connection types

COLUMN BASE PLATE

- Plate Anchorage
- Anchor Bolt
- Base should be the same size as the column
- Non-Shrink Grout Min. 2"
- Alternate Detail

PLAN

SECTION

BEAM TO COLUMN WITH CORBEL

- Plate w/ HCAs
- W/Returns
- W/Reinforcing Bar Anchorage
- Loose Plate
- Bearing Pad
- Column

PANEL TO FOOTING

- W/Reinforcing Bar Anchorage
- Each Plate
- Non-Shrink Grout Min. 1"
- Plate w/ HCAs
- Loose Plates

SECTION

PLAN
**SPANDREL TO DOUBLE TEE**

- Spandrel
- Looped PL w/HCAs and Hole
- Loose PL w/HCAs and Hole w/Returns

**SPANDREL TO COLUMN**

- Bearing Pad w/Hole, Typ.
- Oversized Sleeve
- Threaded Rod
- Threaded Insert Tackweld to PL
- Spandrel
- Looped PL w/HHCAs w/Returns

**COLUMN**

- Bearing Pad w/Hole

**FILL POCKET WITH NON-SHRINK GROUT OR ADHERE PLASMA COVER**

- Washer w/Hole

**PL W/REINFORCING BAR ANCHORAGE**

- Double Tee

**PANEL TO PANEL CORNER**

- Panel w/Anchorage
- 1/3" (Typ.)
- 1" (Typ.)
- If grouted, a reverse taper or keyway should be placed around the blockout to lock the patch into the recess
connection types

**Panel Concrete Corbel Support**

Bent Reinforcing Bar may be used in thicker panels

Shim (steel or plastic) Set @ C Beam if Steel Beam is Used

Optional Chamfer

**Panel Knife Edge Support**

Reinforcing Bar Anchor Welded to Plate

Shims (steel or plastic) Support

Panel or Spandrel Bolted or Welded Connection

**Panel Steel Corbel Support**

CIP Curb to Hide Connection or in Finish Material of Wall

Panel Embed w/Anchorage

Wide Flange Steel Shape (or tube) Shop Welded to Precast

Shims (steel or plastic) set @ C Beam if Steel Beam is Used

1½” Recommended Minimum Dimension

**Panel Tie Back**

Threaded Rod w/Nuts and Washers

Slotted Insert from Proprietary Manufacturer

Score Threads After Final Adjustment

Note: Orientation of slotted insert and slot in angle can be reversed if preferred.
**Tips For Successful Connection Design:**

**Do** use bearing pads for support of beams, spandrels, double tees, and other structural components.

**Do** consider deflection behavior of a member that is supporting a precast component.

**Do** design for support using only 2 points.

**Do** provide at least four tie back connections for a cladding panel.

**Do**, if designing a cladding panel for seismic loads, use an in-plane seismic connection close to the panel's center of gravity.

**Do** account for eccentric loading and the effect it may have on the rotation of supporting members, particularly if they are steel beams.

**Do** consider the horizontal forces resulting from an eccentrically loaded component and the effect this has on the support.

**Do** provide points of support only at one level for multilevel cladding panels.

**Do** design connections so that the component can “move” as a result of temperature variations and volume changes.

**Do Not** design connections with the **bearing locations** welded at both (top and bottom) ends of a prestressed concrete component. Making welded connections at the **tops** of prestressed concrete components at both **ends** is typical.

**Do** consider the allowable tolerances of the precast concrete component and the supporting structure.

**Do** consider intermediate connections of long spandrel panels to avoid bowing due to temperature variations.