

729-002-081

LARRY R. NELSON, P.E.  
President

November 17, 2008

TKG Studios  
231 West Charleston Blvd. Suite 140  
Las Vegas, NV 89102

28888-C-08  
**RECEIVED**

NOV 18 2008

**CITY OF LAS VEGAS  
PERMITS**

- STRUCTURAL
- CIVIL
- SURVEY
- PLANNING

ATTENTION: Mr. Dylan R. Yorke  
 REFERENCE: One World Medicine  
 Plan Revisions

**JOB**

Mr. Yorke:

Per your request, below is a list of the latest revisions (Δ3) made to the structural drawings:

Sheet S3

1. Updated plans per revised architectural plans.
2. Added beam below mechanical room wall. See attached calculations.

Sheet S4

3. Updated interior wall locations. No structural revisions are required.

Sheet SD-4.1

4. Updated detail 7 to provide nailer attachment.
5. Added detail 6 for wood beam connection at steel beam and CMU wall

Sheet S1 has been updated to include the revision date and page numbers.

**NEVADA**

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Email lrnelson@lrneng.com

If you have any further questions regarding this matter, please call this office at your convenience.

Sincerely,  
L.R. NELSON CONSULTING ENGINEERS, INC.

**UTAH**

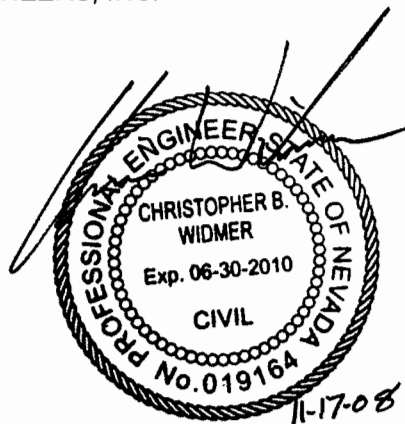
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Christopher B. Widmer, P.E.  
Structural Department

CBW/cbw



**L.R. NELSON CONSULTING ENGINEERS, INC.**

JOB NO. 729-002-081  
DATE 7/2/2008

PROJECT: One World Medicine SHEET \_\_\_\_\_ OF \_\_\_\_\_  
SUBJECT: Beams & Headers DESIGNED CBW CHECKED KAB

DESCRIPTION: FB11 Roof Tributary = 0.00 ft  $W_{LL}$  = 525.00 lb/ft  $C_D$  = 1.00  $C_V$  = 1.00  
 SIZE: 4X12 Floor Tributary = 10.50 ft  $W_{DL}$  = 220.50 lb/ft  $C_t$  = 1.00  $C_F$  = 1.10  
 GRADE: DFL#2 Wall Tributary = 0.00 ft  $P_{LL}$  = 0.00 lb  
 LENGTH (ft)= 7.50 Additional Load = 0.00 plf  $P_{DL}$  = 0.00 lb Reduction (L<sub>r</sub>) %  
 NOTES:  $d_{Point Load}$  = 0.50 ft Reduction (L) %

Actual	Req'd									
S = 73.83 in <sup>3</sup>	> 63.54 in <sup>3</sup>	O.K.	Maximum LL Deflection =	0.06 in = L/ 1600 <input type="checkbox"/> #1						
A = 39.38 in <sup>2</sup>	> 17.47 in <sup>2</sup>	O.K.	Maximum TL Deflection =	0.08 in = L/ 1127 <input type="checkbox"/> #2						
I = 415.28 in <sup>4</sup>	> 93.44 in <sup>4</sup>	O.K.		Height: <table border="1"><tr><td>Lx</td><td>Ly</td></tr><tr><td>1.0</td><td>1.0</td></tr><tr><td>1.0</td><td>1.0</td></tr></table> <input type="checkbox"/> LL	Lx	Ly	1.0	1.0	1.0	1.0
Lx	Ly									
1.0	1.0									
1.0	1.0									

Source: Alternate  
 Left Reaction = 2,796 lb Post: 2X4 DFLSTUD O.K.  
 Right Reaction = 2,796 lb Post: 2X4 DFLSTUD O.K.

DESCRIPTION: Roof Tributary = 0.00 ft  $W_{LL}$  = 0.00 lb/ft  $C_D$  = 1.00  $C_V$  = 1.00  
 SIZE: 4X6 Floor Tributary = 0.00 ft  $W_{DL}$  = 0.00 lb/ft  $C_t$  = 1.00  $C_F$  = 1.30  
 GRADE: DFL#2 Wall Tributary = 0.00 ft  $P_{LL}$  = 0.00 lb  
 LENGTH (ft)= 1.00 Additional Load = 0.00 plf  $P_{DL}$  = 0.00 lb Reduction (L<sub>r</sub>) %  
 NOTES:  $d_{Point Load}$  = 0.00 ft Reduction (L) %

Actual	Req'd									
S = 17.65 in <sup>3</sup>	> 0.00 in <sup>3</sup>	O.K.	Maximum LL Deflection =	0.00 in = L/ N/A <input type="checkbox"/> #1						
A = 19.25 in <sup>2</sup>	> 0.00 in <sup>2</sup>	O.K.	Maximum TL Deflection =	0.00 in = L/ N/A <input type="checkbox"/> #2						
I = 48.53 in <sup>4</sup>	> 0.00 in <sup>4</sup>	O.K.		Height: <table border="1"><tr><td>Lx</td><td>Ly</td></tr><tr><td>1.0</td><td>1.0</td></tr><tr><td>1.0</td><td>1.0</td></tr></table> <input type="checkbox"/> LL	Lx	Ly	1.0	1.0	1.0	1.0
Lx	Ly									
1.0	1.0									
1.0	1.0									

Source: Alternate  
 Left Reaction = 0 lb Post: 2X4 DFLSTUD O.K.  
 Right Reaction = 0 lb Post: 2X4 DFLSTUD O.K.

DESCRIPTION: Roof Tributary = 0.00 ft  $W_{LL}$  = 0.00 lb/ft  $C_D$  = 1.00  $C_V$  = 1.00  
 SIZE: 4X6 Floor Tributary = 0.00 ft  $W_{DL}$  = 0.00 lb/ft  $C_t$  = 1.00  $C_F$  = 1.30  
 GRADE: DFL#2 Wall Tributary = 0.00 ft  $P_{LL}$  = 0.00 lb  
 LENGTH (ft)= 1.00 Additional Load = 0.00 plf  $P_{DL}$  = 0.00 lb Reduction (L<sub>r</sub>) %  
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A = 19.25 in <sup>2</sup>	> 0.00 in <sup>2</sup>	O.K.	Maximum TL Deflection =	0.00 in = L/ N/A <input type="checkbox"/> #2						
I = 48.53 in <sup>4</sup>	> 0.00 in <sup>4</sup>	O.K.		Height: <table border="1"><tr><td>Lx</td><td>Ly</td></tr><tr><td>1.0</td><td>1.0</td></tr><tr><td>1.0</td><td>1.0</td></tr></table> <input type="checkbox"/> LL	Lx	Ly	1.0	1.0	1.0	1.0
Lx	Ly									
1.0	1.0									
1.0	1.0									

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 Left Reaction = 0 lb Post: 2X4 DFLSTUD O.K.  
 Right Reaction = 0 lb Post: 2X4 DFLSTUD O.K.

DESCRIPTION: Roof Tributary = 0.00 ft  $W_{LL}$  = 0.00 lb/ft  $C_D$  = 1.00  $C_V$  = 1.00  
 SIZE: 4X6 Floor Tributary = 0.00 ft  $W_{DL}$  = 0.00 lb/ft  $C_t$  = 1.00  $C_F$  = 1.30  
 GRADE: DFL#2 Wall Tributary = 0.00 ft  $P_{LL}$  = 0.00 lb  
 LENGTH (ft)= 1.00 Additional Load = 0.00 plf  $P_{DL}$  = 0.00 lb Reduction (L<sub>r</sub>) %  
 NOTES:  $d_{Point Load}$  = 0.50 ft Reduction (L) %

Actual	Req'd									
S = 17.65 in <sup>3</sup>	> 0.00 in <sup>3</sup>	O.K.	Maximum LL Deflection =	0.00 in = L/ N/A <input type="checkbox"/> #1						
A = 19.25 in <sup>2</sup>	> 0.00 in <sup>2</sup>	O.K.	Maximum TL Deflection =	0.00 in = L/ N/A <input type="checkbox"/> #2						
I = 48.53 in <sup>4</sup>	> 0.00 in <sup>4</sup>	O.K.		Height: <table border="1"><tr><td>Lx</td><td>Ly</td></tr><tr><td>1.0</td><td>1.0</td></tr><tr><td>1.0</td><td>1.0</td></tr></table> <input type="checkbox"/> LL	Lx	Ly	1.0	1.0	1.0	1.0
Lx	Ly									
1.0	1.0									
1.0	1.0									

Source: Alternate  
 Left Reaction = 0 lb Post: 2X4 DFLSTUD O.K.  
 Right Reaction = 0 lb Post: 2X4 DFLSTUD O.K.

DESCRIPTION: Roof Tributary = 0.00 ft  $W_{LL}$  = 0.00 lb/ft  $C_D$  = 1.00  $C_V$  = 1.00  
 SIZE: 4X6 Floor Tributary = 0.00 ft  $W_{DL}$  = 0.00 lb/ft  $C_t$  = 1.00  $C_F$  = 1.30  
 GRADE: DFL#2 Wall Tributary = 0.00 ft  $P_{LL}$  = 0.00 lb  
 LENGTH (ft)= 1.00 Additional Load = 0.00 plf  $P_{DL}$  = 0.00 lb Reduction (L<sub>r</sub>) %  
 NOTES:  $d_{Point Load}$  = 0.50 ft Reduction (L) %

Actual	Req'd									
S = 17.65 in <sup>3</sup>	> 0.00 in <sup>3</sup>	O.K.	Maximum LL Deflection =	0.00 in = L/ N/A <input type="checkbox"/> #1						
A = 19.25 in <sup>2</sup>	> 0.00 in <sup>2</sup>	O.K.	Maximum TL Deflection =	0.00 in = L/ N/A <input type="checkbox"/> #2						
I = 48.53 in <sup>4</sup>	> 0.00 in <sup>4</sup>	O.K.		Height: <table border="1"><tr><td>Lx</td><td>Ly</td></tr><tr><td>1.0</td><td>1.0</td></tr><tr><td>1.0</td><td>1.0</td></tr></table> <input type="checkbox"/> LL	Lx	Ly	1.0	1.0	1.0	1.0
Lx	Ly									
1.0	1.0									
1.0	1.0									

Source: Alternate  
 Left Reaction = 0 lb Post: 2X4 DFLSTUD O.K.  
 Right Reaction = 0 lb Post: 2X4 DFLSTUD O.K.

## Steel Beam Design

**Description**      Beam at Addition

### General Information

Code Ref: AISC 9th ASD, 1997 UBC, 2003 IBC, 2003 NFPA 5000

#### Steel Section : W12X19

Center Span	16.00 ft	Pinned-Pinned	Fy	50.00ksi
Left Cant.	0.00 ft	Bm Wt. Added to Loads	Load Duration Factor	1.00
Right Cant	0.00 ft	LL & ST Act Together	Elastic Modulus	29,000.0 ksi
Lu : Unbraced Length	2.00 ft			

### Distributed Loads

Note! Short Term Loads Are WIND Loads.

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	
DL	0.150	0.068	0.060					k/ft
LL	0.100	0.180	0.280					k/ft
ST								k/ft
Start Location			5.500					ft
End Location			16.000					ft

### Point Loads

Note! Short Term Loads Are WIND Loads.

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	
Dead Load	2.900							k
Live Load	4.300							k
Short Term								k
Location	6.000							ft

### Summary

**Beam OK**  
Static Load Case Governs Stress

Using: W12X19 section, Span = 16.00ft, Fy = 50.0ksi  
End Fixity = Pinned-Pinned, Lu = 2.00ft, LDF = 1.000

	<u>Actual</u>	<u>Allowable</u>		
Moment	49.483 k-ft	58.575 k-ft	Max. Deflection	-0.558 in
fb : Bending Stress	27.878 ksi	33.000 ksi	Length/DL Defl	897.4 : 1
fb / Fb	<b>0.845 : 1</b>		Length/(DL+LL Defl)	343.9 : 1
Shear	9.807 k	57.152 k		
fv : Shear Stress	3.432 ksi	20.000 ksi		
fv / Fv	<b>0.172 : 1</b>			

### Force & Stress Summary

<<-- These columns are Dead + Live Load placed as noted -->>

	<u>Maximum</u>	<u>DL Only</u>	<u>LL @ Center</u>	<u>LL+ST @ Center</u>	<u>LL @ Cants</u>	<u>LL+ST @ Cants</u>	
Max. M +	49.48 k-ft	19.21	49.48				k-ft
Max. M -		-0.00	-0.00				k-ft
Max. M @ Left							k-ft
Max. M @ Right							k-ft
Shear @ Left	9.81 k	3.91	9.81				k
Shear @ Right	9.23 k	3.41	9.23				k
Center Defl.	-0.558 in	-0.214	-0.558	-0.558	0.000	0.000	in
Left Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Right Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
...Query Defl @	0.000 ft	0.000	0.000	0.000	0.000	0.000	in
Reaction @ Left	9.81	3.91	9.81	9.81			k
Reaction @ Rt	9.23	3.41	9.23	9.23			k

Fa calc'd per Eq. E2-1,  $K^*L/r < Cc$

I Beam Passes Table B5.1, Fb per Eq. F1-1,  $Fb = 0.66 Fy$

**Steel Beam Design****Description**      Beam at Addition**Section Properties**      **W12X19**

Depth	12.160 in	Weight	18.92 #/ft
Web Thick	0.235 in	Ixx	130.000 in4
Width	4.005 in	Iyy	3.760 in4
Flange Thick	0.350 in	Sxx	21.300 in3
Area	5.57 in2	Syy	1.880 in3
Rt	1.000 in	R-xx	4.820 in
Values for LRFD Design....		R-yy	0.822 in
J	0.180 in4	Zx	24.700 in3
Cw	131.00 in6	Zy	2.980 in3
		K	0.650 in

Scope :

## Steel Beam Design

**Description**      Beam at Juncture

**General Information** Code Ref: AISC 9th ASD, 1997 UBC, 2003 IBC, 2003 NFPA 5000

<b>Steel Section : W12X19</b>		Fy	50.00ksi
Center Span	15.00 ft	Load Duration Factor	1.00
Left Cant.	0.00 ft	Elastic Modulus	29,000.0ksi
Right Cant	0.00 ft		
Lu : Unbraced Length	2.00 ft		

Pinned-Pinned  
 Bm Wt. Added to Loads  
 LL & ST Act Together

**Distributed Loads** Note! Short Term Loads Are WIND Loads.

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	
DL	0.030							k/ft
LL	0.140							k/ft
ST								k/ft
Start Location								ft
End Location								ft

**Point Loads** Note! Short Term Loads Are WIND Loads.

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	
Dead Load	0.648	1.310	0.800					k
Live Load	0.120	5.230	2.000					k
Short Term								k
Location	3.000	8.000	4.000					ft

### Summary

**Beam OK**  
 Static Load Case Governs Stress

Using: W12X19 section, Span = 15.00ft, Fy = 50.0ksi  
 End Fixity = Pinned-Pinned, Lu = 2.00ft, LDF = 1.000

	<u>Actual</u>	<u>Allowable</u>		
Moment	35.966 k-ft	58.575 k-ft	Max. Deflection	-0.346 in
fb : Bending Stress	20.263 ksi	33.000 ksi	Length/DL Defl	2,061.1 : 1
fb / Fb	<b>0.614 : 1</b>		Length/(DL+LL Defl)	520.4 : 1
Shear	7.137 k	57.152 k		
fv : Shear Stress	2.497 ksi	20.000 ksi		
fv / Fv	<b>0.125 : 1</b>			

### Force & Stress Summary

<-- These columns are Dead + Live Load placed as noted -->

	<u>Maximum</u>	<u>DL Only</u>	<u>LL @ Center</u>	<u>LL+ST @ Center</u>	<u>LL @ Cants</u>	<u>LL+ST @ Cants</u>	
Max. M +	35.97 k-ft	8.66	35.97				k-ft
Max. M -							k-ft
Max. M @ Left							k-ft
Max. M @ Right							k-ft
Shear @ Left	7.14 k	2.08	7.14				k
Shear @ Right	5.81 k	1.41	5.81				k
Center Defl.	-0.346 in	-0.087	-0.346	-0.346	0.000	0.000	in
Left Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Right Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
...Query Defl @	0.000 ft	0.000	0.000	0.000	0.000	0.000	in
Reaction @ Left	7.14	2.08	7.14	7.14			k
Reaction @ Rt	5.81	1.41	5.81	5.81			k

Fa calc'd per Eq. E2-1,  $K^*L/r < Cc$   
 I Beam Passes Table B5.1, Fb per Eq. F1-1, Fb = 0.66 Fy

Scope :

Rev: 580006  
 User: KW-0600484, Ver 5.8.0, 1-Dec-2003  
 (c)1983-2003 ENERCALC Engineering Software

## Steel Beam Design

Page 2  
 footings.ecw:Calculations

**Description**      Beam at Juncture

### Section Properties      W12X19

Depth	12.160 in	Weight	18.92 #/ft
Web Thick	0.235 in	Ixx	130.000 in4
Width	4.005 in	Iyy	3.760 in4
Flange Thick	0.350 in	Sxx	21.300 in3
Area	5.57 in2	Syy	1.880 in3
Rt	1.000 in	R-xx	4.820 in
Values for LRFD Design....		R-yy	0.822 in
J	0.180 in4	Zx	24.700 in3
Cw	131.00 in6	Zy	2.980 in3
		K	0.650 in

### Steel Beam Design

Description Header

#### General Information

Code Ref: AISC 9th ASD, 1997 UBC, 2003 IBC, 2003 NFPA 5000

#### Steel Section : W12X14

Center Span	7.00 ft	Pinned-Pinned	Fy	50.00ksi
Left Cant.	0.00 ft	Bm Wt. Added to Loads	Load Duration Factor	1.00
Right Cant	0.00 ft	LL & ST Act Together	Elastic Modulus	29,000.0 ksi
Lu : Unbraced Length	7.00 ft			

#### Distributed Loads

Note! Short Term Loads Are WIND Loads.

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	
DL	0.150	0.040						k/ft
LL	0.100	0.080						k/ft
ST								k/ft
Start Location								ft
End Location								ft

#### Summary

**Beam OK**  
Static Load Case Governs Stress

Using: W12X14 section, Span = 7.00ft, Fy = 50.0ksi  
End Fixity = Pinned-Pinned, Lu = 7.00ft, LDF = 1.000

	<u>Actual</u>	<u>Allowable</u>		
Moment	2.353 k-ft	25.527 k-ft	Max. Deflection	-0.008 in
fb : Bending Stress	1.895 ksi	20.558 ksi	Length/DL Defl	19,572.2 : 1
fb / Fb	<b>0.092 : 1</b>		Length/(DL+LL Defl)	10,400.9 : 1
Shear	1.344 k	47.640 k		
fv : Shear Stress	0.564 ksi	20.000 ksi		
fv / Fv	<b>0.028 : 1</b>			

#### Force & Stress Summary

<<< These columns are Dead + Live Load placed as noted -->>

	<u>Maximum</u>	<u>DL Only</u>	<u>LL @ Center</u>	<u>LL+ST @ Center</u>	<u>LL @ Cants</u>	<u>LL+ST @ Cants</u>	
Max. M +	2.35 k-ft	1.25	2.35				k-ft
Max. M -							k-ft
Max. M @ Left							k-ft
Max. M @ Right							k-ft
Shear @ Left	1.34 k	0.71	1.34				k
Shear @ Right	1.34 k	0.71	1.34				k
Center Defl.	-0.008 in	-0.004	-0.008	-0.008	0.000	0.000	in
Left Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Right Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
...Query Defl @	0.000 ft	0.000	0.000	0.000	0.000	0.000	in
Reaction @ Left	1.34	0.71	1.34	1.34			k
Reaction @ Rt	1.34	0.71	1.34	1.34			k

Fa calc'd per Eq. E2-2, K\*L/r > Cc

I Beam, Major Axis,  $(102,000 * Cb / Fy)^{.5} \leq L/rT \leq (510,000 * Cb / Fy)^{.5}$ , Fb per Eq. F1-6

**Description**      Header**Section Properties**      **W12X14**

Depth	11.910 in	Weight	14.13 #/ft
Web Thick	0.200 in	Ixx	88.600 in4
Width	3.970 in	Iyy	2.360 in4
Flange Thick	0.225 in	Sxx	14.900 in3
Area	4.16 in2	Syy	1.190 in3
Rt	0.950 in	R-xx	4.620 in
Values for LRFD Design....		R-yy	0.753 in
J	0.070 in4	Zx	17.400 in3
Cw	80.60 in6	Zy	1.900 in3
		K	0.525 in