DRE STRUCTURAL DESIGN

1214 30th St Oakland, CA Residential Renovation and Remodel Structural Calculations

Permit Set

June 3, 2020



Prepared For: Hourig McCray, RA - HCD Residential Lending Services Oakland, CA

Prepared By:

Daniel Espino, SE 160 Birch St Ste B Redwood City, CA 94062

TABLE OF CONTENTS

Section Description Structural Narrative 1 **Design Criteria** 2 Design Criteria Flat Weights 3 Wall Weights 4 WIND Wall C&C 5 Roof C&C 6 SEISMIC 7 USGS Design Map EQ (Equiv. Lat. Force, 12.8) 8 Diaphragm Weight Info 9 Story Force Distribution 10 Lateral System Layout 11 Horiz Dist - Roof DIAPH A 12 Horiz Dist - Roof DIAP B 13 Horiz Dist - ROOF - Diaph C 14 Horiz Dist - 2nd FLR - DIAPH A 15 Horiz Dist - 2nd FLR - DIAPH B 16 Horiz Dist - 2nd FLR - Diaph C 17 **Diaphragm Design - ROOF** 18 Diaphragm Design - 3rd FLOOR 19 **Diaphragm Design - 2nd FLOOR** 20 Shearwall Layout 21 SW (Gridline B) 22 SW (Gridline C) 23 SW (Gridline C.5) 24 FTAO SW-Gridline D - 2nd Flr 25 FTAO SW-Gridline D - 1st Floor 26 SW (Gridline 1) 27 SW (Gridline 3) 28 **3rd FLOOR FRAMING DESIGN** 3rd Floor Framing Layout 29 3rd Floor Framing Design 30 2nd FLOOR FRAMING DESIGN 2nd Floor Framing Layout 31 2nd Floor Framing Design 32 FOUNDAITON DESIGN Foundation Layout 33 Grid 1 -Ecc. FTG Full Bearing 34

Shear Wall Footing Line 1	25
	55
Shear Wall Footing Line B	36
Pad Ftg - A-3	37

STRUCTURAL NARRATIVE

The following calculations are for the new residential renovation located at 1214 30th St in Oakland, CA. Specifically, the calculations address the new gravity and lateral systems including the foundations.

Gravity System:

The gravity system is composed of wood framed roof and floors supported by a combination of wood joists and wood load-bearing walls. The walls are supported by shallow concrete foundations.

Lateral System:

The lateral system consists of wood flexible diaphragms spanning betweend wood shear walls.

All calculations are in accordance with the 2019 California Building Code.

Design Criteria

BUILDING CODE

Governing Code:	2019 California Building Code
Authority Having Jurisdiction:	City of Oakland
Local Codes or Amendments:	2019 Building Code Amendments

SEOR STAMP

Dry Soil Density =	100 pcf
Wet Soil Density =	110 pcf
Passive Soil Pressure =	800 pcf
Active Soil Pressure =	45 pcf
At-Rest Soil Pressure =	60 pcf
Allowable Bearing Pressure, D+L =	1500 psf
Allowable Bearing Pressure, D+L+(E or W) =	2000 psf
Pier Skin Friction =	900 psf
Coefficient of Friction =	0.35
Soil Spring Modulus =	150 lbs/in

BUILDING SYSTEM DESCRIPTION

No. Stories:	2
Footprint:	990 ft ²
Floor Area:	1980 ft ²
Roof Area:	990 ft ²

Building Use:	Residential
Gravity System:	Wood load bearing walls and wood columns
Diaphragm System:	Plywood
Foundation System:	Shallow Foundations

ASCE 7-16 Reference UNO:

SEISMIC DESIGN PARAMETERS

Analysis Procedure Used:	E	EQ (Equiv. Lat. Force, 12.8)	Section 12.6
Latitude:	37.8725 deg	Longitude: -122.2831 deg	
Risk Category:		Use/Occupancy of Building Description	Table 1.5-1
I _E =	1.00	Importance Factor, Seismic	Table 1.5-1
I _P =	1.00	Importance Factor, Nonstructural Components	13.1.3
Soil Site Class =	D	Per Geotech Report, Site Class D otherwise	Table 20.3-1
S _S =	1.500 g	Mapped spectral response acceleration parameter	USGS
S ₁ =	0.600 g	Mapped spectral response acceleration parameter	USGS
F _a =	1.2	Site coefficient	Table 11.4-1
$F_v =$	1.7	Site coefficient	Table 11.4-2
S _{DS} =	1.200 g	Design spectral response acceleration parameter	11.4-3
S _{D1} =	0.680 g	Design spectral response acceleration parameter	11.4-4
Seismic Design Category:	D		Section 11.6
Building System, N-S:	A. BEARING WALL SYSTEMS	15. Light-framed (wood) walls sheathed with wood structural panels rated for shear resistance	Table 12.2-1
Building System, E-W:	A. BEARING WALL SYSTEMS	15. Light-framed (wood) walls sheathed with wood structural panels rated for shear resistance	Table 12.2-1
Diaphragm=	Flexible Diaphragm	Plywood	
$\rho_{(N-S)} =$	1.3	Redundancy factor, N-S	12.3.4
$\rho_{(E-W)} =$	1.3	Redundancy factor, E-W	12.3.4
R _(N-S) =	6.50	Response modification coefficient, N-S	Table 12.2-1
$R_{(E-W)} =$	6.50	Response modification coefficient, E-W	Table 12.2-1
$\Omega_{o(N-S)} =$	2.50	Overstrength factor, N-S	Table 12.2-1
$\Omega_{o(E-W)} =$	2.50	Overstrength factor, E-W	Table 12.2-1
C _{d(N-S)} =	4.00	Deflection amplification factor, N-S	Table 12.2-1
$C_{d(E-W)} =$	4.00	Deflection amplification factor, E-W	Table 12.2-1
$T_{(N-S)} =$	0.167 sec	Approximate Fundamental Period, N-S	Section 12.8.2
$T_{(E}-W) =$	0.167 sec	Approximate Fundamental Period, E-W	Section 12.8.2
$T_L =$	8 sec	Long Period Transistion Period	USGS
$V_{(N-S)}$ (ULT) =	0.185 *W	Base Shear, N-S, LRFD	Section 12.8 or 12.14
$V_{(N-S)}$ (ASD) =	0.129 *W	Base Shear, N-S, ASD	Section 12.8 or 12.14
$V_{(E-W)}$ (ULT) =	0.185 *W	Base Shear, E-W, LRFD	Section 12.8 or 12.14
$V_{(E-W)}$ (ASD) =	0.129 *W	Base Shear,E-W, LRFD	Section 12.8 or 12.14
Structural Irregularities	Horizontal: none		Table 12.3-1
	Vertical: none		Table 12.3-2

WIND DESIGN PARAMETERS

Wind Method Used:		Chapter 27		
Basic Wind Speed =	110 MPH Ultimate Design Wind Speed (3 second gust			Figure 26.5-1A,B or C
Exposure Category:	С	;	Open Terrain	26.7.3
K _{zt} =	1.00		Topographic Factor	26.8
K _d =	0.85	Buildings	Directionality Factor	Table 26.6-1

MATERIAL STRENGTH AND SPECIFICATIONS

CONCRETE:

Foundations, $f'_c =$	3000 psi	Designed for 2,500
Slab on grade, f' _c =	3000 psi	4,000 at 56 days at Interior
Structural walls, f' _c =	3000 psi	
Beams and Columns, f' _c =	3000 psi	
Fill over metal deck, f' _c =	3000 psi	
Elevated slabs, f' _c =	3000 psi	
Weight of normal weight concrete =	150 pcf	
Weight of lightweight concrete =	110 pcf	

CONCRETE REINFORCING:

Reinforcing Steel, f _y =	60 ksi	ASTM A615, Grade 60
Reinforcing Steel ties, $f_y =$	40 ksi	ASTM A615, Grade 40

WOOD CONSTRUCTION:

1200 psi					
1200 psi	Douglas Fir #1				
1350 psi	Douglas Fir #1				
1000 psi	Douglas Fir #1				
900 psi	Douglas Fir #2				
900 psi	Douglas Fir #2				
PS1 /	PS2				
Simpson S	Strong-Tie				
2400 psi	24F-V4 (DF/DF) simple span, 24F-V8 (DF/DF) continuous span				
2000 psi	20F-V12 (AC/AC) simple span, 20F-V13 (AC/AC) continuous span				
2900 psi	Grade 2.0E				
2600 psi	Grade 1.9E				
2600 psi	Grade 1.9E				
	1350 psi 1000 psi 900 psi 900 psi PS1 / Simpson S 2400 psi 2000 psi 2900 psi 2600 psi				

DEFLECTION & VIBRATION DESIGN CRITERIA

_		LIVE		DEAD	+ LIVE	0.6 WIND	
	Finish	Design Code Min		Design Code Min		Design	Code Min
Roof Framing	Ceiling	L/240	L/240	L/180	L/180	L/240	L/240
Floor Framing	-	L/360	L/360	L/240	L/240	-	-
Wall Framing	Flexible	-	-	-	-	L/120	L/120

GRAVITY / SEISMIC FLAT WEIGHT TAKEOFF (PSF)

Roof Load

CBC Live Load Category: 26. Roof: ordinary Slope: 4.00:12

Material	Sloped	Deck	Joists	Girders	Seismic
Roofing	Y	3.0	3.0	3.0	3.0
1/2" PLY SHTG	Y	1.7	1.7	1.7	1.7
MEP	Y		1.0	1.0	1.0
Ceiling	Y		2.2	2.2	2.2
Attic Framing	Y				10.0
2x Joists	Y			2.2	2.2
Girders	Y				1.5
Misc. (includes .5 psf for insulation)	Y	2.0	2.0	2.0	2.0
Dead Load		6.7	9.9	12.1	23.6
Dead Load - Horiz Projection		7.1	10.4	12.8	24.9
Partitions		0.0	0.0	0.0	0.0
Live Load		20.0	20.0	20.0	20.0
Live Load - Reduced $R_2 = 1.00$		20.0	20.0	20.0	20.0
Total Load		27.1	30.4	32.8	44.9

GRAVITY / SEISMIC FLAT WEIGHT TAKEOFF (PSF)

Floor Load

CBC Live Load Category: 25. Residential: Other

Material	Sloped	Deck	Joists	Girders	Seismic
Flooring	Ν	1.0	1.0	1.0	1.0
Sheathing / Decking	N	2.5	2.5	2.5	2.5
	N			0.0	0.0
M.E.P.	N		1.0	1.0	1.0
Ceiling	N		2.2	2.2	2.2
Joists	Ν			2.5	2.5
Girders	N				1.5
Columns	Ν				0.5
Misc.	N	1.5	1.5	1.5	1.5
Dead Load		5.0	8.2	10.7	12.7
Dead Load - Horiz Projection		5.0	8.2	10.7	12.7
Partitions		0.0	0.0	0.0	0.0
Live Load		40.0	40.0	40.0	0.0
Live Load - Reduced $R_2 = 1.00$		40.0	40.0	40.0	0.0
Total Load		45.0	48.2	50.7	12.7

GRAVITY / SEISMIC WALL WEIGHT TAKEOFF (PSF)

Exterior Wall - 2x4 Stud

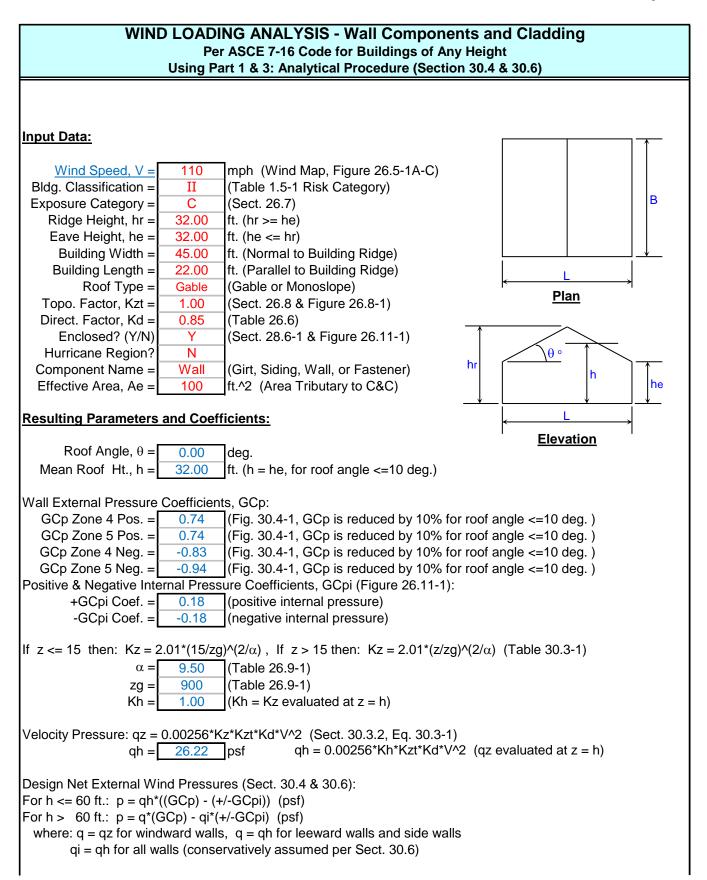
Material	Weight
2x4 @ 16" OC	1.1
Insulation	1.0
1/2" plywood	1.7
Cement Plaster /Gyp	5.0
MEP	1.0
Misc	2.7
TOTAL	10.0

Interior Wall - 2x4 Stud

Material	Weight
2x4 @ 16" OC	1.1
Gyp board (two sides)	5.0
Misc	1.0
TOTAL	8

<u>WIND</u>

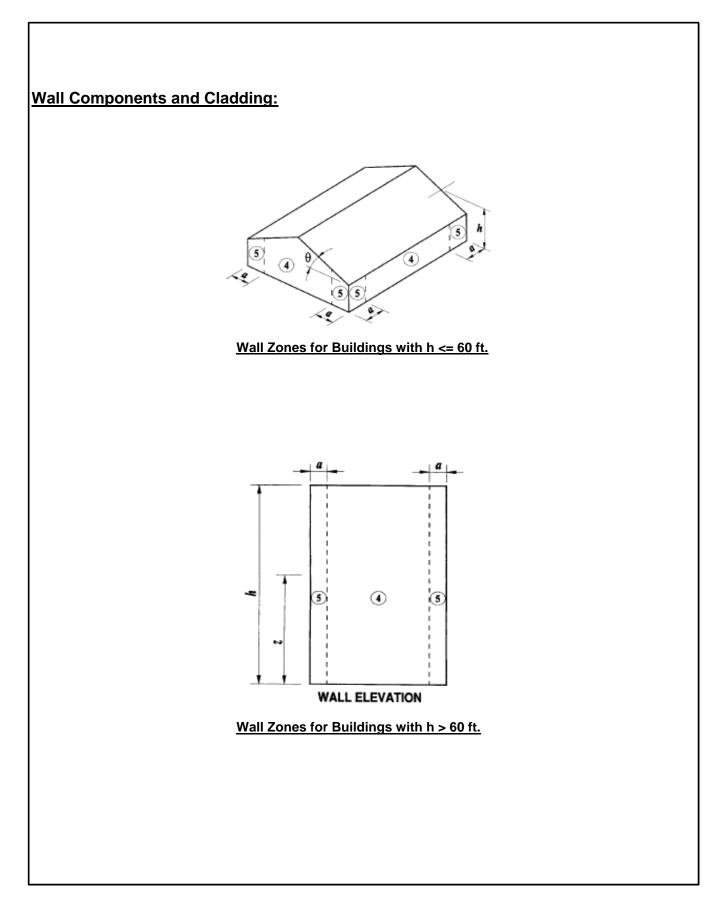
Job #19050 Wall C&C

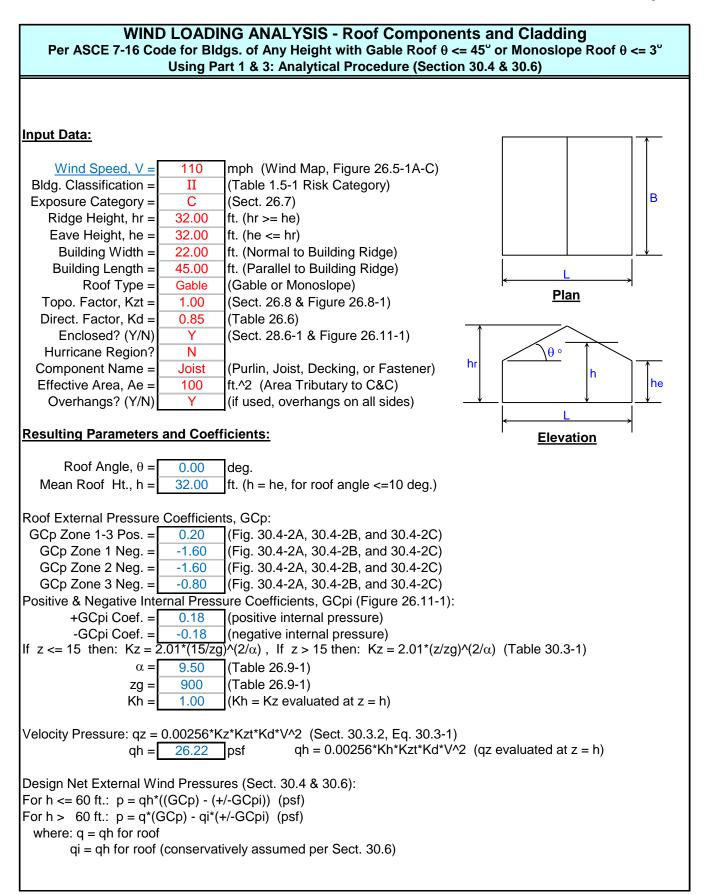


Job #19050 Wall C&C

$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Zone 5 (· -29.42
Wall 0 1.00 26.22 24.15 -26.51 24.15 15.00 1.00 26.22 24.15 -26.51 24.15 20.00 1.00 26.22 24.15 -26.51 24.15 25.00 1.00 26.22 24.15 -26.51 24.15 30.00 1.00 26.22 24.15 -26.51 24.15	-29.42
15.001.0026.2224.15-26.5124.1520.001.0026.2224.15-26.5124.1525.001.0026.2224.15-26.5124.1530.001.0026.2224.15-26.5124.15	
20.001.0026.2224.15-26.5124.1525.001.0026.2224.15-26.5124.1530.001.0026.2224.15-26.5124.15	
25.001.0026.2224.15-26.5124.1530.001.0026.2224.15-26.5124.15	-29.42
30.00 1.00 26.22 24.15 -26.51 24.15	-29.42
	-29.42
For z = hr: 32.00 1.00 26.22 24.15 -26.51 24.15 Image: Second Se	-29.42
Image: state of the state of	-29.42
Image: Constraint of the second sec	
For z = he: 32.00 1.00 26.22 24.15 -26.51 24.15 For z = h: 32.00 1.00 26.22 24.15 -26.51 24.15	-29.42 -29.42

Job #19050 Wall C&C



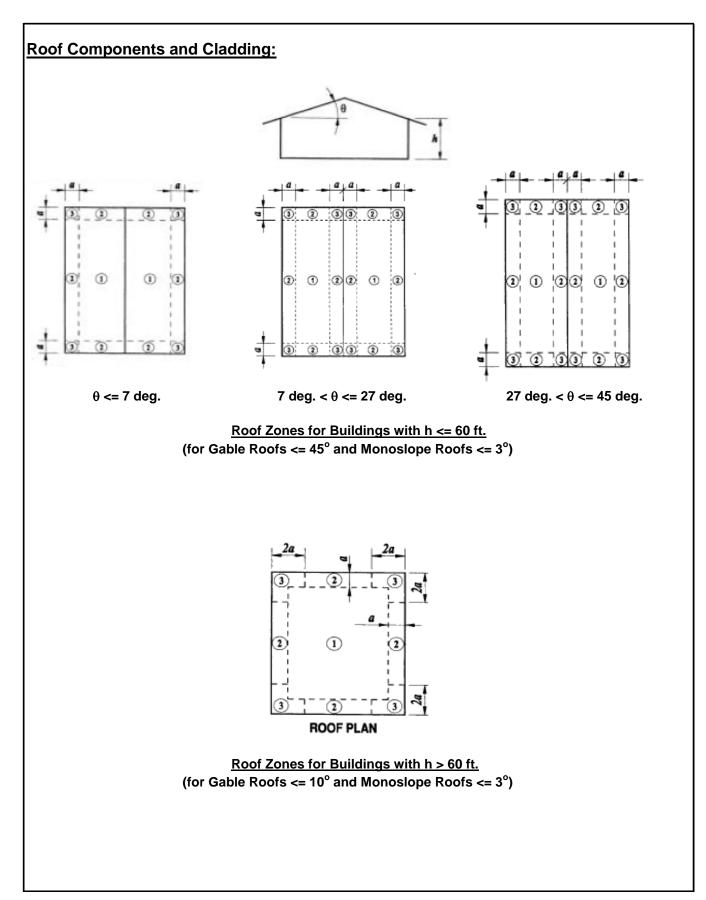


ZFA STRUCTURAL ENGINEERS Job #19050

Roof C&C

Engineer: DRE 6/3/2020

Component	pnent z Kh qh p = Net Design Pressures (p						(psf)	
	(ft.)		(psf)	Zone 1,2,3 (+)		Zone 2 (-)	Zone 3 (-)	
Joist	0	1.00	26.22	9.96	-46.66	-46.66	-25.69	
	15.00	1.00	26.22	9.96	-46.66	-46.66	-25.69	
	20.00	1.00	26.22	9.96	-46.66	-46.66	-25.69	
	25.00	1.00	26.22	9.96	-46.66	-46.66	-25.69	
	30.00	1.00	26.22	9.96	-46.66	-46.66	-25.69	
For $z = hr$:	32.00	1.00	26.22	9.96	-46.66	-46.66	-25.69	
For z = he: For z = h:		1.00 1.00	26.22 26.22	9.96 9.96	-46.66 -46.66	-46.66 -46.66	-25.69 -25.69	
5. For buildings 6. For all buildin 7. If a parapet :	the 2 (edge), the 3 (corner) pe roofs with with $h > 60$ the swith ove a > 3' in heig be treated a	'a' = , 'a' = n $\theta <= 3$ de ' and $\theta > 10$ rhangs, use ht is provide as Zone 2.	3.00 3.00 grees, use I degrees, use Fig. 30.4-2 ed around p mum wind	oward & away fr ft. Fig. 30.4-2A for Ise Fig. 30.6-1 fo 2B for 'GCp' valu erimeter of roof	'GCp' values or 'GCpi' valu ues per Sect. with $\theta <= 10$	with 'qh'. les with 'qh'. 30.10. degrees,	-	



SEISMIC

USGS DESIGN MAP SUMMARY REPORT

Lic. # : KW-06012032				DRE Struct	urol Desileus
DESCRIPTIO 1214 30th St Oakland, C	A			URE Struct	urai Design
1214 30th St Oakland, CA					
Risk Category				Calculations per A	ASCE 7-16
Risk Category of Building or Other Structure : "II' III,	" : All Buildings and (, and IV	other structu	res except thos	e listed as Category ^{SCE 7-16, Page 4, 7}	able 1.5-1
Seismic Importance Factor =	1			ASCE 7-16, Page 5,	Table 1.5-
				ASCE 7	-16 11.4.2
Max. Ground Motions, 5% Damping		Latitude =		37.823 deg North	
S _S = 1.50 g, 0.2 sec resp	onse	Longitude =		122.283 deg West	
S 1 = 0.60 g, 1.0 sec resp	onse				
1 0.00 8,		with period of	f 0.5 s or less,	SDS limited to max of 0.7*SDS or 1.0 for	calculatior
1 0.00 8,	3: Regular structure v	with period of	f 0.5 s or less, s	SDS limited to max of 0.7*SDS or 1.0 for	calculatior
Conforms to ASCE 7 Section 12.8.1.3	3: Regular structure v tegory	with period of	f 0.5 s or less, s	SDS limited to max of 0.7*SDS or 1.0 for ASCE 7-16 T	
Conforms to ASCE 7 Section 12.8.1.3 Site Class, Site Coeff. and Design Cal Site Classification "D" : Shear Wave Velocity 600 to	3: Regular structure v tegory				able 20.3-
Conforms to ASCE 7 Section 12.8.1.3 Site Class, Site Coeff. and Design Cal Site Classificatio/D" : Shear Wave Velocity 600 to	3: Regular structure v tegory 1,200 ft/sec	= D	20	ASCE 7-16 T	able 20.3-
Conforms to ASCE 7 Section 12.8.1.3 Site Classification 2: Shear Wave Velocity 600 to Site Coefficients Fa & Fv (using straight-line interpolation from table val	8: Regular structure v tegory 1,200 ft/sec Fa Fv	= D = 1.2	20	ASCE 7-16 T	able 20.3- 1 & 11.4-2
Conforms to ASCE 7 Section 12.8.1.3 Site ClassificatiofD" : Shear Wave Velocity 600 to Site Coefficients Fa & Fv (using straight-line interpolation from table val	8: Regular structure v tegory 1,200 ft/sec Fa	= D = 1.2 = 1.5	20 50 00	ASCE 7-16 T. ASCE 7-16 Table 11.4-	able 20.3- 1 & 11.4-2 Eq. 11.4-1
Conforms to ASCE 7 Section 12.8.1.3 Site Classificatio*D" : Shear Wave Velocity 600 to Site Coefficients Fa & Fv (using straight-line interpolation from table val Maximum Considered Earthquake Accelerat	8: Regular structure v tegory 1,200 ft/sec Fa Fv S _{MS} = Fa * Ss	= D = 1.2 = 1.8 = 0.90	20 50 00 00	ASCE 7-16 T. ASCE 7-16 Table 11.4- ASCE 7-16	able 20.3- 1 & 11.4-2 Eq. 11.4-1 Eq. 11.4-2
Conforms to ASCE 7 Section 12.8.1.3 Site Class, Site Coeff. and Design Cal Site ClassificatiofD" : Shear Wave Velocity 600 to Site Coefficients Fa & Fv	8: Regular structure v tegory 1,200 ft/sec Fa Fv S _{MS} = Fa * Ss S _{M1} = Fv * S1	= D = 1.2 = 1.8 = 0.90	20 50 50 50 50 50	ASCE 7-16 T. ASCE 7-16 Table 11.4- ASCE 7-16 ASCE 7-16	able 20.3- 1 & 11.4-2 Eq. 11.4-1 Eq. 11.4-2 Eq. 11.4-3

DSA Project?	NO			
Soil Site Class	D	Table 20.3-1, Default = D		
Response Spectral Acc. (0.2 sec) Ss =	1.500g	= 150.00%g	Figure 22-1, 22-3, 22	2-5, and 22-6
Response Spectral Acc.(1.0 sec) S1 =	0.600g	= 60.00%g	Figure 22-2, 22-4, 22	2-5, and 22-6
Site Coefficient $F_a =$	1.200			Table 11.4-1
Site Coefficient $F_v =$	1.700			Table 11.4-2
Max Considered Earthquake Acc. S_{MS} =	$F_{a}.S_{s}$	= 1.800		(11.4-1)
Max Considered Earthquake Acc. $S_{M1} =$	$F_v.S_1$	= 1.020		(11.4-2)
@ 5% Damped Design S_{DS} =	2/3(S _{MS})	= 1.200		(11.4-3)
$S_{D1} =$	2/3(S _{M1})	= 0.680		(11.4-4)
Building Risk Categories	II	Standard		Table 1.5-1
Redundancy Factor =	1.3		S	ection 12.3.4
Design Category Consideration:	Flexible	Diaphragm		Section 12.3
Seismic Design Category for 0.1sec	D			Table 11.6-1
Seismic Design Category for 1.0sec	D			Table 11.6-2
S1 < .75g	NA			Section 11.6
Since Ta < .8Ts (see below), SDC =	D	Control (exception of Sec	tion 11.6 does not app	ly)
IBC - Comply with Seismic Design Categor	y D	IRC - Seismic D	esign Category = E	T-R301.2.2.1.1

IBC2018 (1613), ASCE 7-16 CHAPTER 11, 12, 13 SEISMIC DESIGN CRITERIA

12.8 Equivalent lateral force procedure

Seismic Force Resisting System: A. BI					T-12.2-1
15. Light-framed (wood) walls shea		vood structural	panels rated for s		
$C_t = 0.02$	2	X =	= 0.75	T-12.8-	2
Building ht. H _n = 35 f	it		Limited Building	g Height (ft) = 65	
$C_u = 1.4$		for S_{D1} of	0.680g	Table 12.8-1	
Approx Fundamental period, $T_a = C_t(h)$	n _n) ^x	= 0.288	12.8-7	T _L = 8 Sec	
Calculated T shall not exceed ≤ Cu.⊺	Та	= 0.403		Use T = 0.167	sec.
0.8Ts = 0.8	8(S _{D1} /S _{DS)}	= 0.453	Control (excepti	ion of Section 11.6 de	ces not apply)
Is structure Regular & ≤ 5 stories ?	Yes			12.8.1.3	
Response Spectral Acc.(0.2 sec) $S_s = 1.50$	00g		N	lax Ss ≤ 1.5g	
F _a = 1.00	C				
@ 5% Damped Design S _{DS} = ⅔(F	= _a .S _s)	= 1.200g		11.4-3	
Response Modification Coef. R =	6.5			Table-12.2-1	
Over Strength Factor $\Omega_0 =$	2.5			foot note g	
Importance factor I =	1			Table 1.5-1	
Seismic Base Shear V =	$C_{s}W$				
C _s =	S _{DS} R/I	- =0.185		(12.8-2)	
or need not to exceed, $C_s =$	S _{D1} (R/I).T	= 0.625	For T≤ T _L	(12.8-3)	
or $C_s =$	$S_{D1}T_L$ $T^2(R/I)$	– N/A	For $T > T_L$	(12.8-4)	
C_s shall not be less than .044 S_{DS} I =	0.053	0.01		(12.8-5)	
Min C _s = 0	0.5S ₁ I/R	= 0.046	For S ₁ ≥ 0.6g	(12.8-6)	
Use C _s = 0.18	35				
Design base shear V (ULT)= 0.18	85 W	*•••	Incent into com	anniata lagad agertain	-
Design base shear V (ASD)= 0.12	29 W	"Control"	insert into appr	opriate load combin	ations

Deflection Amplification factor C_d = 4

Use with ASCE 12.8.6, 12.8.7, and 12.9.2

North-South Diaphragm Weight Information:

Level	Area (sq ft)	Diaphragm Unit Weight (psf)	Diaphragm Weight (kips)	Wall Unit Weight (psf)	Wall Trib Width (ft)	Wall Length (ft)	Wall Weight (kips)	Level Weight (kips)
Roof	990	24.9	25	10	4.0	100.0	4	29
2nd	990	12.7	13	10	8.0	100.0	8	21
Σ			37				12	49.2

East-West Diaphragm Weight Information:

Level	Area (sq ft)	Diaphragm Unit Weight (psf)	Diaphragm Weight (kips)	Wall Unit Weight (psf)	Wall Trib Width (ft)	Wall Length (ft)	Wall Weight (kips)	Level Weight (kips)
Roof	990	24.9	25	10	4.0	88.0	4	28
2nd	990	12.7	13	10	8.0	88.0	7	19.6
Σ			37				11	47.8

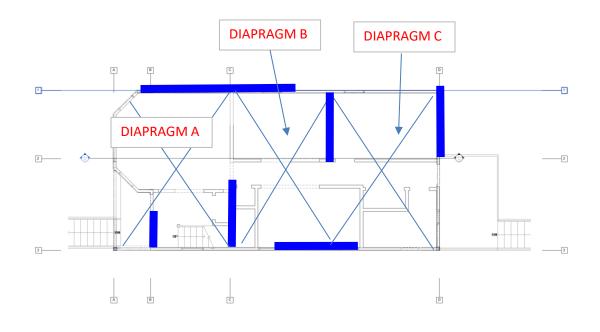
ROOF PLAN/2ND FLOOR

1ST FLOOR PLAN

S _{DS} = 1 I _{seismic} = 1		Ta Perio	d (12.8-7)= rho (p) =		k= 1.0		(12.8.3)
ASD OR ULT? V(ASD)= (Base	e V (ASD)=	6.4			
Story Force	Vertical	Distribution					
Level	W _X	h _x (ft.)	h _x ^k	w _x h _x ^k	Fx , ASD	Fx w/rho, ASD	Cv _x %
Roof 2nd Floor	28.6 20.6	16.0 8.0	16.0 8.0	458 165	4.678 1.681	6.1 2.2	73.6 26.4
Σ	49.2	0.0	0.0	623	6.4	8.3	20.4
Vertical Dia	phragm l	Distribution	(ASCE 7-1	6 12.10.1.	1)		=
Level	w _x	Σw _x	F _x	ΣF _x	Fpx , ASD		-
Roof	29	29	4.7	4.68	6.3	<fpmin< td=""><td></td></fpmin<>	
2nd Floor	20.6	49	2.2	6.9	4.5	<fpmin< td=""><td>1</td></fpmin<>	1

Where Fpmin = rho * 0.2 SDS I Wx * 0.7 , ASD Fpmax = rho * 0.4 SDS I Wx * 0.7 , ASD

Shearwall Layout - 2nd Floor

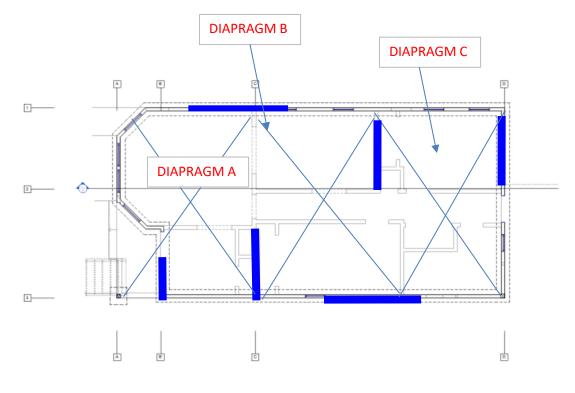


For Design:

- 1. Since 3rd floor is sheathed with plywood, assume flexible diaphragm.
- 2. Distribute seismice forces by tributary area
- 3. See above for shear wall layout.
- 4. Assume roof diaphragm to be a series of simply supported beams
- 5. Distribute Forces by diapragm :

		,				
Ba	ase Shear =	6.1	kips (floor	base shear)		
	Fpx =	6.3	kips (diaph	ragm force)		
I	Roof Area =	990	sqaure fee	t		
	<i>v</i> =	6.14	psf (story f	orce)		
	<i>v</i> =	6.32	psf (diapra	gm force)		
Story Force	<u>.</u>			c ,		
Diaphram A =	352	sqaure fe	et >	Vdiap(a) =	2162	lbs
Diaphram B =	= 319	sqaure fe	et >	Vdiap(b) =	1959	lbs
Diaphram C =	319	sqaure fe	et >	Vdiap(b) =	1959	lbs
Diaprhagm Force	<u>.</u>					
Diaphram A =	352	sqaure fe	et >	Vdiap(a) =	2223	lbs
Diaphram B =	- 319	sqaure fe	et >	Vdiap(b) =	2015	lbs
Diaphram C =	- 319	sqaure fe	et >	Vdiap(b) =	2015	lbs

Shearwall Layout - 1st Floor



For Design:

- 1. Since 2nd floor is sheathed with plywood, assume flexible diaphragm.
- 2. Distribute seismice forces by tributary area
- 3. See above for shear wall layout.
- 4. Assume roof diaphragm to be a series of simply supported beams
- 5. Distribute Forces by diapragm :

	of Blothbur		, anaprag				
	Bas	e Shear =	2.2	kips (roof l	base shear)		
		Fpx =	4.5	kips (diaph	ragm force)		
	Ro	oof Area =	990	sqaure fee	et		
		<i>v</i> =	2.21	psf (story f	orce)		
		<i>v</i> =	4.54	psf (diapra	igm force)		
STORY F	ORCE						
Di	aphram A =	352	sqaure for	eet >	Vdiap(a) =	777	lbs
Di	aphram B =	319	sqaure for	eet >	Vdiap(b) =	704	lbs
Di	aphram C =	319	sqaure for	eet >	Vdiap(b) =	704	lbs
DIAPHRA	GM FORCE						
Di	aphram A =	352	sqaure for	eet >	Vdiap(a) =	1598	lbs
Di	aphram B =	319	sqaure for	eet >	Vdiap(b) =	1448	lbs
Dia	aphram C =	319	sqaure for	eet >	Vdiap(b) =	1448	lbs

Level	North	/South	East/	West	Area (sf)
Level	F _X (ASD)	F _{PX} (ASD)	F _X (ASD)	F _{PX} (ASD)	Aled (SI)
Roof	2.2 kips	2.2 kips	2.2 kips	2.2 kips	352
2nd floor	x	x	x	x	X
2nd Floor	x	x	x	x	X
	x	x	x	x	X

Seismic	Loading Level:	Roof				F _X =	2.2	kips (ASD)			
Loa	ding Direction:	North/Sout	h			F _{PX} =	2.2	kips (ASD)			
					Total	Level Area =	352	ft ²			
					%	of Total $F_x =$	50				
Bridline:	B & C										
	Span Type	Diaphragm Span		Length	Width	Area	Story Force	Diaphragm Force	Distributed Load	Diaphragm Shear	TC Couple
				(ft)	(ft)	(ft ²)	(kips)	(kips)	(plf)	(plf)	(lbs)
	Simple	В	С	16.0	22.0	352	1.08	1.11	69	51	101
						-	1.08	1.11	-		

	Seismic Loading Level: Roof Loading Direction: East/West					$F_x =$ $F_{PX} =$ Level Area = of Total $F_x =$	2.2 2.2 352 50	kips (ASD) kips (ASD) ft ²			
Gridline:	1&3										
	Span Type	Diaphra	gm Span	Length	Width	Area	Story Force	Diaphragm Force	Distributed Load	Diaphragm Shear	TC Couple
				(ft)	(ft)	(ft ²)	(kips)	(kips)	(plf)	(plf)	(lbs)
	Simple	1	3	22.0	16.0	352	1.08	1.08	49	<mark>68</mark>	186
						-	1.08	1.08	•		

Level	North	/South	East/	'West	Area (cf)
Level	F _X (ASD)	F _{PX} (ASD)	F _X (ASD)	F _{PX} (ASD)	Area (sf)
Roof	2.0 kips	2.0 kips	2.0 kips	2.0 kips	319
3rd Floor - Diaph B	x	x	x	x	X
2nd Floor	x	x	x	x	X
	x	x	x	x	X

Seismic	Loading Level:	Roof				F _X =	2.0	kips (ASD)			
Loa	ding Direction:	North/Sout	th			F _{PX} =	2.0	kips (ASD)			
					Total	Level Area =	319	ft ²			
					%	of Total $F_x =$	50				
Gridline:	C & C.5										
	Span Type	Span Type Diaphragm Span	Length	Width	Area	Story Force	Diaphragm Force	Distributed Load	Diaphragm Shear	TC Couple	
				(ft)	(ft)	(ft ²)	(kips)	(kips)	(plf)	(plf)	(lbs)
	Simple	С	C.5	10.0	22.0	319	0.98	1.01	101	46	57
						-	0.98	1.01	-		

	Seismic Loading Level: Roof Loading Direction: East/West					$F_{X} =$ $F_{PX} =$ Level Area = of Total $F_{x} =$	2.0 2.0 319 50	kips (ASD) kips (ASD) ft ²			
Gridline:	1&3										
	Span Type	Diaphragm Span		Length	Width	Area	Story Force	Diaphragm Force	Distributed Load	Diaphragm Shear	TC Couple
				(ft)	(ft)	(ft ²)	(kips)	(kips)	(plf)	(plf)	(lbs)
	Simple	1	5	22.0	10.0	319	0.98	0.98	45	98	269
						-	0.98	0.98	•		

Level	North	/South	East/	'West	Area (sf)
Level	F _X (ASD)	F _{PX} (ASD)	F _X (ASD)	F _{PX} (ASD)	Area (SI)
Roof	2.0 kips	2.0 kips	2.0 kips	2.0 kips	319
3rd Floor	x	x	x	x	X
2nd Floor	x	x	x	x	X
	x	x	x	x	X

	Seismic Loading Level: Roof Loading Direction: North/South				Total	F _χ = F _{Pχ} = Level Area =	2.0 2.0 319	kips(ASD) kips(ASD) ft ²			
						of Total $F_x =$	50				
ridline:	C.5 & D Span Type	Diaphragm Span		Length	Width	Area	Story Force	Diaphragm Force	Distributed Load	Diaphragm Shear	TC Couple
				(ft)	(ft)	(ft^2)	(kips)	(kips)	(plf)	(plf)	(lbs)
	Simple	C .5	D	10.0	22.0	319	0.98	1.01	201	46	114
						-	0.98	1.01	_		

Seismic Loading Level: Roof Loading Direction: East/West						F _X = F _{PX} = Level Area = of Total F _x =	2.0 2.0 319 50	kips (ASD) ft ²					
Gridline:	1 & 3 Span Type	Diaphra	igm Span	Length (ft)	Width (ft)	Area (ft [∠])	Story Force (kips)	Diaphragm Force (kips)	Distributed Load (plf)	Diaphragm Shear (plf)	TC Couple (lbs)		
	Simple	1	3	22.0	10.0	319 _	0.98 0.98	1.01 1.01	46	101	277		

Level	North	/South	East/	West	Area (sf)
Level	F _X (ASD)	F _{PX} (ASD)	F _X (ASD)	F _{PX} (ASD)	Area (SI)
Roof	x	x	x	x	X
3rd Floor	x	x	х	x	X
2nd Floor - Diaph A	0.8 kips	1.6 kips	0.8 kips	1.6 kips	352
	x	x	x	x	X

Seismic	Loading Level:	2nd Floor -	Diaph A			F _X =	0.8	kips (ASD)			
Loa	ding Direction:	North/Sout	h			$\mathbf{F}_{PX} =$	1.6	kips (ASD)			
					Total	Level Area =	352	ft ²			
					%	of Total F _x =	50				
Gridline:	B & C.5										
	Span Type	Diaphragm Span		Length	Width	Area	Story Force	Diaphragm Force	Distributed Load	Diaphragm Shear	TC Couple
				(ft)	(ft)	(ft ²)	(kips)	(kips)	(plf)	(plf)	(lbs)
	Simple	В	С	16.0	22.0	352	0.39	0.80	50	36	73

Seismic Loading Level: 2nd Floor - Diaph A Loading Direction: East/West						$F_X =$ $F_{PX} =$ Level Area = of Total $F_x =$	0.8 1.6 352 50	kips (ASD) kips (ASD) ft ²			
Gridline:	1&3										
	Span Type	Diaphra	agm Span	Length	Width	Area	Story Force	Diaphragm Force	Distributed Load	Diaphragm Shear	TC Couple
				(ft)	(ft)	(ft ²)	(kips)	(kips)	(plf)	(plf)	(lbs)
	Simple	1	3	22.0	16.0	352	0.39	0.80	36	50	137
						-	0.39	0.80	-		

Lovel	North,	/South	East/	West	Area (sf)
Level	F _X (ASD)	F _{PX} (ASD)	F _X (ASD)	F _{PX} (ASD)	Area (SI)
Roof	x	x	x	x	x
3rd Floor	x	x	x	x	X
2nd Floor - Diaph B	0.7 kips	1.4 kips	0.7 kips	1.4 kips	319
	x	x	x	x	X

Seismic	Loading Level:	2nd Floor	- Diaph B			F _X =	0.7	kips (ASD)			
Loa	ding Direction:	North/Sout	h			F _{PX} =	1.4	kips (ASD)			
					Total	Level Area =	319	ft ²			
					%	of Total F _x =	50				
Gridline:	C & C.5										
	Span Type	Diaphra	agm Span	Length	Width	Area	Story Force	Diaphragm Force	Distributed Load	Diaphragm Shear	TC Couple
				(ft)	(ft)	(ft ²)	(kips)	(kips)	(plf)	(plf)	(lbs)
	Simple	С	C.5	10.0	22.0	319	0.35	0.72	72	33	41
						-	0.35	0.72			

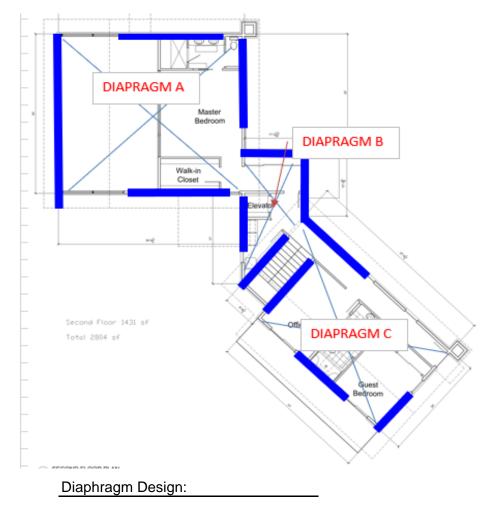
	Loading Level: ding Direction: I		Diaph B			$F_x =$ $F_{PX} =$ Level Area = of Total $F_x =$	0.7 1.4 319 50	kips (ASD) kips (ASD) ft ²			
Gridline:	1&3										
	Span Type	Diaphra	igm Span	Length	Width	Area	Story Force	Diaphragm Force	Distributed Load	Diaphragm Shear	TC Couple
				(ft)	(ft)	(ft ²)	(kips)	(kips)	(plf)	(plf)	(lbs)
	Simple	1	3	22.0	10.0	319	0.35	0.72	33	72	199
						-	0.35	0.72	•		

Level	North,	/South	East/	West	Area (sf)
Level	F _X (ASD)	F _{PX} (ASD)	F _X (ASD)	F _{PX} (ASD)	Area (SI)
Roof	X	x	Х	x	x
3rd Floor	x	x	х	x	X
2nd Floor	0.7 kips	1.4 kips	0.7 kips	1.4 kips	319
	x	x	x	x	X

Seismic Loading Level: 2nd Floor Loading Direction: North/South						$F_X =$ $F_{PX} =$ Level Area = of Total $F_x =$	0.7 1.4 319 50	kips (ASD) kips (ASD) ft ²			
Gridline:	C.5 & D Span Type	Diaphragm Span		Length (ft)	Width (ft)	Area (ft ^z)	Story Force (kips)	Diaphragm Force (kips)	Distributed Load (plf)	Diaphragm Shear (plf)	TC Couple (lbs)
	Simple	C.5	D	10.0	22.0	319	0.35 0.35	0.72 0.72	145	33	82

Seismic Loading Level: 2nd Floor Loading Direction: East/West						F _X = F _{PX} = Level Area = of Total F _x =	0.7 1.4 319 50	kips (ASD) kips (ASD) ft ²			
Gridline:	1 & 3 Span Type	Diaphra	gm Span	Length (ft)	Width (ft)	Area (ft [∠])	Story Force (kips)	Diaphragm Force (kips)	Distributed Load (plf)	Diaphragm Shear (plf)	TC Couple (lbs)
	Simple	1	3	22.0	10.0	319 _	0.35 0.35	0.72 0.72	33	72	199

ROOF DIAPHRAGM A DESIGN



N-S Direction

Roof				
	Trib Area (ft2)	Force (lbs)	Diap Length	Diaph Shears
Line A	160	1.0	22.0	45.8
Line C	160	1.0	22.0	45.8
	319	2.0		

319

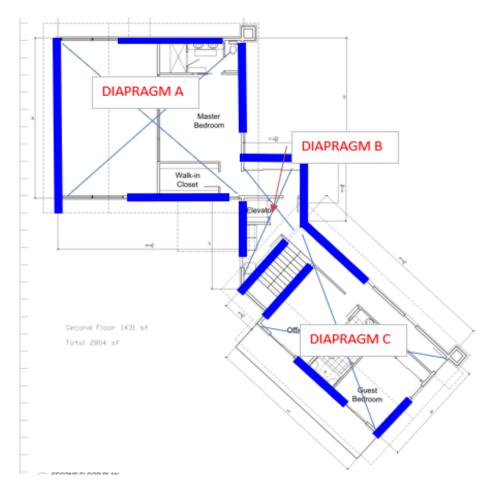
E-W Direction

Roof

RUUI				
	Trib Area (ft2)	Force (lbs)	Diaph Length	Diaph Shears
Line 1	159.5	1.007	10.0	100.732
Line 3	159.5	1.01	10.0	100.732
Σ	319	2.0		

Since diaphragm shears are small, provide 15/32" CDX plywood with 8d at 6" OC (BN) and 8d at 12" OC (field)

2ND FLOOR DIAPHRAGM A DESIGN



Diaphragm Design:

N-S Direction

E-W Direction

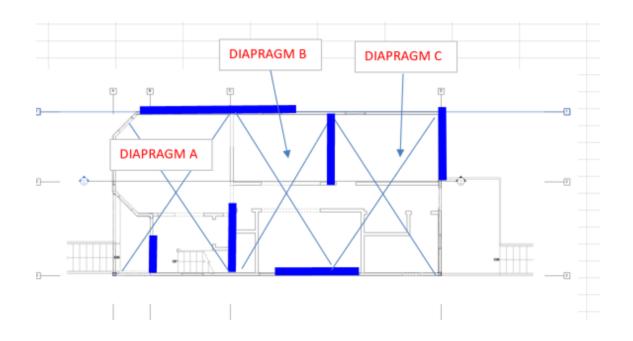
2nd Floor				
	Trib Area (ft2)	Force (lbs)	Diap Length	Diaph Shears
Line A	225	#N/A	30	#N/A
Line C	225	#N/A	30	#N/A
	450	#N/A		

2nd Floor

211011001				
	Trib Area		Diaph	Diaph
	(ft2)	Force (lbs)	Length	Shears
Line 2	176	#N/A	16	#N/A
Line 3	176	#N/A	16	#N/A
Σ	352	#N/A		

Since diaphragm shears are small, provide 15/32" CDX plywood with 8d at 6" OC (BN) and 8d at 12" OC (field)

2nd FLOOR SHEARWALL LAYOUT:



Shearwall Design:



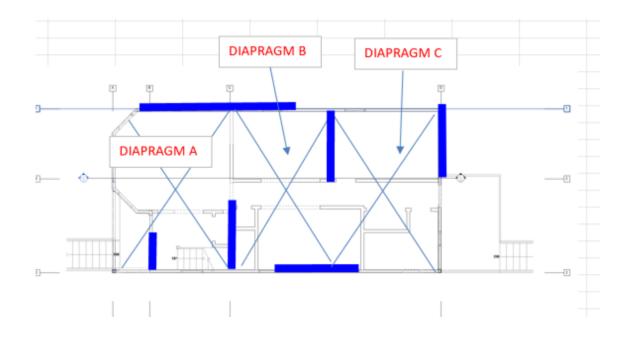
E-W Direction

2nd Floor	•			2nd Floor		
	Trib Area (ft2)	Force (lbs)			Trib Area (ft2)	Force (lbs)
Line B		1081		Line 1		3040
Line C		2061		Line 3		3040
Line C.5		1959				
Line D		980				
. <u></u>	0	6080.8	-	Σ	0	6080.8

Notes:

The forces above are allowable stress design. The forces above assumes rho = 1.3

1st FLOOR SHEARWALL LAYOUT:



Shearwall Design:

N-S Direction

2nd Floor											
	Trib Area (ft2)	Force (lbs)									
Line B		388.43									
Line C		740.45									
Line C.5		704.04									
Line D		352.02									
	0	2184.9									
	Notes:										

E-W Direction

2nd	Floor	

	Trib Area	Force
	(ft2)	(lbs)
Line 1		1092.47
Line 3		1092.47
Σ	0	2184.9

Job #19050 Shearwall Layout

The forces above are allowable stress design. The forces above assumes rho = 1.3

SHEARWALL DESIGN (GRIDLINE B)

DSA?							
UPPER FLO							
WALL LINE:	Line B	SEISMIC Sds=	1.2				
Total Wa	all Line Shear (ASD)=	V (lb) = 1081					
	Wall Lengths =	L (ft) = 5					
	Total Wall Length =	L total (ft.) = 5	• • • •				
Μ	inimum Wall Length =	L min. (ft.) = 5					
	Wall Height =	h (ft.) = <mark>8</mark>					
-	Fributary Dead Load =	DL (nef) $=$ 12.8					
	Tributary Width =	. ,					
	Wall Dead Load =	ι,					
Tota	I Dead Load at Wall =	w_{DL} (plf) = 191.5					
Uplift Ford	e at Tie Down for "L" r	oted above = 1903					
Minimum	Holdown for each "L" r	oted above = HDU2					
\\/all	shear per lineal foot =	v(p f) = V/I =	- 216				
vvan		10d Ply Grade =					
Use SW	CD / OSB w/ 10d@		(Capacity =	310 plf)	DCR =	0.70	
				- I- /			

Max. Uplift Force at Tie Down = U (lb) ={(v*h*Lmin) - [(0.6-.14Sds)*wDL*Lmin2/2]} / (Lmin-1')= 1903 Holdown Type = HDU

_	110100						
Ĩ	Use:	HDU2	(Capacity =	3075 lb)	DCR =	0.62	
	Max Comp Force at	End Post $-C(lb)$	$-\int (v^* h^* l min) d$.[/1 0+ 1/9de)*wDI *L	min2/21 / (1 min) -	2280	

Max. Comp Force at End Post = C (lb) ={ $(v^{h}Lmin) + [(1.0+.14Sds)^{wDL}Lmin2/2]$ } / (Lmin)= 2289

LOWER FLOOR:

	SEISMIC	Sds=	1.2							
Total Wall Line Shear (ASD)=	V (lb) =	388								
Wall Lengths =	L (ft) =	5								
Total Wall Length =	L total (ft.) =	5								
Minimum Wall Length =	L min. (ft.) =	5								
Wall Height =	h (ft.) =	8.0								
Tributary Dead Load =	DL (psf) =	12.8								
Tributary Width =	(i)									
Wall Dead Load =	· · ·									
Total Dead Load at Wall =	w_{DL} (plf) =	191.5								
Uplift Force at Tie Down for "L" n	oted above =	4584								
Minimum Holdown for each "L" n	oted above =	HDU5								
	6								_	
Wall shear per lineal foot =	. ,				<-inclu	iding sh	ear fro	m wall a	above	
Nail Size =	,	Grade =								
Use SW CD / OSB w/ 10d@	6"o.c.		(Cap	acity =	310	plf)		DCR =	0.95	

Max. Uplift Force at Tie Down = U (lb) ={(v*h*Lmin) - [(0.6-.14Sds)*wDL*Lmin2/2]} / (Lmin-1')= 4584 Holdown Type = HDU

ſ	Use:	HDU5	(Capacity = 5645 lb)	DCR = 0.81
	Max. Comp Force	at End Post =	C (lb) ={(v*h*Lmin) + [(1.0+.14Sds)*w	[,] DL*Lmin2/2]} / (Lmin)= 5199

SHEARWALL DESIGN (GRIDLINE C)

DSA? UPPER FLO								
DIRECTION								
WALL LINE:	Grid C	SEISMIC Sds=	1.2					
Total Wa	all Line Shear (ASD)=	V (lb) = 2061						
	Wall Lengths =	L (ft) = 9						
	Total Wall Length =	L total (ft.) = 9						
Mi	inimum Wall Length =	L min. (ft.) = 9						
	Wall Height =	h (ft.) = <mark>8</mark>						
г	Fributary Doad Load -	$DI_{\rm const} = 10.0$						
I	Tributary Dead Load = Tributary Width =							
	Wall Dead Load =	. ,						
Toto	I Dead Load at Wall =	(i)						
		,	<u> </u>		<u> </u>	<u> </u>		
•	ce at Tie Down for "L" r							
wiiniinium	Holdown for each "L" r		·					
Wall	shear per lineal foot =	v (plf) = V / L =	= 229					
	•	10d Ply Grade =						
Use SW	CD / OSB w/ 10d@	6"o.c.	(Capacity =	310 plf)		DCR =	0.74	

Max. Uplift Force at Tie Down = U (lb) ={(v*h*Lmin) - [(0.6-.14Sds)*wDL*Lmin2/2]} / (Lmin-1')= 1702 Holdown Type = HDU

ſ	Use:	HDU2	(Capacity = 3)75 lb)	DCR =	0.55	
	Max. Comp Force	at End Post =	C (lb) ={(v*h*Lmin) + [(1.0+.14Sds)*wDL*L	min2/2]} / (Lmin)=	2694	

LOWER FLOOR:

	SEISMIC	Sds=	1.2							
Total Wall Line Shear (ASD)=	V (lb) =	740								
Wall Lengths =	L (ft) =	9								
Total Wall Length =	L total (ft.) =	9								
Minimum Wall Length =	L min. (ft.) =	9								
Wall Height =	h (ft.) =	8.0								
Tributary Dead Load =	DL (psf) =	10.0								
Tributary Width =	TW (ft.) =	10								
Wall Dead Load =	WDL (psf) =	8.0								
Total Dead Load at Wall =	w_{DL} (plf) =	164								
Uplift Force at Tie Down for "L" n	oted above =	4145								
Minimum Holdown for each "L" n	oted above =	HDU4								
Wall shear per lineal foot =					<-inclu	ding sh	ear froi	n wall a	above	
	10d Ply G	irade =								
Use SW CD / OSB w/ 10d@	4"o.c.		(Capa	city =	460	plf)		DCR =	0.68	

Max. Uplift Force at Tie Down = U (lb) ={(v*h*Lmin) - [(0.6-.14Sds)*wDL*Lmin2/2]} / (Lmin-1')= 4145 Holdown Type = HDU

Γ	Use:	HDU4	(Capacity =	4565 lb)	DCR =	0.91
	Max. Comp Force a	t End Post = C (lb)	={(v*h*Lmin) +	- [(1.0+.14Sds)*wl	DL*Lmin2/2]} / (Lmin)=	6046

SHEARWALL DESIGN (GRIDLINE C.5)

DSA? <mark>NC</mark> UPPER FLOOR							
DIRECTION:	North-South						
WALL LINE:	Grid C.5	SEISMIC Sds=	1.2				
Total Wall L	ine Shear (ASD)=	V (lb) = 2061					
	Wall Lengths =	L (ft) = <mark>9</mark>					
Т	otal Wall Length =	L total (ft.) = 9					
Minim	um Wall Length =	L min. (ft.) = 9					
	Wall Height =	h (ft.) = <mark>8</mark>					
	utary Dead Load = Tributary Width = Wall Dead Load = ad Load at Wall =	WDL (psf) = 8.0					
Uplift Force at	Tie Down for "L" r	noted above = 170	2				
Minimum Hole	down for each "L" r	noted above = HDU	2				
Wall she	•	v (plf) = V / L 10d Ply Grade					
Use SW CI	O / OSB w/ 10d@	6"o.c.	(Capacity =	<mark>310</mark> plf)	DCR	= 0.74	

Max. Uplift Force at Tie Down = U (lb) ={(v*h*Lmin) - [(0.6-.14Sds)*wDL*Lmin2/2]} / (Lmin-1')= 1702 Holdown Type = HDU

-		•····)p•• ··-	-	
	Use:	HDU2	(Capacity = 3075 lb)	DCR = 0.55
	Max Comp Force at	End Post - C	$(b) = \frac{1}{\sqrt{2}} (\sqrt{2}b^2) = \frac{1}{\sqrt{2}} (\sqrt$	* $\lim_{n \to \infty} \frac{2604}{n}$

Max. Comp Force at End Post = C (lb) ={ $(v^{h}Lmin) + [(1.0+.14Sds)^{w}DL^{Lmin}/2]$ } / (Lmin)= 2694

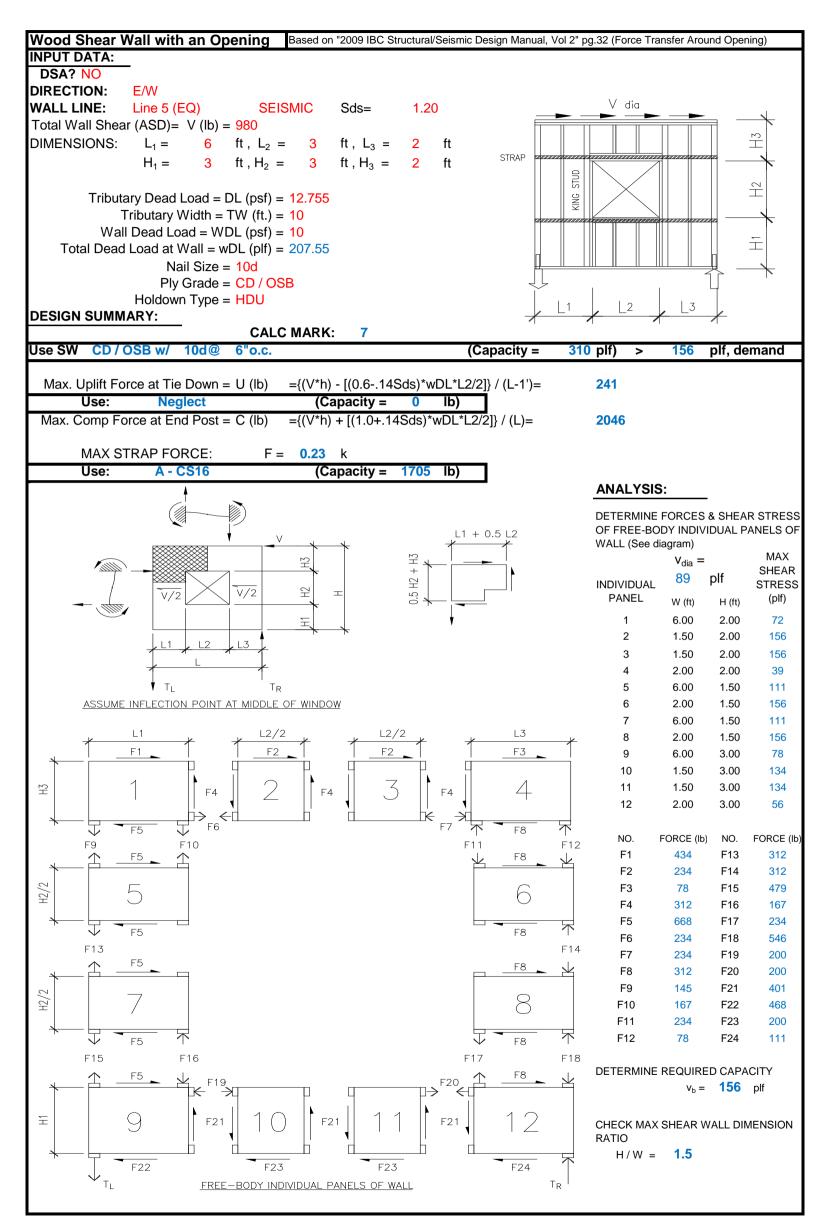
LOWER FLOOR:

LOWER FLOOR.								
	SEISMIC	Sds=	1.2					
Total Wall Line Shear (ASD)=	V (lb) =	704						
Wall Lengths =	L (ft) =	9						
Total Wall Length =	L total (ft.) =	9						-
Minimum Wall Length =	L min. (ft.) =	9						
Wall Height =	h (ft.) =	8.0						
Tributary Dead Load =	DL (psf) =	10.0						
Tributary Width =	. ,							
Wall Dead Load =	WDL (psf) =	8.0						
Total Dead Load at Wall =	w_{DL} (plf) =	164						
Uplift Force at Tie Down for "L" n	oted above =	4108						
Minimum Holdown for each "L" n								
Wall shear per lineal foot =				<-includ	ing she	ar from wa	all above	
Nail Size =		Frade =	CD / OSB					
Use SW CD / OSB w/ 10d@	6"o.c.		(Capacity =	310 p	olf)	DCF	R = 0.99	

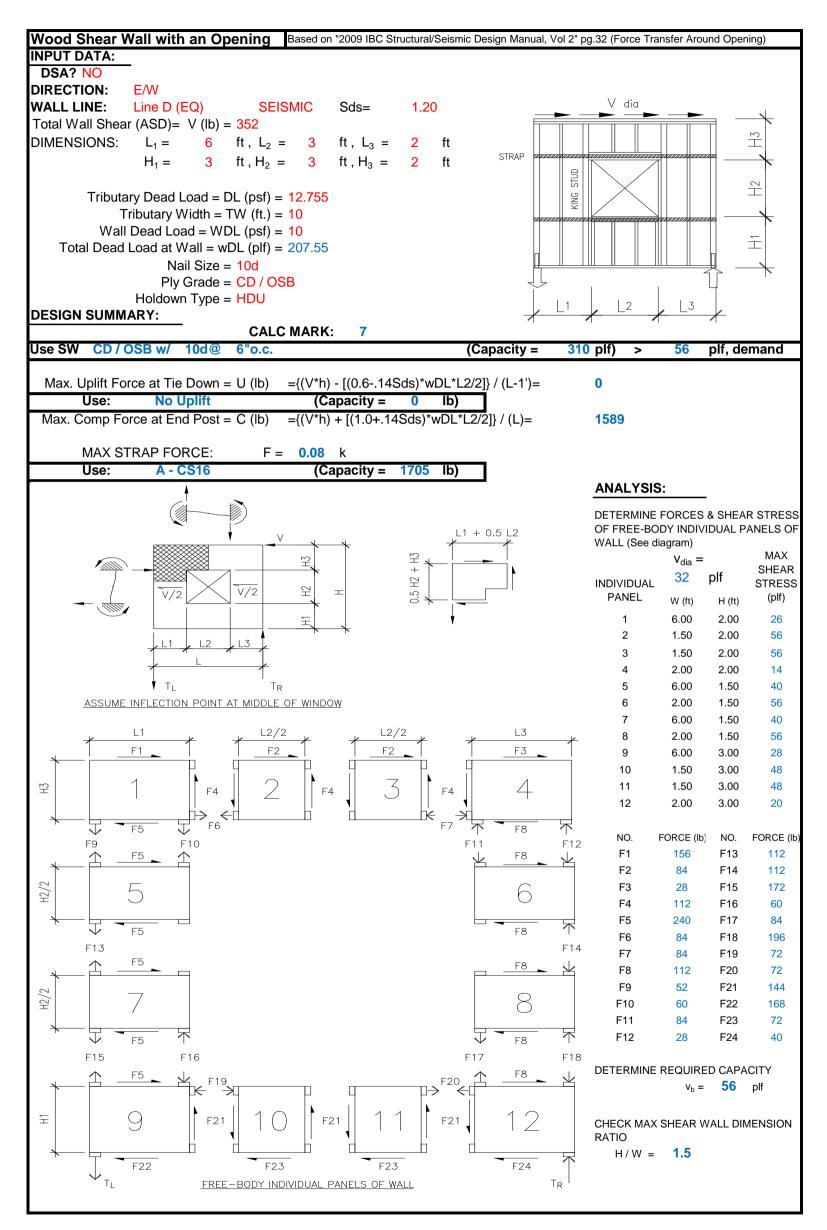
Max. Uplift Force at Tie Down = U (lb) ={(v*h*Lmin) - [(0.6-.14Sds)*wDL*Lmin2/2]} / (Lmin-1')= 4108 Holdown Type = HDU

ſ	Use:	HDU4	(Capacity = 4565 lb)	DCR = 0.90
	Max. Comp Force a	at End Post = (C (lb) ={(v*h*Lmin) + [(1.0+.14Sds)*wDL*L	_min2/2]} / (Lmin)= 6013

Engineer: DRE 6/3/2020



Engineer: DRE 6/3/2020



SHEARWALL DESIGN (GRIDLINE 1)

DSA? N	-									
UPPER FLOOP										
DIRECTION:	N/S									
WALL LINE:	Line 1	SEISMIC	Sds=	1.2						
Total Wall	Line Shear (ASD)=	V (lb) =							-	·
	Wall Lengths =	L (ft) =		4						
	0	L total (ft.) =								
Minir	mum Wall Length =	L min. (ft.) =	4							
	Wall Height =	h (ft.) =	8							
Trib	outary Dead Load =	DL (psf) =	12.8							
	Tributary Width =	TW (ft.) =	10							
	Wall Dead Load =	WDL (psf) =	8.0							
Total D	ead Load at Wall =	w_{DL} (plf) =								
	at Tie Down for "L" r	,		2096						
	ldown for each "L" r									
										11
Wall she	ear per lineal foot =	v (plf) =	V / L =	217						
	Nail Size =	(i)		CD / OSB						
Use SW C	D / OSB w/ 10d@	6"o.c.		(Capacity =	310	plf)		DCR =	0.70	
				· · ·						
Max. Uplift F	orce at Tie Down =	$U(lb) = {(v*h)^{2}}$	*Lmin) -	[(0.614Sds)*	wDL*L	min2/21	} / (Lmi	n-1')=	2096	
	Holdown Type =		/				J · (,		
U	se: HD2A		acity =	2775 lb)				DCR =	0.76	
Max. Comp F	orce at End Post =	· · ·	-	1)*wDL*	_min2/2	2]} / (Ln	nin)=	2185	
				(()))	,		-11 - (,		
LOWER FLOO	R:									
		SEISMIC	Sds=	1.2						
Total Wall			4000							
	Line Shear (ASD)=	V (lb) =	1092							
	Line Shear (ASD)= Wall Lengths =	V (lb) = L (ft) =		4					1	

Total Wall Length = L total (ft.) = 14 Minimum Wall Length = $L \min. (ft.) = 4$ Wall Height = h (ft.) = 8.0 Tributary Dead Load = DL (psf) = 12.8 Tributary Width = TW (ft.) = 10 Wall Dead Load = WDL (psf) = 8.0 Total Dead Load at Wall = w_{DL} (plf) = 191.5 Uplift Force at Tie Down for "L" noted above = 3635 5024 Minimum Holdown for each "L" noted above = HDU4 HDU5 Wall shear per lineal foot = v (plf) = V / L =295 <-including shear from wall above Nail Size = 10d Ply Grade = CD / OSB CD / OSB w/ 10d@ 6"o.c. DCR = 0.95 Use SW (Capacity = 310 plf)

Max. Uplift Force at Tie Down = U (lb) ={(v*h*Lmin) - [(0.6-.14Sds)*wDL*Lmin2/2]} / (Lmin-1')= 5024 Holdown Type = HDU

Γ	Use:	HDU5	(Capacity = 5645 lb)	DCR = 0.89
	Max. Comp Force	at End Post = C	(lb) ={(v*h*Lmin) + [(1.0+.14Sds)*wDL*Lm	1in2/2]} / (Lmin)= 4994

SHEARWALL DESIGN (GRIDLINE 3)

DSA?									
<u>UPPER FLO</u>	<u>OR:</u>								
DIRECTION	E/W								
WALL LINE:	Grid 3	SEISMIC Sds=	1.2						
Total Wa	all Line Shear (ASD)=	V (lb) = 3040							
	Wall Lengths =	L (ft) = 7.5	6						
	Total Wall Length =	L total (ft.) = 13.5							
Mi	nimum Wall Length =	L min. (ft.) = 6							
	Wall Height =	h (ft.) = <mark>8</mark>							
Т	ributary Dead Load =	DL (psf) = 10.0							
	Tributary Width =	TW (ft.) = 10							
	Wall Dead Load =	WDL (psf) = 8.0							
Tota	Dead Load at Wall =	w_{DL} (plf) = 164							
Uplift Ford	e at Tie Down for "L" r	oted above = 177	2 1907						
	Holdown for each "L" r								
			• •						
Wall	shear per lineal foot =	v (plf) = V / L	= 225						
	Nail Size =	10d Ply Grade	= CD / OSB						
Use SW	CD / OSB w/ 10d@	6"o.c.	(Capacity =	310	plf)		DCR =	0.73	
Max. Uplif	t Force at Tie Down =	U (lb) ={(v*h*Lmin) - [(0.614Sds)*	wDL*Lı	min2/2]	} / (Lm	in-1')=	1907	
•	Holdown Type =		,		-	- (,		

	Jown Type = HD					
Use:	HD2A	(Capacity =	2775 lb)	DCR =	0.69	
Max. Comp Force a	t End Post = C (lb)	={(v*h*Lmin) +	[(1.0+.14Sds)*wDL*Lmin2/2]} / (L	min)=	2376	

Max. Comp Force at End Post =	C (lb)) ={(v*h*Lmin) + [(1.0+.14Sds)*wDL*Lmin2/2]} / (Lmin)=	2376
-------------------------------	--------	--	------

LOWER FLOOR:

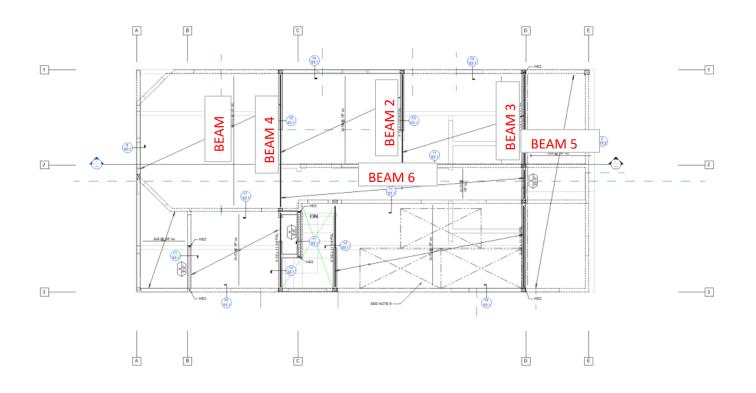
LOWER FLOOR:										
	SEISMIC	Sds=	1.2							
Total Wall Line Shear (ASD)=	V (lb) =	1092								
Wall Lengths =	L (ft) =	7.5	6							
Total Wall Length =	L total (ft.) =	13.5								
Minimum Wall Length =	L min. (ft.) =	6								
Wall Height =	h (ft.) =	8.0								
-										
Tributary Dead Load =	DL (psf) =	10.0								
Tributary Width =	TW (ft.) =	10								
Wall Dead Load =	WDL (psf) =	8.0								
Total Dead Load at Wall =	w_{DL} (plf) =	164								
Uplift Force at Tie Down for "L" n	oted above =	4292	4591							
Minimum Holdown for each "L" n										
Wall shear per lineal foot =	v (plf) =	V / L =	:	306	<-inclu	ding sh	ear fror	n wall a	above	
Nail Size = [*]	10d Ply G	Frade =	CD/O	SB		5				
Use SW CD / OSB w/ 10d@	6" o.c .		(Capa	acity =	310	plf)		DCR =	0.99	

Max. Uplift Force at Tie Down = U (lb) ={(v*h*Lmin) - [(0.6-.14Sds)*wDL*Lmin2/2]} / (Lmin-1')= 4591 Holdown Type = HDU

Γ	Use:	HDU5	(Capacity = 5645 lb)	DCR = 0.81
-	Max. Comp Force	at End Post =	C (lb) ={(v*h*Lmin) + [(1.0+.14Sds)*wD	L*Lmin2/2]} / (Lmin)= 5400

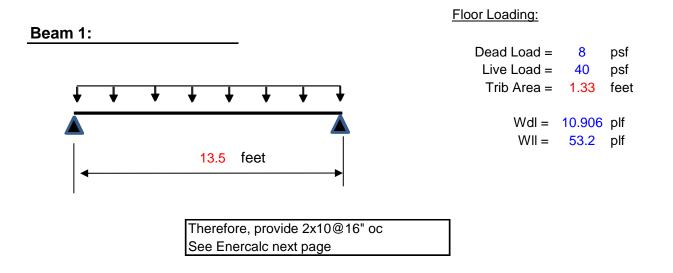
<u>3rd FLOOR FRAMING</u> <u>DESIGN</u>

3rd FLOOR FRAMING LAYOUT:

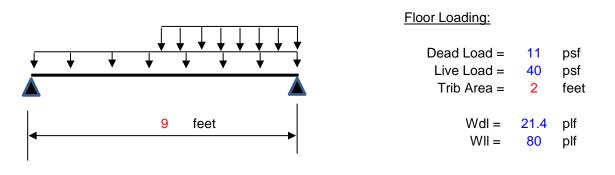


For Design:			
1. Assu	ime Loading		
	DL =	10.7	psf (girder)
	DL =	8	psf (joist)
	LL =	40	psf

Job #19050 3rd Floor Framing Layout



Beam 2:



Therefore, provide 3 1/2 x 14 PSL	
See Enercal next page	

Roof Loading:

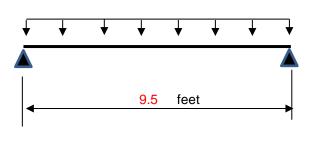
Dead Load =	13	psf
Live Load =	20	psf
Trib Area =	6	feet
WdI =	76.527	plf
WII =	120	plf

Wall Weight:

Dead Load =	10	psf
Height =	8	feet
wwall =	80	plf

Job #19050 3rd Floor Framing Layout Engineer: DRE 6/3/2020

Beam 3:



Therefore, provide 3 1/2 x 9 1/4 PSL	
See Enercalc next page	

Floor Loading:

Dead Load =	8	psf
Live Load =	40	psf
Trib Area =	2	feet
WdI =	16	plf
WII =	80	plf
Roof Loading:		
Dead Load =	13	psf
Live Load =	20	psf
Trib Area =	5	feet
WdI =	63.773	plf
WII =	100	plf
<u>Wall Weight:</u> Dead Load =	10	psf

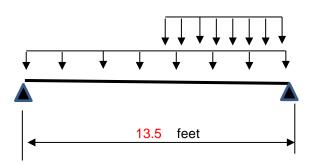
feet

plf

8

80

Beam 4:



Therefore, provide 3 1/2 x 11 7/8 PSL See Enercalc next page

Floor Loading:

Height =

wwall =

Dead Load =	11	psf
Live Load =	40	psf
Trib Area =	2	feet
WdI =	21	plf
WII =	80	plf

Roof Loading:

Dead Load =	13	psf
Live Load =	20	psf
Trib Area =	5	feet
WdI =	64	plf
WII =	100	plf

Wall Weight:

Dead Load =	10	psf
Height =	8	feet
wwall =	80	plf

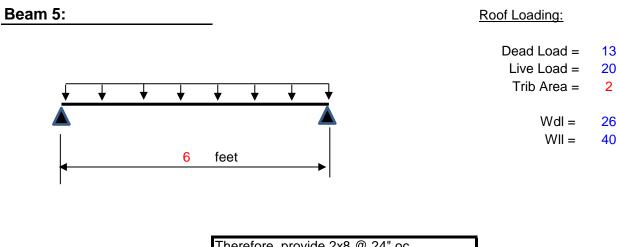
psf

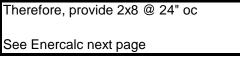
psf

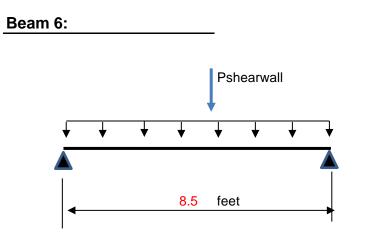
feet

plf

plf







*For design

1. Special seismic load combination per ASCE07-16 section 12.4.3.2 applies Omega = 2.5

Therefore, provide 3 1/2 x 11 1/4 PSL See Enercalc next page

Floor Loading:

Dead Load =	11	psf
Live Load =	40	psf
Trib Area =	8	feet
WdI =	86	plf
WII =	320	plf

Seismic Point Load:

Wall Weight:		
Dead Load =	10	psf
Height =	8	feet
Trib Length =	5	feet
Pwall =	85	lbs
Roof Loading:		
Dead Load =	11	psf
Live Load =	20	psf
Trib Area =	6	feet
Trib Length =	10	feet
PdI =	642	lbs

.ic. # : KW-06012032													DRE	Structural	Desig
DESCRIPTIO 1214	30th St -	3rd Fl	loor B	Beam 1	1										
CODE REFERENCE	s														
Calculations per NDS 20 oad Combination Set :		-	CBC 2	016, A	SCE 7	-10									
Material Properties	100 2010	-													
Analysis MethoAllowal	bla Stras	e Desia	10				Fb		-	q 0.000.1	ei F	Modulus	of Flasti		
Load CombinatilBC 20	18		, i				Fb Fc	- - Prll	1	1,000.0 p 1,500.0 p	si	Ebend- xx Eminbend	1	,700.0ks 620.0ks	
Wood Species Dougla Wood Grade No.1	is Fir-Lar	ch					FC FV Ft	- Perp		625.0 p 180.0 p 675.0 p	si	Density		31.210pc	-f
Beam Bracing Beam i	is Fully B	raced a	agains	t latera	al-torsi	onal bi		ng		075.0 p		Repetitive			
						(0.011)	1.0	0532)							
¢		¢					*	0002)			÷				÷
						2	x10								Ω.
														ŕ	
						Span =	= 13.5	50 ft							
•															•
Applied Loads Beam self weight calcul Uniform Load : D = (tary W	idth =	1.0 ft				l. Load Fa	ctors will be	e applied	for calcula	ation
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres	0.0110, L			Tribu	0.590			t, (Floor mum S	r Load ihear S) Stress Ra	atio	ctors will be		sign OK 0.243 :	
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY	0.0110, L	- = 0.05 = =		Tribu	0.590 2x10 58.92p	1 si		t, (Floor mum S	r Load ihear S)	atio	=		sign OK 0.243 2x10 43.67 p	: 1 osi
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stres Section used for this :	0.0110, L	- = 0.05 =		Tribu (8 1,4	0.590 2x10 58.92p 54.75p	1 si	Maxi	t, (Floor mum S Section	r Load hear S n usec) Stress Ra d for this	atio	=	Des	sign OK 0.243 2x10 43.67 p 180.00 p	: 1 osi
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres	ss Ratio span	= 0.05 = = = =		Tribu 85 1,45 +D	0.590 2x10 58.92p	1 Isi Isi	Maxi	t, (Floor mum S Section Load C Locatio	r Load hear S n used Combin)) Stress Ra d for this nation nation	atio	=	Des	sign OK 0.243 2x10 43.67 p	: 1 osi osi
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient	o.0110, L s Ratio span on span um occur ent Deflect Deflection	= 0.05 = = s = tion		Tribu 88 1,45 +D (Spa 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 6.750 ft n # 1 0.238 ir 0.000 ir 0.300 ir	1 si n Ratio n Ratio n Ratio	Maxin	t, (Floor mum S Section Locatic Span # 681 > 0 <	r Load hear S n used Combin)) Stress Ra d for this nation nation	atio span 1 on span	=	Des	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f	: 1 osi osi
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient	o.0110, L s Ratio span on span um occur ent Deflect Deflection	= 0.05 = = s = tion		Tribu 88 1,45 +D (Spa 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 6.750ft n # 1 0.238 ir 0.000 ir	1 si n Ratio n Ratio n Ratio	Maxin	t, (Floor mum S Section Locatic Span # 681 > 0 < 539 >	r Load hear S n used Combin on of n # wher >=360 <360)) Stress Ra d for this nation nation	atio span 1 on span	=	Des	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f	: 1 osi osi
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient	o.0110, L ss Ratio span on span um occur tent Deflection Deflection lection	= 0.05 = = = s = tion	5320 ,	Tribu 8: 1,4: +D (Spa 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 6.750ft n # 1 0.238 ir 0.000 ir 0.300 ir 0.000 ir	1 si h Ratio h Ratio h Ratio	Maxin	t, (Floor mum S Section Locatic Span # 681 > 0 < 539 >	r Load hear S n used Combin on of n # wher >=360 <360 >=240)) Stress Ra d for this nation nation	atio span 1 on span	=	Des	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f	: 1 osi osi
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient Max Upward Transient Max Upward Total Def Maximum Forces & .oad Combination	o.0110, L ss Ratio span on span um occur ent Deflection Deflection lection Stresse Max Stre	= 0.05 = = = s = tion n	5320 , Load	Tribu 88 1,45 +D (Spa 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 6.750 fit n # 1 0.238 ir 0.300 ir 0.300 ir 0.000 ir binatio	1 Isi In Ratio In Ratio In Ratio In Ratio Ons	Maxi) =) =) =	t, (Floor mum S Section Load C Locatic Span # 681 > 0 < 539 > 0 <	r Load hear S n used Combin on of n # wher >=360 <360 >=240 <240) Stress Ra d for this nation naximum re maxim	atio span n on span um occu ent Value:	= = TS = S	Des + S	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f pan # 1 Shear Val	: 1 osi osi t
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient Max Downward Total I Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span s	o.0110, L ss Ratio span on span um occur ent Deflection Deflection lection Stresse Max Stre	= 0.05 = = = s = tion n	5320 , Load	Tribu 88 1,45 +D (Spa 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 6.750 fit n # 1 0.238 ir 0.300 ir 0.300 ir 0.000 ir binatio	1 Isi In Ratio In Ratio In Ratio In Ratio Ons	Maxi) =) =) =	t, (Floor mum S Section Locatic Span # 681 > 0 < 539 >	r Load hear S n used Combin on of n # wher >=360 <360 >=240 <240) Stress Ra d for this nation naximum e maxim	atio span n on span um occu	= = = rs =	Des + S	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f pan # 1	: 1 osi t t
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient Max Upward Transient Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span : D+H	oon span oon span oon span um occur tent Deflection Deflection Bection Stresse Max Stre # M	= 0.05 = = = = = = = = = = = = = = = = = = =	Load	Tribu 88 1,44 +D 6 Spa 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 6.750 fit n # 1 0.238 ir 0.000 ir 0.0	1 si n Ratio n Ratio n Ratio n Ratio ons C _r	Maxin) =) =) = C _m	t, (Floor mum S Section Load C Locatic Span # 681 > 0 < 539 > 0 < C t	r Load thear S n used Combin on of n # wher >=360 <360 >=240 <240 C _L) Stress Ra d for this nation naximum e maxim e maxim Mom M	atio span n on span um occu ient Value: fb	= = rs = rs = <u>F'b</u> 0.00	+ + S 	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f pan # 1 Shear Val fv 0.00	: 1 osi t uues
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient Max Downward Total Def Maximum Forces & .oad Combination Segment Length Span : D+H Length = 13.451 ft 1	on span on span on span um occur ent Deflection Deflection lection Stresse Max Stre # M	= 0.05 = = = s = tion n • s for I v v 0.056	5320 , 5320 , 25 Cd 0.90	Tribu 85 1,45 +D (Spa 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 0.238 ir 0.000 ir 0	1 si Ratio Ratio Ratio Ratio Cr Cr 1.15	Maxii	t, (Floor mum S Section Location Span # 681 > 0 < 539 > 0 < C t 1.00	r Load thear S n used Combin on of n # wher >=360 <360 >=240 <240 C_L) Stress Ra d for this nation naximum re maxim re maxim <u>Mom</u> 0.32	atio span n on span um occu eent Value: fb 179.01	= = s F'b 0.00 1309.28	Des + S V 0.00 0.08	sign OK 0.243 : 2x10 43.67 p 180.00 p ·D+L+H 0.000 f pan # 1 Shear Val fv 0.00 9.10	: 1 osi t t 162
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient Max Upward Transient Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span : D+H	on span on span on span um occur ent Deflection Deflection lection Stresse Max Stre # M	= 0.05 = = = = = = = = = = = = = = = = = = =	5320 , 5320 , 25 Cd 0.90	Tribu 88 1,44 +D 6 Spa 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 0.238 ir 0.000 ir 0	1 si n Ratio n Ratio n Ratio n Ratio ons C _r	Maxin) =) =) = C _m	t, (Floor mum S Section Locatic Span 1 681 > 0 < 539 > 0 < C t	r Load thear S n used Combin on of n # wher >=360 <360 >=240 <240 C _L) Stress Ra d for this nation naximum e maxim e maxim Mom M	atio span n on span um occu eent Value: fb 179.01	= = rs = rs = <u>F'b</u> 0.00	+ + S 	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f pan # 1 Shear Val fv 0.00	: 1 osi t t 162 162
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maximu Max Downward Transient Max Downward Transient Max Upward Transient Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span : D+H Length = 13.451 ft 1 Length = 13.451 ft 1 D+L+H Length = 13.451 ft 1	on span on span on span um occur ent Deflection lection Stresse <u>Max Stre</u> <u># M</u> 0.137 0.002 0.590	= 0.05 = = = = s = tion n \$\$ for I \$\$ s Ratio V 0.056 0.056 0.243	Load 5320 , 5320 , 5320 , 5320 , 6 0.90 0.90 1.00	Tribu (88 1,4 +D (Spa 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 6.750ft n # 1 0.238 ir 0.000 ir 0.000 ir 0.000 ir 0.000 ir 0.000 ir 0.000 in 0.000 ir 0.000	n Ration n Ration n Ration n Ration n Ration ons C _r 1.15 1.15 1.15 1.15	Maxii 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	t, (Floor mum S Section Locatic Span # 681 = 0 < 539 = 0 < C t 0 1.00 0 1.00 0 1.00	r Load thear S n used Combin on of n # wher >=360 <360 >=240 <240 C_L 1.00 1.00 1.00 1.00) Stress Radion nation maximum e maxim maximum e maxim Mom M 0.32 0.00 1.53	ent Value: 100 span 100 span 100 span 179.01 2.60 858.92	= = = rs = F ⁻ b 0.00 1309.28 1309.28 0.00 1454.75	Des + S V 0.00 0.08 0.08 0.00 0.40	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f pan # 1 Shear Val fv 0.00 9.10 9.10 0.000 43.67	: 1 osi osi t t 162 162 (180
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maxim Max Downward Transi Max Downward Transi Max Upward Transient Max Downward Total D Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span : D+H Length = 13.451 ft 1 Length = 13.451 ft 1	o.0110, L ss Ratio span on span um occur ent Deflection Deflection lection <u>Stresse</u> <u>Max Stre</u> <u># M</u> 0.137 0.002	= 0.05 = = = = s = tion n \$\$ for I \$\$ s Ratio V 0.056 0.056 0.243	Load 5320 , 5320 , 5320 , 5320 , 6 0.90 0.90 1.00	Tribu 88 1,4 +D (Spa 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 5.750 ft n # 1 0.238 ir 0.000 ir 0.300 ir 0.300 ir 0.300 ir 0.000 ir 0.100 1.00 1.00 1.00 1.00	1 nsi n Ratio n Ratio n Ratio n Ratio Ons C _r 1.15 1.15 1.15 1.15 1.15	Maxii	t, (Floor mum S Section Load C Locatic Span # 681 = 0 < 539 = 0 < C t 0 < C t 0 = 1.00 0 1.00 0 1.00 0 1.00	r Load thear S n used Combin on of n # wher >=360 <360 >=240 <240 1.00 1.00 1.00 1.00 1.00) Stress Ra d for this nation maximum e maxim e maxim Mom M 0.32 0.00	ent Value: 100 span 100 span 100 span 179.01 2.60 858.92	= = = rs = F'b 0.00 1309.28 1309.28 1309.28 1309.28 1309.28 1309.28 1309.28	Des + S V 0.00 0.08 0.08 0.08 0.08 0.08 0.08 0.040 0.40	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f pan # 1 Shear Val fv 0.00 9.10 9.10 0.000 9.10 43.67 43.67	: 1 osi osi t t 162 162 (180 180 180
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres Section used for this : Load Combination Location of maximum Span # where maximu Max Downward Transient Max Downward Transient Max Upward Transient Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span : D+H Length = 13.451 ft 1 Length = 13.451 ft 1 D+L+H Length = 13.451 ft 1	on span on span on span um occur ent Deflection lection Stresse <u>Max Stre</u> <u># M</u> 0.137 0.002 0.590	= 0.05 = = = = s = tion n • s for I • s for I • s atio V 0.056 0.056 0.243 0.243	Load 255 Cd 0.90 0.90 1.00 1.00	Tribu (88 1,4 +D (Spa 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 0.238 ir 0.000 ir 0.000 ir 0.000 ir 0.000 ir 0.000 ir 0.1.00 1.00 1.00 1.00 1.00 1.00	n Ration n Ration n Ration n Ration n Ration ons C _r 1.15 1.15 1.15 1.15	Maxii 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	t, (Floor mum S Section Locatic Span # 681 > 0 < 539 > 0 < C t 0 1.00 1.00 1.00 0 1.00 0 1.00	r Load thear S n used Combin on of n # wher >=360 <360 >=240 <240 C_L 1.00 1.00 1.00 1.00) Stress Ra d for this nation naximum re maxim Mom M 0.32 0.00 1.53 0.02	atio span n on span um occu fb 179.01 2.60 858.92 12.49	= = = rs = F ⁻ b 0.00 1309.28 1309.28 0.00 1454.75	Des + S V 0.00 0.08 0.08 0.08 0.00 0.40 0.40 0.00	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f pan # 1 Shear Val fv 0.00 9.10 9.10 0.00 9.10 9.10 0.00 43.67 43.67	: 1 osi osi t 162 162 (180 180 (180 (180 (0 (0 (0 (0 (0 (0 (0 (0))))))))
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this : Load Combination Location of maximum Span # where maximu Max Downward Transien Max Downward Transien Max Upward Transient Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span : D+H Length = 13.451 ft 1 Length = 13.451 ft 1	on span on span on span on span on span on span on span occur ent Deflection Deflection Stresse Max Stre # M 0.137 0.002 0.590 0.009	= 0.05 = = = = s = tion n ss for I ss Ratio V 0.056 0.056 0.243 0.243 0.243	Load ³⁵ C _d 0.90 0.90 1.00 1.25	Tribu 88 1,43 +D (Spa 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 0.238 ir 0.000 ir 0	1 n Ration n Ration n Ration n Ration Ons C r 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.15	Maxii 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	t, (Floor mum S Section Locatic Span # 681 > 0 < 539 > 0 < C t 0 1.00 1.00 1.00 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00	r Load thear S n used Combin on of n # wher >=360 <360 >=240 <240 C_L 1.00) Stress Radion nation maximum e maxim maximum e maxim Mom M 0.32 0.00 1.53	atio span n on span um occu fb 179.01 2.60 858.92 12.49 179.01	= = = rs = F'b 0.00 1309.28 1309.28 0.00 1454.75 1454.75 0.00	Des + S V 0.00 0.08 0.08 0.08 0.08 0.08 0.08 0.040 0.40	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f pan # 1 Shear Val fv 0.00 9.10 9.10 0.000 9.10 43.67 43.67	: 1 psi psi t 162 162 (180 180 (180 (225
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this section Location of maximum Span # where maximum Maximum Deflection Max Downward Transient Max Upward Transient Max Upward Transient Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span section D+H Length = 13.451 ft 1 Length = 0.04927 ft 1 D+L+H	o.0110, L ss Ratio span on span um occur ent Deflection Deflection lection Stresse <u>Max Stre</u> # M 0.137 0.002 0.590 0.009 0.098 0.001	= 0.05 = = = = s = tion n • ss for I • ss For I • • • • • • • • • • • • • • • • • • •	Load DS Cd 0.90 1.00 1.25 1.25	Tribu (88 1,4 +D (Spa 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 6.750 ft n # 1 0.238 ir 0.000 ir 0.300 ir 0.000 ir 0.000 ir 0.000 ir 0.100 1.00 1	1 si si Ratio Ratio Ratio Cr 1.15 1	Maxin D = D = D = D = D = C _m 1.00	t, (Floor mum S Section Locatic Span # 681 = 0 < 539 = 0 < C t 0 1.00 0 1.0	r Load thear S n used Combin on of n # wher >=360 <360 >=240 <240 C_L 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00) Stress Radion d for this nation maximum e maxim maximum e maxim Mom M 0.32 0.00 1.53 0.02 0.32 0.00	atio span n on span um occu fb 179.01 2.60 858.92 12.49 179.01 2.60	= = = rs = F'b 0.00 1309.28 1309.28 1309.28 1309.28 0.00 1454.75 1454.75 0.00 1818.44 1818.44 0.00	Des + S V 0.00 0.08 0.00 0.08 0.00 0.40 0.40 0.40 0.40 0.00 0.08 0.00 0.08 0.00 0.08 0.00 0.00 0.00 0.08 0.00	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f pan # 1 Shear Val fv 0.00 9.10 9.10 9.10 0.000 43.67 43.67 0.00 9.10 0.000 9.10 0.000	: 1 posi t t 162 162 (180 (180 (225 (225 (0)
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this : Load Combination Location of maximum Span # where maximu Max Downward Transien Max Downward Transien Max Upward Transient Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span : D+H Length = 13.451 ft 1 Length = 13.451 ft 1	on span on span on span on span on ccur ent Deflection Deflection Deflection Stresse Max Stre # M 0.137 0.002 0.590 0.009 0.098 0.001 0.107	= 0.05 = = = = s = tion n ss for I ss Ratio V 0.056 0.056 0.243 0.243 0.243	Load DS Cd 0.90 0.90 1.00 1.25 1.25 1.15	Tribu 88 1,43 +D (Spa 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p +L+H 6.750 ft n # 1 0.238 ir 0.000 ir 0.300 ir 0.000 ir 0.000 ir 0.000 ir 0.100 1.00 1	1 n Ration n Ration n Ration n Ration Ons C r 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.15	Maxii 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	c t C t C t C t C t C t C t C t C	r Load thear S n used Combin on of n # wher >=360 <360 >=240 <240 C_L 1.00) Stress Ra d for this nation naximum re maxim M 0.32 0.00 1.53 0.02 0.32	atio span n on span um occu fb 179.01 2.60 858.92 12.49 179.01 2.60 179.01	= = = rs = F'b 0.00 1309.28 1309.28 0.00 1454.75 1454.75 0.00 1818.44 1818.44	Des + + S V 0.00 0.08 0.08 0.08 0.08 0.00 0.40 0.00 0.0	sign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f pan # 1 Shear Val fv 0.00 9.10 9.10 0.00 43.67 43.67 0.00 9.10 9.10 9.10	: 1 posi posi t t 162 (180 180 (180 (180 (225 225

Wood Beam	
Lic. # : KW-06012032	DRE Structural Design
DESCRIPTIO 1214 30th St - 3rd Floor Beam 1	

Load Combination	Max Stre	ess Ratio	-						_	Mom	ent Value	s	s	shear Val	ues
Segment Length Span #	м	V	Сd	C _{F/V}	Ci	Cr	Сm	с _t	c _L –	M	fb	F'b	V	fv	F'v
Length = 13.451 ft 1	0.379	0.156	1.25	1.100	1.00	1.15	1.00	1.00	1.00	1.23	688.94	1818.44	0.32	35.03	225.00
Length = 0.04927 ft 1	0.006	0.156	1.25	1.100	1.00	1.15	1.00	1.00	1.00	0.02	10.02	1818.44	0.32	35.03	225.00
+D+0.750L+0.750S+H				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.451 ft 1	0.412	0.169	1.15	1.100	1.00	1.15	1.00	1.00	1.00	1.23	688.94	1672.96	0.32	35.03	207.00
Length = 0.04927 ft 1	0.006	0.169	1.15	1.100	1.00	1.15	1.00	1.00	1.00	0.02	10.02	1672.96	0.32	35.03	207.00
+D+0.60W+H				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.451 ft 1	0.077	0.032	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.32	179.01	2327.60	0.08	9.10	288.00
Length = 0.04927 ft 1	0.001	0.032	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.00	2.60	2327.60	0.08	9.10	288.00
+D+0.70E+H				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.451 ft 1	0.077	0.032	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.32	179.01	2327.60	0.08	9.10	288.00
Length = 0.04927 ft 1	0.001	0.032	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.00	2.60	2327.60	0.08	9.10	288.00
+D+0.750Lr+0.750L+0.450W				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.451 ft 1	0.296	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	1.23	688.94	2327.60	0.32	35.03	288.00
Length = 0.04927 ft 1	0.004	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.02	10.02	2327.60	0.32	35.03	288.00
+D+0.750L+0.750S+0.450W+				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.451 ft 1	0.296	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	1.23	688.94	2327.60	0.32	35.03	288.00
Length = 0.04927 ft 1	0.004	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.02	10.02	2327.60	0.32	35.03	288.00
+D+0.750L+0.750S+0.5250E				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.451 ft 1	0.296	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	1.23	688.94	2327.60	0.32	35.03	288.00
Length = 0.04927 ft 1	0.004	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.02	10.02	2327.60	0.32	35.03	288.00
+0.60D+0.60W+0.60H				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.451 ft 1	0.046	0.019	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.19	107.41	2327.60	0.05	5.46	288.00
Length = 0.04927 ft 1	0.001	0.019	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.00	1.56	2327.60	0.05	5.46	288.00
+0.60D+0.70E+0.60H				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.451 ft 1	0.046	0.019	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.19	107.41	2327.60	0.05	5.46	288.00
Length = 0.04927 ft 1	0.001	0.019	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.00	1.56	2327.60	0.05	5.46	288.00
Overall Maximum De	flectio	ns													
Load Combination	S	pan M	Max. "-	" Defl	Location	n in Sp	an	Load C	ombin	ation		Max. *	+* Defl Lo	cation in	Span

Load Combination	opan	Max Den Locati	on in Span	Load Combination	Max.	+ Dell Lo	cation in Spar
+D+L+H	1	0.3004	6.799			0.0000	0.000
Vertical Reactions			Suppo	ort notation : Far left is #	Values	in KIPS	
Load Combination		Support 1 S	upport 2				
Overall MAXimum		0.454	0.454				
Overall MINimum		0.359	0.359				
+D+H		0.095	0.095				
+D+L+H		0.454	0.454				
+D+Lr+H		0.095	0.095				
+D+S+H		0.095	0.095				
+D+0.750Lr+0.750L+H		0.364	0.364				
+D+0.750L+0.750S+H		0.364	0.364				
+D+0.60W+H		0.095	0.095				
+D+0.70E+H		0.095	0.095				
+D+0.750Lr+0.750L+0.450W+H		0.364	0.364				
+D+0.750L+0.750S+0.450W+H		0.364	0.364				
+D+0.750L+0.750S+0.5250E+H		0.364	0.364				
+0.60D+0.60W+0.60H		0.057	0.057				
+0.60D+0.70E+0.60H		0.057	0.057				
D Only		0.095	0.095				
Lr Only							
L Only		0.359	0.359				
S Only							
W Only							
E Only							

E Only H Only

Lic. # : KW-06012032 DESCRIPTIO 1214	1 30th St -	3rd Fl	loor B	eam 2										Structural	
CODE REFERENC	FS														
Calculations per NDS		2015.0	CBC 2	016. A	SCF 7	-10									
Load Combination Set			0000	0.0,70											
Material Properties	s														
Analysis MethoAllow Load CombinatiBC 2		s Desig	ŋn				Fb Fb Fc			2900 ps 2900 ps 2900 ps		<i>Modulus (</i> Ebend- xx Eminbend		2000ks	
Wood Species iLeve Wood Grade Paral							Fc Fv Ft	- Perp		750 ps 290 ps 2025 ps		Density		45.07pc	f
Beam Bracing Beam	n is Fully B	raced a	agains	t latera	l-torsi	onal b	ucklin	g				,			
6		0				D(0.07	0	.12)			0				
4		+					(0.08)				+			÷	
0		ŧ				D(0.02	21) L(0.	08)			+			\$	
*							5x9.25 n = 9.0	ft							
•														-	
Beam self weight calc Uniform Load : D = Uniform Load : D =	= 0.0210, l = 0.080 , T	L = 0.08 ributary	80,T yWidt	ributary h = 1.0	ft, (W	all Lo	ading	=loor L)	oad)		Load Fa	ctors will be	applied f	for calcula	ations
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Stre	= 0.0210, 1 = 0.080 , T = 0.0730, 1 Y ess Ratio	L = 0.08 ributary	80,T yWidt	ributary h = 1.0 Fributar	ft, (W	all Loa th = 1.	ading .0 ft, (Maxir	Floor L) Roof L mum S	oad) .oading Shear S	g) Stress Rat	io	ctors will be		ior calcula ign OK 0.160 :	
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR	= 0.0210, 1 = 0.080 , T = 0.0730, 1 Y ess Ratio	L = 0.08 Tributary Lr = 0.1	80,T yWidt	ributary h = 1.0 Tributar 0 3.5x 81	ft, (W y Wid	/all Loa th = 1. 1	ading .0 ft, (Maxir	Floor L) Roof L mum S	oad) .oading Shear S	g)	io		Des 3.	ign OK	1 osi
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Stre	= 0.0210, I = 0.080, T = 0.0730, I Y ess Ratio s span m on span	L = 0.08 ributary Lr = 0.1 = = +D+0	80, T y Widt 20, 1	ributary th = 1.0 Tributar 3.5 x 3,62 r+0.750	9.224 9.224 9.25 3.38p 5.00p 0L+H	all Loa th = 1. 1 si si	ading .0 ft, (Maxir	Floor L) Roof L mum S Sectio Load (Locatio	oad) .oading Shear S n used Combir on of n	g) Stress Rat I for this s	o pan on span	= = +D+0.75	Des 3. 50Lr+0.7	ign OK 0.160 : 5x9.25 57.97 p 362.50 p	1 osi
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Strr Section used for this Load Combination Location of maximu	 0.0210, I 0.080, T 0.0730, I Y ess Ratio s span m on span mum occur isient Deflection isient Deflection	L = 0.08 ributary Lr = 0.1 = +D+0 rs = rs =	80, T y Widt 20, 1	ributary h = 1.0 Tributar 0 3.5x 81 3,62 r+0.750 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0	9.224 9.224 9.25 3.38p 5.00p 0L+H	fall Los th = 1. 1 si si t n Ratio n Ratio	Ading .0 ft, (Maxir	Floor L) Roof L mum S Sectio Locatio Span a 2798: 0 1004:	oad) .oading hear S n used Combin on of n # wher >=360 <360	g) Stress Rat I for this s nation naximum o	o pan on span	= = +D+0.75	Des 3. 50Lr+0.7	ign OK 0.160 : 5x9.25 57.97 p 362.50 p 362.50 p 362.50 p 362.50 p	1 osi osi
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Stra Section used for this Load Combination Location of maximu Span # where maxin Maximum Deflection Max Downward Transie Max Downward Transie Max Downward Tota Max Upward Total D	= 0.0210, I = 0.080, T = 0.0730, I Y ess Ratio s span m on span mum occur isient Deflection d Deflection reflection	L = 0.00 ributary Lr = 0.1 = = +D+0 +D=0 = rs =	80 , T y Widt 20 , 1	ributary h = 1.0 Fributar 3.5 x 81 3,62 r+0.750 4 Spar 0 0 0 0 0 0 0	1 ft, (W y Wid 9.224 3.38p 5.00p 0L+H 1.500 ft 1.039 ir .000 ir .107 ir .000 ir	fall Los th = 1. si si si h Ratio h Ratio h Ratio	Ading .0 ft, (Maxir	Floor L) Roof L mum S Sectio Locatio Span a 2798: 0 1004:	oad) .oading hear S n used Combin on of n # wher >=360 <360 >=240	g) Stress Rat I for this s nation naximum o	o pan on span	= = +D+0.75	Des 3. 50Lr+0.7	ign OK 0.160 : 5x9.25 57.97 p 362.50 p 362.50 p 362.50 p 362.50 p	1 osi osi
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Stra Section used for this Load Combination Location of maximu Span # where maxim Maximum Deflection Max Downward Transie Max Downward Transie Max Downward Tota Max Upward Total D Maximum Forces oad Combination	e 0.0210, I 0.080, T 0.0730, I Y ess Ratio s span m on span mum occur isient Deflection d Deflection d Deflection eflection & Stresse Max Stre	L = 0.00 ributary Lr = 0.1 = +D+0 rs = rs = tion n	80 , T y Widt 20 , 1 0.750L	ributary th = 1.0 Fributar 3.5x 81 3,62 r+0.750 4 Spar 0 0 0 0 0 0 0 0 0	ft, (W y Wid 9.224 3.38p 5.00p 0L+H 5.500ft 1.500ft 107 ir 000 ir 000 ir 000 ir	fall Los th = 1. 1 si si n Ratio n Ratio n Ratio n Ratio ons	Ading .0 ft, (Maxin	Floor L) Roof L mum S Sectio Locati Span a 2798 : 0 1004 : 0	oad) .oading Shear S n used Combin on of n # wher >=360 <360 >=240 <240	g) Stress Rat I for this s nation naximum o e maximu e maximu Mome	o pan on span m occu nt Value	= = +D+0.75 = rs =	Des 3. 50Lr+0.7 Sp	ign OK 0.160 : 5x9.25 57.97 r 362.50 r 362.50 r 250L+H 8.245 f 362 f 20L+H 8.245 f 361 f 3	1 osi t
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Stra Section used for this Load Combination Location of maximu Span # where maxim Maximum Deflection Max Downward Transie Max Downward Transie Max Downward Transie Max Upward Transie Max Upward Total D Maximum Forces a oad Combination Segment Length Spa	ess Ratio s span m on span mum occur sient Deflection d Deflection eflection & Stresse Max Stre	L = 0.00 ributary Lr = 0.1 = +D+0 rs = etion n	80 , T y Widt 20 , 1	ributary h = 1.0 Fributar 3.5x 81 3,62 r+0.750 4 Spar 0 0 0 0 0 0 0 0 0	1 ft, (W y Wid 9.224 3.38p 5.00p 0L+H 1.500 ft 1.039 ir .000 ir .107 ir .000 ir	fall Los th = 1. si si si h Ratio h Ratio h Ratio	Ading .0 ft, (Maxin	Floor L) Roof L mum S Sectio Locati Span a 2798 : 0 1004 : 0	oad) .oading hear S n used Combin on of n # wher >=360 <360 >=240	g) I for this s nation naximum o e maximu	o pan on span m occu	= +D+0.75 rs = s F'b	Des 3. 50Lr+0.7 Sp S	ign OK 0.160 : 5x9.25 57.97 p 362.50 p 362.50 p '50L+H 8.245 f ban # 1 Shear Val	1 osi t <u>ues</u>
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Strr Section used for this Load Combination Location of maximu Span # where maximu Maximum Deflection Max Downward Transie Max Downward Transie Max Downward Transie Max Downward Transie Max Downward Total D Maximum Forces a oad Combination Segment Length Spa D+H Length = 9.0 ft 1	 0.0210, I 0.080, T 0.0730, I 9.0730, I 9 9<td>L = 0.00 ributary Lr = 0.1 = +D+0 rs = rs = tion n</td><td>80 , T y Widt 20 , 1 0.750L</td><td>ributary h = 1.0 Fributar 3.5x 81 3.62 r+0.756 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>ft, (W y Wid 9.224 3.38p 5.00p 0L+H 5.000 ir .000 ir .000 ir .000 ir .000 ir .000 ir .107 ir .000 ir .107 ir .000 ir .107 ir .000 ir</td><td>fall Los th = 1. 1 si si h Ratio h Ratio h Ratio h Ratio ons C_r 1.00</td><td>ading 0 ft, (Maxir 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =</td><td>Floor L) Roof L Sectio Locatio Span a 2798 : 0 1004 : 0 C t 1.00</td><td>oad) .oading .bear S n used Combin on of n # when >=360 <360 <240 C_L</td><td>g) Stress Rat I for this s nation naximum o e maximu e maximu Mome</td><td>o pan on span m occu nt Value: fb</td><td>= +D+0.75 = rs = <u>s</u> <u>F'b</u> 0.00 2610.00</td><td>Des 3. 50Lr+0.7 Sp </td><td>ign OK 0.160 : 5x9.25 57.97 p 362.50 p '50L+H 8.245 f ban # 1 Shear Val fv 0.00 31.95</td><td>1 osi t <u>ues</u> F' (261</td>	L = 0.00 ributary Lr = 0.1 = +D+0 rs = rs = tion n	80 , T y Widt 20 , 1 0.750L	ributary h = 1.0 Fributar 3.5x 81 3.62 r+0.756 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ft, (W y Wid 9.224 3.38p 5.00p 0L+H 5.000 ir .000 ir .000 ir .000 ir .000 ir .000 ir .107 ir .000 ir .107 ir .000 ir .107 ir .000 ir	fall Los th = 1. 1 si si h Ratio h Ratio h Ratio h Ratio ons C _r 1.00	ading 0 ft, (Maxir 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	Floor L) Roof L Sectio Locatio Span a 2798 : 0 1004 : 0 C t 1.00	oad) .oading .bear S n used Combin on of n # when >=360 <360 <240 C_L	g) Stress Rat I for this s nation naximum o e maximu e maximu Mome	o pan on span m occu nt Value: fb	= +D+0.75 = rs = <u>s</u> <u>F'b</u> 0.00 2610.00	Des 3. 50Lr+0.7 Sp 	ign OK 0.160 : 5x9.25 57.97 p 362.50 p '50L+H 8.245 f ban # 1 Shear Val fv 0.00 31.95	1 osi t <u>ues</u> F' (261
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Strr Section used for this Load Combination Location of maximu Span # where maxim Maximum Deflection Max Downward Transie Max Downward Transie Max Upward Total D Maximum Forces a oad Combination Segment Length Spa D+H Length = 9.0 ft 1 D+L+H Length = 9.0 ft 1	 0.0210, I 0.080, T 0.0730, I 9.0730, I 9 9<td>L = 0.00 ributary Lr = 0.1 = +D+0 rs = tion n</td><td>B0 , T y Widt 20 , 1 0.750L 0.750L 0.90</td><td>ributary h = 1.0 Fributar 3,62 r+0.750 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>ft, (W y Wid 9.224 9.25 3.38p 5.00p 0L+H 1.500 fr 1.00 ir 1.00 ir 1.00 1.00 1.00</td><td>All Los th = 1. 1 ssi ssi n Ratio n Ratio n Ratio n Ratio ons C_r 1.00 1.00 1.00</td><td>ading 0 ft, (Maxir 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =</td><td>Floor L) Roof L Sectio Locati Span a 2798: 0. 1004: 0. C t 1.00 1.00 1.00</td><td>oad) .oading</td><td>g) Stress Rat I for this s nation naximum o e maximu e maximu Mome M</td><td>on spar m occu nt Value fb 448.24</td><td>= +D+0.75 rs = s F'b 0.00</td><td>Des 3. 50Lr+0.7 Sp </td><td>ign OK 0.160 : 5x9.25 57.97 p 362.50 p 750L+H 8.245 f ban # 1 Shear Val fv 0.00</td><td>1 osi t <u>ues</u> F' (261</td>	L = 0.00 ributary Lr = 0.1 = +D+0 rs = tion n	B0 , T y Widt 20 , 1 0.750L 0.750L 0.90	ributary h = 1.0 Fributar 3,62 r+0.750 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ft, (W y Wid 9.224 9.25 3.38p 5.00p 0L+H 1.500 fr 1.00 ir 1.00 ir 1.00 1.00 1.00	All Los th = 1. 1 ssi ssi n Ratio n Ratio n Ratio n Ratio ons C _r 1.00 1.00 1.00	ading 0 ft, (Maxir 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	Floor L) Roof L Sectio Locati Span a 2798: 0. 1004: 0. C t 1.00 1.00 1.00	oad) .oading	g) Stress Rat I for this s nation naximum o e maximu e maximu Mome M	on spar m occu nt Value fb 448.24	= +D+0.75 rs = s F'b 0.00	Des 3. 50Lr+0.7 Sp 	ign OK 0.160 : 5x9.25 57.97 p 362.50 p 750L+H 8.245 f ban # 1 Shear Val fv 0.00	1 osi t <u>ues</u> F' (261
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Stra Section used for this Load Combination Location of maximu Span # where maxim Maximum Deflection Max Downward Transie Max Downward Transie Max Upward Tratal D Maximum Forces oad Combination Segment Length Spa D+H Length = 9.0 ft 1 D+L+H Length = 9.0 ft 1 D+L+H	ess Ratio s span m on span m on span mum occur isient Deflection d Deflection eflection & Stresse Max Stre n # M 0.172 0.222	L = 0.00 ributary Lr = 0.1 = +D+0 = rs = stion n • ss for • • • • • • • • • • • • • • • • • • •	B0 , T y Widt 20 , T 0.750L 0.750L 0.90 1.00	ributary h = 1.0 Fributar 3.5x 81 3,62 r+0.750 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ft, (W y Wid 9.224 3.38p 5.00p 0L+H 5.500f in 1.500f ir 000 ir 000 ir 000 ir 000 ir 0100 i 1.00 1.00 1.00	(all Los th = 1. 1 si si si n Ratio n Ratio n Ratio n Ratio ons Cr 1.00 1.00 1.00 1.00	ading 0 ft, (Maxir Maxir 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	Floor L) Roof L Sectio Locatio Span a 2798 : 0 - 1004 : 0 - C t 1.00 1.00 1.00 1.00	oad) .oading shear S n used Combin on of n # wher >=360 <360 >=240 <240 C_L 1.00 1.00 1.00 1.00	g) Stress Rat I for this s nation naximum of e maximu e maximu Mome M 1.86 2.67	o pan on span m occu fb 448.24 642.98	= +D+0.75 rs = rs = s F'b 0.00 2610.00 0.00 2900.00 0.00	Des 3. 50Lr+0.7 Sp 	ign OK 0.160 : 5x9.25 57.97 p 362.50 p 750L+H 8.245 f 0an # 1 5hear Val fv 0.00 31.95 0.00 45.82 0.00	1 osi t t 261 (290 (
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Strr Section used for this Load Combination Location of maximu Span # where maxin Maximum Deflection Max Downward Transie Max Downward Transie Max Downward Transie Max Upward Total D Maximum Forces oad Combination Segment Length Spa D+H Length = 9.0 ft 1 D+Lr+H Length = 9.0 ft 1	ess Ratio s span m on span m on span mum occur isient Deflection d Deflection eflection & Stresse Max Stre n # M 0.172 0.222	L = 0.04 ributary Lr = 0.1 = +D+0 rs = estion n estion n 0.122	B0 , T y Widt 20 , 1 0.750L 0.750L 0.90 1.00	ributary h = 1.0 Fributar 3.5x 81 3,62 r+0.750 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ft, (W y Wid 9.224 9.25 3.38p 5.00p 0L+H 1.500 fr 1.00 ir 1.00 ir 1.00 1.00 1.00	All Los th = 1. 1 ssi ssi n Ratio n Ratio n Ratio n Ratio ons C _r 1.00 1.00 1.00	ading 0 ft, (Maxir 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	Floor L) Roof L Sectio Locati Span a 2798: 0 1004: 0 C t 1.00 1.00 1.00 1.00	oad) .oading	g) Stress Rat I for this s nation naximum e maximu e maximu Mome M 1.86	o pan on span m occu fb 448.24 642.98	= +D+0.75 = rs = <u>F'b</u> 0.00 2610.00 0.00 2900.00	Des 3. 50Lr+0.7 Sp 	ign OK 0.160 : 5x9.25 57.97 p 362.50 p 750L+H 8.245f ban # 1 5hear Val fv 0.00 31.95 0.00 45.82	1 osi osi t
Beam self weight calc Uniform Load : D = Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Strr Section used for this Load Combination Location of maximu Span # where maximu Maximum Deflection Max Downward Transie Max Downward Transie Max Downward Transie Max Downward Transie Max Downward Transie Max Upward Total D Maximum Forces a Load Combination Segment Length Spa D+H Length = 9.0 ft 1 D+L+H Length = 9.0 ft 1 D+S+H Length = 9.0 ft 1	ess Ratio s span m on span m on span mum occur isient Deflection d Deflection eflection & Stresse Max Stre n # M 0.172 0.222	L = 0.00 ributary Lr = 0.1 = +D+0 = rs = ettion n $\frac{1}{2}$ \frac	B0 , T y Widt 20 , 1 0.750L 0.750L 0.90 1.00 1.25	ributary h = 1.0 Fributar 3.5x 81 3.62 r+0.750 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ft, (W y Wid 9.224 9.25 3.38p 25.00p 0L+H 1.500 ft 1.00 ir 1.00 ir 1.00 ir 1.00 1.00 1.00 1.00 1.00 1.00	All Los th = 1. 1 ssi ssi c n Ratio n Ratio n Ratio n Ratio n Ratio n Ratio n Ratio 1	ading 0.0 ft, (Maxir 0 = 0 0 ft, (Maxir	Floor L Provide the second se	oad) .oading hear S n used Combin on of n # wher >=360 <360 >=240 <240 C_L 1.00 1.00 1.00 1.00 1.00 1.00	g) Stress Rat I for this s nation naximum of e maximu e maximu Mome M 1.86 2.67	on span m occu nt Value fb 448.24 642.98 740.35	= +D+0.75 = rs = <u>F'b</u> 0.00 2610.00 0.00 2900.00 0.00 3625.00 0.00 3335.00	Des 3. 50Lr+0.7 50Lr+	ign OK 0.160 : 5x9.25 57.97 p 362.50 p 750L+H 750L+H 200 p 3.245 f ban # 1 Shear Val fv 0.00 31.95 0.00 45.82 0.00 52.76 0.00 31.95	1 ues t 261 0 290 0 333
Uniform Load : D = Uniform Load : D = DESIGN SUMMAR Maximum Bending Stra Section used for this Load Combination Location of maximu Span # where maximu Maximum Deflection Max Downward Transie Max Downward Transie Max Downward Total D Maximum Forces a Load Combination Segment Length Spa D+H Length = 9.0 ft 1 D+L+H Length = 9.0 ft 1 D+L+H Length = 9.0 ft 1 D+L+H Length = 9.0 ft 1	ess Ratio s span m on span mum occur isient Deflection d Deflection & Stresse <u>Max Stre</u> n # <u>M</u> 0.172 0.222 0.204 0.134	L = 0.00 ributary Lr = 0.1 = +D+0 rs = estion n es for l ess Ratio V 0.122 0.158 0.146	B0 , T y Widt 20 , 1 0.750L 0.750L 0.90 1.00 1.25	ributary h = 1.0 Fributar 3.5x 81 3.62 r+0.750 4 Spar 0 0 0 0 0 Comt 1.000 1.000 1.000 1.000 1.000 1.000	ft, (W y Wid 9.224 9.25 3.38p 5.00p 0.24H 1.500ft 1.00 ir 1.00 1.00 1.00 1.00 1.00	(all Los th = 1. 1 ssi ssi n Ratio n R	ading 0 ft, (Maxir) = =) =) =) =) =) =) =) =) =)	Floor L) Roof L Sectio Locati Span a 2798: 0- 1004: 0- C t 1.00 1.00 1.00 1.00 1.00 1.00 1.00	oad) .oading :hear S n used Combin on of n # when >=360 <360 <240 <240 <240 <240 <240 <1.00 1.00 1.00 1.00 1.00	g) Stress Rat I for this s nation naximum e maximu e maximu Mome M 1.86 2.67 3.08	o pan on spar m occu the the the the the the the the the the	= +D+0.75 = rs = s F'b 0.00 2610.00 0.00 2900.00 0.00 3625.00 0.00	Des 3. 50Lr+0.7 Sp 0.00 0.69 0.00 0.99 0.00 0.1.14 0.00	ign OK 0.160 : 5x9.25 57.97 p 362.50 p 50L+H 8.245 f 50L +H 8.245 f 50L + 8.245 f 50L + 8.245 f 0.01 31.95 0.00 45.82 0.00 52.76 0.00	1 psi t t 261 (290 (362 ()

Lic. # : KW-06012032 DESCRIPTIO 12	214 30	th St -	3rd F	loor B	leam (2			2018.017) 			241401224144		DRE	Structural	Design
Load Combination	N	lax Stre	ess Ratio	os							Morr	ent Value:	5	5	Shear Val	ues
Segment Length S	ipan #	М	v	Cd	C _{F/V}	Ci	Cr	Cm	с _t	cL _	М	fb	F'b	v	fv	F'v
Length = 9.0 ft	1	0.178	0.127	1.15	1.000	1.00	1.00	1.00	1.00	1.00	2.47	594.30	3335.00	0.91	42.35	333.
+D+0.60W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 9.0 ft	1	0.097	0.069	1.60	1.000	1.00		1.00		1.00	1.86	448.24	4640.00	0.69	31.95	464.0
+D+0.70E+H					1.000	1.00		1.00		1.00			0.00	0.00	0.00	0.0
Length = 9.0 ft	1	0.097	0.069	1.60	1.000	1.00		1.00		1.00	1.86	448.24	4640.00	0.69	31.95	464.0
+D+0.750Lr+0.750L+0					1.000	1.00		1.00		1.00			0.00	0.00	0.00	0.0
Length = 9.0 ft	1	0.175	0.125	1.60	1.000	1.00		1.00		1.00	3.38	813.38	4640.00	1.25	57.97	464.0
+D+0.750L+0.750S+0.					1.000	1.00		1.00		1.00			0.00	0.00	0.00	0.0
Length = 9.0 ft	1	0.128	0.091	1.60	1.000	1.00		1.00		1.00	2.47	594.30	4640.00	0.91	42.35	464.0
+D+0.750L+0.750S+0.					1.000	1.00	1.00	1.00		1.00			0.00	0.00	0.00	0.0
Length = 9.0 ft	1	0.128	0.091	1.60	1.000	1.00		1.00		1.00	2.47	594.30	4640.00	0.91	42.35	464.0
+0.60D+0.60W+0.60H					1.000	1.00		1.00		1.00			0.00	0.00	0.00	0.0
Length = 9.0 ft	1	0.058	0.041	1.60	1.000	1.00		1.00		1.00	1.12	268.94	4640.00	0.41	19.17	464.0
+0.60D+0.70E+0.60H					1.000	1.00		1.00		1.00			0.00	0.00	0.00	0.0
Length = 9.0 ft	1	0.058	0.041	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.12	268.94	4640.00	0.41	19.17	464.0
Overall Maximu	m Def	lectio	ns													
Load Combination		S	pan	Max. "-	" Defl	Locatio	n in Sp	an	Load C	ombin	ation		Max. "+	"Defi Lo	cation in	Span
+D+0.750Lr+0.750L	+0.450	W+H	1	0	.1075		4.533	1						0000		.000
			,						atotion	. Earl	off in H				0.	000
Vertical Reactio	ns				_				lotation	i. Fari	eft is #		Values in	KIPS		
Load Combination						rt 1 Su										
Overall MAXimum						504	1.504									
Overall MINimum						360	0.360									
+D+H						829	0.829									
+D+L+H						189	1.189									
+D+Lr+H						369	1.369									
+D+S+H						829	0.829									
+D+0.750Lr+0.750L						504	1.504									
+D+0.750L+0.750S+	·н					099	1.099									
+D+0.60W+H						829	0.829									
+D+0.70E+H						829	0.829									
+D+0.750Lr+0.750L						504	1.504									
+D+0.750L+0.750S+						099	1.099									
+D+0.750L+0.750S+		E+H				099	1.099									
+0.60D+0.60W+0.60						497	0.497									
+0.60D+0.70E+0.60	н					497	0.497									
D Only						829	0.829									
Lr Only						540	0.540									
L Only					0.3	360	0.360									
S Only																
W Only																

Lic. # : KW-06012032					DRE Structural Desig
DESCRIPTIO 1214 30th St - 3r	rd Floor Beam 3				
CODE REFERENCES					
alculations per NDS 2015, IBC 20	15, CBC 2016, ASCE 7	-10			
oad Combination Set : IBC 2018					
Material Properties					
Analysis MethorAllowable Stress D Load CombinatiBC 2018)esign	Fb + Fb - Fc - Prll	2,900.0 p 2,900.0 p 2,900.0 p	si Ebend- xx	<i>Elasti</i> 2,000.0ksi x 1,016.54ksi
Wood Species iLevel Truss Joist Wood Grade Parallam PSL 2.0E		Fc - Per Fv Ft	o 750.0 p 290.0 p 2,025.0 p	si	45.070pcf
Beam Bracing Beam is Fully Brac	ed against lateral-torsi	onal buckling			
	*	D(0.061) Lr(0.1)		¢	0
- ¢	4	D(0.16)		ŧ	-
÷	*	D(0.016) L(0.08)		*	*
		3.5x9.25			
		0.000.20			· · · · · · · · · · · · · · · · · · ·
		Span = 9.0 ft			1
•					•
Applied Loads		Ser	vice loads entered	. Load Factors will be a	pplied for calculations
eam self weight calculated and ad Uniform Load : D = 0.0160, L = Uniform Load : D = 0.160, Trib Uniform Load : D = 0.0610, Lr =	0.080, Tributary Widt utary Width = 1.0 ft, (W	all Loading)	·		
DESIGN SUMMARY	= 0.10, Tributary widtr	1 = 1.0 It, (Roof L	oading)	_	Design OK
aximum Bending Stress Ratio	= 0.275	1 Maximum	Shear Stress Ra	tio =	0.196 : 1
Section used for this span	3.5x9.25		on used for this		3.5x9.25
Section used for this span	= 796.34p			_	3.5X9.25
Section used for this span				=	56.75 psi
	= 2,900.00p	si	Combination	=	56.75 psi 290.00 psi
Load Combination		si Load	Combination ion of maximum	-	56.75 psi
Load Combination	= 2,900.00p +D+L+H = 4.500ft	load Load Locat		on span =	56.75 psi 290.00 psi +D+L+H
Load Combination Location of maximum on span Span # where maximum occurs Maximum Deflection Max Downward Transient Deflectior	= 2,900.00 +D+L+H = 4.500ft = Span # 1	si Load Locat Span n Ratio = 3358	ion of maximum # where maxim >=360	on span =	56.75 psi 290.00 psi +D+L+H 8.245 ft
Load Combination Location of maximum on span Span # where maximum occurs Maximum Deflection	= 2,900.00 p +D+L+H = 4.500 ft = Span # 1 n 0.032 ir 0.000 ir 0.123 ir	si Load Loca Span Ratio = 3358 Ratio = 0 Ratio = 0 Ratio = 878	ion of maximum # where maxim	on span =	56.75 psi 290.00 psi +D+L+H 8.245 ft
Load Combination Location of maximum on span Span # where maximum occurs Maximum Deflection Max Downward Transient Deflection Max Upward Transient Deflection Max Downward Total Deflection Max Upward Total Deflection	= 2,900.00 p +D+L+H = 4.500 ft = Span # 1 n 0.032 ir 0.000 ir 0.123 ir 0.000 ir	si Load Locat Span Ratio = 3358 n Ratio = 0 n Ratio = 878 n Ratio = 0	ion of maximum # where maxim >=360 <360 >=240	on span =	56.75 psi 290.00 psi +D+L+H 8.245 ft
Load Combination Location of maximum on span Span # where maximum occurs Maximum Deflection Max Downward Transient Deflection Max Upward Total Deflection Max Upward Total Deflection Max Upward Total Deflection Maximum Forces & Stresses	= 2,900.00 p +D+L+H = 4.500 ft = Span # 1 n 0.032 ir 0.000 ir 0.123 ir 0.000 ir 0.000 ir	si Load Locat Span Ratio = 3358 n Ratio = 0 n Ratio = 878 n Ratio = 0	ion of maximum # where maxim <360 >=240 <240	on span =	56.75 psi 290.00 psi +D+L+H 8.245 ft
Load Combination Location of maximum on span Span # where maximum occurs Maximum Deflection Max Downward Transient Deflection Max Upward Transient Deflection Max Downward Total Deflection Max Upward Total Deflection Max Upward Total Deflection Max Upward Total Deflection Max Stresses to Dead Combination	= 2,900.00 p +D+L+H = 4.500 ft = Span # 1 n 0.032 ir 0.000 ir 0.123 ir 0.000 ir 0.000 ir	si Load Locat Span Ratio = 3358 n Ratio = 0 n Ratio = 878 n Ratio = 0	ion of maximum # where maxim >=360 <360 >=240 <240 	on span = um occurs =	56.75 psi 290.00 psi +D+L+H 8.245 ft Span # 1

				-												
+D+H													0.00	0.00	0.00	0.00
Length = 9.0 ft	1	0.230	0.164	0.90	1.000	1.00	1.00	1.00	1.00	1.00	2.50	601.60	2610.00	0.93	42.88	261.00
+D+L+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 9.0 ft	1	0.275	0.196	1.00	1.000	1.00	1.00	1.00	1.00	1.00	3.31	796.34	2900.00	1.22	56.75	290.00
+D+Lr+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 9.0 ft	1	0.233	0.166	1.25	1.000	1.00	1.00	1.00	1.00	1.00	3.51	845.03	3625.00	1.30	60.22	362.50
+D+S+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 9.0 ft	1	0.180	0.129	1.15	1.000	1.00	1.00	1.00	1.00	1.00	2.50	601.60	3335.00	0.93	42.88	333.50
+D+0.750Lr+0.750L-	+Η				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 9.0 ft	1	0.257	0.183	1.25	1.000	1.00	1.00	1.00	1.00	1.00	3.87	930.23	3625.00	1.43	66.30	362.50
+D+0.750L+0.750S+	⊦H				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00

Lic. # : KW-06012032														DRE S	Structural	Design
DESCRIPTIO	1214 30)th St -	3rd F	oor B	eam (3	1. 1. 1. 1. 1. 1. 1.									
Load Combination	N	Max Stre	ss Ratio								Mom	ent Value	5	S	Shear Val	ues
Segment Length	Span #	M	V	Cd	C _{F/V}	Ci	Cr	Cm	сt	c _L –	М	fb	F'b	v	fv	F'v
Length = 9.0 ft	1	0.224	0.160		1.000	1.00	1.00	1.00	1.00	1.00	3.11	747.66	3335.00	1.15	53.28	333.5
D+0.60W+H					1.000	1.00	1.00	1.00		1.00			0.00	0.00	0.00	0.0
Length = 9.0 ft	1	0.130	0.092	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.50	601.60	4640.00	0.93	42.88	464.0
D+0.70E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 9.0 ft	1	0.130	0.092	1.60	1.000	1.00	1.00	1.00		1.00	2.50	601.60	4640.00	0.93	42.88	464.00
D+0.750Lr+0.750L+	-				1.000	1.00	1.00	1.00		1.00	2.00	001.00	0.00	0.00	0.00	0.00
Length = 9.0 ft	1	0.200	0.143	1.60	1.000	1.00	1.00	1.00		1.00	3.87	930 23	4640.00	1.43	66.30	464.00
D+0.750L+0.750S+	-		0.140	1.00	1.000	1.00	1.00	1.00		1.00	5.67	330.23	0.00	0.00	0.00	0.00
Length = 9.0 ft	1	0.161	0 1 1 5	1.60	1.000	1.00	1.00	1.00		1.00	3.11	747.66	4640.00	1.15	53.28	464.00
D+0.750L+0.750S+		0.101	0.110	1.00	1.000	1.00	1.00	1.00		1.00	0.11	/4/.00	0.00	0.00	0.00	0.00
Length = 9.0 ft	1	0.161	0 1 1 5	1.60	1.000	1.00	1.00	1.00		1.00	3.11	747.66	4640.00	1.15	53.28	464.00
0.60D+0.60W+0.60	-	0.101	0.115	1.00	1.000	1.00	1.00	1.00		1.00	3.11	/4/.00	4640.00	0.00	0.00	464.00
Length = 9.0 ft		0.078	0.055	1.60	1.000	1.00	1.00	1.00		1.00	1 50	000.00				
ý.	1	0.078	0.000	1.60				1.00			1.50	360.96	4640.00	0.56	25.73	464.00
0.60D+0.70E+0.60	1	0 070	0.055	4.00	1.000	1.00	1.00 1.00	1.00		1.00	4.50		0.00	0.00	0.00	0.0
Length = 9.0 ft				1.00	1.000	1.00	1.00	1.00	1.00	1.00	1.50	360.96	4640.00	0.56	25.73	464.00
Overall Maxim Load Combination	um Dei	In the local division of the local divisiono		Max "-	"Doft	.ocatior	in Sn	20	l aad C	ombina	ation		Max "	Defl Lo	cation in	Span
	01 .0 450					.ocation			Load C	ombina	ation					·
+D+0.750Lr+0.75		W+H	1	0	.1229		4.533							0000	0.	000
Vertical React	ons							pport n	otation	::⊢ari	eft is #'		Values in	KIPS		
Load Combination						rt 1 Sup										
Overall MAXimum						720	1.720									
Overall MINimum						360	0.360									
+D+H						112	1.112									
+D+L+H					1.4	472	1.472									
+D+Lr+H						562	1.562									
+D+Lr+H +D+S+H					1.	562 112	1.562 1.112									
+D+Lr+H +D+S+H +D+0.750Lr+0.750					1.	562 112 720	1.562 1.112 1.720									
+D+Lr+H +D+S+H +D+0.750Lr+0.750 +D+0.750L+0.750					1. 1. 1.	562 112 720 382	1.562 1.112 1.720 1.382									
+D+Lr+H +D+S+H +D+0.750Lr+0.750 +D+0.750L+0.750 +D+0.60W+H					1.1 1.2 1.2 1.2	562 112 720 382 112	1.562 1.112 1.720 1.382 1.112									
+D+Lr+H +D+S+H +D+0.750Lr+0.750 +D+0.750L+0.750 +D+0.60W+H +D+0.70E+H	S+H				1.1 1.1 1.1 1.1 1.1	562 112 720 382 112 112	1.562 1.112 1.720 1.382 1.112 1.112									
+D+Lr+H +D+S+H +D+0.750Lr+0.750 +D+0.750L+0.750 +D+0.60W+H	S+H	W+H			1.1 1.1 1.1 1.1 1.1	562 112 720 382 112	1.562 1.112 1.720 1.382 1.112									
+D+Lr+H +D+S+H +D+0.750Lr+0.750 +D+0.750L+0.750 +D+0.60W+H +D+0.70E+H	S+H)L+0.450\				1. 1. 1. 1. 1.	562 112 720 382 112 112	1.562 1.112 1.720 1.382 1.112 1.112									
+D+Lr+H +D+S+H +D+0.750Lr+0.750 +D+0.750L+0.750 +D+0.60W+H +D+0.70E+H +D+0.70Er+0.750	S+H)L+0.450\ S+0.450V	V+H			1. 1. 1. 1. 1. 1.	562 112 720 382 112 112 720	1.562 1.112 1.720 1.382 1.112 1.112 1.720									
+D+Lr+H +D+0.750Lr+0.750 +D+0.750L+0.750 +D+0.60W+H +D+0.70E+H +D+0.750Lr+0.750 +D+0.750Lr+0.750	S+H)L+0.450\ S+0.450V S+0.5250	V+H			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	562 112 720 382 112 112 720 382	1.562 1.112 1.720 1.382 1.112 1.112 1.720 1.382									
+D+Lr+H +D+S+H +D+0.750L+0.750 +D+0.750L+0.750 +D+0.60W+H +D+0.70E+H +D+0.750L+0.750 +D+0.750L+0.750 +D+0.750L+0.750	S+H 0L+0.450V S+0.450V S+0.5250 60H	V+H			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 0.0	562 112 720 382 112 112 720 382 382	1.562 1.112 1.720 1.382 1.112 1.112 1.720 1.382 1.382									
+D+Lr+H +D+S+H +D+0.750Lr+0.750 +D+0.750Lr+0.750 +D+0.60W+H +D+0.750Lr+0.750 +D+0.750Lr+0.750 +D+0.750L+0.7500 +D+0.60D+0.60W+0.	S+H 0L+0.450V S+0.450V S+0.5250 60H	V+H			1.1 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2	562 112 720 382 112 112 720 382 382 382 567	1.562 1.112 1.720 1.382 1.112 1.112 1.720 1.382 1.382 0.667									
+D+Lr+H +D+S+H +D+0.750L+0.750 +D+0.750L+0.750 +D+0.60W+H +D+0.60W+H +D+0.750L+0.750 +D+0.750L+0.750 +D+0.750L+0.750 +0.60D+0.60W+0. +0.60D+0.70E+0.6	S+H 0L+0.450V S+0.450V S+0.5250 60H	V+H			1.1 1.3 1.3 1.3 1.3 1.3 1.3 0.0 0.0 0.0 1.3	562 112 720 382 112 720 382 720 382 382 567 567	1.562 1.112 1.720 1.382 1.112 1.112 1.720 1.382 1.382 0.667 0.667									
+D+Lr+H +D+S+H +D+0.750L+0.750 +D+0.750L+0.750 +D+0.60W+H +D+0.750L+0.750 +D+0.750L+0.750 +D+0.750L+0.750 +0.60D+0.60W+0. +0.60D+0.70E+0.60 D Only	S+H 0L+0.450V S+0.450V S+0.5250 60H	V+H			1.1 1.3 1.3 1.3 1.3 1.3 1.3 0.0 0.0 1.4 0.4	562 112 720 382 112 720 382 382 382 567 567 112	1.562 1.112 1.720 1.382 1.112 1.112 1.720 1.382 1.382 0.667 0.667 1.112									
+D+Lr+H +D+S+H +D+0.750Lr+0.750 +D+0.750L+0.750 +D+0.60W+H +D+0.70E+H +D+0.750Lr+0.750 +D+0.750L+0.750 +D+0.750L+0.750 +0.60D+0.60W+0. +0.60D+0.70E+0.60 D Only L Only L Only	S+H 0L+0.450V S+0.450V S+0.5250 60H	V+H			1.1 1.3 1.3 1.3 1.3 1.3 1.3 0.0 0.0 1.4 0.4	562 112 720 382 112 720 382 382 382 567 567 112 450	1.562 1.112 1.720 1.382 1.112 1.720 1.382 1.382 0.667 0.667 1.112 0.450									
+D+Lr+H +D+S+H +D+0.750L+0.750 +D+0.60W+H +D+0.60W+H +D+0.750L+0.750 +D+0.750L+0.750 +D+0.750L+0.750 +D+0.750L+0.750 +0.60D+0.60W+0. +0.60D+0.60W+0. +0.60D+0.70E+0.6 D Only Lr Only L Only S Only	S+H 0L+0.450V S+0.450V S+0.5250 60H	V+H			1.1 1.3 1.3 1.3 1.3 1.3 1.3 0.0 0.0 1.4 0.4	562 112 720 382 112 720 382 382 382 567 567 112 450	1.562 1.112 1.720 1.382 1.112 1.720 1.382 1.382 0.667 0.667 1.112 0.450									
+D+Lr+H +D+S+H +D+0.750Lr+0.750 +D+0.750L+0.750 +D+0.60W+H +D+0.70E+H +D+0.750Lr+0.750 +D+0.750L+0.750 +D+0.750L+0.750 +0.60D+0.60W+0. +0.60D+0.70E+0.60 D Only Lr Only L Only	S+H 0L+0.450V S+0.450V S+0.5250 60H	V+H			1.1 1.3 1.3 1.3 1.3 1.3 1.3 0.0 0.0 1.4 0.4	562 112 720 382 112 720 382 382 382 567 567 112 450	1.562 1.112 1.720 1.382 1.112 1.720 1.382 1.382 0.667 0.667 1.112 0.450									

Lic. # : KW-06012032 DESCRIPTIO 1214 3	Oth Ct	Ord El											DRE	Structural	Design
DESCRIPTIO 1214 3	soth St -	3rd FI	oor B	eam 4	•										
CODE REFERENCE	-														
Calculations per NDS 20 Load Combination Set : I			CBC 2	016, A	SCE 7	-10									
Material Properties															
Analysis MethorAllowak	lo Stros	e Dosia	m				Fb		2	,900.0 p	si F	: Modulus o	f Flash		
Load CombinatiBC 20		a beaig					Fb Fc	- Prll	2	,900.0 p ,900.0 p	si	Ebend- xx Eminbend -	2	,000.0ks	
Wood Species iLevel 1 Wood Grade Paralla							Fc Fv Ft	- Perp		750.0 p 290.0 p	si	Density		E 070-	
Beam Bracing Beam is	s Fully B	raced a	gains	t latera	l-torsi	onal b		g	2	,025.0 p	151	Density	4	15.070 pc	CT
						D(0.06	61) Lr(0	0.1)							_
\$		¢				D((0.16)				¢				¢
¢		¢				D(0.01	4	.08)			÷				¢
\$		¢				2(0.01	1 210.				¢				¢
															0
×						3.5	5x9.25								X.
(TTTT)														r	TTTT
						Span	= 13.50	0 ft							1
•															•
	.0160, l	_ = 0.08	30, T	ributary				loor L		s entered	I. Load Fa	ctors will be a	applied f	for calcula	ations
Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0	.0160, L .160, T	L = 0.08 ributary	30, T v Widt	ributary th = 1.0	, ft, (W	all Lo	ading)	loor L	oad)		I. Load Fa	ctors will be a			ations
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY	0.0160, L 0.160, T 0.0610, L	_ = 0.08 ributary _r = 0.1	30, T v Widt	ributary th = 1.0 ributary) ft, (W Width	all Lo n = 1.0	ading)) ft, (R	loor L	oad) ading)					ign OK	
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress	0.0160, l 0.160 , T 0.0610, l s Ratio	L = 0.08 ributary	30, T v Widt	ributary th = 1.0 ributary 0) ft, (W Width 0.618	all Lo n = 1.0	ading)) ft, (R Maxin	Floor L) loof Lo num S	oad) ading) hear S	tress R	atio	ctors will be a	Des	ign OK 0.314 :	
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY	0.0160, l 0.160 , T 0.0610, l s Ratio	_ = 0.08 ributary _r = 0.1	30, T v Widt	ributary th = 1.0 ributary 0 3.5x) ft, (W Width 0.618	all Loa n = 1.0	ading)) ft, (R Maxin	Floor L) loof Lo num S	oad) ading) hear S		atio		Des	ign OK 0.314 : .5x9.25	: 1
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress	0.0160, l 0.160 , T 0.0610, l s Ratio	L = 0.08 Tributary Lr = 0.1	30, T v Widt	ributary th = 1.0 ributary 0 3.5x 1,79	0.618 0.618 0.618 0.25 01.77p	'all Loa n = 1.0 1	ading)) ft, (R Maxin	Floor L) loof Lo num S	oad) ading) hear S	tress R	atio	=	Des 3.	ign OK 0.314 : .5x9.25 91.11 p	: 1 osi
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress	0.0160, l 0.160 , T 0.0610, l s Ratio	L = 0.08 ributary Lr = 0.1	30, T v Widt	ributary th = 1.0 ributary 0 3.5x 1,79 2,90) ft, (W Width 0.618	'all Loa n = 1.0 1	ading)) ft, (R Maxin	Floor L oof Lo num S Sectio	oad) ading) hear S	tress Rational for this	atio	=	Des 3.	ign OK 0.314 : .5x9.25	: 1 osi
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum	0.0160, l 0.160, T 0.0610, l s Ratio span	L = 0.08 Tributary Lr = 0.1 = = = =	30, T v Widt	ributary th = 1.0 ributary 0 3.5x 1,79 2,90 +D+	0.618 0.618 0.618 0.618 0.618 0.618 0.618 0.618 0.00p 0.00p +L+H 0.750ft	all Loa n = 1.0 1 si si	ading)) ft, (R Maxin	Floor L oof Lo num S Sectio Load (Locatio	oad) ading) hear S n used Combin on of m	tress R for this nation	atio span 1 on spar	= = =	Des 3. +	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f	: 1 osi osi
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination	0.0160, l 0.160, T 0.0610, l s Ratio span	L = 0.08 Tributary Lr = 0.1 = = = =	30, T v Widt	ributary th = 1.0 ributary 0 3.5x 1,79 2,90 +D+	0.618 0.618 0.618 0.618 0.018 0.00p 0.00p	all Loa n = 1.0 1 si si	ading)) ft, (R Maxin	Floor L oof Lo num S Sectio Load (Locatio	oad) ading) hear S n used Combin on of m	tress R for this nation	atio span	= = =	Des 3. +	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H	: 1 osi osi
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this section Load Combination Location of maximum Span # where maximu Maximum Deflection	on span on span	L = 0.08 ributary r = 0.1 = = = s	30, T v Widt	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 +D4 6 Spar) ft, (W Width (9.25 91.77p 00.00p ⊧L+H 6.750 ft n # 1	all Loa n = 1.0 1 si si	ading)) ft, (R Maxin	Floor L oof Lo num S Sectio Locati Span i	oad) ading) hear S n used Combin on of m # where	tress R for this nation	atio span 1 on spar	= = =	Des 3. +	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f	: 1 osi osi
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transie	0.0160, L 0.160, T 0.0610, L s Ratio span on span um occur ent Deflec	L = 0.08 ributary _r = 0.1 = = = s s =	30, T v Widt	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 +D4 6 Spar 0) ft, (W Width 0.618 ° (9.25 91.77p 00.00p ⊢L+H 0.750 ft n # 1 .163 ir	rall Loo n = 1.0 1 si si si Ratio	ading)) ft, (R Maxin	Floor L oof Lo num S Sectio Load (Locatio Span a 994 :	oad) ading) hear S n used Combin on of m # where >=360	tress R for this nation	atio span 1 on spar	= = =	Des 3. +	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f	: 1 osi osi
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximum Maximum Deflection Max Downward Transient	0.0160, L 0.160, T 0.0610, L s Ratio span on span um occur ent Deflection	L = 0.08 ributary _r = 0.1 = = = s s =	30, T v Widt	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 +D4 6 Spar 0 0	0.618 ° 0.618 ° 0.618 ° 0.618 ° 0.618 ° 0.00 p 0.00 p 0.00 p 0.4+H 0.750 ft n # 1 .163 ir .000 ir	rall Loo n = 1.0 1 si si n Ratio n Ratio	ading)) ft, (R Maxin	Floor L oof Lo num S Sectio Load (Locatio Span a 994 : 0	oad) ading) hear S n used Combin on of m # where >=360 <360	tress R for this nation	atio span 1 on spar	= = =	Des 3. +	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f	: 1 osi osi
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient	0.0160, L 0.160, T 0.0610, L s Ratio span on span um occur pert Deflect Deflection	L = 0.08 ributary _r = 0.1 = = = s s =	30, T v Widt	ributary th = 1.0 ributary 0 3.5 x 1,79 2,90 + D+ 6 Spar 0 0 0 0) ft, (W Width).618)1.77p)0.00p +L+H 3.750ft n # 1 .163 ir .000 ir .622 ir	all Loo n = 1.0 1 si si n Ratio n Ratio	ading)) ft, (R Maxin	Floor L oof Lo num S Sectio Load (Locati Span i 994 : 0 260 :	oad) ading) hear S n used combin on of m # where =360 :360 =240	tress R for this nation	atio span 1 on spar	= = =	Des 3. +	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f	: 1 osi osi
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Total Deflection Max Upward Total Deflection	0.0160, L 0.160, T 0.0610, L s Ratio span on span um occur pert Deflection perflection ection	L = 0.08 ributary r = 0.1 = = = stion n	30,T y Widt 0,Tr	ributary th = 1.0 ibutary 3.5x 1,79 2,90 +D4 6 Spar 0 0 0 0 0 0	0 ft, (W Width 0.618 0.25 0.00p +L+H 3.750 ft n # 1 .163 ir .000 ir .622 ir .000 ir	n = 1.0 n = 1.0 n Ratio n Ratio n Ratio	ading)) ft, (R Maxin	Floor L oof Lo num S Sectio Load (Locati Span i 994 : 0 260 :	oad) ading) hear S n used Combin on of m # where >=360 <360	tress R for this nation	atio span 1 on spar	= = =	Des 3. +	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f	: 1 osi osi
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this section Location of maximum Span # where maximu Maximum Deflection Max Downward Transiet Max Upward Transiet Max Upward Total Defl Maximum Forces &	0.0160, L 0.160, T 0.0610, L s Ratio s Ratio span on span um occur ent Deflect Deflection beflection stresse	L = 0.08 ributary r = 0.1 = = stion n	30 , T y Widt 0 , Tr	ributary th = 1.0 ibutary 3.5x 1,79 2,90 +D4 6 Spar 0 0 0 0 0 0	0 ft, (W Width 0.618 0.25 0.00p +L+H 3.750 ft n # 1 .163 ir .000 ir .622 ir .000 ir	n = 1.0 n = 1.0 n Ratio n Ratio n Ratio	ading)) ft, (R Maxin	Floor L oof Lo num S Sectio Load (Locati Span i 994 : 0 260 :	oad) ading) hear S n used combin on of m # where =360 :360 =240	tress R for this nation naximun e maxim	atio span n on spar um occu	= = n = rs =	Des 3. + Sp	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f oan # 1	: 1 osi osi t
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient Max Downward Total Defl Max Upward Total Defl Maximum Forces & .oad Combination	0.0160, L 0.160, T 0.0610, L s Ratio span on span im occur ent Deflect Deflection ection Stresse Max Stre	L = 0.08 ributary r = 0.1 = = = stion n	30 , T y Widt 0 , Tr <u>b</u>	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 +D4 6 Spar 0 0 0 0 0 0 0 0) ft, (W width 0.618 0.25 0.00p ↓L+H 0.750ft n # 1 .163 ir .622 ir .000 ir .000 ir .000 ir	n = 1.0 n = 1.0 n Ratio n Ratio n Ratio n Ratio n Ratio	ading)) ft, (R Maxin)))))))))))))	Floor L oof Lo num S Sectio Locati Span i 994 : 0 260 : 0	oad) ading) hear S n used combin on of m # where =360 <360 >=240 <240	tress Ration naximun e maxim	atio span n on spar um occu	= = 1 = rS =	Des 3. + Sp	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f ban # 1 Shear Val	: 1 osi osi t
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Upward Transient Max Upward Total Defl Maximum Forces & .oad Combination Segment Length Span #	0.0160, L 0.160, T 0.0610, L s Ratio span on span im occur ent Deflect Deflection ection Stresse Max Stre	L = 0.08 ributary r = 0.1 = = stion n	30 , T y Widt 0 , Tr <u>b</u>	ributary th = 1.0 ibutary 3.5x 1,79 2,90 +D4 6 Spar 0 0 0 0 0 0	0 ft, (W Width 0.618 0.25 0.00p +L+H 3.750 ft n # 1 .163 ir .000 ir .622 ir .000 ir	n = 1.0 n = 1.0 n Ratio n Ratio n Ratio	ading)) ft, (R Maxin)))))))))))))	Floor L oof Lo num S Sectio Locati Span i 994 : 0 260 : 0	oad) ading) hear S n used combin on of m # where =360 :360 =240	tress R for this nation naximun e maxim	atio span n on spar um occu	= = rs = Fb	Des 3. + Sp	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f oan # 1 Shear Val	: 1 osi t t Fv
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient Max Upward Transient Max Upward Transient Max Upward Total Defl Maximum Forces & .oad Combination Segment Length Span # D+H	0.0160, L 0.160, T 0.0610, L s Ratio span on span on span on span on ccur pellection beflection Stresse Max Stre M	$L = 0.08$ ributary r = 0.1 $=$ $=$ $=$ rs = tion n $\frac{es \text{ for I}}{V}$	30, T y Widt 0, Tr	ributary th = 1.0 ibutary 0 3.5x 1,79 2,900 +D4 6 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 ft, (W 7 Width 9.618 9.25 91.77p 0.00p +L+H 3.750ft n # 1 .163 ir .000 ir .000 ir .000 ir 000	n Ration Ration Ration Ration Ration Ration Cr	ading) off, (R Maxin 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	Floor L) ooof Lo num S Sectio Load (Location Span a 0 260: 0 C t	oad) ading) hear S n used Combin on of m # where >=360 (360 >=240 (240 C	tress Ration for this naximun e maxim	atio span n on span um occu nent Value fb	= = rs = <u>s</u> <u>F</u> b	Des 3. + Sp	ign OK 0.314 : 55925 91.11 p 290.00 p D+L+H 0.000 f pan # 1 Shear Val	: 1 osi osi t t Fv 0
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient Max Upward Transient Max Upward Total Defl Maximum Forces & .oad Combination Segment Length Span f D+H Length = 13.451 ft 1	0.0160, L 0.160, T 0.0610, L s Ratio span on span on span on span on span on ccur ent Deflection beflection Stresse <u>Max Stre</u> # <u>Max Stre</u> 0.519	L = 0.08 ributary r = 0.1 = = = s = s = tition n • ss for I v 0.264	80, T y Widt 0, Tr 0, Tr <u>Cd</u> 0.90	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 +D4 6 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.618 0.618 0.618 0.618 0.00p 0.	all Lo. n = 1.0 1 si Ratic Ratic Ratic Cr 1.00	ading)) ft, (R Maxin ()) =) =) =) Cm 1.00	Floor L) oof Lo Sectio Load (Locati Span i 260: 0 0 0 0 0 1.00	oad) ading) hear S n used Combin on of m # where >=360 <360 <240 C_L	tress Ration for this naximun e maxim Mom M	atio span n on span um occu fb 1,353.60	= = rs = <u>s</u> <u>F'b</u> 0.00 2610.00	Des 3. + Sp V 0.00 1.49	ign OK 0.314 : 559.25 99.10 p 290.00 p D+L+H 0.000 f ban # 1 Shear Val	: 1 osi t t <u>ues</u> Fv 0 261
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this section Location of maximum Span # where maximu Maximum Deflection Max Downward Transie Max Upward Transie Max Upward Transie Max Upward Total Defl Max Upward T	0.0160, L 0.160, T 0.0610, L s Ratio span on span on span on span on span on ccur ent Deflection beflection Stresse <u>Max Stre</u> # <u>Max Stre</u> 0.519	$L = 0.08$ ributary r = 0.1 $=$ $=$ $=$ rs = tion n $\frac{es \text{ for I}}{V}$	80, T y Widt 0, Tr 0, Tr <u>Cd</u> 0.90	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 + 0 6 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0,618 (W 9,0618 (9,25 0,000 p 0,000 p 1,77 p 0,000 p 1,41 1,63 ir 0,000 ir 622 ir 0,000 ir 0,00	rall Lo. n = 1.0 n Ration n Ratio	ading)) ft, (R Maxin Maxin Cm 1.00 1.00	Floor L) ioof Lo num S Sectio Load (Locati Span + 0 260: 0 - C t 1.00 1.00	oad) ading) hear S n used combin on of m # where =360 :240 :240 :240 	tress Ration for this naximun e maxim	atio span n on span um occu fb 1,353.60	= = rs = <u>Fb</u> 0.00 2610.00	Des 3. + Sr V 0.000 1.49 1.49	ign OK 0.314 : 5 5 x9.25 91.11 p 290.00 p D+L+H 0.000 f ban # 1 Shear Val fv 0.000 68.83 68.83	: 1 osi t t <u>uues</u> Fv 0 261 261
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this se Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transien Max Downward Transien Max Upward Total Defl Max Upward Total Defl Maximum Forces & .oad Combination Segment Length Span # D+H Length = 13.451 ft 1 Length = 0.04927 ft 1	0.0160, L 0.160, T 0.0610, L s Ratio span on span um occur ont Deflection beflection beflection ection Stresse Max Stre # M 0.519 0.008	L = 0.08 ributary r = 0.1 = = s s s s for I v v 0.264 0.264	200, T y Widt 0, Tr <u>C</u> 0.90 0.90	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 + D+ 6 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0,618 (W Width 0,618 (9,25 0,77 p 0,000 pr L+H 1,163 ir .750 ft .762 ir .000 ir 0,000	lall Lo. n = 1.0 1 n Ratic n Ratic	ading)) ft, (R Maxin Maxin Cm 1.00 1.00 1.00	Floor L) oof Lo Ssectio Load (Locati Span 4 0 260: 0 260: 0 0 260: 0 0 260: 0 1.00 1.00 1.00	oad) ading) hear S n used Combin on of m # where =360 :360 =240 :240 C_L 1.00 1.00 1.00	tress Ration hation haximun maxim Morr M 5.63 0.08	atio span n on span num occu fb 1,353.60 19.69	= = rs = F'b 0.00 2610.00 2610.00 0.00	Des 3. ++ Sr V 0.00 1.49 0.00	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f ban # 1 Shear Val fv 0.00 68.83 68.83 68.83 0.00	: 1 bsi t t 261 0
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximu Maximum Deflection Max Upward Transient Max Upward Transient Max Upward Transient Max Upward Transient Max Upward Transient Max Upward Total Defl Maximum Forces & .oad Combination Segment Length Span # D+H Length = 13.451 ft 1 Length = 13.451 ft 1 Length = 13.451 ft 1	0.0160, L 0.160, T 0.0610, L s Ratio span on span on span on span on ccur ent Deflect Deflection effection Stresse Max Stre Max Stre 0.0519 0.008 0.618	L = 0.08 ributary r = 0.1 = = = s tion n • • • • • • • • • • • • • • • • • •	80, T y Widt 0, Tr <u>b</u> <u>c</u> <u>d</u> 0.90 0.90 1.00	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 +D4 6 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 ft, (W 7 Width 0.618 · 0.618 · 0.618 · 0.25 0.77 p 0.000 p +L+H 3.750 ft 1.83 ir 0.000 ir 0.622 ir 0.000 ir 0.622 ir 0.000 ir 0.622 ir 0.000 ir 0.163 ir 0	lall Lo. n = 1.0 1 n Ratio n Ratio N Ratio Ratio N Ratio N Ratio N Ratio N Ratio N Rati	ading)) ft, (R Maxin (Maxin ()))) ())) ())) ()) ()) ()) () ()) ()) ()) ()) ())) ()) ())) ())) ()) ())) ())) ())) ()))) ())))) ())))) ()))))) ()))))))) ()	Floor L) oof Loo num S Sectio Locati Span (260: 0. 260: 0. 260: 0. 260: 0. 260: 0. 260: 0. 260: 0. 260: 1.00 1.00 1.00	oad) ading) hear S n used Combin on of m # where =360 :360 =240 :240 C_L 1.00 1.00 1.00 1.00	tress R for this naximun e maxim maxim Morr M 5.63 0.08 7.45	atio span n on span um occu fb 1,353.60 19.69 1,791.77	= = = rs = F'b 0.00 2610.00 2610.00 0.00 2900.00	Des 3. + Sp V 0.00 1.49 0.00 1.97	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f ban # 1 Shear Val fv 0.000 68.83 68.83 0.000 91.11	: 1 psi t t 261 261 0 290
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximu Maximum Deflection Max Upward Transient Max Upward Transient Max Upward Transient Max Upward Transient Max Upward Total Defl Maximum Forces & .oad Combination Segment Length Span # D+H Length = 13.451 ft 1 Length = 13.451 ft 1 Length = 13.451 ft 1 Length = 13.451 ft 1 Length = 13.451 ft 1	0.0160, L 0.160, T 0.0610, L s Ratio span on span on span on span on ccur ent Deflect Deflection effection Stresse Max Stre Max Stre 0.0519 0.008 0.618	L = 0.08 ributary r = 0.1 = = s s s s for I v v 0.264 0.264	80, T y Widt 0, Tr <u>b</u> <u>c</u> <u>d</u> 0.90 0.90 1.00	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 +D4 6 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 ft, (W 7 Width 0.618 0.618 0.00 p 1.77 p 0.00 p 1.75 of ft 1.00 ir 1.00 1.00 1.00 1.00 1.00 1.00 1.00	lall Lo. n = 1.0 n Ratic n	ading)) ft, (R Maxin Maxin 1.00 1.00 1.00 1.00 1.00	Floor L) ioof Lo num S Sectio Load (Locatii Span i 0 260 : 0 0 1.00 1.00 1.00 1.00 1.00	oad) ading) hear S n used Combin on of m # where =360 <=360 <=240 1.00 1.00 1.00 1.00 1.00	tress Ration hation haximun maxim Morr M 5.63 0.08	atio span n on span um occu fb 1,353.60 19.69 1,791.77	= = rs = <u>\$</u> <u>F'b</u> 0.00 2610.00 2610.00 2610.00 2200.00	Des 3. + Sr 0.00 1.49 1.49 0.00 1.97 1.97	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f ban # 1 Shear Val fv 0.00 68.83 68.83 0.00 91.11 91.11	1 ues t Fv 0 261 261 290 290
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this s Load Combination Location of maximum Span # where maximu Max Downward Transient Max Upward Transient Max Upward Transient Max Upward Transient Max Upward Transient Max Upward Total Defl Maximum Forces & Load Combination Segment Length Span # D+H Length = 13.451 ft 1 Length = 13.451 ft 1 Length = 13.451 ft 1 Length = 13.451 ft 1 Length = 13.451 ft 1	0.0160, L 0.160, T 0.0610, L s Ratio s Ratio s Ratio pan on span um occur ent Deflect Deflection ection Stresse Max Stre f M 0.519 0.008 0.618 0.009	L = 0.08 ributary r = 0.1 = = = s tion n • • • • • • • • • • • • • • • • • •	80 , T y Widt 0 , Tr 0 , Tr Cd 0.90 0.90 1.00	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 +D4 6 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0,618 (W y Width 0,618 (9,25 0,777 p 0,000 p 1,474 f 0,750 ft n # 1 .163 ir .000 ir .000 ir .000 ir 0,000 ir 0,00	lall Lo. n = 1.0 n Ratic n Ratic n Ratic n Ratic C r 1.00 1.00 1.00 1.00 1.00 1.00 1.00	ading)) ft, (R Maxin (Maxin ()))) ())) ())) ()) ()) ()) () ()) ()) ()) ()) ())) ()) ())) ())) ()) ())) ())) ())) ()))) ())))) ())))) ()))))) ()))))))) ()	Floor L) oof Lo Sectio Load (Locati Span i 0. 260: 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	oad) ading) hear S n used Combin on of m # where =360 :360 =240 :240 C_L 1.00 1.00 1.00 1.00	tress Ration tation taximun maximun maxim Morr M 5.63 0.08 7.45 0.11	atio span n on span um occu fb 1,353.60 19.69 1,791.77 26.06	= = rs = Fb 0.00 2610.00 2610.00 2900.00 2900.00 0.00	Des 3. + Sp V 0.00 1.49 1.49 0.00 1.49 1.49 0.00 1.97 0.00	ign OK 0.314 559.25 91.11 p 290.00 p D+L+H 0.000 f ban # 1 5 5 6 8.83 0.00 91.11 91.11 91.11 0.00	ues t Fv 0. 261. 290. 290. 0.
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this se Load Combination Location of maximum Span # where maximu Maximum Deflection Max Downward Transient Max Downward Transient Max Upward Transient Max Upward Transient Max Upward Total Defl Maximum Forces & Load Combination Segment Length Span f D+H Length = 13.451 ft 1 Length = 13.451 ft 1 Length = 13.04927 ft 1 D+Lr+H	0.0160, L 0.160, T 0.0610, L s Ratio s Ratio s Ratio pan on span um occur ent Deflect Deflection ection Stresse Max Stre f M 0.519 0.008 0.618 0.009	L = 0.08 ributary r = 0.1 = = s = s = tition n • • • • • • • • • • • • • • • • • •	80, T y Widt 0, Tr 0, Tr Cd 0.90 0.90 1.00 1.25	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 + D 6 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 ft, (W 7 Width 0.618 0.618 0.00 p 1.77 p 0.00 p 1.75 of ft 1.00 ir 1.00 1.00 1.00 1.00 1.00 1.00 1.00	lall Lo. n = 1.0 n Ratic n	ading)) ft, (R Maxin Maxin ()))))))))))))	Floor L) ioof Lo num S Sectio Load (Locati Span 4 0 260 : 0 - C t 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	oad) ading) hear S n used Combin on of m # where =360 :240 :240 :240 :240 :240 :240 :1.00 1.00 1.00 1.00 1.00	tress R for this naximun e maxim maxim Morr M 5.63 0.08 7.45	atio span n on span um occu fb 1,353.60 19.69 1,791.77 26.06 1,901.32	= = rs = <u>\$</u> <u>F'b</u> 0.00 2610.00 2610.00 2610.00 2200.00	Des 3. + Sr 0.00 1.49 1.49 0.00 1.97 1.97	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f ban # 1 Shear Val fv 0.00 68.83 68.83 0.00 91.11 91.11	1 ues t 1 1 1 1 1 1 1 1 1 1 1 1 1
Beam self weight calcula Uniform Load : D = 0 Uniform Load : D = 0 Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this section Location of maximum Span # where maximu Maximum Deflection Max Downward Transiet Max Upward Transiet Max Upward Transiet Max Upward Transiet Max Upward Total Defl Max Upward Total Deflection Max Upward Total Deflection Segment Length Span # -D+H Length = 13.451 ft 1 Length = 13.451 ft 1 Length = 13.451 ft 1 Length = 13.451 ft 1	0.0160, L 0.160, T 0.0610, L s Ratio span on span m occur ent Deflect Deflection effection Stresse Max Stre Max Stre Max Stre 0.008 0.519 0.008 0.618 0.009 0.525 0.008	L = 0.08 ributary r = 0.1 = = s = rs = ttion n es for I ess Ratio V 0.264 0.264 0.314 0.314 0.267	200, T y Widt 0, Tr 0, Tr 0, Tr 0, 0, Tr 0, 0, 0 0, 00 1.00 1.25 1.25	ributary th = 1.0 ibutary 0 3.5x 1,79 2,90 + 0 6 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 ft, (W 7 Width 0.618 0.618 0.00 p 1.77 p 0.000 p 1.77 p 0.000 p 1.4H 0.750 ft 0.000 ir 0.000	lall Lo. n = 1.0 n Ratic n Ratic n Ratic Cr 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	ading)) ft, (R Maxin Maxin	Floor L) oof Loo Ssectio Span 4 0. 260: 0. 260: 0. 0. 260: 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	oad) ading) hear S n used Combin on of m # where =360 :240 :240 C_L 1.00 1.00 1.00 1.00 1.00	tress Ration for this aation aximun e maxim maxim M 5.63 0.08 7.45 0.11 7.91	atio span n on span um occu fb 1,353.60 19.69 1,791.77 26.06 1,901.32	= = s Fb 0.00 2610.00 2900.00 2900.00 2900.00 3625.00	Des 3. + Sr V 0.00 1.49 1.49 0.00 1.97 1.97 1.97 0.00 2.09	ign OK 0.314 : 5x9.25 91.11 p 290.00 p D+L+H 0.000 f ban # 1 Shear Val fv 0.000 68.83 0.00 91.11 91.11 0.000 96.68	1 ues Fv 261 261 0 290 0 362

Lic. # : KW-06012032 DESCRIPTIO 1214 30	th St -	3rd Fl	oor B	Beam 4									DRE	Structural	Design
Load Combination N	lax Stre	ess Ratio	15							Mon	nent Values		5	Shear Val	ues
Segment Length Span #	M	V	Cd	C _{F/V}	Ci	Cr	Cm	c t	c _L –	M	fb	F'b	V	fv	F'v
Length = 0.04927 ft 1	0.006	0.206		1.000	1.00	1.00	1.00		1.00	0.08	10.60	3335.00	1.49	68.83	333.
D+0.750Lr+0.750L+H	0.000	0.200	1.10	1.000	1.00	1.00	1.00		1.00	0.00	13.03	0.00	0.00	0.00	0.
Length = 13.451 ft 1	0.577	0.294	1.25	1.000	1.00	1.00	1.00		1.00	8.71	2.093.02		2.30	106.42	362.
Length = 0.04927 ft 1	0.008	0.294	1.25	1.000	1.00	1.00	1.00	1.00	1.00	0.13		3625.00	2.30	106.42	362.
D+0.750L+0.750S+H				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.
Length = 13.451 ft 1	0.504	0.256	1.15	1.000	1.00	1.00	1.00	1.00	1.00	7.00	1,682.23	3335.00	1.85	85.54	333.
Length = 0.04927 ft 1	0.007	0.256	1.15	1.000	1.00	1.00	1.00	1.00	1.00	0.10	24.47	3335.00	1.85	85.54	333.
-D+0.60W+H				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.292	0.148		1.000	1.00	1.00	1.00		1.00	5.63	1,353.60	4640.00	1.49	68.83	464.0
Length = 0.04927 ft 1	0.004	0.148	1.60	1.000	1.00	1.00	1.00		1.00	0.08	19.69	4640.00	1.49	68.83	464.0
D+0.70E+H				1.000	1.00	1.00	1.00		1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.292	0.148		1.000	1.00	1.00	1.00		1.00	5.63	1,353.60		1.49	68.83	464.0
Length = 0.04927 ft 1	0.004	0.148	1.60	1.000	1.00	1.00	1.00		1.00	0.08	19.69	4640.00	1.49	68.83	464.0
D+0.750Lr+0.750L+0.450W				1.000	1.00	1.00	1.00		1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.451			1.000	1.00	1.00	1.00		1.00	8.71	2,093.02		2.30	106.42	464.0
Length = 0.04927 ft 1	0.007	0.229	1.60	1.000	1.00	1.00	1.00		1.00	0.13	30.44	4640.00	2.30	106.42	464.0
D+0.750L+0.750S+0.450W+			4 00	1.000	1.00	1.00	1.00		1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.363	0.184		1.000	1.00	1.00	1.00		1.00	7.00	1,682.23		1.85	85.54	464.0
Length = 0.04927 ft 1	0.005	0.184	1.60	1.000	1.00	1.00	1.00		1.00	0.10	24.47	4640.00	1.85	85.54	464.0
D+0.750L+0.750S+0.5250E	0.000	0.104	1 00	1.000	1.00	1.00	1.00		1.00	7.00	4 000 00	0.00	0.00	0.00	0.0
Length = 13.451 ft 1 Length = 0.04927 ft 1	0.363 0.005	0.184 0.184		1.000 1.000	1.00 1.00	1.00	1.00 1.00		1.00 1.00	7.00	1,682.23	4640.00	1.85	85.54	464.0
-0.60D+0.60W+0.60H	0.005	0.104	1.00	1.000	1.00	1.00	1.00		1.00	0.10	24.47	4640.00	1.85 0.00	85.54 0.00	464.0
Length = 13.451 ft 1	0.175	0.089	1.60	1.000	1.00	1.00	1.00		1.00	3.38	010.16	4640.00	0.00	41.30	0.0 464.0
Length = 0.04927 ft 1	0.003	0.089		1.000	1.00	1.00	1.00		1.00	0.05		4640.00	0.89	41.30	464.0
-0.60D+0.70E+0.60H	0.000	0.000	1.00	1.000	1.00	1.00	1.00		1.00	0.05	11.01	0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.175	0.089	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.38	812 16	4640.00	0.89	41.30	464.0
Length = 0.04927 ft 1	0.003			1.000	1.00	1.00	1.00	1.00		0.05		4640.00	0.89	41.30	464.0
Overall Maximum Def		-													
Load Combination		·		* Defl L	ocation			Load C	ombin	ation			+" Defl Lo		· .
+D+0.750Lr+0.750L+0.450	W+H	1	0	.6222		6.799							0.0000	0.	000
Vertical Reactions							pport n	otation	: Far I	eft is # [.]		Values	in KIPS		
Load Combination Overall MAXimum				Suppor	t 1 Sup 79	2.579									
Overall MINimum					579 540	0.540									
+D+H					68	1.668									
+D+L+H					208	2.208									
+D+Lr+H					343	2.343									
+D+S+H					68	1.668									
+D+0.750Lr+0.750L+H					579	2.579									
+D+0.750L+0.750S+H					73	2.073									
+D+0.60W+H					68	1.668									
+D+0.70E+H				1.6	68	1.668									
+D+0.750Lr+0.750L+0.450V	N+H			2.5	579	2.579									
+D+0.750L+0.750S+0.450W	V+H			2.0)73	2.073									
+D+0.750L+0.750S+0.5250	E+H			2.0)73	2.073									
+0.60D+0.60W+0.60H				1.0		1.001									
+0.60D+0.70E+0.60H				1.0		1.001									
D Only					68	1.668									
Lr Only					575	0.675									
L Only				0.5	540	0.540									
S Only															
W Only															
E Only															

CODE REFERENCES alculations per NDS 2015, IBC 2015, CBC 2016 ad Combination Set : IBC 2018	, ASCE 7-10			
Material Properties				
Analysis MethorAllowable Stress Design Load CombinatilBC 2018 Wood Species Douglas Fir-Larch	Fb + Fb - Fc - Prll Fc - Perp	1000 psi 1000 psi 1500 psi 625 psi	E : Modulus of Elas Ebend- xx Eminbend - x	ti 1700 ksi 620 ksi
Wood Grade No.1 Beam Bracing Beam is Fully Braced against lat	Fv Ft eral-torsional buckling	180 psi 675 psi	Density Repetitive Memb	31.21 pcf er Stress Inc
	D(0.024) Lr(0.04)			
	ş		v	
¢ ¢				
	2x8			

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads Uniform Load : D = 0.0240, Lr = 0.040, Tributary Width = 1.0 ft, (Floor Load)

DESIGN SUMMARY					Design OK
Aximum Bending Stress Ratio	=	0.244: 1	Maximum Shear Stress Ratio	=	0.139:1
Section used for this span		2x8	Section used for this span		2x8
	=	484.78psi		=	31.27 psi
	=	1,983.75psi		=	225.00 psi
Load Combination		+D+Lr+H	Load Combination		+D+Lr+H
Location of maximum on span	=	4.000ft	Location of maximum on span	=	7.416 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection	n	0.046 in Ratio	= 2096>=360		
Max Upward Transient Deflection		0.000 in Ratio	= 0<360		
Max Downward Total Deflection		0.076 in Ratio	= 1263>=240		
Max Upward Total Deflection		0.000 in Ratio	= 0<240		

Maximum Forces & Stresses for Load Combinations

Load Combination	1	Max Stre	ess Ratio	os							Mome	ent Value	s	S	Shear Val	ues
Segment Length	Span #	м	v	Cd	C _{F/V}	Ci	Cr	с _т	c _t	CL -	м	fb	F'b	v	fv	Fγ
+D+H													0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.135	0.077	0.90	1.200	1.00	1.15	1.00	1.00	1.00	0.21	192.55	1428.30	0.09	12.42	162.00
+D+L+H					1.200	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.121	0.069	1.00	1.200	1.00	1.15	1.00	1.00	1.00	0.21	192.55	1587.00	0.09	12.42	180.00
+D+Lr+H					1.200	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.244	0.139	1.25	1.200	1.00	1.15	1.00	1.00	1.00	0.53	484.78	1983.75	0.23	31.27	225.00
+D+S+H					1.200	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.106	0.060	1.15	1.200	1.00	1.15	1.00	1.00	1.00	0.21	192.55	1825.05	0.09	12.42	207.00
+D+0.750Lr+0.750L	+H				1.200	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.208	0.118	1.25	1.200	1.00	1.15	1.00	1.00	1.00	0.45	411.72	1983.75	0.19	26.55	225.00
+D+0.750L+0.750S+	+H				1.200	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00

Length = 8.0 ft	1	0.106 0.060	1.15 1.200	1.00 1.1	15 1.00	1.00 1.00	0.21	192.55 1825.05	0.09	12.42	207.00
+D+0.60W+H			1.200	1.00 1.1	15 1.00	1.00 1.00		0.00	0.00	0.00	0.00

Wood Beam																
Lic. # : KW-06012032														DRE	Structural	Design
DESCRIPTIO 121	14 30th	۱St -	3rd F	loor E	leam	5										
Load Combination	Ма	x Stre	ess Rati	os							Mom	ent Value:	5	5	Shear Val	lues
		M	v	Cd	C _{F/V}	Ci	Cr	Cm	c _t	c _L -	M	fb	F'b	V	fv	F'v
Length = 8.0 ft 1	0	.076	0.043		1.200	1.00	1.15	1.00		1.00	0.21	192 55	2539.20	0.09	12.42	288.0
+D+0.70E+H			01010		1.200	1.00	1.15	1.00		1.00	0.1.1	102.00	0.00	0.00	0.00	0.0
Length = 8.0 ft 1	I 0	0.076	0.043	1.60	1.200	1.00	1.15	1.00		1.00	0.21	192.55	2539.20	0.09	12.42	288.0
+D+0.750Lr+0.750L+0.4	50W-				1.200	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 8.0 ft 1	0).162	0.092	1.60	1.200	1.00	1.15	1.00	1.00	1.00	0.45	411.72	2539.20	0.19	26.55	288.0
+D+0.750L+0.750S+0.45	50W+				1.200	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 8.0 ft 1	0	0.076	0.043	1.60	1.200	1.00	1.15	1.00	1.00	1.00	0.21	192.55	2539.20	0.09	12.42	288.0
+D+0.750L+0.750S+0.52	250E-				1.200	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 8.0 ft 1	1 0	0.076	0.043	1.60	1.200	1.00	1.15	1.00	1.00	1.00	0.21	192.55	2539.20	0.09	12.42	288.0
+0.60D+0.60W+0.60H					1.200	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 8.0 ft 1	I 0	0.045	0.026	1.60	1.200	1.00	1.15	1.00	1.00	1.00	0.13	115.53	2539.20	0.05	7.45	288.0
+0.60D+0.70E+0.60H					1.200	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 8.0 ft 1	I 0	0.045	0.026	1.60	1.200	1.00	1.15	1.00	1.00	1.00	0.13	115.53	2539.20	0.05	7.45	288.0
Overall Maximum	Defle	ctio	ns													
Load Combination		S	pan	Max. "-	" Defl	Locatio	n in Sp	an	Load C	ombin	ation		Max. "-	+" Defl Lo	cation in	Span
+D+Lr+H			1	0	.0760		4.029)					(0.0000	0.	000
Vertical Reaction	S							pport n	notation	1 : Far I	eft is #		Values i	n KIPS		
Load Combination						rt 1 Su										
Overall MAXimum					0.	265	0.265									
Overall MINimum						160	0.160									
+D+H						105	0.105									
+D+L+H					0.	105	0.105									
+D+Lr+H						265	0.265									
+D+S+H						105	0.105									
+D+0.750Lr+0.750L+H						225	0.225									
+D+0.750L+0.750S+H	1					105	0.105									
+D+0.60W+H						105	0.105									
+D+0.70E+H						105	0.105									
+D+0.750Lr+0.750L+0						225	0.225									
+D+0.750L+0.750S+0						105	0.105									
+D+0.750L+0.750S+0		+H				105	0.105									
+0.60D+0.60W+0.60H						063	0.063									
+0.60D+0.70E+0.60H						063	0.063									
D Only						105	0.105									
Lr Only					0.	160	0.160									
L Only																
S Only																
S Only W Only																
S Only																

ic. # : KW-06012032	2				_		_			_	_		_	DRE	Structural	Desig
DESCRIPTIO		Oth St -	3rd F	loor B	leam 6	6								BHE	ondotara	Besig
CODE REFER	RENCES															
alculations per				CBC 2	016, A	SCE 7	-10									
oad Combinatio		BC 2018	в													
Material Prop	erties															
Analysis Metho Load Combinat			s Desig	in				Fb Fb Fc	b -		2,900.0 psi 2,900.0 psi 2,900.0 psi		<i>Modulus d</i> Ebend- xx Eminbend	2,000.0ksi		
Wood Species									- Perp)	750.0 ps					
Wood Grade	Parallam	PSL 2	.0E					Fv Ft			290.0 ps 2,025.0 ps		Density		45.070 pc	f
Beam Bracing	Beam is	Fully B	raced a	agains	t latera	l-torsi	onal b		g	-	.,020.0 pa	9	Density		45.070pc	1
										D(0	.642) D1(0	.2) E(1.5	88)			
	÷			÷			D(0.08	8) L(0	.32)		\$			-		
	<u> </u>						3.5	x11.25	:					0		
							0.0	ATT.20)							
									-					~		
	<u>▲</u>							= 8.50	-							
Applied Load									D ft	ice load	is entered	Load Fa	ctors will be		for calcula	ation
		ed and	babbe	to loa	de				D ft	ice load	ls entered.	Load Fa	ctors will be		for calcula	ation
	t calculat					y Widt	Span	= 8.50	0 ft Serv			Load Fa	ctors will be		for calcula	ation
Beam self weigh Uniform Load Point Load :	t calculat I : D = 0.0 D = 0.642	0880, l 20, Lr =	L = 0.32 = 1.20,	20, T E = 1	ributar) .588 k	@ 6.5	Span	= 8.50	0 ft Serv	oading		Load Fa	ctors will be	applied 1	for calcula	ation
Beam self weigh Uniform Load Point Load : Point Load :	t calculat I : D = 0.4 D = 0.642 D = 0.10	0880, l 20, Lr =	L = 0.32 = 1.20,	20, T E = 1	ributar) .588 k	@ 6.5	Span	= 8.50	0 ft Serv	oading		Load Fa	ctors will be			ation
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM	t calculat I : D = 0. D = 0.642 D = 0.10	0880, I 20, Lr= k@6.9	L = 0.32 = 1.20, 50 ft, (V	20, T E = 1	ributary .588 k oint Lo	@ 6.5 ad)	Span h = 1.0	= 8.50 0 ft, (F Roof P	0 ft Serv Floor L Point L	oading oads)	1)				sign OK	
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM Iaximum Bendin	t calculat 1: D = 0.1 D = 0.642 D = 0.10 MARY ng Stress	0880, I 20, Lr = k @ 6.{ Ratio	L = 0.32 = 1.20,	20, T E = 1	ributary .588 k oint Loa	@ 6.5 ad)).256	Span h = 1.0	= 8.50 0 ft, (F Roof P Maxin	D ft Serv Floor L Point L	oading oads) Shear S)) Stress Rat	tio	ctors will be	Des	sign OK 0.280 :	
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM	t calculat 1: D = 0.1 D = 0.642 D = 0.10 MARY ng Stress	0880, I 20, Lr = k @ 6.{ Ratio	L = 0.32 = 1.20, 50 ft, (V	20, T E = 1	ributary .588 k oint Loa 0 3.5x1	@ 6.5 ad)).256	Span h = 1.0 0 ft, (F	= 8.50 0 ft, (F Roof P Maxin	D ft Serv Floor L Point L	oading oads) Shear S	1)	tio		Des 3.5	sign OK	1
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM Maximum Bendin	t calculat 1: D = 0.1 D = 0.642 D = 0.10 MARY ng Stress	0880, I 20, Lr = k @ 6.{ Ratio	L = 0.32 = 1.20, 50 ft, (V =	20, T E = 1	ributar) .588 k oint Lo: 0 3.5x1 74 2,90	@ 6.5 ad) 0.256 1.25 I3.50p 00.00p	Span h = 1.0 0 ft, (F 1 0si	= 8.50 0 ft, (F Roof P Maxin	D ft Serv Floor L Point L	oading oads) Shear S)) Stress Rat	tio span	=	Des 3.5	sign OK 0.280 : 5x11.25 129.69 p 464.00 p	1 osi
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM laximum Bendin Section used f Load Combina	t calculat D = 0.642 D = 0.10 MARY ng Stress for this sp ation	0880, I 20, Lr = k @ 6.9 Ratio Dan	L = 0.32 = 1.20, 50 ft, (V = = =	20, T E = 1	ributar) .588 k oint Lo: 0 3.5x1 74 2,90	@ 6.5 ad) 0.256 11.25 I3.50p 00.00p -D+L	Span h = 1.0 0 ft, (F 1 0 si	= 8.50 0 ft, (F Roof P Maxin	D ft Serv Floor L Point L num S Sectio	oading oads) Shear S n used Combir)) Stress Ra I for this s nation	tio span	= = = +1.126D+0	Des 3.5	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E	1 osi
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM laximum Bendin Section used f Load Combina Location of ma	at calculat D = 0.642 D = 0.10 D = 0.642 D = 0.10 D = 0.642 D = 0.10 D = 0.642 D = 0.10 D = 0.642 D = 0.10 D = 0.10	0880, I 20, Lr = k @ 6.9 Ratio Dan	L = 0.32 = 1.20, 50 ft, (V = = = =	20, T E = 1	ributary .588 k oint Los 3.5x1 74 2,90	@ 6.5 ad) .256 13.50p 0.00p .D+L 1.653ff	Span h = 1.0 0 ft, (F 1 0 si	= 8.50 0 ft, (F Roof P Maxin	D ft Serv Floor L Point L Section Load (Locati	oading oads) Shear S n used Combir on of n)) Stress Rat I for this s nation naximum	tio span on span	= = +1.126D+(Des 3.5).750L+	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E 7.569 ft	1 osi
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM laximum Bendin Section used f Load Combina Location of ma Span # where Maximum Defle	t calculat I : D = 0.10 D = 0.642 D = 0.10 MARY ag Stress for this sp ation aximum c maximum ection	0880, I 20, Lr = k @ 6. Ratio ban m span m occur	L = 0.32 = 1.20, 50 ft, (V = = = s	20, T E = 1	ributar) .588 k oint Loo 3.5x1 74 2,90 4 Spar	@ 6.5 ad) 0.256 (1.25 (3.50p) 0.00p (-D+L (.653ff n # 1	Span h = 1.0 0 ft, (F 1 si	= 8.50 D ft, (F Roof P Maxin	D ft Serv Floor L Point L Sectio Load (Locati Span	oading oads) Shear S n used Combir on of n # wher)) Stress Ra I for this s nation	tio span on span	= = +1.126D+(Des 3.5).750L+	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E	1 osi
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM faximum Bendin Section used f Load Combina Location of ma Span # where Maximum Defle Max Downwar	t calculat Calculat Calculat D = 0.642 D = 0.10 MARY ag Stress for this sp ation aximum c maximum ection d Transier	0880, I 20, Lr = k @ 6. Ratio pan on span m occur nt Deflect	L = 0.32 = 1.20, 50 ft, (V = = = rs = :tion	20, T E = 1	ributary .588 k oint Lo: 0 3.5x1 74 2,90 4 2,90 4 2,90 2 4 0 0	@ 6.5 ad) 0.256 11.25 13.50p 10.00p 1.053ff n # 1 .046 ii	Span h = 1.0 0 ft, (F 1 ssi ssi t n Ratio	= 8.50 0 ft, (F Roof P Maxin	D ft Serv Floor L Point L Sectio Load (Load (Load) Span	oading oads) Shear S In used Combir on of n # wher >=360)) Stress Rat I for this s nation naximum	tio span on span	= = +1.126D+(Des 3.5).750L+	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E 7.569 ft	1 osi osi
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM Maximum Bendin Section used f Load Combina Location of ma Span # where Maximum Defle	t calculat i: D = 0. D = 0.64/ D = 0.10 <u>MARY</u> ig Stress for this sp ation aximum c maximum ection d Transient I	0880, I 20, Lr = k @ 6.9 Ratio ban on span m occur nt Deflec Deflection	L = 0.32 = 1.20, 50 ft, (V = = = rs = rs =	20, T E = 1	ributary .588 k oint Los 3.5x1 74 2,90 4 Spar 0 0	@ 6.5 ad) .256 11.25 I3.50p I0.00p ID+L I.653ff n # 1 .046 ii	Span h = 1.0 0 ft, (F 1 si si t n Ratio	= 8.50 0 ft, (F Roof P Maxim	D ft Serv Floor L Point L Section Load (Locati Span = 2240 = 0	oading oads) Shear S n used Combir on of n # wher >=360 <360)) Stress Rat I for this s nation naximum	tio span on span	= = +1.126D+(Des 3.5).750L+	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E 7.569 ft	1 osi osi
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM faximum Bendin Section used f Load Combina Location of ma Span # where Maximum Defle Max Downwar Max Upward T	t calculat i: D = 0. D = 0.64/ D = 0.10 MARY g Stress for this sp ation aximum c maximum d Transier fra	0880, I 20, Lr = k @ 6. Ratio ban on span m occur nt Deflect Deflection	L = 0.32 = 1.20, 50 ft, (V = = = rs = rs =	20, T E = 1	ributary .588 k oint Los 3.5x1 74 2,90 4 Spar 0 0 0 0 0	@ 6.5 ad) .256 I1.25 I3.50p 0.00p D+L I.653ff n # 1 .046 ii .000 ii .077 ii	Span h = 1.0 0 ft, (F 1 ssi ssi t n Ratio	= = 8.50	D ft Serv Point L Point L Locad (Locati Span 2240: 0 1319:	oading oads) Shear S In used Combir on of n # wher >=360)) Stress Rat I for this s nation naximum	tio span on span	= = +1.126D+(Des 3.5).750L+	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E 7.569 ft	1 osi
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM faximum Bendin Section used f Load Combina Location of ma Span # where Maximum Defle Max Downwar Max Downwar Max Downwar Max Upward T	t calculat t calculat D = 0.64/ D = 0.10 MARY g Stress for this sp ation aximum c maximum ection d Transient I d Total Defle Fotal Defle rcces & S	0880, I 20, Lr = k @ 6.5 Ratio ban on span m occur nt Deflection ction	L = 0.32 = 1.20, 50 ft, (V = = = storn n	20 , T E = 1 Vall P	ributary .588 k oint Los 3.5x1 74 2,90 4 Spar 0 0 0 0 0 0 0	@ 6.5 ad) 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.05 1.05 1.05 1.05 1.077 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	Span h = 1.(0 ft, (F 1 n Ratic n Ratic n Ratic n Ratic	= = 8.50	D ft Serv Point L Point L Locad (Locati Span 2240: 0 1319:	oading oads) Shear S n used Combir on of n # wher >=360 <360 >=240)) Stress Rat I for this s nation naximum e maximu	tio span on span im occu	= = +1.126D+0 = rs =	Des 3.5).750L+ St	sign OK 0.280 : 5x11.25 129.69 p 464.00 p -1.313E 7.569 ff pan # 1	1 osi t
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM faximum Bendin Section used f Load Combina Location of ma Span # where Maximum Defle Max Downwar Max Upward T Max Upward T Max Upward T Maximum For oad Combination	t calculat t calculat D = 0.64/ D = 0.10 MARY g Stress for this sp ation aximum c maximum ection d Transient I d Total Defle From Sector	0880, I 20, Lr = k @ 6. Ratio ban on span m occur nt Deflect Deflection ction Stresse <u>Max Stre</u>	L = 0.32 = 1.20, 50 ft, (V = = = stion n es for l	Load	ributary .588 k oint Lo: 3.5x1 74 2,90 4 Spar 0 0 0 0 0 0 0 0 0	@ 6.5 ad) 0.256 11.25 I3.50p 0.00p I-D+L I.653ff n # 1 .046 ii .000 ii .000 ii 000 ii 000 ii	Span h = 1.0 0 ft, (F 1 ssi ssi t t n Ratic n Ratic ons	= 8.50	Serv Serv Floor L Point L Sectio Locati Span 2240 0 1319 0	oading oads) Shear S n used Combir on of n # wher >=360 <360 >=240)) Stress Rat I for this s nation naximum e maximu e maximu Mome	tio span on span im occui	= = +1.126D+0 1 = rs = s	Des 3.5 0.750L+ Sp	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E 7.569 f pan # 1 Shear Val	1 osi t
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM Maximum Bendin Section used f Load Combina Location of ma Span # where Maximum Polle Max Downwar Max Upward T Max Downwar Max Upward T Maximum For oad Combination Segment Length	t calculat t calculat D = 0.64/ D = 0.10 MARY g Stress for this sp ation aximum c maximum ection d Transient I d Total Defle From Sector	0880, I 20, Lr = k @ 6.5 Ratio ban on span m occur nt Deflection ction	L = 0.32 = 1.20, 50 ft, (V = = = storn n	Load	ributary .588 k oint Los 3.5x1 74 2,90 4 Spar 0 0 0 0 0 0 0	@ 6.5 ad) 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.05 1.05 1.05 1.05 1.077 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	Span h = 1.(0 ft, (F 1 n Ratic n Ratic n Ratic n Ratic	= = 8.50	Serv Serv Floor L Point L Sectio Locati Span 2240 0 1319 0	oading oads) Shear S n used Combir on of n # wher >=360 <360 >=240)) Stress Rat I for this s nation naximum e maximu	tio span on span im occu	= = +1.126D+0 rs = s F'b	Des 3.5 0.750L+ Sp	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E 7.569 f pan # 1 Shear Val	1 osi t F
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM faximum Bendin Section used f Load Combina Location of ma Span # where Maximum Defle Max Downwar Max Upward T Max Downwar Max Upward T Max Downwar Max Upward T Maximum For oad Combination Segment Length Only	t calculat t calculat D = 0.64/ D = 0.10 MARY g Stress for this sp ation aximum c maximum d Transient ransient	0880, I 20, Lr = k @ 6. Ratio Dan on span m occur nt Deflect Deflection ction Stresse Max Stre M	L = 0.32 = 1.20, 50 ft, (V = = = rs = rs = tion n	Load	ributary .588 k oint Lo: 3.5x1 74 2,90 4 Spar 0 0 0 0 0 0 0 0 Comt	@ 6.5 ad) 0.256 l3.50p 0.00p D+L 1.653ff n # 1 .046 in .000 in .000 in .000 in .000 in .000 in .000 in	Span h = 1.1 0 ft, (F 1 1 ssi ssi t n Ratic n Ratic ONS C _r	= 8.50	D ft Serv Point L Point L Section Load (Locati Span : 2240: 0 1319: 0	oading oads) Shear S n used Combir on of n # when >=360 <360 >=240 <240)) Stress Rat I for this s nation naximum e maximu e maximu Mome M	tio pan on span im occu ent Value: fb	= = +1.126D+0 1 = rs = <u>s</u> <u>F'b</u> 0.00	Des 3.5 0.750L+ Sp 	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E 7.569 ff pan # 1 Shear Val fv 0.00	1 osi t F
Point Load : Point Load : DESIGN SUM Maximum Bendin Section used f Load Combina Location of ma Span # where Maximum Defle Max Downwar Max Upward T Max Downwar Max Upward T Max Downwar Max Upward T	t calculat t calculat D = 0.64/ D = 0.10 MARY g Stress for this sp ation aximum c maximum ection d Transient I d Total Defle From Sector	0880, I 20, Lr = k @ 6. Ratio Dan on span m occur nt Deflect Deflection ction Stresse Max Stre M	L = 0.32 = 1.20, 50 ft, (V = = = stion n es for l	Load	ributary .588 k oint Lo: 3.5x1 74 2,90 4 Spar 0 0 0 0 0 0 0 0 0	@ 6.5 ad) 0.256 11.25 13.50p 0.00p 0.00p 0.00p 1.653ff n # 1 .046 ii .000 ii .000 ii 000 ii 000 ii	Span h = 1.0 0 ft, (F 1 ssi ssi t t n Ratic n Ratic ons	= 8.50	D ft Serv Floor L Point L Point L Sectio Load (Load (Load (Load 1 1319 0 0 1319 0 1319 0 1319 0 1319 0	oading oads) Shear S n used Combir on of n # wher >=360 <360 >=240)) Stress Rat I for this s nation naximum e maximu e maximu Mome	tio pan on span im occu ent Value: fb	= = +1.126D+0 rs = s F'b	Des 3.5 0.750L+ Sp	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E 7.569 f pan # 1 Shear Val	1 osi t t <u>F</u>
Beam self weigh Uniform Load Point Load : Point Load : DESIGN SUM Maximum Bendin Section used f Load Combina Location of ma Span # where Maximum Defle Max Downwar Max Upward T Max Downwar Max Upward T Max Downwar Max Upward T Maximum For oad Combination Segment Length Only Length = 8.50 ft	t calculat t calculat D = 0.64/ D = 0.10 MARY g Stress for this sp ation aximum c maximum d Transient ransient	0880, I 20, Lr = k @ 6. Ratio ban m occur m occur m occur fection fection tresse Max Stre M 0.112	L = 0.32 = 1.20, 50 ft, (V = = = stion n = stion n = stion n 0.131	20 , T E = 1 Vall P Vall P D S C d 0.90	ributary .588 k oint Lo: 3.5x1 74 2,90 4 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	@ 6.5 ad) 0.256 11.25 3.50p .00.00 p:D+L .653ff n # 1 .046 in .077 in .000 in innati 1.00 1.00 1.00	Span h = 1.1 h = 1.	= 8.50 0 ft, (F Roof P Maxin 1 2 2 2 2 2 2 2 2 2 2 2 2 2	0 ft Serv Floor L coint L	oading oads) Shear S n used Combin on of n # when >=360 <360 <240 C_L)) Stress Rat I for this s nation naximum e maximu e maximu Mome M	tio span on span im occu ent Values fb 292.57	= = +1.126D+() = rs = s F'b 0.00 2610.00	Des 3.5 0.750L+ Sp 	sign OK 0.280 : 5x11.25 129.69 p 464.00 p 1.313E 7.569 ff pan # 1 Shear Val fv 0.00 34.30	1 osi osi t

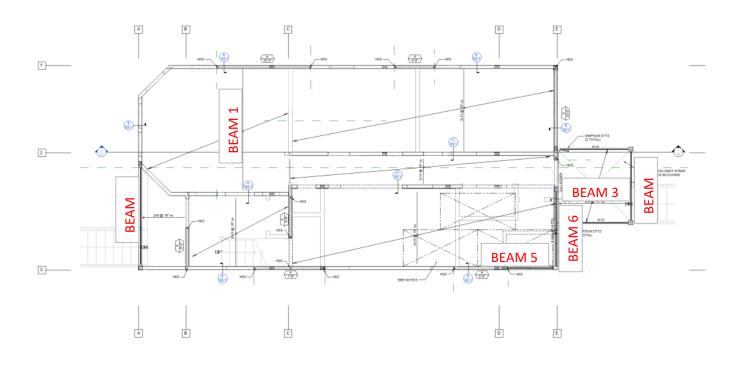
Engineer: DRE 6/3/2020

TUTU					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.50 ft	1	0.162	0.191	1.25	1.000	1.00	1.00	1.00	1.00	1.00	3.62	588.14	3625.00	1.82	69.26	362.50
+D+0.750Lr+0.750L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.50 ft	1	0.221	0.251	1.25	1.000	1.00	1.00	1.00	1.00	1.00	4.93	802.11	3625.00	2.39	90.87	362.50
+D+0.750L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.50 ft	1	0.188	0.194	1.15	1.000	1.00	1.00	1.00	1.00	1.00	3.86	627.45	3335.00	1.70	64.65	333.50
+1.168D+1.750E					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00

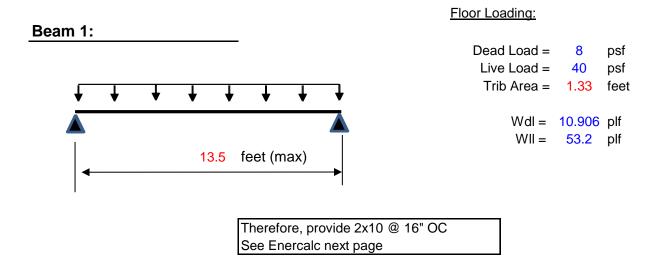
Wood Beam																
Lic. # : KW-06012032														DRE	Structural	Design
DESCRIPTIO	1214 30)th St -	3rd F	loor B	eam (6										
Load Combination	P	Max Stre	ss Rati								Mon	nent Value:	S	5	Shear Val	ues
Segment Length	Span #	м	v	Cd	C _{F/V}	Ci	cr	с _т	сt	CL _	м	fb	F'b	V	fv	Fγ
Length = 8.50 ft	1	0.222	0.261	1.60	1.000	1.00	1.00	1.00	1.00	1.00	6.33	1,028.49	4640.00	3.18	121.02	464.00
+1.126D+0.750L+1.3	313E				1.000	1.00	1.00	1.00	1.00				0.00	0.00	0.00	0.00
Length = 8.50 ft	1	0.237	0.280	1.60	1.000	1.00	1.00	1.00		1.00	6.78	1,101.37	4640.00	3.40	129.69	464.00
+0.60D					1.000	1.00	1.00	1.00		1.00			0.00	0.00	0.00	0.00
Length = 8.50 ft	1	0.038	0.044	1.60	1.000	1.00	1.00	1.00		1.00	1.08	175.54	4640.00	0.54	20.58	464.00
+0.4320D+1.750E					1.000	1.00	1.00	1.00		1.00			0.00	0.00	0.00	0.00
Length = 8.50 ft	1	0.176	0.206	1.60	1.000	1.00	1.00	1.00	1.00	1.00	5.01	814.62	4640.00	2.51	95.78	464.00
Overall Maxim	um Det	flectio	ns													
Load Combination		S	pan	Max. "-	* Defl	_ocation	n in Sp	an	Load C	Combin	nation		Max. "-	+" Defl Lo	ocation in	Span
+D+0.750Lr+0.75	0L		1	0	.0773		4.467	7					(0.0000	0.	000
Vertical React	ions						Su	pport r	notation	ı:Far	left is #		Values i	n KIPS		
Load Combination					Suppo	rt 1 Sup	oport 2									
Overall MAXimum					1.	961	2.702									
Overall MINimum					0.3	374	1.214									
D Only					0.	601	0.994									
+D+L						961	2.354									
+D+Lr						883	1.911									
+D+0.750Lr+0.750)L					833	2.702									
+D+0.750L						621	2.014									
+D+0.70E						863	1.844									
+D+0.750L+0.525	0E					817	2.651									
+0.60D						361	0.596									
+0.60D+0.70E						622	1.446									
Lr Only						282	0.918									
L Only						360	1.360									
E Only					0.3	374	1.214									

2nd FLOOR FRAMING DESIGN

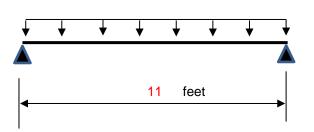
2nd FLOOR FRAMING LAYOUT:



For Des	sign:			
	1. Assume Loa	ding		
		DL =	10.7	psf (girder)
		DL =	8.2	psf (joist)
		LL =	40	psf



Beam 2:



Therefore, provide 3 1/2 x 14 PSL See Enercal next page

Floor Loading:

Dead Load =	11	psf
Live Load =	40	psf
Trib Area =	4	feet
WdI =	42.8	plf
WII =	160	plf

Engineer: DRE 6/3/2020

Beam 3:

Floor Loading:

Dead Load =	8	psf
Live Load =	60	psf
Trib Area =	1.33	feet
WdI =	11	plf
WII =	79.8	plf

See next page for Enercalc

Therefore, provide 2x8 @ 16" oc

ᡟ

¥

♦

feet

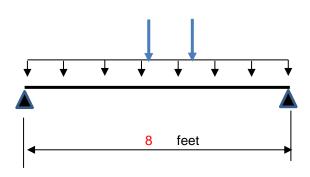
ᡟ

¥

♦

8

Beam 4:

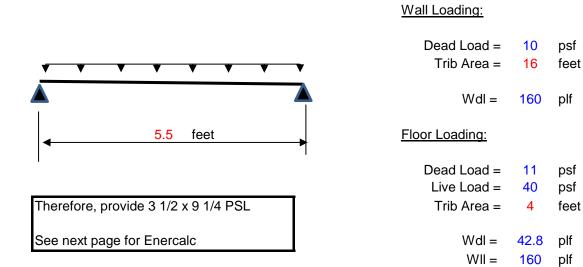


Therefore, provide 4x12	
See Enercalc next page	

Floor Loading:

Dead Load = Live Load = Trib Area =	11 40 4	psf psf feet
WdI = WII =	43 160	plf plf
Stair Stringer Read	ction:	
Dead Load =	11	psf
Live Load =	40	psf
Trib Area =	2	feet
Trib Length =	5	feet
PdI =	107	lbs
PII =	400	lbs

Beam 5:



Beam 6:	
	Floor Loading:
	Dead Load = 8 psf
	Live Load = 60 psf
↓	Trib Area = 4 feet
	WdI = <u>32.8</u> plf
	WII = 240 plf
5.5 feet 5.5 feet	
	Wall Loading:
	Dead Load = 10 psf
	Trib Area = 16 feet
Therefore, provide 3 1/2 x 9 1/4 PSL	
	WdI = 160 plf
See Enercal next page	
	Beam 5 Reaction:
	PdI = 586 lbs

.ic. # : KW-06012032	30th St -	2nd F	loor F	Beam	1								DRES	Structural	Desig
CODE REFERENCE		Ling I		Journ											
CODE REFERENCE	-	2015 (200.0	016 4	PCE 7	10									
oad Combination Set :			JBQ 2	016, A	30E /	-10									
Material Properties	100 2010	, ,													
Analysis Metho@llowa	hle Stres	s Desin	m				Fb			1000 p	si Fa	Modulus	of Flasti		
Load Combinati BC 20		0 D 00.9					Fb	-		1000 p	si	Ebend- xx	(1700ks	
								- Prll		1500 p		Eminbend	1 - X	620 ks	si
Wood Species Dougla Wood Grade No.1	as Fir-Lan	ch					Fc	- Perp		625 p 180 p					
							Ft			675 p		Density		31.21 pc	cf
Beam Bracing Beam i	is Fully B	raced a	agains	t latera	l-torsi	onal b	ucklin	g				Repetitive	Member	Stress	Incre
						0(0.011	1.0	15321							
÷		÷				/(0.011	*	JJJJZ)			÷				÷
							2x10								Q.
														ŕ	
1						Span	= 13.5	i0 ft							1
•															•
Applied Loads Beam self weight calcul Uniform Load : D = (0.0110, L				ary W	idth =	1.0 ft				. Load Fa	ctors will b			ations
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stres	0.0110, L			Tribut	ary W).590		Maxir	, (Floo mum S	r Load Shear S) Stress Ra	ıtio	ctors will b		or calcula ign OK 0.243 :	
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY	0.0110, L	_ = 0.05		Tribut).590 2x10	1	Maxir	, (Floo mum S	r Load Shear S)	ıtio			ign OK 0.243 : 2x10	:1
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stres	0.0110, L	_ = 0.05 = =		Tribut ().590 2x10 58.92p	1 osi	Maxir	, (Floo mum S	r Load Shear S) Stress Ra	ıtio	=	Des	ign OK 0.243 : 2x10 43.67 p	1 DSI
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stres	0.0110, L	_ = 0.05		Tribut (85 1,45).590 2x10	1 osi	Maxir	, (Floo mum S	r Load hear S n used	l) Stress Ra d for this	ıtio		Des	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H	1 osi osi
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stres Section used for this Load Combination Location of maximum	0.0110, L ss Ratio span	= 0.05 = = =		Tribut 85 1,45 +D-	0.590 2x10 58.92p 54.75p 54.75p 5.750f	1 osi osi	Maxir	, (Floo mum S Sectio Load (Locatie	r Load thear S n used Combin)) Stress Ra d for this nation nation	tio span on span	= = =	Desi +	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f	1 osi osi
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim	0.0110, L ss Ratio span	= 0.05 = = =		Tribut 85 1,45 +D-	0.590 2x10 58.92p 54.75p +L+H	1 osi osi	Maxir	, (Floo mum S Sectio Load (Locatie	r Load thear S n used Combin)) Stress Ra d for this : nation	tio span on span	= = =	Desi +	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H	1 osi osi
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stres Section used for this Load Combination Location of maximum	0.0110, L ss Ratio span	= 0.05 = = = s		Tribut (88 1,45 +D- 6 Spai	0.590 2x10 54.75p 54.75p 54.75p 54.750 55.7500 55.75000 55.75000 55.75000 55.75000 55.75000 55.75000 55.750000 55.750000000000	1 osi osi	Maxir	, (Floo mum S Sectio Load (Locati Span a	r Load thear S n used Combin) Stress Ra d for this nation naximum re maxim	tio span on span	= = =	Desi +	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f	1 osi osi
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stres Section used for this Load Combination Location of maximum Span # where maxim Maximum Deflection Max Downward Transient	0.0110, L ss Ratio span on span um occur ient Deflection	= 0.05 = = = = s = =		Tribut 0 85 1,45 +D- 6 Spai	0.590 2x10 64.75p L+H 5.750ff n # 1 .238 in .000 in	1 osi t n Ratio n Ratio	Maxin	, (Floo mum S Sectio Locatio Span a 681 : 0	r Load shear S n used Combin on of r # wher >=360 <360) d for this nation naximum e maxim	tio span on span	= = =	Desi +	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f	1 osi osi
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Maximum Deflection Max Downward Transien Max Downward Transien	o.0110, L ss Ratio span on span um occur ient Deflection Deflection	= 0.05 = = = = s = =		Tribut (88 1,45 +D- 6 Spai 0 0 0 0	0.590 2x10 68.92p 64.75p 64.75p 6.750 ft n # 1 .238 it .000 it .300 it	1 osi t n Ratio n Ratio n Ratio	Maxin	, (Floo mum S Sectio Locatio Span a 681 : 0 539 :	r Load hear S n used Combin on of r # wher >=360 <360 >=240) d for this nation naximum e maxim	tio span on span	= = =	Desi +	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f	1 DSI DSI
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Maximum Deflection Max Downward Transien Max Upward Transient Max Upward Total I Max Upward Total Def	0.0110, L ss Ratio span on span um occur ient Deflect Deflection deflection	= 0.05 = = = = :s = tion	5320 ,	Tribut 85 1,45 +D- 6 Spai 0 0 0 0 0 0	0.590 2x10 58.92p 54.75p 54.75p 54.75off n # 1 .238 if .000 if .300 if .000 if	1 osi t n Ratio n Ratio n Ratio	Maxin	, (Floo mum S Sectio Locatio Span a 681 : 0 539 :	r Load shear S n used Combin on of r # wher >=360 <360) d for this nation naximum e maxim	tio span on span	= = =	Desi +	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f	1 osi osi
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Maximum Deflection Max Downward Transien Max Downward Transien	0.0110, 1 ss Ratio span o on span um occur ient Deflect Deflection Deflection Stresse Max Stre	= 0.05 = = = = ss = = tion n	5320 ,	Tribut 85 1,45 +D- 6 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 68.92p 64.75p 64.75p 6.750 fin .238 in .000 in .300 in .000 in Dinati	1 osi t n Ratio n Ratio n Ratio	Maxin 0 = 0 = 0 =	, (Floo mum S Sectio Locatio Span a 681: 0. 539: 0.	r Load hear S n used Combin on of r # wher >=360 <360 >=240 <240) Stress Ra d for this nation naximum e maxim	ttio span on span um occu ent Value:	= = 1 = rs = s	Des +I Sp	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f	: 1 osi t
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Maximum Deflection Max Downward Transien Max Downward Transien Max Downward Total I Max Upward Total Def Maximum Forces & oad Combination Segment Length Span	0.0110, I ss Ratio span o on span um occur ient Deflection Deflection Stresse Max Stre	= 0.05 = = = = ss = = tion n	5320 ,	Tribut 85 1,45 +D- 6 Spai 0 0 0 0 0 0	0.590 2x10 68.92p 64.75p 64.75p 6.750 fin .238 in .000 in .300 in .000 in Dinati	1 osi t n Ratio n Ratio n Ratio n Ratio ons	Maxin 0 = 0 = 0 =	, (Floo mum S Sectio Locatio Span a 681 : 0 539 :	r Load hear S n used Combin on of r # wher >=360 <360 >=240 <240) Stress Ra d for this nation naximum e maxim	ttio span on span um occu	= = = 1 = rs =	Des +I Sp	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f nan # 1	: 1 osi t t
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Maximum Deflection Max Downward Transien Max Downward Transien Max Upward Transient Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span	0.0110, 1 s Ratio span o on span um occur ient Deflection Deflection Stresse Max Stre # M	= = = = = = = = = = = = = = = = = = =	Load	Tribut (85 1,45 +D- 6 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 8.92p 4.75p 4.75p 4.75off n # 1 .238 ir .000 ir .000 ir 0inatio C i	1 psi t n Ratio n Ratio n Ratio ons C _r	Maxin D = D = D = C m	, (Floo mum S Sectio Load (Locati Span a 681 : 0 539 : 0 C t	r Load thear S n used Combin on of r # wher >=360 <360 >=240 <240 C_L) Stress Ra d for this nation naximum e maxim e maxim Mom M	ttio span on span um occu ent Value: fb	= = = rs = <u>s</u> <u>F'b</u> 0.00	Des + Sp 	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f oan # 1 Shear Val	t ues t
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stres Section used for this Load Combination Location of maximum Span # where maxim Maximum Deflection Max Downward Transien Max Upward Transien Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span D+H Length = 13.451 ft 1	0.0110, L ss Ratio span o on span um occur ient Deflection deflection flection Stresse <u>Max Stre</u> <u>Max Stre</u> <u>Max Stre</u>	= = = = = = = = = = = = = = = = = = =	5320 , 5320 , ²⁵ C _d 0.90	Tribut (88 1,45 +D- 6 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 8.92p 4.75p 4.75p 4.75off n # 1 .238 if .300 if .30	1 psi t n Ratio n Ratio n Ratio ons C _r 1.15	Maxin 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	, (Floo mum S Sectio Locati Span = 681 : 0 539 : 0 C t 1.00	r Load shear S n used Combin on of r # wher >=360 <>360 <>240 <240 <240 <240) Stress Ra d for this nation naximum re maxim re maxim Mom M	ttio span on span um occu ent Value: fb 179.01	= = rs = F'b 0.00 1309.28	Des + Sp 	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f ban # 1 ihear Val fv 0.00 9.10	t ues F'\ 02
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Maximum Deflection Max Downward Transien Max Downward Transien Max Upward Transient Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span D+H	0.0110, 1 s Ratio span o on span um occur ient Deflection Deflection Stresse Max Stre # M	= = = = = = = = = = = = = = = = = = =	5320 , 5320 , ²⁵ C _d 0.90	Tribut (85 1,45 +D- 6 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590 2x10 8.92p 4.75p 4.75p 4.75off n # 1 .238 ir .000 ir .000 ir 0inatio C i	1 psi t n Ratio n Ratio n Ratio ons C _r	Maxin D = D = D = C m	, (Floo mum S Sectio Locati Span a 681 : 0 • 539 : 0 • C t 1.00 1.00	r Load thear S n used Combin on of r # wher >=360 <360 >=240 <240 C_L) Stress Ra d for this nation naximum e maxim e maxim Mom M	ttio span on span um occu ent Value: fb 179.01	= = = rs = <u>s</u> <u>F'b</u> 0.00	Des + Sp 	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f oan # 1 Shear Val	1 0si t t 162 162
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Max Downward Transien Max Downward Transien Max Downward Transien Max Upward Transien Max Upward Transien Max Upward Transien Max Upward Transien Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span D+H Length = 13.451 ft 1 Length = 13.451 ft 1	0.0110, L ss Ratio span on span um occur ient Deflection Deflection Deflection Stresse Max Stre # M 0.137 0.002 0.590	= = = = = = = = = = = = = = = = = = =	Load DS Cd 0.90 0.90 1.00	Tribut 0 88 1,48 +D- 6 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590: 2x10 88.92p 44.75p LL+H 3.750ff n # 1 .238 ir .000 ir .000 ir .000 ir .000 ir .000 in .000 in .000 1.00 1.00	1 n Ratio n Ratio n Ratio ons C _r 1.15 1.15 1.15 1.15	Maxin D = D = D = D = D = D = D = D =	, (Floo mum S Sectio Locati Span a 681 : 0 539 : 0 C t 1.00 1.00 1.00	r Load thear S n used Combin on of r # wher >=360 <360 ==240 <240 C_L 1.00 1.00 1.00 1.00) Stress Ra d for this nation naximum e maxim e maxim Mom M 0.32 0.00 1.53	ttio span on span um occu ent Values fb 179.01 2.60 858.92	= = = rs = F'b 0.00 1309.28 1309.28 0.00 1454.75	Des + Sp 	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f iaan # 1 ihear Val fv 0.00 9.10 9.10 9.10 0.00 43.67	: 1 osi osi t 162 162 0 180
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Maximum Deflection Max Downward Transien Max Upward Transient Max Upward Total I Max Upward I Max Upward Total I Max Upward Total I Max U	0.0110, 1 s Ratio span on span um occur ient Deflection Deflection Deflection Stresse Max Stre # M 0.137 0.002	= = = = = = = = = = = = = = = = = = =	Load DS Cd 0.90 0.90 1.00	Tribut 0 88 1,45 + D- 6 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590: 2x10 2x10 88.92p i↓+H i↓:750 ff n # 1 .238 ii .300 ii .0000 ii 0000 ii 0000 ii 0000 ii 0000 ii 1.000 1.00 1.00 1.00	1 n Ration n	Maxin D = D = D = D = D = D = D = D =	(Floo mum S Sectio Locati Span = 681 : 0 539 : 0 C t 1.00 1.00 1.00 1.00	r Load hear S n used Combin on of r # wher =360 <240 C_L 1.00 1.00 1.00 1.00 1.00) Stress Ra d for this nation naximum re maxim maxim Mom M 0.32 0.00	ttio span on span um occu ent Values fb 179.01 2.60 858.92	= = s F'b 0.00 1309.28 1309.28 1309.28 1309.28 1309.28 1309.28 1309.28	Des + Sp V 0.00 0.08 0.08 0.08 0.00 0.40	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f ban # 1 5hear Val fv 0.00 9.10 9.10 0.00 9.10 9.10 43.67 43.67	: 1 osi osi t t 162 162 162 162 162 180 180
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Max Downward Transien Max Downward Transien Max Downward Transien Max Upward Transien Max Upward Transien Max Upward Transien Max Upward Transien Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span D+H Length = 13.451 ft 1 Length = 13.451 ft 1	0.0110, L ss Ratio span on span um occur ient Deflection Deflection Deflection Stresse Max Stre # M 0.137 0.002 0.590	= = = = = = = = = = = = = = = = = = =	Load 5320 , 5320 , 5320 , Cd 0.90 0.90 1.00 1.00	Tribut 0 88 1,48 +D- 6 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590: 2x10 88.92p 44.75p LL+H 3.750ff n # 1 .238 ir .000 ir .000 ir .000 ir .000 ir .000 in .000 in .000 1.00 1.00	1 n Ratio n Ratio n Ratio ons C _r 1.15 1.15 1.15 1.15	Maxin D = D = D = D = D = D = D = D =	, (Floo mum S Sectio Locati Span a 681 539 0 0 C t 1.00 1.00 1.00 1.00 1.00	r Load thear S n used Combin on of r # wher >=360 <360 ==240 <240 C_L 1.00 1.00 1.00 1.00) Stress Ra d for this nation naximum e maxim e maxim Mom M 0.32 0.00 1.53	ttio span on span um occu fb 179.01 2.60 858.92 12.49	= = = rs = F'b 0.00 1309.28 1309.28 0.00 1454.75	Des + Sp 	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f 0.000 9.10 9.10 9.10 0.00 43.67 43.67 0.00	: 1 osi osi t t 162 162 162 162 180 180 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Max Downward Transien Max Downward Transien Max Upward Transien Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span D+H Length = 13.451 ft 1 Length = 13.451 ft 1	0.0110, L ss Ratio span on span um occur ient Deflect to Deflection Deflection lection Stresse <u>Max Stre</u> <u>#</u> 0.137 0.002 0.590 0.009	= = = = = = = = = = = = = = = = = = =	Load ³⁵ C _d 0.90 1.00 1.25	Tribut 0 88 1,45 +D- 6 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590: 2x10 88.92p 44.75p 44.75p 44.75p 1.000 in 3.750ff in 1.000 in 0.000 in 0.000 in 0.000 in 1.00	1 n Ratio n Ratio n Ratio n Ratio ons Cr 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.1	Maxin D = D = D = D = D = D = D = D =	, (Floo mum S Sectio Locati Span a 681 : 0 - 539 : 0 - C t 1.00 1.00 1.00 1.00 1.00 1.00 1.00	r Load hear S n used Combin on of r # wher >=360 <360 <=240 <240 C_L 1.00 1.0) Stress Ra d for this nation naximum re maxim m Mom M 0.32 0.00 1.53 0.02	tio span on span um occu fb 179.01 2.60 858.92 12.49 179.01	= = s F'b 0.00 1309.28 1309.28 0.00 1454.75 1454.75 0.00	Des + Sp 	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f iaan # 1 5hear Val fv 0.00 9.10 9.10 0.00 43.67 43.67 0.00 9.10 9.10 9.10	1 ues t 162 162 162 0 180 0 225 225
Beam self weight calcul Uniform Load : D = 0 DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Max Downward Transien Max Downward Transien Max Upward Transient Max Upward Transient Max Upward Total I Max Upward To	0.0110, L ss Ratio span i on span um occur ient Deflection Deflection Stresse # M 0.137 0.002 0.590 0.009 0.098 0.001	= = = = = = = = = = = = = = = = = = =	Load DS Cd 0.90 0.90 1.00 1.25 1.25	Tribut 0 88 1,45 +D- 6 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590: 2x10 2x10 88.92p ↓L+H 5,750 ff n # 1 .238 ii .300 ii 0.000 ii 0.000 ii 1.000 1.00 1.00 1.00 1.00 1.00 1.00	1 n Ratio n Ratio n Ratio n Ratio n Ratio n Ratio 0ns Cr 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.1	Maxin D = D = D	C t C t C t C t C t C t C t C t	r Load hear S n used Combin on of r # wher ==360 <240 C_L 1.00) Stress Ra d for this nation naximum e maxim e maxim M 0.32 0.00 1.53 0.02 0.32 0.00	ttio span on span um occu fb 179.01 2.60 858.92 12.49 179.01 2.60	= = s F'b 0.00 1309.28 1309.20 1454.75 1454.75 0.000	Des + Sp V 0.00 0.08 0.08 0.00 0.40 0.00 0.40 0.00 0.40 0.00 0.0	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f ban # 1 5hear Val fv 0.00 9.10 9.10 0.000 9.10 9.10 0.000 9.10 9.1	1 ues t 162 162 162 180 0 180 0 0 225 0 0
Beam self weight calcul Uniform Load : D = (DESIGN SUMMARY Maximum Bending Stress Section used for this Load Combination Location of maximum Span # where maxim Max Downward Transien Max Downward Transien Max Upward Transien Max Upward Total Def Maximum Forces & .oad Combination Segment Length Span D+H Length = 13.451 ft 1 Length = 13.451 ft 1	0.0110, 1 ss Ratio span on span um occur ient Deflection Deflection Deflection Deflection Max Stre # M 0.137 0.002 0.590 0.009 0.098	= = = = = = = = = = = = = = = = = = =	Load DS Cd 0.90 1.00 1.25 1.25 1.15	Tribut 0 88 1,45 +D- 6 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.590: 2x10 88.92p 44.75p 44.75p 44.75p 1.000 in 3.750ff in 1.000 in 0.000 in 0.000 in 0.000 in 1.00	1 n Ratii n Ratii n Ratii n Ratii 0 n Ratii 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.	Maxin D = D = D = D = D = D = D = D =	C t C t C t 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1	r Load hear S n used Combin on of r # wher >=360 <360 =240 <240 C_L 1.00) Stress Ra d for this nation naximum e maxim Mom 0.32 0.00 1.53 0.02 0.32	ttio span on span um occu fb 179.01 2.60 858.92 12.49 179.01 2.60 179.01	= = = rs = F'b 0.00 1309.28 1309.28 1309.28 0.00 1454.75 1454.75 1454.75 0.00 1818.44 1818.44	Des ++ Sp 	ign OK 0.243 : 2x10 43.67 p 180.00 p D+L+H 0.000 f iaan # 1 5hear Val fv 0.00 9.10 9.10 0.00 43.67 43.67 0.00 9.10 9.10 9.10	1 ues t 162 162 162 0 180 0 225 225

Wood Beam	
Lic. # : KW-06012032	DRE Structural Design
DESCRIPTIO 1214 30th St - 2nd Floor Beam 1	

Load Combination N	Aax Stre	ess Ratio	os							Mom	ent Value	3	s	shear Val	ues
Segment Length Span #	M	V	Cd	C _{F/V}	Ci	Cr	cm	c _t	c _L -	м	fb	F'b	V	fv	Fν
Length = 13.451 ft 1	0.379	0.156	1.25		1.00	1.15	1.00	1.00	1.00	1.23	688.94	1818.44	0.32	35.03	225.0
Length = 0.04927 ft 1	0.006	0.156	1.25	1.100	1.00	1.15	1.00	1.00	1.00	0.02	10.02	1818.44	0.32	35.03	225.0
+D+0.750L+0.750S+H				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.412	0.169		1.100	1.00	1.15	1.00	1.00	1.00	1.23	688.94	1672.96	0.32	35.03	207.0
Length = 0.04927 ft 1	0.006	0.169	1.15	1.100	1.00	1.15	1.00	1.00	1.00	0.02	10.02	1672.96	0.32	35.03	207.0
+D+0.60W+H				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.077	0.032		1.100	1.00	1.15	1.00	1.00	1.00	0.32	179.01	2327.60	0.08	9.10	288.0
Length = 0.04927 ft 1	0.001	0.032	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.00	2.60	2327.60	0.08	9.10	288.0
+D+0.70E+H				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.077	0.032	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.32	179.01	2327.60	0.08	9.10	288.0
Length = 0.04927 ft 1	0.001	0.032	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.00	2.60	2327.60	0.08	9.10	288.0
+D+0.750Lr+0.750L+0.450W				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.296	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	1.23	688.94	2327.60	0.32	35.03	288.0
Length = 0.04927 ft 1	0.004	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.02	10.02	2327.60	0.32	35.03	288.0
+D+0.750L+0.750S+0.450W+				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.296	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	1.23	688.94	2327.60	0.32	35.03	288.0
Length = 0.04927 ft 1	0.004	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.02	10.02	2327.60	0.32	35.03	288.0
+D+0.750L+0.750S+0.5250E-				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.296	0.122		1.100	1.00	1.15	1.00	1.00	1.00	1.23	688.94	2327.60	0.32	35.03	288.0
Length = 0.04927 ft 1	0.004	0.122	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.02	10.02	2327.60	0.32	35.03	288.0
+0.60D+0.60W+0.60H				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.046	0.019	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.19	107.41	2327.60	0.05	5.46	288.0
Length = 0.04927 ft 1	0.001	0.019	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.00	1.56	2327.60	0.05	5.46	288.0
+0.60D+0.70E+0.60H				1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 13.451 ft 1	0.046	0.019	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.19	107.41	2327.60	0.05	5.46	288.0
Length = 0.04927 ft 1	0.001	0.019	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.00	1.56	2327.60	0.05	5.46	288.0
Overall Maximum Def	lectio														
Load Combination	S	pan l	Max. "-	* Defl	Location	1 in Sp	an	Load C	ombin	nation		Max. "+	" Defl Lo	cation in	Span
+D+L+H		1	0	.3004		6.799)					C	0.0000	0.	000
Vertical Reactions						Su	pport n	notatior	: Far	left is # [.]		Values in	n KIPS		
Load Combination				Suppo	rt 1 Sup										
Overall MAXimum				0.	454	0.454									
Overall MINimum				0.	359	0.359									

Overall MAXimum	0.454	0.454
Overall MINimum	0.359	0.359
+D+H	0.095	0.095
+D+L+H	0.454	0.454
+D+Lr+H	0.095	0.095
+D+S+H	0.095	0.095
+D+0.750Lr+0.750L+H	0.364	0.364
+D+0.750L+0.750S+H	0.364	0.364
+D+0.60W+H	0.095	0.095
+D+0.70E+H	0.095	0.095
+D+0.750Lr+0.750L+0.450W+H	0.364	0.364
+D+0.750L+0.750S+0.450W+H	0.364	0.364
+D+0.750L+0.750S+0.5250E+H	0.364	0.364
+0.60D+0.60W+0.60H	0.057	0.057
+0.60D+0.70E+0.60H	0.057	0.057
D Only	0.095	0.095
Lr Only		
L Only	0.359	0.359
S Only		
W Only		
E Only		
H Only		

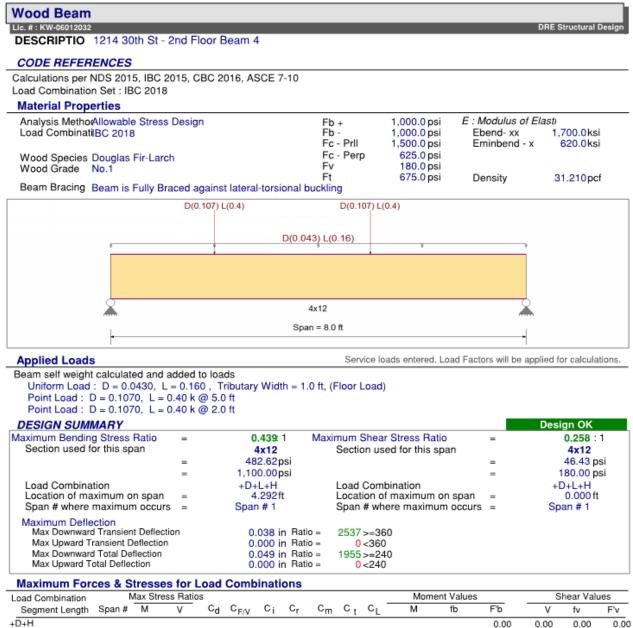
e.

Lic. # : KW-06012032 DESCRIPTIO 1214 30	Oth St -	2nd F	loor E	Beam	2									Structural	
CODE REFERENCES	•														
Calculations per NDS 201		2015.0	BC 2	016 A	SCF 7	-10									
Load Combination Set : IE			002	010,7	0027	10									
Material Properties															
Analysis Methoellowabl	e Stres	s Desia	n				Fb	+	1	q 0.000.	si E	Modulus (of Elasti	j .	
Load Combinati BC 201							Fb	-	1	,000.0 p	si	Ebend- xx		,700.0ks	
								- Prll		,500.0 p		Eminbend	- X	620.0ks	si
Wood Species Douglas	Fir-Lar	ch					Fc	- Perp		625.0 p 180.0 p					
Wood Grade No.1							Ft			675.0 p		Density		31.210p	cf
Beam Bracing Beam is	Fully B	raced a	gains	t latera	al-torsi	onal b	ucklin	g				2011011		p	
						D(0.04	3) 1 /0	16)							
÷		¢				0(0.04	57 2(0	. 10/			÷				¢
0															0
						3.5	x11.25								à
						0	- 44 4								
						Span	= 11.(π							1
•															•
Applied Loads								Servi	ce load	is entered	. Load Fa	ctors will be	applied	for calcul	atior
Applied Loads Beam self weight calculat	ed and	added	to loa	ds				Servi	ce load	is entered	. Load Fa	ctors will be	applied	for calcul	atior
					y Widt	h = 1.(0 ft, (F			is entered	. Load Fa	ctors will be	applied	for calcul	atior
Beam self weight calculat					y Widt	h = 1.(D ft, (F			is entered	. Load Fa	ctors will be		for calcul	atior
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress	0430, L Ratio			ributar	y Widt 0.520			loor L	oad)	s entered		ctors will be			
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY	0430, L Ratio	_ = 0.16		ributar 3.5x	0.520	1	Maxir	loor L	oad) Shear S		tio		Des	sign OK 0.205 5x11.25	: 1
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress	0430, L Ratio	= 0.16		ributar 3.5x 52	0.520 11.25 20.04p	1 si	Maxir	loor L	oad) Shear S	Stress Ra	tio	-	Des	sign OK 0.205 5x11.25 36.88 p	: 1 osi
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp	0430, L Ratio	= 0.16		ributar 3.5x 52 1,00	0.520 11.25 20.04p 00.00p	1 si	Maxir	Floor Long Section	oad) Shear S n used	Stress Ra	tio	-	Des 3.t	sign OK 0.205 5x11.25 36.88 180.00	: 1 osi
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination	0430, L Ratio pan	= 0.16 = = =		ributar 3.5x 52 1,00 +D	0.520 11.25 20.04p 00.00p +L+H	1 Isi Isi	Maxir	Floor Long Section	oad) Shear S n used Combir	Stress Ra I for this a	tio span	-	Des 3.t	sign OK 0.205 5x11.25 36.88 180.00 D+L+H	: 1 osi
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp	0430, L Ratio pan	L = 0.16 = = =		ributar 3.5x 1,0(+D	0.520 11.25 20.04p 00.00p	1 Isi Isi	Maxir	Floor L num S Section Load C Locatio	oad) Shear S n used Combir on of n	Stress Ra	tio span on spar	=	Des 3.5	sign OK 0.205 5x11.25 36.88 180.00	: 1 osi
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum	0430, L Ratio pan	L = 0.16 = = =		ributar 3.5x 1,0(+D	0.520 11.25 20.04p 00.00p +L+H 5.500ft	1 Isi Isi	Maxir	Floor L num S Section Load C Locatio	oad) Shear S n used Combir on of n	Stress Ra I for this an nation naximum	tio span on spar	=	Des 3.5	sign OK 0.205 5x11.25 36.88 180.00 D+L+H 10.0771	: 1 osi
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transier	0430, L Ratio pan on span m occur nt Deflec	= 0.16 = = = = rs =		ributar (3.5x 52 1,00 +D 53 Spa	0.520 11.25 20.04p 00.00p +L+H 5.500ft	1 si	Maxir	Floor L num S Section Load C Locatio	oad) hear S n used Combir on of n # when	Stress Ra I for this an nation naximum	tio span on spar	=	Des 3.5	sign OK 0.205 5x11.25 36.88 180.00 D+L+H 10.0771	: 1 osi
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transier Max Upward Transient I	0430, L Ratio pan on span m occur nt Deflec	= 0.16 = = = = rs =		ributar 3.5x 5; 1,0(+D 5 Spa 0 0 0	0.520 11.25 20.04p 20.00p +L+H 5.500ft n # 1 0.075 ir 0.000 ir	1 si t n Ratio n Ratio	Maxir	Floor Lo num S Section Load C Locatio Span # 1757 > 0 <	oad) hear S n used Combir on of n # when >=360 <360	Stress Ra I for this an nation naximum	tio span on spar	=	Des 3.5	sign OK 0.205 5x11.25 36.88 180.00 D+L+H 10.0771	: 1 osi
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transient Max Upward Transient Max Downward Transient Max Downward Transient	0430, L Ratio Dan Dan span m occur nt Deflec Deflection	= 0.16 = = = = rs =		ributar 3.5x 5: 1,00 +D 5 Spa 0 0 0 0 0	0.520 11.25 20.04p 00.00p +L+H 5.500ft n # 1 0.075 ir 0.000 ir 0.099 ir	1 si n Ratio n Ratio n Ratio	Maxir	Floor Linnum S Section Load (Location Span # 1757 > 0 < 1329 >	oad) hear S n used Combir on of n # wher >=360 <360 >=240	Stress Ra I for this an nation naximum	tio span on spar	=	Des 3.5	sign OK 0.205 5x11.25 36.88 180.00 D+L+H 10.0771	: 1 osi
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transier Max Upward Transiert I Max Downward Total Defle	0430, L Ratio pan on span m occur nt Deflec Deflection eflection	= 0.16 = = = s = tion n	50 , T	ributar 3.5x 1,00 +D Spa 0 0 0 0 0 0	0.520 11.25 20.04 p 00.00 p +L+H 5.500 ft n # 1 0.075 ir 0.099 ir 0.099 ir 0.090 ir	1 si h Ratio h Ratio h Ratio h Ratio	Maxir	Floor Linnum S Section Load (Location Span # 1757 > 0 < 1329 >	oad) hear S n used Combir on of n # when >=360 <360	Stress Ra I for this an nation naximum	tio span on spar	=	Des 3.5	sign OK 0.205 5x11.25 36.88 180.00 D+L+H 10.0771	: 1 osi
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transient I Max Downward Transient I Max Downward Total Defle Max Upward Total Defle	0430, L Ratio pan on span m occur nt Deflec Deflection ection Stresse	= 0.16 = = = = s = = tion n	50 , T	ributar 3.5x 1,00 +D Spa 0 0 0 0 0	0.520 11.25 20.04 p 00.00 p +L+H 5.500 ft n # 1 0.075 ir 0.099 ir 0.099 ir 0.090 ir	1 si h Ratio h Ratio h Ratio h Ratio	Maxir	Floor Linnum S Section Load (Location Span # 1757 > 0 < 1329 >	oad) hear S n used Combir on of n # wher >=360 <360 >=240	Stress Ra I for this nation naximum e maxim	tio span on spar um occu	= = 1 = rs =	Des 3.: + S	sign OK 0.205 5 x11.25 36.88 180.00 D+L+H 10.0771 pan # 1	: 1 psi psi
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transier Max Downward Transier Max Downward Total Defle Max Upward Total Defle Maximum Forces & S Load Combination	0430, L Ratio pan on span m occur nt Deflector offlection fection Stresse Max Stre	= 0.16 = = = = tion n es for l	Load	ributar 3.5x 5; 1,0(+D; 5 Spa 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.520 11.25 20.04p 00.00p +L+H 5.500ft n # 1 0.075 ir 0.099 ir 0.000 ir 0.000 ir 0.000 ir 0.000 ir	n Ratio n Ratio n Ratio n Ratio n Ratio ons	Maxir) =) =) =	Floor Linum S Section Location Span # 1757 > 0 < 1329 > 0 <	oad) hear S n used Combir on of n # when >=360 <360 >=240 <240	Stress Ra I for this : nation naximum e maxim Mom	tio span on spar um occu ent Value	= = 1 = rs =	Des 3.: + S	sign OK 0.205 5x11.25 36.88 180.00 D+L+H 10.0771 pan # 1 Shear Va	: 1 psi psi it
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transier Max Downward Transier Max Downward Transier Max Downward Total De Max Upward Total Defle Max Upward Total Defle Maximum Forces & S Load Combination Segment Length Span #	0430, L Ratio pan on span m occur nt Deflector offlection fection Stresse Max Stre	= 0.16 = = = = s = = tion n	50 , T	ributar 3.5x 52 1,00 +D 5 Spa 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.520 11.25 20.04p 00.00p +L+H 5.500ft n # 1 0.075 ir 0.099 ir 0.000 ir 0.000 ir 0.000 ir 0.000 ir	n Ratio n Ratio n Ratio n Ratio n Ratio	Maxir) =) =) =	Floor Linnum S Section Load (Location Span # 1757 > 0 < 1329 >	oad) hear S n used Combir on of n # when >=360 <360 >=240 <240	Stress Ra I for this nation naximum e maxim	tio span on spar um occu	= = rs = s F'b	Des 3.4 -+ S	sign OK 0.205 5x11.25 36.88 p 180.00 p D+L+H 10.0771 pan # 1 Shear Val	: 1 psi psi ft lues F
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transient I Max Downward Transient I Max Downward Transient I Max Downward Total Defle Max Upward Total Defle Max Upward Total Defle Maximum Forces & S Load Combination Segment Length Span #	0430, L Ratio pan on span m occur nt Deflector effection fection Stresse Max Stre M	= = = = = = = = = = = = = = = = = = =	Load	ributar 3.5x 52 1,00 +D 53 52 1,00 +D 53 52 52 52 52 52 52 52 52 52 52 52 52 52	0.520 11.25 20.04p 00.00p +L+H 5.500ft n # 1 0.075 ir 0.000 ir 0.00	n Ratio n Ratio n Ratio n Ratio ons C _r	Maxir) =) =) = Cm	Floor Lo num S Section Load C Locatic Span # 1757 > 0 < 1329 > 0 < 0 < C t	oad) hear S n used Combin on of n # where >=360 <360 >=240 <240 C_L	Stress Ra I for this : nation naximum e maxim e maxim Mom Mom	tio span on spar um occu ent Value fb	= = n = rs = <u>s</u> <u>F'b</u> 0.00	Des 3.: 4 S	sign OK 0.205 5x11.25 36.88 180.00 D+L+H 10.0771 pan # 1 Shear Val fv 0.00	: 1 psi ft lues F
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transier Max Upward Transiert I Max Downward Total Defle Max Upward Total Defle Max Upward Total Defle Max Upward Total Defle Maximum Forces & S Load Combination Segment Length Span # +D+H Length = 11.0 ft 1	0430, L Ratio pan on span m occur nt Deflector offlection fection Stresse Max Stre	= 0.16 = = = = tion n es for l	Load	ributar 3.5x 52 1,00 +D 52 52 1,00 +D 52 52 1,00 0 0 0 0 0 0 0 0 0 0 0 0	0.520 11.25 20.04p 0.00p +L+H 5.500ft n # 1 0.075 ir 0.000	n Ration n Ration n Ration n Ration n Ration ons C _r 1.00	Maxir) =) =) = Cm 1.00	Floor Lo num S Section Load C Locatic Span # 1757 > 0 < 1329 > 0 < 0 < C t	oad) hear S n used Combir on of n # when >=360 <360 >=240 <240 C_L	Stress Ra I for this : nation naximum e maxim Mom	tio span on spar um occu ent Value	= = rs = <u>F'b</u> 0.00 900.00	Des 3.8 4 S	sign OK 0.205 36.88 180.00 D+L+H 10.0771 pan # 1 Shear Va fv 0.00 8.98	: 1 psi ft lues F
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transient I Max Downward Transient I Max Upward Total Defle Max Upward Total Defle Load Combination Segment Length Span # +D+H Length = 11.0 ft 1	0430, L Ratio pan on span m occur nt Deflector effection fection Stresse Max Stre M	= = = = = = = = = = = = = = = = = = =	Load ¹⁵ C _d 0.90	ributar 3.5x 53 1,00 +D 53 1,00 +D 53 53 53 53 53 53 53 53 53 53	0.520 11.25 20.04p 00.00p +L+H 5.500ft n # 1 0.075 ir 0.000 ir 0.00	n Ration n Ration n Ration n Ration n Ration ons C _r 1.00 1.00	Maxir Maxir = = = = = = = = = = = = = = = = = = =	Floor Lo num S Section Location Span f 1757 > 0 < 1329 > 0 < 0 < 0 < 0 < 0 < 0 < 0 < 0 < 0 < 0 <	oad) shear S n used Combin on of n # when >=360 <360 >=240 <240 C_L 1.00 1.00	Stress Ra I for this in naximum e maximum e maxim Mom Mom 0.78	tio span on spar um occu ent Value fb 126.69	= = rs = F'b 0.00 900.00 0.00	Des 3.: 4 S	sign OK 0.205 5x11.25 36.88 p 180.00 p D+L+H 10.0771 pan # 1 Shear Val fv 0.00 8.98 0.00	: 1 osi it Iues F 16
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transier ID Max Upward Transiert ID Max Upward Total Defle Max Upward Total Defle	0430, L Ratio pan on span m occur nt Deflection offlect	= = = = = = = = = = = = = = = = = = =	Load ¹⁵ C _d 0.90	ributar 3.5x 52 1,00 +D 52 52 1,00 +D 52 52 1,00 0 0 0 0 0 0 0 0 0 0 0 0	0.520 11.25 20.04p 00.00p +L+H 5.500ft n # 1 0.075 ir 0.000 ir 0.00	n Ration n Ration n Ration n Ration n Ration ons C _r 1.00	Maxir) =) =) = Cm 1.00	Floor Load C Load C Location Span # 1757 > 0 < 1329 > 0 < C t 1.00 1.00 1.00	oad) hear S n used Combir on of n # when >=360 <360 >=240 <240 C_L	Stress Ra I for this : nation naximum e maxim e maxim Mom Mom	tio span on spar um occu ent Value fb 126.69	= = rs = <u>F'b</u> 0.00 900.00	Des 3.8 4 S	sign OK 0.205 36.88 180.00 D+L+H 10.0771 pan # 1 Shear Va fv 0.00 8.98	: 1 osi it Iues F 16
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transient I Max Downward Transient I Max Downward Transient I Max Downward Total Defle Max Upward Total Defle Maximum Forces & S Load Combination Segment Length Span # +D+H Length = 11.0 ft 1 +D+Lr+H Length = 11.0 ft 1	0430, L Ratio pan on span m occur nt Deflection offlect	= = = = = = = = = = = = = = = = = = =	Load SC d 0.90 1.00	ributar 3.5x 52 1,00 +D 52 1,00 0 0 0 0 0 0 0 0 0 0 0 0	0.520 11.25 20.04p 0.00p +L+H 5.500 ft n # 1 0.075 ir 0.000 ir 0.099 ir 0.000 ir 0.00	1 n Ratio n Ratio n Ratio n Ratio DNS C _r 1.00 1.00 1.00 1.00	Maxir Maxir ====================================	Floor Lo num S Section Load C Locatic Span # 1757 > 0 < 1329 > 0 < 1329 > 0 < 1329 > 0 < 1329 > 0 < 1329 > 0 < 1329 > 0 <	oad) hear S n used Combin on of n # where >=360 <360 >=240 <240 1.00 1.00 1.00 1.00 1.00	Stress Ra I for this in naximum e maximum e maxim Mom Mom 0.78	tio span on spar um occu ent Value fb 126.69 520.04	= = rs = F'b 0.00 900.00 0.00 1000.00 0.00 1250.00	Des 3.: 4 S V 0.00 0.24 0.00 0.24	sign OK 0.205 5x11.25 36.88 180.00 D+L+H 10.0771 pan # 1 Shear Val fv 0.00 8.98 0.00 36.88 0.00 3.98	: 1 psi psi ft lues F 16 18 22
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transier Max Upward Transiert I Max Downward Transiert I Max Downward Total Defle Max Upward Total Defle Load Combination Segment Length Span # +D+H Length = 11.0 ft 1 +D+L+H Length = 11.0 ft 1 +D+L+H Length = 11.0 ft 1 +D+S+H	0430, L Ratio pan on span m occur nt Deflection offlection offlection fflection fflection fflection offlection offlection offlection offlection fflection fflection offlection offlection fflection	= = = = = = = = = = = = = = = = = = =	Load 28 Cd 0.90 1.00 1.25	ributar 3.5x 53 1,00 +D 53 1,00 +D 53 53 1,00 0 0 0 0 0 0 0 0 0 0 0 0	0.520 11.25 20.04p 0.00p +L+H 5.500ft 0.000 ir 0.000 ir 0.000 ir 0.000 ir 0.000 ir 0.000 ir 0.000 i.000 1.00 1.00 1.00 1.00 1.00	1 n Ratic n Ratic n Ratic n Ratic C r 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Maxir) =) =) =) =) =) =) =) =) =) =	Floor Lo num S Section Locatio Span f 1757 > 0 < 1329 > 0 < 1329 > 0 < C t 1.00 1.00 1.00 1.00 1.00	oad) shear S n used Combin on of n # when >=360 <360 >=240 <240 C	Stress Ra I for this : nation naximum e maxim e maxim Mom M 0.78 3.20 0.78	tio span on spar um occu fb 126.69 520.04 126.69	= = = rs = F'b 0.00 900.00 0.00 1000.00 1250.00 0.00	Des 3.: 4 S V 0.00 0.24 0.00 0.24 0.00 0.24 0.00	sign OK 0.205 36.88 180.00 D+L+H 10.0771 pan # 1 Shear Val fv 0.00 8.98 0.00 36.88 0.00 8.98 0.00	: 1 psi psi It Iues F 16 18 22
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transient I Max Downward Transient I Max Downward Transient I Max Downward Total Defle Max Upward Total Defle Load Combination Segment Length Span # +D+H Length = 11.0 ft 1 +D+L+H Length = 11.0 ft 1 +D+S+H Length = 11.0 ft 1	0430, L Ratio pan on span m occur nt Deflection offlection offlection fflection fflection fflection offlection offlection offlection offlection fflection fflection offlection offlection fflection	= = = = = = = = = = = = = = = = = = =	Load 28 Cd 0.90 1.00 1.25	ributar 3.5x 53 1,00 +D 53 53 1,00 +D 53 53 53 53 53 53 53 53 53 53	0.520 11.25 20.04p 0.00p +L+H 5.500ft n # 1 0.075 ir 0.000	1 si si n Ratic n Ratic n Ratic n Ratic ONS Cr 1.00 1.00 1.00 1.00 1.00 1.00	Maxir Maxir = = = = = = = = = = = = = = = = = = =	Floor Load C Load C Location Span # 1757 > 0 < 1329 > 0 < C t 1.00 1.00 1.00 1.00 1.00 1.00 1.00	oad) shear S n used Combin on of n # when >=360 <360 >=240 <240 C_L 1.00 1.00 1.00 1.00 1.00 1.00	Stress Ra for this nation naximum e maxim e maxim Mom M 0.78 3.20	tio span on spar um occu fb 126.69 520.04 126.69	= = = rs = <u>F'b</u> 0.00 900.00 0.00 1000.00 1250.00 0.00 1150.00	Des 3.: 4 S 0.00 0.24 0.00 0.24 0.00 0.24	sign OK 0,205 5x11.25 36.88 180.00 D+L+H 10.0771 pan # 1 Shear Val fv 0.00 8.98 0.00 36.88 0.00 8.98 0.00 8.98	: 1 psi psi
Deam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sy Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transiert Max Upward Total Defle Max Upward Total Defle Max Upward Total Defle Max Upward Total Defle Max Upward Total Defle Load Combination Segment Length Span # +D+H Length = 11.0 ft 1 +D+L+H Length = 11.0 ft 1 +D+S+H Length = 11.0 ft 1 +D+0.750Lr+0.750L+H	0430, L Ratio pan on span m occur nt Deflec Deflection effection effection Stresse Max Stre M 0.141 0.520 0.101 0.110	= = = = = = = = = = = = = = = = = = =	Load ¹⁸ C _d 0.90 1.00 1.25 1.15	ributar 3.5x 52 1,00 +D 52 1,00 +D 52 52 1,00 0 0 0 0 0 0 0 0 0 0 0 0	0.520 11.25 20.04p 00.00p +L+H 5.500ft n # 1 0.075 ir 0.000 i.000 i.0000 i.000 i.000 i.000 i.000 i.000	1 si n Ratic n	Maxir Maxir D = D = D = D = D = D = D = D =	Floor Lo num S Section Locatio Span # 1757 > 0 < 1329 > 0 < C t 1.00 1.00 1.00 1.00 1.00 1.00 1.00	oad) hear S n used Combir on of n # wher >=360 <360 >=240 C_L 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Stress Ra I for this nation naximum e maxim e maxim M 0.78 3.20 0.78 3.20 0.78 0.78	tio span on spar um occu ent Value fb 126.69 520.04 126.69 126.69	= = = rs = <u>s</u> <u>F'b</u> 0.00 900.00 0.00 1000.00 0.00 1250.00 0.00 1150.00 0.00	Des 3.: 4 S 0.00 0.24 0.00 0.24 0.00 0.24 0.00 0.24 0.00	Sign OK 0,205 36.88 (180.00 (D+L+H 10.077 f pan # 1 Shear Va fv 0.00 8.98 0.00 36.88 0.00 8.98 0.00 8.98 0.00 8.98 0.00	: 1 psi ft lues F 16 18 22 20
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transient I Max Downward Transient I Max Downward Transient I Max Downward Total Defle Max Upward Total Defle Load Combination Segment Length Span # +D+H Length = 11.0 ft 1 +D+L+H Length = 11.0 ft 1 +D+S+H Length = 11.0 ft 1	0430, L Ratio pan on span m occur nt Deflection offlection offlection fflection fflection fflection offlection offlection offlection offlection fflection fflection offlection offlection fflection	= = = = = = = = = = = = = = = = = = =	Load ¹⁸ C _d 0.90 1.00 1.25 1.15	ributar 3.5x 53 1,00 +D 53 53 1,00 +D 53 53 53 53 53 53 53 53 53 53	0.520 11.25 20.04p 0.00p +L+H 5.500ft n # 1 0.075 ir 0.000 i.000 i.0000 i.000 i.0000 i.000 i.000 i.000 i.0000 i.00	1 si si n Ratic n Ratic n Ratic n Ratic ONS Cr 1.00 1.00 1.00 1.00 1.00 1.00	Maxir Maxir = = = = = = = = = = = = = = = = = = =	Floor Lo num S Section Locatio Span # 1757 > 0 < 1329 > 0 <	oad) shear S n used Combin on of n # when >=360 <360 >=240 <240 C_L 1.00 1.00 1.00 1.00 1.00 1.00	Stress Ra I for this : nation naximum e maxim e maxim Mom M 0.78 3.20 0.78	tio span on spar um occu ent Value fb 126.69 520.04 126.69 126.69	= = = rs = <u>F'b</u> 0.00 900.00 0.00 1000.00 1250.00 0.00 1150.00	Des 3.: 4 S 0.00 0.24 0.00 0.24 0.00 0.24 0.00 0.24 0.00 0.24 0.00 0.24 0.00 0.79	sign OK 0.205 5x11.25 36.88 180.00 D+L+H 10.0771 pan # 1 Shear Val fv 0.00 8.98 0.00 36.88 0.00 8.98 0.00 8.98 0.00 8.98 0.00 8.98 0.00 8.98	: 1 psi it lues F 16 18 22 20
Beam self weight calculat Uniform Load : D = 0. DESIGN SUMMARY Maximum Bending Stress Section used for this sp Load Combination Location of maximum of Span # where maximum Maximum Deflection Max Downward Transient Of Max Downward Transient Of Max Downward Transient Of Max Downward Total Deflection Max Downward Total Deflection Segment Length = 11.0 ft 1 Hohtshift 1 Length = 11.0 ft 1 Length = 11.0 ft 1 Length = 11.0 ft 1 Length = 11.0 ft 1 Max Deflection Max Downward Total Deflection Max Downward Deflection Max Downward Total Deflection Max Downward Deflectio	0430, L Ratio pan on span m occur nt Deflec Deflection effection effection Stresse Max Stre M 0.141 0.520 0.101 0.110	= = = = = = = = = = = = = = = = = = =	Load SCd 0.90 1.00 1.25 1.25	ributar 3.5x 52 1,00 +D 52 1,00 +D 52 52 1,00 0 0 0 0 0 0 0 0 0 0 0 0	0.520 11.25 20.04p 0.00p +L+H 5.500ft n # 1 0.075 ir 0.000 ir 0.099 ir 0.000 ir 0.099 ir 0.000	1 n Ratio n Ratio n Ratio n Ratio DNS C _r 1.00	Maxir Maxir D = D = D = D = D = D = D = D =	Floor Load C Load C Load C Locatic Span # 1757 = 0 < 1329 = 1329 = 1329 = 1320 = 13200 = 13200 = 13	oad) hear S n used Combir on of n # wher >=360 <360 >=240 <240 C_L 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Stress Ra I for this nation naximum e maxim e maxim M 0.78 3.20 0.78 3.20 0.78 0.78	tio span on spar um occu ent Value fb 126.69 520.04 126.69 126.69 421.70	= = = rs = F'b 0.00 900.00 0.00 1000.00 0.00 1250.00 1150.00 0.00 1150.00	Des 3.: 4 S 0.00 0.24 0.00 0.24 0.00 0.24 0.00 0.24 0.00	Sign OK 0,205 36.88 (180.00 (D+L+H 10.077 f pan # 1 Shear Va fv 0.00 8.98 0.00 36.88 0.00 8.98 0.00 8.98 0.00 8.98 0.00	: 1 psi ft lues F 16 18 22 20

	1/1/201	th St	. 2nd E	loor [Room	2										
DESCRIPTIO 12			ess Ratio		Seam	2					Mam	ent Values			Shear Val	
Load Combination Segment Length Sp	an #	M	V V		C _{F/V}	Ci	Cr	Cm	C t	c	M	fb	F'b		fv	F'v
	1		-		1.000	· ·							-	-		
	1	0.079	0.031	1.60		1.00	1.00	1.00	1.00		0.78	126.69	1600.00	0.24	8.98	288.0
-D+0.70E+H		0.070	0.004	1.00	1.000	1.00	1.00	1.00	1.00			100.00	0.00	0.00	0.00	0.0
Length = 11.0 ft		0.079	0.031	1.60	1.000	1.00	1.00	1.00	1.00		0.78	126.69	1600.00	0.24	8.98	288.0
D+0.750Lr+0.750L+0.4					1.000	1.00	1.00	1.00	1.00				0.00	0.00	0.00	0.0
	1	0.264	0.104	1.60	1.000	1.00	1.00	1.00	1.00		2.59	421.70	1600.00	0.79	29.91	288.0
D+0.750L+0.750S+0.4					1.000	1.00	1.00	1.00	1.00				0.00	0.00	0.00	0.0
	1	0.264	0.104	1.60	1.000	1.00		1.00	1.00		2.59	421.70	1600.00	0.79	29.91	288.0
D+0.750L+0.750S+0.5					1.000	1.00	1.00	1.00	1.00				0.00	0.00	0.00	0.0
Length = 11.0 ft 1	1	0.264	0.104	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.59	421.70	1600.00	0.79	29.91	288.0
-0.60D+0.60W+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 11.0 ft 1	1	0.048	0.019	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.47	76.02	1600.00	0.14	5.39	288.0
0.60D+0.70E+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 11.0 ft 1	1	0.048	0.019	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.47	76.02	1600.00	0.14	5.39	288.0
Overall Maximum	Dof	lactio														
Load Combination	Dei			Max "	" Defl L	ocatio	n in Cn	20	Load C	ombin	tion		Max *-	" Defl Lo	cation in	Cnon
		3				ocatio			Loau C	ombina	40011					
+D+L+H			1	C	0.0993		5.540)					0	.0000	0.	000
Vertical Reaction	IS						Su	pport n	otation	: Far I	eft is #		Values in	KIPS		
Load Combination					Suppor	t1 Su	pport 2									
Overall MAXimum					1.1	63	1.163									
Overall MINimum					0.8	880	0.880									
+D+H					0.2	283	0.283									
+D+L+H					1.1	63	1.163									
+D+Lr+H						283	0.283									
+D+S+H						283	0.283									
+D+0.750Lr+0.750L+l	н					943	0.943									
+D+0.750L+0.750S+H						943	0.943									
+D+0.60W+H	1					283	0.283									
+D+0.00W+H +D+0.70E+H						283	0.283									
		w. Li														
+D+0.750Lr+0.750L+(943	0.943									
+D+0.750L+0.750S+0						943	0.943									
+D+0.750L+0.750S+0		E+H				943	0.943									
+0.60D+0.60W+0.60H						70	0.170									
+0.60D+0.70E+0.60H						70	0.170									
D Only					0.2	283	0.283									
Lr Only																
L Only					0.8	380	0.880									
S Only																
W Only																

ic. # : KW-06012032	4 2015 01	0-15	leer "	200-	2								DRE	Structural	Desig
DESCRIPTIO 121	4 30th St -	2nd F	loor E	Seam :	3										
CODE REFERENC															
Calculations per NDS .oad Combination Sei			CBC 2	016, A	SCE 7	-10									
Material Propertie	s														
Load CombinatiBC									1	1,000.0 p 1,000.0 p 1,500.0 p 625.0 p	si si	<i>Modulus</i> Ebend- xx Eminbend	1.	,700.0ks 620.0ks	
Wood Species Doug Wood Grade No.1		cn					Fv			180.0 p	si				
Beam Bracing Bear	n is Fully B	raced a	agains	t latera	l-torsi	onal b	Ft ucklir			675.0 p		Density Repetitive		31.210 po r Stress	
						D(0.01	1) L ((0.08)							
\$		¢				010101	÷				¢				¢
							2x8 1 = 8.0	о н						,	
L						Span	= 8.0	υπ							
Applied Loads Beam self weight calc Uniform Load : D					y Widt	h = 1.(0 ft, (ds entered	. Load Fa	ctors will be	applied f	for calcula	ations
Beam self weight calc	= 0.0110, ?Y ress Ratio	L = 0.08 = =		ributary C).430 2x8 32.03p	1 si		Floor L	oad) ihear S	ds entered Stress Ra d for this	ıtio	=	Des	ign OK 0.244 : 2x8 43.99 p	1 osi
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str	= 0.0110, ?Y ress Ratio	L = 0.08		ributary 0 68 1,58).430 2x8	1 si		Floor L	oad) hear S n usec	Stress Ra	ıtio	=	Des	ign OK 0.244 : 2x8	1 osi
Beam self weight calc Uniform Load : D DESIGN SUMMAR faximum Bending Str Section used for thi	= 0.0110, 1 PY ess Ratio is span um on span	L = 0.08 = = =		ributary 68 1,58 +D-	0.430 2x8 32.03p 37.00p	1 Isi Isi		Floor L mum S Section Load C Location	oad) hear S n usec Combin	Stress Ra	ttio span on spar	= = =	Des +	ign OK 0.244 : 2x8 43.99 p 180.00 p	1 osi osi
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Load Combination Location of maximu	= 0.0110, I PY ess Ratio is span um on span imum occur nsient Deflect al Deflection	= = = rs = :tion		ributary 68 1,58 +D- 4 Spar 0 0 0 0	0.430 2x8 32.03p 37.00p +L+H 4.000ft	1 si Ratio Ratio	Maxi	Floor L mum S Section Locatio Span # 1048 > 0 < 898 >	oad) hear S n used Combin on of r # wher	Stress Ra d for this nation maximum re maxim	ttio span on spar	= = =	Des +	ign OK 0.244 : 2x8 43.99 p 180.00 p D+L+H 7.416 f	1 osi osi
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Load Combination Location of maximu Span # where maxi Maximum Deflectior Max Downward Tran Max Downward Trans Max Downward Trans	= 0.0110, I PY ess Ratio is span im on span mum occur n sient Deflection Deflection Deflection	L = 0.08 = = = stion n	80, T	ributary 68 1,58 +D- 4 Spar 0 0 0 0 0 0	0.430 2x8 32.03 p 37.00 p L+H 1.000 fi .000 ir .000 ir	1 si Ratio Ratio Ratio	Maxi	Floor L mum S Section Locatio Span # 1048 > 0 < 898 >	oad) hear S n used Combin on of r # wher >=360 <360 >=240	Stress Ra d for this nation maximum re maxim	ttio span on spar	= = =	Des +	ign OK 0.244 : 2x8 43.99 p 180.00 p D+L+H 7.416 f	1 osi osi
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Location of maximu Span # where maxi Maximum Deflectior Max Downward Trats Max Downward Trats Max Downward Tots Max Upward Total D Maximum Forces oad Combination	ess Ratio is span um on span mum occur nsient Deflection Deflection & Stresse <u>Max Stre</u>	L = 0.08 = = stion n es for l	B0 , T	ributary 68 1,58 +D- 4 Spar 0 0 0 0 0 0 0 0 0 0 0	0.430 2x8 32.03 p 37.00 p L+H .000 ir .092 ir .000 ir .000 ir .000 ir .000 ir	n Ratio n Ratio n Ratio n Ratio n Ratio	Maxi	Floor L mum S Section Location Span # 1048 > 0 < 898 > 0 <	oad) hear \$ n used Combin on of r # wher >=360 <360 >=240 <240	Stress Ra d for this nation naximum re maxim maxim	ttio span on spar um occu ent Value	= = = n = rs =	Des + Sp	ign OK 0.244 : 2x8 43.99 p 180.00 p D+L+H 7.416 f pan # 1	1 osi t
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Locat Combination Location of maximu Span # where maxi Maximum Deflectior Max Downward Transie Max Downward Transie Max Downward Trats Max Downward Tota Max Upward Total D Maximum Forces oad Combination Segment Length Spa	ess Ratio is span um on span mum occur nsient Deflection Deflection & Stresse <u>Max Stre</u>	L = 0.08 = = = stion n	B0 , T	ributary 68 1,58 +D- 4 Spar 0 0 0 0 0 0	0.430 2x8 32.03 p 37.00 p L+H .000 ir .092 ir .000 ir .000 ir .000 ir .000 ir	n Ratio n Ratio n Ratio n Ratio n Ratio	Maxi	Floor L mum S Section Locatio Span # 1048 > 0 < 898 >	oad) hear \$ n used Combin on of r # wher >=360 <360 >=240 <240	Stress Ra d for this nation naximum re maxim	itio span on spar um occu	= = n = rs = s F'b	Des + Sp 	ign OK 0.244 : 2x8 43.99 p 180.00 p D+L+H 7.416 f oan # 1 Shear Val	1 osi t ues F\
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Load Combination Location of maximu Span # where maxi Maximum Deflectior Max Downward Trat Max Upward Trata Max Upward Trata Max Upward Total D Maximum Forces oad Combination Segment Length Spa D+H Length = 8.0 ft 1	ess Ratio is span um on span mum occur nsient Deflection Deflection & Stresse <u>Max Stre</u>	L = 0.08 = = stion n es for l	Load	ributary 0 68 1,58 +D- 4 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.430: 2x8 32.03p 1.2+H 1.000 fir 1.00 ir 000 ir	n Ration n Ration n Ration n Ration n Ration n Ration Ons C _r 1.15	Maxi	Floor L mum S Section Load C Locatic Span # 1048 > 0 < 898 > 0 < C t	oad) hear { n usec Combin on of r # wher =360 <360 <240 C_L 1.00	Stress Ra d for this nation naximum re maxim maxim	ttio span on spar um occu ent Value fb	= = rs = F'b 0.00 1428.30	Des + \$ \$ V 0.00 0.05	ign OK 0.244 : 2x8 43.99 p D+L+H 7.416 f oan # 1 Shear Val fv 0.00 6.29	1 osi t t F\ 162
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Location of maximu Span # where maxi Maximum Deflectior Max Downward Transik Max Downward Transik Max Upward Transik Max Upward Total D Maximum Forces oad Combination Segment Length Spa D+H Length = 8.0 ft 1 D+L+H Length = 8.0 ft 1	= 0.0110, I PY ess Ratio is span um on span mum occur nsient Deflection al Deflection Deflection & Stresse Max Stre an # M	= = = = = = = = = = = = = = = = = = =	Load DS Cd 0.90	ributary 0 68 1,58 +D- 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.430 2x8 32.03 p 37.00 p -L+H 0.000 ir .000 ir .0	n Ratio n Ratio n Ratio n Ratio ons C _r 1.15 1.15 1.15	Maxi = = = = = = = = = = = = = = = = = = =	Floor L mum S Section Location Span # 1048> 0 < 898> 0 < C t 0 1.00 0 1.00 0 1.00	oad) hear { n usec Combin on of n wher =360 =240 c_L 1.00 1.00 1.00	Stress Ra d for this nation maximum re maxim re maxim <u>Mom</u> M	itio span on spar um occu ent Value fb 97.58	= = rs = rs = <u>s</u> <u>F'b</u> 0.00	Des ++ Sp 	ign OK 0.244 : 2x8 43.99 p D+L+H 7.416 f 7.416 f pan # 1 Shear Vai fv 0.00	1 osi t t 162 0 180
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Load Combination Location of maximu Span # where maxi Maximum Deflectior Max Downward Transk Max Downward Transk Max Upward Transk Max Upward Total D Maximum Forces oad Combination Segment Length Spa D+H Length = 8.0 ft 1 D+L+H	ess Ratio is span um on span imum occur hsient Deflection al Deflection & Stresse Max Stre nn # M 0.068	L = 0.08 = = stion n es for l ess Ratio V 0.039 0.244	Load Dos C _d 0.90 1.00	ributary 0 1,58 +D- 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.430 : 2x8 32.03p 77.00p L+H 1.000 ir 1.00 ir 0.000 ir 0.000 ir 0.000 ir 0.000 ir 0.000 in 1.00 1.00 1.00 1.00	1 n Ratio n Ratio n Ratio n Ratio DNS C _r 1.15 1.15 1.15 1.15	Maxi	Floor L mum S Section Locatic Span # 1048 = 0 < 898 = 0 < C t 0 1.00 0 1.00 0 1.00 0 1.00	oad) hear { n used Combin on of r # wher =360 =240 c_L 1.00 1.00	Stress Ra d for this nation naximum re maxim maxim Mom M 0.11 0.75	itio span on spar um occu ent Value fb 97.58 682.03	= = s rs = F [*] b 0.00 1428.30 0.00	Des + Sp 	ign OK 0.244 : 2x8 43.99 p 180.00 p D+L+H 7.416 f oan # 1 Shear Val fv 0.00 6.29 0.00 43.99 0.00	1 osi osi t 162 0 162 0 180 0 0
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Load Combination Location of maximu Span # where maxi Max Downward Trat Max Downward Trat Max Upward Trate Max Downward Tota Max Upward Total D Maximum Forces oad Combination Segment Length Spa D+H Length = 8.0 ft 1 D+L+H Length = 8.0 ft 1 D+Lr+H Length = 8.0 ft 1 D+Lr+H Length = 8.0 ft 1 D+Lr+H Length = 8.0 ft 1 D+Lr+H Length = 8.0 ft 1 D+Lr+H	ess Ratio is span mon span mum occur hsient Deflect al Deflection & Stresse Max Stre n # M 0.068 0.430 0.049	L = 0.08 = = = stion n = stion n = stion n = 0.039 0.244 0.028	Load Dos Cd 0.90 1.00 1.25	ributary 0 68 1,58 +D- 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0).430 2x8 22.03p 7.00p LL+H .000fit 107 ir .000 ir <u>binatii</u> C _i 1.00 1.00 1.00 1.00	1 si Ratic Ratic DNS Cr 1.15 1.15 1.15 1.15 1.15 1.15 1.15	Maxi = = = = = = = = = = = = = = = = = = =	Floor L mum S Section Location Span # 1048 -= 0 < 898 -= 0 < 0 < 0 < 0 < 0 < 0 < 0 < 0 < 0 < 0 <	oad) hear { n used combin pn of r # wher =360 =240 C_L C_L 1.00 1.00 1.00 1.00 1.00 1.00	Stress Ra d for this nation naximum re maxim re maxim Mom 0.11 0.75 0.11	itio span on spar um occu fb 97.58 682.03 97.58	= = s F'b 0.00 1428.30 0.00 1428.30 0.00 1428.30 0.00 1983.75 0.00	Des ++ Sp 0.00 0.32 0.00 0.05 0.00 0.05 0.00	ign OK 0.244 : 2x8 43.99 p D+L+H 7.416 f pan # 1 Shear Val fv 0.00 6.29 0.00 43.99 0.00 6.29 0.00	1 psi psi t t 162 0 162 0 180 0 225 0
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Load Combination Location of maximu Span # where maxi Maximum Deflectior Max Downward Transik Max Downward Transik Max Downward Transik Max Downward Transik Max Downward Transik Max Downward Total D Maximum Forces oad Combination Segment Length Spa D+H Length = 8.0 ft 1 D+L+H Length = 8.0 ft 1 D+S+H Length = 8.0 ft 1	ess Ratio is span im on span mum occur nsient Deflection Deflection & Stresse <u>Max Stre</u> 0.068 0.430	L = 0.08 = = = stion n = stion n = stion n = 0.039 0.244 0.028	Load Dos Cd 0.90 1.00 1.25	ributary 0 68 1,58 +D- 4 Spar 0 0 0 0 0 0 0 0 0 0 0 0 0	0.430 : 2x8 32.03p 77.00p LL+H 0.000 ir 107 ir 0.000 ir 0.000 ir 0.000 ir 0.000 ir 0.000 in 1.00 1.00 1.00 1.00 1.00	1 si n Ratic n Rat	Maxi = = = = = = = = = = = = = = = = = = =	Floor L mum S Section Location Span # 1048 = 0 < 898 = 0 < C t 0 = 1.00 0 = 1.00	oad) hear { n used combin on of r wher =360 -=240 -=240 	Stress Ra d for this nation naximum re maxim maxim Mom M 0.11 0.75	itio span on spar um occu fb 97.58 682.03 97.58	= = = rs = <u>F'b</u> 0.00 1428.30 0.00 1587.00 0.00 1587.00 0.00 1983.75 0.00 1825.05	Des + + Sp - 	ign OK 0.244 : 2x8 43.99 g D+L+H 7.416 f oan # 1 Shear Val fv 0.00 6.29 0.00 43.99 0.00 6.29 0.00 6.29	1 psi psi t t 162 0 162 0 180 0 0 225 0 227
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Load Combination Location of maximu Span # where maxi Maximum Deflectior Max Downward Trat Max Upward Trats Max Downward Trat Max Upward Trats Max Downward Trats Max Downward Trats Max Downward Trats Max Downward Trats Max Downward Trats Max Downward Trats Max Upward Trats Max Downward Tra	ess Ratio is span im on span imum occur nsient Deflection al Deflection Deflection & Stresse Max Stre an # M 0.068 0.430 0.049 0.053	L = 0.08 = = = stion n = stion n = stion n = 0.039 0.244 0.028	Load 25 C _d 0.90 1.00 1.25 1.15	ributary 0 68 1,58 +D- 4 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.430 : 2x8 32.03p 77.00p L+H 0.000 ir 1.000 ir 0.000 ir 0.000 ir 0.000 ir 0.000 in 0.000 1.00	1 n Ratio n Ratio n Ratio n Ratio n Ratio C r 1.15	Maxi D = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	Floor L mum S Section Locatic Span # 1048 = 0 < 898 = 0 < C t 0 1.00 0 1.00	oad) hear { n used Combin on of r # wher =360 <360 =240 C_L 1.00	Stress Ra d for this nation naximum re maxim re maxim Mom 0.11 0.75 0.11	ttio span on spar um occu ent Value fb 97.58 682.03 97.58 97.58	= = = rs = F'b 0.00 1428.30 0.00 1428.30 0.00 1587.00 0.00 1983.75 0.00 1825.05 0.00 1983.75	Des + \$ \$ V 0.00 0.05 0.00 0.05 0.00 0.05 0.00 0.05 0.00 0.05 0.00 0.05	ign OK 0.244 : 2x8 43.99 p 180.00 p D+L+H 7.416 f oan # 1 5 Shear Val fv 0.00 6.29 0.00 6.29 0.00 6.29 0.00 6.29 0.00 6.29 0.00 6.29 0.00 6.29	1 psi psi t Uues E 0 162 0 180 0 225 0 225 0 225 0 225
Beam self weight calc Uniform Load : D DESIGN SUMMAR Maximum Bending Str Section used for thi Locat Combination Location of maximu Span # where maxi Max Downward Transik Max Downward Transik Max Downward Transik Max Upward Total D Maximum Forces oad Combination Segment Length Spa D+H Length = 8.0 ft 1 D+Lr+H Length = 8.0 ft 1 D+0.750Lr+0.750L+H	ess Ratio is span um on span mum occur hsient Deflect ent Deflection Deflection & Stresse Max Stre n # M 0.068 0.430 0.049 0.053 0.270	L = 0.08 = = = stion n = stion n = stion n = stor I = stor I = 0.039 0.244 0.028 0.030	Load Dos Cd 0.90 1.25 1.15 1.25	ributary 0 68 1,58 +D- 4 Spai 0 0 0 0 0 0 0 0 0 0 0 0 0	0.430 : 2x8 32.03p 37.00p L+H 0.000 ir 100 ir 0.000 ir 0.000 ir 0.000 ir 0.000 in 0.000 i.000 1.00	1 si n Ratic n Rat	Maxi = = = = = = = = = = = = = = = = = = =	Floor L mum S Section Locatic Span 1 1048 -> 0 < 898 -> 0 < C t 1.00 0 1.00 0 1.00	oad) hear S n used Combin on of n wher =360 cable	Stress Ra d for this nation naximum re maxim Mom 0.11 0.75 0.11 0.11	ttio span on spar um occu ent Value fb 97.58 97.58 97.58 97.58 535.92	= = = rs = <u>s</u> <u>F'b</u> 0.00 1428.30 0.00 1587.00 0.00 1587.00 0.00 1825.05 0.00	Des + + Sp - 	ign OK 0.244 : 2x8 43.99 p 180.00 p D+L+H 7.416 f oan # 1 Shear Val fv 0.00 6.29 0.00 6.29 0.00 6.29 0.00 6.29 0.00	1 ues t 162 180 0 225 0 207 0

Lic. # : KW-06012032 DESCRIPTIO 12	14 30	th St -	2nd F	loor E	Beam :	3								DRES	Structural	Desigr
Load Combination	N	lax Stre	ss Ratio	s							Mom	ent Value	s	s	shear Val	ues
Segment Length S	pan #	M	V	Cd	C _{F/V}	Ci	Cr	Cm	Ct	cL _	м	fb	F'b	V	fv	F'v
Length = 8.0 ft	1	0.038	0.022		1.200	1.00	1.15	1.00		1.00	0.11	97 58	2539.20	0.05	6.29	288.
-D+0.70E+H					1.200	1.00		1.00		1.00	0.11	07.00	0.00	0.00	0.00	0.0
Length = 8.0 ft	1	0.038	0.022	1.60	1.200		1.15	1.00		1.00	0.11	97.58	2539.20	0.05	6.29	288.0
D+0.750Lr+0.750L+0.	-				1.200			1.00		1.00	0	07.00	0.00	0.00	0.00	0.0
Length = 8.0 ft	1	0.211	0.120	1.60	1.200	1.00	1.15	1.00	1.00	1.00	0.59	535.92	2539.20	0.25	34.56	288.0
D+0.750L+0.750S+0.	-				1.200			1.00		1.00	0.00	000.02	0.00	0.00	0.00	0.0
Length = 8.0 ft	1	0.211	0.120	1.60			1.15	1.00		1.00	0.59	535 92	2539.20	0.25	34.56	288.
D+0.750L+0.750S+0.		0.211	0.120		1.200			1.00		1.00	0.00	000.02	0.00	0.00	0.00	0.0
Length = 8.0 ft	1	0.211	0.120	1.60	1.200		1.15	1.00		1.00	0.59	535 92	2539.20	0.25	34.56	288.
0.60D+0.60W+0.60H	•	0.211	0.720		1.200		1.15	1.00		1.00	0.00	000.02	0.00	0.00	0.00	0.0
Length = 8.0 ft	1	0.023	0.013	1.60			1.15	1.00		1.00	0.06	59 55	2539.20	0.03	3.78	288.0
0.60D+0.70E+0.60H	•	0.020	0.010	1.00	1.200		1.15	1.00		1.00	0.00	30.33	0.00	0.00	0.00	200.1
Length = 8.0 ft	1	0.023	0.013	1.60				1.00		1.00	0.06	50 55	2539.20	0.00	3.78	288.0
0	-			1.00	1.200	1.00	1.15	1.00	1.00	1.00	0.00	56.55	2009.20	0.03	3.70	200.
Overall Maximu	n Def				. D. 6. 1		- in On							D-0-1-		0
Load Combination		S	pan I	viax. "-	" Defl L	.ocatio	n in Spa	an	Load C	ombina	ation		Max. "+	" Defl Lo	cation in	Span
+D+L+H			1	0	.1069		4.029						0	.0000	0.	000
Vertical Reactio	ns						Su	pport n	otation	: Far le	eft is #		Values ir	NKIPS		
Load Combination					Suppor	t1 Su	pport 2									
Overall MAXimum					0.3	373	0.373									
Overall MINimum					0.3	320	0.320									
+D+H					0.0)53	0.053									
+D+L+H					0.3	373	0.373									
+D+Lr+H					0.0	053	0.053									
+D+S+H					0.0	053	0.053									
+D+0.750Lr+0.750L+	⊦H				0.2	293	0.293									
+D+0.750L+0.750S+	н				0.2	293	0.293									
+D+0.60W+H						053	0.053									
+D+0.70E+H					0.0	053	0.053									
+D+0.750Lr+0.750L+	0.450V	V+H				293	0.293									
+D+0.750L+0.750S+					0.2	293	0.293									
+D+0.750L+0.750S+						293	0.293									
+0.60D+0.60W+0.60						032	0.032									
+0.60D+0.70E+0.60						32	0.032									
D Only						053	0.053									
Lr Only					0.0	/00	0.000									
L Only					0.3	320	0.320									
,					0.0		0.020									
S Only W Only																
W Only E Only																



Load Combination	N	/lax Stre	ess Ratio)S						_	Mome	ent Values	S	S	hear Val	ues
Segment Length	Span #	М	v	Cd	C _{F/V}	Ci	Cr	с _т	C t	cL_	М	fb	F'b	v	fv	F'v
+D+H													0.00	0.00	0.00	0.0
Length = 8.0 ft	1	0.112	0.065	0.90	1.100	1.00	1.00	1.00	1.00	1.00	0.68	110.77	990.00	0.28	10.60	162.00
+D+L+H					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.439	0.258	1.00	1.100	1.00	1.00	1.00	1.00	1.00	2.97	482.62	1100.00	1.22	46.43	180.00
+D+Lr+H					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.081	0.047	1.25	1.100	1.00	1.00	1.00	1.00	1.00	0.68	110.77	1375.00	0.28	10.60	225.00
+D+S+H					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.088	0.051	1.15	1.100	1.00	1.00	1.00	1.00	1.00	0.68	110.77	1265.00	0.28	10.60	207.00
+D+0.750Lr+0.750L	+H				1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.283	0.167	1.25	1.100	1.00	1.00	1.00	1.00	1.00	2.40	389.66	1375.00	0.98	37.48	225.00
+D+0.750L+0.750S+	·Н				1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00

Lic. # : KW-06012032 DESCRIPTIO 1214 3	30th St	- 2nd F	loor F	Beam	4								DRES	Structural	Design
Load Combination	Max Stre			Journ						Morr	ent Value:	5	5	Shear Val	ues
Segment Length Span a		V	Cd	C _{E/V}	Ci	Cr	Сm	Ct	c, -	M	fb	F'b	V	fv	Fν
Length = 8.0 ft 1	0.308	0.181	1.15	1.100	1.00	1.00	1.00		1.00	2.40	389.66	1265.00	0.98	37.48	207.0
D+0.60W+H				1.100	1.00	1.00	1.00		1.00	2.40	000.00	0.00	0.00	0.00	0.0
Length = 8.0 ft 1	0.063	0.037	1.60	1.100	1.00	1.00	1.00		1.00	0.68	110 77	1760.00	0.28	10.60	288.0
-D+0.70E+H	0.000	0.007		1.100	1.00	1.00	1.00		1.00	0.00	110.77	0.00	0.00	0.00	0.0
Length = 8.0 ft 1	0.063	0.037	1.60	1.100	1.00	1.00	1.00		1.00	0.68	110 77	1760.00	0.28	10.60	288.0
D+0.750Lr+0.750L+0.450V		01007	1100	1.100	1.00	1.00	1.00		1.00	0.00	110.77	0.00	0.00	0.00	0.0
Lenath = 8.0 ft 1	0.221	0.130	1.60	1.100	1.00	1.00	1.00		1.00	2.40	389.66	1760.00	0.98	37.48	288.0
D+0.750L+0.750S+0.450W		0.100	1.00	1.100	1.00	1.00	1.00		1.00	6.40	000.00	0.00	0.00	0.00	0.0
Length = 8.0 ft 1	0.221	0.130	1.60	1.100	1.00	1.00	1.00		1.00	2.40	290 66	1760.00	0.98	37.48	288.0
D+0.750L+0.750S+0.5250		0.100	1.00	1.100	1.00	1.00	1.00	1.00	1.00	2.40	303.00	0.00	0.00	0.00	200.0
Length = 8.0 ft 1	0.221	0 130	1.60	1.100	1.00	1.00	1.00		1.00	2.40	200 66	1760.00	0.98	37.48	288.0
-0.60D+0.60W+0.60H	0.661	0.150	1.00	1.100	1.00	1.00	1.00		1.00	2.40	369.00	0.00	0.00	0.00	200.0
Length = 8.0 ft 1	0.038	0.022	1.60	1.100	1.00	1.00	1.00		1.00	0.41	00 40	1760.00	0.00	6.36	288.0
-0.60D+0.70E+0.60H	0.036	0.022	1.00	1.100	1.00	1.00	1.00		1.00	0.41	00.40	0.00	0.00	0.00	288.0
Length = 8.0 ft 1	0.038	0.022	1.60	1.100	1.00	1.00	1.00		1.00	0.41	66.46		0.00		
•			1.00	1.100	1.00	1.00	1.00	1.00	1.00	0.41	66.46	1760.00	0.17	6.36	288.0
Overall Maximum D															
Load Combination	S	ipan	Max. "-	* Defl L	ocatio	n in Sp	an	Load C	combination	ation		Max. "+	"Defl Lo	cation in	Span
+D+L+H		1	0	.0491		4.000)					0	0000	0.	000
Vertical Reactions						Su	pport r	notation	n : Far I	eft is #'		Values in	KIPS		
Load Combination				Suppor	t1 Su	pport 2									
Overall MAXimum				1.4	117	1.290									
Overall MINimum				1.0)90	0.990									
+D+H				0.3	327	0.300									
+D+L+H				1.4	117	1.290									
+D+Lr+H				0.3	327	0.300									
+D+S+H				0.3	327	0.300									
+D+0.750Lr+0.750L+H				1.1	144	1.042									
+D+0.750L+0.750S+H				1.1	44	1.042									
+D+0.60W+H				0.3	327	0.300									
+D+0.70E+H				0.3	327	0.300									
+D+0.750Lr+0.750L+0.45	ioW+H				44	1.042									
+D+0.750L+0.750S+0.45				1.1	144	1.042									
+D+0.750L+0.750S+0.52					44	1.042									
+0.60D+0.60W+0.60H					196	0.180									
+0.60D+0.70E+0.60H					96	0.180									
D Only					327	0.300									
Lr Only						0.000									
L Only				1 ()90	0.990									
S Only				1.0		5.550									
W Only E Only															

c. # : KW-06012032						DRE Structural De
DESCRIPTIO 1214 30th St - 2	2nd Floor	Beam 5				
CODE REFERENCES						
alculations per NDS 2015, IBC 20	015, CBC	2016, ASCE 7-10				
oad Combination Set : IBC 2018						
Material Properties						
Analysis MethorAllowable Stress Load CombinatilBC 2018	Design		Fb + Fb - Fc - Prll	2900 psi 2900 psi 2900 psi	<i>E : Modulus o</i> Ebend- xx Eminbend -	<i>f Elasti</i> 2000ksi x 1016.535ksi
Wood Species iLevel Truss Joist Wood Grade Parallam PSL 2.0			Fc - Perp Fv	750 psi 290 psi		
Beam Bracing Beam is Fully Bra	aced adain	nst lateral-torsional bud	Ft kling	2025 psi	Density	45.07pcf
,,,		D(0.	-			
\$	0	D(0.043)		0		0
4	0			\$		0
A		3.5x	9.25			~
▲		3.5xt Span =				
Applied Loads			5.50 ft	pads entered. Lo	ad Factors will be a	applied for calculation
Beam self weight calculated and a		Span =	5.50 ft Service lo		ad Factors will be a	applied for calculation
Beam self weight calculated and a Uniform Load : D = 0.0430, L	= 0.160 ,	Span = pads Tributary Width = 1.0	5.50 ft Service lo		ad Factors will be a	applied for calculation
Beam self weight calculated and a Uniform Load : D = 0.0430, L Uniform Load : D = 0.160, Tri	= 0.160 ,	Span = pads Tributary Width = 1.0	5.50 ft Service lo		ad Factors will be a	applied for calculatio
Beam self weight calculated and a Uniform Load : D = 0.0430, L Uniform Load : D = 0.160, Tri DESIGN SUMMARY	= 0.160 , butary Wie	Span = pads Tributary Width = 1.0 t dth = 1.0 ft	5.50 ft Service Id)		Design OK
Beam self weight calculated and a Uniform Load : D = 0.0430, L Uniform Load : D = 0.160, Tri DESIGN SUMMARY	= 0.160 ,	Span = bads Tributary Width = 1.0 fd dth = 1.0 ft 0.117: 1 M	5.50 ft Service lo ft, (Floor Load laximum Shea) ar Stress Ratio	=	Design OK 0.118 : 1
Beam self weight calculated and a Uniform Load : D = 0.0430, L Uniform Load : D = 0.160, Tri DESIGN SUMMARY Maximum Bending Stress Ratio	= 0.160 , butary Wie	Span = pads Tributary Width = 1.0 t dth = 1.0 ft	5.50 ft Service lo ft, (Floor Load laximum Shea)	=	Design OK
Beam self weight calculated and a Uniform Load : D = 0.0430, L Uniform Load : D = 0.160, Tri DESIGN SUMMARY Maximum Bending Stress Ratio	= 0.160 , butary Wie	Span = bads Tributary Width = 1.0 fd dth = 1.0 ft 0.117: 1 M 3.5x9.25	5.50 ft Service lo ft, (Floor Load laximum Shea) ar Stress Ratio	= n	Design OK 0.118 : 1 3.5x9.25
Beam self weight calculated and a Uniform Load : D = 0.0430, L Uniform Load : D = 0.160, Tri DESIGN SUMMARY Iaximum Bending Stress Ratio Section used for this span	= 0.160 , butary Wie = =	Span = pads Tributary Width = 1.0 ft 0.117: 1 M 3.5x9.25 339.22psi 2,900.00psi +D+L+H	5.50 ft Service k ft, (Floor Load laximum Shea Section us Load Com) ar Stress Ratio sed for this spa abination	= n = =	Design OK 0.118 : 1 3.5x9.25 34.36 psi 290.00 psi +D+L+H
Beam self weight calculated and a Uniform Load : D = 0.0430, L Uniform Load : D = 0.160, Tri DESIGN SUMMARY Maximum Bending Stress Ratio Section used for this span Load Combination Location of maximum on span	= 0.160 , butary Wie = = = =	Span = pads Tributary Width = 1.0 f dth = 1.0 ft 0.117: 1 M 3.5x9.25 339.22 psi 2,900.00 psi +D+L+H 2.750 ft	5.50 ft Service lo ft, (Floor Load laximum Shea Section us Load Com Location o) ar Stress Ratio sed for this spa ubination of maximum on	n = = = span =	Design OK 0.118 : 1 3.5x9.25 34.36 psi 290.00 psi +D+L+H 4.737 ft
Jeam self weight calculated and a Uniform Load : D = 0.0430, L Uniform Load : D = 0.160, Tri DESIGN SUMMARY laximum Bending Stress Ratio Section used for this span Load Combination Location of maximum on span Span # where maximum occurs	= 0.160 , butary Wie = = = =	Span = pads Tributary Width = 1.0 ft 0.117: 1 M 3.5x9.25 339.22psi 2,900.00psi +D+L+H	5.50 ft Service lo ft, (Floor Load laximum Shea Section us Load Com Location o) ar Stress Ratio sed for this spa abination	n = = = span =	Design OK 0.118 : 1 3.5x9.25 34.36 psi 290.00 psi +D+L+H
Beam self weight calculated and a Uniform Load : D = 0.0430, L Uniform Load : D = 0.160, Tri DESIGN SUMMARY Maximum Bending Stress Ratio Section used for this span Load Combination Location of maximum on span	= 0.160 , butary Wie = = = = =	Span = pads Tributary Width = 1.0 f dth = 1.0 ft 0.117: 1 M 3.5x9.25 339.22 psi 2,900.00 psi +D+L+H 2.750 ft	5.50 ft Service lo ft, (Floor Load laximum Shea Section us Load Com Location o Span # wh) ar Stress Ratio sed for this spa ubination of maximum on here maximum	n = = = span =	Design OK 0.118 : 1 3.5x9.25 34.36 psi 290.00 psi +D+L+H 4.737 ft
Seam self weight calculated and a Uniform Load : D = 0.0430, L = Uniform Load : D = 0.160, Tri DESIGN SUMMARY Maximum Bending Stress Ratio Section used for this span Load Combination Location of maximum on span Span # where maximum occurs Maximum Deflection Max Downward Transient Deflection Max Upward Transient Deflection	= 0.160 , butary Wie = = = = =	Span = pads Tributary Width = 1.0 ft 0.117: 1 M 3.5x9.25 339.22psi 2,900.00psi +D+L+H 2.750ft Span # 1 0.007 in Ratio = 0.000 in Ratio =	5.50 ft Service k ft, (Floor Load laximum Shea Section us Load Com Location c Span # wt = 9196 >=36 = 0 <360) ar Stress Ratio sed for this spa abination of maximum on here maximum 60	n = = = span =	Design OK 0.118 : 1 3.5x9.25 34.36 psi 290.00 psi +D+L+H 4.737 ft
Beam self weight calculated and a Uniform Load : D = 0.0430, L Uniform Load : D = 0.160, Tri DESIGN SUMMARY Maximum Bending Stress Ratio Section used for this span Load Combination Location of maximum on span Span # where maximum occurs Maximum Deflection Max Downward Transient Deflection	= 0.160 , butary Wie = = = = =	Span = pads Tributary Width = 1.0 f dth = 1.0 ft 0.117: 1 M 3.5x9.25 339.22psi 2,900.00psi +D+L+H 2.750ft Span # 1 0.007 in Batio =	5.50 ft Service k ft, (Floor Load laximum Shea Section us Load Com Location o Span # wt = 9196 >=36 = 0 <364 = 3943 >=24) ar Stress Ratio sed for this spa obination of maximum on here maximum 60 0	n = = = span =	Design OK 0.118 : 1 3.5x9.25 34.36 psi 290.00 psi +D+L+H 4.737 ft

Load Combination	N	Max Stre	ess Ratio	s							Mom	ent Value:	s	S	Shear Val	ues
Segment Length	Span #	М	v	Cd	C _{F/V}	Ci	Cr	cm	сt	cL _	М	fb	F'b	V	fv	F'v
+D+H													0.00	0.00	0.00	0.00
Length = 5.50 ft	1	0.074	0.075	0.90	1.000	1.00	1.00	1.00	1.00	1.00	0.81	193.76	2610.00	0.42	19.62	261.00
+D+L+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.50 ft	1	0.117	0.118	1.00	1.000	1.00	1.00	1.00	1.00	1.00	1.41	339.22	2900.00	0.74	34.36	290.00
+D+Lr+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.50 ft	1	0.053	0.054	1.25	1.000	1.00	1.00	1.00	1.00	1.00	0.81	193.76	3625.00	0.42	19.62	362.50
+D+S+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.50 ft	1	0.058	0.059	1.15	1.000	1.00	1.00	1.00	1.00	1.00	0.81	193.76	3335.00	0.42	19.62	333.50
+D+0.750Lr+0.750L+	⊧H				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.50 ft	1	0.084	0.085	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.26	302.85	3625.00	0.66	30.67	362.50
+D+0.750L+0.750S+	H				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00

+D+0.750E+0.7500+11			1.000	1.00	1.00	1.00	1.00	1.00		0.00	0.00	0.00	0.00
Length = 5.50 ft 1	0.091	0.092	1.15 1.000	1.00	1.00	1.00	1.00	1.00	1.26	302.85 3335.00	0.66	30.67	333.50

Wood Beam	
Lic. # : KW-06012032	DRE Structural Design
DESCRIPTIO 1214 30th St - 2nd Floor Beam 5	

Load Combination	N	Max Stre	ess Ratio	s							Mom	ent Value	s	s	hear Val	ues
Segment Length	Span #	M	V	Cd	C _{F/V}	Ci	Cr	сm	с _t	cL _	м	fb	F'b	v	fv	F'v
+D+0.60W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 5.50 ft	1	0.042	0.042	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.81	193.76	4640.00	0.42	19.62	464.0
+D+0.70E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 5.50 ft	1	0.042	0.042	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.81	193.76	4640.00	0.42	19.62	464.0
+D+0.750Lr+0.750L	+0.450W-				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 5.50 ft	1	0.065	0.066	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.26	302.85	4640.00	0.66	30.67	464.0
+D+0.750L+0.750S+	+0.450W+				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 5.50 ft	1	0.065	0.066	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.26	302.85	4640.00	0.66	30.67	464.0
+D+0.750L+0.750S+	+0.5250E-				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 5.50 ft	1	0.065	0.066	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.26	302.85	4640.00	0.66	30.67	464.0
+0.60D+0.60W+0.60	ЭН				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 5.50 ft	1	0.025	0.025	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.48	116.26	4640.00	0.25	11.77	464.0
+0.60D+0.70E+0.60	н				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.0
Length = 5.50 ft	1	0.025	0.025	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.48	116.26	4640.00	0.25	11.77	464.0
Overall Maxim	um Dot	Ilectio	ne													

Overall Maximum Deflection		1.60 1.000 1.0	0 1.00 1.	00 1.00 1.00	0.48	116.26 4640.0	00 0.25	11.77 46
Load Combination Spa		Max. "-" Defl Locati	on in Span	Load Combina	ation	Ma	x. "+" Defl Lo	ocation in Spa
+D+L+H	1	0.0167	2.770				0.0000	0.000
Vertical Reactions			Suppo	ort notation : Far I	eft is #	Valu	es in KIPS	
Load Combination		Support 1 S	upport 2					
Overall MAXimum		1.026	1.026					
Overall MINimum		0.440	0.440					
+D+H		0.586	0.586					
+D+L+H		1.026	1.026					
+D+Lr+H		0.586	0.586					
+D+S+H		0.586	0.586					
+D+0.750Lr+0.750L+H		0.916	0.916					
+D+0.750L+0.750S+H		0.916	0.916					
+D+0.60W+H		0.586	0.586					
+D+0.70E+H		0.586	0.586					
+D+0.750Lr+0.750L+0.450W+H		0.916	0.916					
+D+0.750L+0.750S+0.450W+H		0.916	0.916					
+D+0.750L+0.750S+0.5250E+H		0.916	0.916					
+0.60D+0.60W+0.60H		0.352	0.352					
+0.60D+0.70E+0.60H		0.352	0.352					
D Only		0.586	0.586					
Lr Only								
L Only		0.440	0.440					
S Only								
W Only								
E Only								
H Only								

Lic. # : KW-06012032	_													DRE	Structural	Desigr
DESCRIPTIO	1214 30	th St -	2nd F	loor E	Beam (6										
CODE REFER	ENCES															
Calculations per l Load Combinatio				CBC 2	016, A	SCE 7	-10									
Material Prop	erties															
Analysis Method Load Combinati Wood Species Wood Grade	iBC 2018 iLevel Tri) uss Joi	st	IU							2,900.0 p 2,900.0 p 2,900.0 p 750.0 p 290.0 p 2,025.0 p	si si si	: Modulus of Ebend- xx Eminbend Density	2 - x 1,0	,000.0ks	i
Beam Bracing	Beam is	Fully B	raced a	agains	t latera	l-torsio	onal bi		g		2,020.0 p	51	Density		63.070 pt	-1
														D(0	.586) L(0	.44)
													D(0.16)			
											÷	÷	÷	÷		
											0					
.				3.5x9	9.25								3.5x9.25			
			5	Span =	80 ft							e.	0.50.0			
					0.0 11						1	0	pan = 3.50 f	ι		
4					0.0 1							5	pan = 3.50 f	t		
Applied Loads	S				0.0 1				Servi	ce load	ds entered		actors will be		for calcula	ations.
Beam self weight	t calculate umber 2 D = 0.586	60, L =	added 0.440	to loa k @ 3	ds .50 ft, (Load)		Servi	ce load	ds entered				for calcula	ations.
Beam self weight Load for Span Nu Point Load : 1	t calculate umber 2 D = 0.586 : D = 0.1	60, L =	added 0.440	to loa k @ 3	ds .50 ft, (Load)		Servi	ce load	ds entered			applied 1	for calcula	ations.
Beam self weight Load for Span Nu Point Load : I Uniform Load DESIGN SUMI Maximum Bendin Section used f	t calculate umber 2 D = 0.586 : D = 0.1 <u>MARY</u> g Stress or this sp	60, L = 160 , T Ratio	added 0.440	to loa k @ 3	ds .50 ft, (th = 1.0 3.5 1,11 2,90) ft 0.384: ⁻ (9.25 13.91 p 00.00 p	1 si		num S Sectio	hear S	Stress Ra d for this	. Load Fa		applied b Des 3.	ign OK 0.238 5x9.25 69.11 p 290.00 p	1 DSi
Beam self weight Load for Span Nu Point Load : I Uniform Load DESIGN SUMI Maximum Bendin Section used for Load Combina Location of ma	t calculate umber 2 D = 0.586 : D = 0.1 MARY g Stress or this sp ation aximum o	80, L = 160 , T Ratio ean	added 0.440 ributary = = = =	to loa k @ 3	ds .50 ft, (h = 1.0 (3.5) 1,11 2,90 +D-) ft).384: 1 (9.25 3.91 p	1 Isi Isi		num S Sectio Load (hear S n used Combi	Stress Ra d for this nation naximum	. Load Fa tio span on spar	ectors will be = = = n =	applied t Des 3.	ign OK 0.238 5x9.25 69.11 p 290.00 p D+L+H 8.000 f	1 osi
Beam self weight Load for Span Nu Point Load : I Uniform Load DESIGN SUMI Maximum Bendin Section used f Load Combina Location of ma Span # where	t calculate umber 2 D = 0.586 : D = 0.1 <u>MARY</u> g Stress or this sp ation aximum o maximum o	80, L = 160 , T Ratio ean	added 0.440 ributary = = = =	to loa k @ 3	ds .50 ft, (h = 1.0 3.5» 1,11 2,90 +D- 8) ft (9.25 (3.91 p)0.00 p +L+H	1 Isi Isi		num S Sectio Load (hear S n used Combi	Stress Ra d for this nation	. Load Fa tio span on spar	ectors will be = = = n =	applied t Des 3.	ign OK 0.238 5x9.25 69.11 p 290.00 p D+L+H	1 osi
Beam self weight Load for Span Nu Point Load : I Uniform Load DESIGN SUM Maximum Bendin Section used for Load Combina Location of ma	t calculate umber 2 D = 0.586 : D = 0.1 MARY g Stress or this sp ation aximum o maximum o maximum d Transien ransient D d Total Dei	60, L = 160, T Ratio an n span n occur t Deflec eflection	added 0.440 ributary = = = s = tion	to loa k @ 3	ds .50 ft, (h = 1.0 3.5 1,11 2,90 +D- 8 Spar 0 -0 0 0) ft (9.25 (3.91 p (0.00 p (L+H 3.000 ft	1 si n Ratio n Ratio) =) =) =	num S Sectio Load (Locatio Span # 1086: 4027 :	hear S n used combion of r # wher >=360 >=360	Stress Ra d for this nation naximum re maxim	. Load Fa tio span on spar	ectors will be = = = n =	applied t Des 3.	ign OK 0.238 5x9.25 69.11 p 290.00 p D+L+H 8.000 f	1 osi
Beam self weight Load for Span Nu Point Load : I Uniform Load DESIGN SUM Maximum Bendin Section used for Load Combina Location of ma Span # where Max Downward Max Upward T Max Downward Max Upward T Max Upward T	t calculate umber 2 D = 0.586 : D = 0.1 MARY g Stress or this sp d Stress or this sp tion aximum o maximum d Transien d Transient D d Total Deflect ces & S	60, L = 160, T Ratio an n span n occur t Deflection flection ction tresse	added 0.440 l ributary = = = s = tion n	to loa k @ 3 y Widt	ds .50 ft, (th = 1.0 3.5 1,11 2,90 +D- 8 Spar 0 -0 0 -0	0.384: (9.25 (3.91 p) 00.00 p ⊢L+H 3.000 ft n # 1 .077 ir .024 ir .226 ir .070 ir	1 si n Ratio n Ratio n Ratio n Ratio) =) =) =	num S Sectio Locatio Span a 1086 : 4027 : 372 :	hear S n used combion of r # wher >=360 >=360	Stress Ra d for this nation naximum e maxim	. Load Fa ttio span on spar um occu	= = = n = irs =	applied t Des 3. + Sp	ign OK 0.238 : 5x9.25 69.11 p 290.00 p D+L+H 8.000 f ban # 1	1 osi osi t
Beam self weight Load for Span Nu Point Load : I Uniform Load DESIGN SUM Maximum Bendin Section used for Load Combina Location of ma Span # where Max Downward Max Downward T Max Downward T Max Downward T Max Downward T Max Downward T Max Downward T Max Downward T	t calculate umber 2 D = 0.586 : D = 0.1 MARY g Stress or this sp tion aximum o maximum d Transien ransient D d Total Deflect ces & S	60, L = 160, T Ratio an n span n occur t Deflection flection ction tresse	added 0.440 ributary = = = s s = tion n	to loa k @ 3 y Widt	ds .50 ft, (th = 1.0 3.5 1,11 2,90 +D- 8 Spai 0 -0 0 -0 Comt	0.384: (9.25 13.91 p 0.00 p 1.24 1.000 ft 0.024 ir 0.226 ir 0.226 ir 0.70 ir 0.070 ir 0.010 ir	n Ratio n Ratio n Ratio n Ratio n Ratio ons) =) =) =	num S Sectio Locatio Span a 1086 : 4027 : 372 : 1376 :	hear S n used on of r # wher >=360 >=240 >=240	Stress Ra d for this nation naximum e maxim	. Load Fa tio span on spar	= = = n = irs =	applied t Des 3. + Sp	ign OK 0.238 : 5x9.25 69.11 p 290.00 p D+L+H 8.000 f ban # 1 Shear Val	1 osi t
Beam self weight Load for Span Nu Point Load : I Uniform Load DESIGN SUM Maximum Bendin Section used for Load Combina Location of ma Span # where Max Downward Max Downward Max Downward Max Upward T Max Downward Max Upward T Max Downward Max Upward T Max Downward Max Upward T	t calculate umber 2 D = 0.586 : D = 0.1 MARY g Stress or this sp tion aximum o maximum d Transien ransient D d Total Deflect cotal Deflect CCCS & S	60, L = 160, T Ratio an n span n occur t Deflection flection ction tresse Max Stree	added 0.440 ributary = = = s = tion n	to loa k @ 3 y Widt	ds .50 ft, (th = 1.0 3.5 1,11 2,90 +D- 8 Spar 0 -0 0 -0	0.384: (9.25 (3.91 p) 00.00 p ⊢L+H 3.000 ft n # 1 .077 ir .024 ir .226 ir .070 ir	n Ratio n Ratio n Ratio n Ratio n Ratio ons) =) =) =	num S Sectio Locatio Span a 1086 : 4027 : 372 :	hear S n used on of r # wher >=360 >=240 >=240	Stress Ra d for this nation naximum e maxim Mom	. Load Fa ttio span on spar um occu ent Value	n = In = Ins =	applied t Des 3. + Sp	ign OK 0.238 : 5x9.25 69.11 p 290.00 p D+L+H 8.000 f ban # 1	1 psi t t F'v
Beam self weight Load for Span Nu Point Load : I Uniform Load DESIGN SUM Maximum Bendin Section used f Load Combina Location of ma Span # where Max Downward Max Down Max	t calculate umber 2 D = 0.586 : D = 0.1 MARY g Stress or this sp ation aximum o maximum o maximum o d Total Deflect otal Deflect ces & S N Span #	60, L = 160, T Ratio an n span n occur t Deflection flection tresse Max Stre M 0.285	added 0.440 ributary = = s = tion n ss for I v 0.187	to loa k @ 3 y Widt	ds .50 ft, (th = 1.0 3.5 1,11 2,90 + D 8 Spar 0 -0 0 -0 0 -0 Comb C _{F/V} 1.000	0 ft 0.384: 0.384: 0.00p 0.00p L+H 3.000 ft 0.24 ir 0.226 ir 0.77 ir 0.77 ir 0.24 ir 0.77 ir 0.24 ir 0.70 ir 0.00	n Ration n Ration n Ration n Ration n Ration n Ration ons C _r 1.00	0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	num S Sectio Locatio Span 4 1086 : 4027 : 372 : 1376 : 1376 : C t	hear { n used combi =360 =240 c_L	Stress Ra d for this nation naximum re maxim maxim Mom M 3.09	. Load Fa ttio span on spar um occu ent Value fb 743.65	ectors will be = = n = IrS = F'b 0.00 2610.00	applied 1 Des 3. + Sp	ign OK 0.238 : 5 5 9.25 69.11 p 290.00 p D+L+H 8.000 f ban # 1 Shear Val fv 0.00 48.73	1 psi t t F'V 0. 261
Beam self weight Load for Span Nu Point Load : I Uniform Load DESIGN SUMI Maximum Bendin Section used f Load Combina Location of ma Span # where Maximum Defle Max Downward Max Upward T Max Downward Max Upward T Max Downward Max Upward T Max Downward Max Upward T	t calculate umber 2 D = 0.586 : D = 0.1 MARY g Stress or this sp ation aximum o maximum d Transient d Transient d Total Deflect ces & S N Span #	60, L = 160, T Ratio an n span n occur t Deflection flection tresse Max Stre M 0.285	added 0.440 ributary = = s = tion n s for I ss Ratio V	to loa k @ 3 y Widt	ds .50 ft, (h = 1.0 3.5 1,11 2,90 +D- 8 Spar 0 -0 0 0 0 0 0 0 0 Comt) ft (9.384: (9.25) (3.91 p) (0.00 p) (L+H 3.000 ft n # 1 .077 ir .226 ir .070 ir 070 ir oinatio	n Ration n Ration n Ration n Ration n Ration C r) =) =) = C _m	num S Sectio Locatio Span 4 1086 : 4027 : 372 : 1376 : 1376 : C t 1.00 1.00	hear { n used combi pn of r # when =360 ==240 >=240 C L	Stress Ra d for this nation naximum re maxim Mom M	. Load Fa ttio span on spar um occu ent Value fb 743.65	ectors will be = = = n = rrs = <u>rs</u> <u>F'b</u> 0.00	applied t Des 3. + Sp 	ign OK 0.238 : 5x9.25 69.11 p 290.00 p D+L+H 8.000 f Dan # 1 Shear Val	1 Jasi Jasi t <u>ues</u> F ^r v

Lengtri = 3.50 it	4	0.304	0.230	1.00 1.000	1.00	1.00	1.00	1.00	1.00	4.63	1,113.91	2900.00	1.49	69.11	290.00
+D+Lr+H				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.205	0.134	1.25 1.000	1.00	1.00	1.00	1.00	1.00	3.09	743.65	3625.00	1.05	48.73	362.50
Length = 3.50 ft	2	0.205	0.134	1.25 1.000	1.00	1.00	1.00	1.00	1.00	3.09	743.65	3625.00	1.05	48.73	362.50
+D+S+H				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.223	0.146	1.15 1.000	1.00	1.00	1.00	1.00	1.00	3.09	743.65	3335.00	1.05	48.73	333.50

2nd FLOOR BEAM - B6

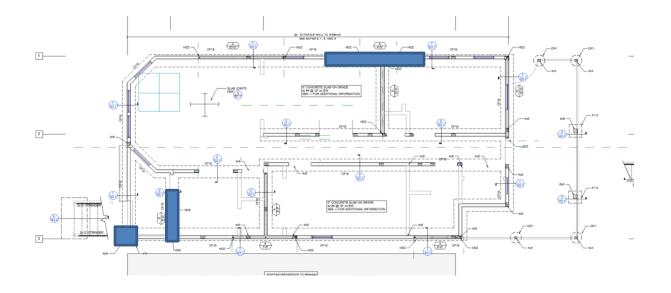
Wood Beam	
Lic. # : KW-06012032	DRE Structural Design
DESCRIPTIO 1214 30th St - 2nd Floor Beam 6	

Load Combination	M		ss Ratio)S						_		nent Values	-	s	hear Val	ues
Segment Length S	ipan #	м	V	Cd	C _{F/V}	Ci	Cr	Сm	сt	c _L –	м	fb	F'b	V	fv	F'v
Length = 3.50 ft	2	0.223	0.146	1.15	1.000	1.00	1.00	1.00	1.00	1.00	3.09	743.65	3335.00	1.05	48.73	333.50
+D+0.750Lr+0.750L+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.282	0.177	1.25	1.000	1.00	1.00	1.00	1.00	1.00	4.25	1,021.34	3625.00	1.38	64.02	362.50
Length = 3.50 ft	2	0.282	0.177	1.25	1.000	1.00	1.00	1.00	1.00	1.00	4.25	1,021.34	3625.00	1.38	64.02	362.50
+D+0.750L+0.750S+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.306	0.192	1.15	1.000	1.00	1.00	1.00	1.00	1.00	4.25	1,021.34	3335.00	1.38	64.02	333.50
Length = 3.50 ft	2	0.306	0.192	1.15	1.000	1.00	1.00	1.00	1.00	1.00	4.25	1,021.34	3335.00	1.38	64.02	333.50
+D+0.60W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.160	0.105	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.09	743.65	4640.00	1.05	48.73	464.00
Length = 3.50 ft	2	0.160	0.105	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.09	743.65	4640.00	1.05	48.73	464.00
+D+0.70E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.160	0.105	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.09	743.65	4640.00	1.05	48.73	464.00
Length = 3.50 ft	2	0.160	0.105	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.09	743.65	4640.00	1.05	48.73	464.00
+D+0.750Lr+0.750L+0.	.450W-				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.220	0.138	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.25	1,021.34	4640.00	1.38	64.02	464.00
Length = 3.50 ft	2	0.220	0.138	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.25	1,021.34	4640.00	1.38	64.02	464.00
+D+0.750L+0.750S+0.4	450W+				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.220	0.138	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.25	1,021.34	4640.00	1.38	64.02	464.00
Length = 3.50 ft	2	0.220	0.138	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.25	1,021.34	4640.00	1.38	64.02	464.00
+D+0.750L+0.750S+0.5	5250E-				1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.220	0.138	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.25	1.021.34	4640.00	1.38	64.02	464.00
Length = 3.50 ft	2	0.220	0.138	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.25	1.021.34	4640.00	1.38	64.02	464.00
+0.60D+0.60W+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.096	0.063	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.86	446.19	4640.00	0.63	29.24	464.00
Length = 3.50 ft	2	0.096	0.063	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.86	446.19	4640.00	0.63	29.24	464.00
+0.60D+0.70E+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.096	0.063	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.86	446.19	4640.00	0.63	29.24	464.00
Length = 3.50 ft	2	0.096	0.063	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.86	446.19	4640.00	0.63	29.24	464.00
Overall Maximur	m Defl	ectio	ns													
Load Combination		S	pan I	Max. "-	" Defi I	Locatior	n in Spa	an	Load C	ombin	ation		Max. "-	+" Defl Lo	cation in	Span
+D+L+H			1		.0000 .2256		0.000		+D+L	.+H				0.0697 0.0000		648 648
			2		.2200				otation	· Ear	left is #'		Values i			040
Load Combination	ns				Cuppe	+ 1 Cur				. rai			values	II KIPS		
Overall MAXimum						rt 1 Sup 539	2.241	Suppo	ліз							
Overall MINimum						346	0.633									
+D+H																
+D+H +D+L+H						346 539	1.609									
+D+L+H +D+Lr+H						346	1.609									
+D+S+H						346	1.609									
+D+0.750Lr+0.750L+ +D+0.750L+0.750S+						490 490	2.083									
	н															
						346 346	1.609									
+D+0.60W+H		/+H				346 490	2.083									
+D+0.70E+H	0 45014	+=				490 490										
+D+0.70E+H +D+0.750Lr+0.750L+		- LL				100 m	2.083									
+D+0.70E+H +D+0.750Lr+0.750L+ +D+0.750L+0.750S+	0.450W						2 002									
+D+0.70E+H +D+0.750Lr+0.750L+ +D+0.750L+0.750S+ +D+0.750L+0.750S+	0.450W 0.5250E				-0.	490	2.083									
+D+0.70E+H +D+0.750Lr+0.750L+ +D+0.750L+0.750S+ +D+0.750L+0.750S+ +0.60D+0.60W+0.60	0.450W 0.5250E				-0.	490 208	0.965									
+D+0.70E+H +D+0.750Lr+0.750L+ +D+0.750L+0.750S+ +D+0.750L+0.750S+	0.450W 0.5250E				-0. -0.	490										

FOUNDAITON DESIGN

Job #19050 Foundation Layout

New Foundation Layout



For Design:

- 1. See above for new footing layout.
- 2. Assume allowable soil pressure = 1500 psf (code minimum)
- 3. Assume 1/3 increase for short term loading
- 4. Check 2 locations

1. Check new shearwall along Grid 1 Pdl = 2.86 kips Plr = 7.8 kips includes roof dead Pseismic = 1.1 kips_ and live load 2. Check new shearwall along Grid B Pdl = 0.8 kips Plr = 1.2 kips includes roof dead Pseismic = 0.397 kips_ and live load 3. Check new post on existing cont ftg (Grids A/3) Pdl = 0.44 kips Plr = kips includes roof dead 0.8 kips_ and live load Pseismic =

Eccentrically Loaded Footing Design P_{wall/col} d_2 d₁ $P_{wall/col} = 1,066 \text{ lbs}$ $d_1 =$ 2.0 ft $d_2 =$ 0.5 ft Н Allowable Soil Pressure= 1500 psf □ Short Term Loads(4/3 increase) е |**∢** |P H = 1.5 ft L = 1.5 ft L b = 1.0 ft Weight of conc. = 150 pcf Loading Diagram Stem Thickness = 0 in Stem Width = 0.0 ft f_1 Slab Thickness = 5 in f_2 Eff. Slab Width = 6.0 ft $P_{ftg} =$ 338 lbs P_{stem} = 0 lbs ft4 I_{ftg} = 0.3 $P_{slab} =$ 375 lbs $P_{total} = 1,779 \text{ lbs}$ Moment about center of footing = -15 lbs-ft e = M / P = -0.01 ft OK $f_1 =$ 1225 psf OK < 1500 psf $f_2 = 1146 \text{ psf OK} < 1500 \text{ psf}$ Uniform bearing pressure form footing, stem and slab = 475 psf

 f_{max} withouth Slab, Stem or Footing = 671 psf OK < 1500 psf

Footing Design of Shear Wall Based on ACI 318-14

INPUT DATA: Line 1 (10'-0")						Pr
WALL LENGTH	L _w =	10	ft		- 、	
WALL HEIGHT	h =	8	ft			F
WALL THICKNESS	t =	4	in			й ́м
FOOTING LENGTH	L =	15	ft		h	P _w
	L ₁ =	5	ft			
FOOTING WIDTH	B =	1.5	ft			,
FOOTING THICKNESS	T =	18	in			Pf
FOOTING EMBEDMENT DEPTH	D =	2.5	ft		D r	I
ALLOWABLE SOIL PRESSURE (D+L)	q _a =	2000	psf			
UNFACTORED DEAD LOAD AT TOP WAI	$P_{r,DL} =$	2.86	kips			
UNFACTORED LIVE LOAD AT TOP WALI	P _{r,LL} =	7.8	kips			
TOP LOAD LOCATION	a =	5	ft			
WALL SELF WEIGHT	P _w =	1.6	kips			
LATERAL LOAD TYPE (0=wind,1=seismic)		1	seismic			
SEISMIC LOADS AT TOP (E/1.4 , ASD)	F =	1.1	kips			THE FOOTING DESIGN IS ADEQUATE.
	M =	46.8	ft-kips			
CONCRETE STRENGTH	f _c ' =	2500	psi			
REBAR YIELD STRESS	$f_y =$	60	ksi			
TOP BARS, LONGITUDINAL		3	#	5		< == Not Required
BOTTOM BARS, LONGITUDINAL		3	#	5		
BOTTOM BARS, TRANSVERSE	#	4	@	24	in o.c.	< == Not Required
Where $P_{f} = 4.89375 \text{ k}$		-			nic	[Satisfactory]
$M_O = F (h + D) + M =$ $M_R = (P_{r,DL}) (L_1 + a) +$	P _f (0.5 L) +	58 ⊦ P _w (L ₁	ft-kips (ove	erturning	moment)	ft-kips (resisting moment without live load)
$\begin{split} M_{O} &= F~(h+D) + M = \\ M_{R} &= (P_{r,DL})~(L_{1}+a) + \end{split} \end{split}$ CHECK SOIL CAPACITY (ALLOWABLE ST $P &= (P_{r,DL} + P_{r,LL}) + P_{w} + P_{f} = \\ M_{R} &= (P_{r,DL} + P_{r,LL})~(L_{1}+a) + P_{f} (P_{r,DL} + P_{r,LL})~(P_{r,DL} + P_{r,LL})~($	P _f (0.5 L) + RESS DES (0.5 L) + P ₁	58 + P _w (L₁ SIGN) 17.15 _w (L₁ + 0	ft-kips (ove + 0.5L _w) = kips (total .5L _w) =	erturning vertical n	moment) 81 et load) 159	
$\begin{split} M_{O} = F~(h+D) + M = \\ M_{R} = (P_{r,DL})~(L_{1}+a) + \end{split} \end{split}$ CHECK SOIL CAPACITY (ALLOWABLE ST $P = (P_{r,DL} + P_{r,LL}) + P_{w} + P_{f} = \end{split}$	P _f (0.5 L) + RESS DES (0.5 L) + P ₁ .61 f	58 + P _w (L ₁ SIGN) 17.15 _w (L ₁ + 0 t (eccen	ft-kips (ove + 0.5L _w) = kips (total	erturning vertical n hiddle of f	moment) 81 et load) 159	ft-kips (resisting moment without live load) ft-kips (resisting moment with live load)
$\begin{split} M_{O} &= F~(h+D) + M = \\ M_{R} &= (P_{r,DL})~(L_{1}+a) + \end{split} \end{split}$ CHECK SOIL CAPACITY (ALLOWABLE ST $P &= (P_{r,DL} + P_{r,LL}) + P_{W} + P_{f} = \\ M_{R} &= (P_{r,DL} + P_{r,LL})~(L_{1}+a) + P_{f} (e) \\ e &= 0.5~L - (M_{R} - M_{O}) / P = 1 \end{split}$	$P_{f}(0.5 L) + RESS DES$ $(0.5 L) + P_{f}$ $(0.5 L) + P_{f}$ $(0.5 L) + e_{f}$ $for e \le \frac{1}{6}$	58 + P _w (L ₁ SIGN) 17.15 _w (L ₁ + 0 t (eccen	ft-kips (ove + 0.5L _w) = kips (total .5L _w) = tricity from m	erturning vertical n hiddle of f	moment) 81 et load) 159 ooting)	ft-kips (resisting moment without live load) ft-kips (resisting moment with live load)
$M_{O} = F (h + D) + M =$ $M_{R} = (P_{r,DL}) (L_{1} + a) +$ CHECK SOIL CAPACITY (ALLOWABLE ST $P = (P_{r,DL} + P_{r,LL}) + P_{w} + P_{f} =$ $M_{R} = (P_{r,DL} + P_{r,LL}) (L_{1} + a) + P_{f} (P_{r,DL} + P_{r,LL}) (P_{r,DL} + P_{r,L}) (P_{r,DL} $	$P_{f}(0.5 L) + RESS DES$ $(0.5 L) + P_{f}$ $(0.5 L) + P_{f}$ $(0.5 L) + e_{f}$ $for e \le \frac{1}{6}$ $for e > R, < (L / 6)$	58 + P _w (L ₁ SIGN) 17.15 _w (L ₁ + 0 t (eccen	ft-kips (ove + 0.5L _w) = kips (total .5L _w) = tricity from m	erturning vertical n hiddle of f	moment) 81 et load) 159 ooting)	ft-kips (resisting moment without live load) ft-kips (resisting moment with live load)
$M_{O} = F (h + D) + M =$ $M_{R} = (P_{r,DL}) (L_{1} + a) +$ CHECK SOIL CAPACITY (ALLOWABLE ST $P = (P_{r,DL} + P_{r,LL}) + P_{W} + P_{f} =$ $M_{R} = (P_{r,DL} + P_{r,LL}) (L_{1} + a) + P_{f} (L_{1} + a) + P_{f} (L_{2} + a) +$	$P_{f}(0.5 L) + RESS DES$ $(0.5 L) + P_{f}$ $(0.5 L) + P_{f}$ $(0.5 L) + e_{f}$ $(0$	58 + P _w (L ₁ SIGN) 17.15 w (L ₁ + 0 t (eccent $\frac{L}{6}$	ft-kips (ove + 0.5L _w) = kips (total .5L _w) = tricity from m	erturning vertical n hiddle of f 1.25	moment) 81 et load) 159 ooting) ksf	ft-kips (resisting moment without live load) ft-kips (resisting moment with live load)
$\begin{split} M_{O} &= F (h + D) + M = \\ M_{R} &= (P_{r,DL}) (L_1 + a) + \\ \end{split} \\ CHECK \text{ SOIL CAPACITY (ALLOWABLE ST} \\ P &= (P_{r,DL} + P_{r,LL}) + P_{W} + P_{f} = \\ M_{R} &= (P_{r,DL} + P_{r,LL}) (L_1 + a) + P_{f} (e) \\ e &= 0.5 L - (M_{R} - M_{O}) / P = 1 \\ \\ q_{MAX} &= \begin{cases} \underbrace{P \bigoplus + \frac{6e}{L}}{BL}, & fe \\ \frac{2P}{3B(0.5L - e)}, & fe \\ \frac{2P}{3B(0.5L - e)}, & fe \\ \frac{2P}{3B(D,SL - e)}, & fe \\ \end{cases} \\ \end{split} \\ \end{split} \\ \end{split} \\ \end{split}$	$P_{f}(0.5 L) + RESS DES$ $(0.5 L) + P_{f}$ $(0.5 L) + P_{f}$ $(0.5 L) + P_{f}$ $e < \frac{H}{C}$ $for e >$ $f, < (L / 6)$ $DESIGN)$ $(0.5 L) + P_{f}$	58 + P _w (L ₁ SIGN) 17.15 w (L ₁ + 0 t (eccent $\frac{L}{6}$	ft-kips (ove + 0.5L _w) = kips (total .5L _w) = tricity from m =	erturning vertical n hiddle of f 1.25	moment) 81 et load) 159 ooting) ksf	ft-kips (resisting moment without live load) ft-kips (resisting moment with live load) < 4/3 qa [Satisfactory]
$\begin{split} M_{O} &= F \left(h + D\right) + M = \\ M_{R} &= \left(P_{r,DL}\right) \left(L_{1} + a\right) + \\ \end{split} \\ CHECK SOIL CAPACITY \left(ALLOWABLE ST \right) \\ P &= \left(P_{r,DL} + P_{r,LL}\right) + P_{W} + P_{f} = \\ M_{R} &= \left(P_{r,DL} + P_{r,LL}\right) \left(L_{1} + a\right) + P_{f} \left(e = 0.5 L - \left(M_{R} - M_{O}\right) / P = 1 \right) \\ q_{MAX} &= \begin{cases} \underbrace{P \bigoplus + \frac{6e}{L}}{BL}, & fe \\ \underbrace{2P} \\ 3B(0.5L - e), & J \\ \end{cases} \\ \end{split} \\ \end{split} \\ Where & e = 1.61 \text{ ff} \\ \end{split} \\ CHECK FOOTING CAPACITY (STRENGTH \\ M_{u,R} &= 1.2 \left[P_{r,DL} \left(L_{1} + a\right) + P_{f} \\ M_{u,O} &= 1.4 \left[F(h + D) + M\right] = \end{cases} \end{split}$	$P_{f}(0.5 L) + RESS DES$ $(0.5 L) + P_{f}$ $(0.5 L) + P_{f}$ $cor e \le \frac{1}{6}$ $for e \ge \frac{1}{6}$ $cor = e \le \frac{1}{6}$ $cor = $	58 + $P_w (L_1$ SIGN) 17.15 w (L_1 + 0 t (eccent $\frac{L}{6}$	ft-kips (ove + 0.5L _w) = kips (total .5L _w) = tricity from m = 0.5L _w)] + 0.5 ft-kips	erturning vertical n hiddle of f 1.25 P _{r, LL} (L ₁	moment) 81 et load) 159 ooting) ksf	ft-kips (resisting moment without live load) ft-kips (resisting moment with live load) < 4/3 qa [Satisfactory]
$\begin{split} M_{\rm O} &= {\rm F} ({\rm h} + {\rm D}) + {\rm M} = \\ M_{\rm R} &= ({\rm P}_{\rm r,DL}) ({\rm L}_1 + {\rm a}) + \\ \end{split} \\ \\ {\rm CHECK \ SOIL \ CAPACITY \ ({\rm ALLOWABLE \ ST} \\ {\rm P} &= ({\rm P}_{\rm r,DL} + {\rm P}_{\rm r,LL}) + {\rm P}_{\rm W} + {\rm P}_{\rm f} = \\ M_{\rm R} &= ({\rm P}_{\rm r,DL} + {\rm P}_{\rm r,LL}) ({\rm L}_1 + {\rm a}) + {\rm P}_{\rm f} ({\rm e} = 0.5 {\rm L} - ({\rm M}_{\rm R} - {\rm M}_{\rm O}) / {\rm P} = 1 \\ \\ q_{MAX} &= \begin{cases} \frac{P\left(\begin{array}{c} \\ \end{array}\right) + \frac{6e}{L} \\ BL \\ \end{array}, & fe \\ \frac{2P}{3B(0.5L - e)}, & J \\ \end{array} \\ \\ \\ {\rm Where} {\rm e} = 1.61 {\rm ff} \\ \\ \\ {\rm CHECK \ FOOTING \ CAPACITY \ ({\rm STRENGTH} \\ {\rm M}_{\rm u,R} = 1.2 \ [{\rm P}_{\rm r,DL} ({\rm L}_1 + {\rm a}) + {\rm P}_{\rm f} \\ \\ {\rm M}_{\rm u,0} = 1.4 \ [{\rm F}({\rm h} + {\rm D}) + {\rm M}] = \\ {\rm P}_{\rm u} = 1.2 \ ({\rm P}_{\rm r,DL} + {\rm P}_{\rm f} + {\rm P}_{\rm w}) - \end{cases} \end{split}$	$P_{f}(0.5 L) + RESS DES$ $(0.5 L) + P_{f}$ $(0.5 L) + P_{f}$ $(0.5 L) + P_{f}$ $(0.5 L) + P_{f}$ $(0.5 L) + P$ $(0.5 L) + P$ $(0.5 P_{r}, LL)$	58 + P _w (L ₁ SIGN) 17.15 w (L ₁ + 0 t (eccent $\frac{L}{6}$ $\frac{L}{6}$	ft-kips (ove + 0.5L _w) = kips (total .5L _w) = tricity from m = 0.5L _w)] + 0.5 ft-kips	erturning vertical n hiddle of f 1.25	moment) 81 et load) 159 ooting) ksf	ft-kips (resisting moment without live load) ft-kips (resisting moment with live load) < 4/3 qa [Satisfactory]
$\begin{split} M_{O} &= F (h + D) + M = \\ M_{R} &= (P_{r,DL}) (L_{1} + a) + \\ \end{split} \\ \\ CHECK SOIL CAPACITY (ALLOWABLE ST \\ P &= (P_{r,DL} + P_{r,LL}) + P_{w} + P_{f} = \\ M_{R} &= (P_{r,DL} + P_{r,LL}) (L_{1} + a) + P_{f} (L_{1} + a) + P_{f}$	$P_{f}(0.5 L) + RESS DES$ $(0.5 L) + P_{f}(0.5 P_{r}, LL)$ $(0.5 P_{r}, LL)$ $(0.5 P_{r}, LL)$	58 + P _w (L ₁ SIGN) 17.15 w (L ₁ + 0 t (eccent $\frac{L}{5}$ $\frac{L}{6}$	ft-kips (ove + 0.5L _w) = kips (total .5L _w) = tricity from m = 0.5L _w)] + 0.5 ft-kips 15	erturning vertical n hiddle of f 1.25 P _{r, LL} (L ₁	moment) 81 et load) 159 ooting) ksf	ft-kips (resisting moment without live load) ft-kips (resisting moment with live load) c 4/3 qa [Satisfactory] 137 ft-kips
$M_{0} = F (h + D) + M = M_{R} = (P_{r,DL}) (L_{1} + a) + M_{R} = (P_{r,DL}) (L_{1} + a) + CHECK SOIL CAPACITY (ALLOWABLE ST P = (P_{r,DL} + P_{r,LL}) + P_{W} + P_{f} = M_{R} = (P_{r,DL} + P_{r,LL}) (L_{1} + a) + P_{f} (P_{R} = 0.5 L - (M_{R} - M_{0}) / P = 1) q_{MAX} = \begin{cases} \frac{P(1) + \frac{6e}{L}}{BL}, & fe \\ \frac{2P}{3B(0.5L - e)}, & fe \\ \frac$	$P_{f}(0.5 L) + RESS DES$ $(0.5 L) + P_{f}(0.5 P_{r}, LL)$ $(0.5 P_{r}, LL)$ $(0.5 P_{r}, LL)$	58 + P _w (L ₁ SIGN) 17.15 w (L ₁ + 0 t (eccent $\frac{L}{5}$ $\frac{L}{6}$	ft-kips (ove + 0.5L _w) = kips (total .5L _w) = tricity from m = 0.5L _w)] + 0.5 ft-kips 15	erturning vertical n hiddle of f 1.25 P _{r, LL} (L ₁ kips	moment) 81 et load) 159 ooting) ksf + a) =	ft-kips (resisting moment without live load) ft-kips (resisting moment with live load) $< 4/3 q_a$ [Satisfactory] 137 ft-kips

BENDING I									1			
Section	0	1/10 L	2/10 L	3/10 L	4/10 L	5/10 L	6/10 L	7/10 L	8/10 L	9/10 L	L	
X _u (ft)	0	1.50	3.00	4.50	6.00	7.50	9.00	10.50	12.00	13.50	15.00	
P _{u,w} (klf)	0.0	0.0	0.0	0.0	4.8	3.4	1.9	0.4	-1.0	-2.5	-4.0	
l _{u,w} (ft-k)	0	0	0	0	-3	-16	-36	-61	-87	-110	-128	
_{u,w} (kips)	0	0	0	0	-5	-12	-15	-17	-17	-14	-9	
P _{u,f} (ksf)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
И _{u,f} (ft-k)	0	0	-2	-4	-7	-11	-16	-22	-28	-36	-44	
_{u,f} (kips)	0	-1	-1	-2	-2	-3	-4	-4	-5	-5	-6	
q _u (ksf)	-1.9	-1.6	-1.3	-1.1	-0.8	-0.6	-0.3	-0.1	0.0	0.0	0.0	
l _{u,q} (ft-k)	0	3	11	24	41	60	82	104	127	149	172	
_{ı,q} (kips)	0	4	7	10	12	14	15	15	15	15	15	
M _u (ft-k)	0	3	10	20	31	34	30	21	12	3	0	
V _u (kips)	0	3	6	8	4	-1	-4	-6	-6	-4	0	_
												∎M
-												∎M
			M _{u,max}		d (in)	PreqD	ρ _{provD}	V _{u,max}		φV _c = 2 φ	b d (f _c ') ^{0.5}	۵V
- - - - -	udinal		M _{u,max} 0	ft-k	d (in) 14.69	0.0000	ρ _{provD} 0.0000	V _{u,max} 8	kips	22	kips	۵V
Docation op Longitu ottom Lon	gitudinal		0 34	ft-k	14.69 14.69	0.0000 0.0020	0.0000 0.0036	8 8	kips	22 22	kips kips	۵V
Docation op Longitu ottom Lon	gitudinal		0		14.69	0.0000	0.0000	8		22	kips	۵V
	igitudinal nsverse	0.8	0 34 0	ft-k ft-k / ft	14.69 14.69 14.13	0.0000 0.0020	0.0000 0.0036	8 8	kips	22 22	kips kips	۵V
ocation op Longitu ottom Lon	igitudinal nsverse	0.8 $\rho =$	0 34 0	ft-k ft-k / ft	14.69 14.69 14.13	0.0000 0.0020	0.0000 0.0036	8 8	kips kips / ft	22 22	kips kips	۵V

Footing Design of Shear Wall Based on ACI 318-14

Tooting Design of Shear Wall I						D
INPUT DATA: Line B (5'-0")						\Pr
WALL LENGTH	L _w =	5	ft			
WALL HEIGHT	h =	8	ft			F
WALL THICKNESS	t =	4	in			M
FOOTING LENGTH	L =	9	ft		h	Pw
	L ₁ =	4	ft			
FOOTING WIDTH	B =	1.5	ft			
	T =	18	in 6		- \	P _f
	D =	3.5	ft			
ALLOWABLE SOIL PRESSURE (D+L)	q _a =	2000	psf			
	,	1	kips		1	L 1 L w /
UNFACTORED LIVE LOAD AT TOP WALI	,	1.2	kips			
	a =	2.5	ft		•	
WALL SELF WEIGHT	P _w =	1	kips			
LATERAL LOAD TYPE (0=wind,1=seismic)	-	1	seismic			
SEISMIC LOADS AT TOP (E/1.4 , ASD)	⊢ = M =	0.391 16.5	kips ft-kips			THE FOOTING DESIGN IS ADEQUATE.
CONCRETE STRENGTH	$f_{c}' =$	2500	psi			
REBAR YIELD STRESS	$f_{\rm V} =$	2300 60	ksi			
TOP BARS, LONGITUDINAL	·y –	3	кsi #	5		< == Not Required
BOTTOM BARS, LONGITUDINAL		3	#	5		
BOTTOM BARS, TRANSVERSE	#	4	@	24	in o.c.	< == Not Required
Where $P_f = 2.93625 \text{ k}$ $M_O = F (h + D) + M =$ $M_R = (P_{r,DL}) (L_1 + a) + B$ CHECK SOIL CAPACITY (ALLOWABLE STI	P _f (0.5 L) +	21 ⊦ P _w (L ₁	ft-kips (ov	erturning	moment) 26	ft-kips (resisting moment without live load)
$P = (P_{r,DL} + P_{r,LL}) + P_w + P_f =$ $M_R = (P_{r,DL} + P_{r,LL}) (L_1 + a) + P_f (a_1 + b_2) + P_f (a_2 + b_2) + P_f (a_1 + b_2) + P_f (a_2 + b_2) + $	0.5 L) + P		kips (total 1.5L _w) = tricity from n		34	ft-kips (resisting moment with live load)
$q_{MAX} = \begin{cases} \frac{P\left(1\right) + \frac{6e}{L}}{BL}, & fe \\ \frac{2P}{3B(0.5L - e)}, & fe \end{cases}$		$\frac{L}{6}$	=	1.29	ksf	< 4 / 3 q _a [Satisfactory]
Where $e = 2.38$ ft	, > (L / 6)					
CHECK FOOTING CAPACITY (STRENGTH $M_{u,R} = 1.2 [P_{r,DL} (L_1 + a) + P_f + M_{u,o} = 1.4 [F(h + D) + M] = P_u = 1.2 (P_{r,DL} + P_f + P_w) + e_u = 0.5L - (M_{u,R} - M_{u,O}) / P_u =$	(0.5 L) + P 2 + 0.5 P _{r, LL}	29	ft-kips	δ P _{r, LL} (L ₁ kips	+ a) =	35 ft-kips
$q_{u,MAX} = \begin{cases} \frac{P_u \left(1 + \frac{6e_u}{L} \right)}{BL}, \\ \frac{2P_u}{3B(0.5L - e_u)}, \end{cases}$	for e _u for e _l	$\leq \frac{L}{6}$		3.17	ksf	Q _{u,max} V V V

BENDING N												
Section	0	1/10 L	2/10 L	3/10 L	4/10 L	5/10 L	6/10 L	7/10 L	8/10 L	9/10 L	L	-
X _u (ft)	0	0.90	1.80	2.70	3.60	4.50	5.40	6.30	7.20	8.10	9.00	
P _{u,w} (klf)	0.0	0.0	0.0	0.0	0.0	6.2	3.7	1.2	-1.4	-3.9	-6.5	
M _{u,w} (ft-k)	0	0	0	0	0	-1	-6	-15	-24	-32	-37	
/ _{u,w} (kips)	0	0	0	0	0	-3	-8	-10	-10	-8	-3	
P _{u,f} (ksf)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
M _{u,f} (ft-k)	0	0	-1	-1	-3	-4	-6	-8	-10	-13	-16	
V _{u,f} (kips)	0	0	-1	-1	-1	-2	-2	-2	-3	-3	-4	
q _u (ksf)	-3.2	-2.1	-1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
M _{u,q} (ft-k)	0	2	6	12	18	23	29	35	41	47	53	
/ _{u,q} (kips)	0	4	6	7	7	7	7	7	7	7	7	
Σ M _u (ft-k)	0	2	5	10	15	19	17	13	7	2	0	
V _u (kips)	0	3	5	5	5	1	-4	-6	-6	-4	0	
5) 0 1												ΦM
												■M ■V
5 - 0 - 5 - 5 - 0 -			Mumax		d (in)	ρ _{reaD}	ρ _{ρτονD}	Vumax		φV _c = 2 φ	b d (f _c) ^{0.5}	
0 - 5 - 0 -	dinal		M _{u,max} 0	ft-k	d (in) 14.69	ρ _{reqD} 0.0000	ρ _{provD} 0.0000	V _{u,max} 6	kips	φV _c = 2 φ 22	b d (f _c ') ^{0.5} kips	
Cocation				ft-k ft-k								
5 - 0 - 5 - 0 - 5 - 0 - Location Top Longitu Bottom Long	gitudinal		0		14.69	0.0000	0.0000	6	kips	22	kips	
5 0 5 0 Location Top Longitu Bottom Long	gitudinal nsverse	$\rho =$	0 19 0	ft-k ft-k / ft	14.69 14.69	0.0000 0.0018 0.0000	0.0000 0.0036	6 6	kips kips kips / ft	22 22	kips kips	

Job #19050 Pad Ftg - A-3

<u>COLUMNS AN</u>	<u>D FOOTINGS:</u> Roof DL = Floor DL = Wall DL =	0 psf 10.7 psf	Roof LL = Floor LL =	Mi = 0 psf	DL + LL Soil Pre inimum Footing		1500 18	psf in
<u>Column at A.5/</u> Roof Floor Wall	$L_{1B} =$		$L_{2A} = 0.0$ ft $L_{2B} = 12.0$ ft L = 0.0 ft	$A = L_1$	$L_{A} + L_{2A} = 0.0$ $L_{B} + L_{2B} = 120.0$ $L_{B} + X L = 0.0$	ft ² LL :		0 psf 40 psf
vvan	Item Roof Floor Wall	Area 0 120 0	Unit + DL + 0 10.7 10	Unit LL 0 40	Dead Load 0 440 0	Live Load 0 800	Earthquake Load	Load 0 1,240 0
A _{FT}		<u>86</u> = 00	1.591 ft ² 2.250 ft ²	1.500	440 Use x 1.500	800 x 18 in		1,146 2,386 Deep Footing
			ore, provide 2'x2'x18" d juated to support the ne	eep footing]		. 3