



908 WEST GORDON AVE. SUITE #3
LAYTON, UT 84041
(801) 547-8133

August 3, 2018

FIRST REVIEW
WC³ Project #: 218-525-076
Weber County Project#: HSR 2018-01

Weber County
Building Inspection Department
2380 Washington Boulevard, Suite 240
Ogden, Utah 84401
Phone: (801) 399-8374

Attention: Craig Browne Building Official

Subject: Eisenberg - SFD – Plan Review Comments 1st Review

Mr. Browne:

West Coast Code Consultants, Inc. (WC³) has completed the first review of the proposed Eisenberg - SFD project located in Eden, UT. This review was based upon the following:

1. Architectural drawings by MacKay-Lyons Sweetapple, sealed and signed by Brian MacKay-Lyons, Licensed Architect. An Envelope Certificate (ECC) was also provided.
2. Civil drawings dated 12/22/2017 by Talisman Civil Engineers, sealed and signed by Ryan W. Cathey, Professional Engineer.
3. Structural drawings by Blackwell, sealed and signed by Michael F Sullaway, Professional Structural Engineer.
4. Geotechnical investigation report (#02565-001) dated 7/30/2017 by IGES, sealed and signed by David A. Glass, Professional Engineer.

The 2015 International Codes and 2017 NEC, as adopted by the State of Utah, were used as the basis of our review. Specific comments regarding this project are enclosed with this cover letter. If you have any questions regarding this review, please contact me.

Sincerely,

Mike Molyneux, P.E.
Senior Plan Review Engineer

Attachment: Comments



Plan Review Comments

Project Name: Eisenberg - SFD

Code Review by: Cody Richards

Location(s): 8488 East Spring Park Road, Eden, UT

Structural by: Joe Bingham

Checked By: Mike Molyneux

Plan Review Comments

SQUARE FOOTAGE SUMMARY:

Ground Level	Second Level	Third Level	Forth Level	Deck(s)	Covered Patio(s)	Garage	Carport
265 ft ²	1254 ft ²	1008 ft ²	535 ft ²	662 ft ²	- ft ²	512 ft ²	- ft ²

GENERAL INFORMATION:

The submitted documents for the above-mentioned project, as outlined in the cover letter, have been reviewed. The following comments address areas of concern, non-compliance with the governing code, potential errors, or omissions in the proposed design. The appropriate design professional must address each comment below and submit a written response in addition to revised plans and calculations if necessary. **Please cloud any revisions made to the construction drawings and provide the date of the latest revision on each revised sheet.**

CODE REVIEW COMMENTS:

- A1. Per IRC 101.2, the provisions of the IRC shall apply to buildings of not more than 3 stories above grade plane in height. The IRC describes grade plane as a reference plane representing the average of finished ground level adjoining the building at all exterior walls. Please clearly define grade plane on all sides of the structure. If the determination is made that the house exceeds 3 stories, it must be designed per the 2015 IBC.
- A2. The site plan shows the house being exactly 5 feet from the property line. Please clarify if this measurement is from the exterior wall. Any portions of the house, including overhang and eaves, closer than 5 feet must have a one-hour fire rating.
- A3. The plans show a dumb-waiter from level 1 to level 3. Please provide details showing how this will be constructed to maintain fireblocking requirements between each level.
- A4. Please confirm that doors A and E will be 20 minute rated. It appears from the detail on the window schedule that window A might be mostly glazing. Please confirm is this is correct. If so the door would still need to have a 20 minute fire rating.
- A5. Mechanical room seems to be narrow. Please show the layout of any equipment in this room to verify that access and working space requirements will be met.
- A6. Please clearly indicate on the plans safety glazing and *where* it is to be provided. IRC R308.4



ENERGY REVIEW COMMENTS:

- N1. It doesn't appear that the walls of glazing are accounted for in the REScheck. Please address.
- N2. No insulation is labeled in the wall details of the plans. It is difficult to verify how the R-Values of the REScheck will be achieved. Please specify all insulation and R-Values on the plans to show what will be used for cavity and continues insulation.

STRUCTURAL COMMENTS:

General:

- S1. Please verify that the structural design drawing requirements on AISC 341 A4 are included on the drawing. (AISC 341 A4)

Structural Drawings:

- S2. Sheet S001:
 - A. 010001 Design Notes: References are made to AISC 360-16 and AISC 341-16. These are not valid codes. IBC 2015 requirements are AISC 360-10 and AISC 341-10. Please verify and confirm that the design complies with current code requirements. (IBC Chapter 35)
 - B. 010001 Design Notes: Frost depth shows 40". Page 18 of Geotech's report indicates minimum 42". Please verify and revise the drawing. (IBC 107)
- S3. Sheet S003:
 - A. Reinforcement Development Lengths: The concrete strength provided in the table appears unusual. Please verify and consider revising to standard values compatible with ones shown on Sheet S001 Concrete Notes. It also references "Reinforcing Steel Manual of Standard Practice" which is a Canadian code reference. (IBC 107)

TABLE 1 - TENSION DEVELOPMENT LENGTH (in)

BAR SIZE	f _c				
	2900psi	3626psi	4352psi	5077psi	5802psi
4	12.6	11.8	11.8	11.8	11.8
5	16.9	16.9	15.4	14.6	13.4
6	25.2	22.8	20.9	19.3	18.1
8	39.8	35.4	32.3	29.9	28.0
9	47.6	42.5	39.0	35.8	33.5
11	55.5	49.6	45.3	41.7	39.4
14	71.7	63.8	58.3	53.9	50.8
18	87.4	76.0	71.3	66.1	61.8

TABLE 2 - TENSION LAP SPLICE (CLASS B) LENGTH (in)

BAR SIZE	f _c				
	2900psi	3626psi	4352psi	5077psi	5802psi
4	16.5	15.0	13.4	12.4	11.8
5	24.8	22.0	20.1	19.1	17.5
6	33.1	29.7	27.2	25.2	23.6
8	51.8	46.1	42.1	39.0	36.4
9	54.1	55.3	50.8	46.5	43.5
11	72.4	64.6	58.9	55.3	51.2
14					
18					

LAP SPLICES NOT PERMITTED

TABLE 3 - DEVELOPMENT LENGTH (in) FOR STANDARD HOOKS.

BAR SIZE	f _c				
	2900psi	3626psi	4352psi	5077psi	5802psi
4	6.1	5.9	5.9	5.9	5.9
5	9.4	8.3	7.5	6.9	6.7
6	12.4	11.0	10.2	9.4	8.9
8	15.4	13.8	12.6	11.6	11.0
9	16.5	16.5	15.2	14.2	13.0
11	21.7	16.9	17.7	16.3	15.2
14	38.5	34.4	31.4	28.1	27.2
18	49.6	44.4	40.6	37.5	35.1

TABLE 4 - COMPRESSION DEVELOPMENT LENGTH (in)

BAR SIZE	f _c =2900psi	f _c =3626psi	f _c =4352psi
	4	8.3	7.9
5	12.6	11.4	10.2
6	16.9	15.0	13.8
8	21.3	18.9	17.3
9	25.2	22.8	20.9
11	29.5	26.4	24.4
14	38.2	33.9	31.1
18	46.5	41.7	38.2

TABLE 5 - COMPRESSION LAP SPLICE LENGTH (in)

BAR SIZE	USUAL CONFINEMENT	
	400R OR 500R	400W OR 500W
4	11.8	
5	17.3	
6	22.8	
8	28.7	
9	34.6	
11	40.2	

NOTE: #14 AND #18 BARS SHALL BE SPLICED WITH MECHANICAL CONNECTORS

TABLE 6 - STANDARD HOOK DIMENSION FOR BLACK REINFORCING.

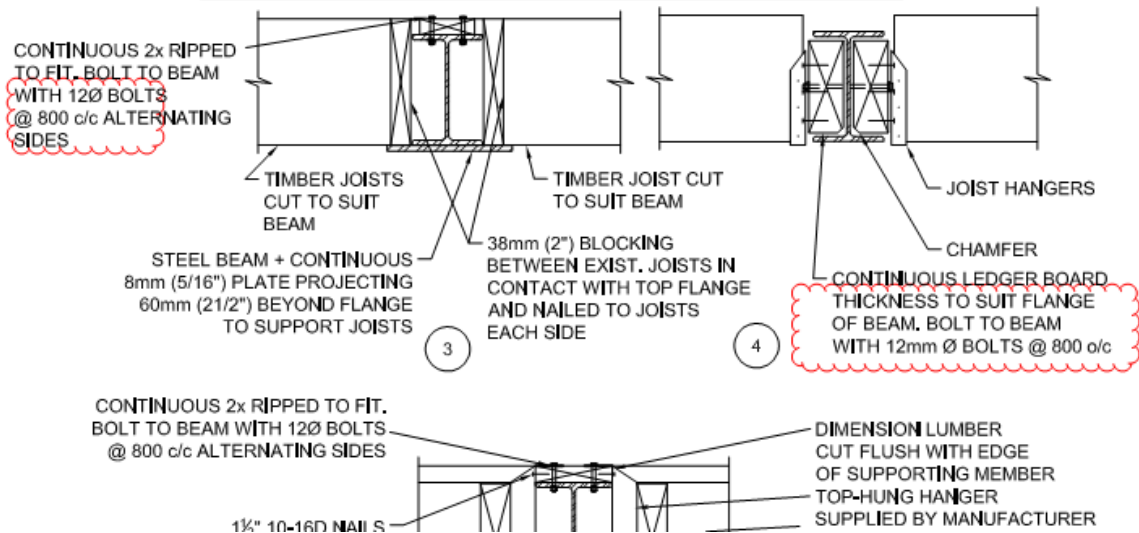
BAR SIZE	400R OR 500R		400W OR 500W	
	90° HOOK (in)	180° HOOK (in)	90° HOOK (in)	180° HOOK (in)
4	7.1	5.5	7.1	5.1
5	10.2	7.1	9.8	6.7
6	12.2	8.7	11.8	7.9
8	15.7	11.0	15.7	11.0
9	20.1	15.7	19.3	13.8
11	24.0	18.9	23.2	16.9
14	31.1	26.8	30.3	24.4
18	40.6	35.4	38.8	32.7

REFER TO REINFORCING STEEL MANUAL OF STANDARD PRACTICE FOR MORE INFORMATION.

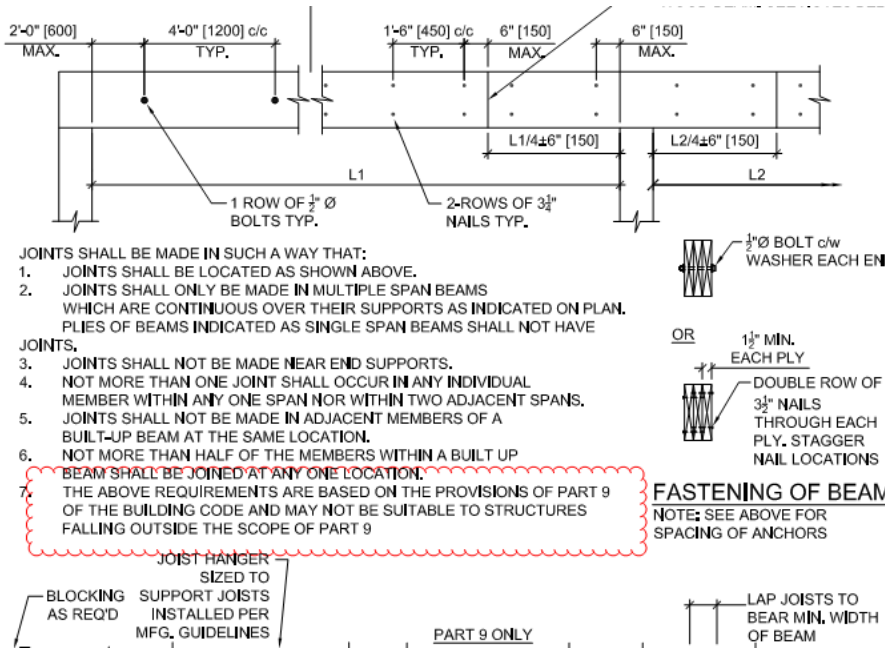
S4. Sheet S004:

- A. Steel Beams Supporting Wood Joists: Units appear to be non-imperial. Please verify bolt diameter and spacing requirements. Please ensure all units are consistent. (IBC 107)

STEEL BEAM SUPPORTING JOISTS ON TOP FLANGE

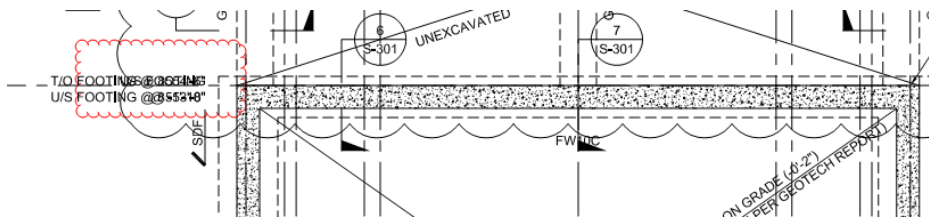


- B. Built Up Wood Beams: Reference is made to Part 9 of the building code. This appear to be referencing the Canadian building code. Please verify that all references are to the IBC 2015. (IBC 107)



S5. Sheet S100:

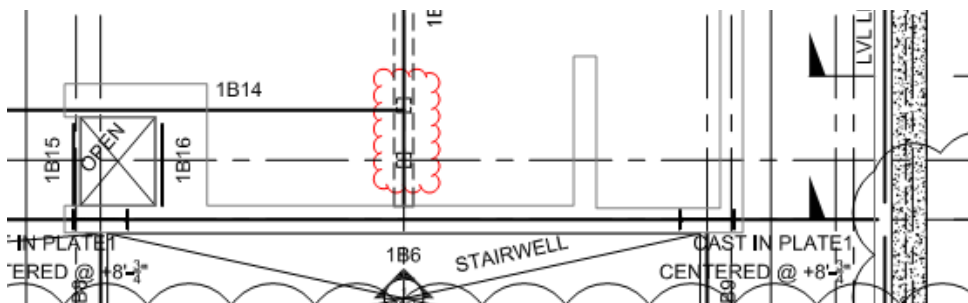
A. Notes on the plan are illegible. Please verify and revise the notes. (IBC 107)



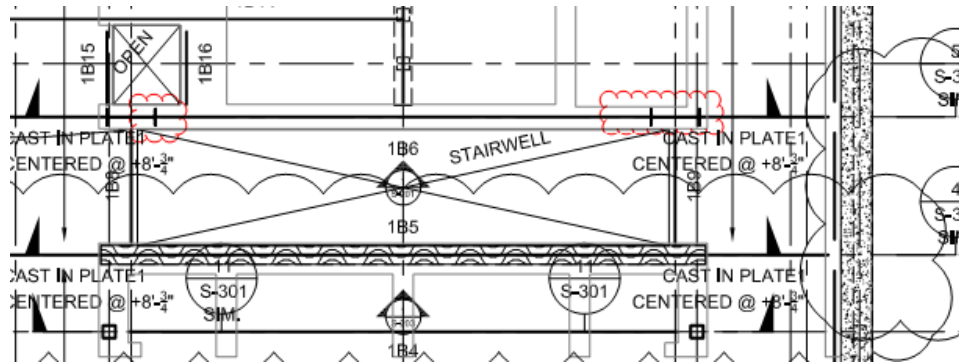
S6. Sheet S101:

A. Member schedule note 4 refers to IBC 2304.9.5. Please verify if the intent was 2304.10.5.1 regarding fasteners protection. (IBC 2304.10.5.1)

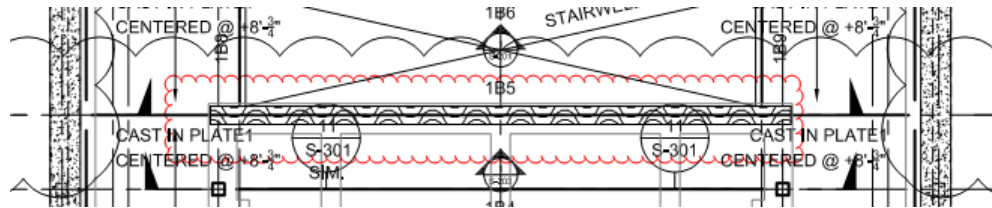
B. Posts information are unclear. Please verify load paths. Please indicate support information for all levels on the drawing. (IBC 1604)



C. Please verify if 1B6 is part of the moment frame. The schedule appears to indicate this as part of the SFRS. Please provide moment frame indication on the drawing. (IBC 107)

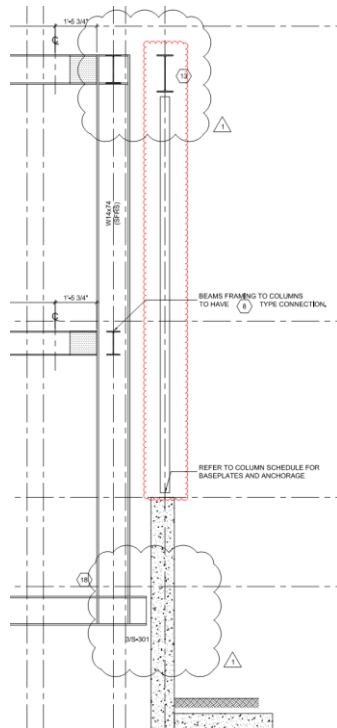


D. Please verify if wall at 1B5 is a shearwall. Walls above are shearwalls. Please verify load paths. If this is not a shearwall, the condition appears to create a vertical in-plane discontinuity irregularity. Please verify that the increase load requirements of ASCE 7 12.3.3.3, 12.3.3.4 have been satisfied. (ASCE 7 T12.3-1)



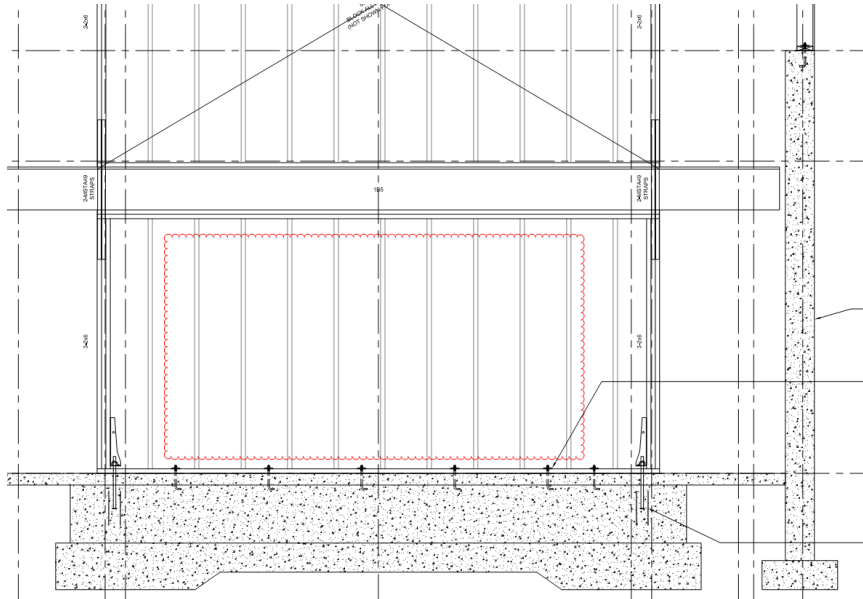
S7. Sheet S200:

A. The walls appear to be isolated from the floors and moment frame. Please clarify load path of the walls out of plane condition. Structural walls shall be anchored to the roof and to all floors and members that provide lateral support for the wall. (IBC 1604.8.2)



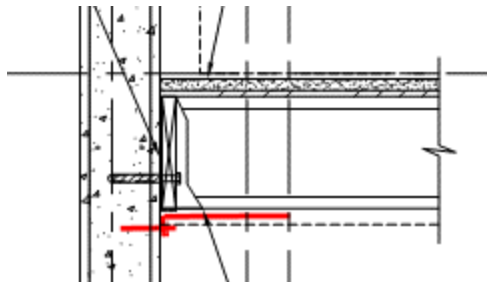
S8. Sheet S203:

- A. Please verify if the wall is a shearwall. Walls above are shearwalls. Please verify load paths. If this is not a shearwall, the condition appears to create a vertical in-plane discontinuity irregularity. Please verify that the increase load requirements of ASCE 7 12.3.3.3, 12.3.3.4 have been satisfied. (ASCE 7 T12.3-1)



S9. Sheet S300:

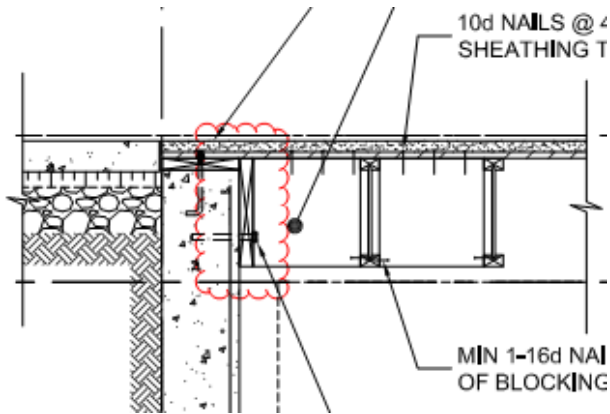
- A. Please verify that walls are tied to the diaphragm. Structural walls shall be designed to resist bending between anchors where the anchor spacing exceeds 4 ft. Wood ledger shall not be used in cross grain bending. Plywood sheathing may not be used in direction tension or compression conditions. Please show parallel joists conditions. This applies to details on other sheets as well. (ASCE 7 12.11, 12.11.2, 12.11.2.2.3)



- B. Diaphragms shall be provided with continuous ties or struts between diaphragm chords to distribute wall anchorage forces in to the diaphragms. Please indicate these chords on the drawing. (ASCE 7 12.11.2.2, 12.11.2.2.3)

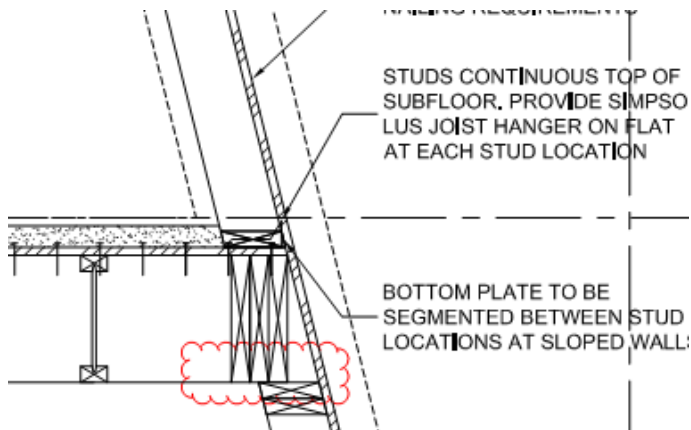
S10. Sheet S301:

- A. Detail 6: Wood framing members in direct contact with the interior of exterior concrete walls below grade shall be of naturally durable or preservative treated wood. Please verify and indicate on the drawing. The condition applies to other details also. (IBC 2304.12.1.3)

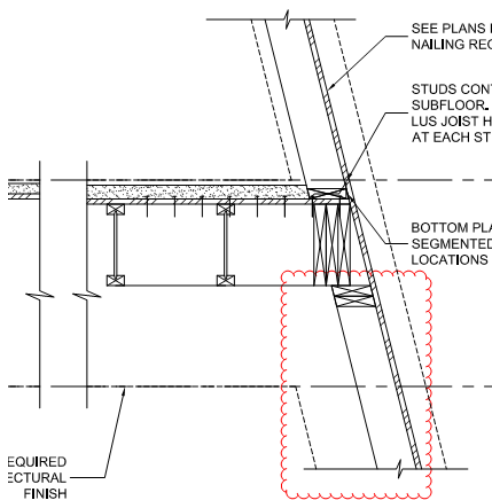


S11. Sheet S401:

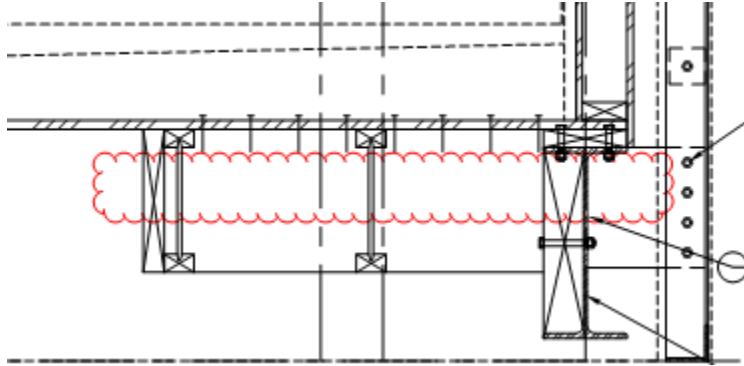
- A. The built-up beam appears to be partially supported. Please verify bearing condition. (IBC 1604)



- B. The supporting studs appear to be sloped. The stud capacity may be reduced. The condition also creates additional eccentricity. Please verify that this and P-delta effects have been considered.



C. Detail 3: Threaded rods appear to be missing from the detail. Please verify and revise. (IBC 107)



Structural Calculations:

S12. Page 164:

A. Calculation appears to be in SI units. Please verify and confirm that the design and units are equivalent. (IBC 107)

If you have any questions regarding the above comments, please contact Mike Molyneux at mikem@wc-3.com or by phone at 801-547-8133.

[END]