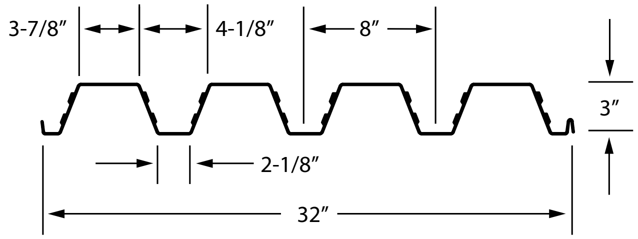
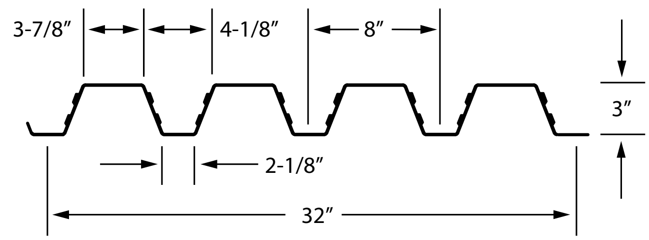
# 5.1 **NH-32**

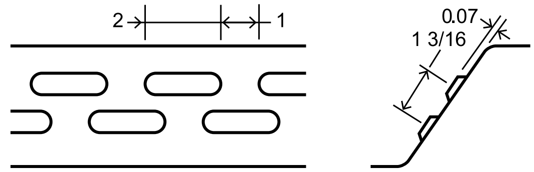



**NH-32 Profile**




**NHN-32 Profile**

**32/5 Attachment Pattern**




**N Series Embossment**

## Panel Properties

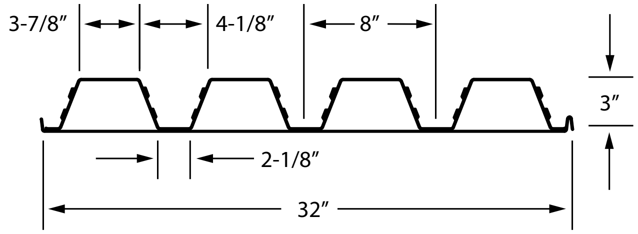
| Gage | Weight | Base Metal Thickness | Yield Strength | Tensile Strength | Gross Section Properties: Area | Moment of Inertia | Distance to N.A. from Bottom | Section Modulus | Radius of Gyration |
|---|---|---|---|---|---|---|---|---|---|
| | w | t | $F_y$ | $F_u$ | $A_g$ | $I_g$ | $y_b$ | $S_g$ | r |
| | psf | in | ksi | ksi | in²/ft | in⁴/ft | in | in³/ft | in |
| 22 | 1.97 | 0.0299 | 50 | 65 | 0.569 | 0.814 | 1.68 | 0.483 | 1.195 |
| 20 | 2.35 | 0.0359 | 50 | 65 | 0.681 | 0.968 | 1.68 | 0.576 | 1.193 |
| 18 | 3.10 | 0.0478 | 50 | 65 | 0.902 | 1.275 | 1.69 | 0.755 | 1.189 |
| 16 | 3.86 | 0.0598 | 50 | 65 | 1.123 | 1.575 | 1.69 | 0.931 | 1.185 |

| Gage | Effective Section Modulus at $F_y$: Compression | Bending | | | | Effective Moment of Inertia for Deflection | | Uniform Load Only $I_d = (2I_e+I_g)/3$ | |
|---|---|---|---|---|---|---|---|---|---|
| | Area | Section Modulus | Distance to N.A. from Bottom | Section Modulus | Distance to N.A. from Bottom | Moment of Inertia | Moment of Inertia | | |
| | $A_e$ | $S_e+$ | $y_b$ | $S_e-$ | $y_b$ | $I_e+$ | $I_e-$ | I+ | I- |
| | in²/ft | in³/ft | in | in³/ft | in | in⁴/ft | in⁴/ft | in⁴/ft | in⁴/ft |
| 22 | 0.272 | 0.349 | 1.37 | 0.402 | 1.78 | 0.626 | 0.758 | 0.689 | 0.776 |
| 20 | 0.372 | 0.446 | 1.41 | 0.505 | 1.76 | 0.788 | 0.934 | 0.848 | 0.945 |
| 18 | 0.604 | 0.661 | 1.48 | 0.715 | 1.72 | 1.121 | 1.275 | 1.173 | 1.275 |
| 16 | 0.871 | 0.879 | 1.54 | 0.927 | 1.70 | 1.474 | 1.575 | 1.508 | 1.575 |

## Reactions at Supports (plf) Based on Web Crippling

| Gage | Condition | Bearing Length of Webs: Allowable ($R_n/\Omega$) 1" | 1.5" | 2" | 3" | Factored ($\Phi R_n$) 1" | 1.5" | 2" | 3" |
|---|---|---|---|---|---|---|---|---|---|
| 22 | End | 500 | 566 | 622 | 716 | 764 | 866 | 952 | 1095 |
| | Interior | 876 | 973 | 1056 | 1194 | 1303 | 1448 | 1570 | 1776 |
| 20 | End | 709 | 799 | 876 | 1004 | 1084 | 1223 | 1340 | 1536 |
| | Interior | 1240 | 1371 | 1482 | 1669 | 1844 | 2040 | 2205 | 2482 |
| 18 | End | 1221 | 1367 | 1490 | 1697 | 1868 | 2092 | 2280 | 2597 |
| | Interior | 2133 | 2343 | 2519 | 2816 | 3173 | 3485 | 3748 | 4189 |
| 16 | End | 1864 | 2076 | 2254 | 2554 | 2852 | 3176 | 3449 | 3907 |
| | Interior | 3260 | 3560 | 3814 | 4239 | 4849 | 5296 | 5673 | 6305 |

Web Crippling Constraints h=3.06" r=0.125" θ=70.7°




**NHF-32 Profile**

**32/5 Attachment Pattern**

## Panel Properties

| Gage | Weight | Base Metal Thickness | Yield Strength | Tensile Strength | Gross Section Properties: Area | Moment of Inertia | Distance to N.A. from Bottom | Section Modulus | Radius of Gyration |
|---|---|---|---|---|---|---|---|---|---|
| | w<br>psf | t<br>in | $F_y$<br>ksi | $F_u$<br>ksi | $A_g$<br>in²/ft | $I_g$<br>in⁴/ft | $y_b$<br>in | $S_g$<br>in³/ft | r<br>in |
| 20/20 | 3.96 | 0.0359 / 0.036 | 50 | 65 | 1.114 | 1.740 | 1.07 | 0.867 | 1.250 |
| 20/18 | 4.44 | 0.0359 / 0.047 | 50 | 65 | 1.254 | 1.877 | 0.96 | 0.884 | 1.223 |
| 20/16 | 4.96 | 0.0359 / 0.059 | 50 | 65 | 1.406 | 1.999 | 0.87 | 0.899 | 1.192 |
| 18/20 | 4.71 | 0.0478 / 0.036 | 50 | 65 | 1.330 | 2.143 | 1.19 | 1.129 | 1.269 |
| 18/18 | 5.19 | 0.0478 / 0.047 | 50 | 65 | 1.470 | 2.316 | 1.09 | 1.153 | 1.255 |
| 18/16 | 5.71 | 0.0478 / 0.059 | 50 | 65 | 1.622 | 2.474 | 1.00 | 1.173 | 1.235 |
| 16/20 | 5.47 | 0.0598 / 0.036 | 50 | 65 | 1.547 | 2.522 | 1.27 | 1.385 | 1.277 |
| 16/18 | 5.95 | 0.0598 / 0.047 | 50 | 65 | 1.687 | 2.725 | 1.18 | 1.415 | 1.271 |
| 16/16 | 6.47 | 0.0598 / 0.059 | 50 | 65 | 1.839 | 2.914 | 1.10 | 1.442 | 1.259 |

| Gage | Effective Section Modulus at $F_y$ — Compression: Area | Bending: Section Modulus | Bending: Distance to N.A. from Bottom | Bending: Section Modulus | Bending: Distance to N.A. from Bottom | Effective Moment of Inertia for Deflection: Moment of Inertia | Moment of Inertia | Uniform Load Only $I_d = (2I_e+I_g)/3$ | |
|---|---|---|---|---|---|---|---|---|---|
| | $A_e$<br>in²/ft | $S_e$+<br>in³/ft | $y_b$<br>in | $S_e$-<br>in³/ft | $y_b$<br>in | $I_e$+<br>in⁴/ft | $I_e$-<br>in⁴/ft | I+<br>in⁴/ft | I-<br>in⁴/ft |
| 20/20 | 0.547 | 0.488 | 0.76 | 0.808 | 1.39 | 1.381 | 1.454 | 1.501 | 1.549 |
| 20/18 | 0.622 | 0.490 | 0.66 | 0.838 | 1.24 | 1.480 | 1.623 | 1.612 | 1.708 |
| 20/16 | 0.729 | 0.522 | 0.62 | 0.863 | 1.11 | 1.515 | 1.816 | 1.676 | 1.877 |
| 18/20 | 0.784 | 0.798 | 0.99 | 1.057 | 1.45 | 1.835 | 1.839 | 1.938 | 1.940 |
| 18/18 | 0.859 | 0.816 | 0.90 | 1.093 | 1.33 | 1.972 | 2.019 | 2.087 | 2.118 |
| 18/16 | 0.966 | 0.810 | 0.81 | 1.123 | 1.22 | 2.107 | 2.234 | 2.230 | 2.314 |
| 16/20 | 1.057 | 1.073 | 1.13 | 1.306 | 1.49 | 2.316 | 2.218 | 2.385 | 2.319 |
| 16/18 | 1.132 | 1.098 | 1.04 | 1.346 | 1.39 | 2.495 | 2.405 | 2.572 | 2.512 |
| 16/16 | 1.238 | 1.119 | 0.96 | 1.380 | 1.30 | 2.661 | 2.636 | 2.746 | 2.729 |

# Typical Details 1.17



**Details**

Composite deck-slab systems are not complete without edge form and flashings to contain the concrete during the pour. These common details are an important part of the system. Edge forms provide both concrete containment and establish one point of depth control for the concrete.

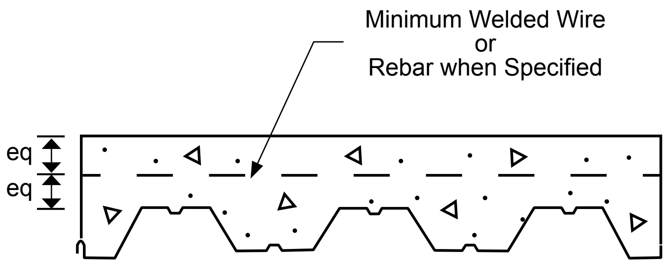



***Figure 1.17.1:*** **TYPICAL PLACEMENT OF TEMPERATURE & SHRINKAGE REINFORCEMENT**

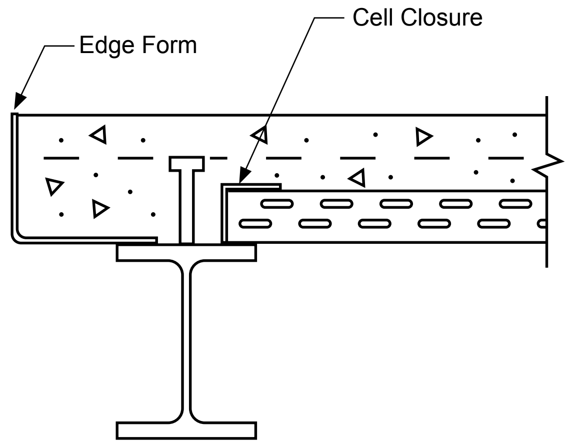



***Figure 1.17.3:*** **SINGLE PIECE EDGE FROM PERPENDICULAR TO DECK ON WIDE FLANGE BEAM**

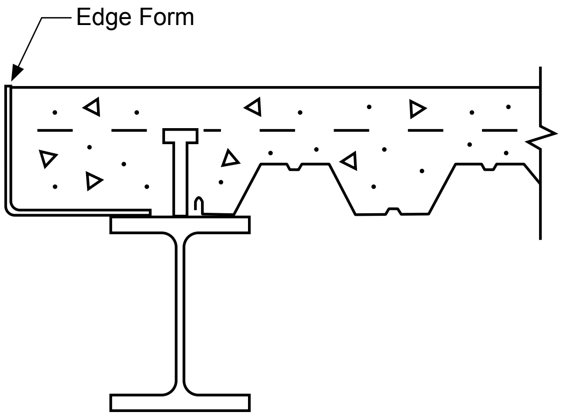



***Figure 1.17.2:*** **SINGLE PIECE EDGE FROM PARALLEL TO DECK ON WIDE FLANGE BEAM**

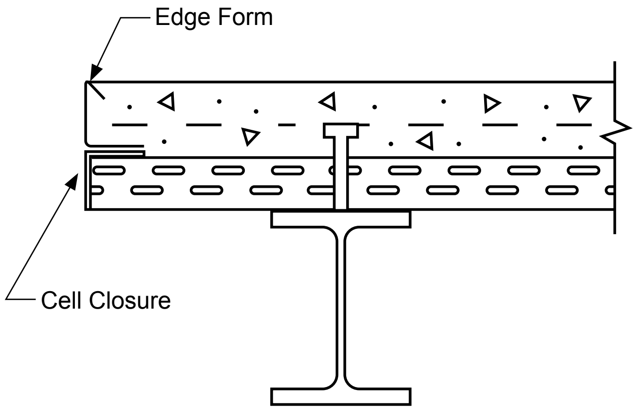



***Figure 1.17.4:*** **TWO PIECE EDGE FORM WITH DECK CANTILEVER ON WIDE FLANGE BEAM**

# 1.17 **Typical Details**

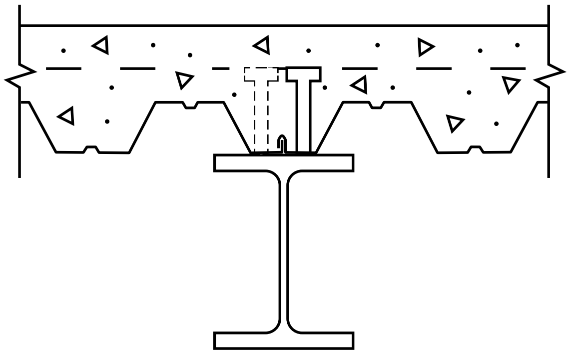


***Figure 1.17.5:*** **DECK PARALLEL TO WIDE FLANGE BEAM**

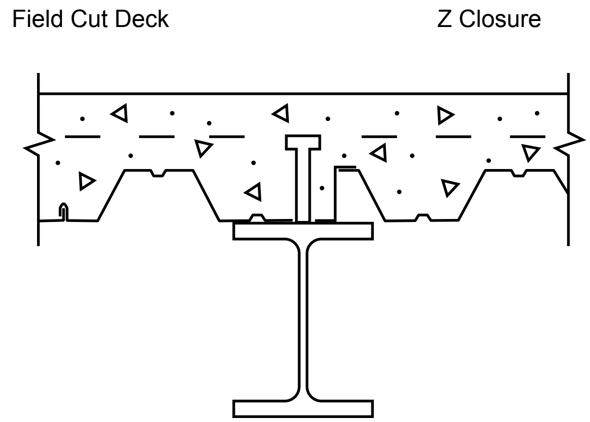



***Figure 1.17.8:*** **DECK PARALLEL TO WIDE FLANGE BEAM CUT WITH ZEE FLASHING TO ACCOMMODATE DECK MODULE**

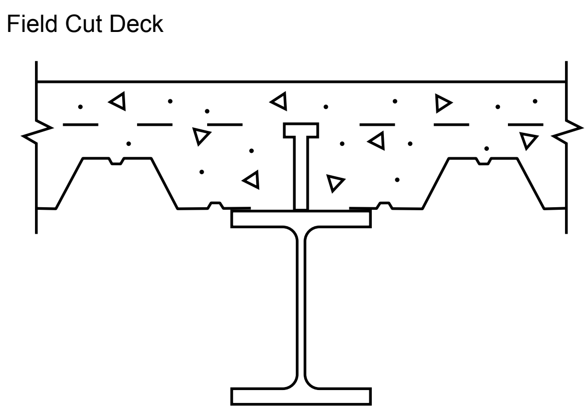



***Figure 1.17.6:*** **DECK PARALLEL TO WIDE FLANGE BEAM CUT TO ACCOMMODATE DECK MODULE**

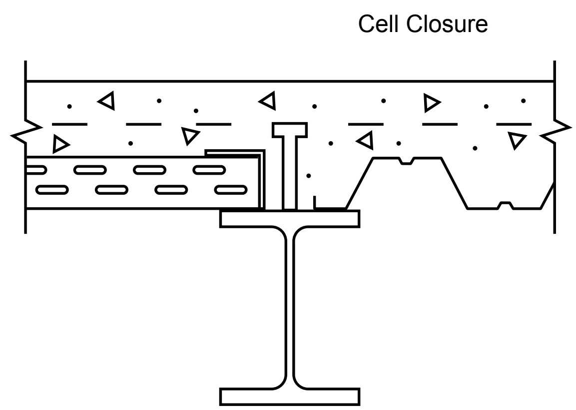



***Figure 1.17.9:*** **DECK TRANSITION ON WIDE FLANGE BEAM**

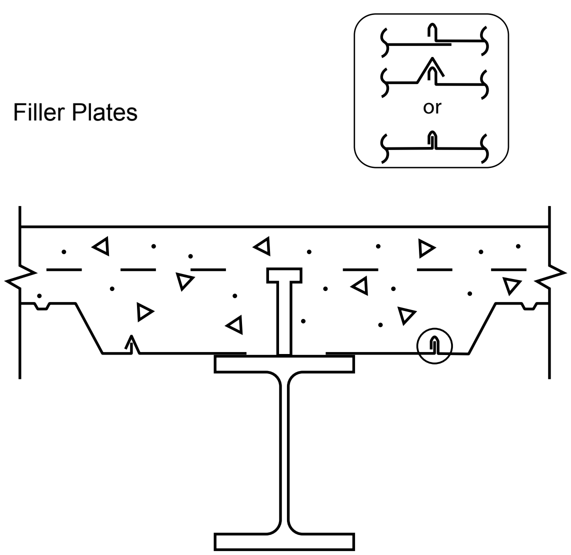



***Figure 1.17.7:*** **DECK PARALLEL TO WIDE FLANGE BEAM WITH FILLER PLATES**

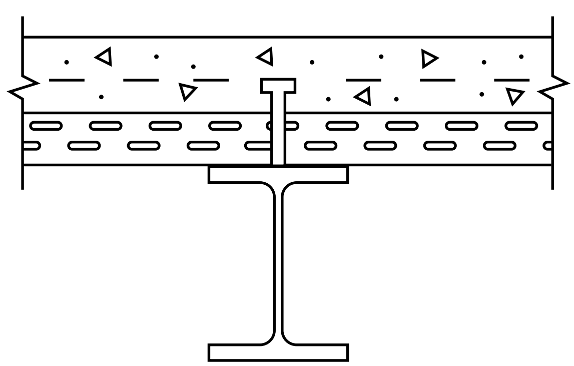


***Figure 1.17.10:*** **DECK PERPENDICULAR TO WIDE FLANGE BEAM**

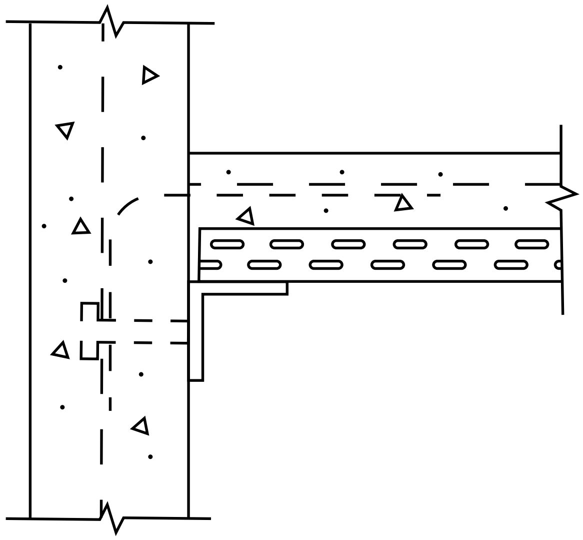


*Figure 1.17.11:* **CONCRETE OR CMU WALL LEGER DECK PERPENDICULAR**

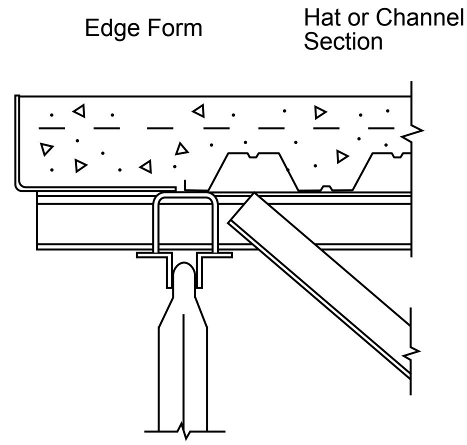



*Figure 1.17.14:* **SINGLE PIECE EDGE FROM PARALLEL TO DECK ON OPEN WEB JOIST GIRDER**

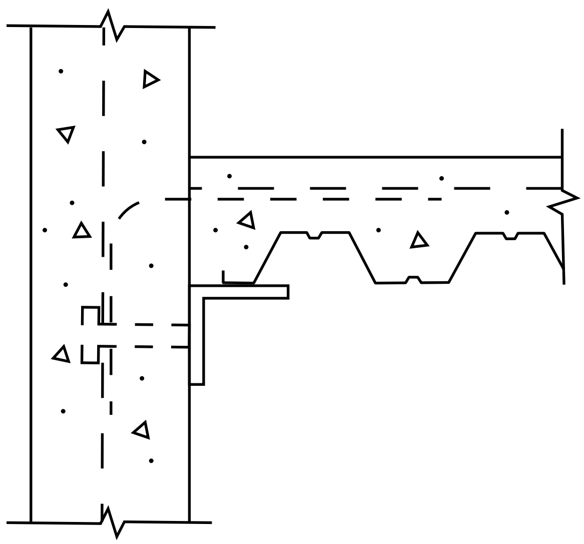


*Figure 1.17.12:* **CONCRETE OR CMU WALL LEGER DECK PARALLEL**

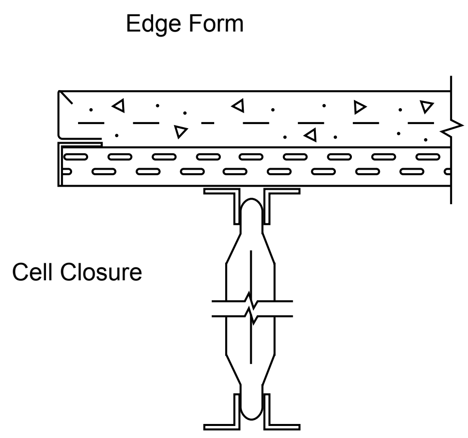



*Figure 1.17.15:* **TWO PIECE EDGE FORM WITH DECK CANTILEVER ON WIDE FLANGE BEAM**

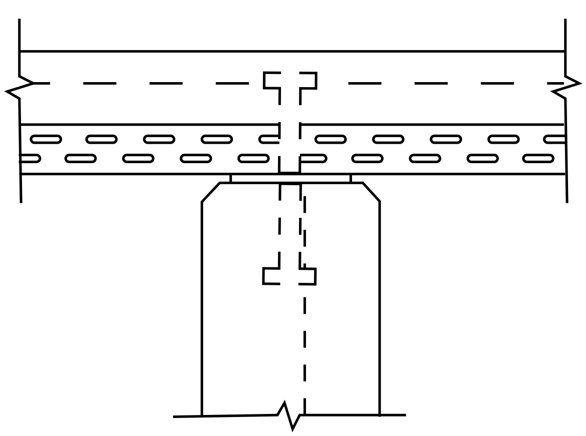


*Figure 1.17.13:* **CONCRETE OR CMU WALL WITH EMBED PERPENDICULAR**

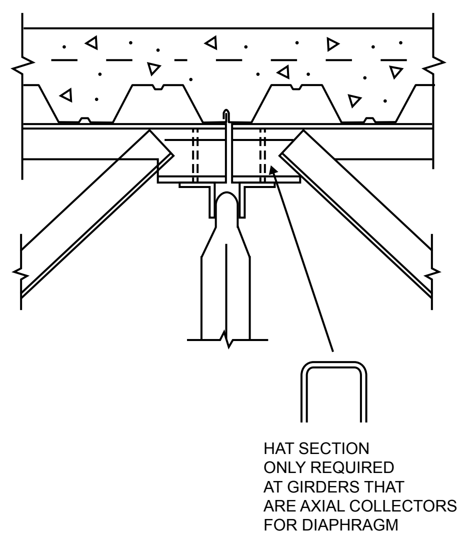



*Figure 1.17.16:* **DECK ON OPEN WEB STEEL JOISTS AND OPEN WEB STEEL JOIST GIRDER**

# 1.17 **Typical Details**

### Column Flashings

Columns may require deck support angles depending on web support. Smaller columns often do not require deck support angles because there are no unsupported webs as shown in Figure 1.17.17. Large columns will create a condition in which one or more webs are unsupported, as shown in Figure 1.17.18. When the webs are unsupported, deck support angles are required to limit localized deflections during concrete placement. The Detail in Figure 1.17.18 is a common example of how deck may be supported when required. Using the thinnest support angles practical, when installed as shown, makes fitting and attaching the deck easier.

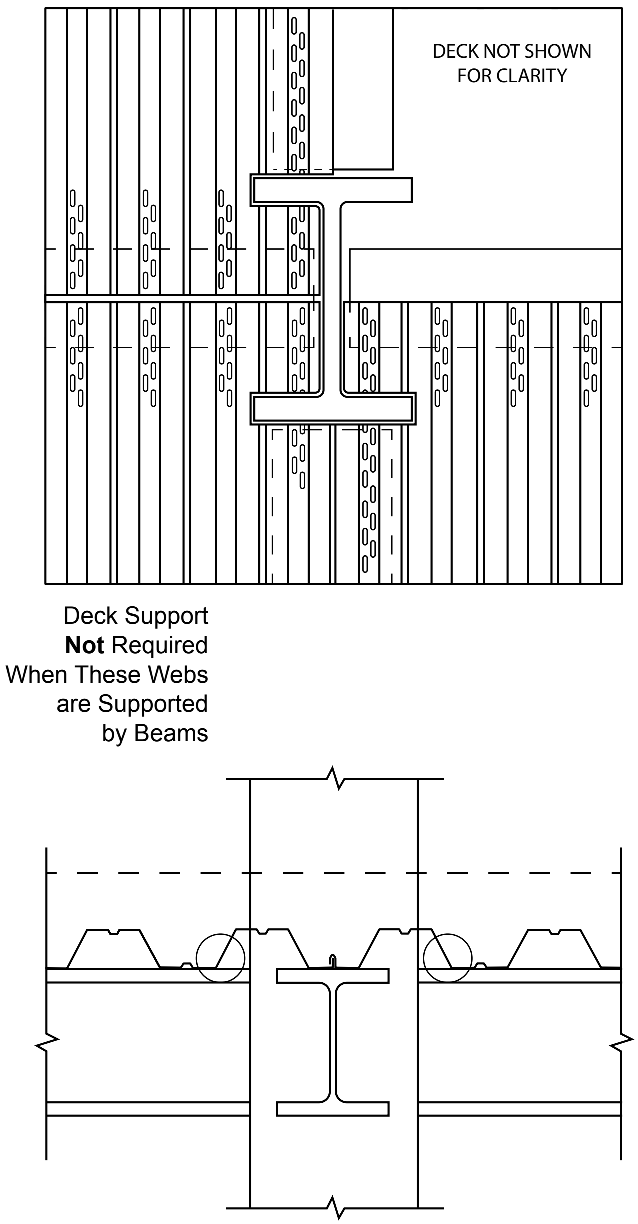



*Figure 1.17.17:* **COLUMN DETAIL NOT REQUIRING DECK SUPPORT ANGLES**

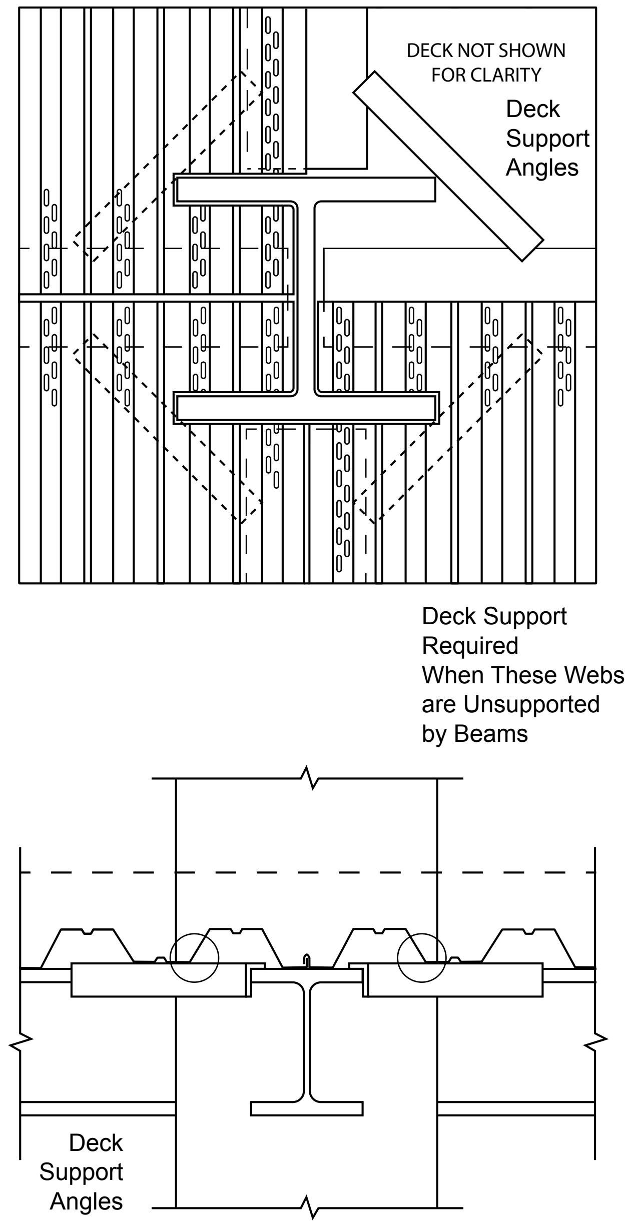



*Figure 1.17.18:* **COLUMN DETAIL REQUIRING DECK SUPPORT ANGLES**