10% OVERALL (0.09 MAX. PRISM PENETRATION) CLEAR PRISMATIC 100% ACRYLIC

6. DOOR SHALL BE CAPABLE OF HINGING AND LATCHING FROM EITHER SIDE OF LUMINAIRE. PROVIDE SAFETY TYPE HINGES.

7. BALLAST SHALL BE HIGH POWER FACTOR (> .9) ETL, CBM APPROVED RAPID START CLASS P ENERGY SAVING BALLAST WITH SOUND RATING OF "A" SECURE BALLAST TO HOUSING WITH AT LEAST ONE SCREW AND SLIP-ON BRACKET OR 2 SCREWS ONE AT EACH END. PROVIDE GROUNDING SCREW ON INTERIOR OF HOUSING.

8. PHOTOMETRICS: MINIMUM COEFFICIENT OF UTILIZATION (CU) FOR THE FOLLOWING CAVITY REFLECTANCES: CEILING = 80%, WALL = 50%, FLOOR = 20% LUMINANCE USING 3100L LAMP WITH AVG:MAX RATIO NOT TO EXCEED 1:5

<table>
<thead>
<tr>
<th>ROOM CAVITY RATIO</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>AVG. LUMINANCE (FL)</th>
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<tbody>
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<td>1.3</td>
<td>1.3</td>
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PROVIDE MIN. VISUAL COMFORT PROBABILITY (VCP) OF 65 (ASSUME 30'x30'x10'H ROOM). WHEN "OFFICE TYPE" INDICATED, PROVIDE MIN. VCP OF 70.

9. PROVIDE MOUNTING HARDWARE COMPATIBLE WITH CEILING MATERIAL IN WHICH LUMINAIRE IS TO BE INSTALLED.

TYPE A - 2'X2' 2 LAMP

TYPE C - 2'X4' 2 LAMP

TYPE D - 2'X4' 3 LAMP

TYPE E - 2'X4' 4 LAMP

TROFFER

N.T.S.
LUMINAIRE REQUIREMENTS

1. HOUSING SHALL BE MINIMUM 0.26” THICK STEEL. HOUSING SHALL BE CHEMICALLY TREATED FOR RUST PREVENTION AND PAINT ADHESION. ENDS SHALL BE SECURED WITH SCREWS OR WELDED. HOUSING SHALL BE COMPLETELY PAINTED AFTER FABRICATION WITH MINIMUM 85% REFLECTANCE WHITE ENAMEL. MINIMUM DEPTH OF HOUSING 6” ± 1”.

2. LUMINAIRE SHALL HAVE FULL MATTE BLACK REVEAL FOR FLOATING DOOR EFFECT. PROVIDE MOUNTING TRIM AND HARDWARE COMPATIBLE WITH CEILING MATERIAL.

3. LUMINAIRE SHALL BE HIGH EFFICIENCY, LOW BRIGHTNESS TYPE WITH INTERLOCKED LOUVERS CONTOURED TO A PARABOLIC SHAPE. LOUVERS SHALL BE OF MINIMUM .025” SEMI-SPECULAR ANODIZED ALUMINUM IN NATURAL OR GOLD FINISH AS INDICATED.

4. FIXTURE HOUSING SHALL HAVE INTERNAL GREEN GROUNDING SCREW.

5. NO EXPOSED INTERNAL WIRING.

6. BALLAST SHALL BE HIGH POWER FACTOR (≥ .9) ETL, CBM APPROVED RAPID START CLASS P ENERGY SAVING BALLAST WITH SOUND RATING OF “A”. SECURE BALLAST TO HOUSING WITH AT LEAST ONE SCREW AND SLIP-ON BRACKET OR 2 SCREWS, ONE AT EACH END.

7. LOUVER SHALL BE SUITABLE FOR HINGING FROM EITHER SIDE AND SHALL HAVE TWO SAFETY HINGES AND TWO SPRING LOADED LATCHES OR FOUR SPRING LOADED LATCHES.

   TYPE A – 1 – 48” T-12 LAMP – 8 OR 10 CELLS
   TYPE B – 2 – 48” T-12 LAMPS – 8 OR 10 CELLS
   TYPE C – 1 – 48” T-12 LAMP – 20 CELLS
   TYPE D – 2 – 48” T-12 LAMPS – 20 CELLS

2 X 2 AND 2 X 4 PARABOLIC TROFFERS

N.T.S.
1. HOUSING SHALL BE MINIMUM 0.26” THICK STEEL. HOUSING SHALL BE CHEMICALLY TREATED FOR RUST PREVENTION AND PAINT ADHESION. ENDS SHALL BE SECURED WITH SCREWS OR WELDED. HOUSING SHALL BE COMPLETELY PAINTED AFTER FABRICATION WITH MINIMUM 85% REFLECTANCE WHITE ENAMEL. MINIMUM DEPTH OF HOUSING 6” ± 1”.

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   - TYPE A - 1 - 48” T-12 LAMP - 8 OR 10 CELLS
   - TYPE B - 2 - 48” T-12 LAMPS - 8 OR 10 CELLS
   - TYPE C - 1 - 48” T-12 LAMP - 20 CELLS
   - TYPE D - 2 - 48” T-12 LAMP - 20 CELLS

1 X 4 PARABOLIC TROFFER

N.T.S.
LUMINAIRE REQUIREMENTS

1. 0.032” MINIMUM THICKNESS STEEL OR ALUMINUM HOUSING WITH DIE CAST ALUMINUM PLASTER RING.

2. PROVIDE A 5 TO 7 INCH APERTURE BLACK GROOVED BAFFLE WITH BRUSHED OR SATIN ALUMINUM EXTERIOR FINISH. THE EXPOSED LENGTH OF THE LUMINAIRE SHALL BE 5 TO 7 INCHES.

3. PORCELAIN LAMP SOCKET WITH FULL METAL SCREW SHELL SUITABLE FOR A 150 WATT PAR, OR 75 WATT ER-30 LAMP.

4. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

SEMI—RECESSED BAFFLE DOWNLIGHT (INCANDESCENT)

N.T.S.
LUMINAIRE REQUIREMENTS

1. 0.032” MINIMUM THICKNESS GALVANIZED STEEL OR ALUMINUM HOUSING WITH ALUMINUM REFLECTOR.

2. PROVIDE MATTE WHITE PAINTED TRIM RING.

3. REGRESSED LENS SHALL BE HEAT RESISTANT GLASS HELD IN PLACE WITH A CONCEALED TORSION TYPE HINGE.

4. PROVIDE PORCELAIN LAMP SOCKET WITH FULL METAL SCREW SHELL SUITABLE FOR A 150-WATT LAMP.

5. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

RECESSED BAFFEL DOWNLIGHT
(INCANDESCENT)

N.T.S.
LUMINAIRE REQUIREMENTS

1. 0.032” MINIMUM THICKNESS STEEL HOUSING.

2. ALUMINUM BALL WITH DIE CAST ALUMINUM TRIM RING. PROVIDE MATTE WHITE FINISH.

3. BALL ADJUSTABLE FROM 0° – 45° FROM VERTICAL AND ROTATABLE FOR 359°.

4. PROVIDE MATTE BLACK LOUVER WHEN INDICATED.

5. PORCELAIN SOCKET SUITABLE FOR USE WITH UP TO 75 WATT ER-30 LAMP.

6. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

ADJUSTABLE SEMI—RECESSED SPOTLIGHT

N.T.S.
REMOTE EMERGENCY LIGHTING UNITS

NOTES:

1. LAMPS AND FINISHES SHALL BE COMPATIBLE WITH PRIMARY UNIT WITH WHICH USED.

REMOTE FIXTURES FOR USE WITH BATTERY UNIT
120-12V, 50V.A., TRANSFORMER

SHEET STEEL HOUSING

JUNCTION BOX

COMPLETE PREWIRED

8" O.D.

FACE TRIM

SECTION THRU INSTALLED

LOW VOLTAGE FIXTURE CEILING

1-3/4" PINHOLE

WITH CLEAR CONE

BLACK GROOVED

1-3/4" PINHOLE

BAFFLE WITH 3-1/4"

APERATURE

ADJUSTABLE EYEBALL

WITH GROVED BLACK

BAFFLE, 25' TILT AND

358° ROTATION

NOTE: FACE TRIM; MATTE WHITE OR MATTE BLACK

LOW VOLTAGE RECESSED INCANDESCENT

N.T.S.

Samples from www.AutoCADDetails.net
TWO FULLY ADJUSTABLE HEADS

25 WATT PAR 36 SEALED BEAMS

BRUSHED ALUMINUM HOUSING

TYPE "L" FIXTURE

N.T.S.
LUMINAIRE REQUIREMENTS

1. 0.032” MINIMUM THICKNESS STEEL HOUSING WITH MATTE BLACK FINISH.
2. PROVIDE LOW-GLOSS WHITE ENAMEL TRIM RING WITH 12” MAXIMUM DIAMETER.
3. SPECULAR ALUMINUM REFLECTOR.
4. 0° – 30° ADJUSTABLE SOCKET ASSEMBLY WITH 358° ROTATION.
5. PROVIDE TRIM SUITABLE FOR RECESS MOUNTING OF LUMINAIRE IN CEILING MATERIAL SPECIFIED.
6. PROVIDE PORCELAIN SOCKET WITH FULL METAL SCREW SHELL SUITABLE FOR 150W PAR OR R LAMP.
7. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

ADJUSTABLE INCANDESCENT INTERIOR SPOTLIGHT

N.T.S.
TYPE: WF7

FEATURES
LAMP TYPE: F32T8/75 CRI
PROFILE: 2 LAMP
SHIELDING: ACRYLIC PRISMATIC LENS
BALLAST: ELECTRONIC

OPTIONS
LAMP TYPE: F25T8/RS
PROFILE: 1 LAMP
BALLAST: HIGH POWER FACTOR MAGNETIC, DIMMING, EMERGENCY

NOM. DIMENSIONS 178 mm X 1219 mm X 102 mm
(7” D X 4’ L X 4” H)

GENERAL DESCRIPTION
HOUSING: DIE-FORMED HOUSING SHALL ALLOW REMOVAL OF LENS WITHOUT REMOVAL OF END-CAPS
REFLECTORS: GLOSS WHITE INTERIOR
ELECTRICAL: 120 OR 277 VOLT BALLAST
FINISH: WHITE ENAMEL OR POLYESTER POWDER COAT

WALL MOUNTED DIRECT/INDIRECT FLUORESCENT
LUMINAIRE REQUIREMENTS

1. COLUMN, EXTRUDED ALUMINUM (MINIMUM .148” THICK WALL) WITH MEDIUM BRONZE ANODIZED FINISH.

2. COMPLETELY GASKETED WEATHERPROOF TOP LAMP ACCESSORY PLATE.

3. EXTRUDED CLEAR ACRYLIC MINIMUM .188” THICK WALL ENCLOSURE.

4. SEGMENTED SPECULAR CLEAR ALZAK REFLECTOR.

5. CLEAR ALZAK REFLECTING CONE.

6. HIGH POWER FACTOR BALLAST.

7. U.L. LISTED FOR WET LOCATIONS.

8. 70 WATT HIGH PRESSURE SODIUM LAMP.

9. ANCHOR BOLT KIT PER MANUFACTURER, BUT NOT LESS THAN TWO 1/2”Ø X 9” LONG ANCHOR BOLTS WITH 1-1/2” “L” BEND SET IN 12”Ø X 24” DEEP CONCRETE BASE. TOP OF BASE 2” ABOVE GRADE.
LUMINAIRE REQUIREMENTS

1. CAST ALUMINUM HOUSING SATIN FINISH AND A CLEAR LACQUER COATING. TYPE B MAY HAVE A POLYCARBONATE OR 0.055 INCH MINIMUM THICK STEEL BACKPLATE. PROVIDE PORCELAIN SOCKET WITH FULL METAL SCREW SHELL SUITABLE FOR A 100-WATT INCANDESCENT LAMP.

2. GLOBE SHALL BE WHITE POLYCARBONATE.

3. PROVIDE HEAT RESISTANT VAPORTIGHT GASKET BETWEEN GLOBE AND HOUSING. PROVIDE NEOPRENE GASKET BETWEEN LUMINAIRE AND WALL OR CEILING.

4. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

EXTerior INCANDESCENT LUMINAIRE

N.T.S.
TYPE "C" FIXTURE

LOCATE FIXTURE AT FLAT PART OF METAL SIDING

SEAL PENETRATION

6X6X4" JUNCTION BOX

ROOF

CLAMP 2" RIGID STEEL CONDUIT TO BAR JOISTS

NOTE:
MOUNT FIXTURE ON 2-INCH CONDUIT.

MOUNTING DETAIL TYPE "C" FIXTURE

N.T.S.

TYPE "C" FIXTURE

N.T.S.
NOTE:

- BOX WALL MOUNTED, VAPORTIGHT WITH 4” DIE CAST ALUMINUM BOX. WALL BRACKET TO BE DIE CAST ALUMINUM COMPLETE WITH GASKET AND MOUNTING SCREWS. DIE CAST ALUMINUM ADAPTER AND GLAZED PORCELAIN MEDIUM SOCKET WITH RED PRISMATIC LEXAN GLOBE.
NOTES:

1. CAST ALUMINUM HOUSING WITH RED FRESNEL GLOBES AND MEDIUM SCREW LAMP RECEPTACLES.

2. LIGHT FIXTURE TO CONFORM TO FAA ADVISORY CIRCULAR AC 150/5345-43D SPECIFICATION L-810, MILITARY SPECIFICATION MIL-L-7830.

3. LAMP SHALL BE 69 WATTS AND TYPE 69A2ITS.

4. SECURELY MOUNT FIXTURE ON ROOF SUCH THAT FIXTURE HUB IS 3' 6" ABOVE ROOF LEVEL.

5. APPLY THREE COATS OF AVIATION ORANGE PAINT TO MOUNTING ASSEMBLY.

6. ONLY ONE LAMP OF FIXTURE SHALL OPERATE AT A TIME. UPON FAILURE OF ONE LAMP, A TRANSFER RELAY SHALL SWITCH POWER FROM THE BURNED OUT LAMP TO THE SPARE LAMP. THE RELAY SHALL ALSO ENERGIZE AN ALARM IN ROOM 111. ALARM LIGHT SHALL BE PERMANENTLY MARKED "AVIATION MARKER LIGHT FAILURE". ALL COMPONENTS SHALL BE PRODUCTS OF THE MANUFACTURER OF THE OBSTRUCTION LIGHTING FIXTURE.

TYPE ”ED” – OBSTRUCTION LIGHT DETAIL N.T.S.
TYPE: EH7

FEATURES

LAMP TYPE: 1000W METAL HALIDE
PROFILE: 1 LAMP
SHIELDING: CLEAR TEMPERED GLASS
BALLAST: HIGH POWER FACTOR, CORE & COIL, CWA

OPTIONS

LAMP TYPE: MH: 400W, 1500W
HPS: 400W, 1000W
BALLAST: REMOTE
OTHER: GLARE SHIELD

NOM. DIMENSIONS 584 mm X 864 mm X 432 mm
(23” DIA. X 34” H X 17” D)

GENERAL DESCRIPTION

HOUSING: DIE CAST ALUMINUM
REFLECTORS: SPECULAR ALUMINUM
ELECTRICAL: 120, 277 OR 480 VOLT BALLAST
FINISH: POLYESTER POWDER COAT PAINT

METAL HALIDE FLOODLIGHT
LUMINAIRE REQUIREMENTS

1. HOUSING, ALUMINUM — EXTRUDED OR FORMED WITH SEALED AND WELDED SEAMS.
2. REFLECTOR — FORMED ANODIZED OR ALZAK ALUMINUM.
3. LENS — TEMPERED, IMPACT RESISTANT CLEAR GLASS.
4. LENS DOOR — HINGED ALUMINUM WITH GASKET, CAPTIVE SCREW OR LATCHES.
5. INTEGRAL MULTI-TAP BALLAST.
6. CONCEALED HARDWARE (ALL HARDWARE CORROSION RESISTANT).
7. PORCELAIN SOCKET.
8. FINISH — DARK BRONZE, BAKED ENAMEL, EXCEPT AS INDICATED.
9. SLIPFITTER 1–1/4” TO 2” OR MOUNTING ARM.
10. LAMP — 70 TO 1,000 WATT, HIGH PRESSURE SODIUM, AS SPECIFIED.
11. LAMP STABILIZER.
12. UL “WET LABEL”

ROADWAY AND AREA LIGHT
N.T.S.
LUMINAIRE REQUIREMENTS

1. REFRACTOR – PRISMATIC GLASS, EXCEPT AS INDICATED.
2. REFLECTOR – ANODIZED ALUMINUM.
3. HOUSING – DIE CAST ALUMINUM.
4. HINGED ALUMINUM DOOR WITH GASKET AND LATCH.
5. INTEGRAL BALLAST – TYPE AND VOLTAGE AS SPECIFIED.
6. ALL HARDWARE, STAINLESS STEEL, OR NONCORROSIVE.
7. ADJUSTABLE PORCELAIN SOCKET.
8. 1-1/4” TO 2”, SLIP FITTER – 2 OR 4 BOLT.
9. PHOTOCELL, WHEN INDICATED.
10. LAMP – 70-WATT TO 400-WATT HIGH PRESSURE SODIUM – WATTAGE AS SPECIFIED.
11. LEVEL INDICATOR.
12. UL LISTED – SUITABLE FOR OUTDOOR WET LOCATIONS.

NOTE: I.E.S. TYPE DISTRIBUTION AS SPECIFIED IN LIGHTING FIXTURE SCHEDULE OR ON PLANS.

ROADWAY AND AREA LIGHT

N.T.S.
LUMINAIRE REQUIREMENTS

1. HOUSING – DIE CAST ALUMINUM.
2. REFLECTOR – ANODIZED OR ALZAK ALUMINUM.
3. DOOR – HINGED ALUMINUM, WITH GASKET AND CAPTIVE SCREWS.
4. INTEGRAL MULTI-TAP BALLAST.
5. STAINLESS STEEL OR NONCORROSIVE HARDWARE.
6. PORCELAIN SOCKET.
7. SLIPFITTER OR TRUNNION MOUNTING AS INDICATED.
8. PHOTOCCELL WHEN SPECIFIED.
9. LAMP – 70 TO 1,000 WATT – AS SPECIFIED.
10. MINIMUM 36” 3/C #14 ”SO” CORD.
11. LAMP STABILIZER.
12. LENS – TEMPERED IMPACT RESISTANT, CLEAR GLASS.
13. UL “WET LABEL”

FLOODLIGHT

N.T.S.
LUMINAIRE REQUIREMENTS

1. LUMINAIRE SHALL MEET FEDERAL AVIATION ADMINISTRATION SPECIFICATIONS FOR OBSTRUCTION LIGHTING (L–810).

2. CAST ALUMINUM HOUSING.

3. ONE PIECE 360° RED, HEAT RESISTANT GLASS FRENSNEL GLOBE. PROVIDE TOGGLE TYPE LATCHES AND CLAMPING TO SECURE GLOBES. PROVIDE SAFETY CHAINS ON GLOBES.

4. MOUNT PHOTO ELECTRIC CONTROL TO CONTROL LAMPS.

5. MOUNT LUMINAIRE ON 1” RIGID STEEL CONDUIT. PROVIDE JUNCTION BOX AND MOUNTING PLATE AT BASE UNLESS INDICATED OTHERWISE.

6. LAMPS SHALL BE RATED 100 WATT 130 VOLT, MULTIPLE, MEDIUM BASE. TWO LAMPS ARE REQUIRED.

7. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

OBSTRUCTION LIGHT
N.T.S.
LUMINAIRE REQUIREMENTS

1. HOUSING – ANODIZED ALUMINUM.
2. REFLECTOR – POLISHED, SEGMENTED ALZAK ALUMINUM.
3. LENS – TEMPERED, THERMAL AND SHOCK RESISTANT GLASS.
4. DOOR FASTENERS – STAINLESS STEEL.
5. INTEGRAL BALLAST.
6. HINGED, GASKETED DOOR.
7. PORCELAIN SOCKET FOR 1,000 WATT METAL HALIDE OR HIGH PRESSURE SODIUM LAMP.
8. 3/C #14 "SO" CORD.
9. GALVANIZED YOKE.
10. UL "WET LABEL”

NOTE: LAMP, BALLAST, AND BEAM PATTERN SHALL BE AS SPECIFIED AND AS SHOWN IN LIGHTING FIXTURE SCHEDULE OR ON PLANS.

SPORTS AND AREA LIGHT
N.T.S.
400 WATT HPS WITH POLYCARBONATE VANDAL GUARD

3/8” ANCHOR
3/8” STEEL PLATE
WELD
9/16” HOLES FASTEN TO WALL WITH 1/2”X2” BOLTS IN 1/2” LEAD EXPANSION ANCHORS

3/8” ROD
PIPE SUPPORT
2” CONDUIT

2” SHORT ELBOW

DETAIL OF FIXTURE SUPPORT
N.T.S.
LIGHTING POLE FOUNDATION

N.T.S.

NOTE:
ATTACH GROUND TO LIGHTING STANDARD (TYPICAL)

24" DIA. FORMED FOR SMOOTH SURFACE ABOVE FINISHED GRADE

ANCHOR BOLT

GALV. RIGID STEEL CONDUIT. NO. AND LOCATION AS REQ'D.

24" DIA. AUGURED HOLE WITH CONCRETE CAST AGAINST SOIL WALLS

HANDHOLE

ALUMINUM POLE

ANCHOR BOLT

GROUND ROD

3 TIES @ 4" @TOP

4 1/2"

3'-0"

2'-0" MIN.

2'-0" MIN.

7'-0"

6 #6

#6 BARE

#3 TIES @ 12"

3" CLR.

3" CLR.

GROUND ROD

Samples from www.AutoCADDetails.net
LUMINAIRE REQUIREMENTS

1. 0.054” minimum thickness steel or cast aluminum housing with white enamel finish and specular aluminum reflectors.

2. 3/16” cast aluminum face plate with brushed satin finish and clear acrylic laquer.

3. 5” x 11” x 4” deep maximum dimensions.


5. Provide incandescent lamps as indicated in fixture schedule.

6. Porcelain socket with full metal screw shell.

7. Provide internal provisions for grounding.

NOTE:

Type B fixture may be provided minus glass front, when used on interior.

Type A - Diffuse tempered glass or polycarbonate front

Type B - Louver front

STEP LIGHT

N.T.S.
1. 1/4" THICK BRASS PLATE—MILL AFTER FIELD VERIFYING OUTLET LOCATIONS. ATTACH W/ BRASS FLAT HEAD COUNTER-SUNK FASTENERS.
2. POWER OUTLET COVER PLATE.
3. SCOREBOARD CONTROL OUTLET COVER PLATE.
4. MICROPHONE OUTLET COVER PLATE.
5. ROUT WOOD TO FIT PLATE FLUSH.
6. SHIM W/ K.D. LUMBER CUT TO FIT.
7. J-BOX TYP.—VERIFY DEPTH & IF SLAB DEPRESSION IS REQUIRED.
UTILITY TRANSFORMER
120/208 3 PHASE

3-3" PVC
4 #400MCM
THHN AL

800/3
800 K TU

800 AMP BUS

TAP BOX
MODULE

1 1/4" EMT
3 #4
THHN CU

2 EMT
4 #3/0
THHN CU

1 1/4" EMT
4 #4
THHN CU

METER STACK

NOTE: PROVIDE A #2/0 GROUNDING ELECTRODE CONDUCTOR TO THE WATER MAIN, BUILDING STEEL, AND THE FOUNDATION STEEL. PROVIDE A #6 GROUNDING ELECTRODE CONDUCTOR TO A 5/8" X 10' DRIVEN ROD.

ONE LINE DIAGRAM

N.T.S.

16A-1002
DEDICATED CIRCUIT WITH GROUND

LOW VOLTAGE CONTACTER FOR SMOKE DAMPER CONTROL

TO THE REMAINING SMOKE DAMPERS

TO THE REMAINING AUDIO/VISUAL DEVICES

LOCATED IN THE GARAGE

TYPICAL WIRING FOR EACH CONDO UNIT

THE HORN LIGHT IS LOCATED OVER THE SIAMESE CONNECTION

MINI SOUNDER

DEVICES IN THE GARAGE AND UPPER LEVEL

INSTALL IN EACH RETAIL SPACE

NOTES:
1. EACH RESIDENTIAL UNIT IS TO BE A SEPARATE ZONE.
2. EACH RESIDENTIAL UNIT IS TO HAVE A COMBINATION DETECTOR AND MINI-SOUNDER LOCATED WITHIN EACH BEDROOM AND ADJACENT HALLWAY TIED TO THE CENTRAL SYSTEM.
3. ELEVATOR LOBBY DEVICES ARE TO HAVE AUXILIARY CONTACTS FOR ELEVATOR CAPTURE VERIFY WIRING REQUIREMENTS WITH THE ELEVATOR COMPANY PRIOR TO INSTALLING THE WIRE.
4. SEE THE MECHANICAL PLANS FOR THE EXACT NUMBER OF SMOKE DAMPERS THAT WILL BE REQUIRED.

FIRE ALARM BLOCK DIAGRAM

N.T.S. 16A-1003
BUILDING GROUNDING SYSTEM

MOVEABLE TEST ELECTRODE 5/8" X 4'-0" COPPER CLAD GROUND ROD

TO AC POWER SUPPLY

AMMETER

TRANSFORMER

FIXED TEST ELECTRODE 5/8" X 8'-0" COPPER CLAD GROUND ROD

BUILDING GROUNDING SYSTEM

HIGH RESISTANCE VOLTMETER

100'-0"

NOTES:
A. LOCATE MOVEABLE TEST ELECTRODE AT 20'-0", 40'-0", 60'-0", AND 80'-0" FROM BUILDING GROUNDING SYSTEM. RECORD CURRENT AND VOLTAGE READINGS AND PLOT OHMS VS. DISTANCE FROM BUILDING SYSTEM.
B. TEST PROBE LOCATIONS SHALL BE IN DIRECT LINE BETWEEN BUILDING GROUNDING SYSTEM AND FIXED TEST ELECTRODE.

FALL OF POTENTIAL

METHOD OF GROUND RESISTANCE TESTING

N.T.S. 16A-1006
HEAT TRACE INSTALLATION

NOTE: ALL CATALOG NUMBERS ARE RAYCHEM.

16A-1007
LOW VOLTAGE OUTLET

WIRING TO BE RUN WILD ABOVE CEILING – SUPPORT FROM STRUCTURE EVERY 6'-0" – DO NOT LAY ON CEILING TILE OR ATTACH TO CEILING SUPPORT WIRE SYSTEM

BUSHING

HUNG CEILING

3/4" EMPTY EMT

LOW VOLTAGE OUTLET

FLUSH BOX 2" X 4" X 1 1/2"

PARTITION OR WALL

FLOOR

LOW VOLTAGE OUTLET

N.T.S.

16A-1008
COMBINATION POWER/SIGNAL FLOOR BOX

16A-1009

N.T.S.

3/4" SIGNAL RACEWAY
WITH (1) COAXIAL CABLE

3/4" RACEWAY WITH (2) SIX PAIR SHIELDED #22 CABLE

POWER RACEWAY

SURGE SUPPRESSION
DUPLEX OUTLET

DUPLEX 6 CONDUCTOR
TELEPHONE JACK

COIL 6" OF COAX IN BOX, INSTALL CONNECTOR ON END

BOX TO BE HUBBELL #368-C, DEVICE PLATES TO BE HUBBELL #369-05

SAMPLES FROM
WWW.AUTOCADETAILSENT.NET
12" X 12" FLUSH MOUNTED J-BOX UNDER SEAT AT PLANTER

(2) 1" PVC CONDUITS REQUIRED FOR EACH SNOWMELT ZONE

SNOWMELT WIRING TO ZONE OF SIDEWALK

HOME RUN TO PANEL, WIRE AND CONDUIT SIZE PER PLANS

SNOWMELT WIRING TO ZONE OF SIDEWALK

EXPANSION JOINT KIT REQUIRED AT EACH EXPANSION AND CONTROL JOINT

REBAR OR WIRE MESH REINFORCEMENT

NOTES:
A. INSTALL SNOWMELT 6" FROM EDGE AND ON 8" CENTERS.
B. SECURE TO REBAR/REINFORCEMENT WIRE WITH PLASTIC TIES AT 18" CENTERS AND AT EACH MIDPOINT OF BEND.
Install J-box with 15A convenience outlet in existing branch circuit.

Loop cord and plug lighting fixture.

Attach fixture to building steel via beam clamp and eye bolt.

Lighting fixture mounting detail.
ATTACH LIGHT FIXTURE TO GLUELAM BEAM WITH SCREW IN EYE BOLT

INSTALL JUNCTION BOX WITH 15A CONVENIENCE OUTLET ON EXISTING BRANCH CIRCUIT

EXTENSION OF EXISTING BRANCH CIRCUIT

LIGHT FIXTURE

GLUELAM BEAM

ROOF DECK

TYPE 'B' LIGHTING FIXTURE MOUNTING DETAIL

N.T.S. 16A-1012
FILL WITH BATT INSULATION PRIOR TO J-BOX INSTALLATION

PROVIDE (4) 1/4" X 3" LAG BOLTS (COUNTERSUNK) TO ATTACH SUB-BASE TO PLYWOOD AND WALL

1" X 3/4" HARDWOOD FRAME

3/4" PLYWOOD

SUB-BASE

THERMOSTAT

J-BOX

FILL WITH BATT INSULATION PRIOR TO J-BOX INSTALLATION

PROVIDE BLOCKING AS REQUIRED FOR MOUNTING

ELEVATION

SECTION

INSULATED THERMOSTAT BASE

3" = 1'-0"

16A-1013
NOTES:
A. ENTIRE SNOWMELT SYSTEM SHALL BE PRESSURIZED TO 75 PSI WITH AIR DURING POURING OF CONCRETE. NO PIPING JOINTS ARE PERMITTED IN THE SLAB. LINES SHALL REMAIN PRESSURIZED UNTIL SYSTEM IS CONNECTED TO BOILER AND FINAL FILL ACCOMPLISHED.
B. ALL PIPING IN SNOWMELT SYSTEM SHOWN ON PLANS IS WIRSBO pePEX CROSSLINKED POLYETHYLENE TUBING. TUBING TO BE NOMINAL 5/8" INSIDE DIAMETER AND RATED FOR 180° SERVICE AT 100 PSI.
C. TIE PIPING DOWN TO SLAB REINFORCEMENT WITH PLASTIC COATED TIE WIRE. TIE SPACING SHALL NOT EXCEED 12" ON CENTER. TOP OF PIPE SHALL BE NOT LESS THAN 2" BELOW TOP OF SLAB. ALL PIPING IN SLAB IS AT 12" ON CENTER.
1. #4 REBAR, GRADE 60, MINIMUM OF 2" FROM EDGE/SURFACE OF CONCRETE.
2. LIFTING INSERTS TO BE 3/4" STRAIGHT COIL LOOP INSERTS (SUPERIOR CONCRETE ACCESSORIES CATALOG NUMBER SCL-4).
3. 2" CHAMFER.
4. TIE DOWN INSERTS TO BE INTERNAL THREADED INSERT WITH 1/2"-13 UNC THREADS.
5. 6" THICK SLAB.
6. 1/2" RADIUS.
7. ONE YARD OF PEA GRAVEL.
8. COMPACTED BACKFILL UNDER PAD 3' MINIMUM.
9. PROVIDE PVC ELBOWS INTO WINDOW OF PAD FOR PRIMARY AND SECONDARY.

NOTES
A. 3/4" CHAMFER OR 1/2" RADIUS ON ALL SURFACE EDGES.
B. CONCRETE TO HAVE MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AFTER 28 DAYS.
C. PAD TO BE AT LEAST 5' AWAY FROM ANY BUILDING OR STRUCTURE WITH CABLE OPENING AWAY FROM BUILDING.
1. FIRE ALARM JUNCTION BOX IN WALL – LOCATE ABOVE LAY-IN CEILING WHERE APPLICABLE.
2. EXTEND (2) CONDUCTORS IN 1/2" CONDUIT BACK TO FIRE ALARM MASTER PANEL.
3. (2) CONDUCTORS IN 1/2" EMT CONDUIT, CONCEALED IN WALL.
4. DOOR CLOSER – 24 V AC/DC.

NOTE: TYPICAL AT EACH DOOR CLOSER.
1. FIRE ALARM JUNCTION BOX IN WALL — LOCATE ABOVE LAY-IN CEILING WHERE APPLICABLE.
2. EXTEND (2) CONDUCTORS IN 1/2" CONDUIT BACK TO FIRE ALARM MASTER PANEL.
3. (2) CONDUCTORS IN 1/2" EMT CONDUIT, CONCEALED IN WALL.
4. DOOR CLOSER — 24 V AC/DC.

NOTE: TYPICAL AT EACH DOOR CLOSER.
1. GROUND ROD GROUNDING ELECTRODE CONDUCTOR.
2. STEEL GROUNDING ELECTRODE CONDUCTOR.
3. NEUTRAL BUS.
4. BOLTED CONNECTION.
5. 10'-0" X 5/8" COPPER CLAD GROUND ROD.
6. REINFORCING STEEL GROUNDING ELECTRODE CONDUCTOR BARE.
7. METALLIC WATER MAIN 10'-0" MINIMUM LENGTH.
8. REBAR 20'-0" MINIMUM LENGTH.
9. THERMITE WELD WITH ASPHALTUM COATING.
10. WATER SERVICE GROUNDING ELECTRODE CONDUCTORS.
11. WATER METER.
12. BONDING JUMPER BOLTED CONNECTIONS.
13. SERVICE ENTRANCE EQUIPMENT.

NOTES: SEE ONE LINE DIAGRAM FOR REQUIRED GROUNDS AND GROUNDING ELECTRODE SIZES. GROUNDING ELECTRODE CONDUCTORS SHALL BE UNSPLICED INSULATED COPPER UNLESS OTHERWISE NOTED.
1. GROUND ROD GROUNDING ELECTRODE CONDUCTOR.
2. STEEL GROUNDING ELECTRODE CONDUCTOR.
3. NEUTRAL BUS.
4. BOLTED CONNECTION.
5. 10'-0" X 5/8" COPPER CLAD GROUND ROD.
6. REINFORCING STEEL GROUNDING ELECTRODE CONDUCTOR BARE.
7. METALLIC WATER MAIN 10'-0" MINIMUM LENGTH.

NOTES: SEE ONE LINE DIAGRAM FOR REQUIRED GROUNDS AND GROUNDING ELECTRODE SIZES. GROUNDING ELECTRODE CONDUCTORS SHALL BE UNSPLICED INSULATED COPPER UNLESS OTHERWISE NOTED.
1. CONCRETE FILLED PIPE BOLLARD.
2. SIZE PER EQUIPMENT MANUFACTURER.
3. SECONDARY COMPARTMENT - SIZE PER EQUIPMENT MANUFACTURER.
4. TRANSFORMER ENCLOSURE.
5. CONCRETE PAD WITH 45° BEVEL.
6. GRAVEL COMPACTED SUB-BASE.
7. 6" X 6" WELDED WIRE FABRIC (W2.9 X W2.9).
8. FINISH GRADE.
9. CONDUIT - SIZE AND FEEDER SIZE PER UTILITY COMPANY.
1. CONCRETE FILLED PIPE BOLLARD.
2. SIZE PER EQUIPMENT MANUFACTURER.
3. SECONDARY COMPARTMENT - SIZE PER EQUIPMENT MANUFACTURER.
4. TRANSFORMER ENCLOSURE.
5. CONCRETE PAD WITH 45° BEVEL.
6. GRAVEL COMPACTED SUB-BASE.
7. 6” X 6” WELDED WIRE FABRIC (W2.9 X W2.9).
8. FINISH GRADE.
9. CONDUIT - SIZE AND FEEDER SIZE PER UTILITY COMPANY.
1. SECONDARY COMPARTMENT ENTRY.
2. TRANSFORMER PAD.
3. (1) #1/0 AWG COPPER CONNECT TO TRANSFORMER NEUTRAL.
4. (1) #2 AWG COPPER CONNECT TO PRIMARY DUCT GROUND.
5. PRIMARY COMPARTMENT ENTRY.
6. #4 AWG COPPER BOND TO ENCLOSURE.
1. SECONDARY COMPARTMENT ENTRY.
2. TRANSFORMER PAD.
3. (1) #1/0 AWG COPPER CONNECT TO TRANSFORMER NEUTRAL.
4. (1) #2 AWG COPPER CONNECT TO PRIMARY DUCT GROUND.
5. PRIMARY COMPARTMENT ENTRY.
6. #4 AWG COPPER BOND TO ENCLOSURE.

GROUNDING AT THE PAD MOUNTED TRANSFORMER
N.T.S. 16A-1019
1. 4'-0" X 4'-0" X 3/4" PLYWOOD TELEPHONE EQUIPMENT MOUNTING BOARD.
2. 1/2" CONDUIT TO WATER MAIN FOR GROUND.
3. 3" PVC TELEPHONE SERVICE CONDUIT TO TELEPHONE UTILITY PEDESTAL.
4. 3 PAIR PHONE CABLE (TYPICAL ALL UNITS) IN 1" CONDUIT.

NOTE: PROVIDE A 1" CONDUIT TO EACH RESIDENTIAL AND TO EACH RETAIL SPACE – VERIFY NUMBER OF PHONES REQUIRED PRIOR TO INSTALLING THE 3 PAIR CABLE.
1. 4'-0" X 4'-0" X 3/4" PLYWOOD TELEPHONE EQUIPMENT MOUNTING BOARD.
2. 1/2" CONDUIT TO WATER MAIN FOR GROUND.
3. 3" PVC TELEPHONE SERVICE CONDUIT TO TELEPHONE UTILITY PEDESTAL.
4. 3 PAIR PHONE CABLE (TYPICAL ALL UNITS) IN 1" CONDUIT.

NOTE: PROVIDE A 1" CONDUIT TO EACH RESIDENTIAL AND TO EACH RETAIL SPACE – VERIFY NUMBER OF PHONES REQUIRED PRIOR TO INSTALLING THE 3 PAIR CABLE.
1. VIBRATION INSULATION ASSEMBLY.
2. FRAMED EQUIPMENT BASE.
3. ANCHOR BOLT (TYPICAL).
4. FLOOR LINE.
5. MINIMUM CLEARANCE REQUIRED FOR NORMAL OPERATION.
6. STEEL ANGLES.
7. RESILIENT PAD.
8. ANCHOR BOLT (5/8" X 4").
9. STEEL PLATE.
10. EQUIPMENT.

NOTE: INSTALL TWO RESTRAINING DEVICES AT EACH CORNER OF THE EQUIPMENT BASE.
1. VIBRATION INSULATION ASSEMBLY.
2. FRAMED EQUIPMENT BASE.
3. ANCHOR BOLT (TYPICAL).
4. FLOOR LINE.
5. MINIMUM CLEARANCE REQUIRED FOR NORMAL OPERATION.
6. STEEL ANGLES.
7. RESILIENT PAD.
8. ANCHOR BOLT (5/8" X 4").
9. STEEL PLATE.
10. EQUIPMENT.

NOTE: INSTALL TWO RESTRAINING DEVICES AT EACH CORNER OF THE EQUIPMENT BASE.
1. NON-METALIC ELECTRICAL CABLE (ROMEX).
2. METAL STUD.
3. PROVIDE PLASTIC GROMMET IN PRE-PUNCHED HOLE IN STUD WEB (TYPICAL).
4. ZIP TIE TO STUD (TYPICAL).
5. #6 SCREWS.
6. ELECTRICAL BOX WITH OUTBOARD ATTACHMENT FLANGES.
1. NON-METALIC ELECTRICAL CABLE (ROMEX).
2. METAL STUD.
3. PROVIDE PLASTIC GROMMET IN PRE-PUNCHED HOLE IN STUD WEB (TYPICAL).
4. ZIP TIE TO STUD (TYPICAL).
5. #6 SCREWS.
6. ELECTRICAL BOX WITH OUTBOARD ATTACHMENT FLANGES.
1. Finish Grade.
2. Water tight PVC conduit.

Notes:
A. All wiring per local code.
B. All plastic piping to be shaked in trenches.
1. Finish grade.
2. Water tight PVC conduit.

Notes:
A. All wiring per local code.
B. All plastic piping to be shaked in trenches.

Trenching
1 1/2” = 1’-0”

16A-1023
3/4" PVC CONDUIT

#10 BARE COPPER GROUND WIRE

FINISHED GRADE

1/2" X 8'-0" COPPER GROUND ROD

18" ROUND BASE

REINFORCING: PROVIDE A MINIMUM OF (4) #6'S EACH WAY

BACK FILL WITH SUITABLE SOIL AND COMPACT TO 95%

3/4" X 36" ANCHOR BOLTS, BOLT CIRCLE PER POLE MANUFACTURER

LIGHTING POLE BASE DETAIL

1/2" = 1'-0"

16A-4002
RIGID STEEL CONDUIT, SIZE PER PLANS

#10 BARE COPPER GROUND WIRE

FINISHED GRADE

1/2" X 8'-0" COPPER GROUND ROD WITH CALDWELD CONNECTION

12" ROUND BASE, VERIFY WITH MANUFACTURER

REINFORCING: PROVIDE A MINIMUM OF (4) #4'S EACH WAY

BACK FILL WITH SUITABLE SOIL AND COMPACT TO 95%

24" ANCHOR BOLTS, BOLT SIZE AND CIRCLE PER POLE MANUFACTURER

LIGHTING BOLLARD BASE DETAIL

1/2" = 1'-0"

16A-4003
ROOF DECK
BUILDING STEEL
BRANCH CIRCUIT
INSTALL J-BOX WITH 15A CONVENIENCE OUTLET IN EXISTING BRANCH CIRCUIT
LOOP CORD AND PLUG
ATTACH FIXTURE TO BUILDING STEEL VIA BEAM CLAMP AND EYE BOLT
LIGHTING FIXTURE
ATTACH FIXTURE TO BUILDING STEEL VIA BEAM CLAMP AND EYE BOLT
LIGHTING FIXTURE
MOUNTING DETAIL
N.T.S. 16A-4004

Samples from www.AutoCADDetails.net
ATTACH LIGHT FIXTURE TO GLUENAME BEAM WITH SCREW IN EYE BOLT

INSTALL JUNCTION BOX WITH 15A CONVENIENCE OUTLET ON EXISTING BRANCH CIRCUIT

EXTENSION OF EXISTING BRANCH CIRCUIT

LIGHT FIXTURE

GLUENAME BEAM

ROOF DECK

TYPE 'B' LIGHTING FIXTURE MOUNTING DETAIL

N.T.S. 16A-4005

Samples from www.AutoCADDetails.net
1. 5/8" GYPSUM BOARD CUT TO SAME SIZE AS FIXTURE OPENING.
2. 2" WIDE SPACER STRIP.
3. PROVIDE A HIGH TEMPERATURE BALLAST IN ALL FIXTURES INSTALLED IN FIRE RATED CEILING.
4. SECURE GYPSUM BOARD TO FIXTURES.
5. FIXTURE SUPPORT WIRES ATTACHED TO STRUCTURE.
6. RECEDED TROFFER.
7. #12 GAUGE HANGER WIRES WITH MINIMUM (3) TWISTS AT ENDS.

NOTES:
A. FIXTURES TO BE ANCHORED FOR SEISMIC ZONE 3.
B. ADD ANY ADDITIONAL WIRES REQUIRED UNDER THE SEISMIC SECTION OF THE SPECIFICATIONS.
1. 5/8" GYPSUM BOARD CUT TO SAME SIZE AS FIXTURE OPENING.
2. 2" WIDE SPACER STRIP.
3. PROVIDE A HIGH TEMPERATURE BALLAST IN ALL FIXTURES INSTALLED IN FIRE RATED CEILING.
4. SECURE GYPSUM BOARD TO FIXTURES.
5. FIXTURE SUPPORT WIRES ATTACHED TO STRUCTURE.
6. RECESSED TROFFER.
7. #12 GAUGE HANGER WIRES WITH MINIMUM (3) TWISTS AT ENDS.

NOTES:
A. FIXTURES TO BE ANCHORED FOR SEISMIC ZONE 3.
B. ADD ANY ADDITIONAL WIRES REQUIRED UNDER THE SEISMIC SECTION OF THE SPECIFICATIONS.
1. 3 5/8" METAL STUD WALL.
2. 3 5/8" METAL STUD CEILING JOIST.
3. 5/8" GYPSUM BOARD.
4. 1/2" EXTERIOR GRADE OSB SHEATHING.
5. 1/2" CEMENTITIOUS BACKER BOARD.
6. 1 5/8" X 25 GA. METAL STUDS @ 24" O.C.
7. 3 5/8" X 18 GA. METAL STUDS @ 48" O.C.
8. FLUORESCENT STRIP LIGHT – SEE ELECTRICAL.
9. CERAMIC TILE OVER THIN SET.
10. LAY-IN ACOUSTICAL CEILING (AS OCCURS).

LIGHT COVE
1" = 1'-0"
1. 3 5/8” METAL STUD WALL.
2. 3 5/8” METAL STUD CEILING JOIST.
3. 5/8” GYPSUM BOARD.
4. 1/2” EXTERIOR GRADE OSB SHEATHING.
5. 1/2” CEMENTITIOUS BACKER BOARD.
6. 1 5/8” X 25 GA. METAL STUDS @ 24” O.C.
7. 3 5/8” X 18 GA. METAL STUDS @ 48” O.C.
8. FLUORESCENT STRIP LIGHT – SEE ELECTRICAL.
9. CERAMIC TILE OVER THIN SET.
10. LAY-IN ACOUSTICAL CEILING (AS OCCURS).
1. 3 5/8" METAL STUD PLUMBING WALL.
2. 3 5/8" METAL STUD CEILING JOIST.
3. 5/8" GYPSUM BOARD.
4. 1/2" EXTERIOR GRADE OSB SHEATHING.
5. 1/2" CEMENTITIOUS BACKER BOARD.
6. 1 5/8" X 25 GA. METAL STUDS @ 24" O.C.
7. 3 5/8" X 18 GA. METAL STUDS @ 48" O.C.
8. FLUORESCENT STRIP LIGHT - SEE ELECTRICAL.
9. CERAMIC TILE OVER THIN SET.
10. 6" X 42" LAY-IN "EGG GRADE" DIFFUSER.
1. 3 5/8" metal stud plumbing wall.
2. 3 5/8" metal stud ceiling joist.
3. 5/8" gypsum board.
4. 1/2" exterior grade OSB sheathing.
5. 1/2" cementitious backer board.
6. 1 5/8" x 25 GA. metal studs @ 24" O.C.
7. 3 5/8" x 18 GA. metal studs @ 48" O.C.
8. Fluorescent strip light – see electrical.
9. Ceramic tile over thin set.
10. 6" x 42" lay-in "egg grate" diffuser.

LIGHT COVE

1" = 1'-0"

16A-4008
1. 3 5/8” METAL STUD WALL WITH 5/8” GYPSUM BOARD.
2. 3 5/8” METAL STUD BRAKE METAL TRACK.
3. 3 5/8” METAL STUD LIGHT COVE WITH 5/8” GYPSUM BOARD ON EACH SIDE.
4. LIGHT FIXTURE AND MOUNTING BRACKET.
5. 3 5/8” METAL STUD BRACE AT 48” O.C.
6. 3 5/8” METAL STUD TRACK.
1. 3 5/8" METAL STUD WALL WITH 5/8" GYPSUM BOARD.
2. 3 5/8" METAL STUD BRAKE METAL "TRACK".
3. 3 5/8" METAL STUD LIGHT COVE WITH 5/8" GYPSUM BOARD ON EACH SIDE.
4. LIGHT FIXTURE AND MOUNTING BRACKET.
5. 3 5/8" METAL STUD BRACE AT 48" O.C.
6. 3 5/8" METAL STUD TRACK.

LIGHT COVE
1 1/2" = 1'-0"

16A-4009
1. #4 REBAR CONTINUOUS ALL AROUND.
2. 18" X 18" FLUSH HINGED MANHOLE COVER WITH PADLOCK.
3. DUPLEX OUTLET IN WATERPROOF BOX – SEE ELECTRICAL.
4. MIC OUTLET IN WATERPROOF BOX – SEE ELECTRICAL.
5. CONDUITS – SEE ELECTRICAL.
6. WATERPROOF BOX WITH COVER FOR FIELD INTERCOM SYSTEM – SEE ELECTRICAL.
7. CONCRETE SLAB OVER SUB-GRADE.
8. SCOREBOARD CONTROL WIRES IN WATERPROOF J-BOX ON SIDE OF MANHOLE – SEE ELECTRICAL.
1. 24 GA SHEET METAL CONE W/ BASE PLATE.
2. MEMBRANE ROOFING OVER LIGHTWEIGHT FILL OVER 1 1/2” METAL DECKING.
3. LAP IN MEMBRANE ROOFING OVER BASE PLATE.
4. CONDUIT.
5. WRAP CONDUIT CONE CONNECTION W/ NEOPRENE STRIP AND SECURE W/ HOSE CLAMP.
6. SECURE CONDUIT TO DECKING.
1. 4" X 4" X 1/4" CUTOVER WASHER – TYP.
2. FIELD WELD OR CLAMP ENDS OF CHANNELS TO BEAM OR GIRDER
3. MAXIMUM LOAD TO ANY BEAM OR GIRDER NOT TO EXCEED 2000 LBS.
4. (2) C5 X 6.7 CHANNELS LOCATE AS REQUIRED FOR MECHANICAL EQUIPMENT
5. (2) C5 X 6.7 CHANNELS LOCATE 1/3 OF SPANS

SUSPENDED FROM GIRDER

P_1 = 1000 lbs MAX.
P_2 = 1000 lbs MAX.
P_1 + P_2 = 2000 lbs MAX.

SUSPENDED FROM SLAB

P = 2000 lbs MAX.

MECHANICAL HANGER
N.T.S.

16A-2003
1. PIPE OR CONDUIT.
2. SEALANT.
3. COUNTERFLASHING SLEEVE.
4. WATERPROOF COMPOUND.
5. STEEL REINFORCED BOOT.
6. MODIFIED BITUMEN REINFORCED COMPOSITE SHEET ROOFING FLASHING SYSTEM.
7. PLYWOOD DECK.
3/4" SIGNAL RACEWAY WITH (1) COAXIAL CABLE

3/4" RACEWAY WITH (2) SIX PAIR SHIELDED #22 CABLE

POWER RACEWAY

SURGE SUPPRESSION DUPERLX OUTLET

COIL 6" OF COAX IN BOX, INSTALL CONNECTOR ON END

DUPLEX 6 CONDUCTOR TELEPHONE JACK

BOX TO BE HUBBELL #3SFB-C, DEVICE PLATES TO BE HUBBELL #3SFB-DS

Combination Power/Signal Floor Box

N.T.S

16A-2005
1. WIREMOLD RACEWAY WITH POWER AND TELEPHONE/DATA CONNECTIONS - PAINT RACEWAY TO MATCH RUBBER BASE.
2. SCHEDULED RUBBER OR WOOD BASE.
3. DRIVE PINS.
4. 2 1/2" CONTINUOUS BOTTOM TRACK.

LOW PARTITION WITH RACEWAY

3” = 1’-0”
1. WIREMOLD RACEWAY WITH POWER AND TELEPHONE/DATA CONNECTIONS – PAINT RACEWAY TO MATCH RUBBER BASE.
2. SCHEDULED RUBBER OR WOOD BASE.
3. DRIVE PINS.
4. 2 1/2” CONTINUOUS BOTTOM TRACK.

LOW PARTITION WITH RACEWAY
3” = 1’-0” 16A-2006
UTILITY TRANSFORMER 120/208 3 PHASE

3-3" PVC
4 #400 MCM
THHN AL

METER STACK

800/3

800 KTU

800 AMP BUS

TAP BOX
MODULE

1 1/4" EMT
3 #4
THHN CU

APT

TYPICAL FOR
ALL 8 UNITS

TYPICAL FOR
MAIN LEVEL
RETAIL SPACES

TP1

2" EMT
4 #3/0
THHN CU

TYPICAL FOR
SECOND LEVEL
RETAIL SPACES

TP

1 1/4" EMT
4 #4
THHN CU

SPARE

CURRENT
TRANSFORMERS

2-2" EMT
4 #3/0
THHN CU

HP

400 AMP
HOUSE PANEL

NOTE: PROVIDE A #2/0 GROUNDING ELECTRODE CONDUCTOR TO THE WATER MAIN, BUILDING STEEL, AND THE FOUNDATION STEEL. PROVIDE A #6 GROUNDING ELECTRODE CONDUCTOR TO A 5/8" X 10' DRIVEN ROD.
1. CONCRETE FILLED PIPE BOLLARD.
2. SIZE PER EQUIPMENT MANUFACTURER.
3. SECONDARY COMPARTMENT – SIZE PER EQUIPMENT MANUFACTURER.
4. TRANSFORMER ENCLOSURE.
5. CONCRETE PAD WITH 45° BEVEL.
6. GRAVEL COMPACTED SUB-BASE.
7. 6" X 6" WELDED WIRE FABRIC (W2.9 X W2.9).
8. FINISH GRADE.
9. CONDUIT – SIZE AND FEEDER SIZE PER UTILITY COMPANY.

TRANSFORMER PAD

1/2" = 1'-0"

16A-3002
1. CONCRETE FILLED PIPE BOLLARD.
2. SIZE PER EQUIPMENT MANUFACTURER.
3. SECONDARY COMPARTMENT - SIZE PER EQUIPMENT MANUFACTURER.
4. TRANSFORMER ENCLOSURE.
5. CONCRETE PAD WITH 45° BEVEL.
6. GRAVEL COMPACTED SUB-BASE.
7. 6” X 6” WELDED WIRE FABRIC (W2.9 X W2.9).
8. FINISH GRADE.
9. CONDUIT - SIZE AND FEEDER SIZE PER UTILITY COMPANY.

TRANSFORMER PAD

1/2” = 1’-0”

16A-3002
1. SECONDARY COMPARTMENT ENTRY.
2. TRANSFORMER PAD.
3. (1) #1/0 AWG COPPER CONNECT TO TRANSFORMER NEUTRAL.
4. (1) #2 AWG COPPER CONNECT TO PRIMARY DUCT GROUND.
5. PRIMARY COMPARTMENT ENTRY.
6. #4 AWG COPPER BOND TO ENCLOSURE.

GROUNDING AT THE PAD MOUNTED TRANSFORMER

N.T.S. 16A-3003
1. SECONDARY COMPARTMENT ENTRY.
2. TRANSFORMER PAD.
3. (1) #1/0 AWG COPPER CONNECT TO TRANSFORMER NEUTRAL.
4. (1) #2 AWG COPPER CONNECT TO PRIMARY DUCT GROUND.
5. PRIMARY COMPARTMENT ENTRY.
6. #4 AWG COPPER BOND TO ENCLOSURE.

GROUNDING AT THE PAD MOUNTED TRANSFORMER

N.T.S. 16A-3003
HEAVY WALL STEEL PIPE (CLASS 1 – TYPE A)

THREADED

CIRCUMFERENTIAL WELD

GRIND OFF 3/4” COATING BEFORE WELDING. PAINT AFTER WELDING.

WELDED CONDUIT COUPLING

N.T.S.
SLOPED ROOF
AIR TERMINAL
N.T.S.
AIR TERMINAL & FLAT SURFACE MOUNTING BASE ASSEMBLED

N.T.S.
THRU ROOF FLASHING.

SEE NOTE 10.

METAL DECK --

AIR TERMINAL DETAIL

2. SEE S-PLATES FOR EXACT SIZE AND LOCATION OF STRUCTURAL FOOTINGS.

3. STRUCTURAL FRAMEWORK SHALL BE MADE ELECTRICALLY CONTINUOUS BY WELDING.

4. ALL SPLICES BELOW GROUND SHALL BE THE EXOTHERMIC WELD TYPE.

5. AIR TERMINALS SHALL EXTEND NO LESS THAN 24 INCHES ABOVE THE ROOF PARAPET.

6. CONNECT AIR TERMINAL TO THE STRUCTURAL STEEL WITH AN EXOTHERMIC WELDING PROCEDURE. DRAIN STRIPS SHALL BE FITTED WITH A TINNED COPPER CONDUIT AS SHOWN.

7. CONNECT AIR TERMINAL TO THE TOP OF THE STRUCTURAL FRAMEWORK TO FACILITATE LIGHTNING MOUNDING.

8. GROUNDING BUS CAN BE PROVIDE TO THE BOTTOM OF THE STRUCTURAL FRAMEWORK TO BE CONNECTED TO THE MAIN GROUND CONDUIT AS SHOWN.

9. ALL METAL EQUIPMENT ON THE ROOF SHALL BE BONDED TO THE LIGHTNING PROTECTION SYSTEM.

10. TIE ALL PIPE PLANTERS, DUCTS, WALKWAYS, RAIN DOWNSPOUTS, VENTS, BRICK CHIMNEYS, MASONRY WALLS, AND OTHER STRUCTURAL ELEMENTS TO THE LIGHTNING PROTECTION SYSTEM. A BONDING CLIP SHALL BE FITTED OVER THE TALL MOP KILLER.
AIR TERMINAL

ROOF RIDGE

ROOFING AND INSULATION

ROOF DECKING

VERTICAL CONNECTOR

AIR TERMINAL

N.T.S.

2'-0" MIN.

ROOF PURLIN

EXOTHERMIC WELD

Samples from www.AutoCADDetails.net
AIR TERMINAL (BRACED PER SPECS.)

LOCK NUTS OR COUPLING

METAL DECK

BAR JOIST

ROOF RIDGE

ROOF PENETRATION SHALL MEET ROOF SPECIFICATION

BONDING CONDUCTOR W/APPROVED TYPE END CONNECTORS

TYPICAL MOUNTING OF TERMINALS ON ROOF RIDGE

N.T.S.
GROUNDING DETAIL

N.T.S.
NOTES:
1. CABLES WILL BE EXOTHERMICALLY WELDED TO THE COPPER PLATE.
2. MINIMUM DIMENSIONS BETWEEN EXOTHERMIC WELDS ARE:
   1 3/4" FOR 4/0 AND SMALLER

GROUNDING PLATE DETAIL
N.T.S.
NOTE:
GROUND ALL COLUMNS
TO GROUND RING.

SWBD L AND MDPH

STEEL COLUMN

SLAB

FOOTING

FOOTING REINF.

SLAB REINF.

N.G

SYSTEM GROUND DETAIL
N.T.S.
NOTES:

1. ALL WIRES TO BE NEATLY LACED.

2. AT THE POINT OF ATTACHMENT OF THE GROUNDING LUG TO THE CABINET, THE SURFACES SHALL BE SCRAPED FREE OF PAINT AND THOROUGHLY CLEANED TO INSURE PROPER BONDING.

3. NEUTRAL CONDUCTOR NOT SHOWN FOR CLARITY.

TYPICAL PANEL GROUNDING

N.T.S.
COLUMN GROUNDING DETAIL
N.T.S.
BONDING PLATE, MINIMUM CONTACT 8 SQUARE INCHES

STRUCTURAL STEEL COLUMN

TO GROUND

BONDING PLATE DETAIL N.T.S.
TOP VIEW (COVER REMOVED)

SECTION A-A

MATERIAL LIST

1. GROUND ROD
2. GROUND CLAMP
3. GROUNDING CONDUCTOR #1/0 COPPER
4. POLYMER CONCRETE FIBERGLASS REINFORCED BOX
5. COVER FOR ABOVE BOX
6. GRAVEL OR CRUSHED STONE

GROUND ROD INSTALLATION DETAIL

N.T.S.
GROUND COUNTERPOISE

EXOTHERMIC WELD
#2 CU

SLAB
1" PVC SLEEVE

GROUND COUNTERPOISE

FRONT VIEW

3/8 BRASS BOLT

WALL
INSULATOR
3/8" STUD

TOP VIEW

GROUND BAR DETAIL
N.T.S.
GROUND RECEPTACLE SET IN FLOOR

PAINT YELLOW

PAINT RED

PAINT THE WORD "GROUND" IN 1" BLACK LETTERS AND THE DATE TESTED IN 1/2" BLACK LETTERS

PLAN

2-3/4" DIA.

FINISHED HANGAR FLOOR OR APRON PAVEMENT

#10 BRASS BALL CHAIN

3/4" PIPE OR ROD FOR HANGARS. 3/4" COPPER-WELD GROUND ROD FOR HYDRANT REFUELING

3/4" N.C. THREAD

INSTALL BELOW CONCRETE SLAB. EXOTHERMIC BONDING.

GROUNDING CABLE:

#4 FOR HANGARS.

#1/0 FOR HYDRANT REFUELING.

IN HANGARS, MAX. RESISTANCE TO GROUND SHALL BE 25 OHMS FROM ANY GROUND ROD

CAST BRONZE HOUSING

CAST BRONZE COVER, FRICTION FIT

BRASS PIN

2-7/8"

2'-0" MIN. FOR HANGARS

8" MIN. FOR HYDRANT REFUELING SYSTEM

ELEVATION

STATIC GROUNDING RECEPTACLE DETAIL

N.T.S.
2-3/8” TENON W/PROVISION FOR WIRING, COORDINATE W/POLE AND LUMINAIRE.

FIBERGLASS POLE WITH ULTRAVIOLET INHIBITOR AND A URETHANE SMOOTH FINISH. COLOR AS INDICATED.

WIRING HANDHOLE MINIMUM 2-1/2”X5” (CLEAR OPENING), WITH COVER AND STAINLESS STEEL SCREWS

TERMINATE CONDUITS INTERNALLY, ADJACENT TO HANDHOLE

SLOPE TO SURROUNDING FINISHED GRADE

COMPACTED CLAY BACKFILL

MIN. 3”X 5” CONDUIT OR CABLE ENTRANCE – 2 EACH AT 180°.

BACKFILL FINE CRUSHED STONE AND PORTLAND CEMENT (8-1) DRY MIX COMPACTED IN ONE FOOT MAX. LIFTS

COARSE GRAVEL SETTING BED

NOTES 1. PROVIDE ANTI-ROTATIONAL DEVICE ON EACH POLE.
2. COORDINATE TOTAL EPA. WITH POLE SPECIFICATIONS.

FIBERGLASS POLE DIRECT SET TENON MOUNT

STYLE
XL-20

<table>
<thead>
<tr>
<th>POLE TYPE</th>
<th>DIMENSIONS (FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL-20 A</td>
<td>&quot;U&quot; 14 &quot;V&quot; 10 &quot;W&quot; 2 &quot;X&quot; 2 &quot;Y&quot; 4 &quot;Z&quot; 3.5</td>
</tr>
<tr>
<td>XL-20 B</td>
<td>&quot;U&quot; 20 &quot;V&quot; 16 &quot;W&quot; 2 &quot;X&quot; 2 &quot;Y&quot; 4 &quot;Z&quot; 3.5</td>
</tr>
<tr>
<td>XL-20 C</td>
<td>&quot;U&quot; 25 &quot;V&quot; 20 &quot;W&quot; 2 &quot;X&quot; 2 &quot;Y&quot; 5 &quot;Z&quot; 4.5</td>
</tr>
<tr>
<td>XL-20 D</td>
<td>&quot;U&quot; 30 &quot;V&quot; 25 &quot;W&quot; 2 &quot;X&quot; 2 &quot;Y&quot; 5 &quot;Z&quot; 4.5</td>
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<tr>
<td>XL-20 E</td>
<td>&quot;U&quot; 35 &quot;V&quot; 30 &quot;W&quot; 2 &quot;X&quot; 2 &quot;Y&quot; 5 &quot;Z&quot; 4.5</td>
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<tr>
<td>XL-20 F</td>
<td>&quot;U&quot; 40 &quot;V&quot; 33 &quot;W&quot; 2 &quot;X&quot; 2 &quot;Y&quot; 7 &quot;Z&quot; 6.5</td>
</tr>
<tr>
<td>XL-20 G</td>
<td>&quot;U&quot; 45 &quot;V&quot; 38 &quot;W&quot; 2 &quot;X&quot; 2 &quot;Y&quot; 7 &quot;Z&quot; 6.5</td>
</tr>
</tbody>
</table>
COORDINATE WIRING HOLE AND BOLT HOLES W/MAST ARM PROVIDED.

FIBERGLASS POLE WITH ULTRAVIOLET INHIBITOR AND A URETHANE SMOOTH FINISH. COLOR AS INDICATED.

WIRING HANDHOLE MINIMUM 2-1/2”X5” (CLEAR OPENING), WITH COVER AND STAINLESS STEEL SCREWS

TERMINATE CONDUITS INTERNALLY, ADJACENT TO HANDHOLE

SLOPE TO SURROUNDING FINISHED GRADE

COMPACTED CLAY BACKFILL

MIN. 3”X 5” CONDUIT OR CABLE ENTRANCE – 2 EACH AT 180°

BACKFILL FINE CRUSHED STONE AND PORTLAND CEMENT (8-1) DRY MIX COMPACTED IN ONE FOOT MAX. LIFTS

COARSE GRAVEL SETTING BED

NOTES: 1. PROVIDE ANTI-ROTATIONAL DEVICE ON EACH POLE.
     2. COORDINATE TOTAL EPA. WITH POLE SPECIFICATIONS.

FIBERGLASS POLE
DIRECT SET MAST ARM MOUNT

STYLE
XL-21
2-3/8" TENON W/PROVISION FOR WIRING, COORDINATE W/POLE AND LUMINAIRE.

TAPERED ROUND CONCRETE POLE NATURAL CONCRETE FINISH.

WIRING HANDHOLE MINIMUM 2-1/2"X5" (CLEAR OPENING), WITH STEEL COVER AND SCREWS

TERMINE CONDUITS INTERNALLY, ADJACENT TO HANDHOLE

SLOPE TO SURROUNDING FINISHED GRADE

COMPACTED CLAY BACKFILL

MIN. 3" X 5" CONDUIT OR CABLE ENTRANCE - 2 EACH AT 180.

BACKFILL FINE CRUSHED STONE AND PORTLAND CEMENT (8-1) DRY MIX COMPACTED IN ONE FOOT MAX. LIFTS

COARSE GRAVEL SETTING BED

NOTES:
1. PROVIDE ANTI-ROTATIONAL DEVICE ON EACH POLE.
2. COORDINATE TOTAL EPA. WITH POLE SPECIFICATIONS.

CONCRETE POLE DIRECT SET TENON MOUNT

STYLE XL-22
**Tapered Round Concrete Pole**

Natural Concrete Finish.

**Wiring Handhole**

Minimum 2-1/2”x5” (Clear Opening), with Steel Cover and Screws.

**Coordinate Wiring Hole and Bolt Holes w/Mast Arm Provided.**

**Removable Cap**

**Coordinate Total EPA.**

With Pole Specifications.

**Concrete Pole**

Direct Set Mast Arm Mount Style: XL-23

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**POLE TYPE**

<table>
<thead>
<tr>
<th>Dimensions (FT)</th>
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</thead>
<tbody>
<tr>
<td>&quot;U&quot;</td>
</tr>
<tr>
<td>XL-23 A</td>
</tr>
<tr>
<td>XL-23 B</td>
</tr>
<tr>
<td>XL-23 C</td>
</tr>
<tr>
<td>XL-23 D</td>
</tr>
<tr>
<td>XL-23 E</td>
</tr>
<tr>
<td>XL-23 F</td>
</tr>
<tr>
<td>XL-23 G</td>
</tr>
</tbody>
</table>

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**Notes:**

1. Provide anti-rotational device on each pole.

2. Coordinate Total EPA. with pole specifications.
TAPERED STEEL POLE, GALVANIZED STEEL, EXCEPT AS INDICATED.

WIRING HANDHOLE MINIMUM 2-1/2"X5" (CLEAR OPENING), WITH COVER AND STAINLESS STEEL SCREWS.

PROVIDE INTERNAL GROUNDING LUG.

TERMINATE CONDUITS INTERNALLY, ADJACENT TO HANDHOLE.

SLOPE TO SURROUNDING FINISHED GRADE.

COMPACTED CLAY BACKFILL.

MIN. 3"X5" CONDUIT OR CABLE ENTRANCE - 2 EACH AT 180°.

BACKFILL FINE CRUSHED STONE AND PORTLAND CEMENT (8-1) DRY MIX COMPACTED IN ONE FOOT MAX. LIFTS.

NOTES:
1. PROVIDE ANTI-ROTATIONAL DEVICE ON EACH POLE.
2. COORDINATE TOTAL EPA. WITH POLE SPECIFICATIONS.
3. PROVIDE POLE VIBRATION DAMPER ON INTERIOR OF ALL POLES 20 FT. AND LONGER.
4. SECTIONAL WELDABLE POLES OF EQUAL STRENGTH ARE ACCEPTABLE.

STEEL POLE
DIRECT SET TENON MOUNT

STYLE XL-24
COORDINATE WIRING HOLE AND BOLT HOLES W/MAST ARM PROVIDED.

TAPERED STEEL POLE, GALVANIZED STEEL, EXCEPT AS INDICATED.

WIRING HANDHOLE MINIMUM 2-1/2"X5" (CLEAR OPENING), WITH COVER AND STAINLESS STEEL SCREWS

PROVIDE INTERNAL GROUNDING LUG.

TERMINATE CONDUITS INTERNALLY, ADJACENT TO HANDHOLE.

SLOPE TO SURROUNDING FINISHED GRADE.

COMPACTED CLAY BACKFILL

MIN. 3"X5" CONDUIT OR CABLE ENTRANCE - 2 EACH AT 180°.

BACKFILL FINE CRUSHED STONE AND PORTLAND CEMENT (8-1) DRY MIX COMPACTED IN ONE FOOT MAX. LIFTS

COARSE GRAVEL SETTING BED

STEEL POLE DIRECT SET MAST ARM MOUNT STYLE XL-25

### POLE DIMENSIONS (FT.)

<table>
<thead>
<tr>
<th>POLE TYPE</th>
<th>&quot;U&quot;</th>
<th>&quot;V&quot;</th>
<th>&quot;W&quot;</th>
<th>&quot;X&quot;</th>
<th>&quot;Y&quot;</th>
<th>&quot;Z&quot;</th>
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<tbody>
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<td>XL-25 A</td>
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<td>10</td>
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<td>2</td>
<td>4</td>
<td>3.5</td>
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<td>4.5</td>
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<tr>
<td>XL-25 D</td>
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<td>25</td>
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<td>5</td>
<td>4.5</td>
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<tr>
<td>XL-25 E</td>
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<td>38</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>6.5</td>
</tr>
</tbody>
</table>

NOTES:
1. PROVIDE ANTI-ROTATIONAL DEVICE ON EACH POLE.
2. COORDINATE TOTAL EPA. WITH POLE SPECIFICATIONS.
3. PROVIDE POLE VIBRATION DAMPER ON INTERIOR OF ALLpoles 20 FT. AND LONGER.
4. SECTIONAL WELDABLE POLES OF EQUAL STRENGTH ARE ACCEPTABLE.