Contact Information:
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Standard Plans:
Index Number: 649-020
Sheet Number (s): All Sheets
Index Title: Steel CCTV Pole

Summary of the changes:
Sheet 1: Added Note 3 to the General Notes to stay consistent with 641-020; Added Note D and E to new Note 6; Added the Cabinet Adapter Bracket and dashed the handhole in the STEEL CCTV POLE ASSEMBLY detail.
Sheet 2: Updated the Assembly detail to match Sheet 1; Dashed the handhole in the ELEVATION detail.
Sheet 3: Updated the Assembly detail to match Sheet 1.
Sheet 4: Updated the Assembly detail to match Sheet 1.
Sheet 5: Updated the Assembly detail to match Sheet 1.
Sheet 6: Dashed the handhole in the CONCRETE CCTV POLE GROUNDING detail and added the handhole to DETAIL "E"-SIDE VIEW detail.

Commentary / Background:
The handhole should be located downstream of the traffic so all details and notes will be updated for the proper representation. Also added notes to make Index consistent with Standard Plans Index 641-020.

Other Affected Offices / Documents: (Provide name of person contacted)

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<thead>
<tr>
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Other Standard Plans – 641-020 Rick Jenkins

FDOT Design Manual –
Basis of Estimates Manual –
Standard Specifications –
Approved Product List –
Construction –
Maintenance –

Origination Package Includes:
(Email or hand deliver package to Rick Jenkins)

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Redline Mark-ups
Proposed Standard Plan Instruction (SPI)
Revised SPI
Other Support Documents

Implementation:

<table>
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<th>Design Bulletin (Interim)</th>
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<tr>
<td>DCE Memo</td>
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<tr>
<td>Program Mgmt. Bulletin</td>
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<td>FY-Standard Plans (Next Release)</td>
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Contact the Roadway Design Office for assistance in completing this form.
GENERAL NOTES:

1. Work this Index with Specification 649.

2. This Index is fully detailed; only submit shop drawings for minor modifications not detailed in the Plans.

3. Added New Note 3:
See Index 635-001 for additional details for Pull Boxes.

4. Added Note New D:
Install Pole with the handhole located away from approaching traffic.

5. Added Note E:
Install the Pole plumb.

6. Change: Cabinet Adapter Bracket

- A. Weld: ASTM A1011 Grade 50, 55, 60 or 65 (less than 3 ksi) or ASTM A572 Grade 50, 60 or 65 (greater than or equal to 3 ksi) or ASTM A516 Grade 5 (50 ksi yield) or Grade B (60 ksi yield).

- B. Steel Plates and Pole Cap: ASTM A53 or ASTM A36.

- C. Weld Metal: E70XX.

- D. Bolts: ASTM F3125, Grade A325, Type 1.

- E. Anchor Bolts: ASTM F1554 Grade 55 with ASTM A563 Grade A heavy-hex nuts.

- F. Handhole Frame: ASTM A109 Grade 36 or ASTM A36.

- G. Handhole Cover: ASTM A1011 Grade 50, 60 or 65.

- H. Stainless Steel Screws: AISI Type 316.

- I. Reinforcing Steel: ASTM A615 Grade 60.

- J. Galvanization: Bolts, nuts and washers: ASTM F2329 All other steel including plate washer: ASTM A123.

- K. Concrete: Class IV (Drilled Shaft) for all environment classifications.

- Added Note New C:
See Index 635-001 for additional details for Pull Boxes.

- Added Note New D:
Install Pole with the handhole located away from approaching traffic.

- Added Note E:
Install the Pole plumb.

- Change: Cabinet Adapter Bracket

Fabrication:

1. Welding:
   a. Specification 660-6.4 and

2. Bolts:
   a. Round or 16-sided (Min.)
   b. Taper pole diameter at 0.14 inches per foot
   c. Fabricate Pole longitudinal seam welds (if maximum) with 60 percent minimum penetration or fusion welds except as follows:
      1. Use a full-penetration groove weld within 6 inches of the circumferential tube-to-plate connection and
      2. Use full-penetration groove welds on the female end section of telescopic (i.e., slip type) field splices for a minimum length of one and one-half times the inside diameter of the female section plus 6 inches.
   d. Pole shaft may be either one or two sections (with telescopic female splices)
   e. Circumferentially welded pole shafts and laminated pole shafts are not permitted

3. Identification Tag:
   a. 2" x 4" (Min.) stainless steel tag
   b. Locate on the inside of the pole and visible from the handhole
   c. Secure with 1/4" diameter stainless steel rivets or screws
   d. Include the following information on the ID Tag:
      1. Financial Project ID
      2. Pole Type
      3. Pole Height
      4. Manufacturers Name
      5. Yield Strength (Fy of Steel)
      6. Base Wall Thickness
   e. Except for Anchor Bolts, bolt hole diameters are bolt diameter plus 1/4" and anchor bolt holes are bolt diameter plus 1/2" (Max) prior to galvanizing.

Pole Installation:

4. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1/2" in diameter.

5. Install Anchor Bolts in accordance with Specification 649-5

6. Cables Supports: Electrical Cable Guides and Eyebolts.
   a. Locate cap and bottom cable guides within the pole aligned with each other.
   b. Position one cable guide 2" below the handhole.
   c. Position another cable guide 1" directly below the top of the tenon.

7. Position Park Stands 2" below the top of the handhole.

8. Splice fiber optic cables in cabinet to preterminated patch panel.

9. Furnish and install Surge Protection Devices (SPDs) on all patch panel.

10. Furnish and install secondary SPDs protection on outlets for equipment in cabinet.

11. Ensure that all electronic equipment power is protected and conditioned with SPDs.

12. Ensure that equipment cabinet is bonded to CCTV pole grounding system.

13. Install the pole mounted cabinet with the hinges next to the pole.

14. Site and types of conduits and inner ducts for network communications between the pullbox and cabinet are stated in the Contract Documents.

Lowering Device Installation:

15. Place the lowering cable that moves within the pole in an interior conduit to prevent it from tangling or interfering with any electrical wire that is in the pole. Ensure that any electrical wire within the pole is routed securely and free from slack.

16. Mount lowering device perpendicular to the roadway or as shown in the plans. Position CCTV pole so that the camera can be safely lowered without requiring lane closures.

17. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting plates, parking stands, etc.) with lowering device manufacturer.
Updated Detail to match Sheet 1

**HANDHOLE DETAIL**

Handhole Ring

Handhole Frame

Handhole Cover Plate

**NOTE:**
To secure the cover plate, install a steel chain from the cover to the pole or by mounting the cover with hinges and install a pad lock tab.

**CABLE GUIDE DETAIL**

Eye Bolt Option

Rod Option

**PARK STAND DETAILS**

1/2" Ø Rod with 1" Inner Ø

1/2" Ø Eye Bolt with 1" Inner Ø

1/2" Ø Eye Bolt To Allow 1/2" Legs similar to Cable Guide Detail

Wall Thickness

1/2" Ø Hole

1 1/2" x 1 1/2" Plate

1/4" Rod With 1/2" Inner Ø

1/4" Rod With 1/2" Inner Ø
Updated Detail to match Sheet 1

**ASSEMBLY**

**Pole Top Or Tenon**

**ELEVATION**

Pole Tip O.D. + 1/8

8 - 1/16" Ø Holes Equally Spaced

1" Plate

**PLAN VIEW**

1" Hole

9/16" Ø Holes Equally Spaced

8 - 3/8" X 3 1/2" Bolts With Double Nuts and Washers

2' Ø Hole With Nipple Grommet

**ELEVATION**

Pole Top Plate

**PLAN VIEW**

Pole Top Plate

Cap Plate 9/16" Thick

4 - 1/16" Ø Holes Equally Spaced

**ELEVATION**

Pole Top Plate

Cap Plate 9/16" Thick

**ELEVATION**

Pole Top Plate

**TENON CAP**

**TENON COVER**

**POLE TOP DETAIL**

**CABLE GUIDE**

Tenon Wall

5/16" Ø Center Hole

1/2" Ø Hole (Typ.)

12 - 1/8" X 3" Slits Equally Spaced

**PLAN VIEW**

Tenon Cap 9/16" Thick Plate

**PLAN VIEW**

Tenon Cap

Cable Guide

Tenon 6" O.D. x 9/16" Wall X 12" Min Long

1/2" Ø Hole (Typ.)

4 - 3/8" X 3 1/2" Bolts With Double Nuts and Washers

**ELEVATION**

Pole Tip O.D. + 10/12 /20 20 8

2 1/16" Hole With Nipple Grommet

10/01/21

11/01/21

Updated Detail to match Sheet 1
GENERAL NOTES:
1. Work this Index with Specification 649.
2. This Index is considered fully detailed; only submit shop drawings for minor modifications not detailed in the Plans.
3. See Index 635-001 for additional details for Pull Boxes.

4. Materials:
A. Pole: ASTM A1011 Grade 50, 55, 60 or 65 (less than 12") or ASTM A572 Grade 50, 60 or 65 (greater than or equal to 12") or ASTM A595 Grade A (56 ksi yield) or Grade B (60 ksi yield).
B. Steel Plates and Pole Cap: ASTM A36 or ASTM A588 Grade 50.
C. Weld Metal: E70XX.
E. Anchor Bolts: ASTM F555 Grade 55 with ASTM A563 Grade A heavy-hex nuts and ASTM A36 plate washers.
F. Handhole Frame: ASTM A369 Grade 36 or ASTM A36.
G. Handhole Cover: ASTM A1011 Grade 50, 55, 60 or 65.
H. Stainless Steel Screws: AISI Type 316.
I. Reinforcing Steel: ASTM A615 Grade 60.
J. Galvanization: Bolts, nuts and washers: ASTM F4329 All other steel including plate washer: ASTM A123
K. Concrete: Class IV (Drilled Shaft) for all environment classifications.

5. Fabrication:
A. Welding:
   b. Round or 16-sided (Min.)
   c. Fabricate Pole longitudinal seam welds (2 maximum) with 60 percent minimum penetration or fusion welds except as follows:
      i. Use a full-penetration groove weld within 6 inches of the circumferential tube-to-plate connection and use full-penetration groove welds on the female end section of telescopic (i.e., slip type) field splices for a minimum length of one and one-half times the inside diameter of the female section plus 6 inches.
   d. Pole may be either one or two sections (with telescopic field splices)
   e. Circumferentially welded pole shafts and laminated pole shafts are not permitted.
   f. Identification Tag: (Submit details for approval)
      1. A 2” x 4” (Max) aluminum tag
      2. Locate on the inside of the pole and visible from the handhole
      3. Secure with 1/8” diameter stainless steel rivets or screws.
   g. Include the following information on the ID Tag:
      i. Financial Project ID
      ii. Pole Type
      iii. Pole Height
      iv. Yield Strength (Fy of Steel)
      v. Base Wall Thickness
D. Except for Anchor Bolts, bolt hole diameters are bolt diameter plus 1/16” and anchor bolt holes are bolt diameter plus 1/16” (Max) prior to galvanizing.

6. Pole Installation:
A. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1½” in diameter.
B. Install Anchor Bolts in accordance with Specification 649.
C. Cable Supports: Electrical Cable Guides and Eyebolts.
   a. Locate top and bottom cable guides within the pole aligned with each other.
   b. Position one cable guide 2” below the handhole.
   c. Position other cable guide 1” directly below the top of the tenon.
   d. Position the pole plumb.
   e. Install the pole mounted cabinet with the hinges next to the pole.

F. Install the pole mounted cabinet with the hinges next to the pole.

7. Cabinet Installation:
A. Splice fiber optic cables in cabinet to preterminated patch panel.
B. Furnish and install Surge Protection Devices (SPDs) on all cabling in cabinet.
C. Furnish and install secondary SPDs protection on outlets for equipment in cabinet.
D. Ensure that all electronic equipment power is protected and conditioned with SPDs.
E. Install the pole mounted cabinet with the hinges next to the pole.
F. Sizes and types of conduits and inner ducts for network communications between the pull box and cabinet are stated in the Contract Documents.

8. Lowering Device Installation:
A. Place the lowering cable that moves within the pole in an interior conduit to prevent it from tangling or interfering with any electrical wire that is in the pole. Ensure that any electrical wire within the pole is routed securely and free from slack.
B. Mount lowering device perpendicular to the roadway or as shown in the plans. Position CCTV pole so that the camera can be safely lowered without requiring lane closures.
C. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting plates, parking stands, etc.) with lowering device manufacturer.
**STANDARD PLANS**

**STEEL CCTV POLE**

**DESCRIPTION:**

Air Terminal (See Sheet 6)

Camera Lowering Device

Done Type CCTV Camera

5/8" Min. Inside Diameter of Pole Raceway

Fixed Mounting Bracket

Done Type CCTV Camera

2" Hole With Nipple Grommet (See Sheet 5)

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**SHAFT DESIGN TABLE**

<table>
<thead>
<tr>
<th>Pole Overall Height (ft)</th>
<th>Shaft Diameter</th>
<th>Shaft Length</th>
<th>Longitudinal Reinforcement</th>
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<tr>
<td>50</td>
<td>6'-0&quot;</td>
<td>11'-0&quot;</td>
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<td>55</td>
<td>6'-0&quot;</td>
<td>12'-0&quot;</td>
<td>(16) #11</td>
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<tr>
<td>60</td>
<td>6'-6&quot;</td>
<td>13'-0&quot;</td>
<td>(16) #11</td>
</tr>
<tr>
<td>65</td>
<td>6'-6&quot;</td>
<td>13'-0&quot;</td>
<td>(16) #11</td>
</tr>
<tr>
<td>70</td>
<td>5'-0&quot;</td>
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<td>(18) #11</td>
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**ADDITIONAL SHAFT DEPTH DUE TO GROUND SLOPE**

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<th>Ground Slope</th>
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<tr>
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**BASE PLATE AND ANCHOR BOLT DESIGN TABLE**

<table>
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<tr>
<th>Pole Overall Height (ft)</th>
<th>Base Plate Diameter (in.)</th>
<th>Anchor Bolt Diameter (in.)</th>
<th>Anchor Bolt Embedment (in.)</th>
<th>Minimum Anchor Bolt Projection (in.)</th>
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<td>1.5</td>
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<tr>
<td>70</td>
<td>4</td>
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**POLE DESIGN TABLE**

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<th>Pole Overall Height (ft)</th>
<th>Section 1 Length</th>
<th>Section 2 Thickness</th>
<th>Joint</th>
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<td>70</td>
<td>38'-0&quot;</td>
<td>0.25</td>
<td>22</td>
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**FOUNDATION NOTES:**

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Shaft Design Table Shaft Length is based on level ground (flatter than 1:5). Increase the shaft depth in accordance with the Additional Shaft Depth Due To Ground Slope table for foundations with slopes 1:5 and steeper. Use the higher value for slope or diameter values that fall between those shown in the table.

**BASE PLATE AND ANCHOR BOLT DESIGN TABLE**

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<td>70</td>
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<td>0.25</td>
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</tbody>
</table>
NOTES:
1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double Nuts: Bottom nut may be half-height (flat nut). Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Work these details with Data Table on Sheet 2.

SECTION A-A

SECTION B-B

DETAIL "A"

BASE PLATE

JOINT WELD DETAIL

ELEVATION

PLAN

FOUNDATION

ASSEMBLY

NOTES:

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double Nuts: Bottom nut may be half-height (flat nut). Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Work these details with Data Table on Sheet 2.

SECTION A-A

SECTION B-B

DETAIL "A"

BASE PLATE

JOINT WELD DETAIL

ELEVATION

PLAN

FOUNDATION

ASSEMBLY

NOTES:

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double Nuts: Bottom nut may be half-height (flat nut). Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Work these details with Data Table on Sheet 2.

SECTION A-A

SECTION B-B

DETAIL "A"

BASE PLATE

JOINT WELD DETAIL

ELEVATION

PLAN

FOUNDATION

ASSEMBLY

NOTES:

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double Nuts: Bottom nut may be half-height (flat nut). Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Work these details with Data Table on Sheet 2.

SECTION A-A

SECTION B-B

DETAIL "A"

BASE PLATE

JOINT WELD DETAIL

ELEVATION

PLAN

FOUNDATION

ASSEMBLY

NOTES:

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double Nuts: Bottom nut may be half-height (flat nut). Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Work these details with Data Table on Sheet 2.

SECTION A-A

SECTION B-B

DETAIL "A"

BASE PLATE

JOINT WELD DETAIL

ELEVATION

PLAN

FOUNDATION

ASSEMBLY

NOTES:

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double Nuts: Bottom nut may be half-height (flat nut). Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Work these details with Data Table on Sheet 2.

SECTION A-A

SECTION B-B

DETAIL "A"

BASE PLATE

JOINT WELD DETAIL

ELEVATION

PLAN

FOUNDATION

ASSEMBLY

NOTES:

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double Nuts: Bottom nut may be half-height (flat nut). Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Work these details with Data Table on Sheet 2.

SECTION A-A

SECTION B-B

DETAIL "A"

BASE PLATE

JOINT WELD DETAIL

ELEVATION

PLAN

FOUNDATION

ASSEMBLY

NOTES:

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double Nuts: Bottom nut may be half-height (flat nut). Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Work these details with Data Table on Sheet 2.
**ASSEMBLY**

- Edge of Base Plate
- Center of Drilled Shaft, Base Plate and Pole
- Anchor Bolts (Typ.)
- Handhole (See Note)
- Handhole Cover Plate

**PLAN**

- Handhole
- Handhole Ring
- Anchor Bolt
- Base Plate
- Wire Screen (See Spec. 649)
- Foundation
- Finished Grade

**ELEVATION**

- CCTV Pole
- Anchor Bolt
- Base Plate
- Wall Thickness
- Hole in Handhole
- Identification Tag (See Pole Notes)
- Handhole Frame
- 1/2" Ø Drill and Tap
- Hole in Handhole
- Rim: Supplied with 1/2" X 3" Bolt
- 2-Cable Guides
- For Wire Tie Off

**SECTION C-C**

- Working Park Stand
- Identification Tag (See Pole Notes)
- Park Stand
- Cover Clip
- Tack Weld
- 1/2" Ø Stainless Steel Head Screw (Typ.)
- 1/2" Ø Hole in Handhole (Typ.)
- 1/2" Ø Stainless Steel Head Screw (Typ.)
- Full Penetration Weld

**COVER PLATE**

- 1/2" Thick Handhole Cover
- 1/2" Thick Handhole Cover (See Note)

**NOTE:**

To secure the cover plate, install a steel chain from the cover to the pole or by mounting the cover with hinges and install a pad lock tab.

**HANDHOLE DETAIL**

- 1/2" Ø Eye Bolt with 1" Inner Ø
- Wall Thickness
- 1" Ø Hole
- 1/2" Rod with 1" Inner Ø
- Bend Rod to Allow 1/2" Legs similar to Cable Guide Detail

**PARK STAND DETAILS**

- Working Park Stand
- Identification Tag (See Pole Notes)
- Park Stand
- Cover Clip
- Tack Weld
- 1/2" Ø Stainless Steel Head Screw (Typ.)
- 1/2" Ø Hole in Handhole (Typ.)
- 1/2" Ø Stainless Steel Head Screw (Typ.)
- Full Penetration Weld

**CABLE GUIDE DETAIL**

- 1/2" Ø Rod with 1" Inner Ø
- Wall Thickness
- 1" Ø Hole
- 1/2" Rod with 1" Inner Ø
- Bend Rod to Allow 1/2" Legs similar to Cable Guide Detail
**Ground Rod Array Placement**

**Detail "D"**

- Ground Rods are required 20' apart and 40' spacing.
- Primary Ground Rod A, B, C, and D are required as shown.

**Pole Mounted CCTV Cabinet Configuration Shown**

- Composite Camera Cable is used.
- Steel CCTV Pole Grounding is required.

**CCTV Pole (as Shown in the Plans)**
- 2½ x 20' Copper-Clad Steel Ground Rod is used.
- Composite Camera Cable is used.

**Simplified Diagram**

- Finished Grade, Ground Rods, Pull Box, and CCTV Pole are shown.
- Composite Camera Cable is run to the cabinet.
- Fiber Optic Communications Conduits are shown.

**Ground Rods**

- #2 ARG Ground Wire, Ground Rod C, Ground Rod D, and Ground Rod B are used.
- Steel Ground Rods are required.
- Composite Camera Cable is run to the cabinet.

**Ground Mounted Cabinet Configuration Shown**

- Primary Ground Rod A, B, C, and D are required as shown.
- Composite Camera Cable is run to the cabinet.
- Fiber Optic Communications Conduits are shown.

**CCTV Pole with Stainless Steel Bands**

- Polarized Fiber Optic Drop Cable is used.
- Cable Riser for Fiber Optic Drop Cable is shown.
- Power Service Assembly is used.