908 WEST GORDON AVE. SUITE #201
LAYTON, UT 84041
(801) 547-8133

August 2, 2016

FIRST REVIEW
WC[3] Project #: *216-525-043*

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

Attention: Craig Browne, Building Official

Subject: Geary SFD – Plan Review Comments

Mr. Browne:

West Coast Code Consultants, Inc. (WC[3]) has completed the first review of the proposed Geary SFD project located in Summit, UT. This review was based upon the following:

1. Architectural drawings dated 6/2/2016 by Upwall Design.
2. Structural drawings and calculations dated 7/11/2016 by MJ Structural Engineers, sealed and signed by Matthew D Jackson, Professional Structural Engineer.
3. Mechanical drawings by Ben Lomond.
4. Plumbing drawings by Aspen Ridge.
5. Electrical drawings by Adventure Electric.
6. Geotechnical investigation report (#02332-001) dated 7/8/2016 by IGES, sealed and signed by David A Glass, Professional Engineer.

The 2015 International Codes and 2014 NEC, as adopted by the State of Utah, were used as the basis of our review. Specific comments in regards to this project are enclosed with this cover letter. If you have any questions in regards to this review please do not hesitate to contact me.

Sincerely,

Mike Molyneux

Mike Molyneux, P.E.

Attachment: Comments

CC:
CC:

CC:
CC:

Plan Review Comments

Project Name: Geary SFD

Location(s): 8343 East Summit Pass, Summit, UT

Checked by: Joe Bingham

Code Review by: Mike Molyneux

Structural by: Mike Molyneux

OCCUPANCY & BUILDING SUMMARY:

Type of Construction	Use Group(s)	Occupant Load	Risk Category	Square Footage	Building Height	Sprinklers
V-B	R-3	-	II	6,142 ft²	2-story	Yes

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. All of the plans and calculations submitted make reference to the 2012 IBC. Because the project was submitted subsequent to July 1, 2016, the State of Utah requires that the design be compliant with the 2015 International Codes and 2014 NEC. Please address.

A2. Please provide a site plan showing the location of all retaining walls including their extents and heights. Provide calculations for all walls with more than 4 feet of elevation change.

A3. Please show or note on the plans that all grading around the home will slope at least 5% away from the home for proper drainage as required by IRC R401.3.

A4. Indicate on the plans the maximum flow rates for the shower heads, lavatory and sink faucets, and water closets. Flow rates should meet requirements of IRC P2903.2.

A5. Please indicate the U-factor for the windows on the plans. Include a note which clarifies that all U-factors shall be determined by testing in accordance with NFRC 100 and labeled as such by the manufacturer, per Section 102.1.3 of the 2006 IECC.

STRUCTURAL COMMENTS:

Structural Drawings:

S1. Sheet S101: Please address the following…

A. The geotechnical report states the need for all concrete which is to come into contact with soil is to meet the ACI requirements for "Moderate" sulfate exposure. In accordance with Table 4.3.1 of ACI 318-11, this requires a minimum f'_c=4,000psi, maximum w/c=0.5, and Type II cement.

B. The basic seismic force resisting system is listed as special concrete shear walls. It appears from the drawings and calculations that wood-framed shear walls and moment frames are to be used as well. Please list the wood shear walls and appropriate type of moment frame on the plans.

I. If ordinary moment frames are to be used the calculations may be effected due to the lower response modification factor. Please address.

S2. Sheet S102: The "special inspection" portion of sheet S102 does not meet the requirements for a "Statement of Special Inspections" as required by IBC 1704.2.3 and defined in IBC 1704.3.

A. The elements requiring special inspection/testing are required to be noted (e.g. concrete footing, foundations, etc.)

B. The extent of inspections/testing to be provided and their frequency (e.g. inspection of reinforcing steel - periodic, inspection of anchors cast in concrete – periodic)

Please list the special inspection requirements for steel construction on the plans.

S3. Sheet S202: Please address the following…

A. List the reduction factors due to fire retardant treatment considered in the design on the plans. Each product has their own factors and the appropriate product should be considered.

B. Please clarify how the deck between gridlines 1 through 2 and D through E is being supported.

C. Provide collectors where required to transfer diaphragm shear forces into shear walls per Section 12.10.2 of ASCE 7-10.

D. Details for shear connection at gridline 1 appear to be inconsistent with concrete shear wall as shown on sheet S205. Please clarify.

S4. Sheet S203: Provide collectors where required to transfer diaphragm shear forces into shear walls per Section 12.10.2 of ASCE 7-10.

S5. Sheet S204: Please address the following…

A. Provide collectors where required to transfer diaphragm shear forces into shear walls per Section 12.10.2 of ASCE 7-10.

B. Provide shear transfer details where shear walls occur on interior walls where no details have been provided. See shear wall between gridlines A and B as well as shear wall at gridline 3.

S6. Sheet S501: Please provide the toe or heal width as well as the required footing depth in detail 13.

S7. Sheet S602: Please specify the wood nailer and the attachment to the steel channel in detail 6.

Structural Calculations:

S8. Please provide calculations for unsupported retaining walls exceeding 4'-0" in height and foundation walls exceeding 9'-0" in height.

S9. The roof snow load is listed as 167psf. Please confirm that a percentage of the snow was considered in the seismic weight of the structure as required by Section 1605.3.1 and 1605.3.2 of the Utah Amended Code.

S10. The proposed structure includes re-entrant corner irregularities as defined by Table 12.3-1 of ASCE 7-10. Please confirm that the requisite forces were increased as required by Section 12.3.3.4 of ASCE 7.

S11. Provide a key plan for beam calculations to verify the beams.

S12. Verify that the HSS14x6x5/16 steel beam supporting the W12x50 steel column of the moment frame has been designed for the in-plane discontinuity defined in Table 12.3-2 of ASCE 7-10.

S13. Verify that the wood beam calculations consider the appropriate reduction for fire retardant treatment. This will also apply to stud calculations.

A. Be aware that LVL/microlams are not allowed to be fire retardant treated as testing has not been provided. LVL's in exterior walls should be removed and provided with a solid sawn option.

S14. Provide details and calculations for the anchorage of the W12x50 steel column at the moment frame. Verify that the anchorage calculations meet the requirements of Appendix D of ACI 318-11.

S15. Calculations for the following items could not be found:

A. Provide calculations for concrete shear walls.

B. Provide calculations for wood-framed shear walls.

C. Provide calculations for the footings and foundation walls.

D. Bearing wall calculations. Consider reduction due to fire retardant treatment.

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]