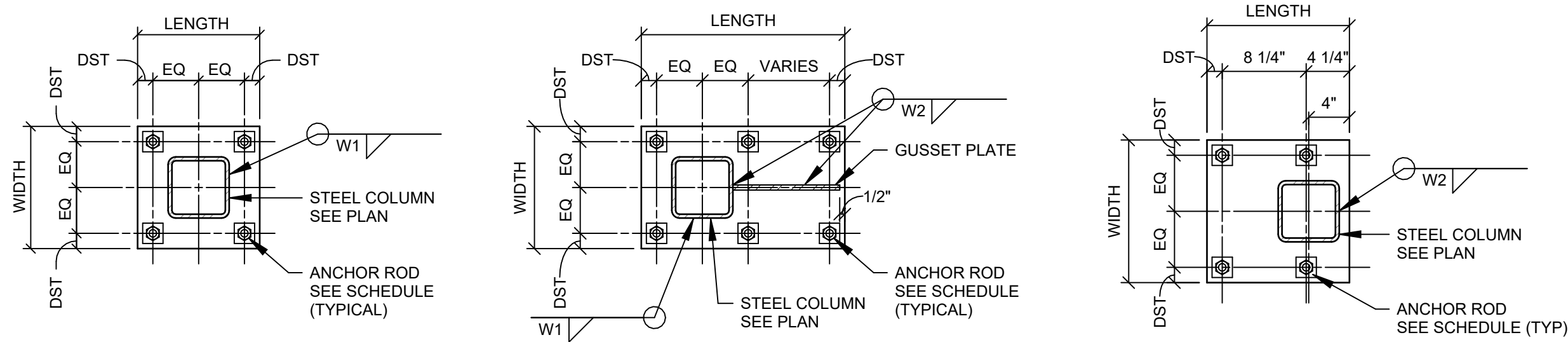




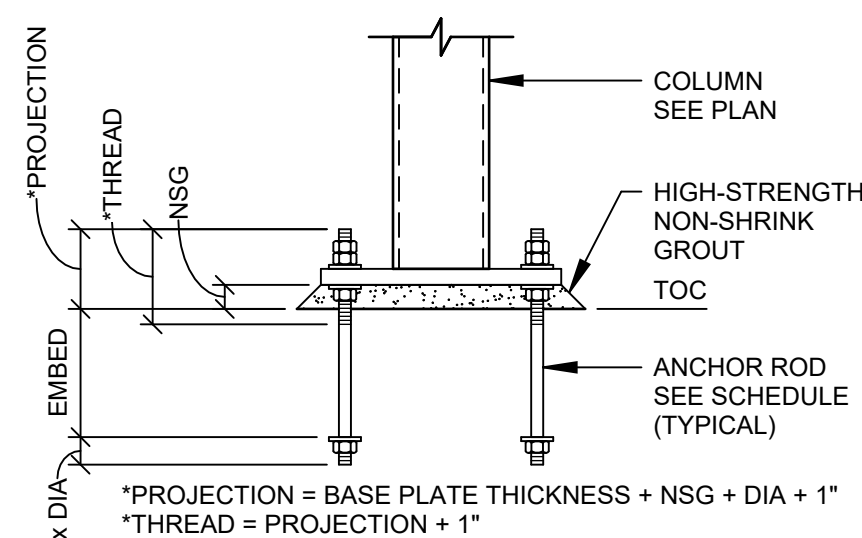
TYPE 1 BASE PLATE

TYPE 2 BASE PLATE

TYPE 3 BASE PLATE

### STEEL COLUMN BASE PLATE AND ANCHOR ROD SCHEDULE

| COLUMN DESIGNATION                                                                                                                                                                                                                                                                                 | BASE PLATE |      |        |        |           | ANCHOR ROD                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |     |       |       |        |     |     | WELD |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------|--------|--------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----|-------|-------|--------|-----|-----|------|------|
|                                                                                                                                                                                                                                                                                                    | MARK       | TYPE | LENGTH | WIDTH  | THICKNESS | DIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | DST    | QTY | EMBED | GRADE | NSG    | DNR | LNR | W1   | W2   |
| HSS4x4                                                                                                                                                                                                                                                                                             | BP1        | 1    | 0'-10" | 0'-10" | 3/4"      | 3/4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1 1/2" | 4   | 1'-0" | 36    | 1"     | NO  | YES | 1/4" | 1/4" |
| HSS5x5                                                                                                                                                                                                                                                                                             | BP2        | 1    | 0'-11" | 0'-11" | 3/4"      | 1"                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2"     | 4   | 1'-0" | 36    | 1 1/2" | NO  | YES | 1/4" | 1/4" |
| HSS6x6                                                                                                                                                                                                                                                                                             | BP3        | 1    | 1'-0"  | 1'-0"  | 3/4"      | 1 1/4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2 1/2" | 4   | 1'-0" | 36    | 2"     | NO  | YES | 1/4" | 1/4" |
| HSS6x6                                                                                                                                                                                                                                                                                             | BP4        | 2    | NOTE 1 | 1'-0"  | 3/4"      | 1 1/4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2 1/2" | 6   | 1'-0" | 36    | 2"     | YES | YES | 1/4" | 1/4" |
| <b>STEEL COLUMN NOTES:</b><br>1. SEE PLAN FOR STEEL COLUMN MARK AND ORIENTATION.<br>2. COLUMNS SHALL BE SHOP WELDED TO BASE PLATES UNLESS NOTED OTHERWISE.<br><br><b>BASE PLATE NOTES:</b><br>1. THE LENGTH SHALL BE DETERMINED USING THE LAYOUT SHOWN IN THE COLUMN BASE PLATE AT COLUMN DETAILS. |            |      |        |        |           | <b>ANCHOR ROD NOTES:</b><br>1. ANCHOR RODS SHALL MEET THE REQUIREMENTS OF ASTM F1554, TYPICAL UNLESS NOTED OTHERWISE. SEE ANCHOR ROD SCHEDULE FOR MINIMUM ANCHOR ROD GRADE.<br>2. ANCHOR RODS SHALL BE FURNISHED WITH HEX NUTS OF SPECIFICATIONS COMPATIBLE WITH THOSE OF THE THREADED SHANKS UNLESS NOTED OTHERWISE.<br>3. HEADED BOLTS MAY BE SUBSTITUTED FOR BOLTS AS SHOWN.<br>4. LNR = LEVELING NUT REQUIRED.<br>5. DNR = DOUBLE NUT REQUIRED.<br>6. DST = DISTANCE |        |     |       |       |        |     |     |      |      |



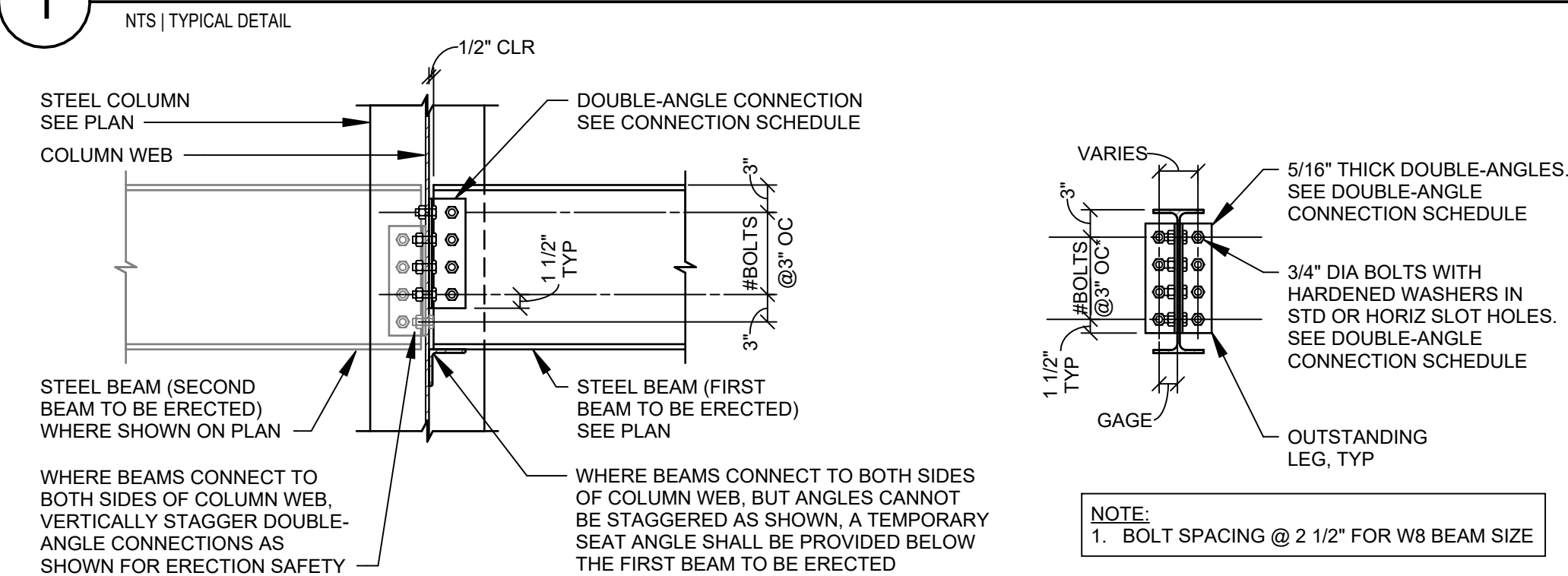
ANCHOR RODS

### ANCHOR ROD HOLE AND WASHER SCHEDULE

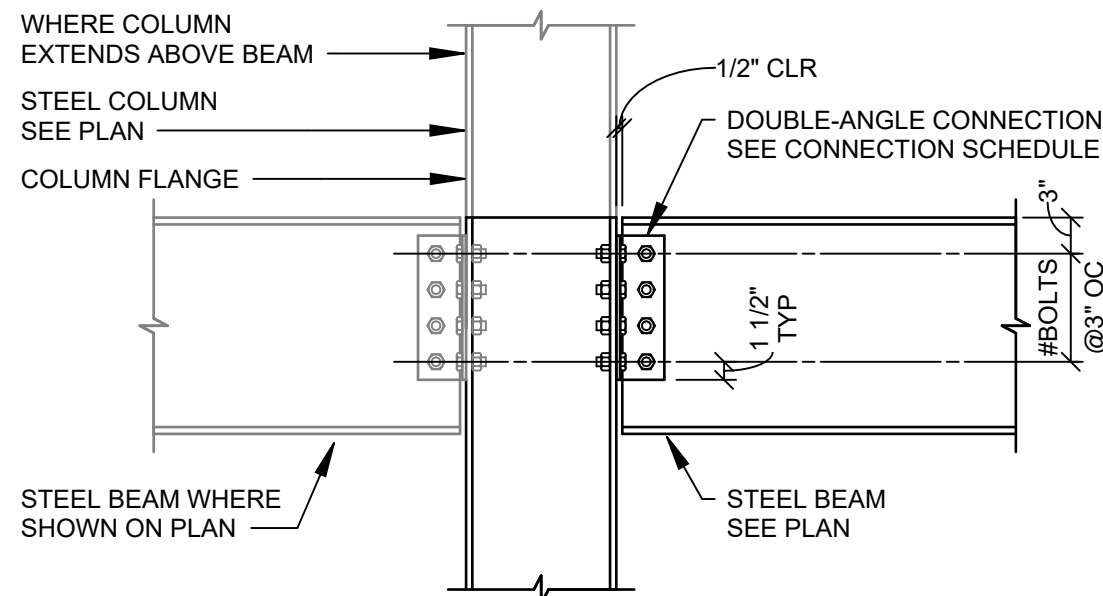
| ANCHOR ROD DIAMETER | MAX HOLE DIAMETER | MIN WASHER SIZE | MIN WASHER THICKNESS |
|---------------------|-------------------|-----------------|----------------------|
| 3/4"                | 1 5/16"           | 2"              | 1/4"                 |
| 7/8"                | 1 9/16"           | 2 1/2"          | 5/16"                |
| 1"                  | 1 13/16"          | 3"              | 3/8"                 |
| 1 1/4"              | 2 1/16"           | 3"              | 1/2"                 |
| 1 1/2"              | 2 5/16"           | 3 1/2"          | 1/2"                 |
| 1 3/4"              | 2 3/4"            | 4"              | 5/8"                 |
| 2"                  | 3 1/4"            | 5"              | 3/4"                 |
| 2 1/2"              | 3 3/4"            | 5 1/2"          | 7/8"                 |

- NOTES:**
- CIRCULAR OR SQUARE WASHERS MEETING THE SIZE SHOWN ARE ACCEPTABLE.
  - ADEQUATE CLEARANCE SHALL BE PROVIDED FOR THE WASHER SIZE SELECTED.
  - WASHER SHALL MATCH STEEL GRADE OF BASE PLATE.

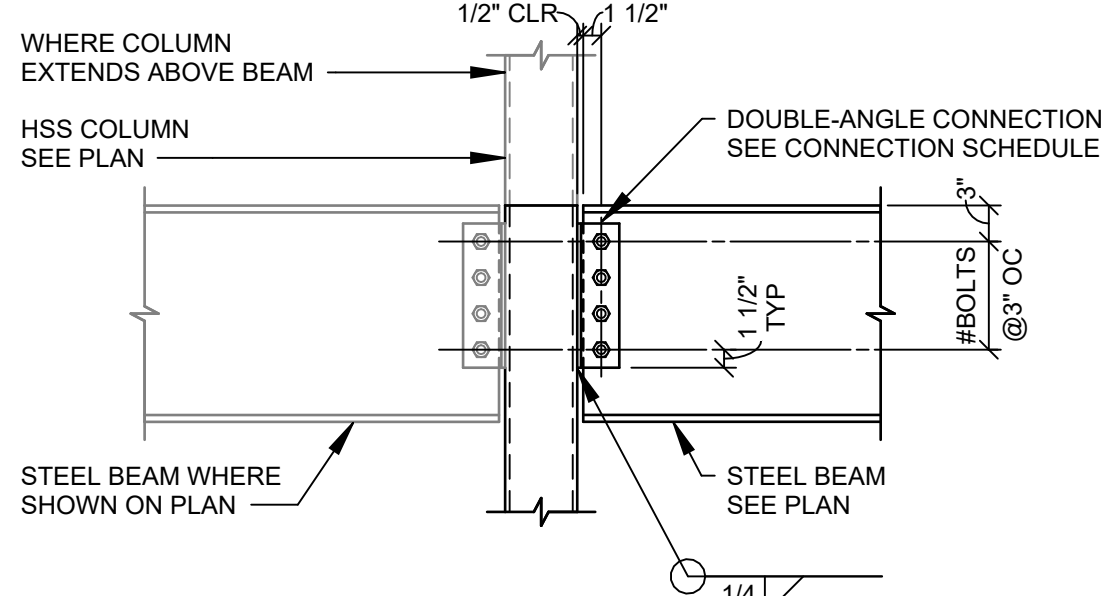
## 1 STEEL COLUMN BASE PLATE AND ANCHOR ROD DETAIL AND SCHEDULE



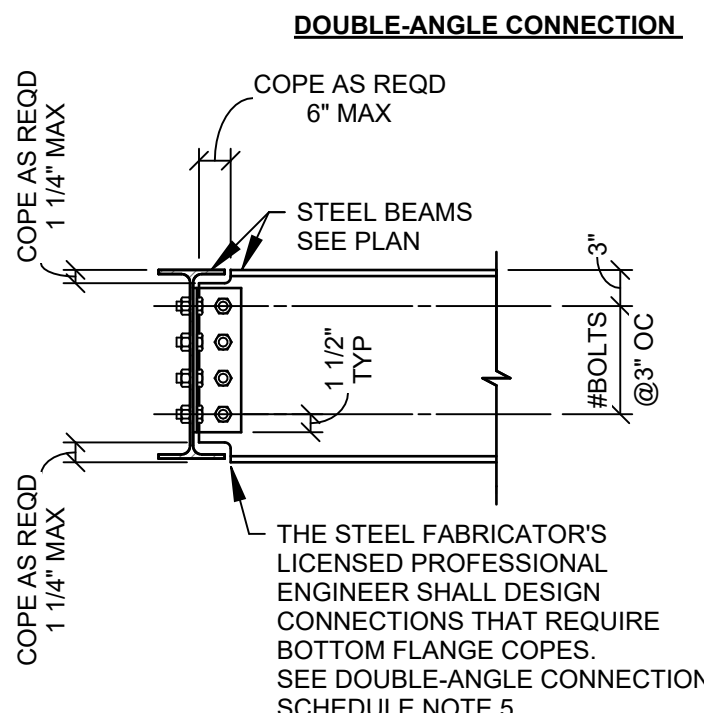
ALL-BOLTED DOUBLE-ANGLE CONNECTION TO W-SHAPE COLUMN WEB (ELEVATION)



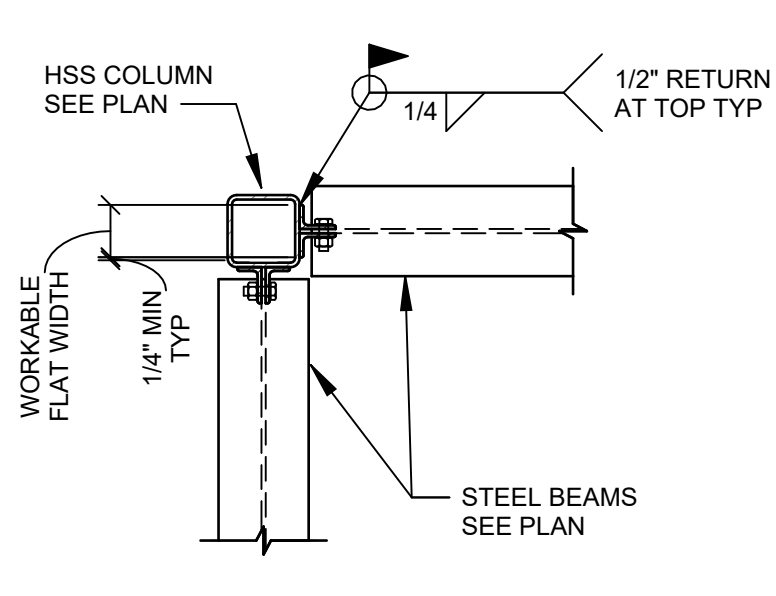
ALL-BOLTED DOUBLE-ANGLE CONNECTION TO W-SHAPE COLUMN FLANGE (ELEVATION)



BOLTED/WELDED DOUBLE-ANGLE CONNECTION TO HSS COLUMN (ELEVATION)



BEAM COPING REQUIREMENTS



BOLTED/WELDED DOUBLE-ANGLE CONNECTION TO HSS COLUMN (PLAN VIEW)

| NOMINAL BEAM SIZE | DOUBLE-ANGLE CONNECTION SCHEDULE |              |                           |                                                  |
|-------------------|----------------------------------|--------------|---------------------------|--------------------------------------------------|
|                   | # BOLTS                          | ANGLE LENGTH | ASD MIN CONN STRENGTH (K) | HEAVY-DUTY CONNECTION# ASD MIN CONN STRENGTH (K) |
| W8                | 2                                | 0'-5 1/2"    | 8                         | N/A                                              |
| W10               | 2                                | 0'-6"        | 11                        | N/A                                              |
| W12               | 2                                | 0'-6"        | 15                        | 3                                                |
| W14               | 3                                | 0'-9"        | 28                        | 4                                                |
| W16               | 3                                | 0'-9"        | 31                        | 4                                                |
| W18               | 4                                | 1'-0"        | 49                        | 5                                                |
| W21               | 4                                | 1'-0"        | 57                        | 6                                                |
| W24               | 5                                | 1'-3"        | 81                        | 7                                                |
| W27               | 5                                | 1'-3"        | 95                        | 7                                                |
| W30               | 6                                | 1'-6"        | 116                       | 8                                                |
| W33               | 7                                | 1'-9"        | 145                       | 9                                                |
| W36               | 8                                | 2'-0"        | 165                       | 10                                               |
| W40               | 9                                | 2'-3"        | 185                       | 11                                               |
| W44               | 10                               | 2'-6"        | 205                       | 12                                               |

- NOTES:**
- IF A REACTION SHOWN ON PLAN EXCEEDS THE CONNECTION'S MINIMUM CONNECTION STRENGTH SHOWN IN THE SCHEDULE, THE FABRICATOR'S LICENSED PROFESSIONAL ENGINEER SHALL DESIGN AND DETAIL AN ALTERNATE DOUBLE-ANGLE CONNECTION FOR THE REQUIRED REACTION.
  - THE CONNECTION'S MINIMUM CONNECTION STRENGTH SHOWN IN THE SCHEDULE ARE SERVICE-LOAD LEVEL (ASD) AND ARE BASED ON GRADE 50 BEAMS, A325-N BOLTS (BEARING TYPE), E70XX ELECTRODES, AND A36 ANGLES.
  - HOLE SIZES SHALL BE AS FOLLOWS:
    - STANDARD = 13/16" DIA
    - SHORT-SLOTTED = 13/16" DIA x 1" LONG
  - COMPLY WITH AISC MINIMUM EDGE DISTANCE LIMITATIONS.
  - THE FABRICATOR'S LICENSED PROFESSIONAL ENGINEER SHALL DESIGN ALL BEAM CONNECTIONS THAT REQUIRE COPES GREATER THAN THOSE SHOWN IN THE DETAILS.
  - HEAVY-DUTY CONNECTIONS ARE NOTED ON PLAN BY AN ASTERISK (\*). STANDARD CONNECTIONS ARE TYPICAL UNLESS NOTED BY ASTERISK.

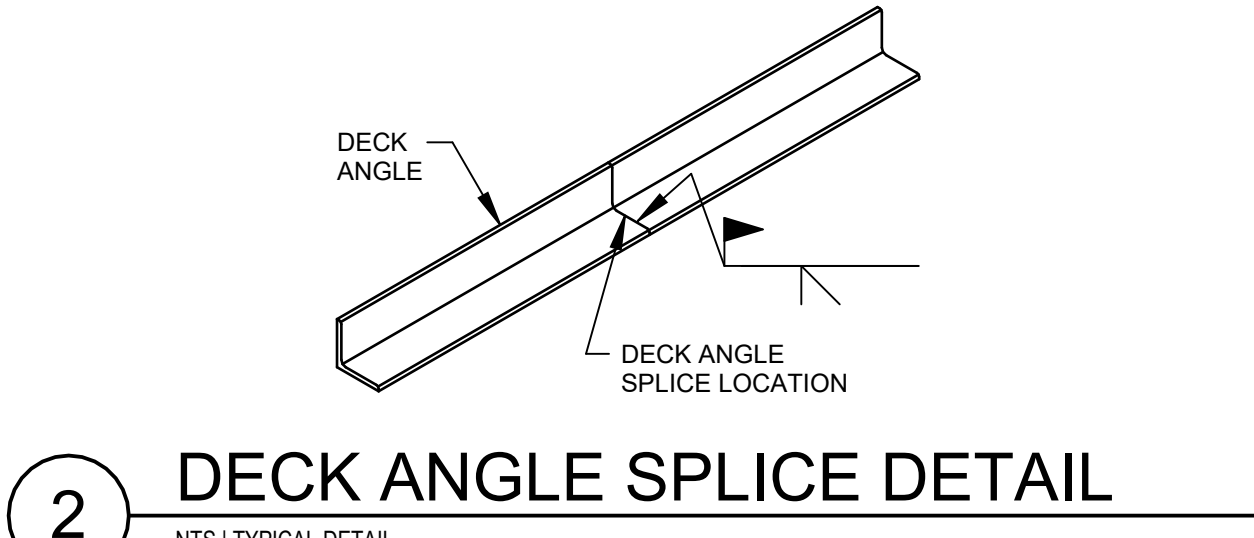
| DOUBLE-ANGLE SCHEDULE FOR BEAM TO HSS COLUMN CONNECTIONS |                   |
|----------------------------------------------------------|-------------------|
| WORKABLE FLAT WIDTH                                      | ANGLE SIZE        |
| 4"                                                       | L3x2x5/16         |
| 5"                                                       | L3 1/2x2 1/2x5/16 |
| 6"                                                       | L3 1/2x2 1/2x5/16 |
| 8"                                                       | L3 1/2x3x5/16     |
| 10"                                                      | L4x3 1/2x5/16     |
| 12"                                                      | L4x3 1/2x5/16     |

**NOTES:**

- PROVIDED WORKABLE FLAT WIDTH IS NOMINAL. ACTUAL FLAT WIDTH VARIES DEPENDING ON NOMINAL BEAM SIZE.
- RIP OUTSTANDING LEG AS REQUIRED WITHIN WORKABLE FLAT WIDTH.
- SEE DOUBLE-ANGLE CONNECTION SCHEDULE AND DETAIL.

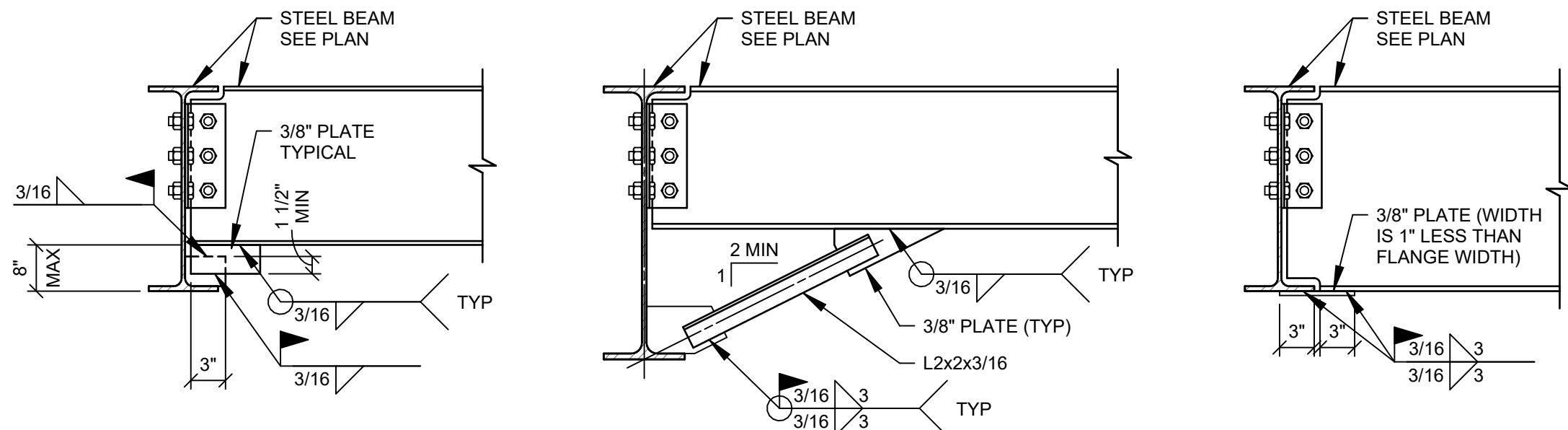
## 3 STEEL BEAM SIMPLE SHEAR CONNECTIONS

NTS | TYPICAL DETAIL

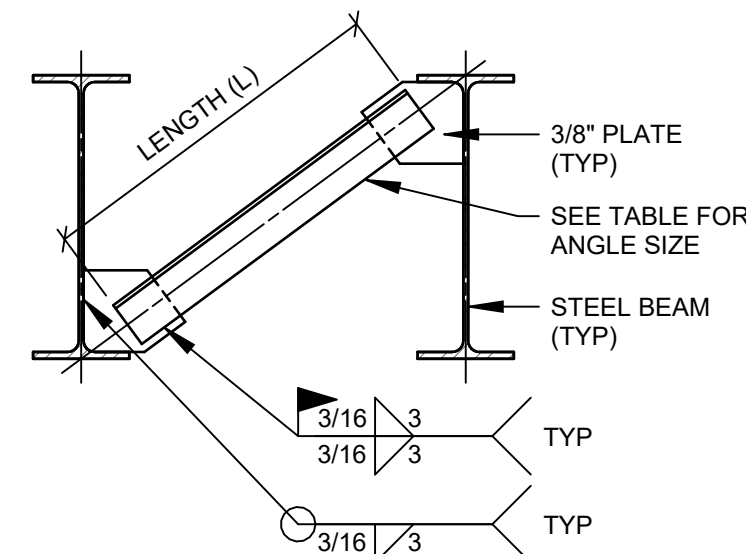


## 2 DECK ANGLE SPLICE DETAIL

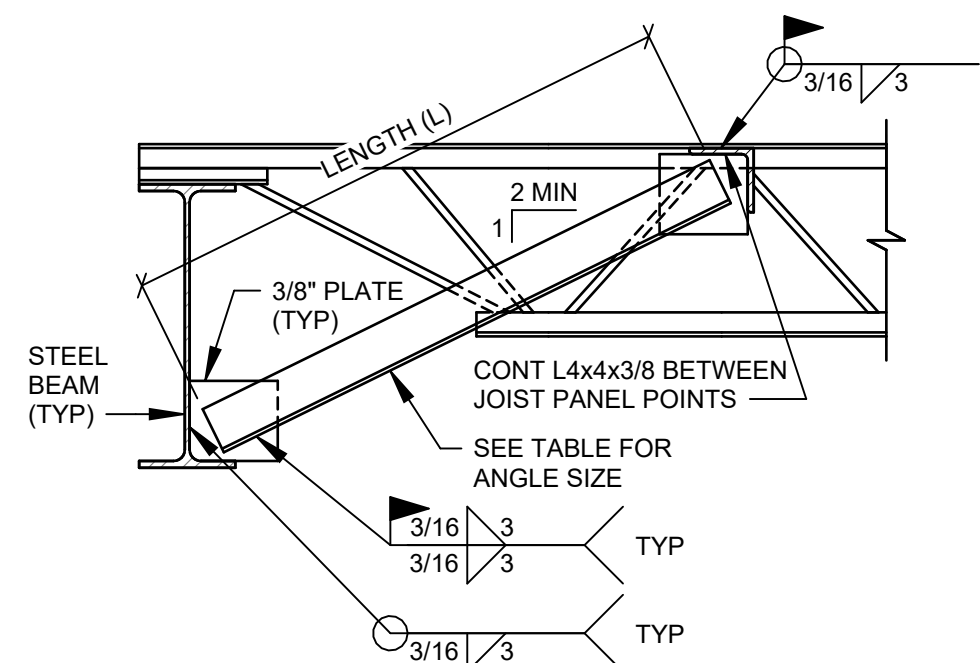
NTS | TYPICAL DETAIL



BOTTOM FLANGE BRACED TO PERPENDICULAR BEAM



BOTTOM FLANGE BRACED TO PARALLEL BEAM

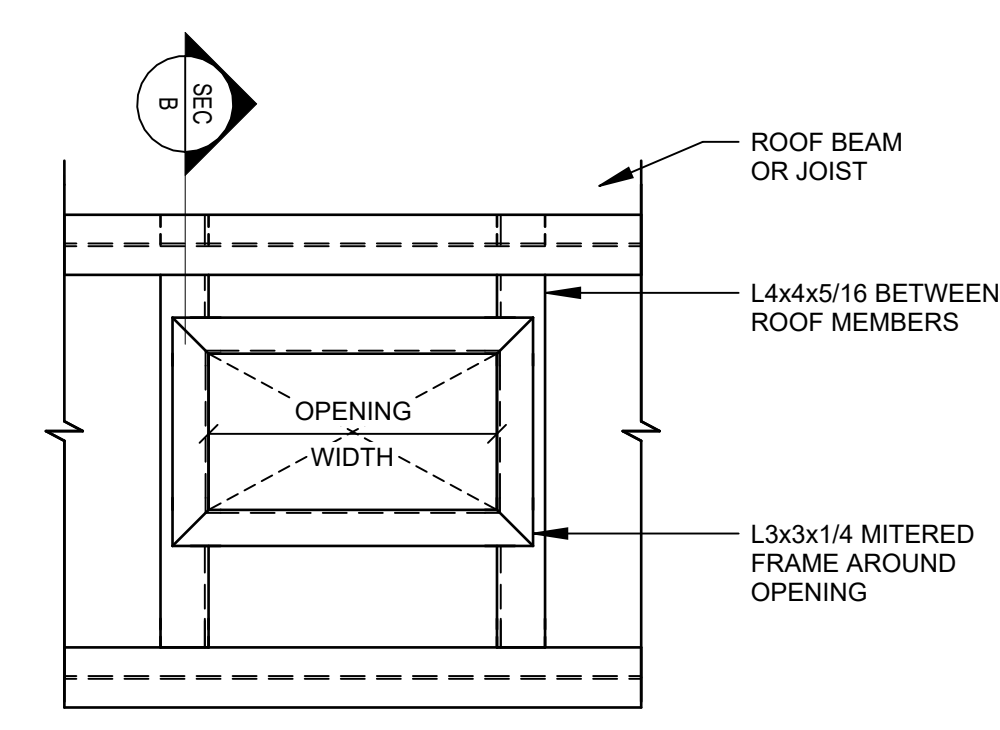


BOTTOM FLANGE BRACED TO PERPENDICULAR JOIST

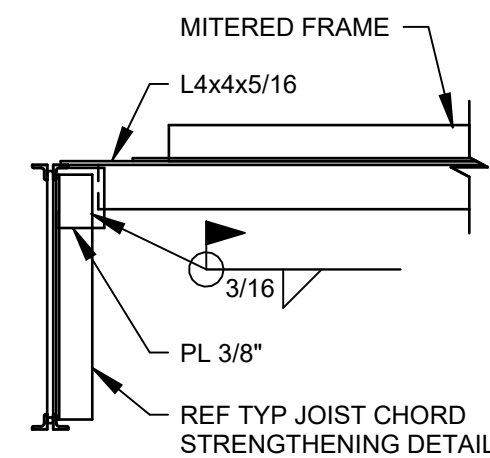
| ANGLE BRACE SIZE   |          |
|--------------------|----------|
| LENGTH             | SIZE     |
| L ≤ 9'-0"          | L3x3x1/4 |
| 9'-0" > L ≤ 13'-0" | L4x4x1/4 |

## 4 STEEL BEAM BOTTOM FLANGE BRACING CONDITIONS DETAIL

NTS | TYPICAL DETAIL

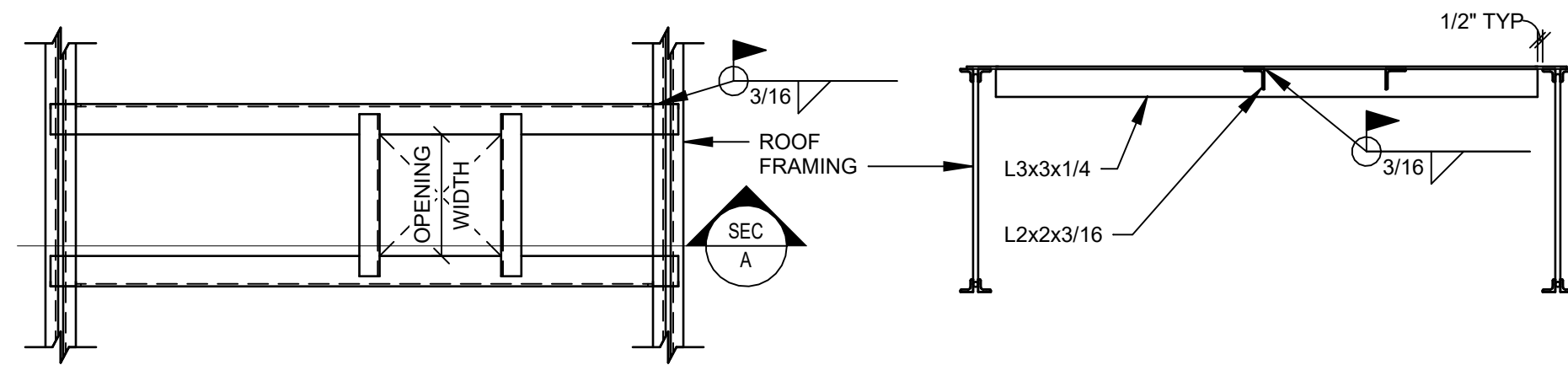


PLAN VIEW



SECTION B

TYPICAL FRAMING AT ROOF OPENING WIDTH BETWEEN 24" AND 42"



PLAN VIEW

SECTION A

TYPICAL FRAMING AT ROOF OPENING WIDTH < 24"

## 5 ROOF OPENINGS DETAIL

NTS | TYPICAL DETAIL