

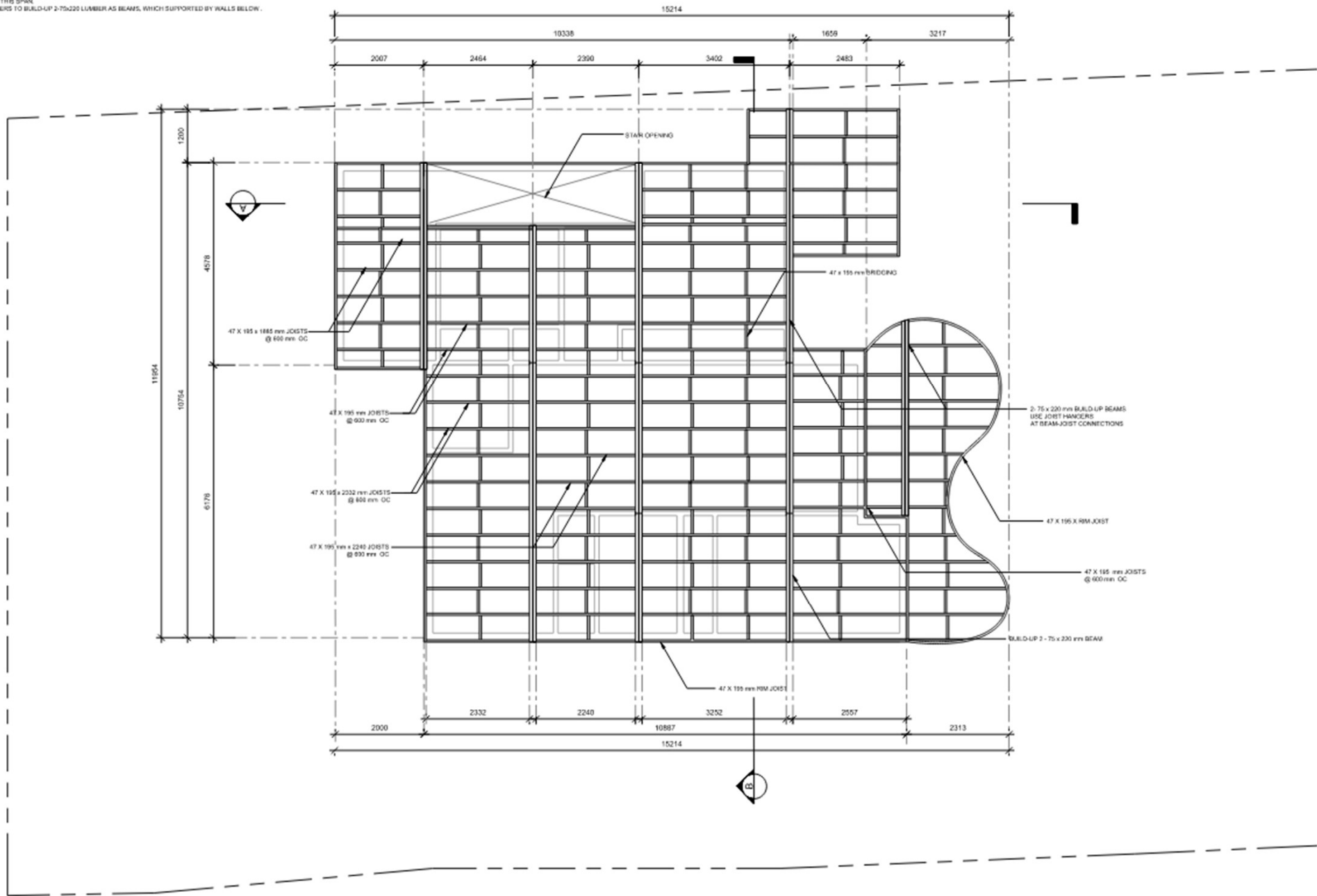
ARCH 2331

BUILDING TECHNOLOGY II

beam spans

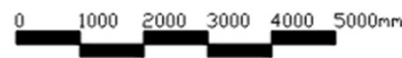


CALCULATION USING SOLID SAWN WOOD LUMBER (JG4 TIMBER) FOR FLOOR JOISTS TO BE MORE EFFECTIVE, THE JOISTS HAVE TO RUN IN THE SHORTEST DIRECTION. THE LONGEST SPAN FOR THIS LAYOUT IS 3402 mm. FOR MORE THAN 25 BIT NOT MORE THAN 5 DEAD LOAD PER SQUARE METRE (IN K2M2) SUPPORTED BY JOISTS WITH THE LAYOUT SPAN @ 600 mm OC MAXIMUM. THE 47 x 195 JOISTS ARE USED THIS SPAN. CONNECTED WITH JOIST HANGERS TO BUILD UP 2-75x230 LUMBER AS BEAMS, WHICH SUPPORTED BY WALLS BELOW.

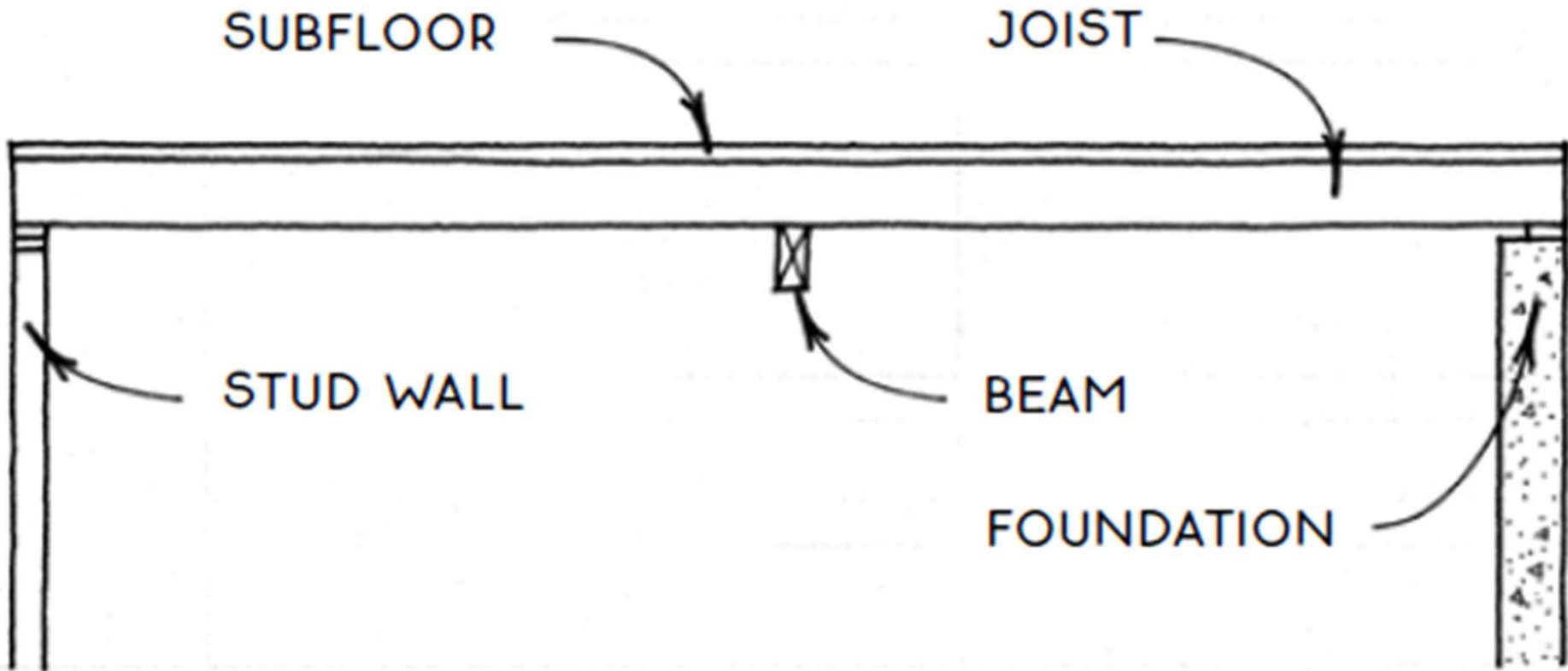


BT2 2020 Treeyapat Srirahan

01 APARTMENT FLOOR JOIST PLAN
S-102 1:50

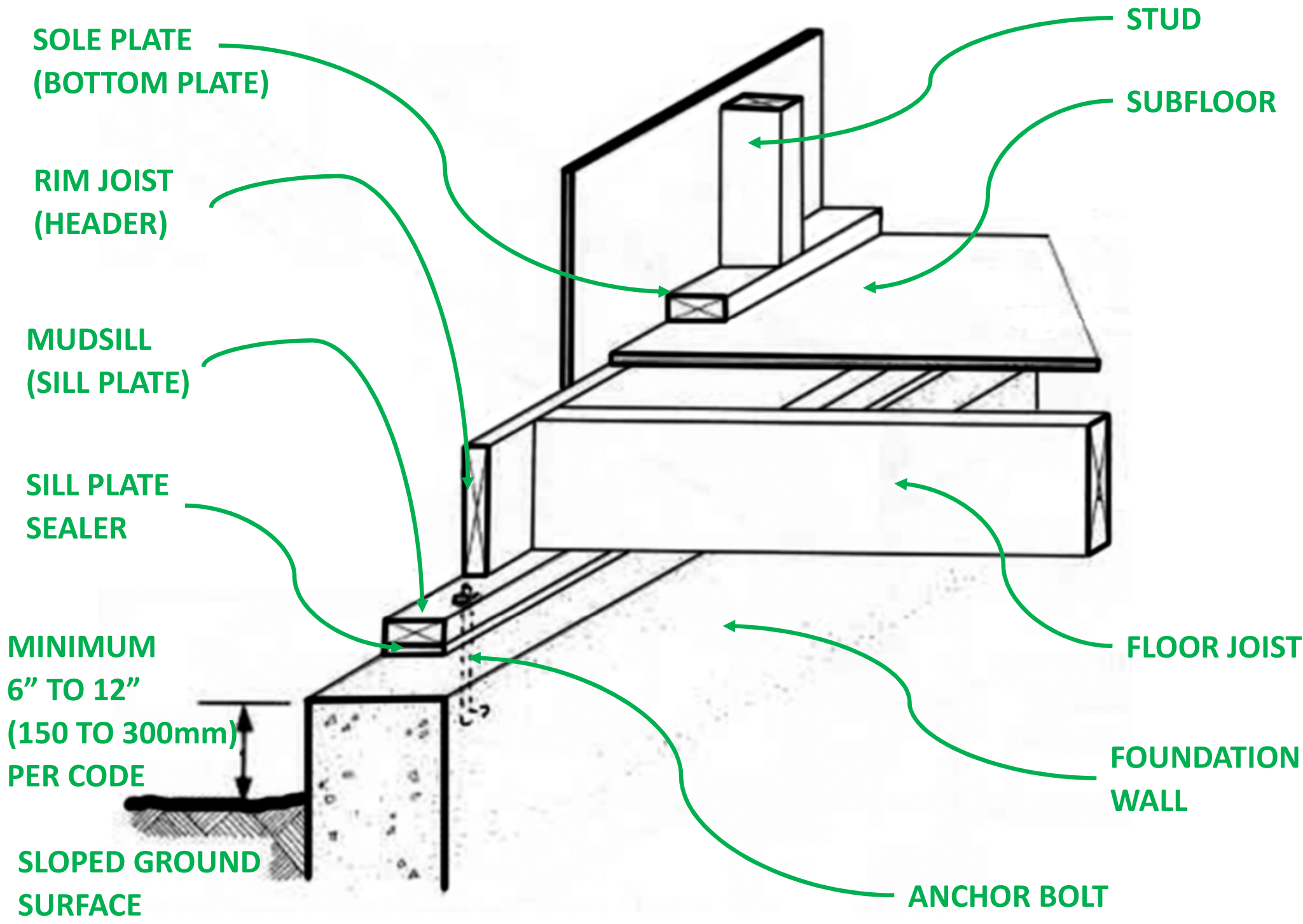


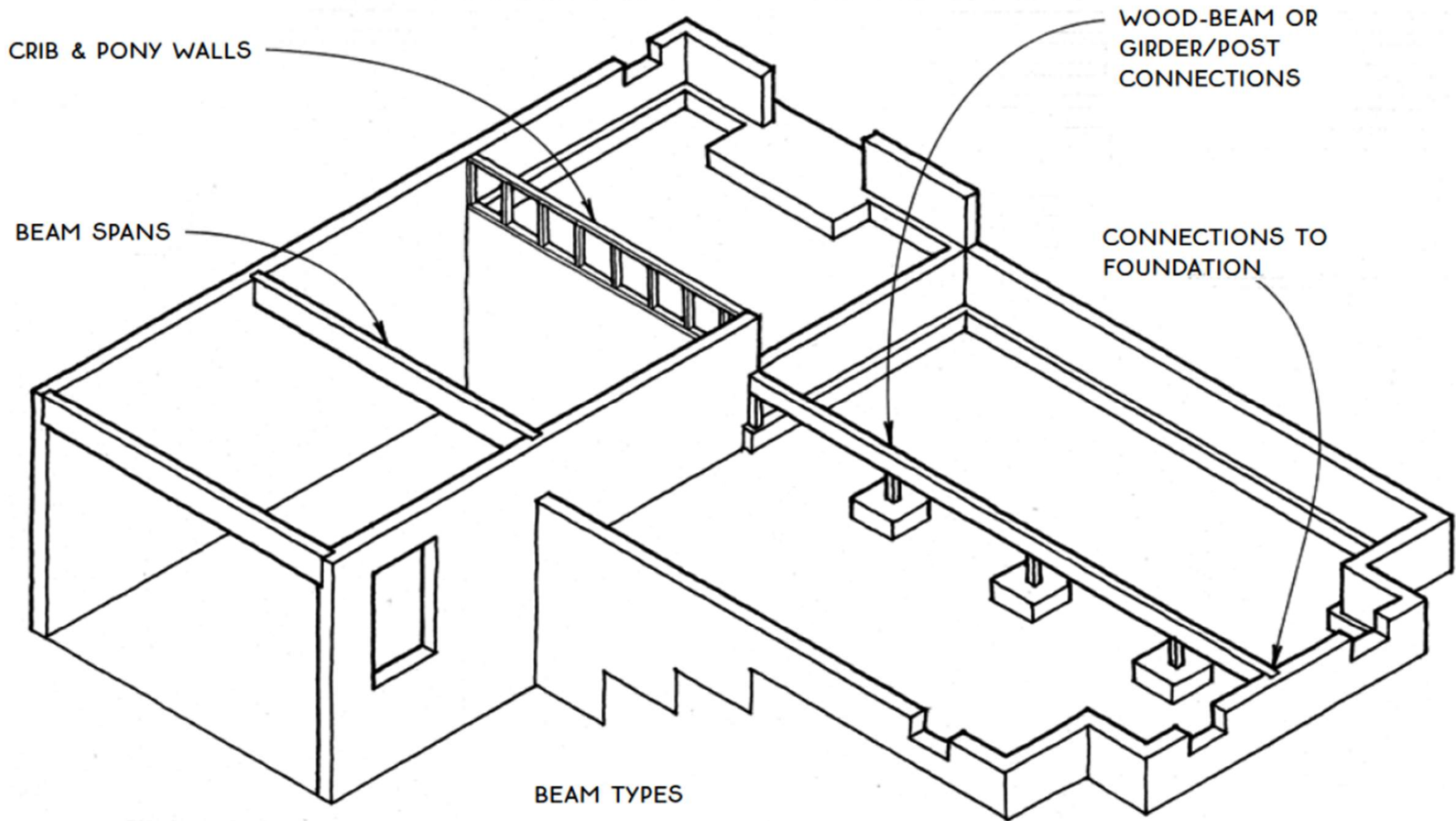
ELEMENTS OF A FLOOR SYSTEM

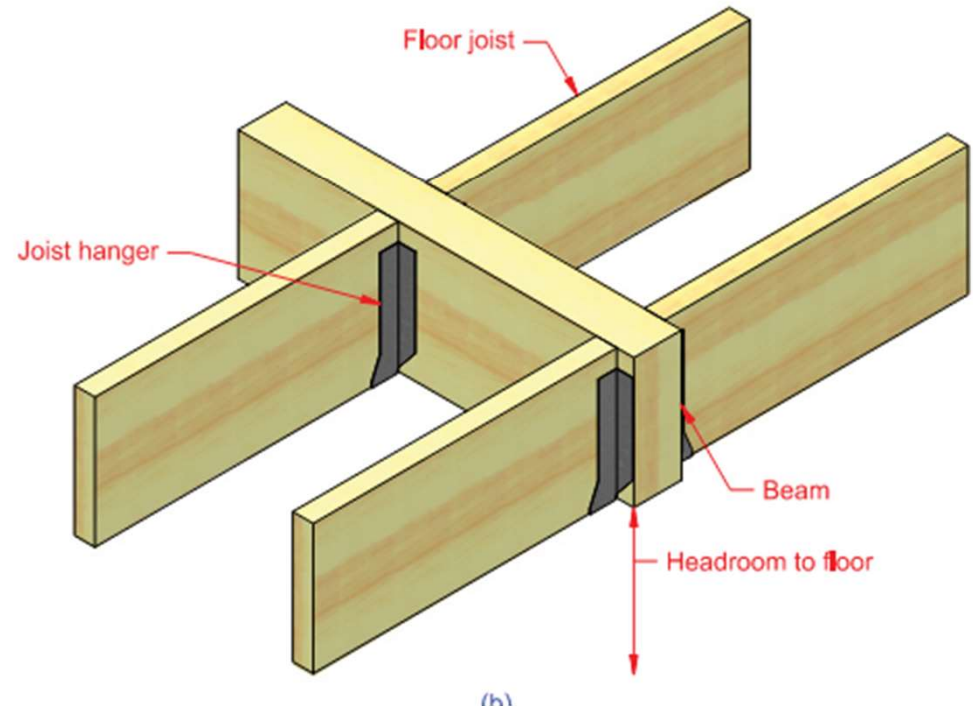
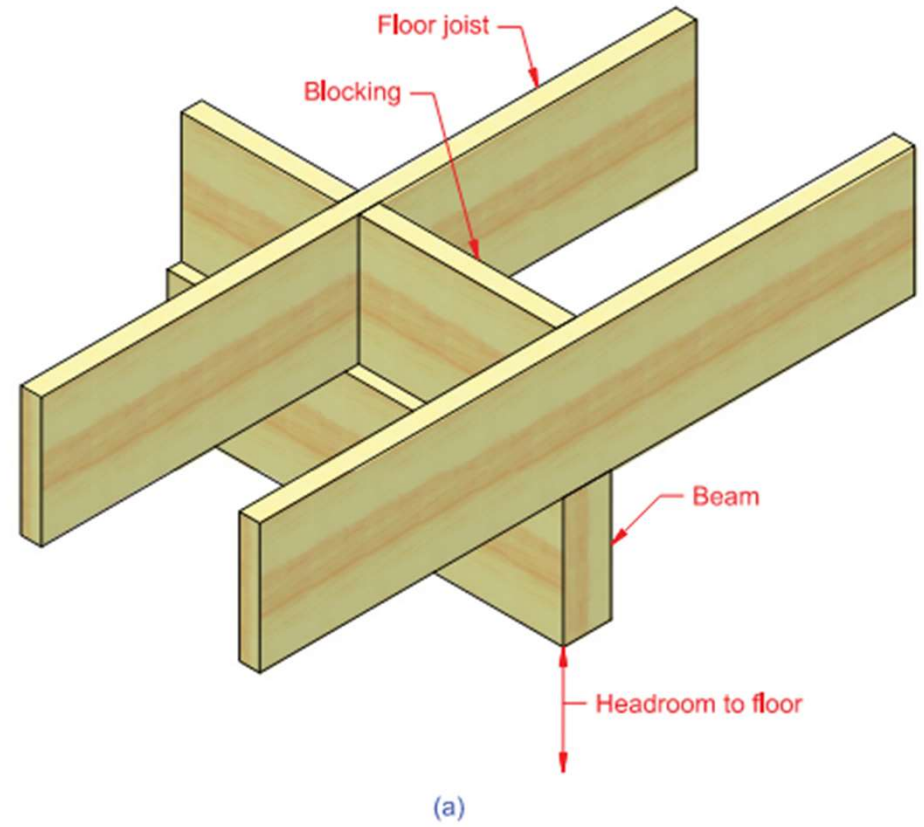




"Media Perra House / Santos Bolívar" [Casa Media Perra / Santos Bolívar] 18 Oct 2020. ArchDaily. Accessed 19 Oct 2020.
<<https://www.archdaily.com/924306/media-perra-house-santos-bolivar>> ISSN 0719-8884

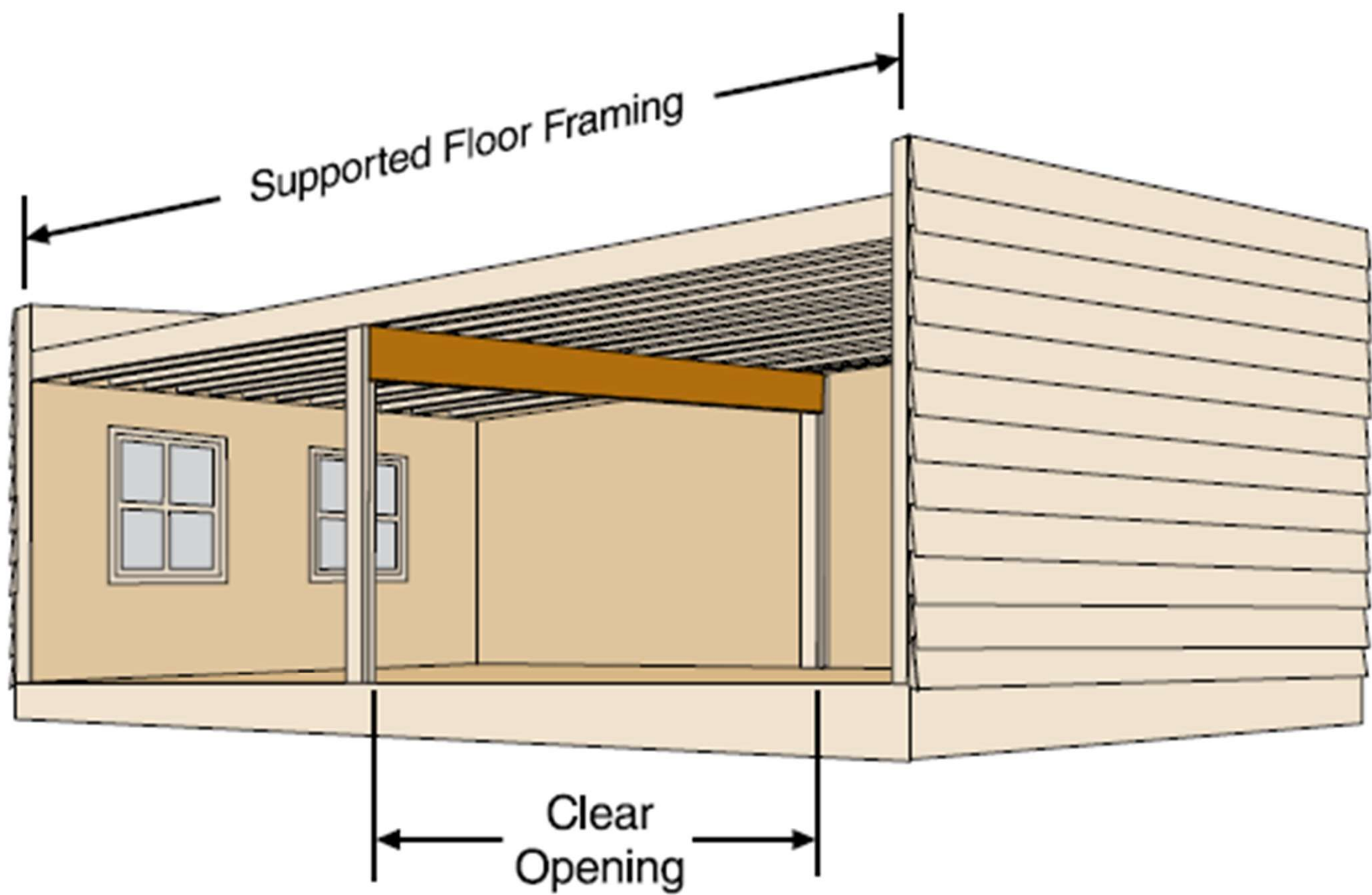






Beam Spans

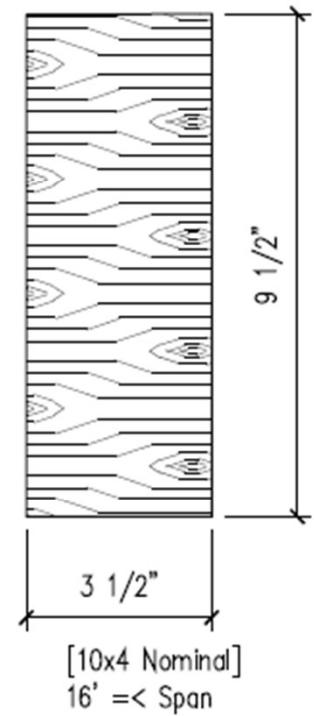
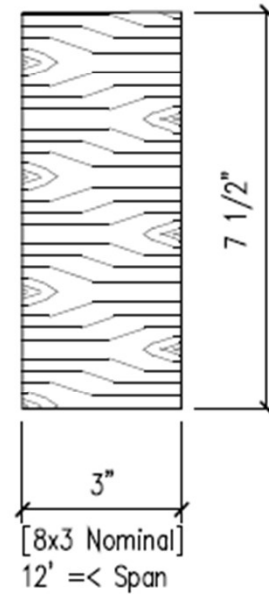
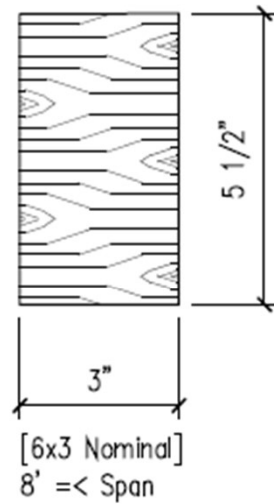
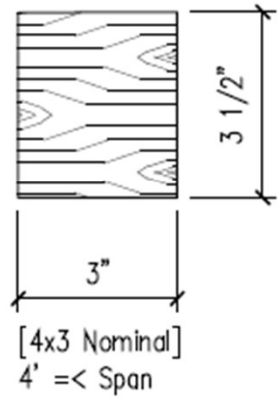




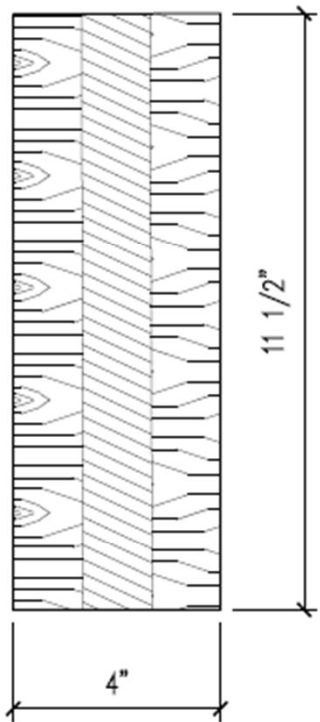


<http://buildipedia.com/knowledgebase/division-06-wood-plastics-and-composites/06-10-00-rough-carpentry/06-13-00-heavy-timber/06-13-23-heavy-timber-construction/06-13-23->

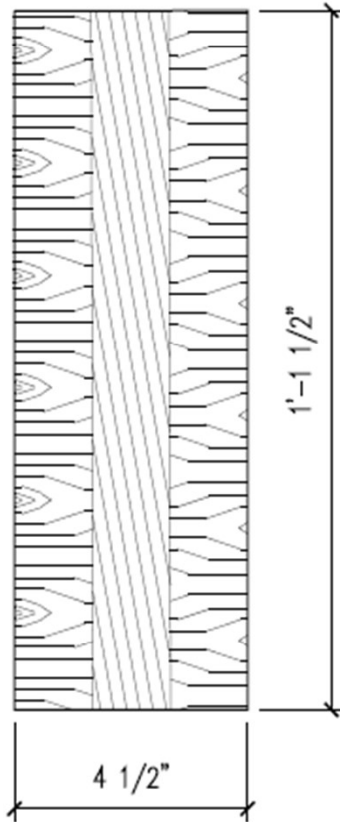
Solid Beams



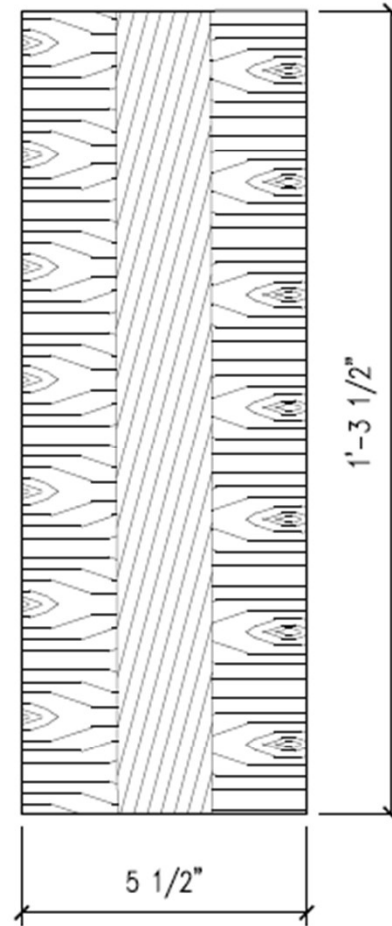
Built up Beams



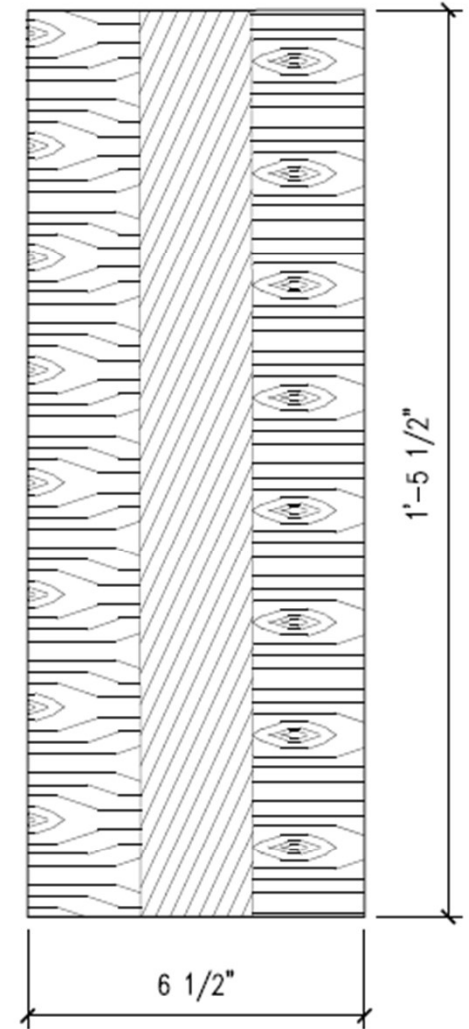
[12x4 Nominal]
20' =< Span



[14x5 Nominal]
24' =< Span

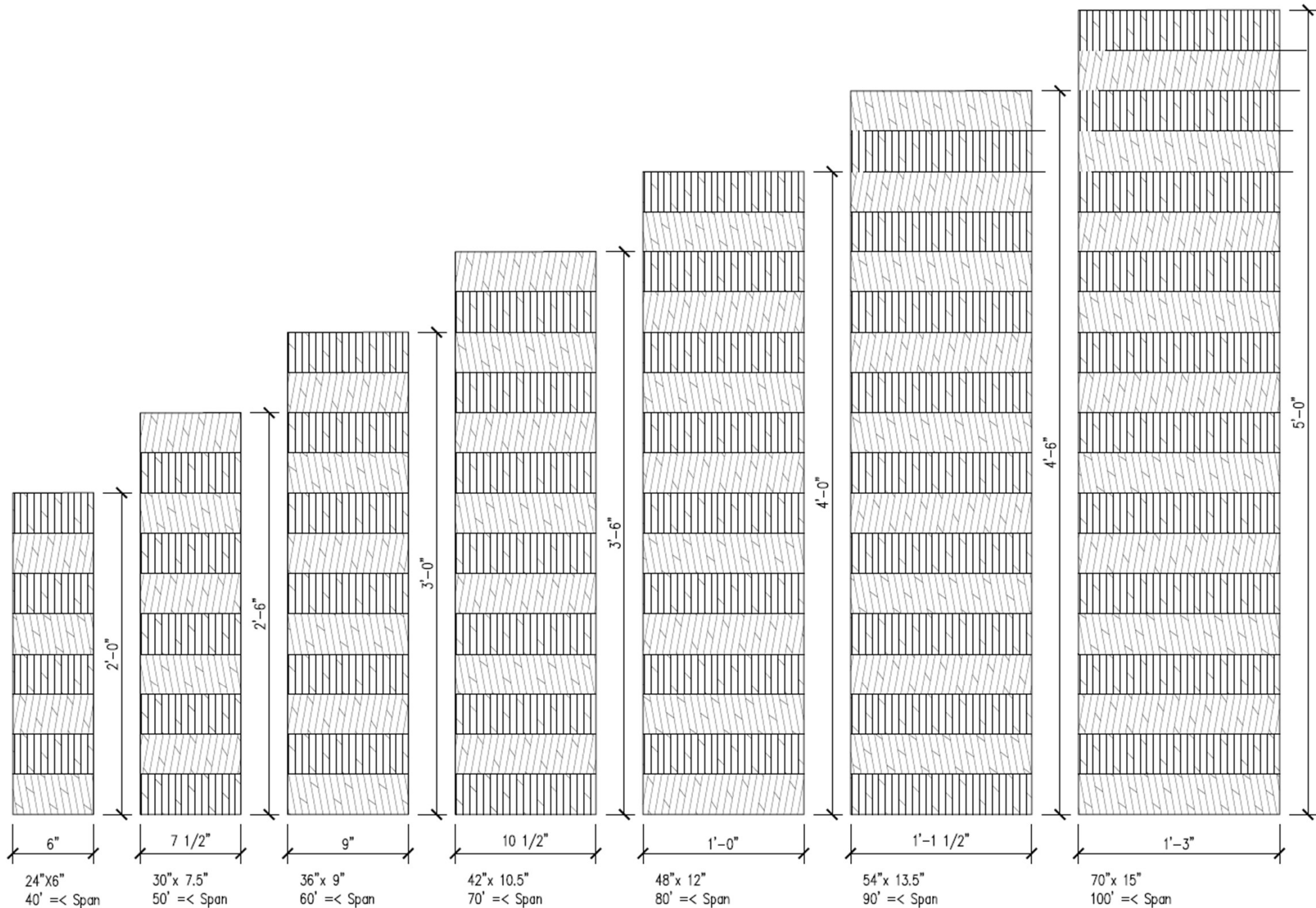


[16x6 Nominal]
28' =< Span



[18x7 Nominal]
32' =< Span

Glue Laminated Beams



BEAM SIZING, by industry tables



Key

Southern Pine lumber sizes for No.1, No.2 and No.3 grades are shown in regular type with the required number of plies in parentheses. Southern Pine glued laminated timber sizes for a 24F-1.7E (V4) stress class are provided in italics when (4) 2x12s no longer meet design parameters. A 3.0" bearing length is assumed. For other bearing lengths, use the *Allowable Floor Load Tables* (Tables 21-26).

Steps in Using Table 13:

1. Verify the applicability of this table's loading conditions and load duration factor.
2. Find the span of supported floor framing (i.e., sum of the spans of the joists or trusses that frame into the beam) that equals or exceeds the intended application.
3. Find the clear opening.
4. Select product size for the appropriate grade, clear opening and span of supported floor framing.



Beam size is based on the load transferred from 1/2 the span of the supported floor framing assuming two simple spans.

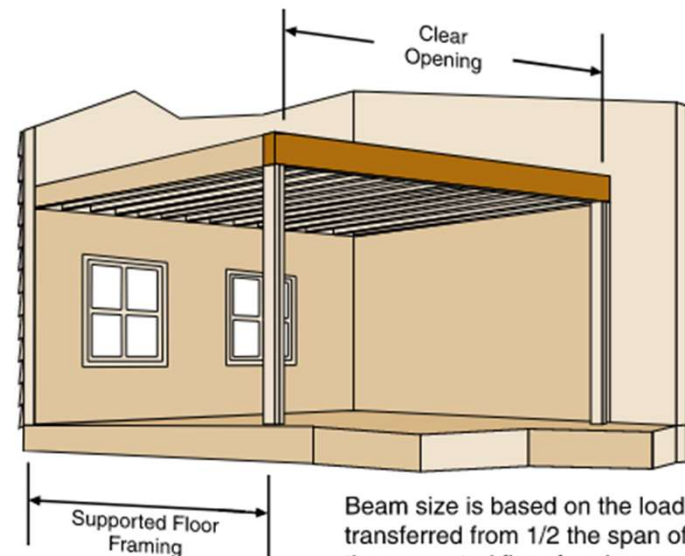
Table 13 – 40 psf Live Load, 10 psf Dead Load, 1.00 Load Duration Factor

Key

Southern Pine lumber sizes for No.1, No.2 and No.3 grades are shown in regular type with the required number of plies in parentheses. Southern Pine glued laminated timber sizes for a 24F-1.7E (V4) stress class are provided in italics when (4) 2x12s no longer meet design parameters. A 3.0" bearing length is assumed. For other bearing lengths, use the *Allowable Floor Load Tables* (Tables 21-26).

Steps in Using Table 14:

1. Verify the applicability of this table's loading conditions and load duration factor.
2. Find the span of supported floor framing (i.e., span of joists or trusses that frame into the beam) that equals or exceeds the intended application.
3. Find the clear opening.
4. Select product size for the appropriate grade, clear opening and span of supported floor framing.



Beam size is based on the load transferred from 1/2 the span of the supported floor framing.



Table 13 – 40 psf Live Load, 10 psf Dead Load, 1.00 Load Duration Factor

Grade	Clear Opening	Span of Supported Floor Framing (Sum of joist spans from both sides of beam)						
		20'	24'	26'	28'	30'	32'	36'
No. 1	8'	(2) 2 x 12s	(2) 2 x 12s	(3) 2 x 10s	(3) 2 x 10s	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s
	9'	(3) 2 x 10s	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s
	10'	(3) 2 x 12s	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s
	11'	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 14
	12'	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	5-1/2 x 14
	13'	(4) 2 x 12s	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16
	14'	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 16	5-1/2 x 14	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16
	15'	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18
	16'	3-1/2 x 14	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18	5-1/2 x 19-1/4
	17'	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18	5-1/2 x 18	5-1/2 x 19-1/4
18'	3-1/2 x 16	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18	5-1/2 x 18	5-1/2 x 19-1/4	5-1/2 x 20-5/8 *	
No. 2	8'	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s	(3) 2 x 12s	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s
	9'	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 14
	10'	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14
	11'	(4) 2 x 12s	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	5-1/2 x 14
	12'	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	5-1/2 x 14
	13'	3-1/2 x 11-1/4	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16
	14'	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 16	5-1/2 x 14	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16
	15'	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18
	16'	3-1/2 x 14	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18	5-1/2 x 19-1/4
	17'	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18	5-1/2 x 18	5-1/2 x 19-1/4
18'	3-1/2 x 16	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18	5-1/2 x 18	5-1/2 x 19-1/4	5-1/2 x 20-5/8 *	
No. 3	8'	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 9-1/4	3-1/2 x 9-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4
	9'	(4) 2 x 12s	3-1/2 x 9-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14
	10'	3-1/2 x 9-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14
	11'	3-1/2 x 9-1/2	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	5-1/2 x 14
	12'	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	5-1/2 x 14
	13'	3-1/2 x 11-1/4	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16
	14'	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 16	5-1/2 x 14	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16
	15'	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18
	16'	3-1/2 x 14	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18	5-1/2 x 19-1/4
	17'	3-1/2 x 16	5-1/2 x 14	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18	5-1/2 x 18	5-1/2 x 19-1/4
18'	3-1/2 x 16	5-1/2 x 16	5-1/2 x 16	5-1/2 x 18	5-1/2 x 18	5-1/2 x 19-1/4	5-1/2 x 20-5/8 *	

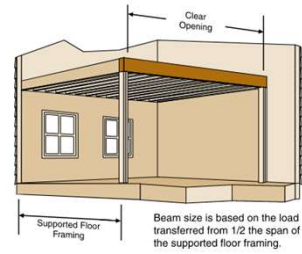
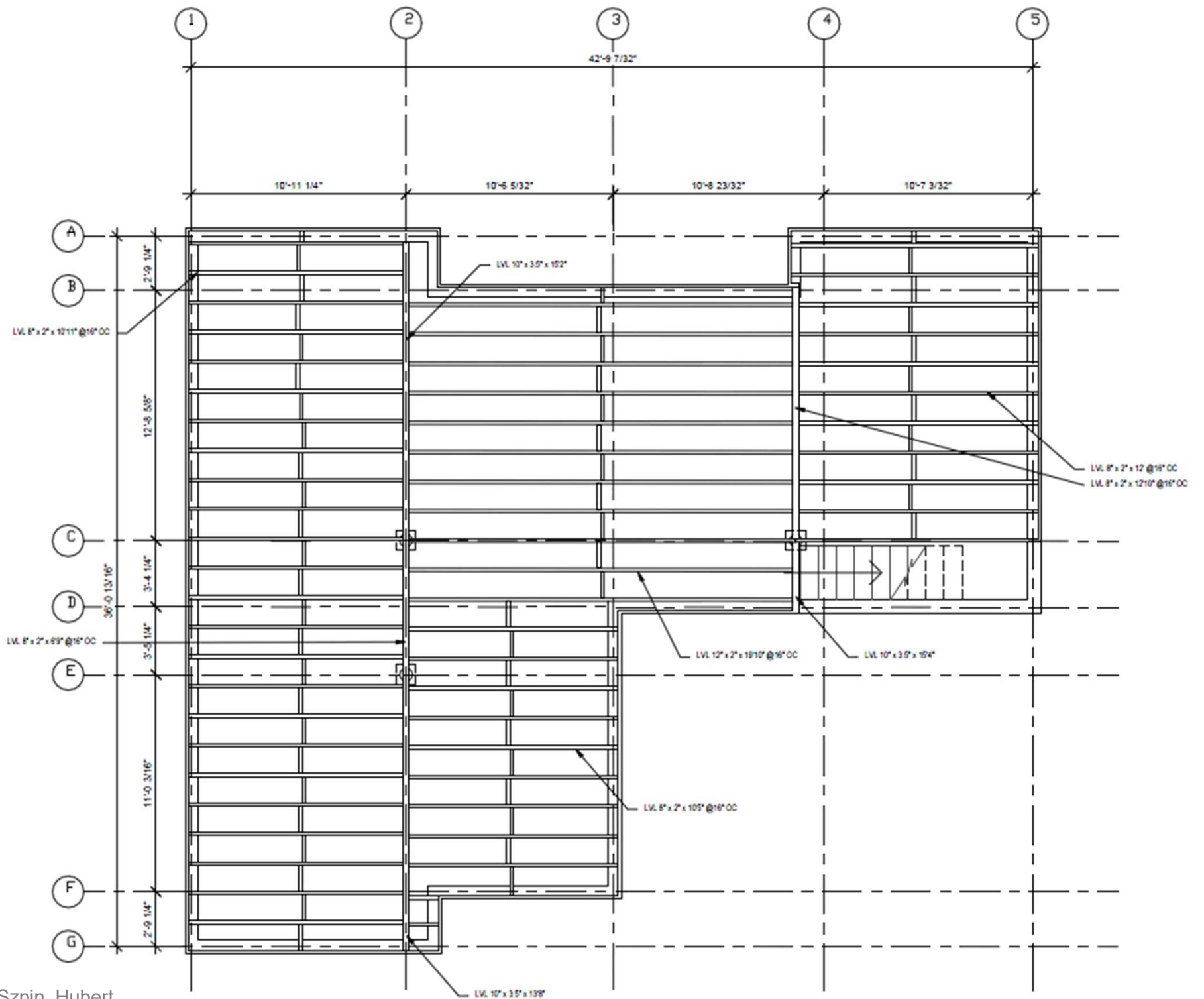


Table 14 – 40 psf Live Load, 10 psf Dead Load, 1.00 Load Duration Factor

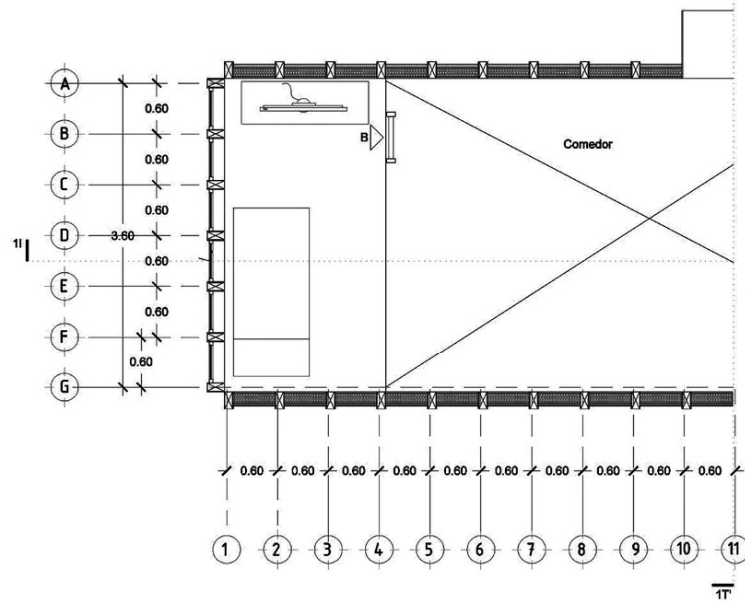
Grade	Clear Opening	Span of Supported Floor Framing						
		10'	12'	14'	16'	18'	20'	22'
No. 1	10'	(2) 2 x 10s	(2) 2 x 12s	(2) 2 x 12s	(2) 2 x 12s	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s
	11'	(2) 2 x 12s	(2) 2 x 12s	(3) 2 x 10s	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s	(3) 2 x 12s
	12'	(2) 2 x 12s	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s
	13'	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s
	14'	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 11-7/8	3-1/2 x 14
	15'	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14
	16'	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14
	17'	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16
	18'	(4) 2 x 12s	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	3-1/2 x 16
	19'	(4) 2 x 12s	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	3-1/2 x 16	3-1/2 x 18
	20'	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	3-1/2 x 16	3-1/2 x 18	3-1/2 x 18
No. 2	10'	(2) 2 x 12s	(2) 2 x 12s	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s
	11'	(3) 2 x 10s	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s
	12'	(3) 2 x 10s	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 11-1/4	3-1/2 x 11-1/4
	13'	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4
	14'	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14
	15'	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14
	16'	(4) 2 x 12s	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14
	17'	3-1/2 x 11-1/4	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16
	18'	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	3-1/2 x 16
	19'	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	3-1/2 x 16	3-1/2 x 18
	20'	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	3-1/2 x 16	3-1/2 x 18	3-1/2 x 18
No. 3	10'	(3) 2 x 12s	(3) 2 x 12s	(4) 2 x 12s	(4) 2 x 12s	3-1/2 x 9-1/4	3-1/2 x 9-1/4	3-1/2 x 9-1/4
	11'	(3) 2 x 12s	(4) 2 x 12s	3-1/2 x 9-1/4	3-1/2 x 9-1/4	3-1/2 x 9-1/4	3-1/2 x 9-1/4	3-1/2 x 9-1/2
	12'	(4) 2 x 12s	3-1/2 x 9-1/4	3-1/2 x 9-1/4	3-1/2 x 9-1/2	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4
	13'	3-1/2 x 9-1/4	3-1/2 x 9-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4
	14'	3-1/2 x 9-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14
	15'	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14
	16'	3-1/2 x 11-1/4	3-1/2 x 11-1/4	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14
	17'	3-1/2 x 11-1/4	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16
	18'	3-1/2 x 11-7/8	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	3-1/2 x 16
	19'	3-1/2 x 14	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	3-1/2 x 16	3-1/2 x 18
	20'	3-1/2 x 14	3-1/2 x 14	3-1/2 x 16	3-1/2 x 16	3-1/2 x 16	3-1/2 x 18	3-1/2 x 18

https://www.southernpine.com/span-tables/headers-beams-size-selection-tables/

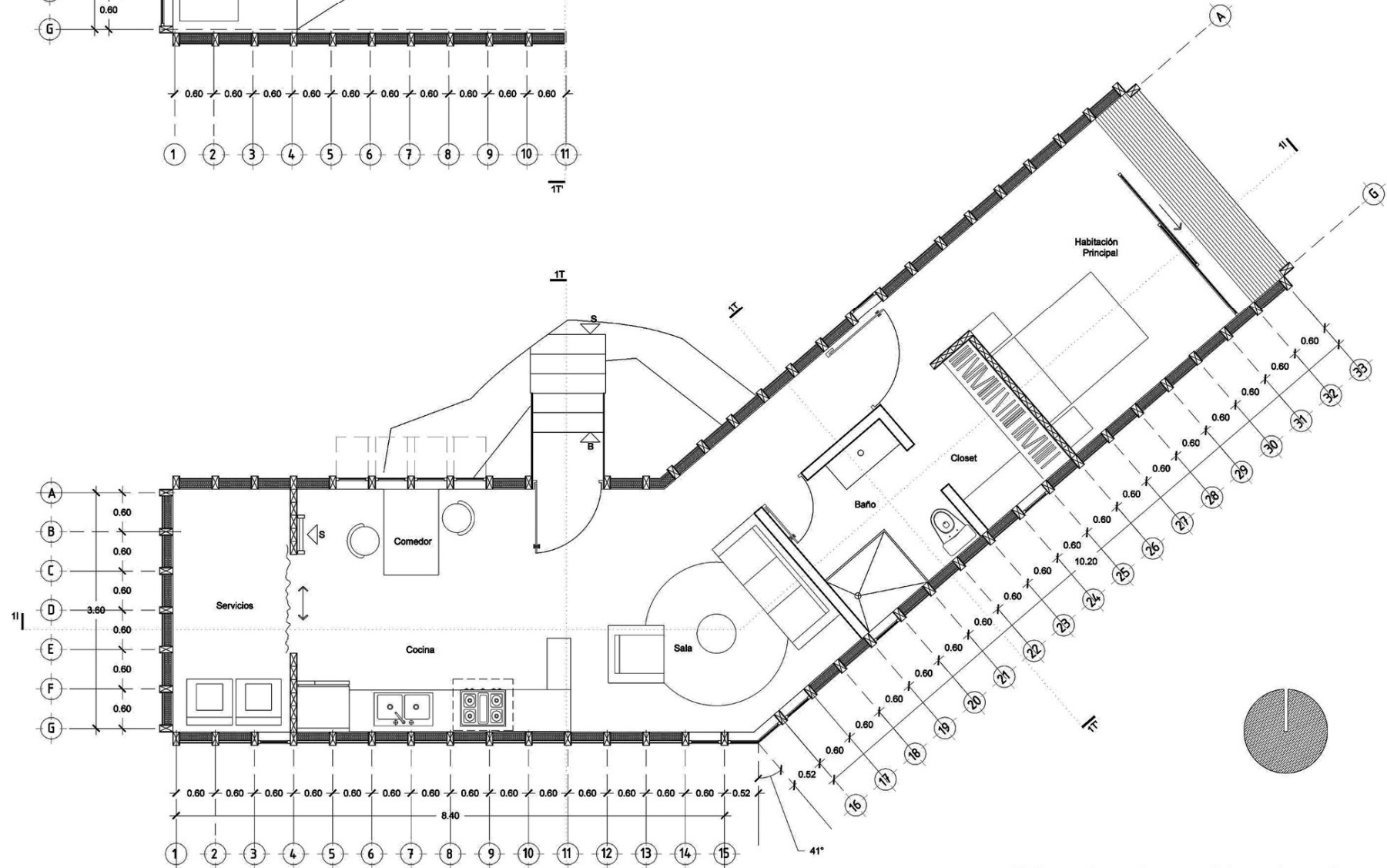




"Media Perra House / Santos Bolívar" [Casa Media Perra / Santos Bolívar] 18 Oct 2020. ArchDaily. Accessed 19 Oct 2020.
<<https://www.archdaily.com/924306/media-perra-house-santos-bolivar>> ISSN 0719-8884



Planta Mezanine



Planta Arquitectonica



"Media Perra House / Santos Bolívar" [Casa Media Perra / Santos Bolívar] 18 Oct 2020. ArchDaily. Accessed 19 Oct 2020. <<https://www.archdaily.com/924306/media-perra-house-santos-bolivar>> ISSN 0719-8884 **Corte Longitudinal 1l-1l'**

Cubierta

Aislamiento de Paja

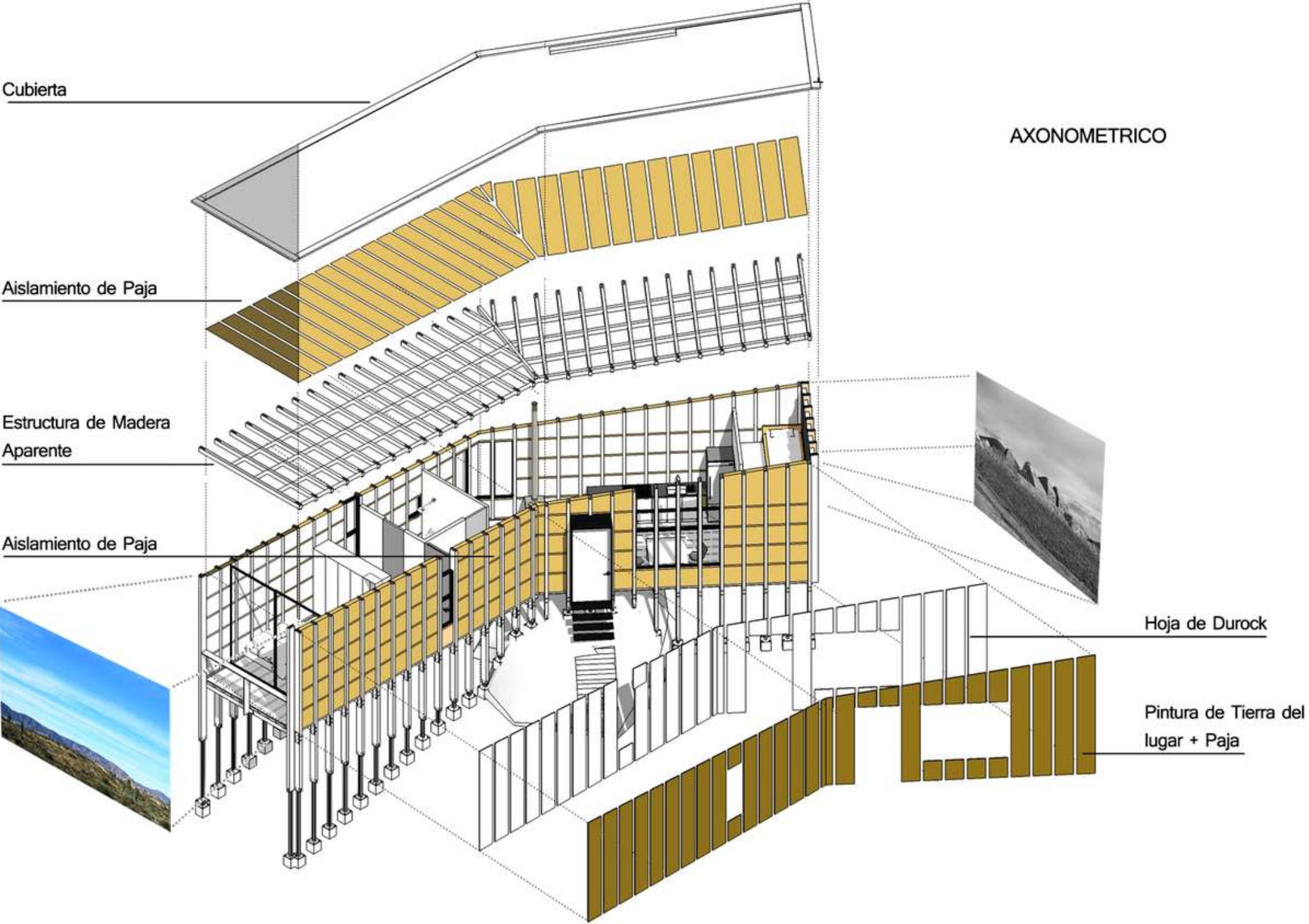
Estructura de Madera
Aparente

Aislamiento de Paja

AXONOMETRICO

Hoja de Durock

Pintura de Tierra del
lugar + Paja





"Media Perra House / Santos Bolívar" [Casa Media Perra / Santos Bolívar] 18 Oct 2020. ArchDaily. Accessed 19 Oct 2020.
<<https://www.archdaily.com/924306/media-perra-house-santos-bolivar>> ISSN 0719-8884