

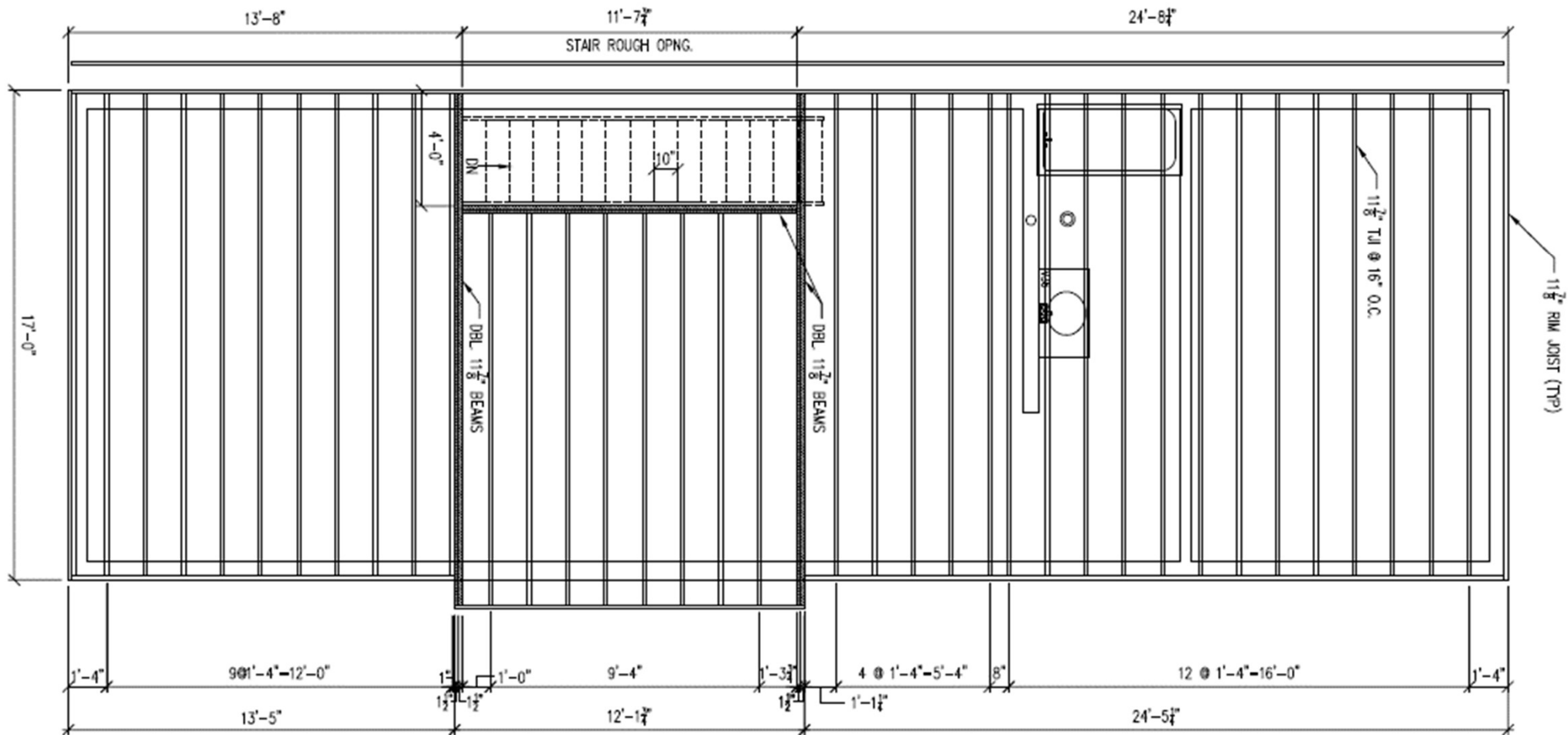
# ARCH 2331

## BUILDING TECHNOLOGY II

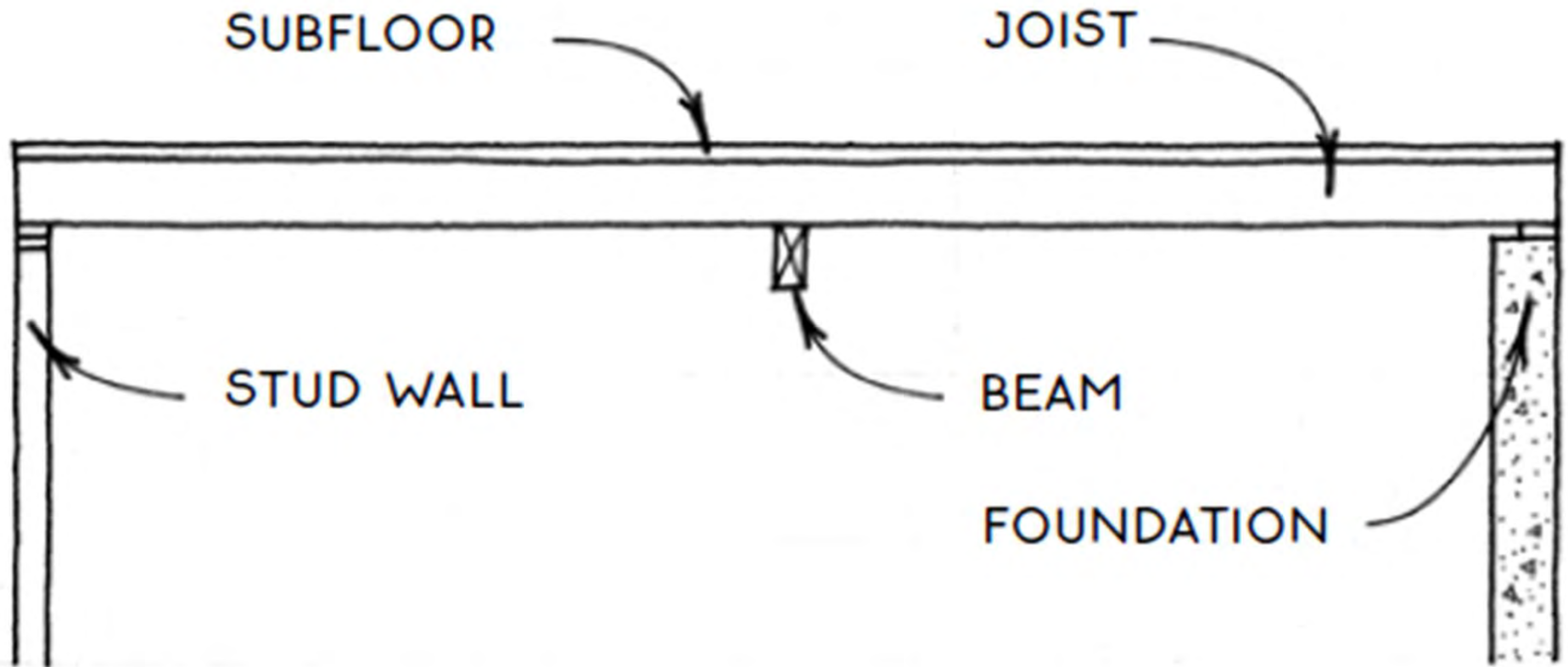
### Joist Layout Plans



# Joist Layout Plan



## ELEMENTS OF A FLOOR SYSTEM



3 typical ways of supporting joists



Note, the lightwells in this photograph.



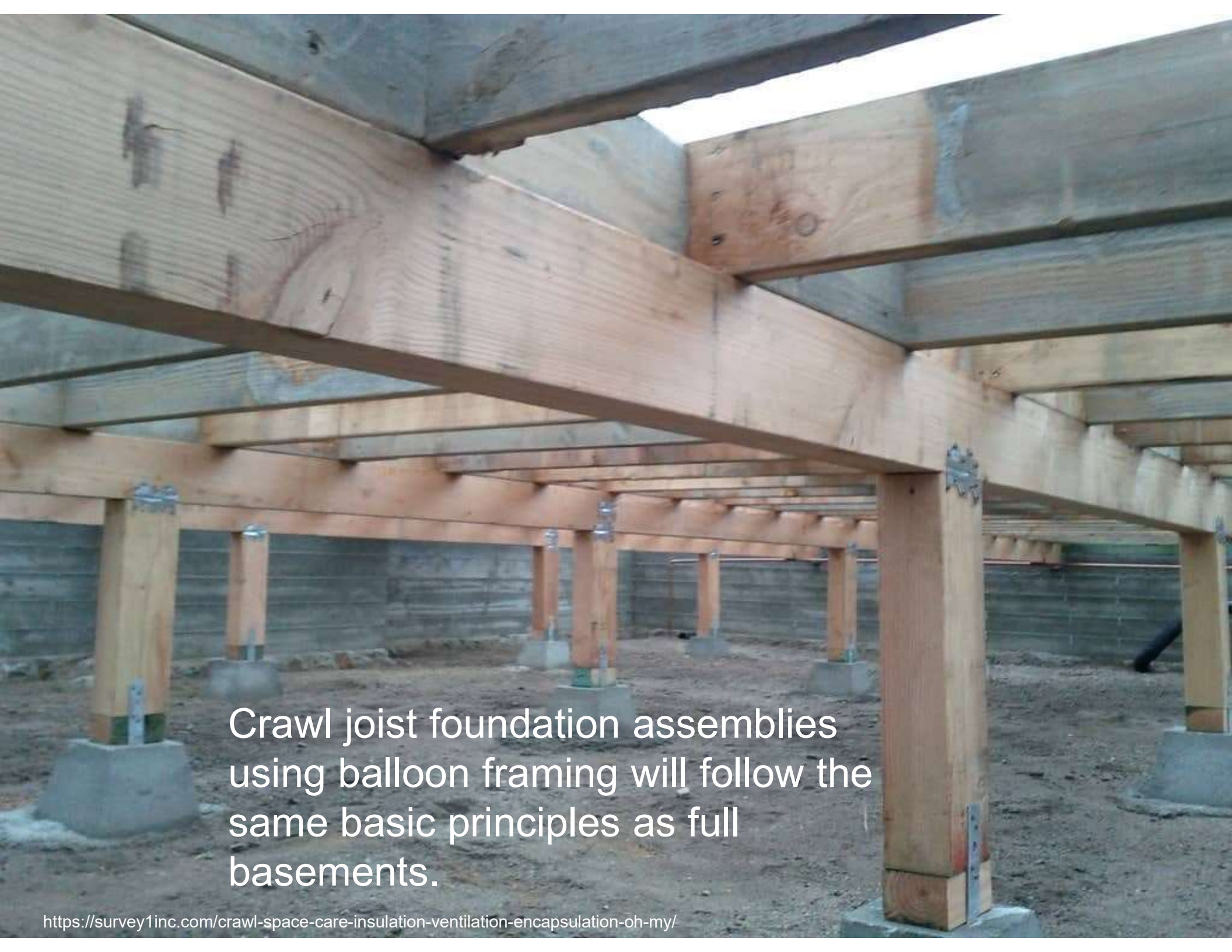




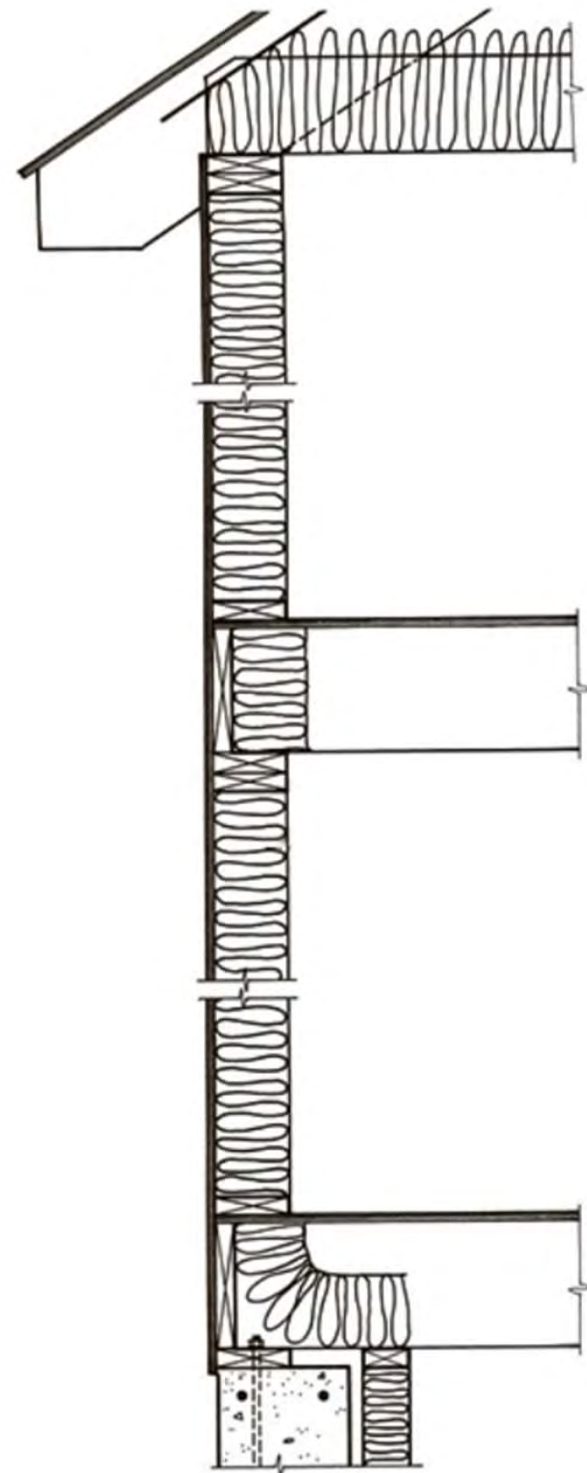
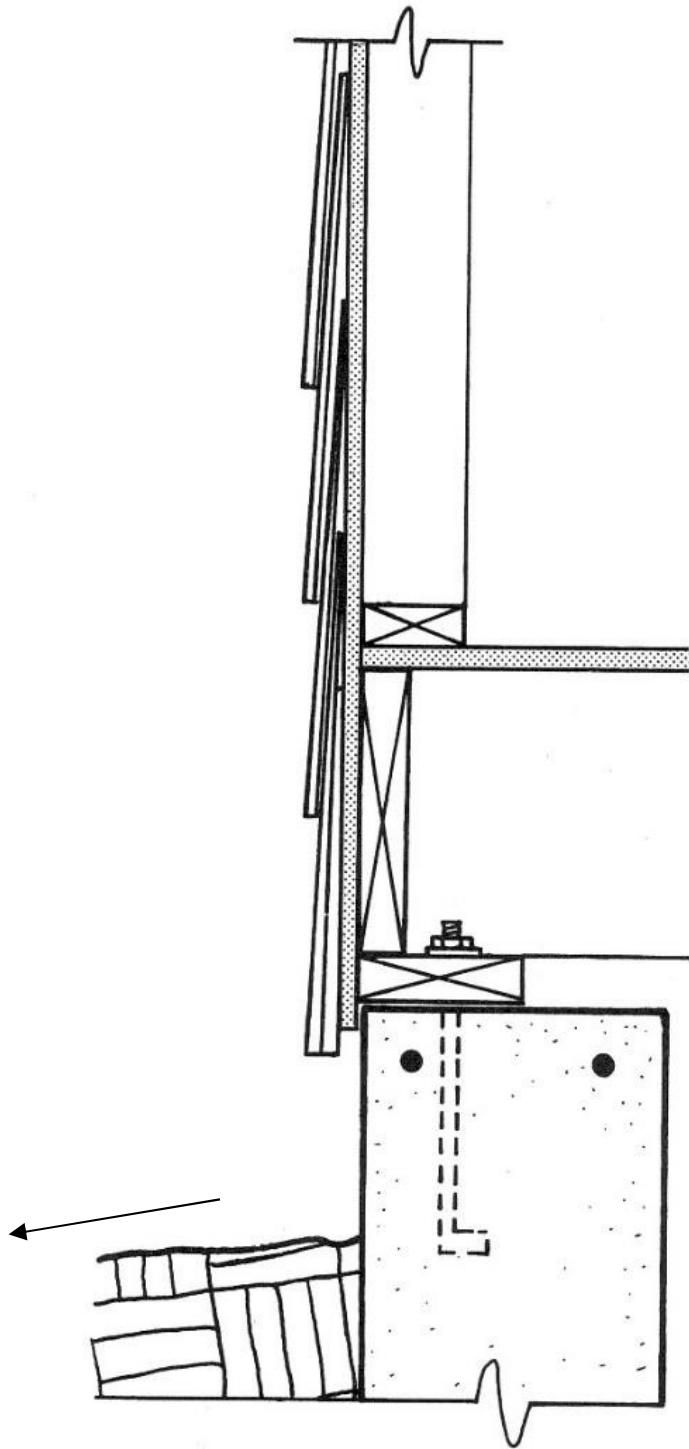
Depending on the building design you may have multiple transition points between your concrete foundation and your light wood framing.

You can see how typically the basement slab is poured after your foundation walls.



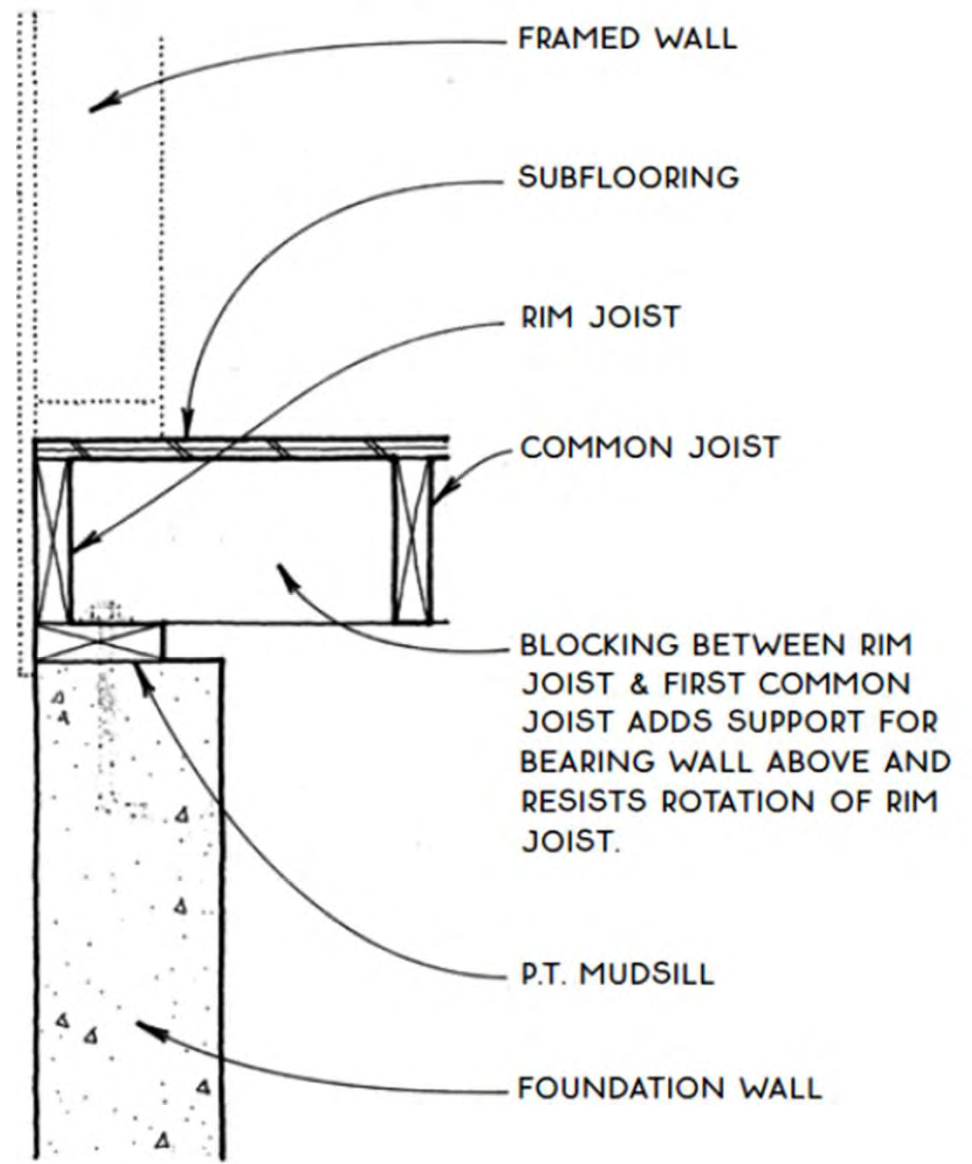
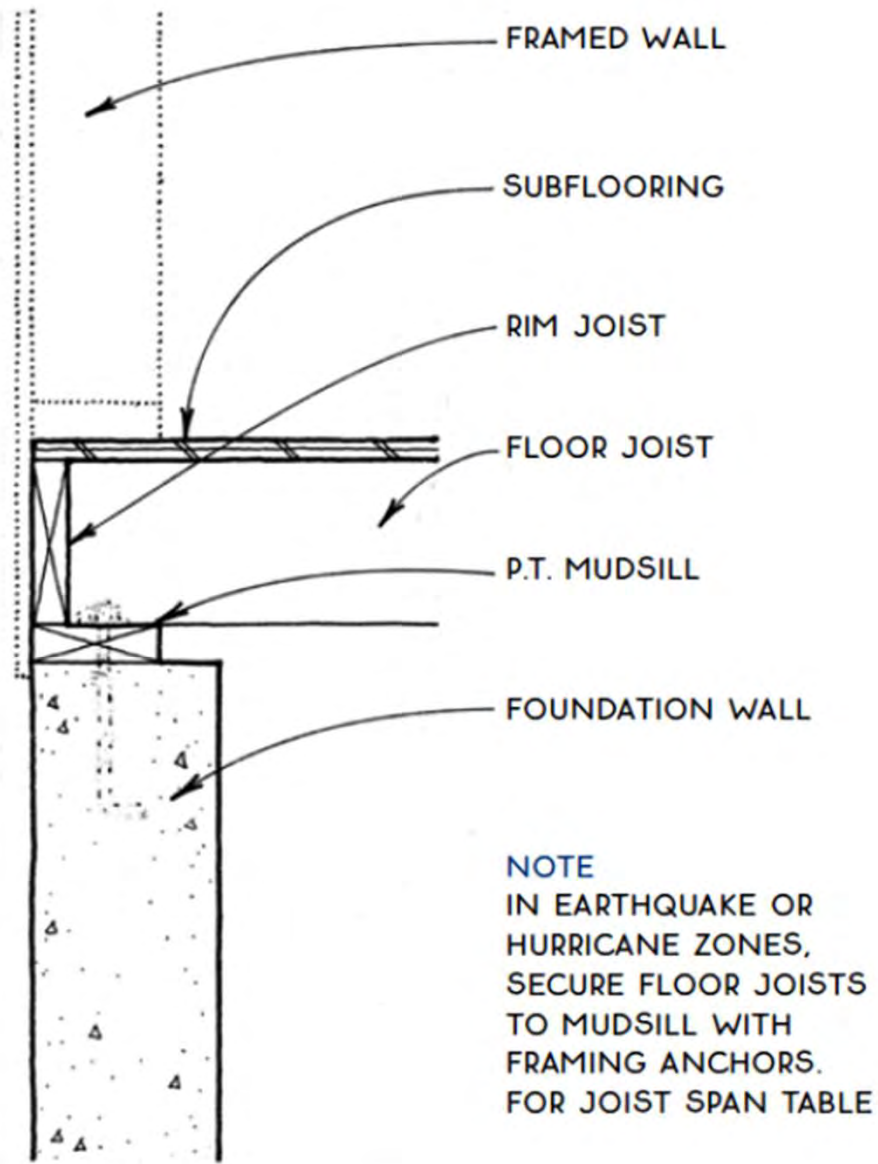


Crawl joist foundation assemblies using balloon framing will follow the same basic principles as full basements.



**TYPICAL WOOD FRAME CONSTRUCTION**

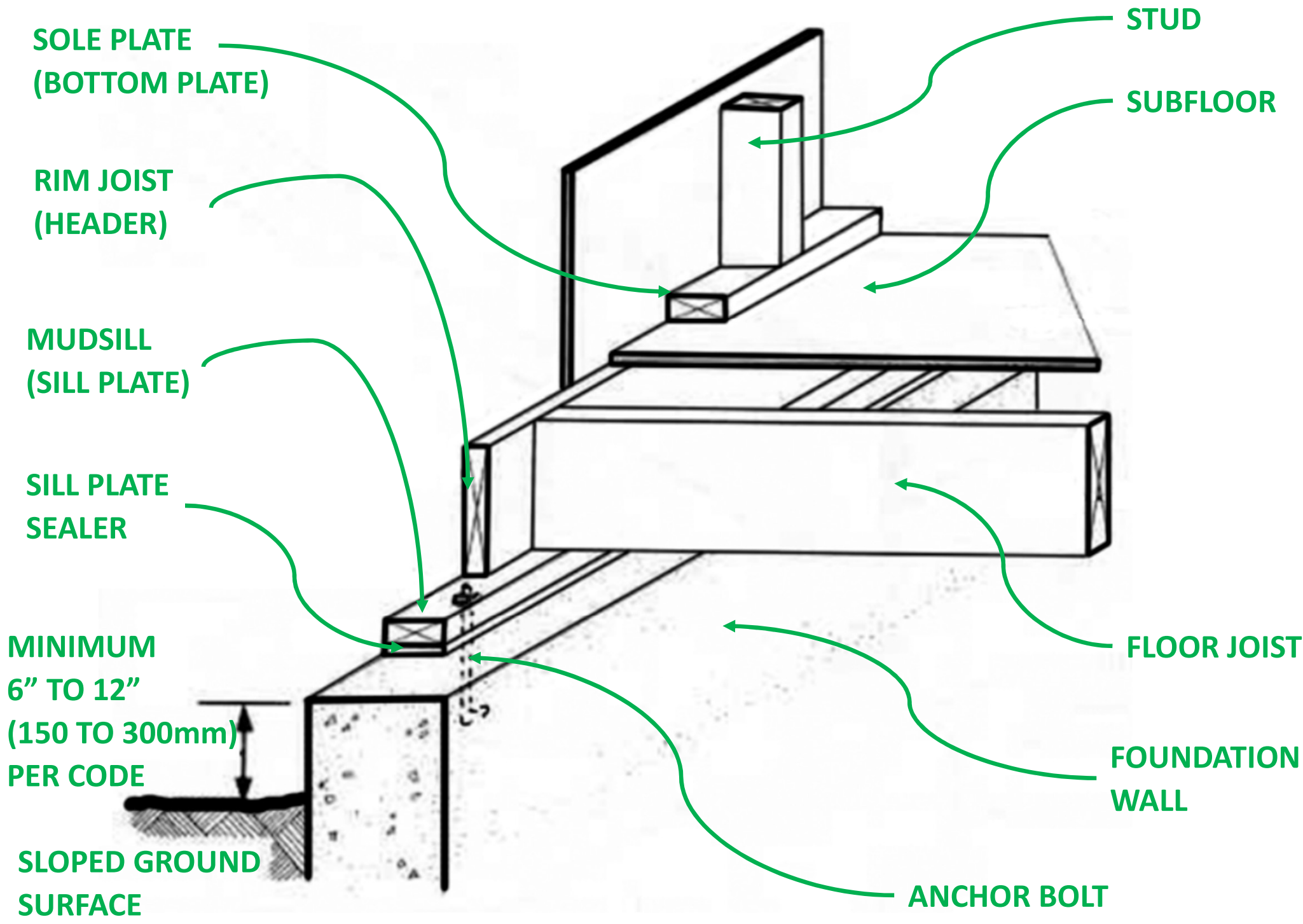




**A** JOISTS ON MUDSILL  
Perpendicular to Wall

**B** JOISTS ON MUDSILL  
Parallel to Wall





SOLE PLATE  
(BOTTOM PLATE)

RIM JOIST  
(HEADER)

MUDSILL  
(SILL PLATE)

SILL PLATE  
SEALER

MINIMUM  
6" TO 12"  
(150 TO 300mm)  
PER CODE

SLOPED GROUND  
SURFACE

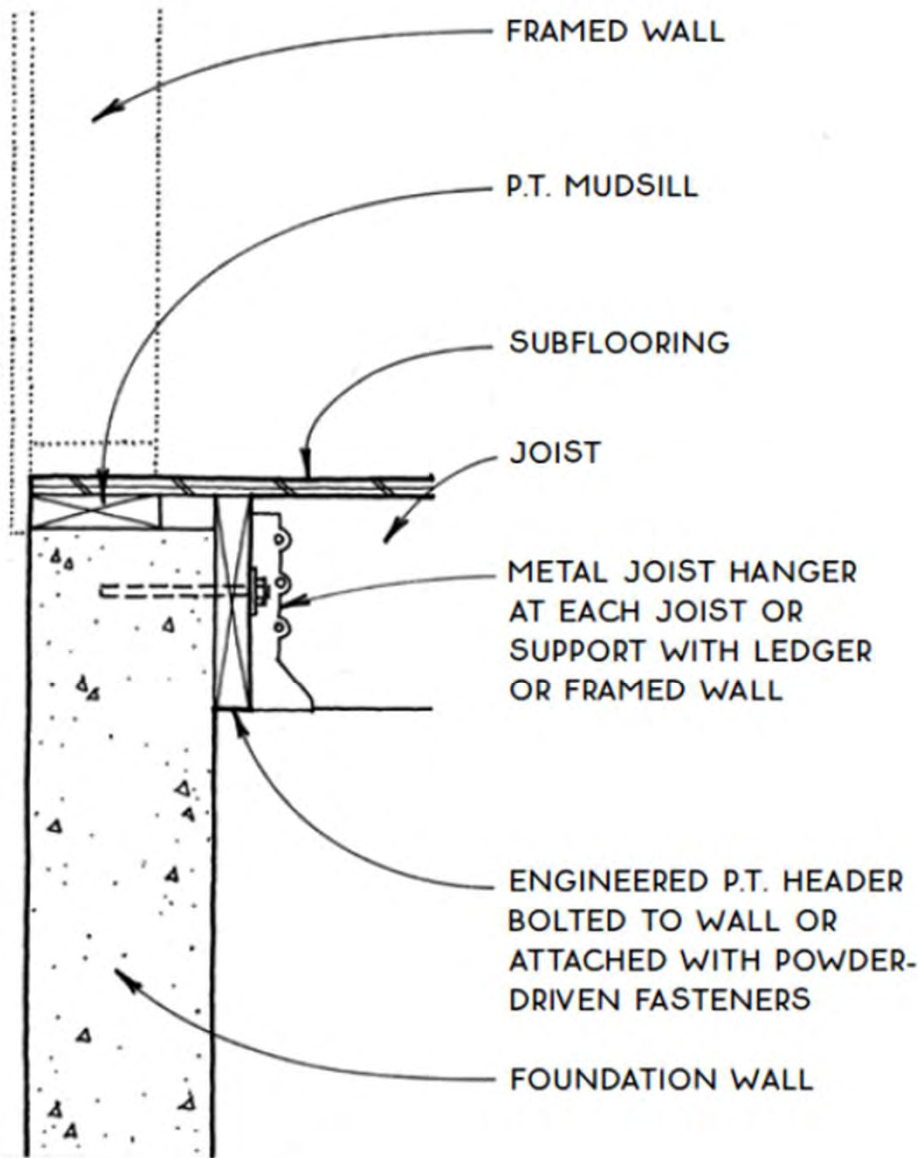
STUD

SUBFLOOR

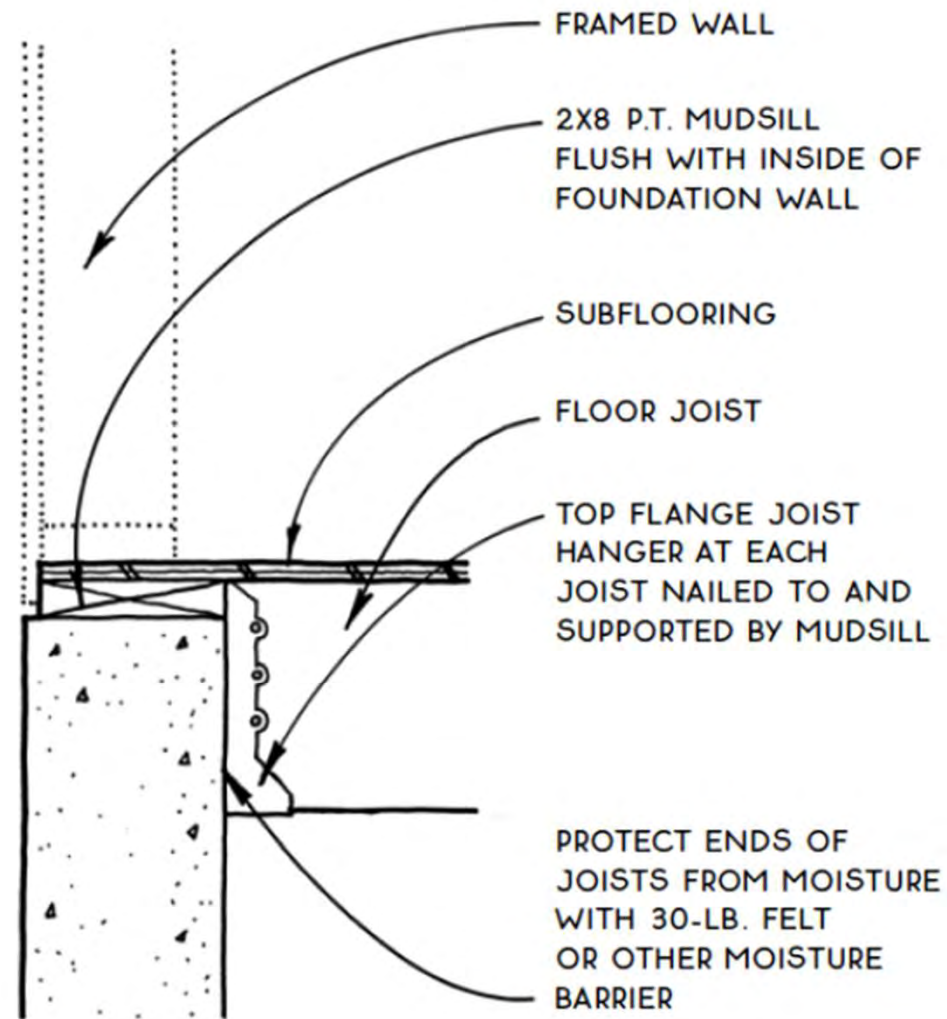
FLOOR JOIST

FOUNDATION  
WALL

ANCHOR BOLT



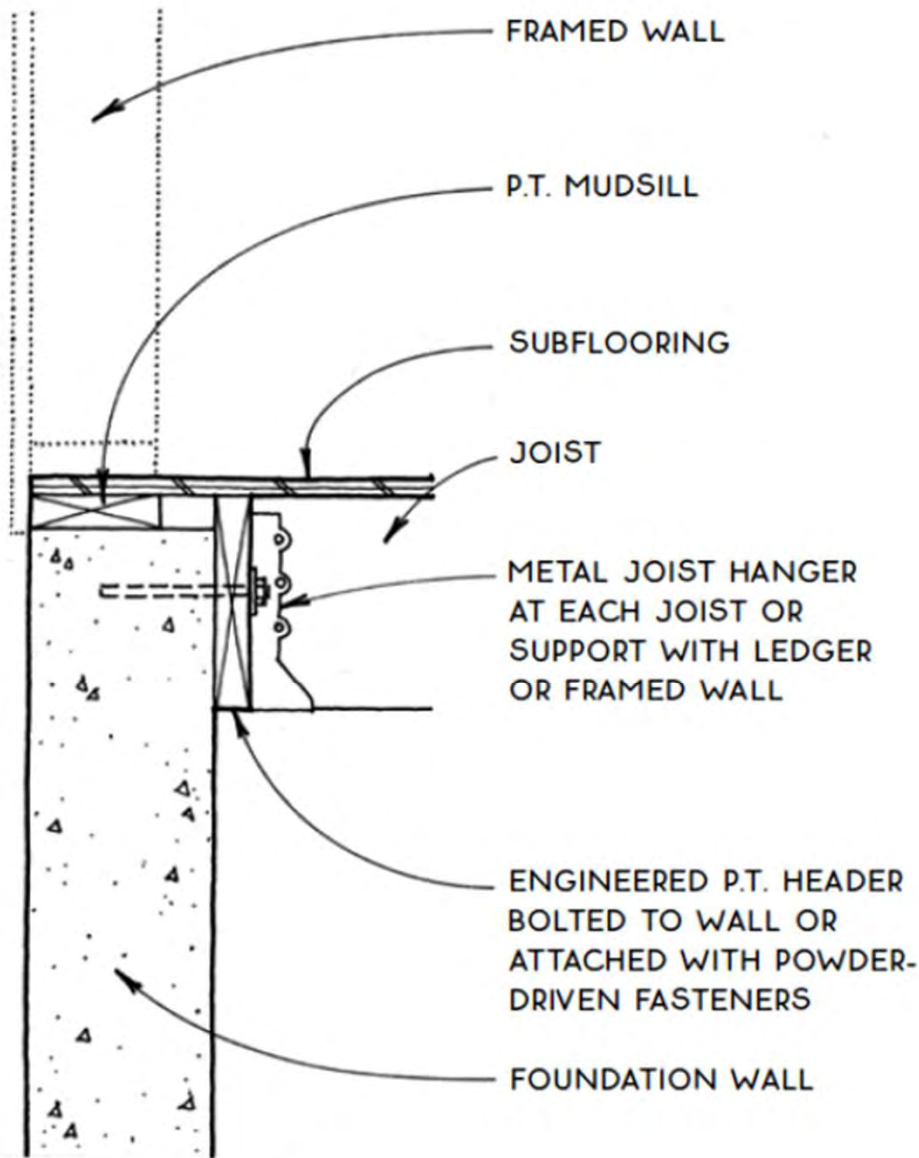
**C** JOISTS FLUSH WITH MUDSILL  
Perpendicular to Wall with Ledger



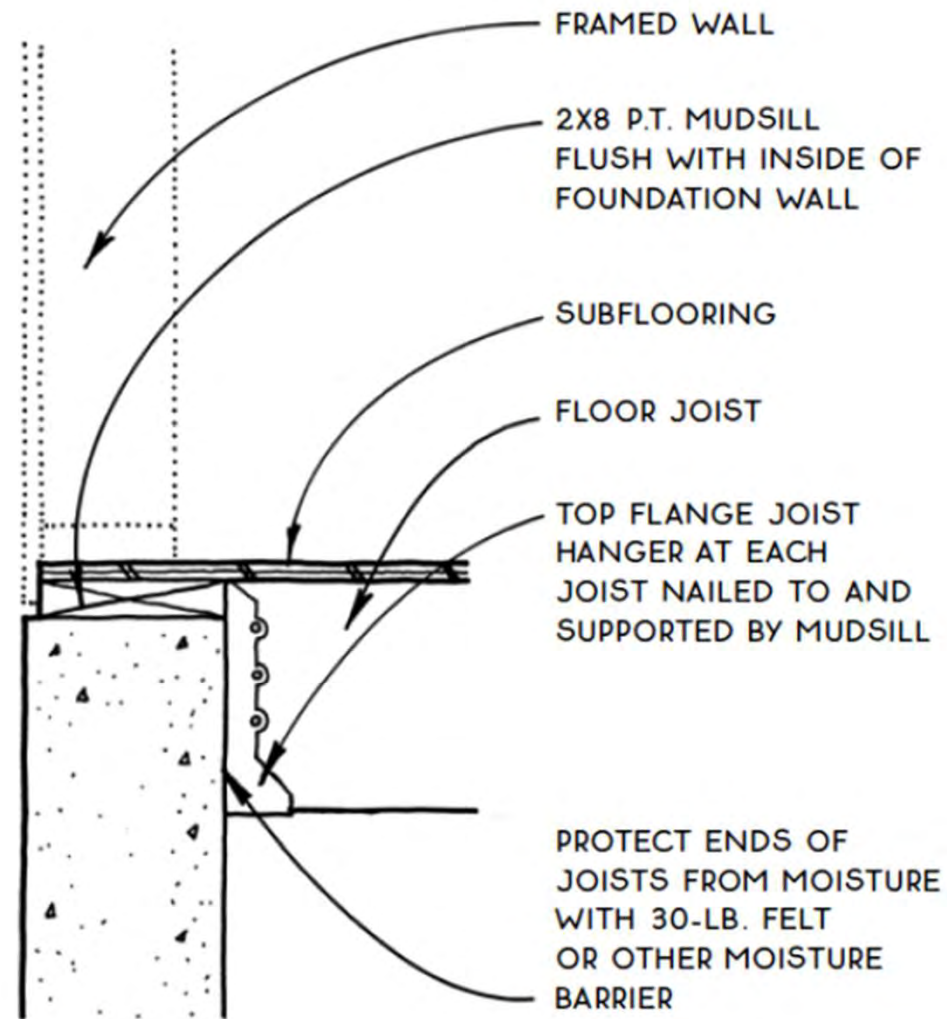
**NOTE**  
WALL SHEATHING ALIGNED WITH FOUNDATION WHICH IS NATURAL WITH THIS DETAIL BUT ALSO POSSIBLE WITH ANY DETAIL ON THIS PAGE.

**D** JOISTS FLUSH WITH MUDSILL  
Perpendicular to Wall with Hanger



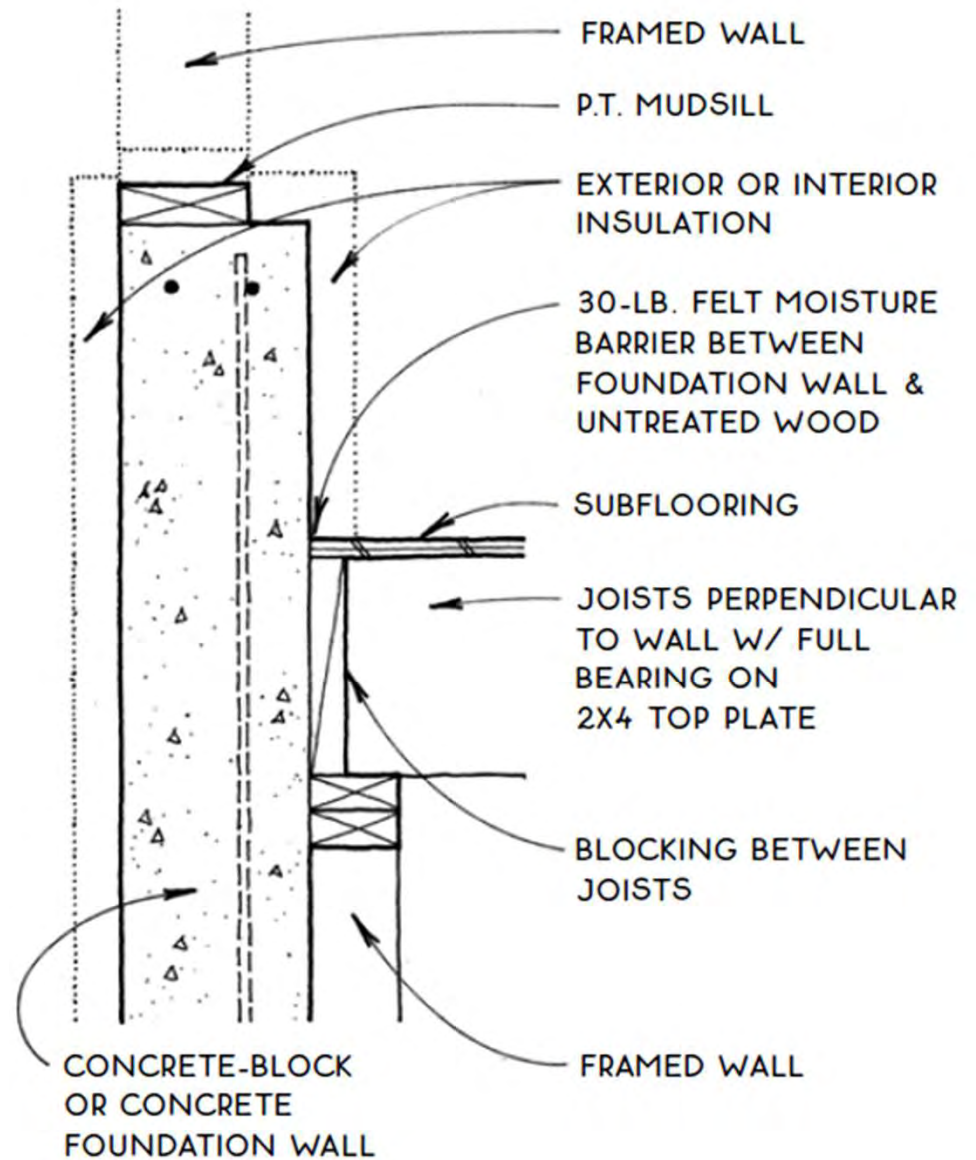
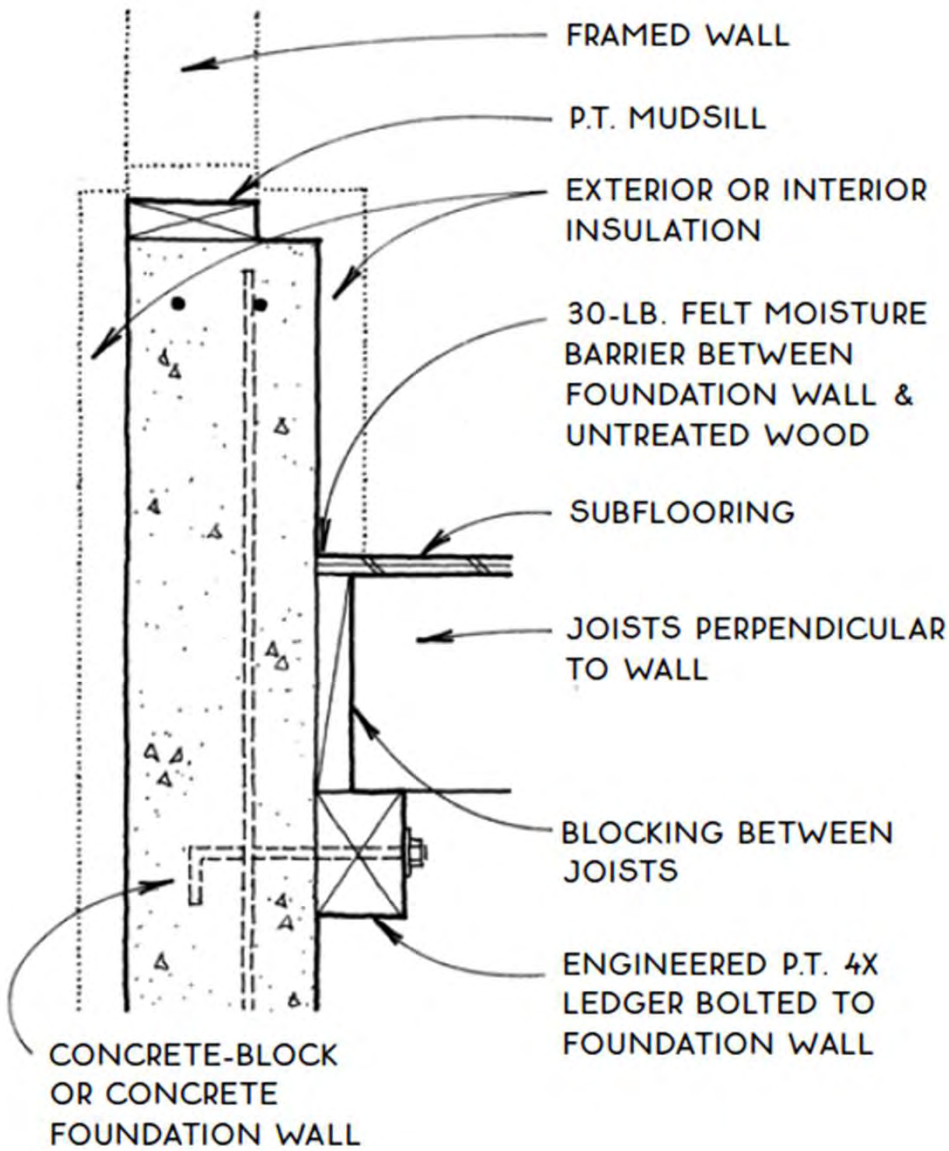


**C** JOISTS FLUSH WITH MUDSILL  
Perpendicular to Wall with Ledger



**NOTE**  
WALL SHEATHING ALIGNED WITH FOUNDATION WHICH IS NATURAL WITH THIS DETAIL BUT ALSO POSSIBLE WITH ANY DETAIL ON THIS PAGE.

**D** JOISTS FLUSH WITH MUDSILL  
Perpendicular to Wall with Hanger



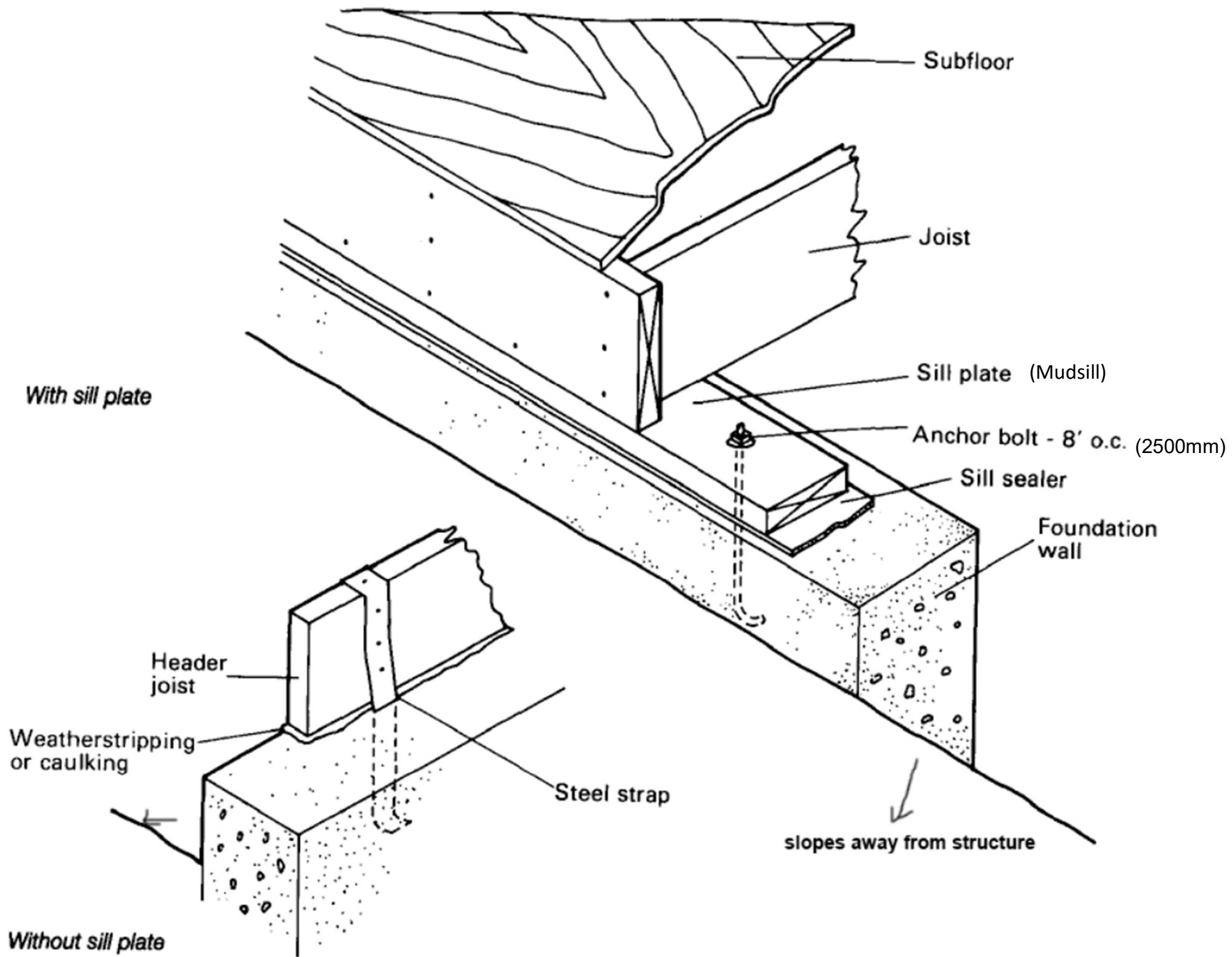
**A** JOISTS BELOW MUDSILL  
Perpendicular to Wall/Ledger Support

**B** JOISTS BELOW MUDSILL  
Perpendicular to Wall/Framed Wall Support

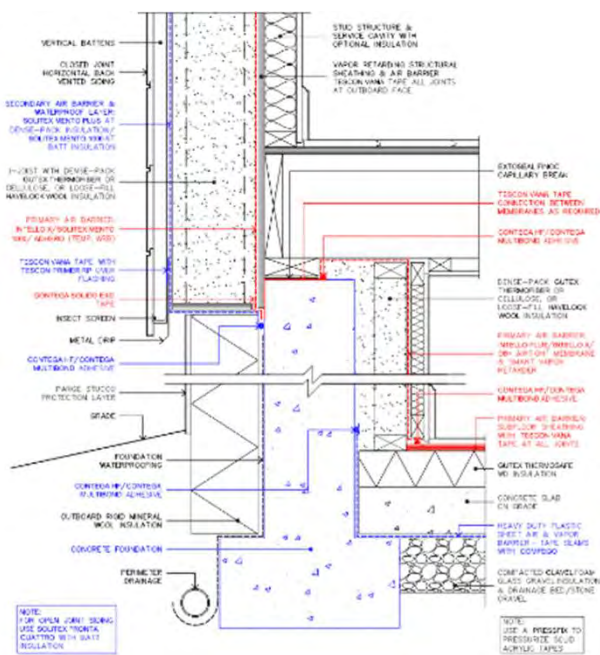




A double 2X6 (38x138mm) mud sill has been secured with anchor bolts and the 2X10 (38x250mm) floor joists - 16" (400mm) o.c. are toe-nailed to them. A strip of sealant is seen between the wood and concrete. Back-filling is not done on the outside of the basement wall until the floor framing is in place to serve as bracing.





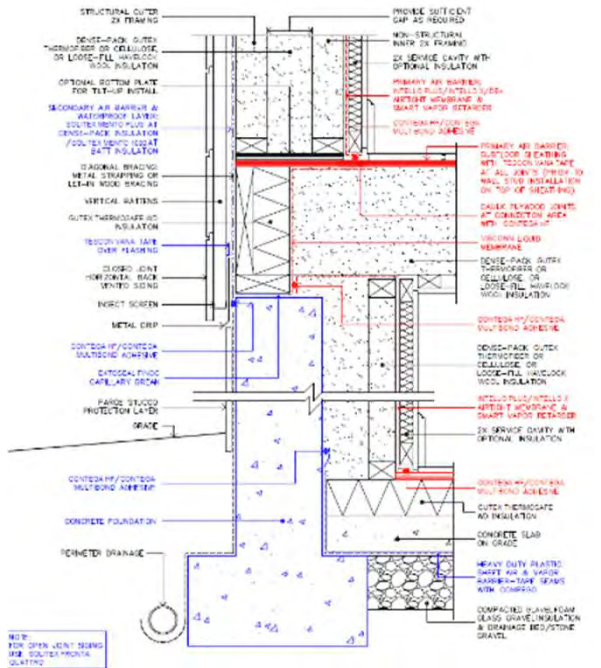


Outrigger Assembly



**MASONRY RETROFIT**

- [Masonry Retrofit ebook \(PDF - Page Layout\)](#)
- [Masonry Retrofit ebook \(PDF - Spread Layout\)](#)
- [Masonry Retrofit CAD file \(dwg\)](#)
- [Purchase a printed copy here](#)

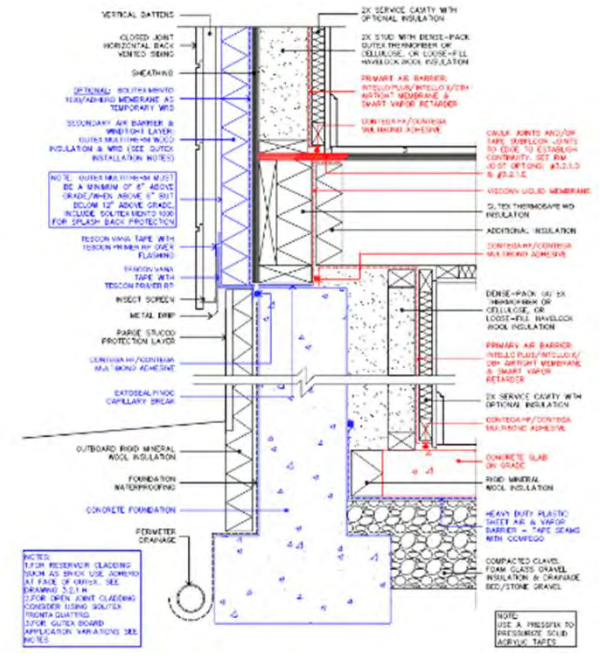


Double Stud Assembly



**WOOD RETROFIT**

- [Wood Retrofit ebook \(PDF - Page Layout\)](#)
- [Wood Retrofit ebook \(PDF - Spread Layout\)](#)
- [Wood Retrofit CAD file \(dwg\)](#)
- [Purchase a printed copy here](#)

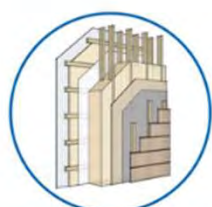


2x Framing Assembly



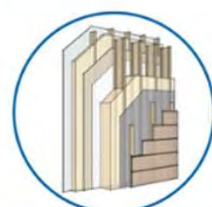
**2x FRAMING**

- [2x Framing ebook \(PDF - Page Layout\)](#)
- [2x Framing ebook \(PDF - Spread Layout\)](#)
- [2x Framing CAD file \(dwg\)](#)
- [Purchase a printed copy here](#)



**DOUBLE-STUD**

- [Double-Stud ebook \(PDF - Page Layout\)](#)
- [Double-Stud ebook \(PDF - Spread Layout\)](#)
- [Double-Stud CAD file \(dwg\)](#)
- [Purchase a printed copy here](#)



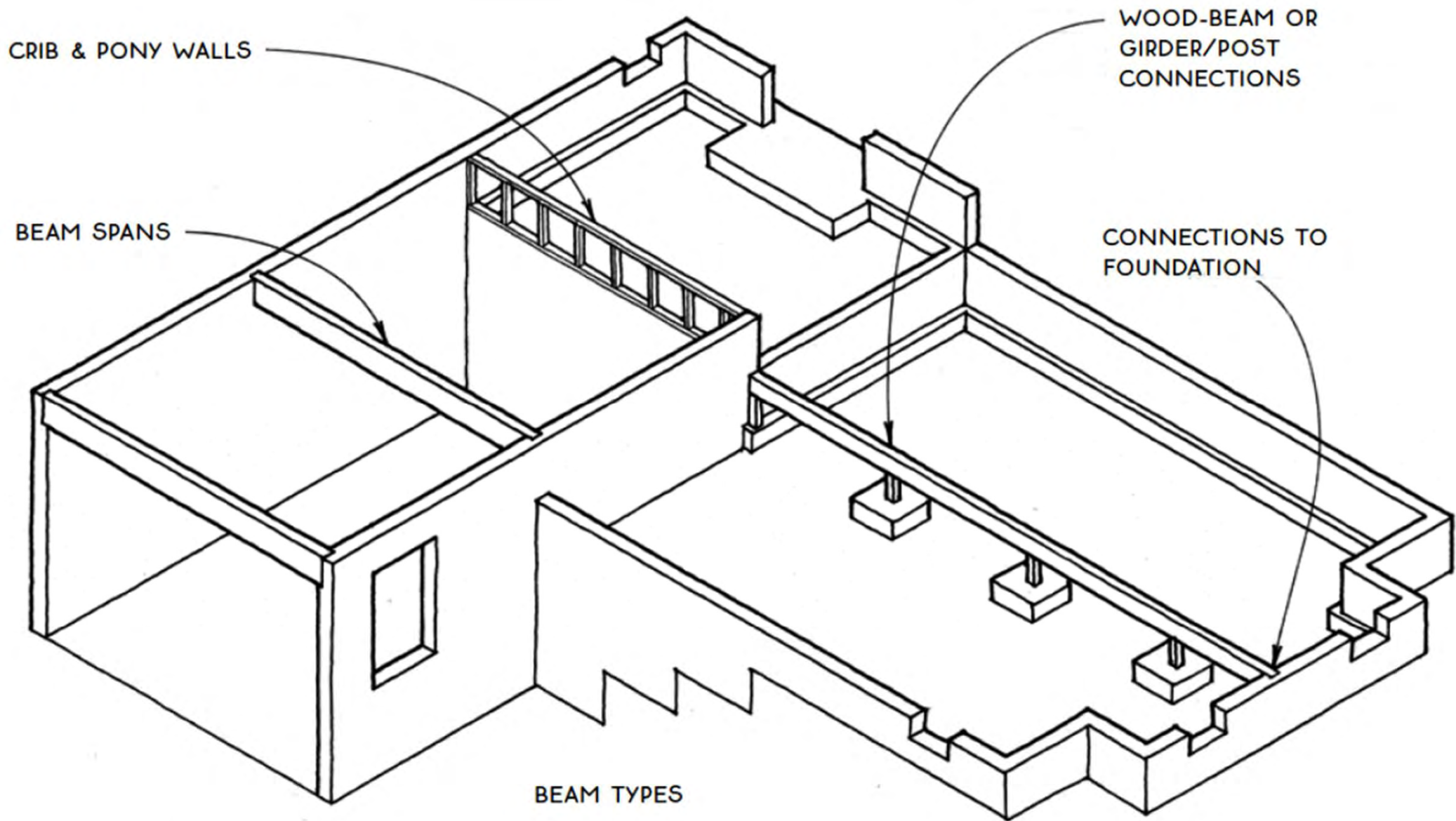
**I-JOIST OUTRIGGER**

- [I-Joist Outrigger ebook \(PDF - Page Layout\)](#)
- [I-Joist Outrigger ebook \(PDF - Spread Layout\)](#)
- [I-Joist Outrigger CAD file \(dwg\)](#)
- [Purchase a printed copy here](#)



**METAL FRAME**

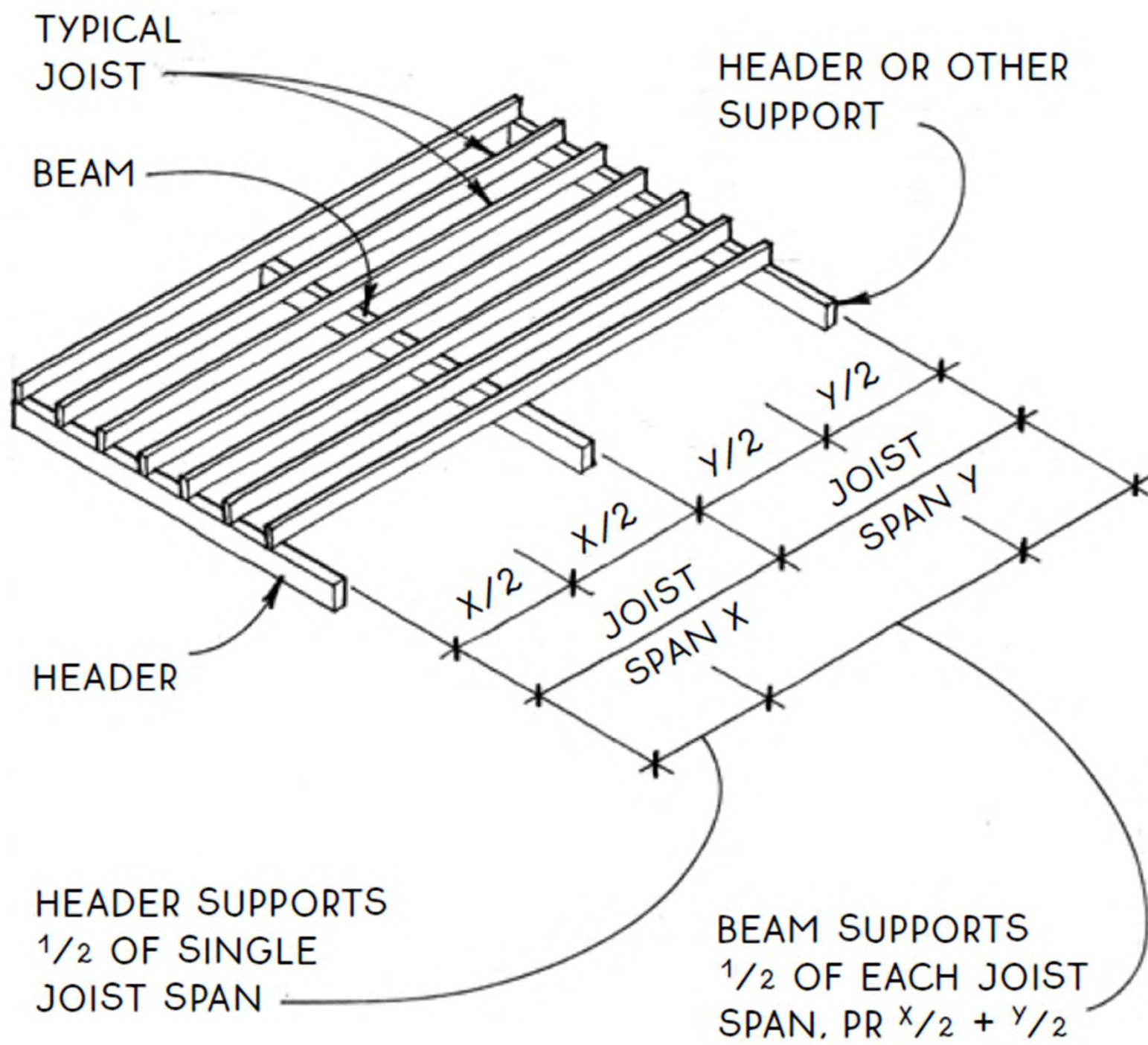
- [Metal Frame ebook \(PDF - Page Layout\)](#)
- [Metal Frame ebook \(PDF - Spread Layout\)](#)
- [Metal Frame CAD file \(dwg\)](#)
- [Printed copy coming soon](#)







This foundation wall is forming a crawl space. Porous gravel or crushed stone fill is placed on its floor to assure good drainage and a sheet plastic as a vapor barrier is laid on top. Steel beams may support the first floor wood joists.













**Plywood:** Plywood (or OSB) subflooring should be installed with its long dimension and face grain perpendicular to the joists. Installing plywood with the subfloor parallel to the joists makes the flooring weaker.



Some of the interior support for the floor framing is provided by the CMU interior walls of the basement space. Beams made up of triple joists provide other support. Where a partition will fall parallel to the floor joists, and around an opening for a stairway, the joists are doubled.





It is necessary to brace long joist at midspan against twisting or buckling. The method being used here is solid blocking called “**BRIDGING**” with short pieces of floor joist. The blocking is staggered so that the pieces may be end nailed to the joists.

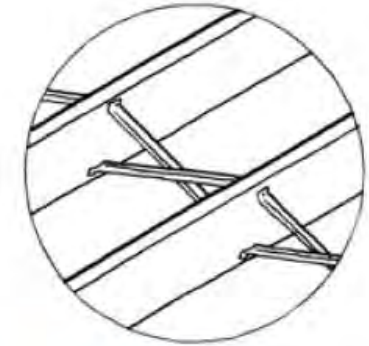
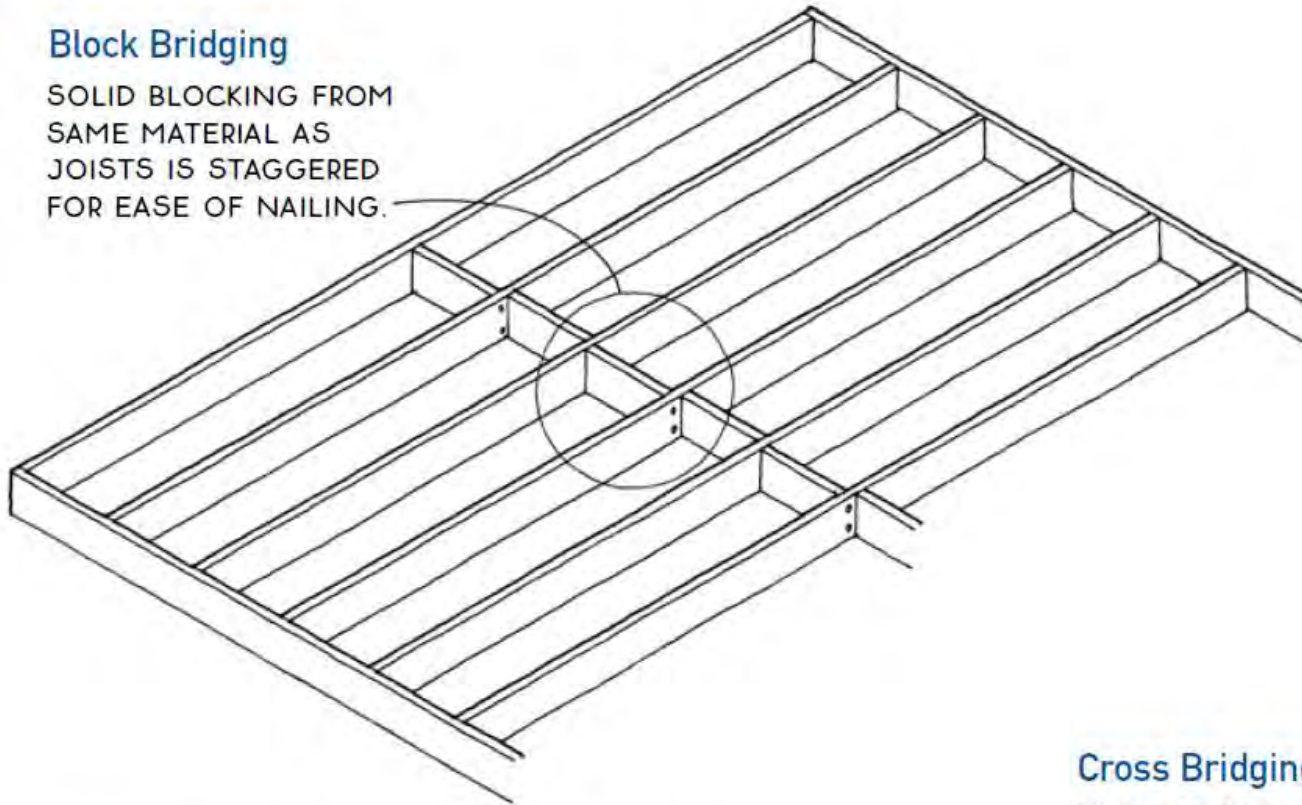


Bridging consists of wood or metal crossbracing or full-depth blocking between each joist at 8' (2440) intervals. Bridging may be required by some building codes if the joist depth is 6 or more times its thickness. However, it is usually not necessary if the joist ends are supported laterally against rotation and their top compression edges are restrained by sheathing or subflooring.



### Block Bridging

SOLID BLOCKING FROM SAME MATERIAL AS JOISTS IS STAGGERED FOR EASE OF NAILING.



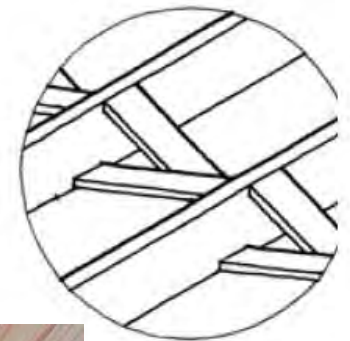
### Metal Bridging

METAL PIECES SHOULD NOT TOUCH EACH OTHER.

**NOTE**  
FOR DEEP JOISTS WITH LONG SPANS (OVER 10 FT.), (3,000mm) LOCAL CODES MAY REQUIRE BRIDGING TO PREVENT ROTATION & TO DISTRIBUTE THE LOADING.

### Cross Bridging

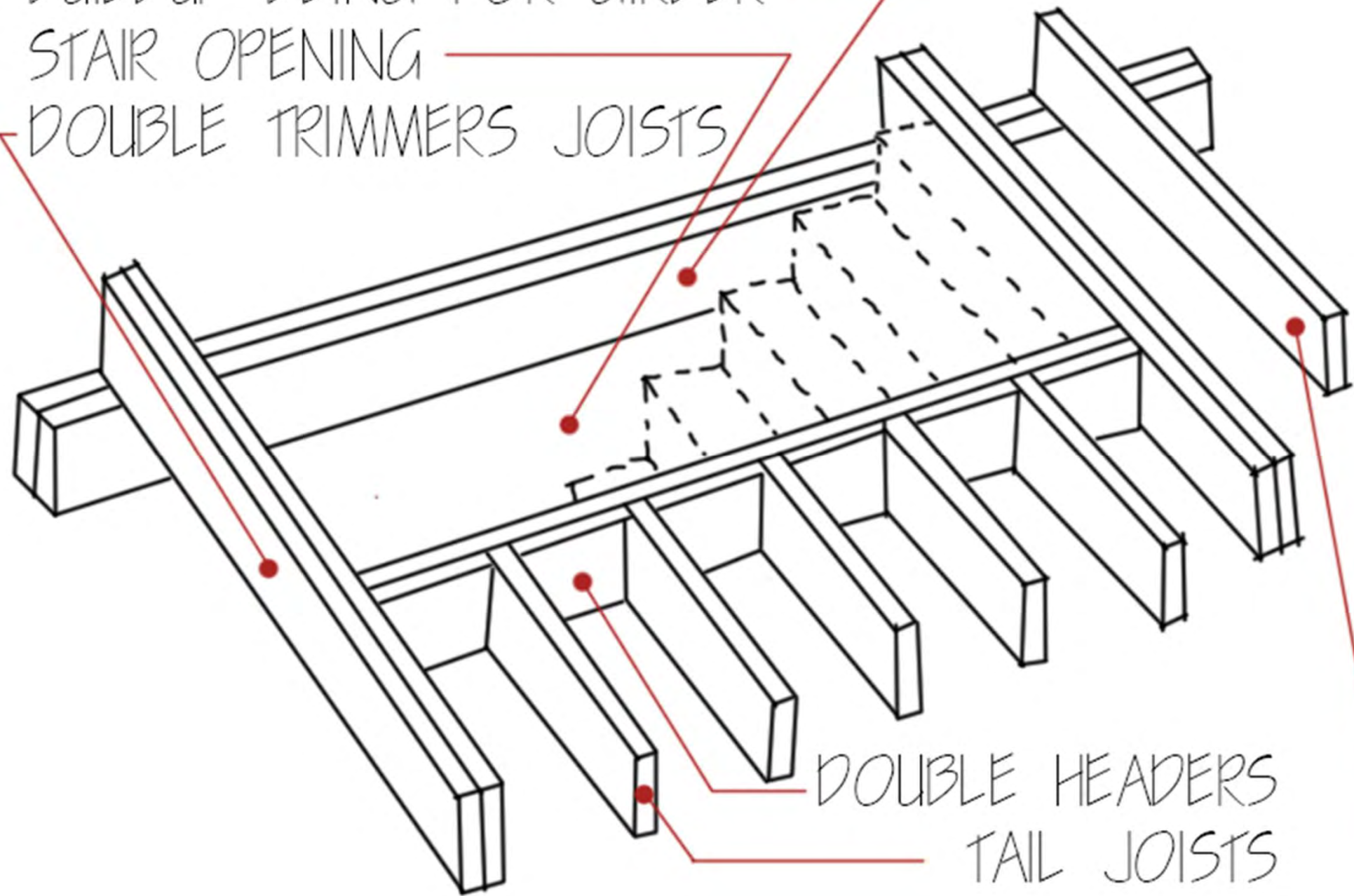
$5/4 \times 3$  OR  $5/4 \times 4$  OR 2X2 OR 1X4 BOARDS ARE NAILED IN A CROSS PATTERN BETWEEN JOISTS. PIECES SHOULD NOT TOUCH EACH OTHER.



## A BRIDGING



BUILDUP BEING FOR GIRDER  
STAIR OPENING  
DOUBLE TRIMMERS JOISTS



DOUBLE HEADERS  
TAIL JOISTS  
JOIST





After the floor joist are in place plywood deck is installed on top of them. A mastic adhesive is gunned onto each joist just before the plywood is put down to increase the rigidity of the floor and to prevent squeaks.

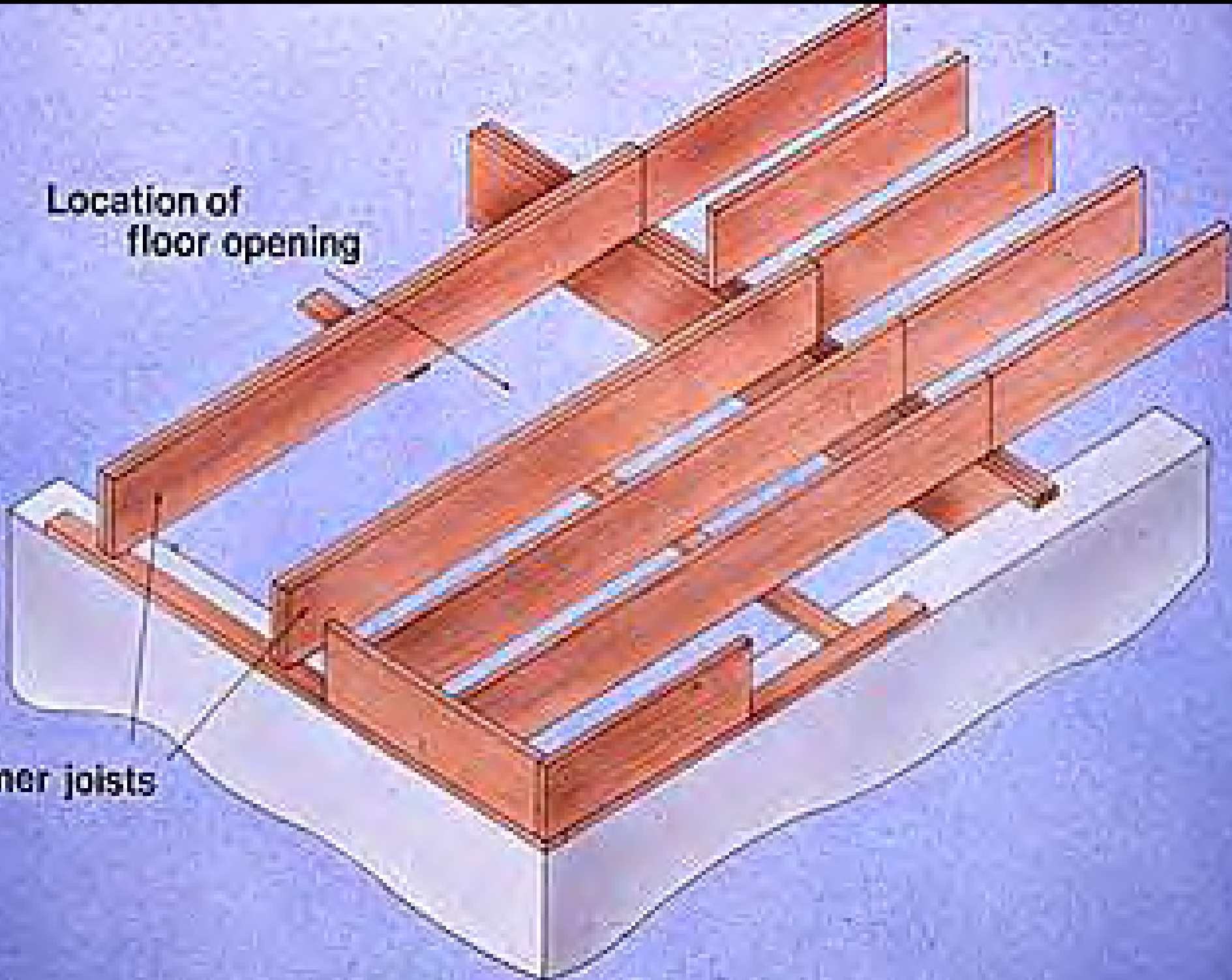


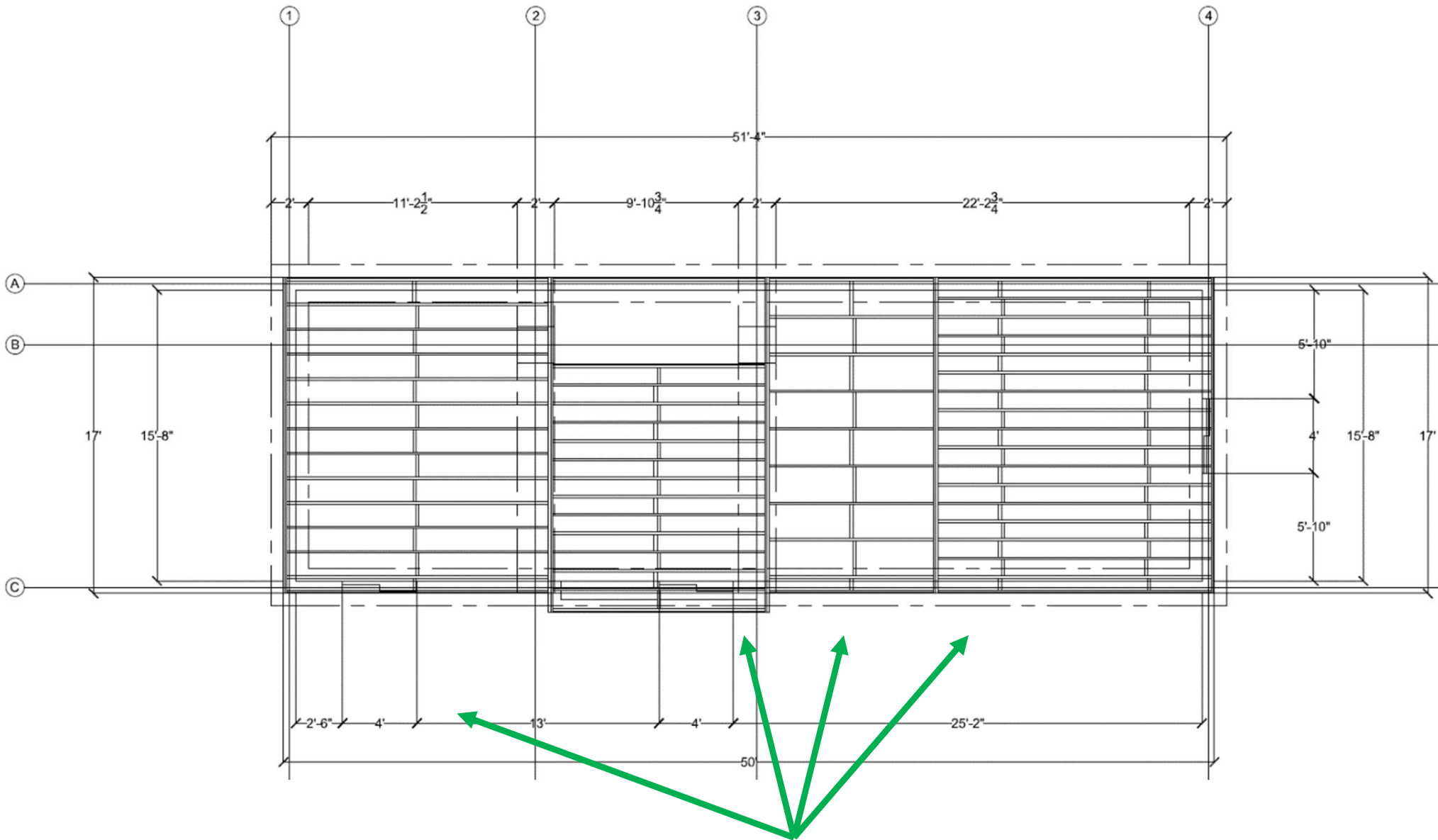
The plywood sheets form the subfloor of the house. The sheets are placed with their long dimension at right angles to the joists and their ends are supported at the mid-line of a joist. An air or electrically powered nailer is used for the nailing.



Location of floor opening

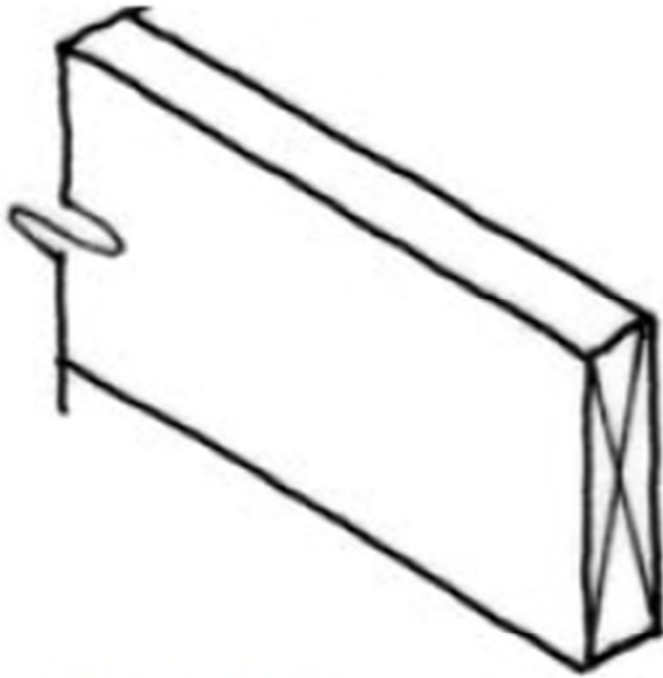
Trimmer joists



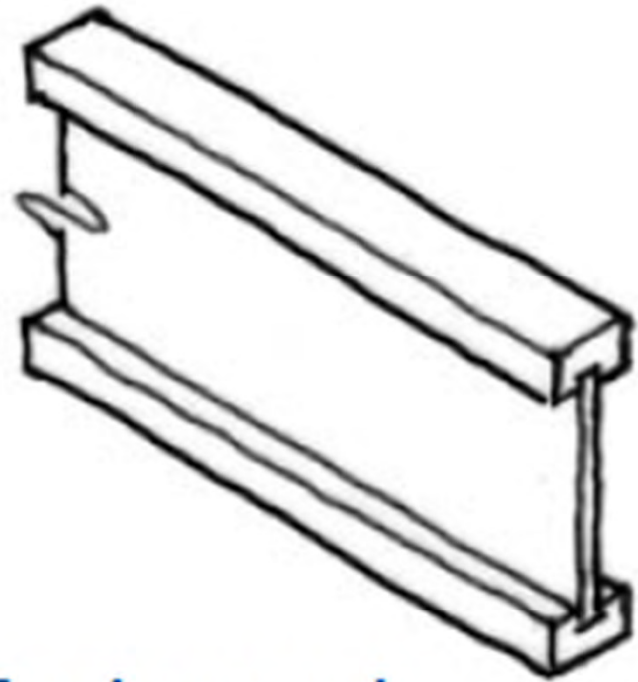


In this preliminary layout, different bays have different joist spacing.



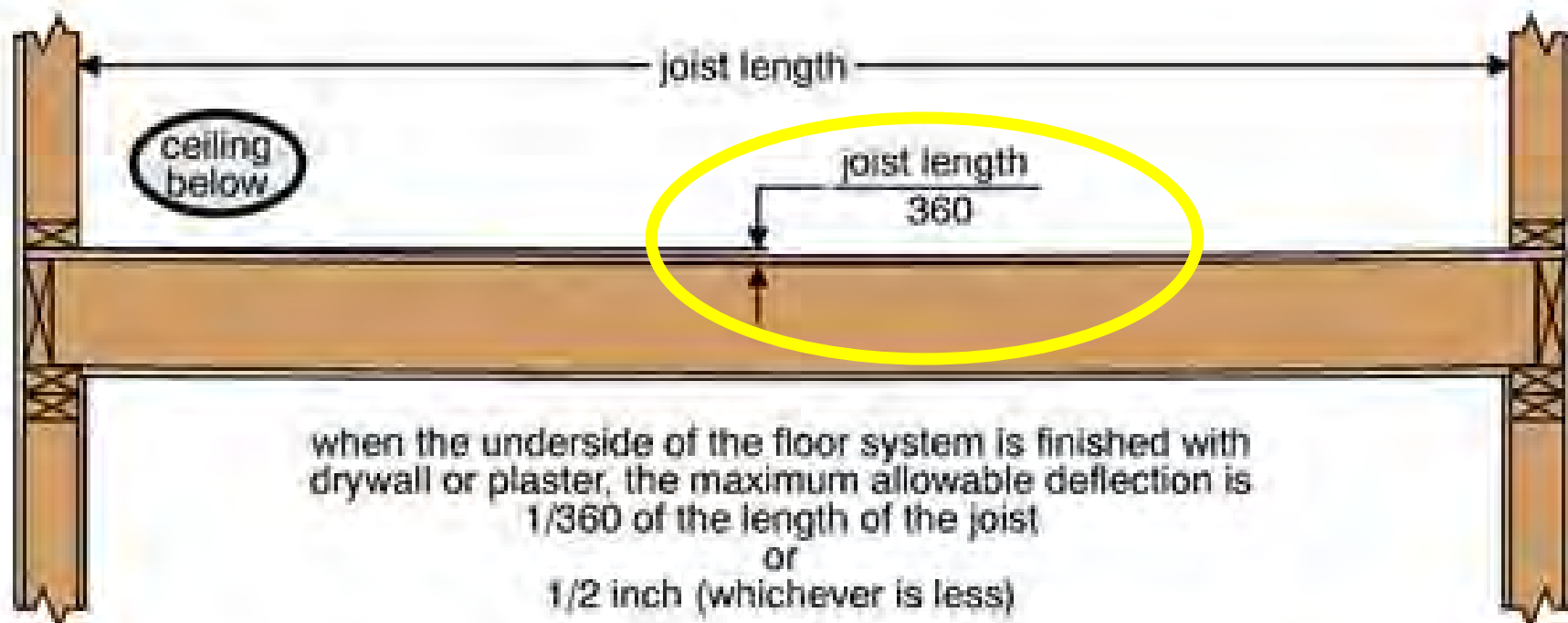
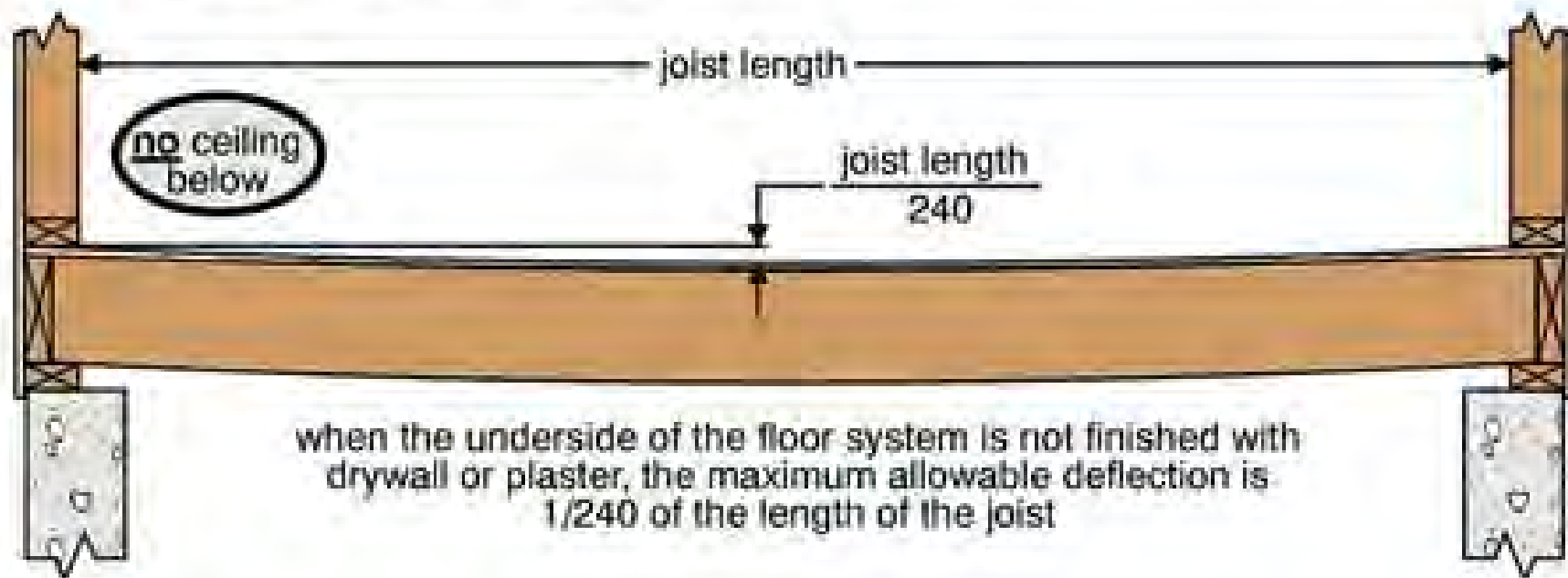


Solid-Sawn  
Joist



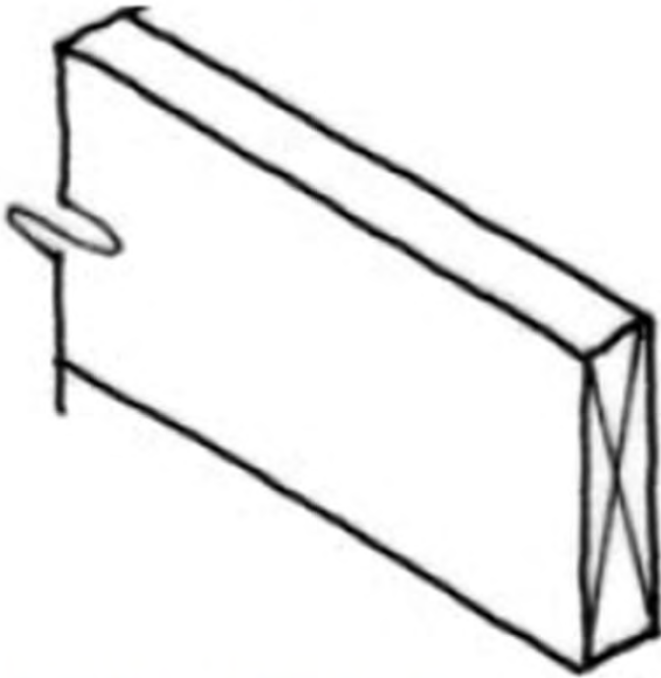
Engineered  
I-Joist

# Allowable floor deflections





# Floor Joist Spacing and Layout



## Solid-Sawn Joist

### **Imperial (US) sizing resource**

American Wood Council (AWC)

<https://awc.org/codes-standards/calculators-software/spancalc>

### **Metric sizing resource**

Timber Beam Calculator

<https://www.timberbeamcalculator.co.uk/span-tables/floor-joists>

## Imperial (US) sizing resources

### Maximum Span Calculator for Wood Joists and Rafters

#### Assume:

- Species: Douglas Fir-Larch
- Size: **PER YOUR DESIGN**
- Grade: No. 1
- Member Type: Floor Joists
- Deflection Limit: L/480
- Spacing: 12" or **16"** or 24" **PER YOUR DESIGN**
- Live Load (psf): 40
- Dead Load (psf): 20

Species	Douglas Fir-Larch (North) <input type="button" value="v"/>
Size	2x12 <input type="button" value="v"/>
Grade	Select Structural <input type="button" value="v"/>
Member Type	Floor Joists <input type="button" value="v"/>
Deflection Limit	L/360 <input type="button" value="v"/>
Spacing (in)	16 <input type="button" value="v"/>
Exterior Exposure	Wet service conditions? No <input type="button" value="v"/>
	Incised lumber? No <input type="button" value="v"/>
Live Load (psf)	40 <input type="button" value="v"/>
Dead Load (psf)	15 <input type="button" value="v"/>

# Imperial (US) sizing resources

## 2020 Residential Code of New York State

FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES  
 (Residential sleeping areas, live load = 40 psf, L/Δ = 360)<sup>a</sup>

### Joist spacing 12 inches

SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
		2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
		Maximum floor joist spans							
		(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
Douglas fir-larch	SS	11-4	15-0	19-1	23-3	11-4	15-0	19-1	23-3
Douglas fir-larch	#1	10-11	14-5	18-5	22-0	10-11	14-2	17-4	20-1
Douglas fir-larch	#2	10-9	14-2	18-0	20-11	10-8	13-6	16-5	19-1
Douglas fir-larch	#3	8-11	11-3	13-9	16-0	8-1	10-3	12-7	14-7
Hem-fir	SS	10-9	14-2	18-0	21-11	10-9	14-2	18-0	21-11
Hem-fir	#1	10-6	13-10	17-8	21-6	10-6	13-10	17-1	19-10
Hem-fir	#2	10-0	13-2	16-10	20-4	10-0	13-1	16-0	18-6
Hem-fir	#3	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
Southern pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
Southern pine	#1	10-9	14-2	18-0	21-11	10-9	14-2	16-11	20-1
Southern pine	#2	10-3	13-6	16-2	19-1	9-10	12-6	14-9	17-5
Southern pine	#3	8-2	10-3	12-6	14-9	7-5	9-5	11-5	13-6
Spruce-pine-fir	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
Spruce-pine-fir	#1	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
Spruce-pine-fir	#2	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
Spruce-pine-fir	#3	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3



# Imperial (US) sizing resources

## 2020 Residential Code of New York State

FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES  
 (Residential sleeping areas, live load = 40 psf, L/Δ = 360)<sup>a</sup>

### Joist spacing 16 inches

SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
		2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
		Maximum floor joist spans							
		(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
Douglas fir-larch	SS	10-4	13-7	17-4	21-1	10-4	13-7	17-4	21-1
Douglas fir-larch	#1	9-11	13-1	16-5	19-1	9-8	12-4	15-0	17-5
Douglas fir-larch	#2	9-9	12-9	15-7	18-1	9-3	11-8	14-3	16-6
Douglas fir-larch	#3	7-8	9-9	11-11	13-10	7-0	8-11	10-11	12-7
Hem-fir	SS	9-9	12-10	16-5	19-11	9-9	12-10	16-5	19-11
Hem-fir	#1	9-6	12-7	16-0	18-10	9-6	12-2	14-10	17-2
Hem-fir	#2	9-1	12-0	15-2	17-7	8-11	11-4	13-10	16-1
Hem-fir	#3	7-6	9-6	11-8	13-6	6-10	8-8	10-7	12-4
Southern pine	SS	10-2	13-4	17-0	20-9	10-2	13-4	17-0	20-9
Southern pine	#1	9-9	12-10	16-1	19-1	9-9	12-7	14-8	17-5
Southern pine	#2	9-4	11-10	14-0	16-6	8-6	10-10	12-10	15-1
Southern pine	#3	7-1	8-11	10-10	12-10	6-5	8-2	9-10	11-8
Spruce-pine-fir	SS	9-6	12-7	16-0	19-6	9-6	12-7	16-0	19-6
Spruce-pine-fir	#1	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
Spruce-pine-fir	#2	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
Spruce-pine-fir	#3	7-6	9-6	11-8	13-6	6-10	8-8	10-7	12-4

# Imperial (US) sizing resources

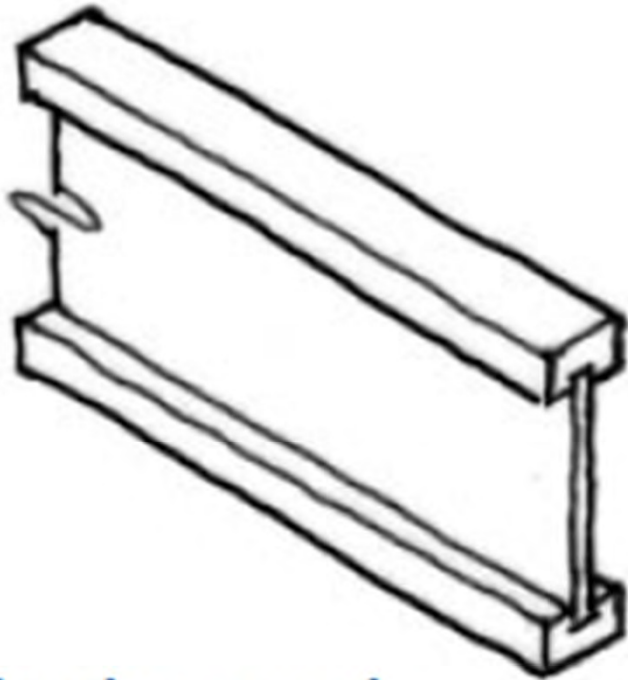
## 2020 Residential Code of New York State

FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES  
 (Residential sleeping areas, live load = 40 psf, L/Δ = 360)<sup>a</sup>

### Joist spacing 24 inches

SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
		2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
		Maximum floor joist spans							
		(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
Douglas fir-larch	SS	9-0	11-11	15-2	18-5	9-0	11-11	15-0	17-5
Douglas fir-larch	#1	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
Douglas fir-larch	#2	8-3	10-5	12-9	14-9	7-6	9-6	11-8	13-6
Douglas fir-larch	#3	6-3	8-0	9-9	11-3	5-9	7-3	8-11	10-4
Hem-fir	SS	8-6	11-3	14-4	17-5	8-6	11-3	14-4	16-10 <sup>a</sup>
Hem-fir	#1	8-4	10-10	13-3	15-5	7-10	9-11	12-1	14-0
Hem-fir	#2	7-11	10-2	12-5	14-4	7-4	9-3	11-4	13-1
Hem-fir	#3	6-2	7-9	9-6	11-0	5-7	7-1	8-8	10-1
Southern pine	SS	8-10	11-8	14-11	18-1	8-10	11-8	14-11	18-0
Southern pine	#1	8-6	11-3	13-1	15-7	8-1	10-3	12-0	14-3
Southern pine	#2	7-7	9-8	11-5	13-6	7-0	8-10	10-5	12-4
Southern pine	#3	5-9	7-3	8-10	10-5	5-3	6-8	8-1	9-6
Spruce-pine-fir	SS	8-4	11-0	14-0	17-0	8-4	11-0	13-8	15-11
Spruce-pine-fir	#1	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4
Spruce-pine-fir	#2	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4
Spruce-pine-fir	#3	6-2	7-9	9-6	11-0	5-7	7-1	8-8	10-1

# Floor Joist Spacing and Layout



## Engineered I-Joist or TJI's

### **Imperial (US) sizing resource**

Forest Products Supply

<http://www.fp-supply.com/st-louis-trusjoist-tji-i-joists.html>

### **Metric sizing resource**

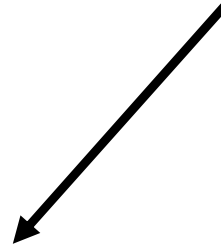
STEICO

<https://www.steico.com/en/>



## Assume:

- Deformation limit L/480
- 40-psf live load
- 20-psf dead load
- 12" or **16"** or 24"



### L/360 Live Load Deflection (Minimum Criteria per Code)

Depth	TJI®	40 PSF Live Load / 10 PSF Dead Load				40 PSF Live Load / 20 PSF Dead Load			
		12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
9½"	110	18'-9"	17'-2"	15'-8"	14'-0"	18'-1"	15'-8"	14'-3"	12'-9"
	210	19'-8"	18'-0"	17'-0"	15'-4"	19'-8"	17'-2"	15'-8"	14'-0"
	230	20'-3"	18'-6"	17'-5"	16'-2"	<b>20'-3"</b>	18'-1"	16'-6"	14'-9"
11⅞"	110	22'-3"	19'-4"	17'-8"	15'-0" <sup>(1)</sup>	20'-5"	17'-8"	15'-1" <sup>(1)</sup>	14'-4" <sup>(1)</sup>
	210	23'-4"	21'-2"	19'-4"	17'-0" <sup>(1)</sup>	<b>22'-4"</b>	19'-4"	17'-8"	15'-9" <sup>(1)</sup>
	230	24'-0"	21'-11"	20'-5"	18'-8"	<b>23'-7"</b>	20'-5"	18'-7"	16'-7" <sup>(1)</sup>
	360	25'-4"	23'-2"	21'-10"	20'-0" <sup>(1)</sup>	<b>25'-4"</b>	<b>23'-2"</b>	<b>21'-10"<sup>(1)</sup></b>	17'-10" <sup>(1)</sup>
	560	28'-10"	26'-3"	24'-9"	23'-0"	<b>28'-10"</b>	<b>26'-3"</b>	<b>24'-9"</b>	20'-11" <sup>(1)</sup>
14"	110	24'-4"	21'-0"	19'-2"	17'-0" <sup>(1)</sup>	22'-2"	19'-2"	17'-0" <sup>(1)</sup>	15'-0" <sup>(1)</sup>
	210	26'-6"	23'-1"	21'-1"	18'-0" <sup>(1)</sup>	24'-4"	21'-1"	19'-2" <sup>(1)</sup>	16'-7" <sup>(1)</sup>
	230	27'-3"	24'-4"	22'-2"	19'-0" <sup>(1)</sup>	<b>25'-8"</b>	22'-2"	20'-3" <sup>(1)</sup>	17'-6" <sup>(1)</sup>
	360	28'-9"	26'-3"	24'-9" <sup>(1)</sup>	21'-0" <sup>(1)</sup>	<b>28'-9"</b>	<b>26'-3"<sup>(1)</sup></b>	22'-4" <sup>(1)</sup>	17'-10" <sup>(1)</sup>
	560	32'-8"	29'-9"	28'-0"	25'-0" <sup>(1)</sup>	<b>32'-8"</b>	<b>29'-9"</b>	<b>27'-3"<sup>(1)</sup></b>	20'-11" <sup>(1)</sup>
16"	210	28'-6"	24'-8"	22'-6" <sup>(1)</sup>	19'-0" <sup>(1)</sup>	26'-0"	22'-6" <sup>(1)</sup>	20'-7" <sup>(1)</sup>	16'-7" <sup>(1)</sup>
	230	30'-1"	26'-0"	23'-9"	21'-0" <sup>(1)</sup>	<b>27'-5"</b>	23'-9"	21'-8" <sup>(1)</sup>	17'-6" <sup>(1)</sup>
	360	31'-10"	29'-0"	26'-10" <sup>(1)</sup>	21'-0" <sup>(1)</sup>	<b>31'-10"</b>	<b>26'-10"<sup>(1)</sup></b>	22'-4" <sup>(1)</sup>	17'-10" <sup>(1)</sup>
	560	36'-1"	32'-11"	31'-0" <sup>(1)</sup>	25'-0" <sup>(1)</sup>	<b>36'-1"</b>	<b>31'-6"<sup>(1)</sup></b>	26'-3" <sup>(1)</sup>	20'-11" <sup>(1)</sup>

(1) Web stiffeners are required at intermediate supports of continuous-span joists when the intermediate bearing length is *less* than 5¼" and the span on either side of the intermediate bearing is greater than the following spans:

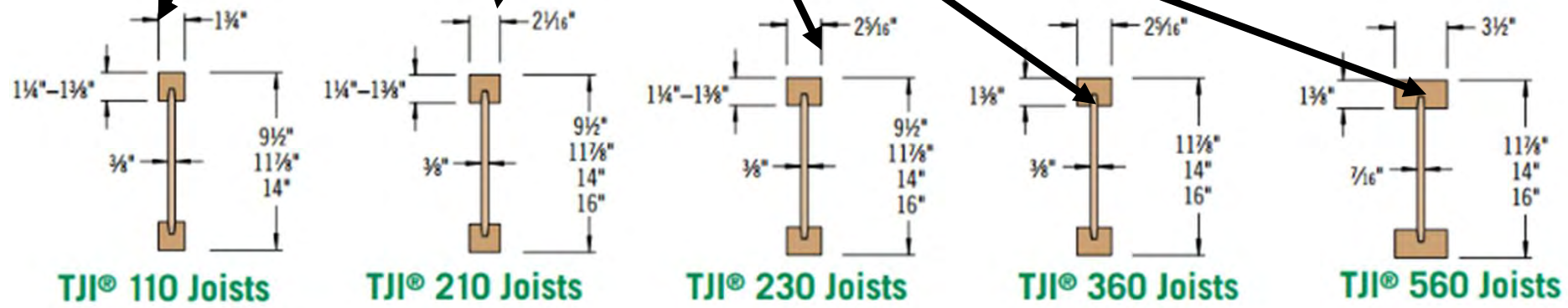
# Imperial (US) sizing resources

## L/360 Live Load Deflection (Minimum Criteria per Code)

Be consistent on your project use only one size of TJI (110 or 210 joists)

Depth	TJI®	40 PSF Live Load / 10 PSF Dead Load				40 PSF Live Load / 20 PSF Dead Load			
		12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
9½"	110	18'-9"	17'-2"	15'-8"	14'-0"	18'-1"	15'-8"	14'-3"	12'-9"
	210	19'-8"	18'-0"	17'-0"	15'-4"	19'-8"	17'-2"	15'-8"	14'-0"
	230	20'-3"	18'-6"	17'-5"	16'-2"	<b>20'-3"</b>	18'-1"	16'-6"	14'-9"
11⅞"	110	22'-3"	19'-4"	17'-8"	15'-9" <sup>(1)</sup>	20'-5"	17'-8"	16'-1" <sup>(1)</sup>	14'-4" <sup>(1)</sup>
	210	23'-4"	21'-2"	19'-4"	17'-3" <sup>(1)</sup>	<b>22'-4"</b>	19'-4"	17'-8"	15'-9" <sup>(1)</sup>
	230	24'-0"	21'-11"	20'-5"	18'-3"	<b>23'-7"</b>	20'-5"	18'-7"	16'-7" <sup>(1)</sup>
	360	25'-4"	23'-2"	21'-10"	20'-4" <sup>(1)</sup>	<b>25'-4"</b>	<b>23'-2"</b>	<b>21'-10"<sup>(1)</sup></b>	17'-10" <sup>(1)</sup>
	560	28'-10"	26'-3"	24'-9"	23'-0"	<b>28'-10"</b>	<b>26'-3"</b>	<b>24'-9"</b>	20'-11" <sup>(1)</sup>
14"	110	24'-4"	21'-0"	19'-2"	17'-2" <sup>(1)</sup>	22'-2"	19'-2"	17'-6" <sup>(1)</sup>	15'-0" <sup>(1)</sup>
	210	26'-6"	23'-1"	21'-1"	18'-10" <sup>(1)</sup>	24'-4"	21'-1"	19'-2" <sup>(1)</sup>	16'-7" <sup>(1)</sup>
	230	27'-3"	24'-4"	22'-2"	19'-10" <sup>(1)</sup>	<b>25'-8"</b>	22'-2"	20'-3" <sup>(1)</sup>	17'-6" <sup>(1)</sup>
	360	28'-9"	26'-3"	24'-9" <sup>(1)</sup>	21'-5" <sup>(1)</sup>	<b>28'-9"</b>	<b>26'-3"<sup>(1)</sup></b>	22'-4" <sup>(1)</sup>	17'-10" <sup>(1)</sup>
	560	32'-8"	29'-9"	28'-0"	25'-2" <sup>(1)</sup>	<b>32'-8"</b>	<b>29'-9"</b>	<b>26'-3"<sup>(1)</sup></b>	20'-11" <sup>(1)</sup>
16"	210	28'-6"	24'-8"	22'-6" <sup>(1)</sup>	19'-11" <sup>(1)</sup>	26'-0"	22'-6" <sup>(1)</sup>	20'-7" <sup>(1)</sup>	16'-7" <sup>(1)</sup>
	230	30'-1"	26'-0"	23'-9"	21'-1" <sup>(1)</sup>	<b>27'-5"</b>	23'-9"	21'-8" <sup>(1)</sup>	17'-6" <sup>(1)</sup>
	360	31'-10"	29'-0"	26'-10" <sup>(1)</sup>	21'-5" <sup>(1)</sup>	<b>31'-10"</b>	<b>26'-10"<sup>(1)</sup></b>	22'-4" <sup>(1)</sup>	17'-10" <sup>(1)</sup>
	560	36'-1"	32'-11"	31'-0" <sup>(1)</sup>	25'-2" <sup>(1)</sup>	<b>36'-1"</b>	<b>31'-6"<sup>(1)</sup></b>	26'-3" <sup>(1)</sup>	20'-11" <sup>(1)</sup>

(1) Web stiffeners are required at intermediate supports of continuous-span joists when the intermediate bearing length is *less* than 5¼" and the span on either side of the intermediate bearing is greater than the following spans:





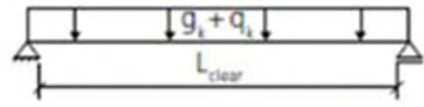
# Engineered Lumber use:

- Dead load per square metre  $g_k = 0.75 \text{ kN/m}^2$
- Use “SJL 45” if possible avoid using “SJL 90”
- Joist spacing of 400 or 600 millimeters

Span tables for STEICOjoist according to BS EN 1995-1-1

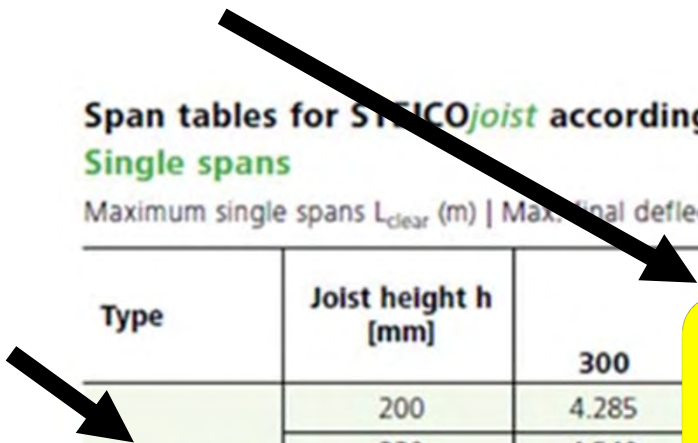
Single spans

Maximum single spans  $L_{clear}$  (m) | Max. deflection  $L/250$  | Fundamental frequency  $f_1 > 8 \text{ Hz}$

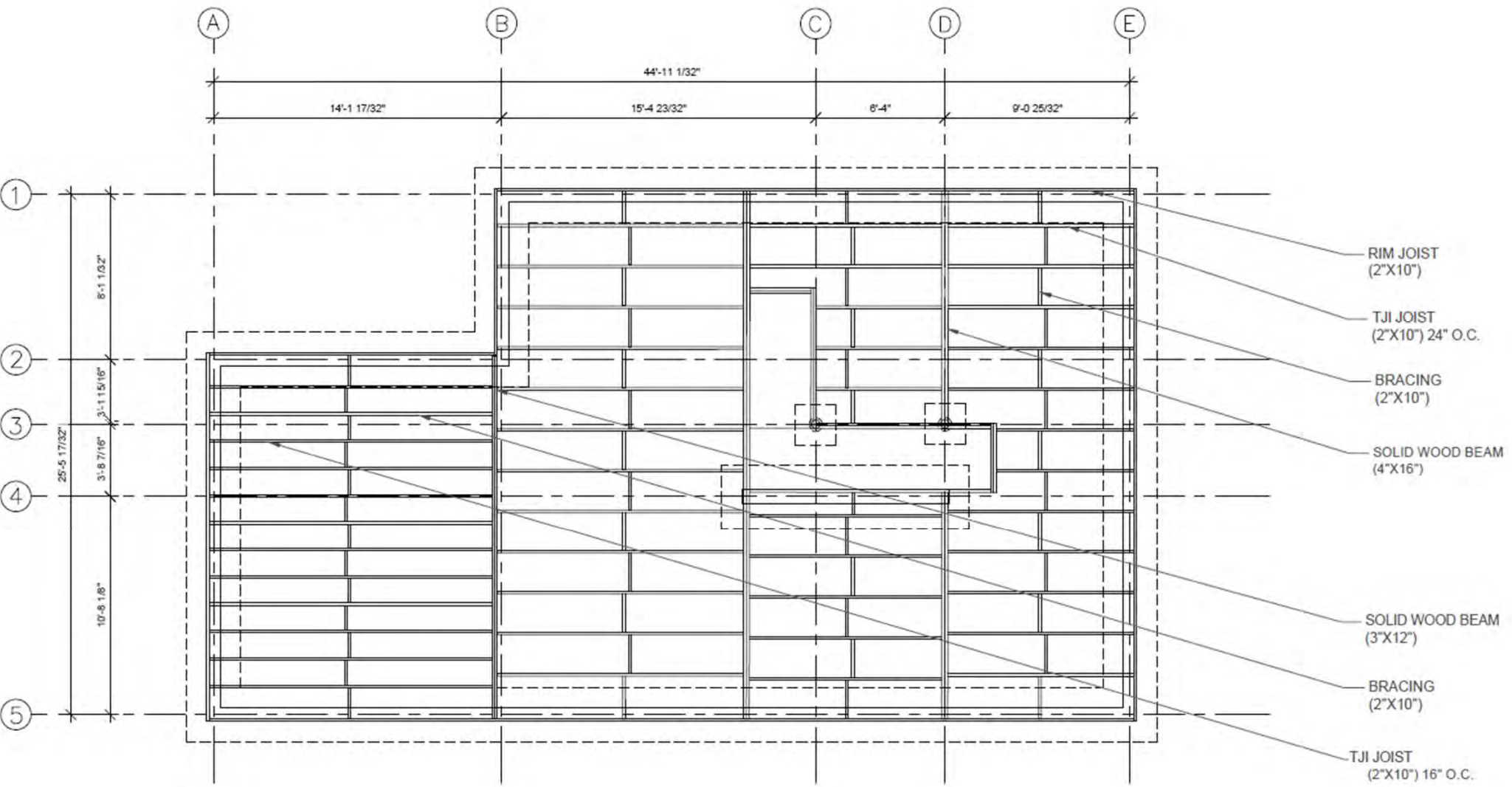


Live load  $q_k = 1.5 \text{ kN/m}^2$

Type	Joist height h [mm]	$g_k = 0.75 \text{ kN/m}^2$				$g_k = 1.25 \text{ kN/m}^2$			
		Joist centers [mm]				Joist centers [mm]			
		300	400	480	600	300	400	480	600
STEICOjoist SJL 45	200	4.285	4.170	3.940	3.630	4.280	3.855	3.600	3.310
	220	4.540	4.415	4.235	3.935	4.540	4.175	3.905	3.590
	240	4.785	4.655	4.465	4.240	4.785	4.495	4.205	3.870
	300	5.455	5.305	5.090	4.875	5.455	5.305	5.050	4.650
	360	6.055	5.890	5.650	5.415	6.055	5.890	5.650	5.390
STEICOjoist SJL 60	200	4.580	4.455	4.270	3.970	4.580	4.215	3.940	3.620
	220	4.855	4.720	4.525	4.310	4.855	4.575	4.275	3.930
	240	5.110	4.970	4.765	4.565	5.110	4.920	4.595	4.225
	300	5.820	5.660	5.430	5.200	5.820	5.660	5.430	5.080

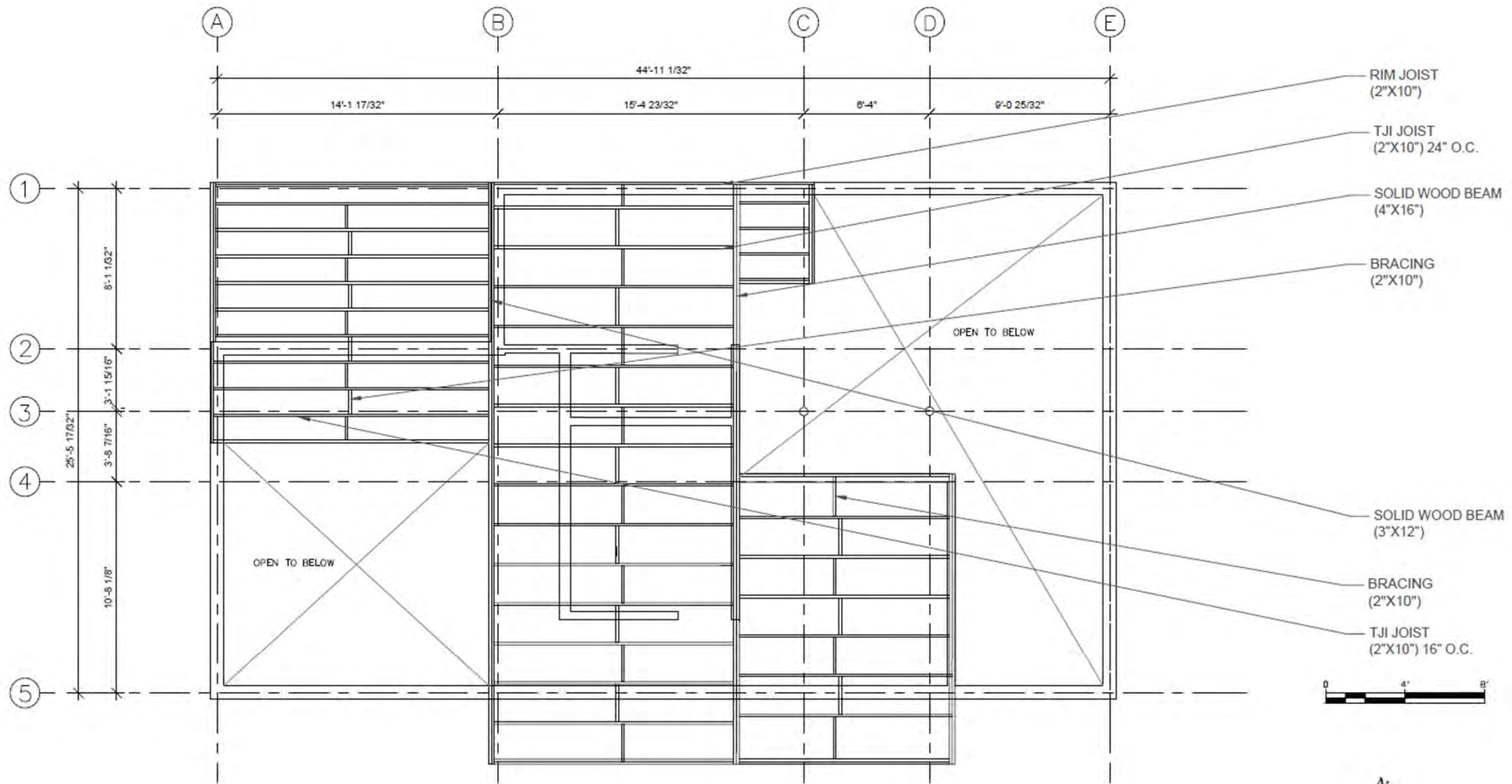




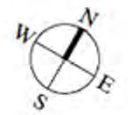


1 FIRST FLOOR JOIST PLAN  
 S102  
 $\frac{1}{4}'' = 1'-0''$





- RIM JOIST (2"X10")
- TJI JOIST (2"X10") 24" O.C.
- SOLID WOOD BEAM (4"X16")
- BRACING (2"X10")
- OPEN TO BELOW
- SOLID WOOD BEAM (3"X12")
- BRACING (2"X10")
- TJI JOIST (2"X10") 16" O.C.



1 SECOND FLOOR JOIST PLAN  
 S202 1/4" = 1'-0"

