

STRUCTURAL CALCULATIONS

for

**Seneca Notting Hill Combe South Ogden
Residential Plan
2670 Bybee Drive
South Ogden, Utah**

for

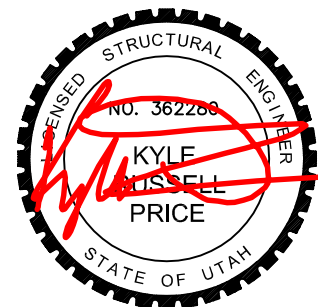
**Notting Hill Homes
801-668-6794**

Date: 8/3/2017



Kyle: 801-791-6274 (Text or Call)
kyle@price-engineering.com
Travis: 435-720-2907 (Text or Call)
travis@price-engineering.com

3677 N. Hwy 126, Suite N
Farr West, UT 84404



08/03/2017

Project: Seneca Notting Hill Combe South Ogden

Analysis: K. Price

Date: 08/03/17



DESIGN CRITERIA

Structure Type: Light Wood Framed, Reinforced Concrete Foundation

Design Codes: 2015 IBC, Risk Category II

City, County or Area: South Ogden

Live Loads:

30	psf for	Sleeping Areas
60	psf for	Decks
100	psf for	Balconies
40	psf for	Other Floor Areas
20	psf for	Roof

Snow Loads:

Pg:	43	Ce:	1.0	Ct:	1.0	I:	1.0
Cs:	1.0						

$$Ps => (Pg * Cs * Ce * Ct * I * 0.7)$$

$$Ps = 30 \text{ psf}$$

Wind Loads:

Exposure:	C
Design Speed:	120 mph (3 Second Gust)

Seismic Loads:

Sms:	1.37	SDC:	E	Site Class:	D
Sm1:	0.75	R:	6.5	I:	1.00
Sds:	0.91				

Dead Loads:

15	psf for	Roof Structure
10	psf for	Walls (w/ Siding or Stucco)
48	psf for	Walls (w/ Brick or Stone Veneer)
15	psf for	Floors (Incl. Tile)
10	psf for	Deck/Porch

Project: Seneca Nottling Hill Combe South Ogden
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Deflection Criteria:

	Total Load	Live Load	
L/	240	360	for: Roof Structure
L/	240	480	for: Floor Structure (Minimum)
L/		240	for: Exterior Walls

SOIL DESIGN PROPERTIES

*Geotechnical Study

Or Investigation by: N/A

Date of Report: N/A

Proj No. of Report: N/A

Foundation Type: Concrete Spread Footing

*Bearing Pressure (Qa): 1500 psf

*Active Pressure (Ya): 30 pcf

*Passive Pressure (Yp): 300 pcf

*At Rest Pressure (Yr): 60 pcf

*Coeff. of Friction: 0.4 alone 0.3 with passive

*Design Values are assumed if no Geotechnical Study or Investigation is provided or does not provide values.

*Price Engineering assumes stable soil characteristics.

*All design is based on stable soil characteristics meeting the unified soil classification types GW, GP, SW, SP

*Soils found on site while excavation occurs which differ from those stated above should be brought to the attention of Price Engineering before and foundation or footing systems are installed.

Project: Seneca Notting Hill Combe South Ogden
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MATERIAL SPECIFICATIONS

Reinforcing Steel: ASTM A615, Grade 60
ASTM A706, Grade 60 Weldable Rebar
Welded Wire Fabric: ASTM A185
Anchor Bolts: ASTM A307 or better, Zinc Coated
Wood Bolts: ASTM A307 or better, Zinc Coated

Concrete Strengths: (F'c Design @ 28 Days) (F'c Recommended @ 28 Days)

Footings:	2500	psi	3000	psi
Walls:	2500	psi	3000	psi
Structural Slabs:	3500	psi	3500	psi
Grade Beams:	2500	psi	3000	psi
Piers:	2500	psi	3500	psi
Topping over Steel Deck:	3500	psi	3500	psi
Slabs on Grade:	3500	psi	3500	psi

Concrete Masonry:

Units: ASTM C90 Medium Weight, Grade N-1

Mortar: Type "S" conforming to IBC Table 2103.7

Grout: Compress. Strength @ 28 days: 1800 psi

Sawn Lumber: Doug Fir North or Hem Fir

Use Stamped Grade, Spec, or Value (Minimum)

Wall Studs: Stud

Posts: Grade #1

Joists & Rafters & Purlins: Grade #2

Other: Grade #2

Preservative Treated: For Concrete Contact, 0.2 Spec, Gound Contact, 0.4 Spec (See lumber tag)

Engineered and Manufactured Lumber Products:

Product Stamped Grade, Spec, or Value

Glulam Beam: 24F-V4, 24F-V8

LVL: 1.9E, Fb 2600

LSL: 1.3E, Fb 1900

PSL: 1.8E, Fb 2400

Sheathing & Panels: All Panels & Sheathing shall be APA Rated & Stamped
All Roof, Floor, and Wall Panels are OSB structural with Exposure 1 treated

Structural Nails: Hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper
Common wire or other galvanized acceptable for preservative treated wood.

Diaphragm Description **Basement Walls**

Earthquake Loading Calculations

V= 1.1(SDS)(W)/R	<i>Seismic Base Shear</i>
SDS= (2/3)SMS	<i>Design Spectral Response Acceleration</i>
SMS= Fa(SS)	<i>Max Considered Spectral Response Accel</i>
Sms= 1.37	<i>Short Period Spectral Acceleration</i>
Sm1 0.75	<i>1 Second Period Spectral Acceleration</i>
Fa= 1.00	<i>Site Coefficient for Short Period Acceleration</i>
D	<i>Site Class (Assumed if no Soils Report)</i>
E	<i>Seismic Design Category</i>
No	<i>Soils Investigation Required?</i>

Wall DL	10	psf			
Floor DL	0	psf			
Roof DL	15	psf			
Roof SL	0	psf		(Applicable Portion)	

Traverse Dimension (w)	45	ft
Long. dimension (L)	55	ft
Avg Wall Hieght	9	ft

R= 6.5	<i>Response Modification Coef.</i>
I= 1.0	<i>Importance Factor</i>
V= 0.1546	(W)
E*0.7= 0.108	(W), Basic Load Combination, Formula 16-10
V= 2982	lbs. @ base ea. wall
V= 2495	lbs. @ top ea. wall

Wind Loading Calculations

Wind Speed	120	mph, 3 sec. gust
Exposure	C	
Kz	0.90	
Topo Factor (Kzt)	1.00	

Traverse Dimension (w)	45	ft
Long. dimension (L)	55	ft
Ridge Hieght	10	ft
Wind Wall Hieght	9	ft
Roof Rise	6	ft
Roof Run	12	ft
Roof Slope	26.6	degrees

		Seismic Equivalent SW Loads				
		Gable	Long.	Gable	Long.	
(ASD)	sum Ps=	3,047	2,109	2177	1507	lbs. @ base ea. wall
(ASD)	sum Ps=	1,558	1,003	1113	716	lbs. @ top ea. wall
	Uplift	-51	plf			

Wood Shear Wall Calculations

	Gable	Long	
Controlling	2982	2982	lbs. @ base ea. wall
Controlling	2495	2495	lbs. @ top ea. wall

Shear Wall Description	Front	F/B Mid	Left	Right	N/A	N/A
Base Loads Total (lbs)	7335	2982	8490	8490	2982	8490
Top Loads Total (lbs)	6848	2495	8003	8003	2495	8003

Min. Seg Width (ft)	4.5	15	22	8	4.5	26
Effect Height (ft)	9	9	9	9	9	9
Cum. Seg Lengths (ft)	27.5	15	22	26	22	26

Segmented Wall (as applicable)

H/W Ratio < 3.5?	Yes	Yes	Yes	Yes	Yes	Yes
H/W Ratio Reduction	1.00	1.00	1.00	1.00	1.00	1.00
Effective Length (ft)	27.5	15.0	22.0	26.0	22.0	26.0

Shear Base (plf)	267	199	386	327	136	327
Shear Top (plf)	249	166	364	308	113	308
Seg Uplift (lbs)	2241	1497	3274	2770	1021	2770

Perforated Wall (as applicable)

Total Perf Wall Length (ft)	27.5	15	22	36	17.5	26
Total Opening Length (ft)	0	0	0	6	0	0
Max Opening Ht (ft)	0	0	0	8	0	0
Wall Ht (ft)	9	9	9	9	9	9
% full ht. Sheathing	100%	100%	100%	83%	100%	100%
Perf Adjust Factor (Co)	#N/A	#N/A	#N/A	0.71	#N/A	#N/A
Effective Length (ft)	#N/A	#N/A	#N/A	18.5	#N/A	#N/A
Shear Base (plf)	#N/A	#N/A	#N/A	460	#N/A	#N/A
Shear Top (plf)	#N/A	#N/A	#N/A	434	#N/A	#N/A
Perf End Uplift (lbs)	#N/A	#N/A	#N/A	3902	#N/A	#N/A

Tables & Load Sumations

Perforated Shear Capacity Adjustment Factors

Wall Ht (ft)	Opening Height (ft)				
	2.67	4.00	5.33	6.67	8.00
10%	1	0.69	0.53	0.43	0.36
20%	1	0.71	0.56	0.45	0.38
30%	1	0.74	0.59	0.49	0.42
40%	1	0.77	0.63	0.53	0.45
50%	1	0.8	0.67	0.57	0.5
60%	1	0.83	0.71	0.63	0.56
70%	1	0.87	0.77	0.69	0.63
80%	1	0.91	0.83	0.77	0.71
90%	1	0.95	0.91	0.87	0.83
100%	1	1	1	1	1

Design Wind Pressures

Roof Angle (Deg)	110	A	B	C	D	E	F	G	H
0	0	19.2	-10	12.7	-5.9	-23.1	-13.1	-16	-10.1
10	5	21.6	-9	14.4	-5.2	-23.1	-14.1	-16	-10.8
15	12.5	24.1	-8	16	-4.6	-23.1	-15.1	-16	-11.5
20	17.5	26.6	-7	17.1	-3.9	-23.1	-16	-16	-12.2
25	22.5	24.1	3.9	17.4	4	-10.7	-14.6	-7.7	-11.7
30 to 45	27.5	21.6	14.8	17.2	11.8	8.3	-6.5	7.2	-4.6

	120	A	B	C	D	E	F	G	H
0	0	22.8	-11.9	15.1	-7	-27.4	-15.6	-19.1	-12.1
10	5	25.8	-10.7	17.1	-6.2	-27.4	-16.8	-19.1	-12.9
15	12.5	28.7	-9.5	19.1	-5.4	-27.4	-17.9	-19.1	-13.7
20	17.5	31.6	-8.3	21.1	-4.6	-27.4	-19.1	-19.1	-14.5
25	22.5	28.6	4.6	20.7	4.7	-12.7	-17.3	-9.2	-13.9
30 to 45	27.5	25.7	17.6	20.4	14	9.9	-15.6	8.6	-13.4

	150	A	B	C	D	E	F	G	H
0	0	35.7	-18.5	23.7	-11	-42.9	-24.4	-29.8	-18.9
10	5	40.2	-16.7	26.8	-9.7	-42.9	-26.2	-29.8	-20.1
15	12.5	44.8	-14.9	29.8	-8.5	-42.9	-28	-29.8	-21.4
20	17.5	49.4	-13	32.9	-7.2	-42.9	-29.8	-29.8	-22.6
25	22.5	44.8	7.2	32.4	7.4	-19.9	-27.1	-14.4	-21.8
30 to 45	27.5	40.1	27.4	31.9	22	15.4	-24.4	13.4	-20.9

110	24.10	3.90	17.40	4.00	-10.70	-14.60	-7.70	-11.70
120	28.60	4.60	20.70	4.70	-12.70	-17.30	-9.20	-13.90
150	44.80	7.20	32.40	7.40	-19.90	-27.10	-14.40	-21.80

Applic. Press. For 120 mph gust

	28.60	4.60	20.70	4.70	-12.70	-17.30	-9.20	-13.90
Ps' =	25.74	4.14	18.63	4.23	-11.43	-15.57	-8.28	-12.51

Calc'd Zone Areas (sf)

	A	B	C	D	E	F	G	H
Transverse	99	11	396	44	248	248	990	990
Longitudinal	81	-	266	-	248	248	990	990

Calc'd Zone Loads (lbs)

	A	B	C	D	E	F	G	H
Transverse	2548	46	7377	186	-2829	-3854	-8197	-12385
Longitudinal	2085	-	4946	-	-2829	-3854	-8197	-12385

Diaphragm Description **Roof & Upper Floor Walls**

Earthquake Loading Calculations

V= 1.1(SDS)(W)/R	<i>Seismic Base Shear</i>
SDS= (2/3)SMS	<i>Design Spectral Response Acceleration</i>
SMS= Fa(SS)	<i>Max Considered Spectral Response Accel</i>
Sms= 1.37	<i>Short Period Spectral Acceleration</i>
Sm1 0.75	<i>1 Second Period Spectral Acceleration</i>
Fa= 1.00	<i>Site Coefficient for Short Period Acceleration</i>
D	<i>Site Class (Assumed if no Soils Report)</i>
E	<i>Seismic Design Category</i>
No	<i>Soils Investigation Required?</i>

Wall DL	10	psf			
Floor DL	0	psf			
Roof DL	15	psf			
Roof SL	0	psf		(Applicable Portion)	

Traverse Dimension (w)	56	ft
Long. dimension (L)	69	ft
Avg Wall Hieght	9	ft

R= 6.5	<i>Response Modification Coef.</i>
I= 1.0	<i>Importance Factor</i>
V= 0.1546	(W)
E*0.7= 0.108	(W), Basic Load Combination, Formula 16-10
V= 4353	lbs. @ base ea. wall
V= 3744	lbs. @ top ea. wall

Wind Loading Calculations

Wind Speed	120	mph, 3 sec. gust
Exposure	C	
Kz	0.90	
Topo Factor (Kzt)	1.00	

Traverse Dimension (w)	56	ft
Long. dimension (L)	69	ft
Ridge Hieght	24	ft
Wind Wall Hieght	9	ft
Roof Rise	9	ft
Roof Run	12	ft
Roof Slope	36.9	degrees

		Seismic Equivalent SW Loads				
		Gable	Long.	Gable	Long.	
(ASD)	sum Ps=	7,712	4,678	5508	3342	lbs. @ base ea. wall
(ASD)	sum Ps=	5,913	3,310	4223	2364	lbs. @ top ea. wall
		Uplift	173	plf		

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Wood Shear Wall Calculations

	Gable	Long	
Controlling	5508	4353	<i>lbs. @ base ea. wall</i>
Controlling	4223	3744	<i>lbs. @ top ea. wall</i>

Shear Wall Description	Front	Back	Left	Right	N/A	N/A
Base Loads Total (lbs)	4353	4353	5508	5508	4353	5508
Top Loads Total (lbs)	3744	3744	4223	4223	3744	4223

Min. Seg Width (ft)	7.5	5.5	13	5	4.5	26
Effect Height (ft)	9	9	9	9	9	9
Cum. Seg Lengths (ft)	23.5	33.5	40.5	26.5	22	26

Segmented Wall (as applicable)

H/W Ratio < 3.5?	Yes	Yes	Yes	Yes	Yes	Yes
H/W Ratio Reduction	1.00	1.00	1.00	1.00	1.00	1.00
Effective Length (ft)	23.5	33.5	40.5	26.5	22.0	26.0

Shear Base (plf)	185	130	136	208	198	212
Shear Top (plf)	159	112	104	159	170	162
Seg Uplift (lbs)	1434	1006	939	1434	1532	1462

Perforated Wall (as applicable)

Total Perf Wall Length (ft)	55	69	56	32	17.5	26
Total Opening Length (ft)	20.5	34.5	16	6	0	0
Max Opening Ht (ft)	7	8	4	4	0	0
Wall Ht (ft)	9	9	9	9	9	9
% full ht. Sheathing	63%	50%	71%	81%	100%	100%
Perf Adjust Factor (Co)	0.63	0.5	0.87	0.91	#N/A	#N/A
Effective Length (ft)	14.8	16.8	35.2	24.1	#N/A	#N/A
Shear Base (plf)	294	260	156	228	#N/A	#N/A
Shear Top (plf)	253	224	120	175	#N/A	#N/A
Perf End Uplift (lbs)	2276	2012	1079	1576	#N/A	#N/A

Tables & Load Sumations

Perforated Shear Capacity Adjustment Factors

Wall Ht (ft)	Opening Height (ft)				
	2.67	4.00	5.33	6.67	8.00
10%	1	0.69	0.53	0.43	0.36
20%	1	0.71	0.56	0.45	0.38
30%	1	0.74	0.59	0.49	0.42
40%	1	0.77	0.63	0.53	0.45
50%	1	0.8	0.67	0.57	0.5
60%	1	0.83	0.71	0.63	0.56
70%	1	0.87	0.77	0.69	0.63
80%	1	0.91	0.83	0.77	0.71
90%	1	0.95	0.91	0.87	0.83
100%	1	1	1	1	1

Design Wind Pressures

Roof Angle (Deg)	110	A	B	C	D	E	F	G	H
0	0	19.2	-10	12.7	-5.9	-23.1	-13.1	-16	-10.1
10	5	21.6	-9	14.4	-5.2	-23.1	-14.1	-16	-10.8
15	12.5	24.1	-8	16	-4.6	-23.1	-15.1	-16	-11.5
20	17.5	26.6	-7	17.1	-3.9	-23.1	-16	-16	-12.2
25	22.5	24.1	3.9	17.4	4	-10.7	-14.6	-7.7	-11.7
30 to 45	27.5	21.6	14.8	17.2	11.8	8.3	-6.5	7.2	-4.6

	120	A	B	C	D	E	F	G	H
0	0	22.8	-11.9	15.1	-7	-27.4	-15.6	-19.1	-12.1
10	5	25.8	-10.7	17.1	-6.2	-27.4	-16.8	-19.1	-12.9
15	12.5	28.7	-9.5	19.1	-5.4	-27.4	-17.9	-19.1	-13.7
20	17.5	31.6	-8.3	21.1	-4.6	-27.4	-19.1	-19.1	-14.5
25	22.5	28.6	4.6	20.7	4.7	-12.7	-17.3	-9.2	-13.9
30 to 45	27.5	25.7	17.6	20.4	14	9.9	-15.6	8.6	-13.4

	150	A	B	C	D	E	F	G	H
0	0	35.7	-18.5	23.7	-11	-42.9	-24.4	-29.8	-18.9
10	5	40.2	-16.7	26.8	-9.7	-42.9	-26.2	-29.8	-20.1
15	12.5	44.8	-14.9	29.8	-8.5	-42.9	-28	-29.8	-21.4
20	17.5	49.4	-13	32.9	-7.2	-42.9	-29.8	-29.8	-22.6
25	22.5	44.8	7.2	32.4	7.4	-19.9	-27.1	-14.4	-21.8
30 to 45	27.5	40.1	27.4	31.9	22	15.4	-24.4	13.4	-20.9

110	21.60	14.80	17.20	11.80	8.30	-6.50	7.20	-4.60
120	25.70	17.60	20.40	14.00	9.90	-15.60	8.60	-13.40
150	40.10	27.40	31.90	22.00	15.40	-24.40	13.40	-20.90

Applic. Press. For 120 mph gust

	25.70	17.60	20.40	14.00	9.90	-15.60	8.60	-13.40
Ps' =	23.13	15.84	18.36	12.60	8.91	-14.04	7.74	-12.06

Calc'd Zone Areas (sf)

	A	B	C	D	E	F	G	H
Transverse	124	207	497	828	386	386	1546	1546
Longitudinal	101	-	722	-	386	386	1546	1546

Calc'd Zone Loads (lbs)

	A	B	C	D	E	F	G	H
Transverse	2873	3279	9121	10433	3443	-5425	11963	-18640
Longitudinal	2332	-	13263	-	3443	-5425	11963	-18640

Footing Calculations

Loads (max framed location)

	Span/Ht (ft)	LL/SL (psf)	DL (psf)	LL Factor	TL (plf)
Roof	36.0	30.0	15.0	1.00	810.0
Wall 2	9.0	0.0	10.0	1.00	90.0
Floor 2	18.0	40.0	15.0	1.00	495.0
Wall 1	0.0	0.0	10.0	1.00	0.0
Floor 1	0.0	40.0	15.0	1.00	0.0
Deck	0.0	60.0	15.0	1.00	0.0
Foundation	8.00	0	100	1.00	800.0

Unfactored TL 2195.0

Allowable Bearing Press (psf)	1500
Required Width (in)	17.6

Loads (max framed location)

	Span/Ht (ft)	LL/SL (psf)	DL (psf)	LL Factor	TL (plf)
Roof	24.0	30.0	15.0	1.00	540.0
Wall 2	10.0	0.0	10.0	1.00	100.0
Floor 2	0.0	40.0	15.0	1.00	0.0
Wall 1	0.0	0.0	10.0	1.00	0.0
Floor 1	0.0	40.0	15.0	1.00	0.0
Deck	0.0	60.0	15.0	1.00	0.0
Foundation	4.00	0	100	1.00	400.0

Unfactored TL 1040.0

Allowable Bearing Press (psf)	1500
Required Width (in)	8.3

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BEAM #1, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>			<u>LOAD DIST.</u>	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	4	W (PLF)	900	DL	270	FROM LEFT	LL, L/ 360
QUANTITY	2	W FROM LEFT (LBS)	0			WA, RIGHT WC,	TL, L/ 240
SPAN (FT)	4.0	W FROM RIGHT (LBS)	0			TO START WB)	
		W @ MID (LBS)	0			(FT.)	
		PL 1 (LBS)	0			0.0	
		PL 2 (LBS)	0			0.0	
		PL 3 (LBS)	0			0.0	
<u>ADJUSTMENT FACTORS</u>							
CD	1.00						
CM*CT*CI	1.00						
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 2 2" x 10" DF#2

<u>BEAM PROPERTIES</u>	<u>REQ'D PROPERTIES</u>	<u>PROPERTIES ADEQUATE*2</u>
SX (IN3) 42.78	SX (IN3) 33.04	YES
AREA (IN2) 27.76	AREA (IN2) 13.00	YES
IX (IN4) 198		
E' (PSI) 1600000		
F' B (PSI) 850		
F' V (PSI) 180		
	<u>CALC'D LOADS & STRESSES</u>	
	MAX MOMENT (LB*FT) 2,340	
	REACTION L (LBS) 2,340	
	REACTION R (LBS) 2,340	
	<u>CALC'D DEFLECTION</u>	
LL (IN.) 0.13	LL (IN.) 0.02	YES
TL (IN.) 0.20	TL (IN.) 0.02	YES

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 Analysis: K. Price
 Date: 08/03/17



BEAM #2, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>			<u>LOAD DIST.</u>	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	10	W (PLF)	345	DL	172.5	FROM LEFT	LL, L/ 360
QUANTITY	2	W FROM LEFT (LBS)	0		0	WA, RIGHT WC,	TL, L/ 240
SPAN (FT)	3.0	W FROM RIGHT (LBS)	0		0	TO START WB)	
		W @ MID (LBS)	0		0	(FT.)	
<u>ADJUSTMENT FACTORS</u>		PL 1 (LBS)	5520	PL 2 (LBS)	2760		
CD	1.00	PL 2 (LBS)	0		0	2.75	
CM*CT*CI	1.00	PL 3 (LBS)	0		0	0.0	
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 2 | 1-3/4" x 9-1/2" 1.9E MICROLLAM LVL

<u>BEAM PROPERTIES</u>		<u>REQ'D PROPERTIES</u>		<u>PROPERTIES ADEQUATE*2</u>
SX (IN3)	52.65	SX (IN3)	9.57	YES
AREA (IN2)	33.25	AREA (IN2)	29.36	YES
IX (IN4)	250			
E' (PSI)	1900000	<u>CALC'D LOADS & STRESSES</u>		
F' B (PSI)	2600	MAX MOMENT (LB*FT)	2,073	
F' V (PSI)	285	REACTION L (LBS)	1,466	
		REACTION R (LBS)	8,366	
<u>MAX. DEFLECTION</u>		<u>CALC'D DEFLECTION</u>		
LL (IN.)	0.10	LL (IN.)	0.00	YES
TL (IN.)	0.15	TL (IN.)	0.01	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #3, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>			<u>LOAD DIST.</u>	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	140	W (PLF)	345	DL	172.5	FROM LEFT	LL, L/ 360
QUANTITY	1	W FROM LEFT (LBS)	0			WA, RIGHT WC,	TL, L/ 240
SPAN (FT)	14.0	W FROM RIGHT (LBS)	0			TO START WB)	
		W @ MID (LBS)	0			(FT.)	
		PL 1 (LBS)	0			0.0	
		PL 2 (LBS)	0			0.0	
		PL 3 (LBS)	0			0.0	

<u>ADJUSTMENT FACTORS</u>	
CD	1.00
CM*CT*CI	1.00
CL	1.00
CF*CV	1.00
CFU*CR	1.00

RESULTS

BEAM DESCRIPTION 1 4" x 16" DF / CEDAR

<u>BEAM PROPERTIES</u>		<u>REQ'D PROPERTIES</u>		<u>PROPERTIES ADEQUATE*2</u>
SX (IN3)	135.70	SX (IN3)	117.03	YES
AREA (IN2)	53.38	AREA (IN2)	21.31	YES
IX (IN4)	1034			
E' (PSI)	1300000			
F' B (PSI)	1300			
F' V (PSI)	170			

<u>CALC'D LOADS & STRESSES</u>		
MAX MOMENT (LB*FT)	12,679	
REACTION L (LBS)	3,623	
REACTION R (LBS)	3,623	

<u>MAX. DEFLECTION</u>		<u>CALC'D DEFLECTION</u>		<u>PROPERTIES ADEQUATE*2</u>
LL (IN.)	0.47	LL (IN.)	0.22	YES
TL (IN.)	0.70	TL (IN.)	0.33	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #4, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>			<u>LOAD DIST.</u>	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	4	W (PLF)	525	DL	262.5	FROM LEFT	LL, L/ 360
QUANTITY	2	W FROM LEFT (LBS)	0			WA, RIGHT WC,	TL, L/ 240
SPAN (FT)	5.0	W FROM RIGHT (LBS)	0			TO START WB)	
		W @ MID (LBS)	0			(FT.)	
		PL 1 (LBS)	0			0.0	
		PL 2 (LBS)	0			0.0	
		PL 3 (LBS)	0			0.0	
<u>ADJUSTMENT FACTORS</u>							
CD	1.00						
CM*CT*CI	1.00						
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 2 x 10" DF#2

<u>BEAM PROPERTIES</u>		<u>REQ'D PROPERTIES</u>		<u>PROPERTIES ADEQUATE*2</u>
SX (IN3)	42.78	SX (IN3)	34.74	YES
AREA (IN2)	27.76	AREA (IN2)	10.94	YES
IX (IN4)	198			
E' (PSI)	1600000			
F' B (PSI)	850	<u>CALC'D LOADS & STRESSES</u>		
F' V (PSI)	180	MAX MOMENT (LB*FT)	2,461	
		REACTION L (LBS)	1,969	
		REACTION R (LBS)	1,969	
<u>MAX. DEFLECTION</u>		<u>CALC'D DEFLECTION</u>		
LL (IN.)	0.17	LL (IN.)	0.02	YES
TL (IN.)	0.25	TL (IN.)	0.03	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #5, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>	LL	DL	LOAD DIST.	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	10	W (PLF)	525	262.5	FROM LEFT	LL, L/	360
QUANTITY	2	W FROM LEFT (LBS)	0	0	WA, RIGHT WC,	TL, L/	240
SPAN (FT)	6.0	W FROM RIGHT (LBS)	0	0	TO START WB)		
		W @ MID (LBS)	0	0	(FT.)		
		PL 1 (LBS)	0	0	0.0		
		PL 2 (LBS)	0	0	0.0		
		PL 3 (LBS)	0	0	0.0		
<u>ADJUSTMENT FACTORS</u>							
CD	1.00						
CM*CT*CI	1.00						
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 2 | 1-3/4" x 9-1/2" 1.9E MICROLLAM LVL

<u>BEAM PROPERTIES</u>	<u>REQ'D PROPERTIES</u>	<u>PROPERTIES ADEQUATE*2</u>
SX (IN3) 52.65	SX (IN3) 16.36	YES
AREA (IN2) 33.25	AREA (IN2) 8.29	YES
IX (IN4) 250		
E' (PSI) 1900000		
F' B (PSI) 2600		
F' V (PSI) 285		
	<u>CALC'D LOADS & STRESSES</u>	
	MAX MOMENT (LB*FT) 3,544	
	REACTION L (LBS) 2,363	
	REACTION R (LBS) 2,363	
	<u>CALC'D DEFLECTION</u>	
LL (IN.) 0.20	LL (IN.) 0.03	YES
TL (IN.) 0.30	TL (IN.) 0.05	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #6, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>	LL	DL	LOAD DIST.	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	137	W (PLF)	525	262.5	FROM LEFT	LL, L/	360
QUANTITY	1	W FROM LEFT (LBS)	0	0	WA, RIGHT WC,	TL, L/	240
SPAN (FT)	6.0	W FROM RIGHT (LBS)	0	0	TO START WB)		
		W @ MID (LBS)	0	0	(FT.)		
		PL 1 (LBS)	0	0	0.0		
		PL 2 (LBS)	0	0	0.0		
		PL 3 (LBS)	0	0	0.0		
<u>ADJUSTMENT FACTORS</u>							
CD	1.00						
CM*CT*CI	1.00						
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 1 4" x 10" DF / CEDAR

<u>BEAM PROPERTIES</u>	<u>REQ'D PROPERTIES</u>	<u>PROPERTIES ADEQUATE*2</u>
SX (IN3) 49.91	SX (IN3) 32.71	YES
AREA (IN2) 32.38	AREA (IN2) 13.90	YES
IX (IN4) 231		
E' (PSI) 1300000		
F' B (PSI) 1300		
F' V (PSI) 170		
	<u>CALC'D LOADS & STRESSES</u>	
	MAX MOMENT (LB*FT) 3,544	
	REACTION L (LBS) 2,363	
	REACTION R (LBS) 2,363	
	<u>CALC'D DEFLECTION</u>	
LL (IN.) 0.20	LL (IN.) 0.05	YES
TL (IN.) 0.30	TL (IN.) 0.08	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #7, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>			<u>LOAD DIST.</u>	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	137	W (PLF)	0	30	FROM LEFT	LL, L/	360
QUANTITY	1	W FROM LEFT (LBS)	0	0	WA, RIGHT WC,	TL, L/	240
SPAN (FT)	8.0	W FROM RIGHT (LBS)	0	0	TO START WB)		
		W @ MID (LBS)	0	0	(FT.)		
		PL 1 (LBS)	1575	788	4.0		
		PL 2 (LBS)	0	0	0.0		
		PL 3 (LBS)	0	0	0.0		
<u>ADJUSTMENT FACTORS</u>							
CD	1.00						
CM*CT*CI	1.00						
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 1 4" x 10" DF / CEDAR

<u>BEAM PROPERTIES</u>		<u>REQ'D PROPERTIES</u>		<u>PROPERTIES ADEQUATE*2</u>
SX (IN3)	49.91	SX (IN3)	45.84	YES
AREA (IN2)	32.38	AREA (IN2)	7.66	YES
IX (IN4)	231			
E' (PSI)	1300000			
F' B (PSI)	1300			
F' V (PSI)	170			
		<u>CALC'D LOADS & STRESSES</u>		
		MAX MOMENT (LB*FT)	4,966	
		REACTION L (LBS)	1,302	
		REACTION R (LBS)	1,302	
		<u>CALC'D DEFLECTION</u>		
		LL (IN.)	0.10	YES
		TL (IN.)	0.15	YES
<u>MAX. DEFLECTION</u>				
LL (IN.)	0.27			
TL (IN.)	0.40			

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #8, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>			<u>LOAD DIST.</u>	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	12	W (PLF)	180	90	FROM LEFT	LL, L/	360
QUANTITY	3	W FROM LEFT (LBS)	0	0	WA, RIGHT WC,	TL, L/	240
SPAN (FT)	4.5	W FROM RIGHT (LBS)	0	0	TO START WB)		
		W @ MID (LBS)	0	0	(FT.)		
<u>ADJUSTMENT FACTORS</u>		PL 1 (LBS)	1575	788	2.0		
CD	1.00	PL 2 (LBS)	10729	5365	2.5		
CM*CT*CI	1.00	PL 3 (LBS)	0	0	0.0		
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 3 | 1-3/4" x 11-7/8" 1.9E MICROLLAM LVL

<u>BEAM PROPERTIES</u>		<u>REQ'D PROPERTIES</u>		<u>PROPERTIES ADEQUATE*2</u>
SX (IN3)	123.39	SX (IN3)	94.65	YES
AREA (IN2)	62.34	AREA (IN2)	37.19	YES
IX (IN4)	733			
E' (PSI)	2000000	<u>CALC'D LOADS & STRESSES</u>		
F' B (PSI)	2600	MAX MOMENT (LB*FT)	20,507	
F' V (PSI)	285	REACTION L (LBS)	9,073	
		REACTION R (LBS)	10,599	
<u>MAX. DEFLECTION</u>		<u>CALC'D DEFLECTION</u>		
LL (IN.)	0.15	LL (IN.)	0.03	YES
TL (IN.)	0.23	TL (IN.)	0.04	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #9, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>			<u>LOAD DIST.</u>	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	12	W (PLF)	420	210	FROM LEFT	LL, L/	360
QUANTITY	2	W FROM LEFT (LBS)	0	0	WA, RIGHT WC,	TL, L/	240
SPAN (FT)	10.0	W FROM RIGHT (LBS)	0	0	TO START WB)		
		W @ MID (LBS)	0	0	(FT.)		
		PL 1 (LBS)	630	315	1.0		
		PL 2 (LBS)	0	0	0.0		
		PL 3 (LBS)	0	0	0.0		
<u>ADJUSTMENT FACTORS</u>							
CD	1.00						
CM*CT*CI	1.00						
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 2 | 1-3/4" x 11-7/8" 1.9E MICROLLAM LVL

<u>BEAM PROPERTIES</u>		<u>REQ'D PROPERTIES</u>		<u>PROPERTIES ADEQUATE*2</u>
SX (IN3)	82.26	SX (IN3)	38.53	YES
AREA (IN2)	41.56	AREA (IN2)	14.04	YES
IX (IN4)	488			
E' (PSI)	2000000	<u>CALC'D LOADS & STRESSES</u>		
F' B (PSI)	2600	MAX MOMENT (LB*FT)	8,348	
F' V (PSI)	285	REACTION L (LBS)	4,001	
		REACTION R (LBS)	3,245	
<u>MAX. DEFLECTION</u>		<u>CALC'D DEFLECTION</u>		
LL (IN.)	0.33	LL (IN.)	0.09	YES
TL (IN.)	0.50	TL (IN.)	0.14	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #10, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>	LL	DL	LOAD DIST.	<u>DEFLECTION LIMITS</u>
BEAM TABLE NO.	4	W (PLF)	120	60	FROM LEFT	LL, L/ 360
QUANTITY	2	W FROM LEFT (LBS)	0	0	WA, RIGHT WC,	TL, L/ 240
SPAN (FT)	6.0	W FROM RIGHT (LBS)	0	0	TO START WB)	
		W @ MID (LBS)	0	0	(FT.)	
		PL 1 (LBS)	0	0	0.0	
		PL 2 (LBS)	0	0	0.0	
		PL 3 (LBS)	0	0	0.0	
<u>ADJUSTMENT FACTORS</u>						
CD	1.00					
CM*CT*CI	1.00					
CL	1.00					
CF*CV	1.00					
CFU*CR	1.00					

RESULTS

BEAM DESCRIPTION 2 x 10" DF#2

<u>BEAM PROPERTIES</u>	<u>REQ'D PROPERTIES</u>	<u>PROPERTIES ADEQUATE*2</u>
SX (IN3) 42.78	SX (IN3) 11.44	YES
AREA (IN2) 27.76	AREA (IN2) 3.00	YES
IX (IN4) 198		
E' (PSI) 1600000		
F' B (PSI) 850		
F' V (PSI) 180		
	<u>CALC'D LOADS & STRESSES</u>	
	MAX MOMENT (LB*FT) 810	
	REACTION L (LBS) 540	
	REACTION R (LBS) 540	
	<u>CALC'D DEFLECTION</u>	
LL (IN.) 0.20	LL (IN.) 0.01	YES
TL (IN.) 0.30	TL (IN.) 0.02	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #11, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>			<u>LOAD DIST.</u>	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	10	W (PLF)	120	60	FROM LEFT	LL, L/	360
QUANTITY	2	W FROM LEFT (LBS)	0	0	WA, RIGHT WC,	TL, L/	240
SPAN (FT)	6.0	W FROM RIGHT (LBS)	0	0	TO START WB)		
		W @ MID (LBS)	0	0	(FT.)		
<u>ADJUSTMENT FACTORS</u>		PL 1 (LBS)	3000	1500	1.0		
CD	1.00	PL 2 (LBS)	0	0	0.0		
CM*CT*CI	1.00	PL 3 (LBS)	0	0	0.0		
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 2 | 1-3/4" x 9-1/2" 1.9E MICROLLAM LVL

<u>BEAM PROPERTIES</u>		<u>REQ'D PROPERTIES</u>		<u>PROPERTIES ADEQUATE*2</u>
SX (IN3)	52.65	SX (IN3)	19.01	YES
AREA (IN2)	33.25	AREA (IN2)	15.05	YES
IX (IN4)	250			
E' (PSI)	1900000	<u>CALC'D LOADS & STRESSES</u>		
F' B (PSI)	2600	MAX MOMENT (LB*FT)	4,118	
F' V (PSI)	285	REACTION L (LBS)	4,290	
		REACTION R (LBS)	1,290	
<u>MAX. DEFLECTION</u>		<u>CALC'D DEFLECTION</u>		
LL (IN.)	0.20	LL (IN.)	0.03	YES
TL (IN.)	0.30	TL (IN.)	0.04	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #12, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>			<u>LOAD DIST.</u>	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	15	W (PLF)	650	DL	195	FROM LEFT	LL, L/ 360
QUANTITY	2	W FROM LEFT (LBS)	0		0	WA, RIGHT WC,	TL, L/ 240
SPAN (FT)	16.0	W FROM RIGHT (LBS)	0		0	TO START WB)	
		W @ MID (LBS)	0		0	(FT.)	
		PL 1 (LBS)	2400		900	6.0	
		PL 2 (LBS)	0		0	0.0	
		PL 3 (LBS)	0		0	0.0	
<u>ADJUSTMENT FACTORS</u>							
CD	1.00						
CM*CT*CI	1.00						
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 2 | 1-3/4" x 18" 1.9E MICROLLAM LVL

<u>BEAM PROPERTIES</u>		<u>REQ'D PROPERTIES</u>		<u>PROPERTIES ADEQUATE*2</u>
SX (IN3)	189.00	SX (IN3)	174.64	YES
AREA (IN2)	63.00	AREA (IN2)	30.96	YES
IX (IN4)	1701			
E' (PSI)	1900000			
F' B (PSI)	2600			
F' V (PSI)	285			
		<u>CALC'D LOADS & STRESSES</u>		
		MAX MOMENT (LB*FT)	37,838	
		REACTION L (LBS)	8,823	
		REACTION R (LBS)	7,998	
		<u>CALC'D DEFLECTION</u>		
LL (IN.)	0.53	LL (IN.)	0.39	YES
TL (IN.)	0.80	TL (IN.)	0.52	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #13, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>	LL	DL	LOAD DIST.	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	3	W (PLF)	660	247.5	FROM LEFT	LL, L/	360
QUANTITY	2	W FROM LEFT (LBS)	0	0	WA, RIGHT WC,	TL, L/	240
SPAN (FT)	3.5	W FROM RIGHT (LBS)	0	0	TO START WB)		
		W @ MID (LBS)	0	0	(FT.)		
		PL 1 (LBS)	0	0	0.0		
		PL 2 (LBS)	0	0	0.0		
		PL 3 (LBS)	0	0	0.0		
<u>ADJUSTMENT FACTORS</u>							
CD	1.00						
CM*CT*CI	1.00						
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 2 x 8" DF#2

<u>BEAM PROPERTIES</u>	<u>REQ'D PROPERTIES</u>	<u>PROPERTIES ADEQUATE*2</u>
SX (IN3) 26.28	SX (IN3) 19.62	YES
AREA (IN2) 21.76	AREA (IN2) 8.82	YES
IX (IN4) 95		
E' (PSI) 1600000		
F' B (PSI) 850		
F' V (PSI) 180		
	<u>CALC'D LOADS & STRESSES</u>	
	MAX MOMENT (LB*FT) 1,390	
	REACTION L (LBS) 1,588	
	REACTION R (LBS) 1,588	
	<u>CALC'D DEFLECTION</u>	
LL (IN.) 0.12	LL (IN.) 0.01	YES
TL (IN.) 0.18	TL (IN.) 0.02	YES

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #14, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>	LL	DL	LOAD DIST.	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	8	W (PLF)	420	157.5	FROM LEFT	LL, L/	360
QUANTITY	2	W FROM LEFT (LBS)	0	0	WA, RIGHT WC,	TL, L/	240
SPAN (FT)	8.0	W FROM RIGHT (LBS)	0	0	TO START WB)		
		W @ MID (LBS)	0	0	(FT.)		
		PL 1 (LBS)	0	0	0.0		
		PL 2 (LBS)	0	0	0.0		
		PL 3 (LBS)	0	0	0.0		
<u>ADJUSTMENT FACTORS</u>							
CD	1.00						
CM*CT*CI	1.00						
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 2 | 1-3/4" x 7-1/4" 1.9E MICROLLAM LVL

<u>BEAM PROPERTIES</u>	<u>REQ'D PROPERTIES</u>	<u>PROPERTIES ADEQUATE*2</u>
SX (IN3) 30.66	SX (IN3) 21.32	YES
AREA (IN2) 25.38	AREA (IN2) 8.11	YES
IX (IN4) 111		
E' (PSI) 1900000		
F' B (PSI) 2600		
F' V (PSI) 285		
	<u>CALC'D LOADS & STRESSES</u>	
	MAX MOMENT (LB*FT) 4,620	
	REACTION L (LBS) 2,310	
	REACTION R (LBS) 2,310	
	<u>CALC'D DEFLECTION</u>	
<u>MAX. DEFLECTION</u>	LL (IN.) 0.18	YES
LL (IN.) 0.27	TL (IN.) 0.25	YES
TL (IN.) 0.40		

Project: Seneca Notting Hill Combe South Ogden
 Analysis: K. Price
 Date: 08/03/17



BEAM #15, HDR / BEAM

INPUT

<u>BEAM PARAMETERS</u>		<u>LOADING</u>			<u>LOAD DIST.</u>	<u>DEFLECTION LIMITS</u>	
BEAM TABLE NO.	4	W (PLF)	120	60	FROM LEFT	LL, L/	360
QUANTITY	2	W FROM LEFT (LBS)	0	0	WA, RIGHT WC,	TL, L/	240
SPAN (FT)	6.0	W FROM RIGHT (LBS)	0	0	TO START WB)		
		W @ MID (LBS)	0	0	(FT.)		
		PL 1 (LBS)	0	0	0.0		
		PL 2 (LBS)	0	0	0.0		
		PL 3 (LBS)	0	0	0.0		
<u>ADJUSTMENT FACTORS</u>							
CD	1.00						
CM*CT*CI	1.00						
CL	1.00						
CF*CV	1.00						
CFU*CR	1.00						

RESULTS

BEAM DESCRIPTION 2" x 10" DF#2

<u>BEAM PROPERTIES</u>		<u>REQ'D PROPERTIES</u>		<u>PROPERTIES ADEQUATE*2</u>
SX (IN ³)	42.78	SX (IN ³)	11.44	YES
AREA (IN ²)	27.76	AREA (IN ²)	3.00	YES
IX (IN ⁴)	198			
E' (PSI)	1600000			
F' B (PSI)	850			
F' V (PSI)	180			
		<u>CALC'D LOADS & STRESSES</u>		
		MAX MOMENT (LB*FT)	810	
		REACTION L (LBS)	540	
		REACTION R (LBS)	540	
		<u>CALC'D DEFLECTION</u>		
LL (IN.)	0.20	LL (IN.)	0.01	YES
TL (IN.)	0.30	TL (IN.)	0.02	YES