TYPICAL DETAILS Hambro® D500

The following typical details have been developed as an aid to specifying professionals and are provided as a basic guide of suggested practice for the Hambro D500 and Long-Span Composite Floor System. They are not intended to take the place of professional determinations or the requirements of applicable building codes. Accordingly, while these guidelines are intended as suggested general techniques they can only be used to the extent they do not conflict with building code requirements. You are requested to contact your Hambro Supplier for contradictions or conditions not clearly shown. Shop drawings will be provided by your Hambro Supplier for review and approval by the Purchaser, the Architect, and Engineer of Record to verify and coordinate the loads, capacities, spans, details, and joist locations.

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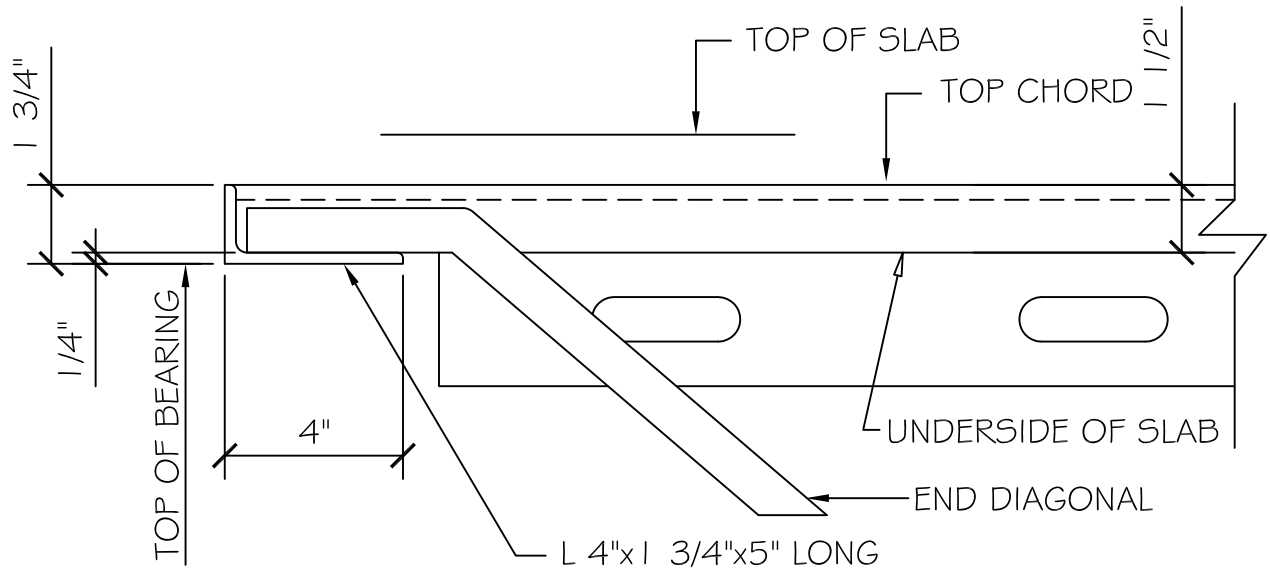
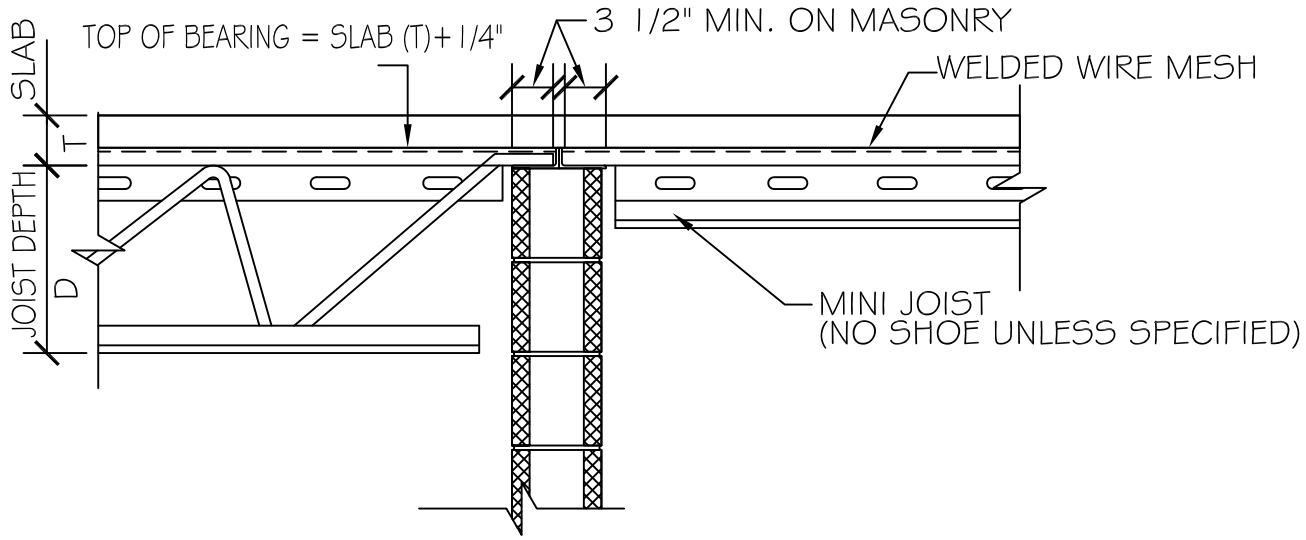
TYPICAL DETAILS Hambro® D500

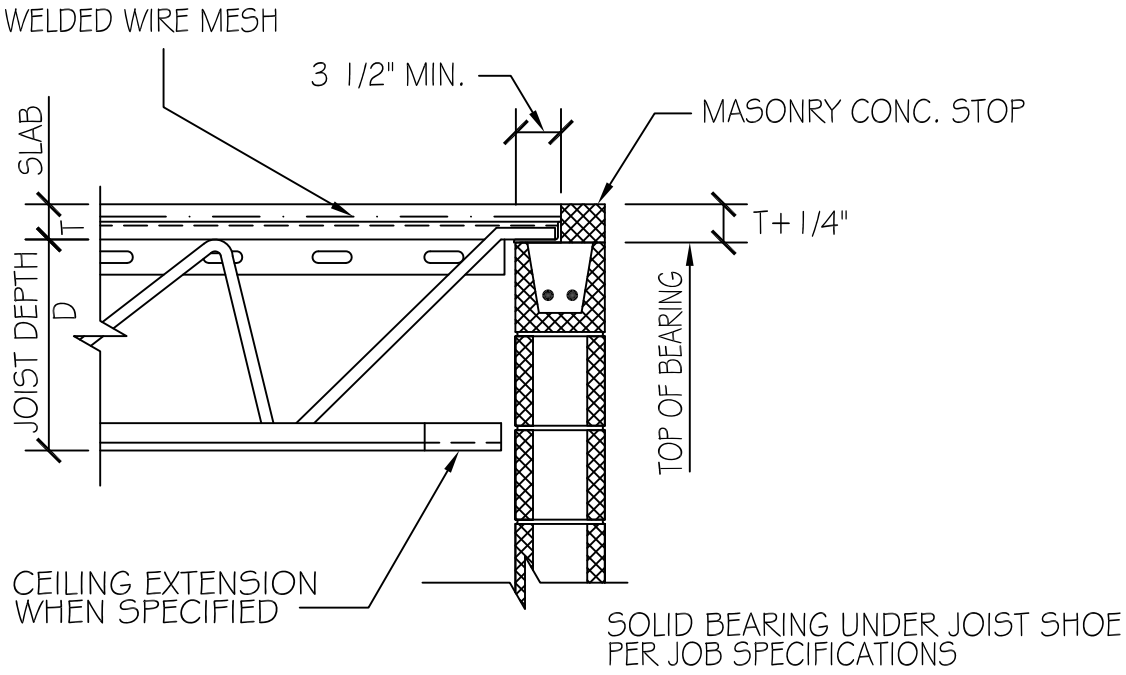
Hambro® D500 standard shoe Section 1



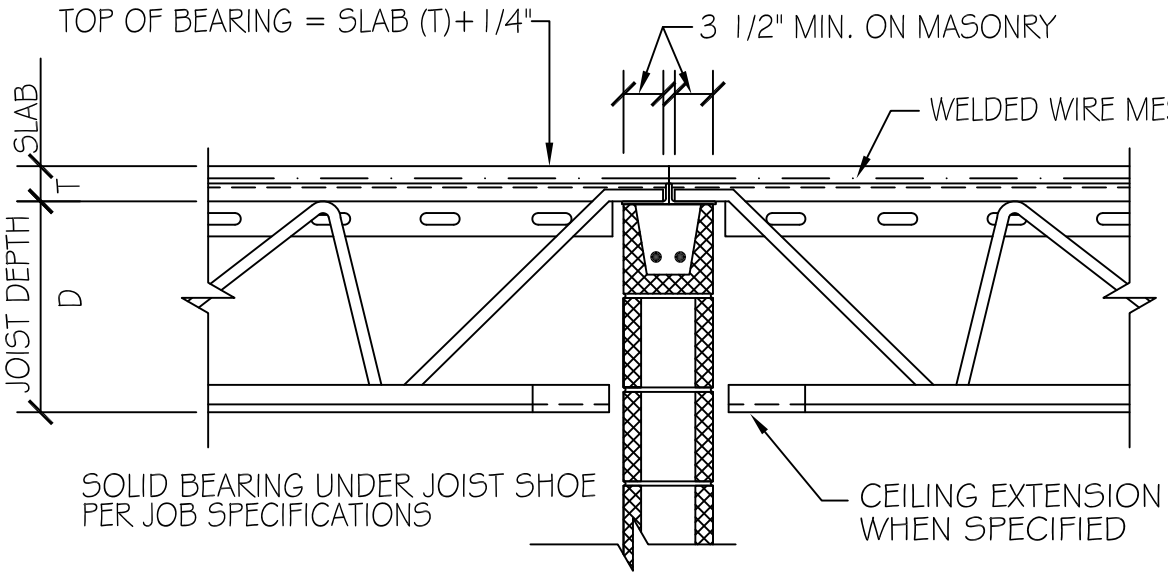
Standard joist/mini joist bearing on masonry wall Section 2



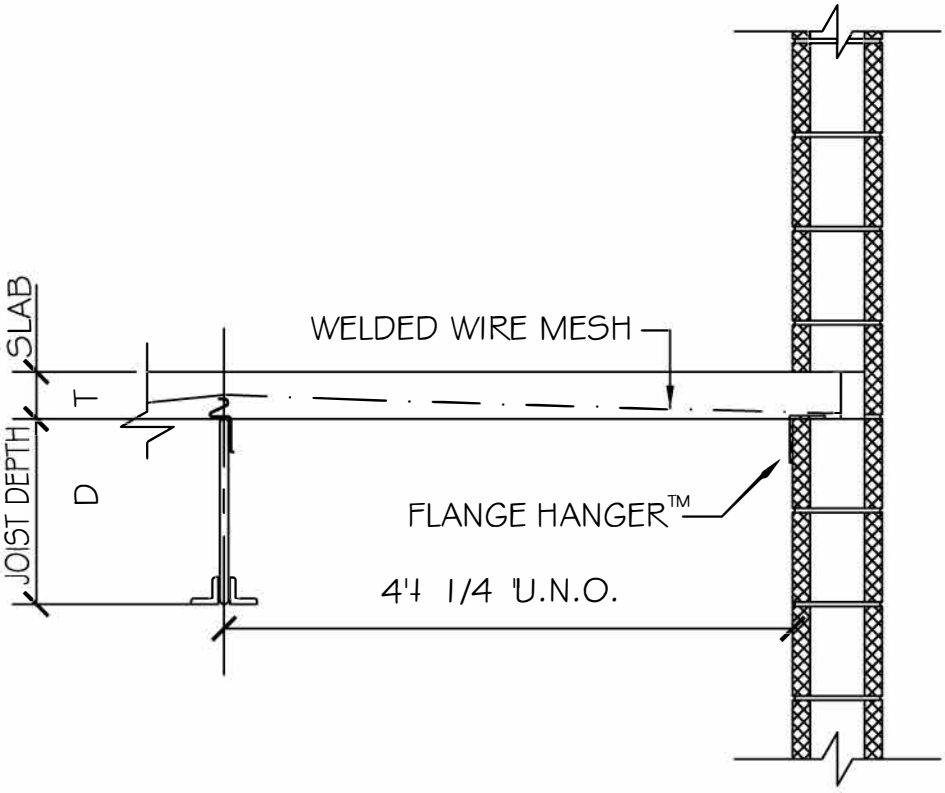
Joist bearing on exterior masonry wall Section 3



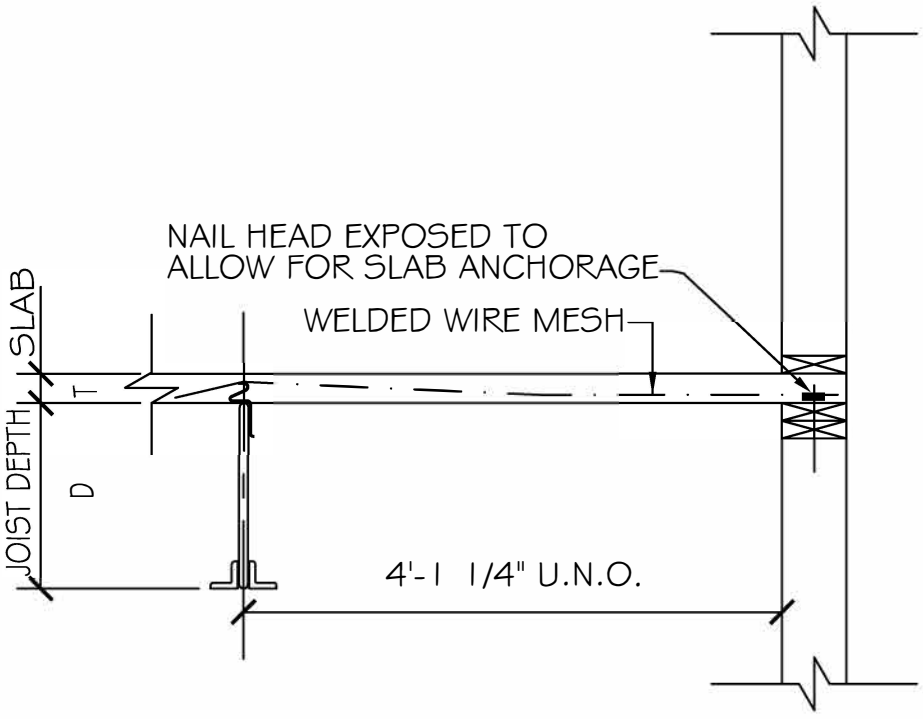
Joist bearing on interior masonry wall Section 4



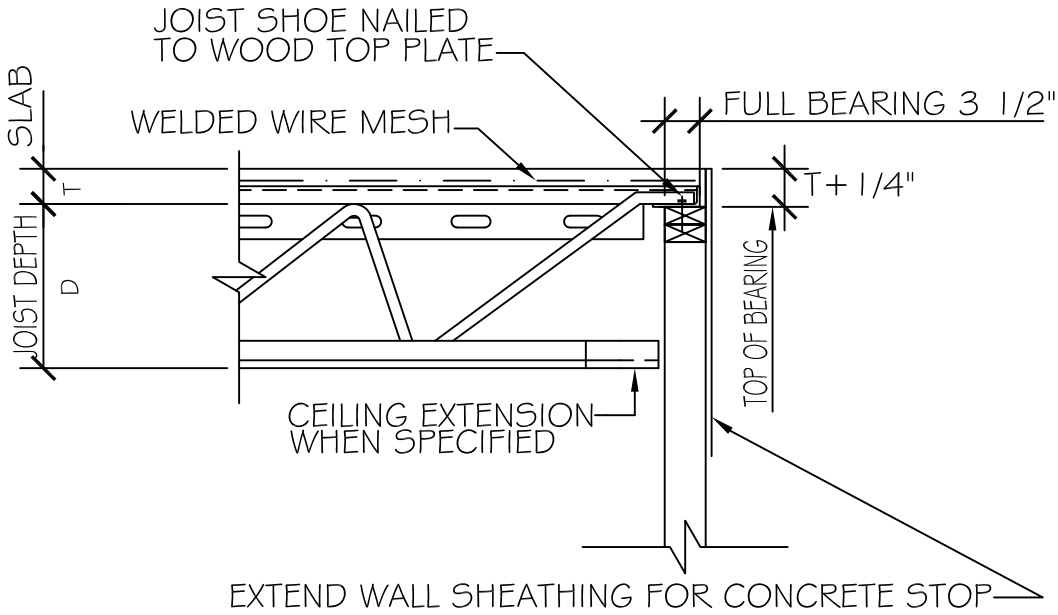
Joist parallel to masonry wall — Section 5



Joist parallel to wood stud wall — Section 6

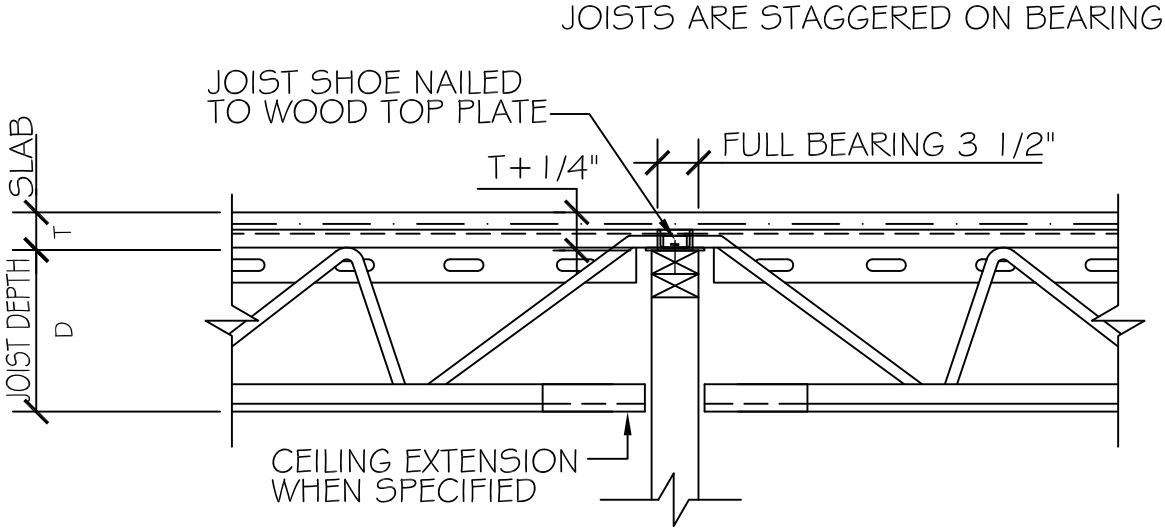


Joist bearing on wood stud wall — Section 7



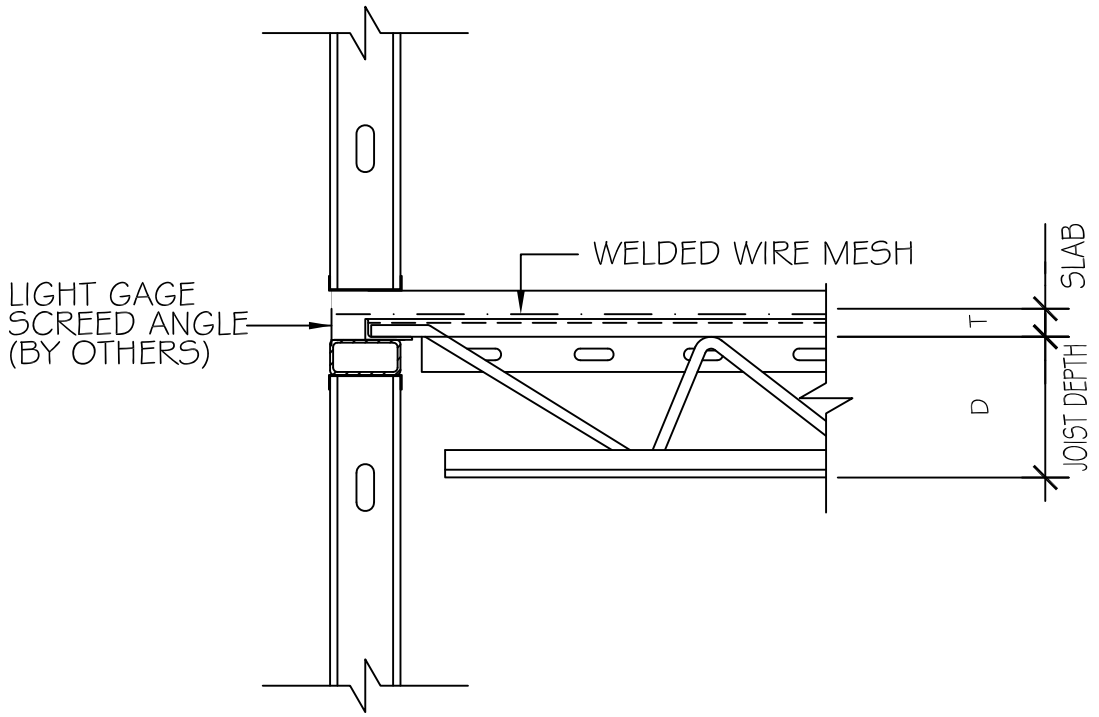
NOTE: (2) - 1/4"Ø HOLES IN SHOE

Joist bearing on interior wood stud wall — Section 8

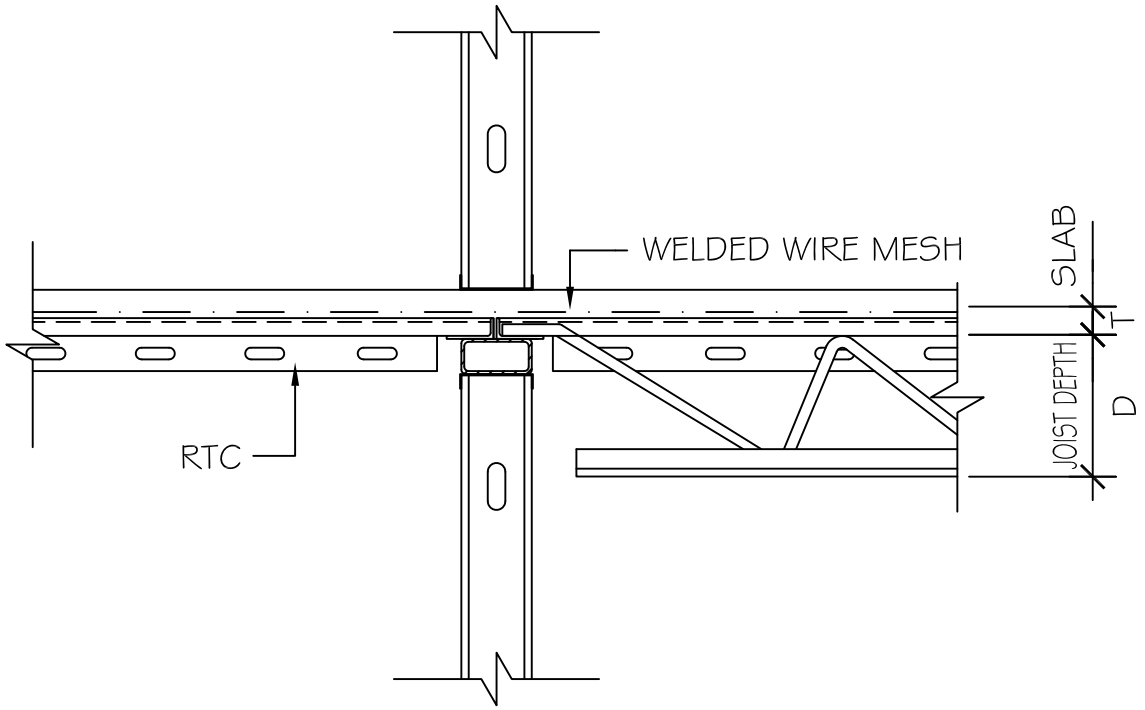


NOTE: (2) - 1/4"Ø HOLES IN SHOE

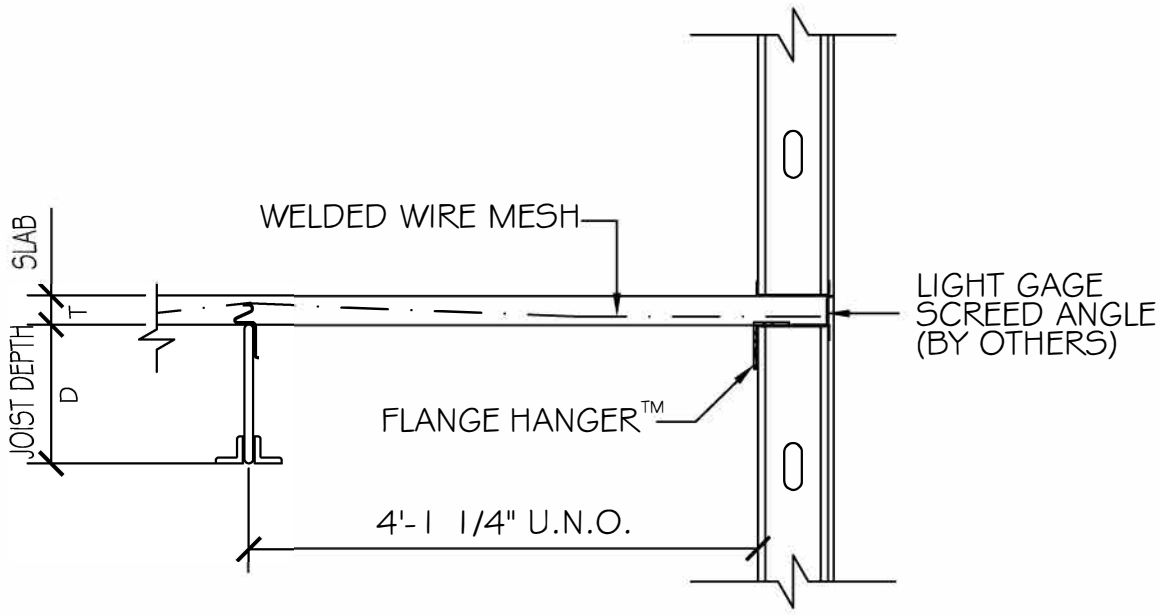
Joist bearing on exterior steel stud wall Section 9



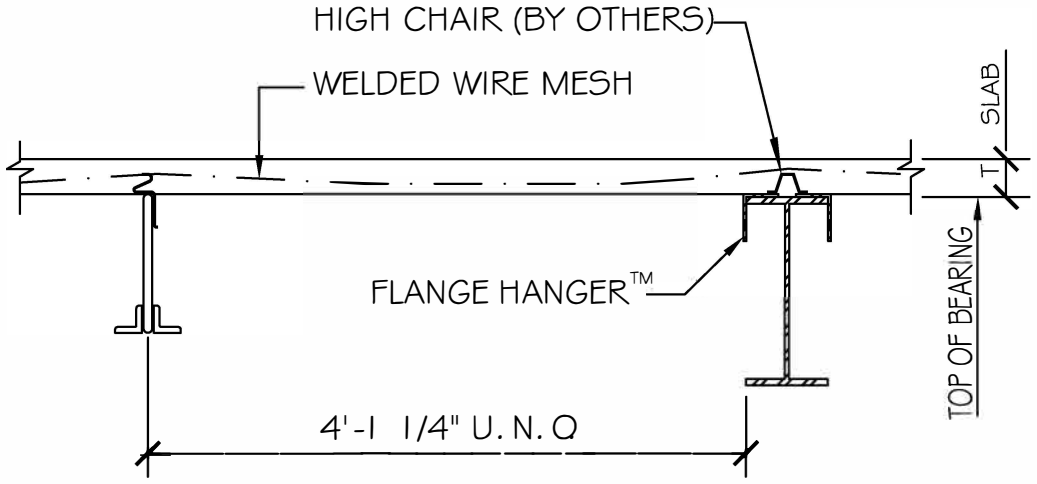
Joist bearing on interior steel stud wall Section 10



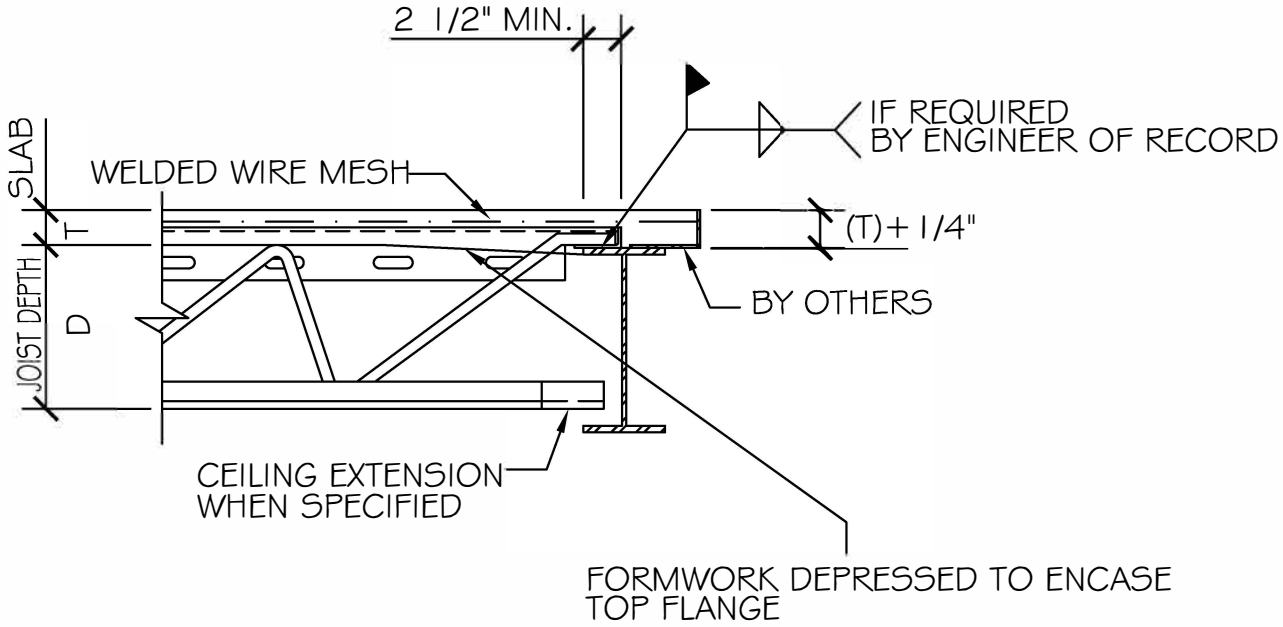
Joist parallel to steel stud wall — Section 11



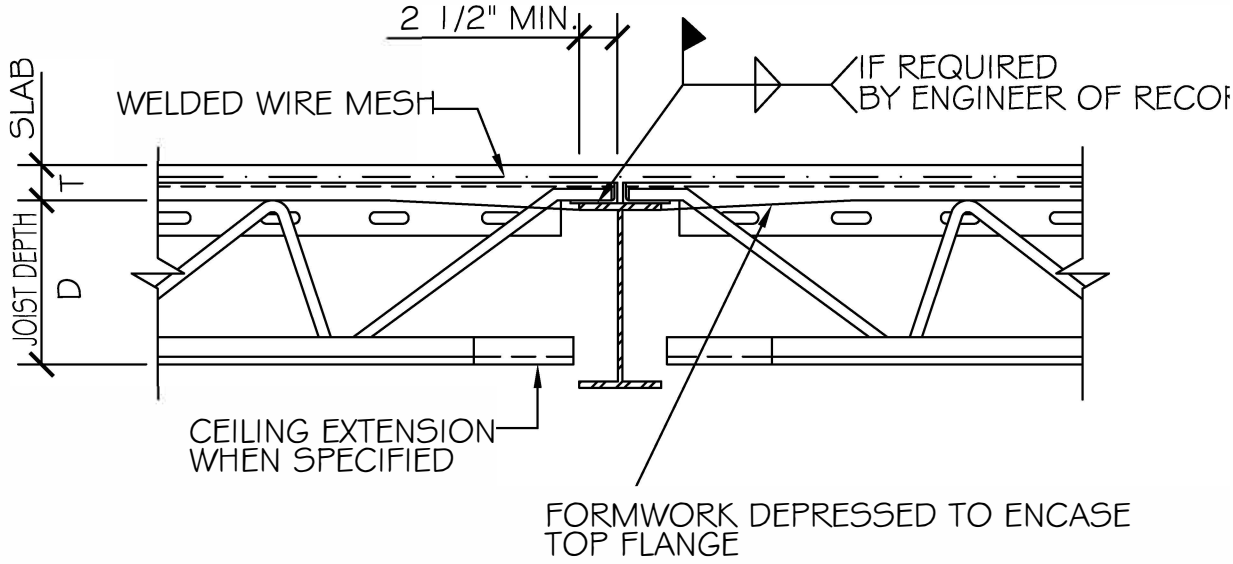
Joist parallel to steel beam — Section 12



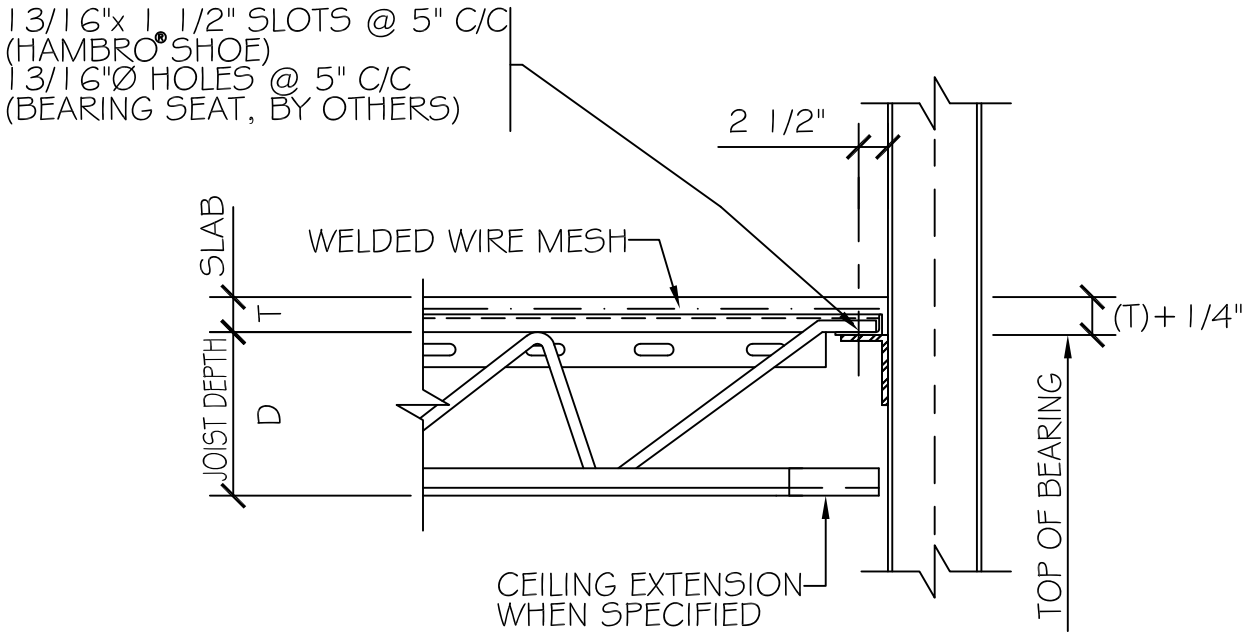
Joist bearing on exterior steel beam — Section 13



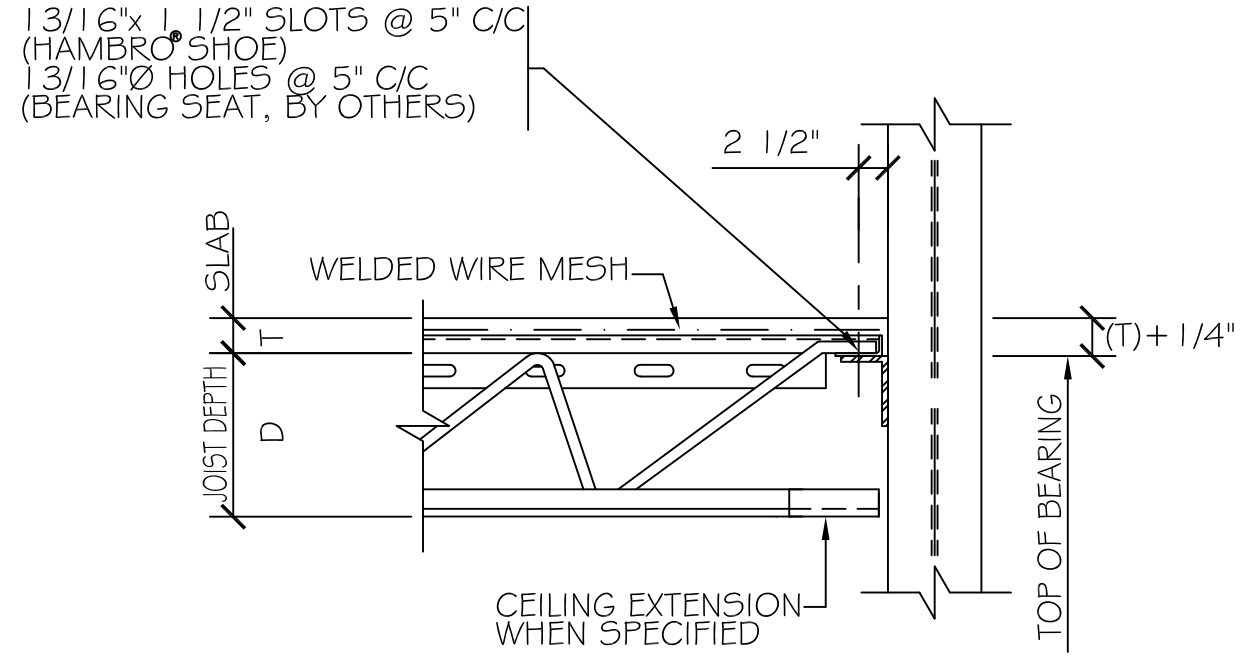
Joist bearing on interior steel beam — Section 14



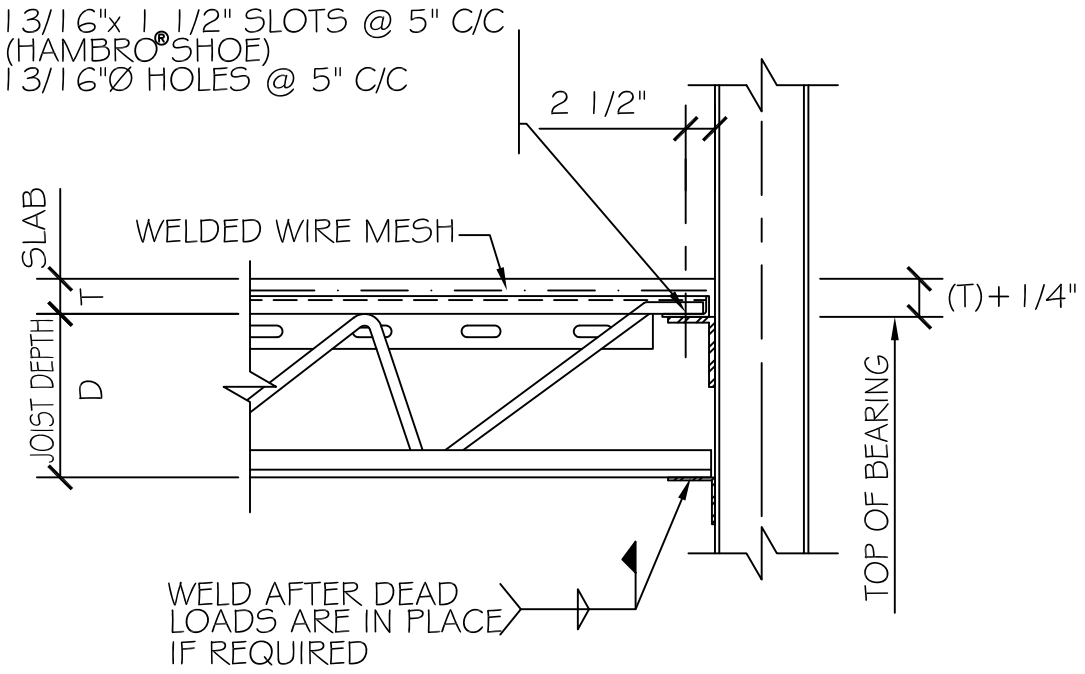
Joist at column (flange) ceiling ext. Section 15



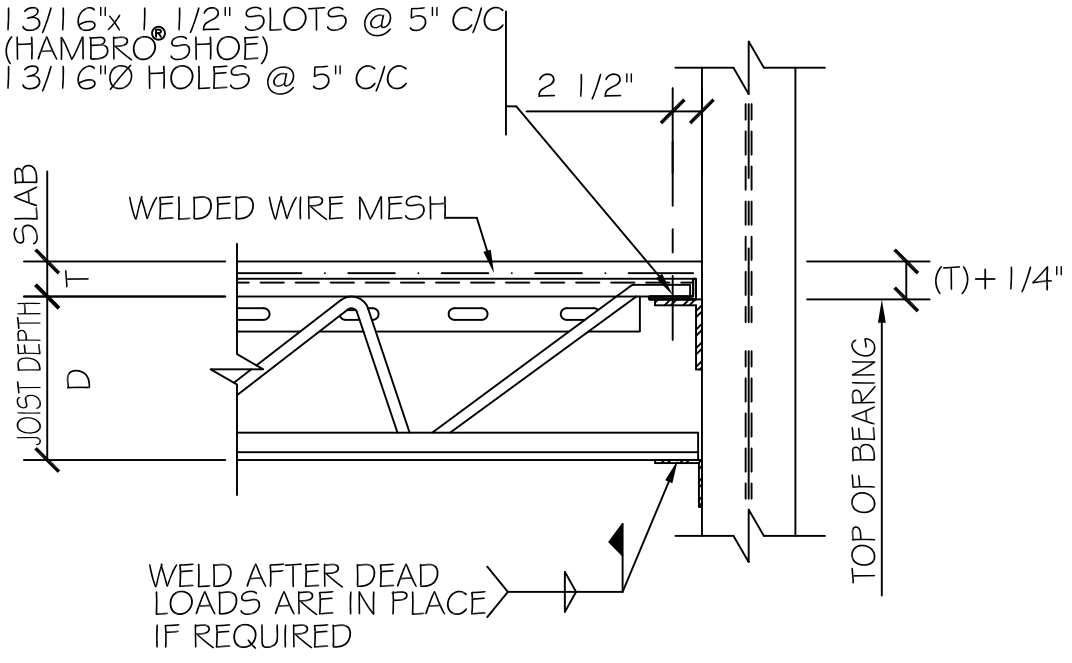
Joist at column (web) ceiling ext. Section 16



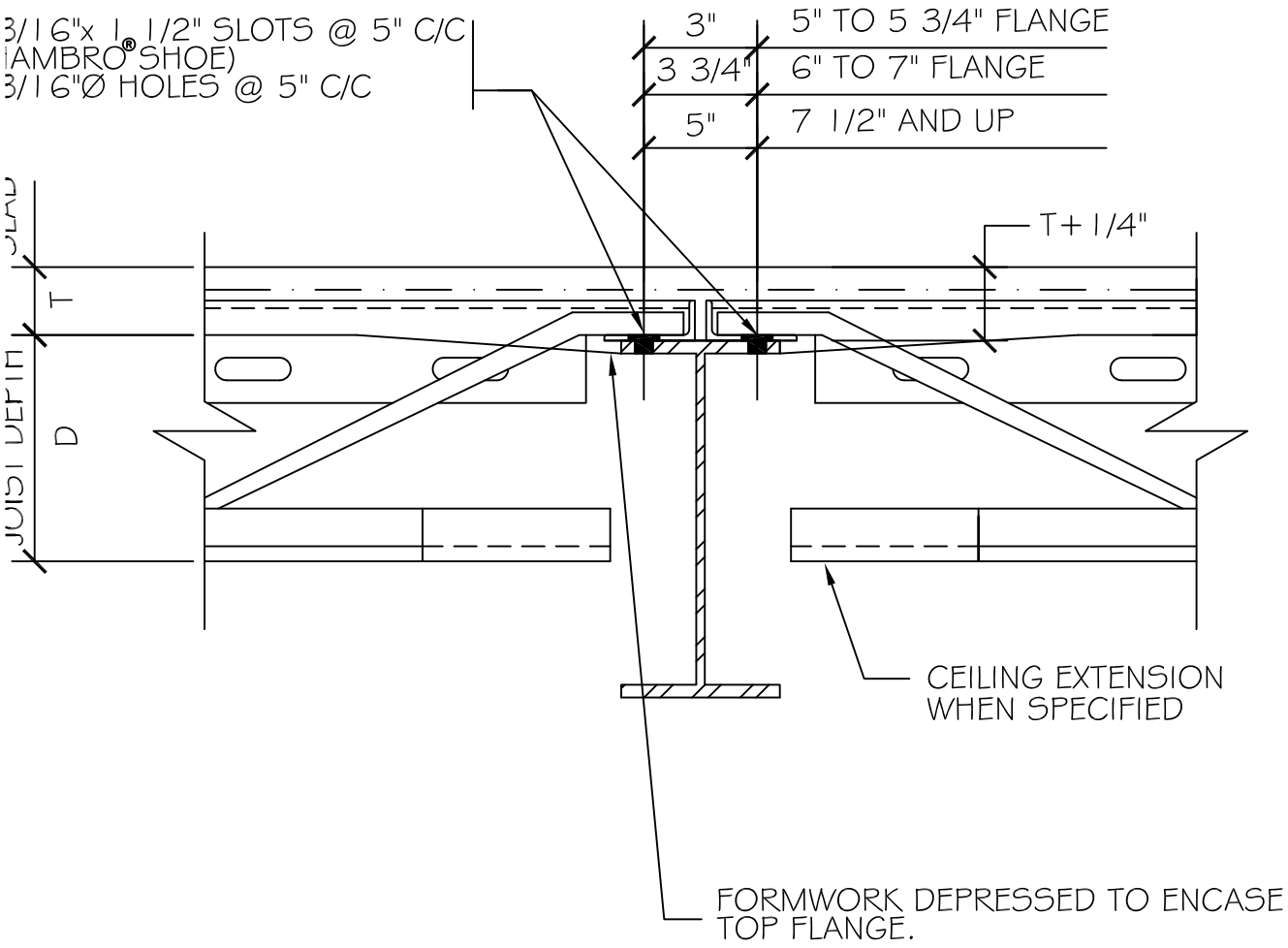
Tie–joist at column (flange) bottom chord extended Section 17



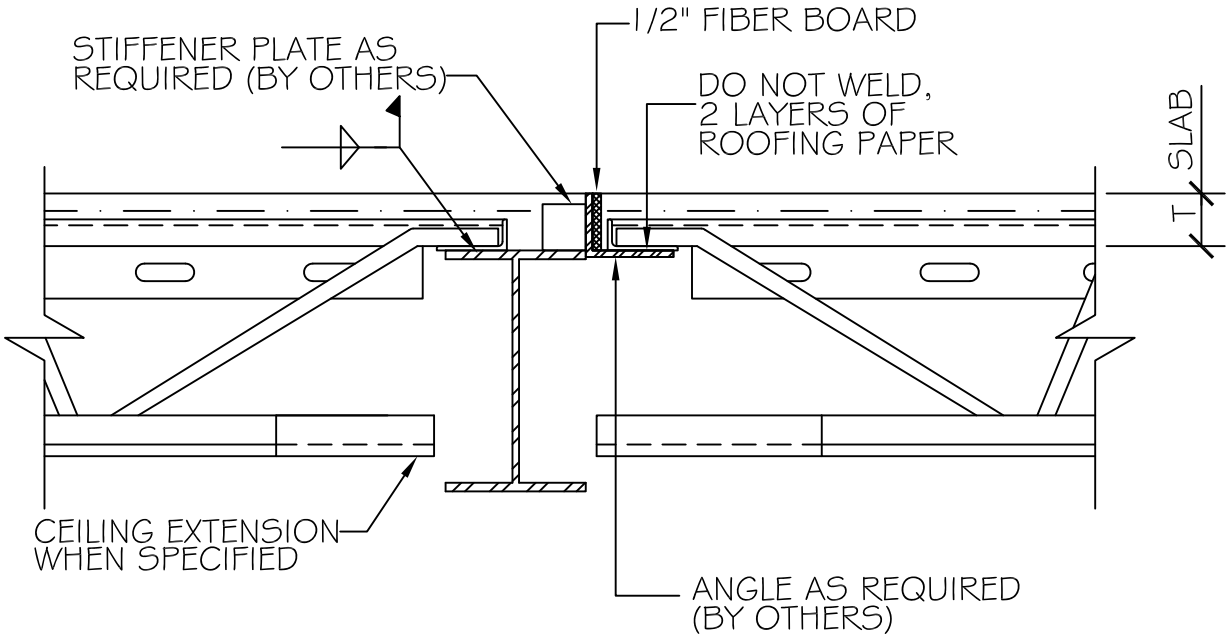
Tie–joist at column (web) bottom chord extended Section 18



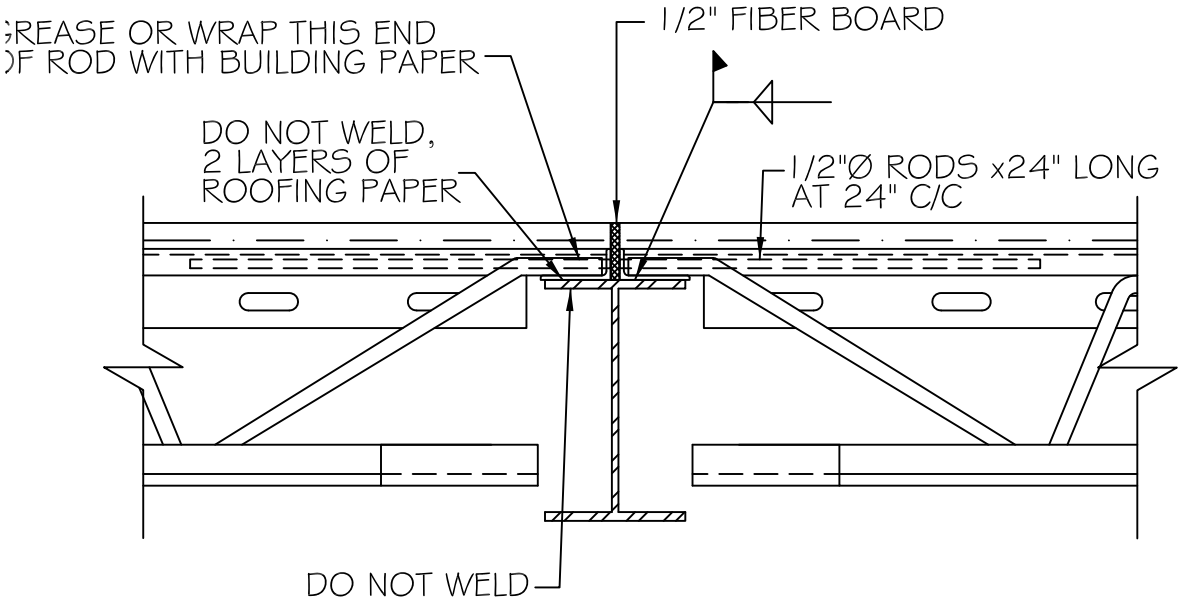
Bolted joist at steel beam Section 19



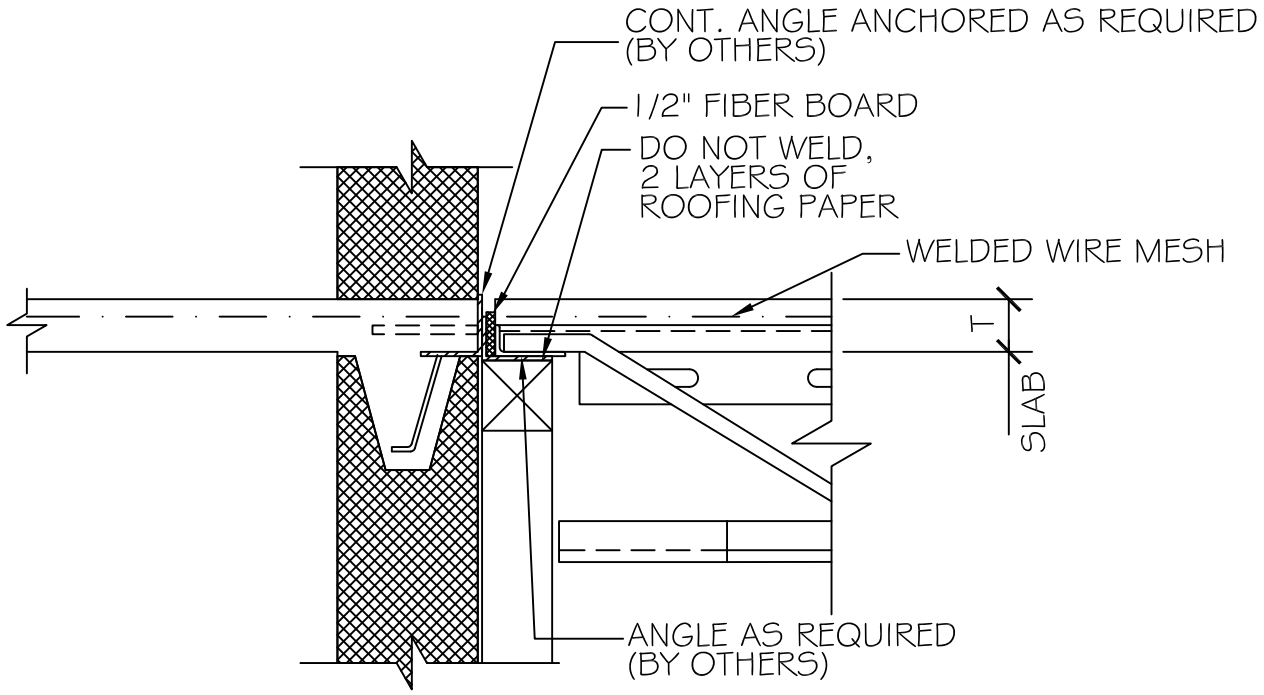
Expansion joint at intermediate floors (at steel beam) Section 20



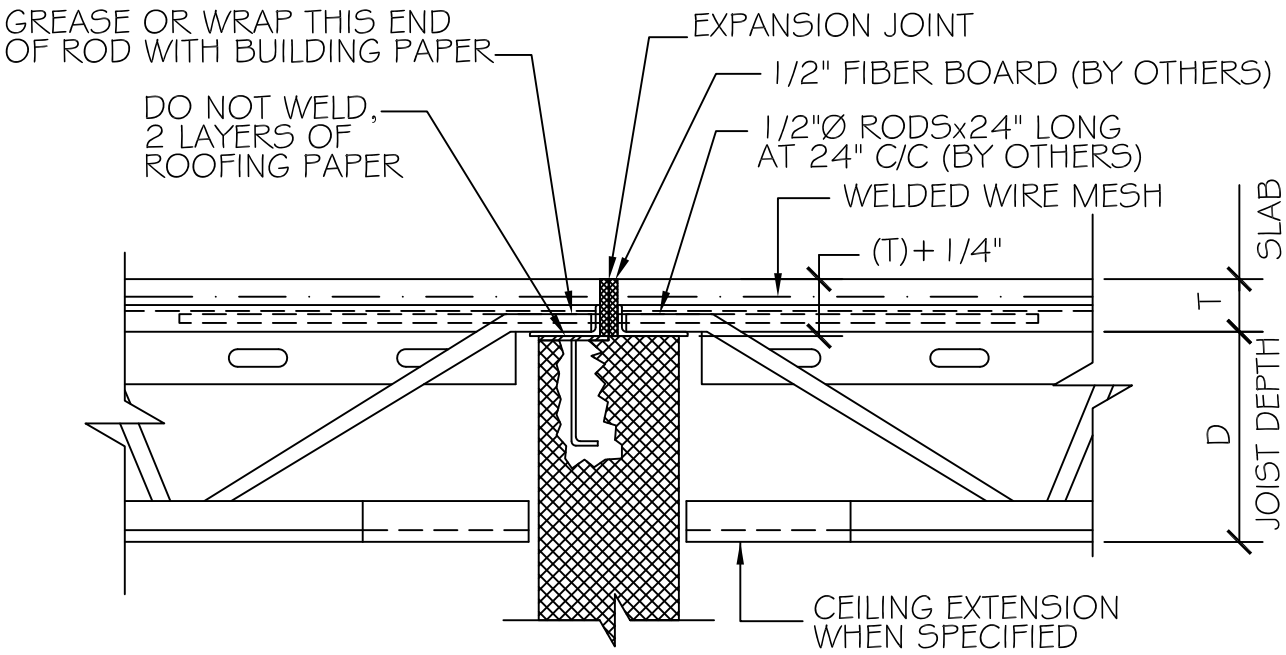
Expansion joint at roof (at steel beam) Section 21



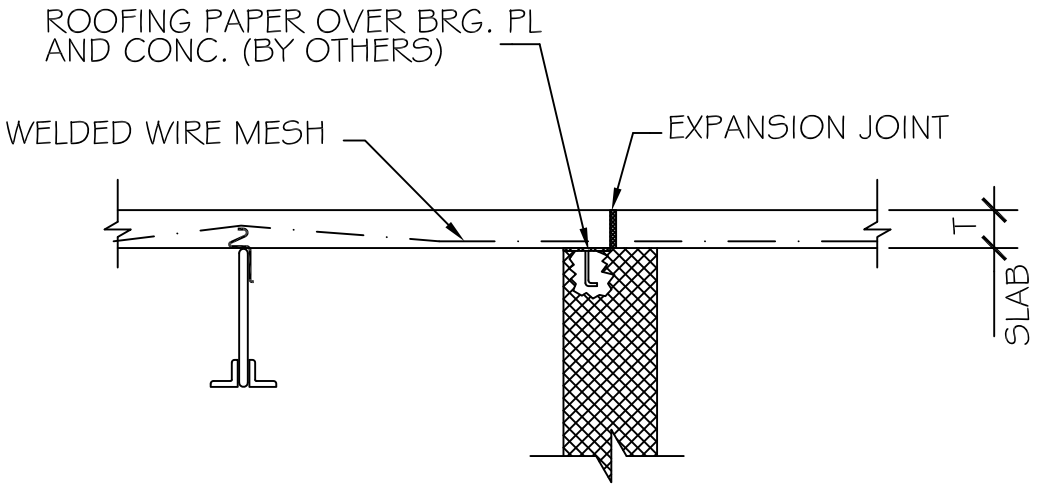
Expansion joint at intermediate floors (at wall) Section 22



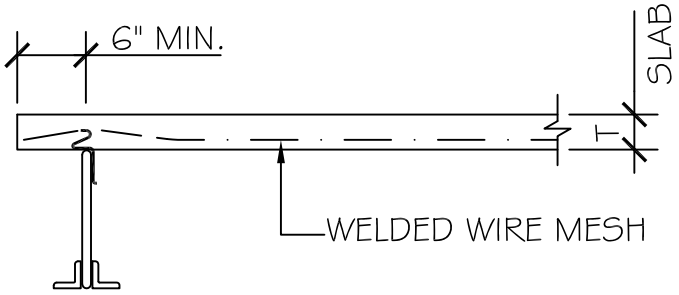
Expansion joint at roof (joist bearing) Section 23



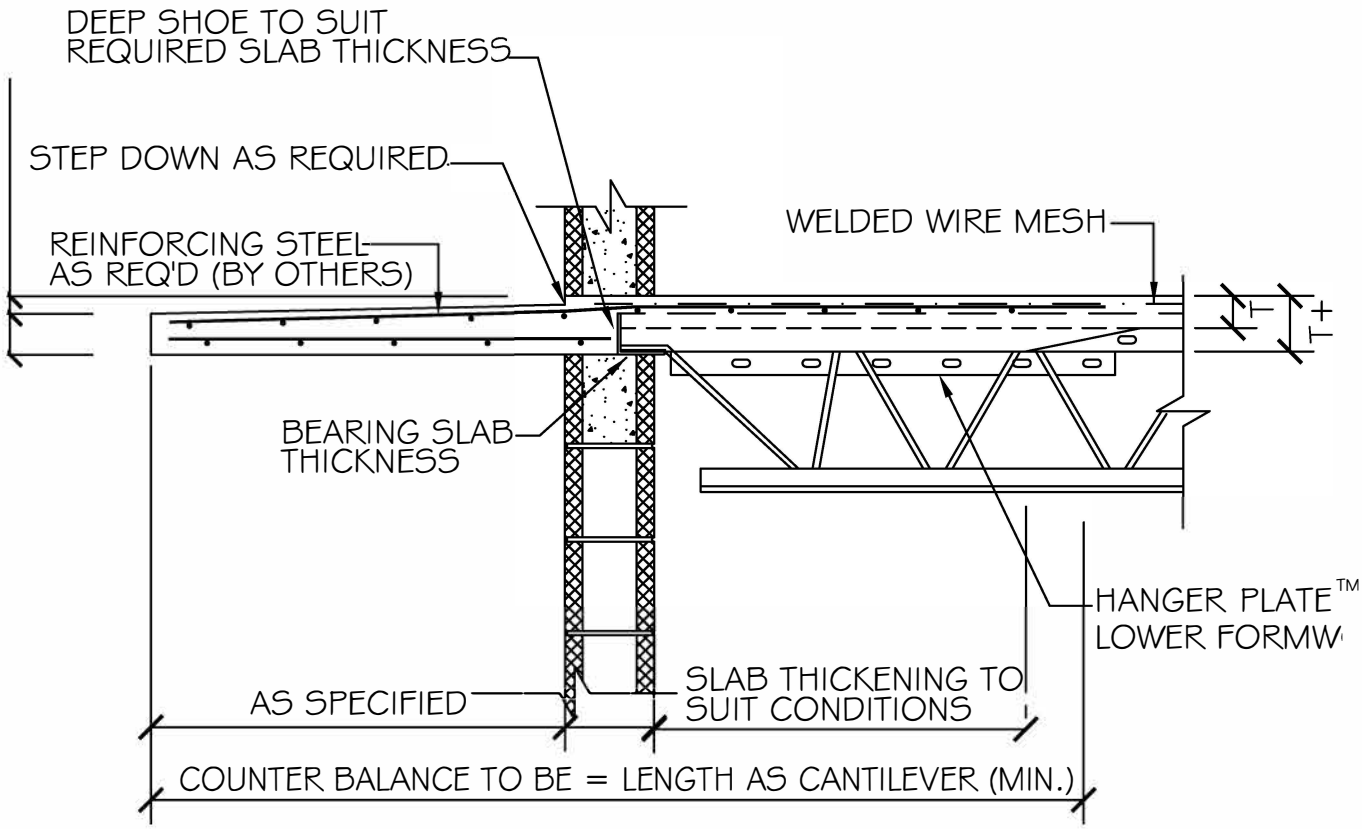
Expansion joint at roof (non-bearing) Section 24



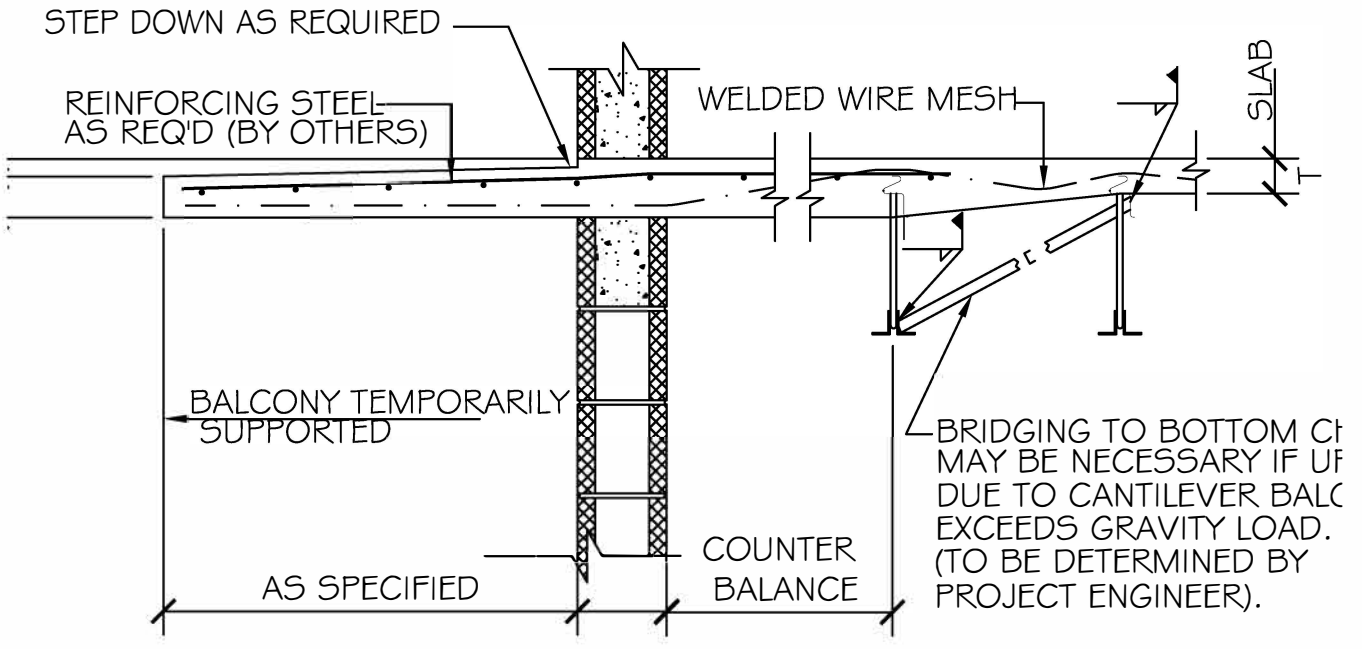
Minimum edge of slab to achieve composite action Section 25



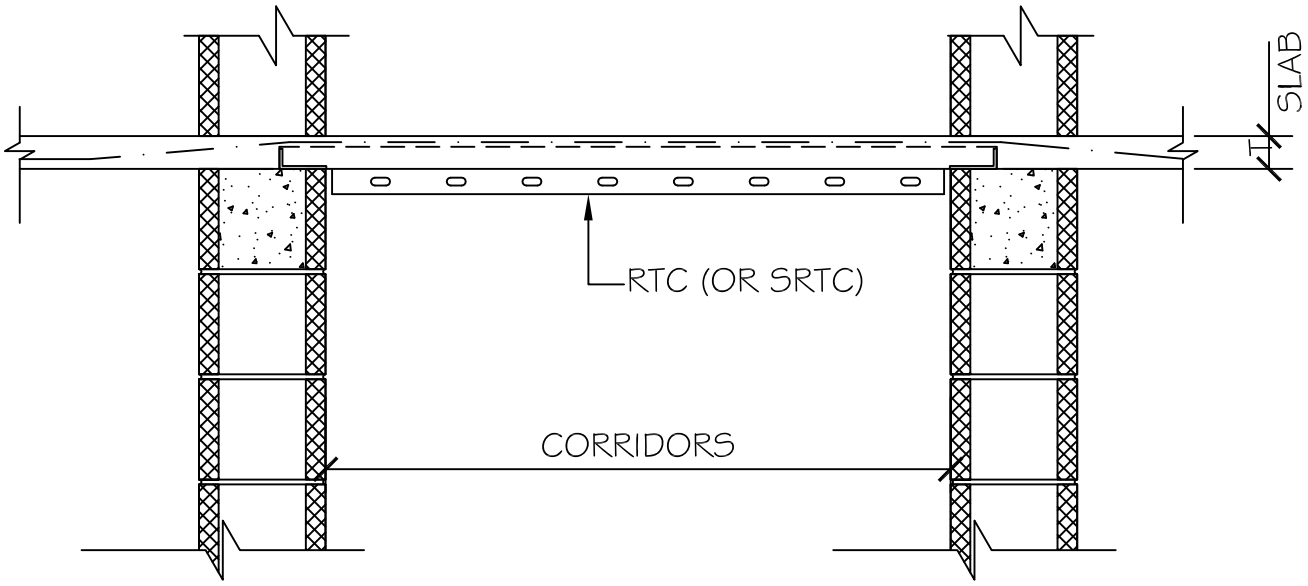
Cantilevered balcony (Joist perpendicular to balcony) Section 26



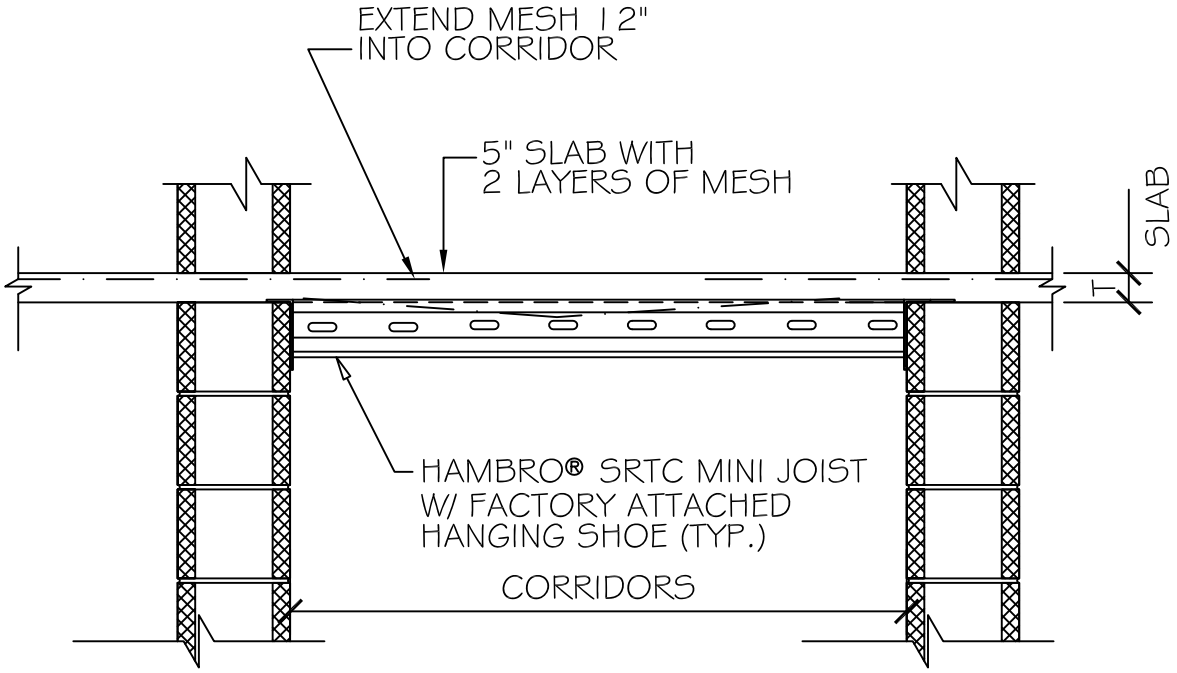
Cantilevered balcony (Joist parallel to balcony) Section 27



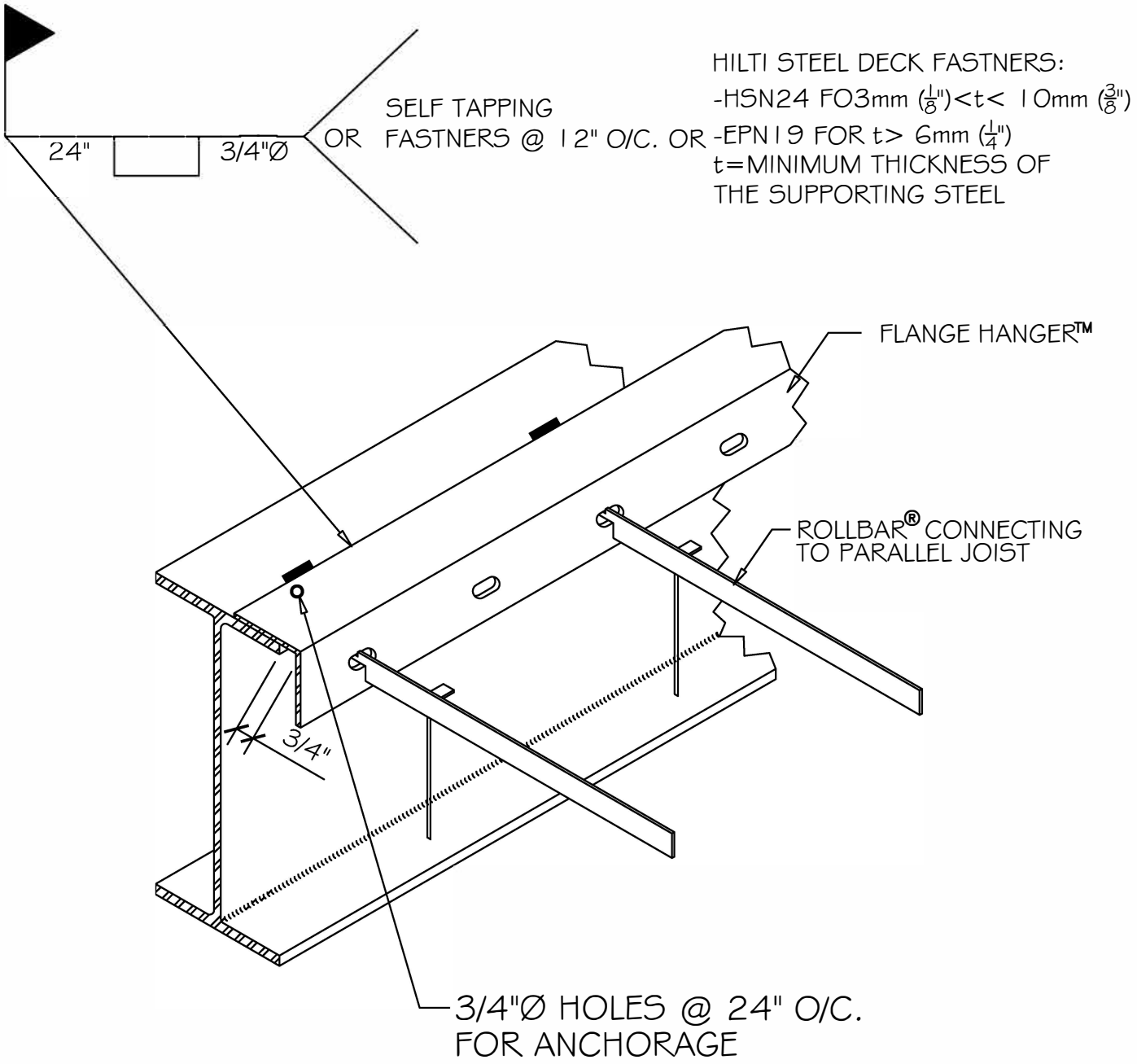
1 & 2 hour fire rated corridor assembly (1) Section 28



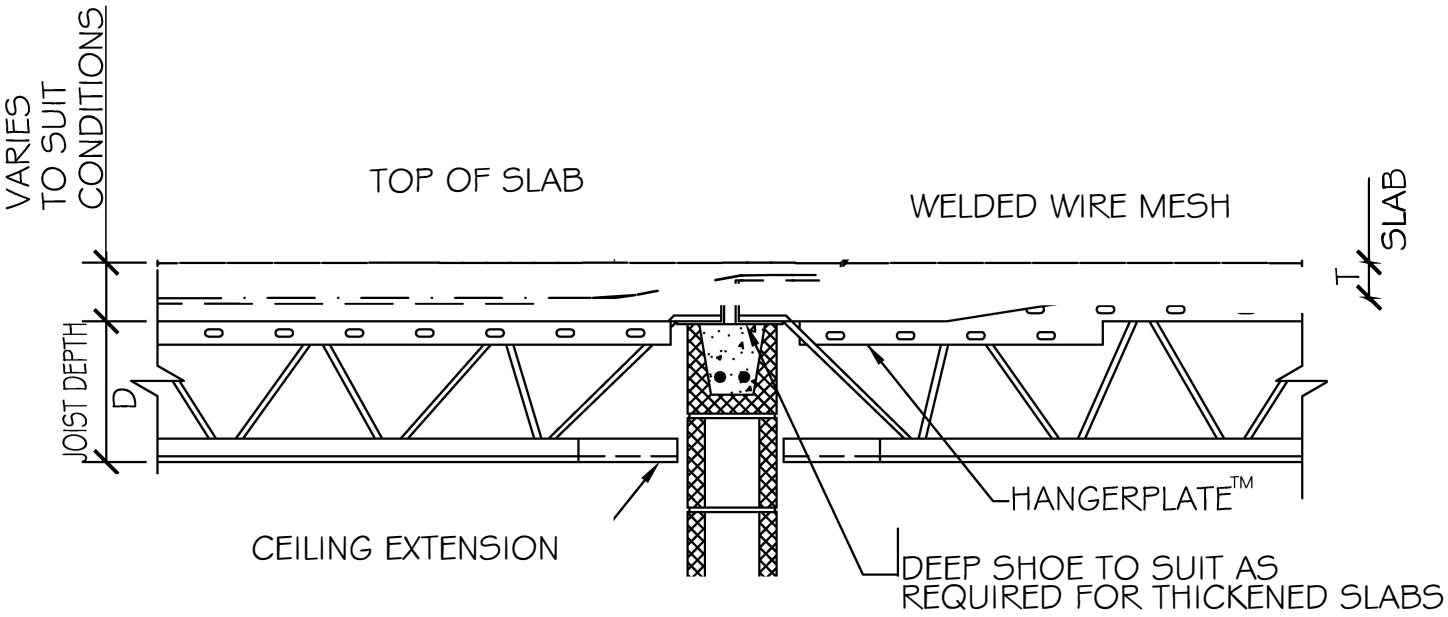
2 hour fire rated corridor assembly (2) Section 29



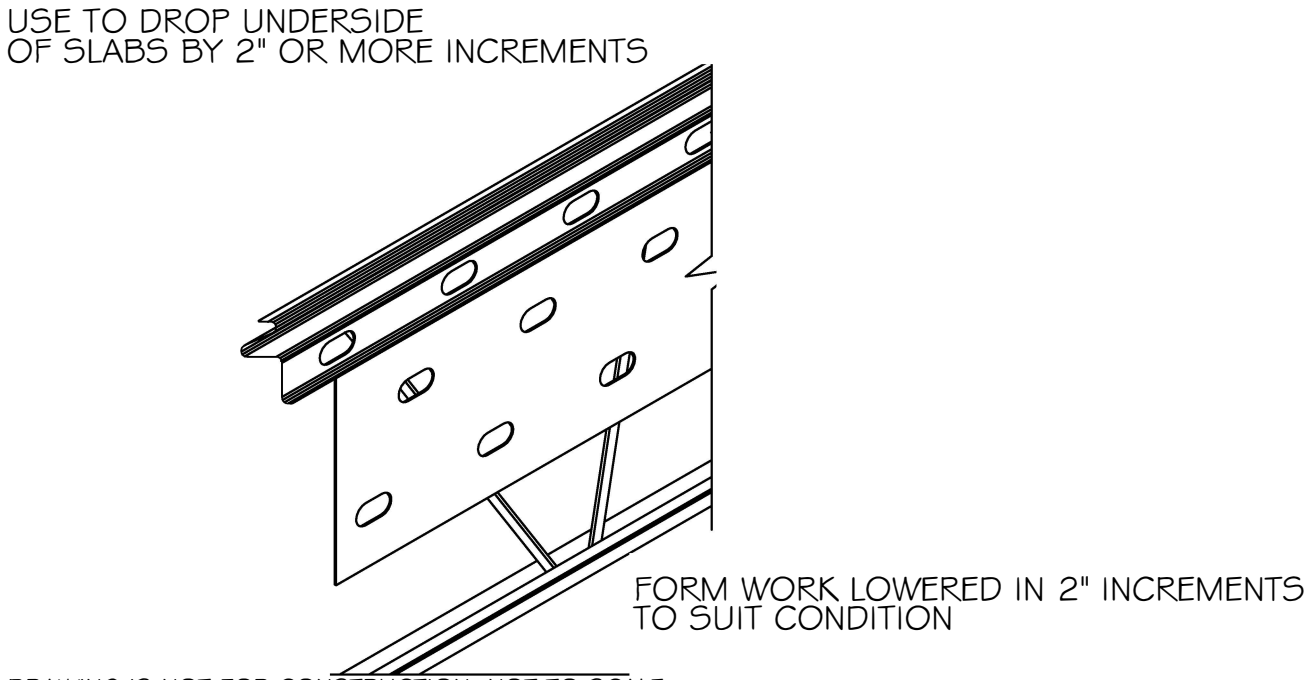
Flangehanger™ (on beams parallel to Hambro® joist) Section 33



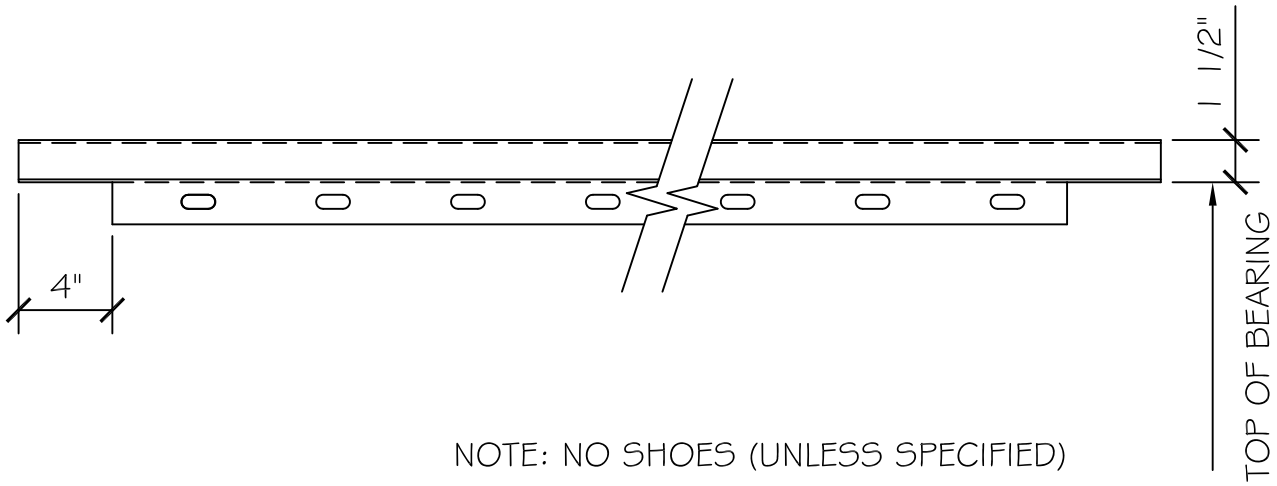
Deep shoe & Hangerplate™ to suit thickened slab Section 31



Hangerplate™ for recessed / thickened slabs Section 32

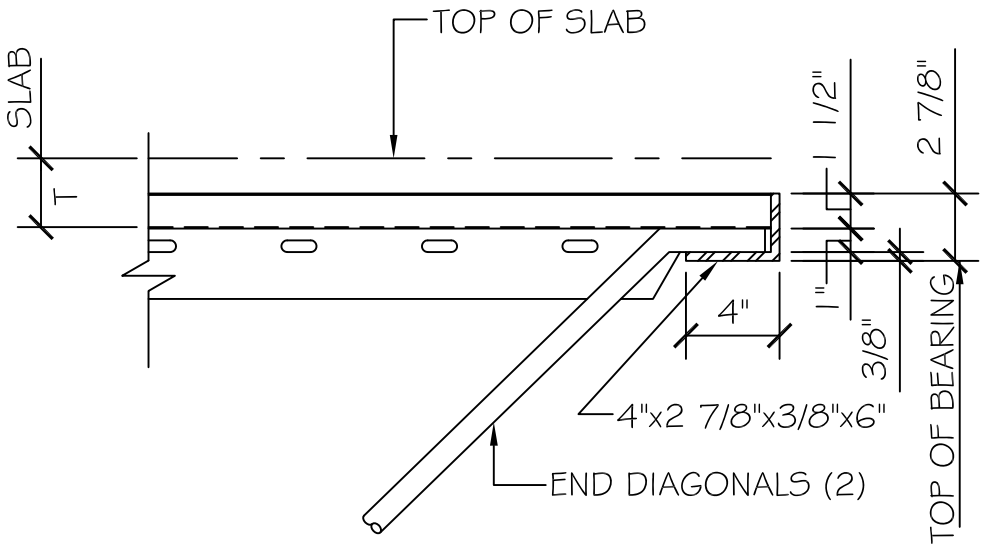


Hambro® standard mini–joist Section 30

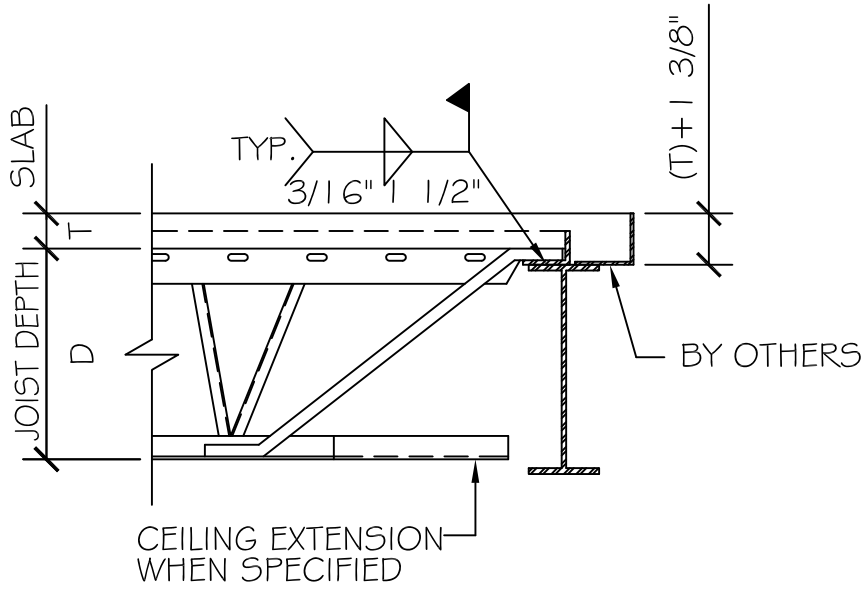


NOTE: NO SHOES (UNLESS SPECIFIED)

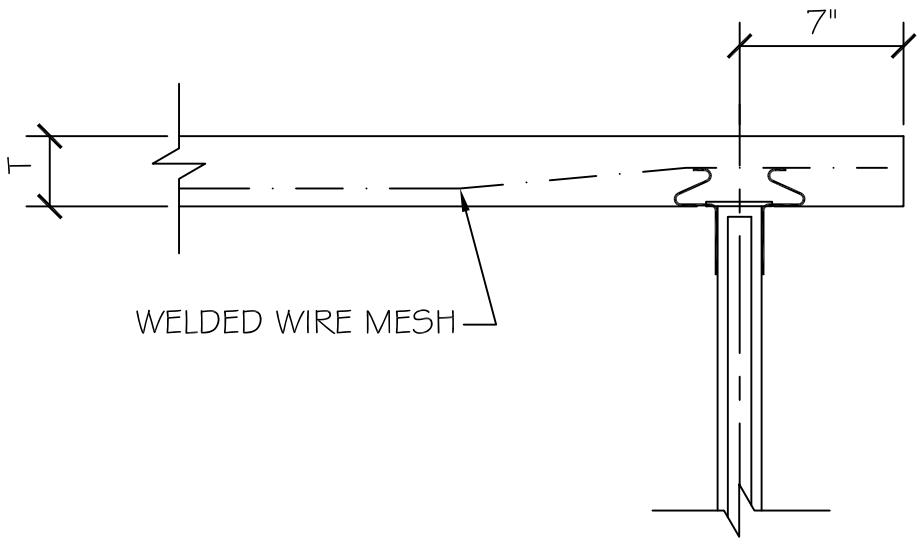
LH standard shoe — Section 34



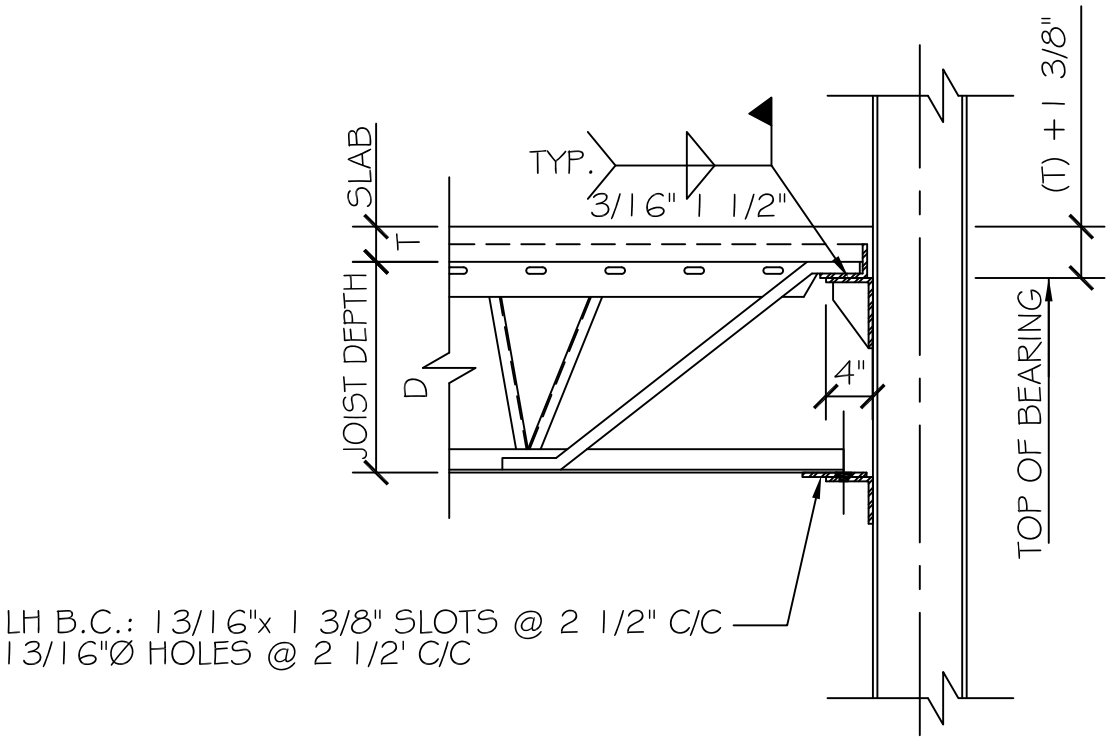
LH bearing on steel beam — Section 35



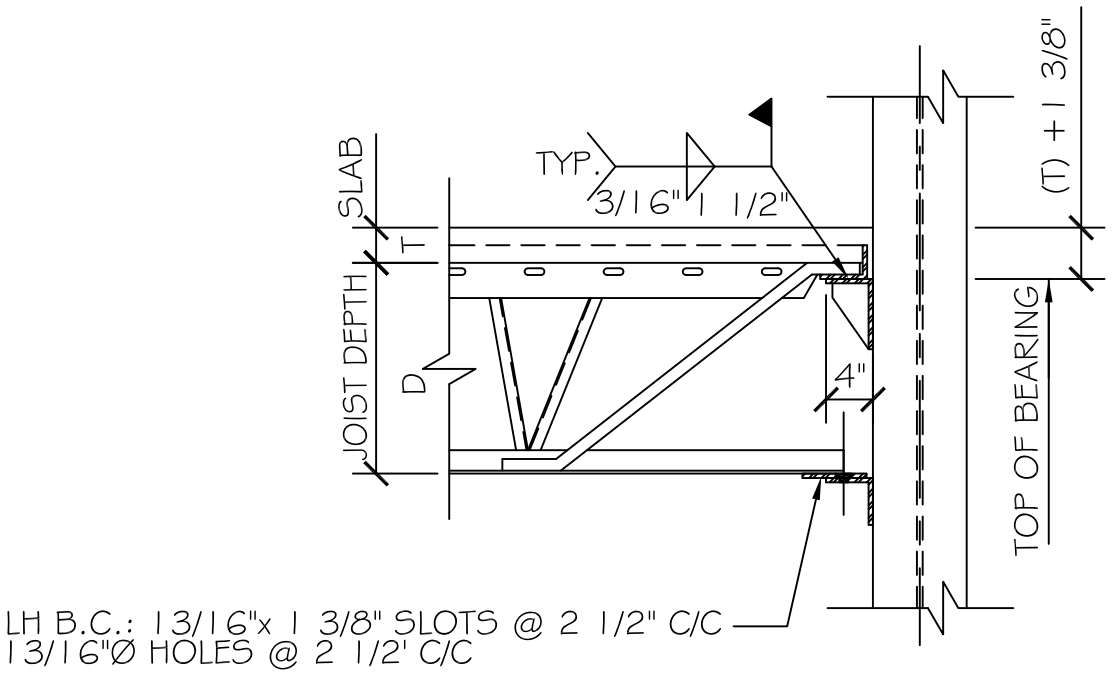
LH min. edge of slab to achieve composite action Section 36



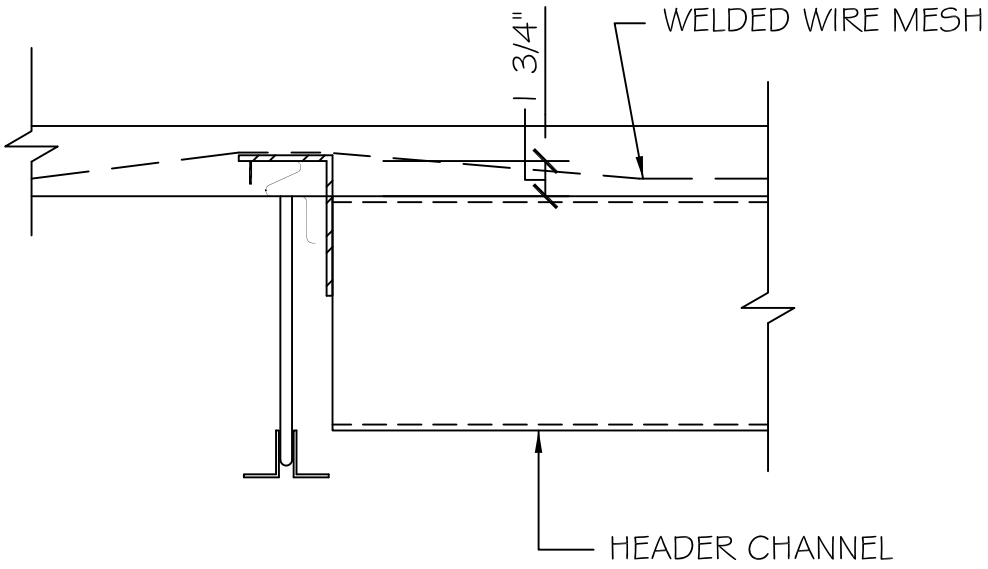
LH tie–joist at column (flange) bottom chord extended Section 37



LH tie–joist at column (web) bottom chord extended Section 38



Header support detail — Section 39



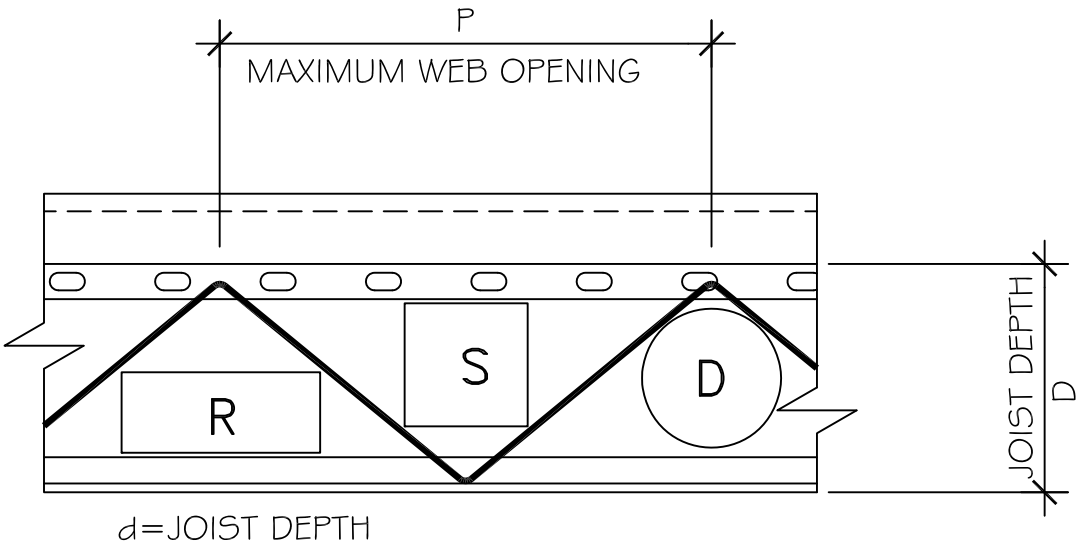
Slab Capacity Chart (Total Load psf) — Section 40

SLAB THICKNESS (t)	d	MESH SIZE Fy=60,000 psi. Fc=3,000 psi.	4'-1 1/4" JOIST SPACING		5'-0" JOIST SPACING	
			Exterior	Interior	Exterior	Interior
t≥ 2 3/4" and t < 3 5/8" NO CHAIR	1.6"	6x6 W2.9 x W2.9 6x6 W4.0 x W4.0	159 212	175 233	108 143	118 157
t≥ 3" and t < 3 5/8" 1/2" ROD SHOP WELDED TO TOP CHORD	2.1"	6x6 W2.9 x W2.9 6x6 W4.0 x W4.0	220 295	241 324	148 198	162 217
t≥ 3 5/8" and t < 5" NO CHAIR	1.6"	6x6 W4.0 x W4.0 2 layers 6x6 W2.1 x W2.1 2 layers 6x6 W2.9 x W2.9	219 226 304	241 248 334	148 152 204	162 167 223
t≥ 3 5/8" and t < 5" 1/2" ROD SHOP WELDED TO TOP CHORD	2.1"	6x6 W4.0 x W4.0 2 layers 6x6 W2.1 x W2.1 2 layers 6x6 W2.9 x W2.9	296 307 415	326 336 457	200 206 279	219 226 306
t≥ 3 5/8" and t < 5" WITH 2 1/2" CHAIR	2.6"	6x6 W4.0 x W4.0 2 layers 6x6 W2.1 x W2.1 2 layers 6x6 W2.9 x W2.9	353 363 497	387 399 545	236 244 333	259 267 365

NOTE: SLAB CAPACITIES ARE BASED ON MESH OVER JOISTS RAISED AS INDICATED.

(WEIGHT OF SLAB + JOIST)

Joist Ductability Chart Section 41



d=JOIST DEPTH
D=MAXIMUM DIAMETER
P=PANEL
S=MAXIMUM SQUARE
R=MAXIMUM RECTANGLE

d	P	D	S	R
8"	20"	4"	4"	6" x 3"
10"	20"	6"	5"	7" x 4"
12"	24"	8"	6"	9" x 5"
14"	24"	9"	7"	9 1/2" x 6" 11" x 5"
16"	24"	10"	8"	10 1/2" x 6 1/2" 13" x 5"
18"	24"	11"	8 1/2"	11" x 7' 12 1/2" x 6"
20"	24"	11 1/2"	9"	12" x 7" 13" x 6"
22"	24"	12"	9 1/2"	12" x 8" 14" x 6"
24"	24"	12 1/2"	10"	13" x 8" 14" x 7"

* LIMITATION ON OTHER SHAPE DUCTS CAN BE DETERMINED FROM GEOMETRY
* LARGER OPENINGS ARE AVAILIABLE WITH SPECIALLY DESIGNED JOIST, AT ADDITIONAL COST.

Fire resistance ratings have been issued by Underwriters Laboratories, Inc. which cover gypsum board, accoustical tile and spray on protection systems. Reference to these published listings should be made in detailing ceiling construction. Check your U.L. Directory for the latest updating of these listings.

Design No.	Rating (hr)	Slab Thickness (in)	Ceiling (in)	Beam Rating (hr)
			gypsum	
G525	3	$3-1/4$	$5/8$	3
G524*	2	$2-1/2$**	$1/2$	2
	3	$3-1/2$**	$1/2$	2
			Suspended/panel	
G236	2	$2-1/2$	"	–
G229	2	3	"	2
	3	4	"	3
G228	2	$3-1/4$	"	2
G227	2	$2-1/2$	"	3
G213	2	3	"	3
	3	4	"	3
G003	2	$2-1/2$	"	–
G702	1–2–3	Varies**	Spray On	–
G802	"	"	"	–
G803	"	"	"	–

*In accordance with U.L. Designs as noted up to 256 sq.in. ceiling penetrations per 100 sq.ft. of ceiling area are approved without the need for fire dampers for 1 hr. rating (196 sq. in. approved for 1 1/2 hrs, and 100 sq. in. approved for 2 hrs). Check your U.L. Directory for complete details and contact you HAMBRO Representative for updates in your area.

**Normal and lightweight concrete.

Sound Rating Chart Section 43

HAMBRO® COMPOSITE FLOOR SOUND ENGINEERED STC 57 ASTM E336 ASTM E90-70