

May 29, 2015

K.E. Project #: 215-525-001

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

Attention: Craig Browne, Building Official

Subject: Falcone Residence – Plan Review Comments

Mr. Browne:

Kimball Engineering has completed the first review of the proposed Falcone Residence at 7947 East Heartwood Drive. This proposed project consists of an approximately 4,500 square foot home with a 2 car attached garage. This review was based upon the following:

1. Construction drawings dated 05/13/2015 provided by AMD Architecture.
2. Structural drawings and calculations dated 05/14/2015 provided by Epic Engineering, stamped by Adam J. Huff, Registered Professional Engineer.

The 2012 International Residential and Building Codes, as adopted by the State 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, P.E.

Attachment: Comments

Plan Review Comments

Project Name: Falcone Residence

K.E. Project #: 215-525-001

Location(s): 7947 East Heartwood Dr., Weber County, Utah

Structural By: Mike Molyneux

Code Review By: Cody Richards

Reviewed By: Joe Bingham

Date of Comments: 05/29/2015

The plans and structural calculations for the above-mentioned project 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. The REScheck shows that the windows and glass doors are to have a U-factor of .29, but sheet A6.0 shows the windows and glass doors as having a minimum U-factor of .34. Please assure that the U-factors on the plans are consistent with the REScheck so there will not be any confusion to what windows will be installed.
- A2. The REScheck calls for two solid exterior doors to have a U-factor of .06. Because this is an extremely low U-factor please confirm that this is the correct U-factor for the doors. Please provide make and model of doors to be used so that the U-factor can be verified. Please note on the plans that all UL listing stickers are to be left on the doors and windows until field inspected by Weber County.
- A3. The REScheck shows an R32 cavity insulation for the exterior walls, which doesn't seem to be consistent with the wall section on sheet A3.2. The wall section shows a rigid insulation which is typically a continuous insulation. Please confirm and detail how the exterior walls are to be insulated and how an R32 will be achieved.
- A4. Please provide engineering and calculations for all rock retaining walls over 4 feet.
- A5. Please provide the listing and manufacturer's installation instructions for all the gas fireplaces per IRC R1004.1. Also clarify the air supply being provided for combustions per IRC R1006.
- A6. Please specify the exact type of fireplace that is to be installed within bedrooms and bathrooms. Fireplaces located in bedrooms or bathrooms must be the "direct vent" type and be listed to be located within such spaces, as required by IRC G2406.2.

- A7. The exterior wall construction is conflicting from the typical details on sheet A0.1 and the wall sections on sheet A3.2. Please confirm if the exterior walls will be constructed of 2X6 studs or 2X8 studs.
- A8. Please verify that wall "W4" separating the garage from the dwelling will have a minimum of ½ gypsum board as required in IRC Table 302.5. It appears from the elevations that these walls will not have concrete.
- A9. Because there is living space above the garage, please show or note that the ceiling of the garage will have a separation of 5/8 inches, type X, gypsum board as required in IRC R302.6.
- A10. Because the kitchen island is separated by the sink and stove top it is required to have a receptacle on each end of the island IRC E3901.4.4. Please show or note this on the plans.
- A11. The half baths (powder room) in the basement and off of the service room of the main level do not show GFCI receptacles within 36 inches of the sink. Please address.
- A12. Electrical note #15 is noted but it is important to specify some specific requirements that pertain to the spa. Please address the following
 - A. Please note that no luminaries can be closer than 7' 6" from the water's edge IRC E4203.4.4. Please note that all luminaries installed within 12 feet from the hot tub will be protected by a GFCI branch circuit. IRC E4203.4
 - B. Please note that no receptacles are allowed with 6 feet of the hot tub IRC E4203.1.4. This would also apply to the TV shown mounted above the hot tub. Please note or show where the TV receptacle will be located to meet this requirement.
 - C. No switches are allowed within 5 feet horizontally from the water's edge of the hot tub IRC E4203.2. It appears that the switches at the outside door way and the switches at the half bathroom are closer than 5 feet. Please address.

STRUCTURAL COMMENTS:

Structural Drawings:

- S1. The plans must provide a "Statement of Special Inspections" per IBC 1704.2.3 and as defined in IBC 1704.3. Not only should this list all special inspection and structural testing items that are required by the IBC, but detail the extent and frequency of the inspections/tests. Please address.
- S2. Please add a note to the plans stating that all fasteners (i.e. nails, screws, anchor bolts, etc.) which are to be installed in preservative treated wood (i.e. sill plates) shall meet the requirements of IBC 2304.9.5.

- S3. No details or notes are provided for endwall blocking at the floor joists which run parallel to the foundation walls. Please provide a detail showing the blocking requirements as required by Section 12.11.2.2 of ASCE 7-10.
- S4. Sheet S0.1: Please clarify how a site class 'B' and a bearing pressure of 5000 psf were determined. Please verify with Weber County that these values are acceptable for the location.
- S5. Sheet S1.1: Please address the following...
 - A. The footing F-2 does not meet the minimum reinforcement requirements of Section 10.5.4 of ACI 318-11. Please address.
 - B. Please provide a wall section for the 18" thick pool foundation wall indicated in key note 8. From the details provided an 18" thick wall is not shown. Detail 3/S1.2 does not provide the required reinforcement.
 - C. Concrete note 15 indicates a frost depth of 30". The frost depth for this area is 40".
- S6. Sheet S2.1: Please address the following...
 - A. Provide the required framing around openings for the stairs and elevator shaft.
 - B. Provide collector/drag elements around opening in the diaphragm for the stairs and elevator and show how diaphragm shear forces are transferred to the foundation.
- S7. Sheet S2.2: Please address the following...
 - A. Multiple moment frames are shown with reference to 2/S4.3. This detail has not been provided.
 - B. Please show how the studs are supported top and bottom at the cantilevered stair treads.
- S8. Sheet S2.3: Multiple moment frames are shown with reference to 2/S4.3. This detail has not been provided.
- S9. Sheet S3.4: Please address the following...
 - A. Please provide shotcrete notes per Section 1910 of the IBC with attention given to clearance, splices, and rebound.
 - B. Please clarify the spacing of the vertical reinforcement shown in detail 4.
 - C. Please provide dimensions to the horizontal reinforcement shown in detail 4.
- S10. Sheet S4.2: Please clarify that the shear wall at gridline C of the upper level is to continue past gridline 3 as indicated in the calculations.
- S11. Sheet S4.3: Please address the following...
 - A. Please provide the required embedment depth for the anchorage shown in detail 6.
 - B. Please provide the required beam and column sizes in detail 3.

Structural Calculations:

- S12. Many of the calculations were performed in reference to outdated building codes and standards. Please confirm that calculations meet the requirements of the 2012 IBC and its referenced standards as listed in Chapter 35.
- S13. Please provide calculations for concrete retaining walls exceeding four feet in height from the base.
- S14. 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.
- S15. It appears that the empirical foundation table provided in the State Amendments to the 2012 IBC has been used for foundation walls up to 9'-0" in height. Please provide calculations for unrestrained foundation walls exceeding 4'-0" in height as shown in the foundation wall schedule on Sheet S1.1.
- S16. Please provide calculations for the studs to support the induced moment caused by the stair stringer.
- S17. The calculations for the stair stringer include one applied moment at the 4'-0" location. It appears that the same load should be applied every foot.
- S18. Please provide calculations for the anchorage of the stair stringer to the wall.
- S19. The calculations for the stair tread indicate that the member is restrained against lateral torsional buckling. This does not appear to be the case. Please verify the calculations.
- S20. The calculations for C-1 (W12x22) do not appear to be providing the required code checks. Please verify the calculations.
- S21. The calculations for the left side of the upper left side has a tension load of 777 lbs yet no hold down is required. Please justify a tension load of 777 lbs with no hold down.