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

August 26, 2019

SECOND REVIEW
WC[3] Project #: *219-525-088*
Weber County

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

Attention: Craig Browne Building Official

Subject: SMHG LLC - Pioneer Cabin – Plan Review Comments 2nd Review

Mr. Browne:

West Coast Code Consultants, Inc. (WC[3]) has completed the second review of the proposed SMHG LLC - Pioneer Cabin project located in Eden, UT. This review was based upon the following:

1. Architectural drawings dated 8/16/2019 by MacKay-Lyons Sweetapple, Architects, sealed and signed by Alex Hawkins, Professional Engineer.
2. Structural drawings dated 8/16/2019 by Ensign Engineering, sealed and signed by Alex Hawkins, Professional Engineer.

The 2018 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: SMHG LLC - Pioneer Cabin
Location(s): 7860 East Horizon Run, Eden, UT

Code Review by: Josh Goodman
Structural by: Daniel Mooney

OCCUPANCY & BUILDING SUMMARY:

Type of Construction	Use Group*(s)*	Occupant Load	Risk Category	Square Footage	Building Height	Sprinklers
V-B	A-3	+/- 45	II	3,495 ft^2	3-story, -feet	No*

***** - Items noted with an asterisk may change as a result of the plan review comments.

GENERAL INFORMATION:

The responses and revisions provided for the above noted project have been checked. These responses and revisions were made in reference to comments made by WC³ dated 08/05/19. The following items require correction, clarification, or additional details before they can be approved. The appropriate design professional must address each comment below and submit a written response in addition to revised plans, specifications and calculations as necessary. **Please cloud any revisions made to the construction drawings and provide the date of the latest revision on each revised sheet.**

Normal font: initial plan review comments

PC2: second plan review comments

CODE REVIEW COMMENTS:

A1. This does not appear to be an IRC building/single-family dwelling. Please provide a narrative as to why this should be review under the IRC, or provide updated plans per the IBC, IMC, IPC, etc.

A. Please note, this will generate additional code comments.

PC2: As indicated previously, additional comments have been created due to updating the project to the IBC and family of International Codes. Please address all of the following comments.

A2. Since the building exceeds 3,000 square feet and is not an incidental use, a Utah-licensed architect is required for this project, per (R156-3a-102 of Utah Administrative Code). Please specify a licensed architect and ensure he/ she seal and sign the plans. This is in accordance with Utah State Law, 58-3a-304.

A. The provide plans do not comply with the commercial provisions of the International codes adopted in the State of Utah. The following comments are provided, so they can be passed on to the registered design professionals that will be required to stamp these plans. This is not an all-inclusive list, as there are numerous issues with the proposed building.

B. Due to the grade you are proposing this is a 3-story building. As such Table 504.4 only allows a 1-story building. With sprinklers you could be 2-stories, but unless Type 5-A construction is proposed there is no way to build as shown with a 3-story configuration.

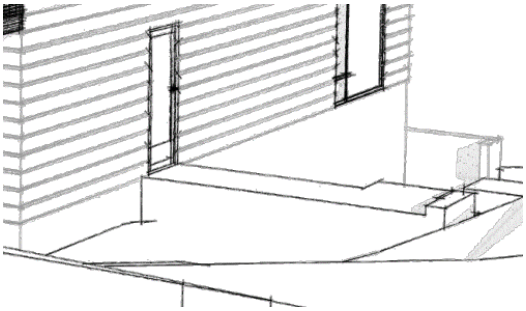
A3. Please provide a code analysis, including applicable codes, occupancy classification(s), type of construction, allowable area, etc. This must provide basic code information as outlined in the table above.

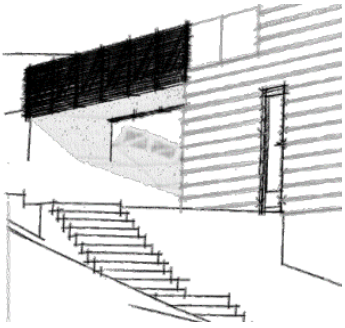
A4. Provide the occupant loads of each space as per IBC Table 1004.1. This is on a room by room basis, for example the exercise spaces is 622 sf, with an OLF of 50 = 13 occupants, the theater space is 260 sf with an OLF of 15 = 18 occupants, the locker room is 650 sf with an OLF of 50 = 13 occupants, on the upper level a lunge area would measure around 830 sf, with an OLF of 15 = 56, etc.

A. You have to find a way to reduce your occupant load to less than 50 on the upper level, as 2 exits are required, which must be separated by at least ½ the diagonal distance. IBC 1006.2.1 and IBC 1007.1.1

A5. Sheet 1.0: Please address the following:

A. Please provide fall protection, guard railings, etc. at the side door.

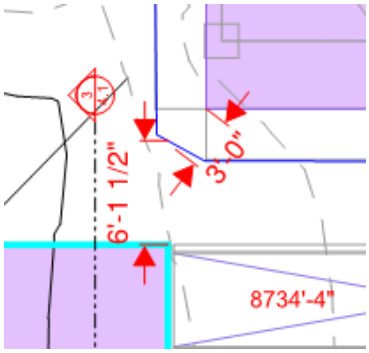




A6. Sheet 1.1: Please address the following:

A. Please provide a site plan showing the location of the building on the site and its distance from property lines and other structures as required by IBC 107.2.5. The following items should also be included:

I. The north east corner of the building will be 5-10' from the imaginary line separating the cabin from the adjacent residential unit. As such Per Table 705.8 only 10% unprotected openings are permitted, and per IBC Table 602, a portion of the wall must be 1 hr. rated on (both sides). As this is problematic with your current design, consider moving the building to the west 10" and eliminating the issue as measurements are taken at right angles to the exterior walls.

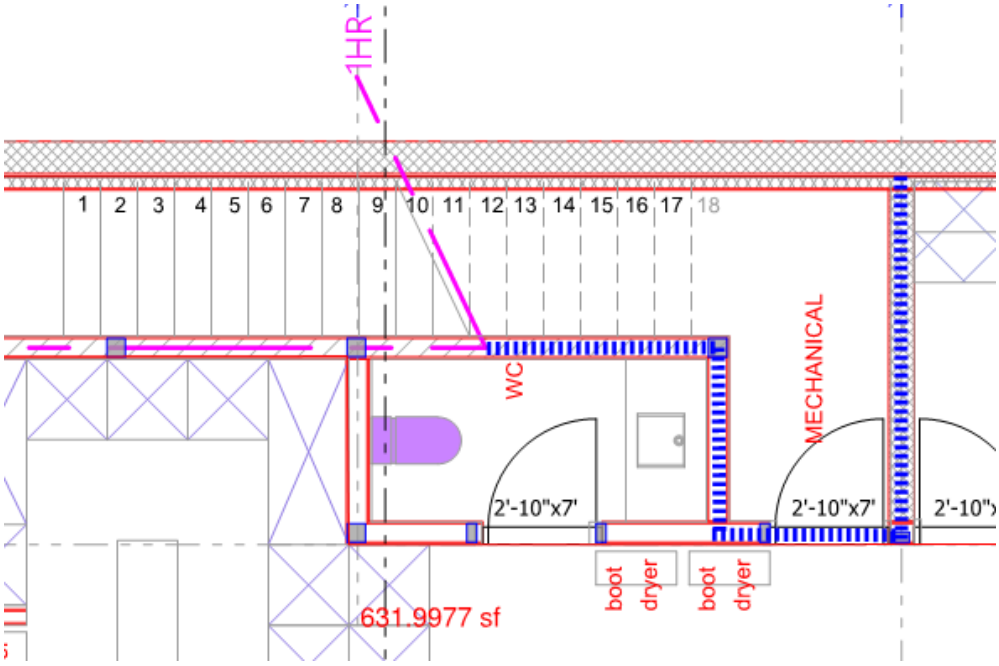


B. Provide handrails at the outdoor patio stairs on both sides or at least one section. In addition, provide a landing at the base of all stairs, consisting of a solid surface. IBC 1014 and IBC 1011.6

A7. Sheet 2.1: Please address the following:

A. Provide details for all stairs showing handrail extensions at the top and bottom of all stairs, on both sides. IBC 1014.6

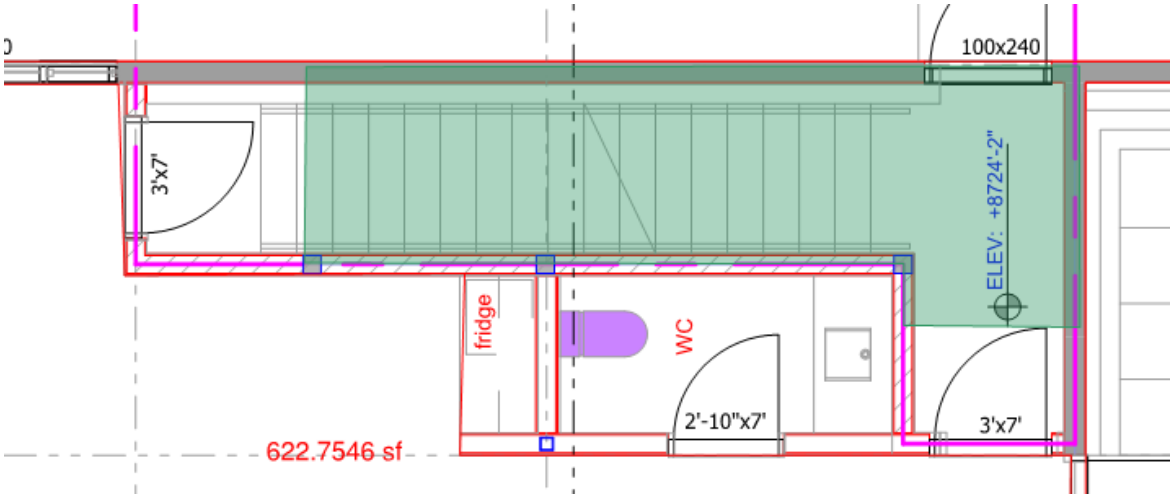
B. The 1 hr. rated walls must be continuous from the foundation to the roof deck. This will required that the 1 hr. rated walls on the main level be continued in the same plane on the lower level.

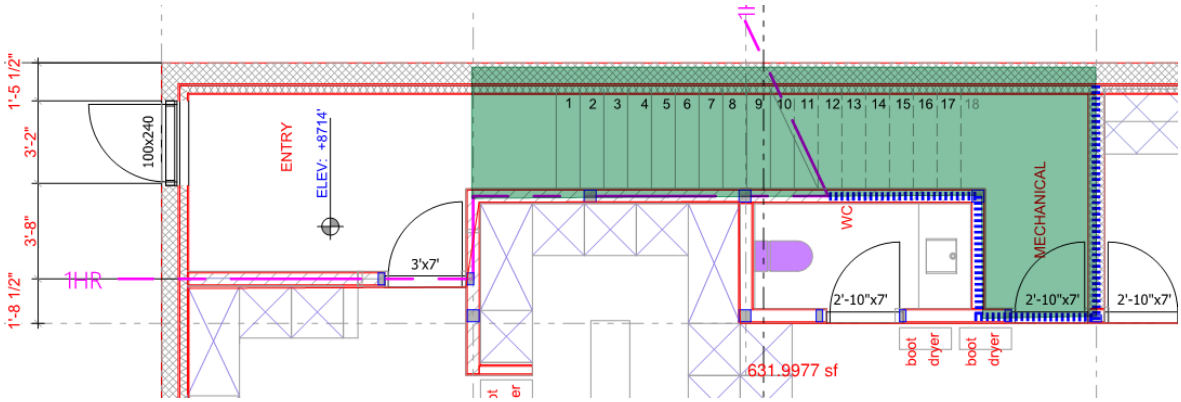


C. Show rated doors into all proposed rated stair enclosures as per IBC 716. As these are 1 hr. rated fire barriers, a minimum door rated for 45 min, with closers is required.

D. Please review the continuity requirements for fire barriers found in IBC 707.5. The proposed stair enclosures do not stack level to level. The fire barriers must be continuous through concealed spaces as well. The areas in green show the stair enclosures at the levels above. (Additional 1-hr. rated walls shown in dashed blue lines)

I. This also applies to the roof/ceiling assembly at the upper level. (The ceiling of the stair enclosure)


100x240
3'x7'
ELEV: +8724'-2"
fridge
WC
2'-10"x7'
3'x7'
622.7546 sf


1'-5 1/2"
3'-2"
3'-8"
1'-8 1/2"
100x240
ENTRY
ELEV: +8714'
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
1HR
3'x7'
WC
MECHANICAL
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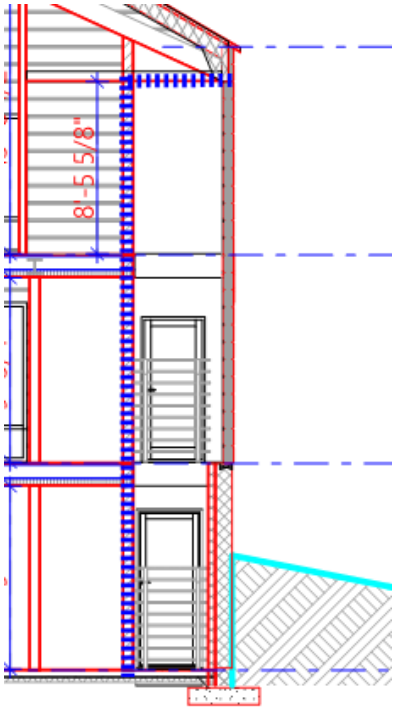
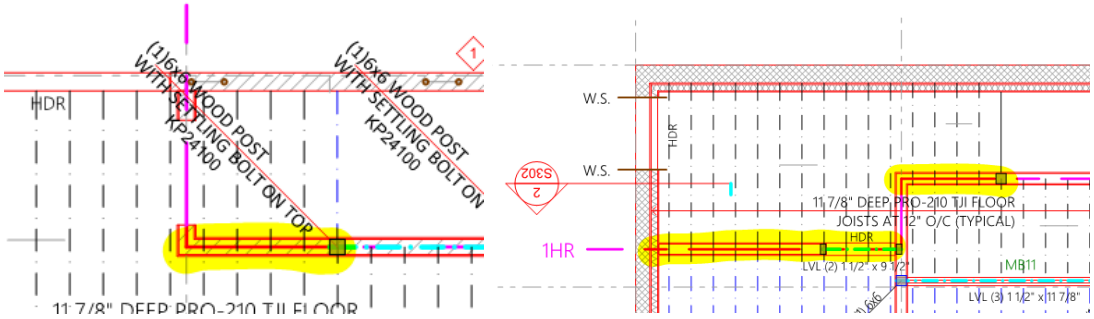
2'-10"x7'
2'-10"x7'
boot
dryer
boot
dryer
631.9977 sf


8'-5 5/8"

E. The areas <u>not</u> highlighted in green will also require a 1 hr. rated floor/ceiling assembly. The provided plans provide no information regarding the method in which the 1 hr. rated fire barrier will be constructed. Please provide listed assemblies for the walls, and the proposed floor/ceiling assembly.

F. The proposed fire barriers are also limited with respect to penetrations. i.e. the wood framing for floor joists, beams, etc. can't penetrate the assembly. (select examples below)



A8. Sheet 2.2: Please address the following:

A. See previous comment regarding required exit separation.

A9. Sheet 3.1: Please address the following:

A. Detail 3- The ramp can't match the cabins ramps as this is a commercial building, requiring guard railings of at least 42" as opposed to 36". Per 3/S303 the minimum height will be 1" less than permitted by code.

I. Clarify what type of guar is proposed at the covered deck area.

B. As part of a means of egress the slope of the ramp is limited as per 1012.2 to 1:12 maximum slope, the vertical rise is limited to 30" maximum per 112.4. (See 4/S303)

MECHANICAL REVIEW COMMENTS:

M1. Please provide mechanical plans. Commercial buildings require full mechanical plans designed per the IMC. Generally, this would be completed by a professional engineer. As per Weber County mechanical plans stamped by a licensed architect will be permitted; however, they must contain sufficient information regarding all proposed equipment, method of sizing (see below), proposed duct work, general mechanical notes, etc. Plans must comply with the IBC regarding floor to floor penetrations, and all provisions of the IMC.

M2. Provide heating and cooling load calculations in accordance with ASHRAE/ACCA Standard 183. This is required per Section 312 of the IMC.

PLUMBING REVIEW COMMENTS:

P1. Please provide mechanical plans. Commercial buildings require full plumbing plans designed per the IPC. Generally, this would be completed by a professional engineer. As per Weber County plumbing plans stamped by a licensed architect will be permitted; however, they must contain sufficient information regarding all proposed fixtures, routing and sizing of all drain waste and vent, size and material of all water lines, general plumbing notes, etc.

ELECTRICAL REVIEW COMMENTS:

E1. Please provide mechanical plans. Commercial buildings require full electrical plans designed per the NEC. Generally, this would be completed by a professional engineer. As per Weber County plumbing plans stamped by a licensed architect will be permitted; however, they must contain sufficient information regarding all proposed panels, service, conductors, panel schedules, outlet spacing, general electrical notes, etc.

ENERGY REVIEW COMMENTS:

N1. Sheet S0: Please address the following:

- ***A. Additional Notes references residential provisions of the IECC/IRC. The building must comply with the commercial provisions of the IECC.***

N2. The insulation values listed on the plans do not appear to meet the prescriptive requirements of IECC C402.1.3. Please modify the thermal envelope insulation to match what is shown in Tables C402.1.3 and C402.1.4 of the IECC or provide a total building performance analysis in accordance with IECC C407 (e.g. COMcheck) to show compliance. The proposed walls do not comply with the table.

- ***A. Mass walls (lowest level concrete walls) require R-11.5 continuous insulation.***
- ***B. Below grade walls (portions of lowest level) require R-7.5 continuous insulation.***
- ***C. Wood framed walls require R-13 batts, with R-7.5 continuous insulation, or R-20 batts with R-3.8 continuous insulation.***
- ***D. The proposed attic insulation complies.***
- ***E. For slab insulation to be counted in the design of the envelope, it must extend to the top of the slab-on-grade, as noted in IECC C402.2.5. Please address.***

N3. Please indicate the maximum U-factor and SHGC for all windows and glazed openings in accordance with IECC C402.4.3.

N4. Please provide heating and cooling load calculations for the sizing of the mechanical equipment in accordance with the requirements of IECC C403.2.1.

N5. Please list on the plans the efficiencies for the HVAC equipment. IECC C403.2.3 lists the minimum efficiency requirements for HVAC equipment.

N6. Per IECC 404.5.1, the maximum distance of pipe from the hot water source to the lavatory cannot exceed 6 feet maximum for ¼" lines, 2 feet for ½" lines and only 6" for ¾" lines. It appears either instantaneous water heaters, shorter lengths or other design alternatives are necessary. Please Note: This applies to public lavatories only, see table for non-public fixtures.

N7. Provide occupancy sensors as required by IECC C405.2.1.

N8. IECC C405.2.3 requires independent daylight responsive (photo-sensor) controls be provided for luminaires within day light zones. Please address.

N9. Please provide a lighting power analysis for the interior lighting (i.e. COMcheck), in accordance with IECC C405.4.

N10. Please clarify how the exterior lighting for this project will be controlled. Verify lighting controls will meet the requirements of IECC C405.2.5.

N11. Please provide a lighting power analysis for the exterior lighting (i.e. COMcheck), in accordance with IECC C405.5.1.

N12. IECC C406.1 requires in addition to meeting the standard requirements of the IECC, an additional efficiency package option must be selected. One of the packages must be selected for the project. Please indicate which method is being used and show conformance with the applicable section:

- ***A. Efficient HVAC performance (increased efficiencies for HVAC equipment) per IECC C406.2.***
- ***B. Efficient lighting performance (more stringent power density limitations for lighting) per IECC C406.3.***
- ***C. Onsite supply of renewable energy, per IECC C406.5.***

STRUCTURAL COMMENTS:

S1. Resolved.

S2. Sheet S0 – Please address the following.

A. Please clarify on what the floor live load listed of 40 psf is based in accordance with IBC Table 1607.1 since the intended use of the facility does not appear to be residential; for example, there appear to be assembly, gymnasium, and poolroom use areas per the architectural sheets. Please revise the drawings and calculations as necessary.

PC2: The calculations were revised for 100 psf live load, however, the general structural notes still lists 40 psf floor live load. Please address.

B. – D. Resolved.

S3. Resolved.

S4. Sheet S3: It appears the structural design of the pedestrian bridge shown in the architectural sheets is intended to be deferred since there are no structural detailing or calculations of the bridge included in the documents provided. Please list it as such in accordance with IBC 107.3.4.1.

PC2: The above comment is resolved. Please also address the following remaining sub-comment(s).

A. Please provide detailing of the connection of the pedestrian bridge to the proposed structure that shows how whether the connection is intended to transfer lateral forces from the bridge to the lateral system of the building structure. Please also verify whether the vertical and lateral (seismic and wind) reactions of the bridge, including the weight of the snow for both vertical and lateral as required, are accounted for in the design of the building lateral force resisting system elements and connections.

PC2: The connection detail provided does not appear to allow for the thermal expansion and contraction of the steel pedestrian bridge. Please address.

S5. *– S7. Resolved.*

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]