

# Weber County Building Inspections Permit Application

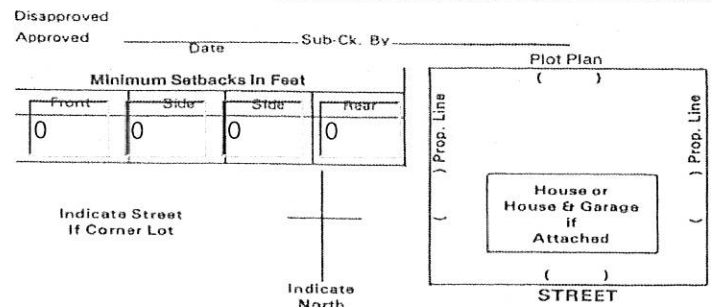
Date Submitted Jun 16, 2015		Date Issued		Receipt Number		Square ft of building 1,529		Valuation \$454,000.00		<h2>Permit Number</h2>
Proposed use of structure Single Family Residential						<input checked="" type="radio"/> Rough Basement <input type="radio"/> Finished Basement				
Building address 7914 E. Heartwood Drive; Unit 13				Parcel Number 16-111-0013		Carport sq ft 0		Garage sq ft 0		Building Fees
Lot 13		Subdivision name Summit Eden Ridge Nests - PRUD				Type of Bldg. Residential		Occ. Group R		Plan Check Fees
Property location Cache County		Total property area 1588		Total bld. area 1588		No. of Bldgs. 1		No. stories 2		Electrical Fees
Owner of property SMHG Landco, LLC				Phone number 801.745.2054		No. of dwellings 1				Plumbing Fees
Mailing Address 3923 N Wolf Creek Dr.				City - Zip Eden, UT		No. of bedrooms 1				Mechanical Fees
Architect or Engineer Park Engineering				Phone number 435.654.1456		Max occ. load N/A		Fire Sprinkler YES		Subtotal
General Contractor Watts Enterprises				Phone number 801-272-7111		Type of improvement Build				State Fee
Contractors address 52005 Highland Dr. Holladay, UT		State License # 4727782		Business Lic N/A		Number of covered parking 0				Storm Drain Impact fee
Electrical Contractor T. S. Electric				Phone number 801.263.0188		No. of off street parking uncovered 0				Wastewater Impact fee
Contractors address 220 S 300 W Murray, UT		State License # 249403		Business Lic N/A		Land use fee		Land use permit		Roadways Impact fee
Plumbing Contractor Thorton Plumbing & Heating				Phone number 801.565.7948		Trails Impact fee				Other Fees
Contractors address 6790 S 400 W Midvale, UT		State License # 360372-5501		Business Lic N/A		Other Fees				<b>Total Fee</b>
Mechanical Contractor Thorton Plumbing & Heating				Phone number 801.565.7948		This application does not become a permit until signed below.				
Contractors address 6790 S 400 W Midvale, UT		State License # 360372-5501		Business Lic N/A		Plan Chk. OK by				

Signature of Approval \_\_\_\_\_ Date \_\_\_\_\_

This permit becomes null and void if work or construction authorized is not commenced within 180 days, or if construction or work is suspended or abandoned for a period of 180 days at any time after work is commenced. I hereby certify that I have read and examined this application and know the same to be true and correct. All provisions of laws and ordinances governing this type of work will be complied with whether specified herein or not the granting of a permit does not presume to give authority to violate or cancel the provisions of any other state or local law regulating construction or the performance of construction and that I make this statement under penalty of perjury.

\* Robb Watts ENT. 6/17/15  
Signature of Contractor or Authorized Agent \_\_\_\_\_ Date \_\_\_\_\_

\* \_\_\_\_\_  
Signature of Owner (If owner) \_\_\_\_\_ (Date) \_\_\_\_\_



NOTE: 24 hours notice is required for all inspections.

# Weber County Hillside Review Application

Application submittals will be accepted by appointment only. (801) 399-8791. 2380 Washington Blvd. Suite 240, Ogden, UT 84401

Date Submitted / Completed	Fees (Office Use)	Receipt Number (Office Use)	File Number (Office Use)
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## Property Owner Contact Information

Name of Property Owner(s) SMHG Landco, LLC	Mailing Address of Property Owner(s) 3923 N Wolf Creek Dr Eden, UT 84310
---	--

Phone (801) 745-2054	Fax
-------------------------	-----

Email Address sam@summit.co	Preferred Method of Written Correspondence <input checked="" type="checkbox"/> Email <input type="checkbox"/> Fax <input type="checkbox"/> Mail
--------------------------------	--

## Authorized Representative Contact Information

Name of Person Authorized to Represent the Property Owner(s) Andrea Milner	Mailing Address of Authorized Person 3923 N Wolf Creek Dr Eden, UT 84310
---	--

Phone (312) 507-1167	Fax
-------------------------	-----

Email Address andrea@summit.co	Preferred Method of Written Correspondence <input checked="" type="checkbox"/> Email <input type="checkbox"/> Fax <input type="checkbox"/> Mail
-----------------------------------	--

## Property Information

Project Name All of Lot 13, Summit Eden Ridge Nests, PRUD	Current Zoning DRR-1
--	-------------------------

Approximate Address 7914 E Heartwood Dr, Unit 13 Eden, UT 84310	Land Serial Number(s) 16-111-0013
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Subdivision Name / Lot Number(s)  
Summit Eden Ridge Nests - PRUD

Project Narrative  
Summit Eden Ridge Nest - PRUD, Homesite 13 is a single family residence located within the larger master planned community commonly known as Summit Powder Mountain.

**Property Owner Affidavit**

I (We), \_\_\_\_\_, depose and say that I (we) am (are) the owner(s) of the property identified in this application and that the statements herein contained, the information provided in the attached plans and other exhibits are in all respects true and correct to the best of my (our) knowledge.

\_\_\_\_\_  
(Property Owner)

\_\_\_\_\_  
(Property Owner)

Subscribed and sworn to me this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_,

\_\_\_\_\_  
(Notary)

**Authorized Representative Affidavit**

I (We), RUSSEL WATTS, the owner(s) of the real property described in the attached application, do authorized as my (our) representative(s), ELLIOT BISHOP, to represent me (us) regarding the attached application and to appear on my (our) behalf before any administrative or legislative body in the County considering this application and to act in all respects as our agent in matters pertaining to the attached application.

SMHA LANDCO, LLC

Russel Watts  
\_\_\_\_\_  
(Property Owner)

\_\_\_\_\_  
(Property Owner)

Dated this 17 day of JUNE, 2015, personally appeared before me RUSSEL WATTS, the signer(s) of the Representative Authorization Affidavit who duly acknowledged to me that they executed the same.



[Signature]  
\_\_\_\_\_  
(Notary)

Powder Mountain  
Water & Sewer Improvement District  
PO Box 270  
Eden, UT 84310

May 3, 2013

Russ Watts  
Summit Development  
1400 N. 5900 E.  
Eden, UT 84310

Subject: Summit Development Phase I (updated to 154 planned units) at Powder Mountain

Dear Russ:

This letter is to confirm that the Powder Mountain Water and Sewer Improvement District (PMWSID) can and will furnish water and sewer service to the above project upon your agreement with and completion of the following requirements to the satisfaction of PMWSID:

1. Summit Development shall furnish written approval from the local jurisdiction (Weber County, State of Utah) of the water allocation for the project and agrees to be solely responsible for determining annual water demand and wastewater generation estimates.
2. Summit Development shall enter into a Construction and Transfer of Water and Sewer Infrastructure Agreement with PMWSID prior to beginning the preliminary plan review process or the plan check review process. This agreement and any major infrastructure improvements shall be referenced in Summit Development agreements with the local jurisdiction.
3. All fees and charges shall be paid in accordance with PMWSID Rules and Regulations and at the time specified in the Infrastructure Agreement before initiating preliminary plan review, plan check review and connection to water and/or sewer service.
4. The new wastewater collection systems within the project area and connections to and/or abandonment of existing infrastructure shall comply with all PMWSID Rules and Regulations. In addition to conforming to District design requirements, Summit Development agrees to meet Utah Department of Health Services and County Health requirements.
5. Summit Development shall identify any other infrastructure improvements outside the project area that may be necessary as a result of this project. Water and sewer improvements outside of the project area may be borne by Summit Development in part or in whole depending on an assessment of project benefits.
6. All water and sewer infrastructure shall be placed within planned or existing public roadway right-of-way. PMWSID may have existing infrastructure that requires relocation




as a result of this project. All water and sewer infrastructure easements within the roadway right-of-way of the project will be conveyed to the PMWSID prior to acceptance by PMWSID.

7. If applicable, any existing septic systems and/or sewer pipes within the property lines of the project shall be identified and shall be abandoned according to County Health Department and PMWSID requirements.
8. Each business, tenant, residential unit, and common residential or commercial irrigated area, shall be individually metered.
9. Summit Development shall address each point of concern as identified by Reeve Associates in their (thus far) two design review letters dated January 21 and March 29 2013 to the satisfaction of PMWSID.

The PMWSID may identify additional requirements upon review of project documents, plans and specifications. If that occurs, we will immediately inform you.

If you have any questions please contact us at (801) 745-0924.

Sincerely,



Gregg Greer  
Chairman, Board of Trustees  
Powder Mountain Water and Sewer  
Improvement District



Weber Fire District  
 2023 W. 1300 N.  
 Farr West, Utah 84404  
 801-782-3580

No 1545

**PUBLIC SAFETY IMPACT FEE**

Date 6.18.15	Name ANDREA MILITER	Company Name SUMMIT
Address 3923 N WOLF CREEK	City EDEN	Zip 84310
		Phone 312-507-1107

Property Owner (if different from above) SMITH LANDCO, LLC	Current Address 3923 N WOLF CREEK DR	City EDEN
State UT	Zip 84310	Phone 801-745-2054

Physical Building Address 791 E HEARTWOOD DR. UNIT 13, EDEN	Subdivision Name SUMMIT EDEN RIDGEMEST - PRUD	City EDEN
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Impact Fee Schedule	Standard Property Types by Schedule	Schedule Rates		Number of Units or Sq Ft	Total Calculation
Residential	Single Family Residential Unit	\$328.15 per residence/unit	X	N/A	328.15
	Multiple Family Residential Unit	\$295.20 per residential unit	X		
Commercial	Commercial (per KSF) *	\$244.97 per 1,000 sq ft (KSF)	X		
	Industrial (per KSF)	\$122.03 per 1,000 sq ft (KSF)	X		
	Apparatus Fee for Commercial (per KSF) **	\$52.86 per 1,000 sq ft (KSF)	X		
	Apparatus Fee for Industrial (per KSF) **	\$26.33 per 1,000 sq ft (KSF)	X		
<b>Total</b>					328.15

Payment paid in full:

Check # 1496  
 Cash

Calculated/Completed By:  
 [Signature]

PAID JUN 18 2015

Notes: \* Commercial includes all private non-residential land uses excluding industrial (retail, churches, medical, schools, offices, etc.)

\*\* Apparatus Fee for Commercial and Industrial is charged to non-residential only.



Weber Fire District  
2023 W. 1300 N.  
Farr West, Utah 84404  
801-782-3580

# Invoice

Date	Invoice #
6/18/2015	14-600

**PAID**  
**06/18/2015**

Bill To
3632 N. Wolf Creek Drive Eden, UT 84310

P.O. No.	Due Date
	6/18/2015

Description	Qty	Rate	Amount
Impact Fees - 7914 E. Heartwood Dr., Unit 13, Eden - Summit Eden Ridgenest	1	328.15	328.15

Thank you for your prompt payment!

<b>Total</b>	\$328.15
--------------	----------



Intermountain GeoEnvironmental Services, Inc.  
12429 South 300 East, Suite 100, Draper, Utah 84120  
Phone (801) 748-4044 ~ F: (801) 748-4045  
[www.igesinc.com](http://www.igesinc.com)

**GEOTECHNICAL INVESTIGATION**  
**The Ridge Nests Development**  
**Powder Mountain Resort**  
**Weber and Cache Counties, Utah**

IGES Project No. 01628-008

September 16, 2014

Prepared for:

**Summit, LLC**





**IGES**<sup>®</sup>

Intermountain GeoEnvironmental Services, Inc.  
12429 South 300 East, Suite 100, Draper, Utah 84120 ~ T: (801) 748-4044 ~ F: (801) 748-4045

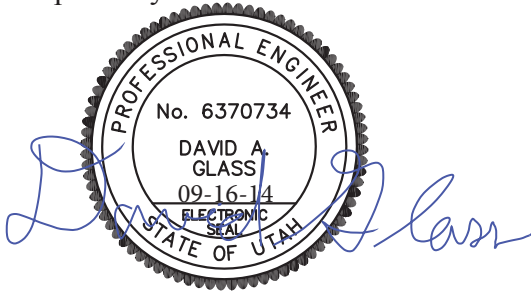
Prepared for:

**Summit, LLC**  
**c/o Mr. Sam Arthur**  
**3632 North Wolf Creek Drive**  
**Eden, Utah 84310**  
**Attn: Mr. Sam Arthur**

**Geotechnical Investigation**  
**The Ridge Nests Development**  
**Powder Mountain Resort**  
**Weber and Cache Counties, Utah**

IGES Project No. 01628-008

Prepared by:



---

David A. Glass, P.E.  
Senior Geotechnical Engineer

Reviewed by:

---

Kent A. Hartley, P.E.  
Principal

**IGES, Inc.**  
12429 South 300 East, Suite 100  
Draper, Utah 84120  
(801) 748-4044

September 16, 2014

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APPENDICES

Appendix A	Figure A-1	Site Vicinity Map
	Figure A-2	Geotechnical Map
	Figures A-3 to A-5	Test Pit Logs
	Figure A-6	Key to Soil Symbols and Terminology
Appendix B	Design Response Spectra ( <i>Design Maps</i> Output)	

## 1.0 INTRODUCTION

### 1.1 PURPOSE AND SCOPE OF WORK

This report presents the results of a geotechnical investigation conducted for *The Ridge Nests* development, a part of the currently on-going expansion at the Powder Mountain Ski Resort in Weber County, Utah (the *Ridge Nests* site straddles both Weber and Cache Counties). The purposes of our investigation was to assess the nature and engineering properties of the subsurface soils at the proposed home sites and to provide recommendations for the design and construction of foundations, grading, and drainage. The scope of work completed for this study included subsurface exploration, literature review, engineering analyses, and preparation of this report.

Our services were performed in accordance with our proposal to Summit, LLC (Client), dated August 8, 2014. The recommendations presented in this report are subject to the limitations presented in the "Limitations" section of this report (Section 6.1).

### 1.2 PROJECT DESCRIPTION

Our understanding of the project is based primarily on our previous involvement with the Powder Mountain resort project, which included two geotechnical investigations for the greater 200-acre Powder Mountain Resort expansion project (IGES, 2012a and 2012b) and subsequent geotechnical consulting for several other aspects of the project.

The Powder Mountain Resort expansion project is located southeast of SR-158 (Powder Mountain Road), south of previously developed portions of Powder Mountain Resort, in unincorporated Weber County, Utah. The project is accessed by Powder Ridge Road. The *Ridge Nests* development is located north of Summit Pass and north/east of Heartwood Drive, approximately 7880 East 6075 North (see *Site Vicinity Map*, Figure A-1 in Appendix A). The approximately 3.1-acre *Ridge Nests* project will consist of fifteen single-family residences that are essentially small cottages, presumably intended to be vacation homes. The individual cottages will vary with the Owner's tastes; however, the cottages are expected to have a structural footprint on the order of 1,300 square feet and will be on-grade structures (no basement). Access to the individual units will be from a sidewalk – parking will be accommodated by a parking lot with 15 stalls – there is no provisions for parking or garages at the individual units. The concept of the development is to maintain as natural an environment as possible; as such, landscaping or other features is expected to be kept to a minimum. Some of the units may be constructed on 'stilts' to further minimize the visual impact to the natural environment.



## 2.0 METHOD OF STUDY

### 2.1 LITERATURE REVIEW

The earliest geotechnical report for the area is by AMEC (2001), which was a reconnaissance-level geotechnical and geologic hazard study. IGES later completed a geotechnical investigation for the Powder Mountain Resort expansion in 2012 (2012a, 2012b). Our previous work included twenty-two test pits and one soil boring excavated at various locations across the 200-acre development; as a part of this current study, the logs from relevant nearby test pits and other data from our reports were reviewed. In addition, Western Geologic (2012) completed a geologic hazard study for the greater 200-acre Powder Mountain expansion project – this report was reviewed to assess the potential impact of geologic hazards on the *Ridge Nests* development.

### 2.2 FIELD INVESTIGATION

The site largely consists of bedrock outcrops; as such, the primary focus of our field investigation was to surface map the contact between bedrock and surficial soils (colluvium). Where surficial soils were identified, additional subsurface exploration was conducted. Subsurface soils were investigated by excavating three test pits at representative locations. The approximate location of the test pits are illustrated on the *Geotechnical Map* (Figure A-2 in Appendix A).

The soil and rock types were visually logged at the time of our field work in general accordance with the *Unified Soil Classification System* (USCS). Rock and soil classifications and descriptions are included on the test pit logs, Figures A-3 through A-5 in Appendix A. A key to USCS symbols and terminology is included as Figure A-6.

### 2.3 LABORATORY TESTING

The majority of the site consists of hard rock, with limited areas consisting of coarse colluvium and possibly undocumented fill. As such, soil samples suitable for laboratory testing could not be obtained. Therefore, engineering analysis was based largely on previously completed geotechnical investigations (IGES, 2012a & 2012b), including laboratory work completed on soil samples obtained from nearby test pits completed in 2012 and test pits recently completed for lots adjacent to *The Ridge Nests* development.

## 3.0 GEOLOGIC CONDITIONS

### 3.1 GEOLOGY AND GEOLOGIC HAZARDS

Geology and geologic hazards have been previously addressed by Western Geologic in a separate submittal (Western Geologic, 2012). This work has also been referenced in our previous geotechnical report for the project (IGES, 2012b). The report by Western Geologic indicates that the development is located outside of known geologically unstable areas. The Western Geologic report also includes a large-scale geologic map that shows the development is in an area mapped as “undifferentiated dolomite”. Dolomite is a rock that has similar mechanical properties to limestone and is fairly hard, often forming cliffs and other near-vertical formations.

During our subsurface investigation, potentially adverse geologic structures (e.g., evidence of faulting or landslides) were not evident in the test pits. Also, geomorphic expressions of shallow, surficial landslides were not observed within the development. Based on currently available data and our observations, the potential for geologic hazards such as landslides, liquefaction, or surface fault rupture impacting the site is considered low.

### 3.2 SEISMICITY

Following the criteria outlined in the 2012 International Building Code (IBC, 2012), spectral response at the site was evaluated for the *Maximum Considered Earthquake* (MCE) which equates to a probabilistic seismic event having a two percent probability of exceedance in 50 years (2PE50). Spectral accelerations were determined based on the location of the site using the *U.S. Seismic “DesignMaps” Web Application* (USGS, 2012); this software incorporates seismic hazard maps depicting probabilistic ground motions and spectral response data developed for the United States by the U. S. Geological Survey as part of NEHRP/NSHMP (Frankel et al., 1996). These maps have been incorporated into both *NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures* (FEMA, 1997) and the *International Building Code* (IBC) (International Code Council, 2012).

To account for site effects, site coefficients that vary with the magnitude of spectral acceleration and *Site Class* are used. Site Class is a parameter that accounts for site amplification effects of soft soils and is based on the average shear wave velocity of the upper 100 feet; based on our field exploration and our understanding of the geology in this area, the subject site is appropriately classified as Site Class B (*rock*). Based on IBC criteria, the short-period ( $F_a$ ) coefficient is 1.0 and long-period ( $F_v$ ) site coefficient is 1.0. Based on the design spectral response accelerations for a *Building Risk Category* of I, II or III, the site’s *Seismic Design Category* is D. The short- and long-period *Design Spectral Response Accelerations* are presented in Table 3.2; a summary of the *Design Maps* analysis is presented in Appendix B. The *peak ground acceleration* (PGA) may be taken as  $0.4 \cdot S_{MS}$ .

**Table 3.2**  
**Short- and Long-Period Spectral Accelerations for MCE**

<b>Parameter</b>	<b>Short Period (0.2 sec)</b>	<b>Long Period (1.0 sec)</b>
MCE Spectral Response Acceleration (g)	$S_S = 0.826$	$S_1 = 0.274$
MCE Spectral Response Acceleration Site Class B (g)	$S_{MS} = S_S F_a = 0.826$	$S_{M1} = S_1 F_v = 0.274$
Design Spectral Response Acceleration (g)	$S_{DS} = S_{MS}^{2/3} = 0.551$	$S_{D1} = S_{M1}^{2/3} = 0.183$

## 4.0 GENERALIZED SITE CONDITIONS

### 4.1 SURFACE CONDITIONS

At the time of our field work the site was in a relatively natural state and was covered with a variety of vegetation including mature pine trees, native grasses and shrubs. A rough dirt road transects the site roughly east-west. The site runs along a ridge formed by an outcrop of dolomite bedrock.

### 4.2 SUBSURFACE CONDITIONS

The subsurface soil conditions were explored at the subject property by excavating three test pits where surficial soil was observed (the majority of the site is underlain by hard bedrock). Subsurface soil conditions were logged during our field investigation and are included in the exploration logs in Appendix A at the end of this report (Figures A-3 through A-5). The relative locations of the various geologic units described herein are illustrated on the *Geotechnical Map*, Figure A-2. The soil and moisture conditions encountered during our investigation are discussed below.

#### 4.2.1 Earth Materials

Topsoil: Topsoil was encountered in limited areas; where encountered, the topsoil is generally thin, poorly developed, and rocky. Where encountered, topsoil cover was generally less than six inches. Areas of deeper topsoil deposits may exist within localized topographic depressions; however, the presences of topsoil is expected to have a negligible impact to the development.

Colluvium: Where encountered, the majority of surficial soils consist of rocky colluvium, likely derived from nearby bedrock outcrops of dolomite and/or conglomerate. The colluvium generally consisted of silty sand with gravel, cobbles, and boulders.

Bedrock: Based on our review of geologic literature and field observations, the majority of the site is underlain by bedrock consisting of undifferentiated Cambrian-age dolomite (Cr). This rock unit is fairly hard – samples could only be obtained with a firm blow from a rock hammer. Where exposed, the bedrock was moderately weathered, closely fractured, and dark gray, and reacted weakly to dilute HCl. At the time of our field work Geneva was excavating a utility line just off-site to the northeast – the trench exposed dolomite from the surface to the bottom of the trench (about nine feet). Geneva personnel indicated that excavation of the dolomite was very difficult, requiring a ram-hoe (a large jack-hammer on the end of an excavator arm). In addition to the dolomite, in Test Pit 1 at a depth of about 3½ feet we encountered very hard stratum that is believed to be representative of the Tertiary-age Wasatch Formation (Tw), which generally consists of well-cemented conglomerate.

Undocumented Fill: Earth materials suspected as being undocumented fill (Afu) were encountered in limited areas; these areas are delineated on Figure A-2. These soils generally consist of fine-grained sand with occasional to frequent rocks, particularly angular dolomite rock fragments.



Within this area, excavation was relatively easy, which is uncharacteristic for the area surrounding *The Ridge Nests* development. Also, the topography in the suspect area is relatively planar and appears out of place – it is postulated that the suspected undocumented fill area may consist of an in-filled natural drainage channel, possibly used as a place to deposit excess spoils during construction of dirt roads in the past.

Detailed descriptions of earth materials encountered are presented on the test pit logs, Figures A-3 through A-5, in Appendix A. Due to the nature and depositional characteristics of the native earth materials, care should be taken in interpolating subsurface conditions between and beyond the exploration locations.

#### 4.2.2 Groundwater

Groundwater was not encountered in the test pit excavations. In addition, groundwater was not observed in the nearby utility excavation that was on-going during our field work. Based on our observations, groundwater is not anticipated to adversely impact the proposed development. However, groundwater levels could rise at any time based on several factors including recent precipitation, on- or off-site runoff, irrigation, and time of year (e.g., spring run-off). Should the groundwater become a concern during the proposed construction, IGES should be contacted so that dewatering recommendations may be provided.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 GENERAL CONCLUSIONS

Based on the results of the field observations, literature review, and previously completed geotechnical investigation (IGES, 2012a), the subsurface conditions are considered suitable for the proposed development provided that the recommendations presented in this report are incorporated into the design and construction of the project.

Supporting data upon which the following recommendations are based have been presented in the previous sections of this report. The recommendations presented herein are governed by the physical properties of the earth materials encountered in the subsurface explorations. If subsurface conditions other than those described herein are encountered in conjunction with construction, and/or if design and layout changes are initiated, IGES must be informed so that our recommendations can be reviewed and revised as deemed necessary.

### 5.2 EARTHWORK

#### 5.2.1 General Site Preparation and Grading

Below proposed structures, fills, and man-made improvements, all vegetation, topsoil, debris and known undocumented fill soils should be removed. Any existing utilities should be re-routed or protected in place. The exposed native soils should then be proof-rolled with heavy rubber-tired equipment such as a scraper or loader\*. Any soft/loose areas identified during proof-rolling should be removed and replaced with structural fill. All excavation bottoms should be observed by an IGES representative during proof rolling or otherwise prior to placement of engineered fill to evaluate whether soft, loose, or otherwise deleterious earth materials have been removed and that recommendations contained in this report have been complied with.

\*not required where bedrock is exposed in the foundation subgrade

#### 5.2.2 Excavations

Soft, loose, or otherwise unsuitable soils beneath structural elements, hardscape or pavements may need to be over-excavated and replaced with structural fill. If over-excavation is required, the excavations should extend one foot laterally for every foot of depth of over-excavation. Excavations should extend laterally at least two feet beyond flatwork, pavements, and slabs-on-grade. Structural fill should consist of granular materials and should be placed and compacted in accordance with the recommendations presented in this report.

Prior to placing engineered fill, all excavation bottoms should be scarified to at least 6 inches, moisture conditioned as necessary at or slightly above optimum moisture content (OMC), and compacted to at least 90 percent of the maximum dry density (MDD) as determined by ASTM D-1557 (Modified Proctor). Scarification is not required where bedrock is exposed.

### 5.2.3 Excavation Stability

The contractor is responsible for site safety, including all temporary trenches excavated at the site and the design of any required temporary shoring. The contractor is responsible for providing the "competent person" required by Occupational Safety and Health (OSHA) standards to evaluate soil conditions. Where surficial soil is encountered (expected largely on the western quarter of the project), Soil Type C is expected to predominate (loose sands and gravels). However, the majority of the site is expected to be underlain by shallow dolomite (hard rock). Close coordination between the competent person and IGES should be maintained to facilitate construction while providing safe excavations.

Based on OSHA guidelines for excavation safety, trenches with vertical walls up to 5 feet in depth may be occupied. Where very moist soil conditions or groundwater is encountered, or when the trench is deeper than 5 feet, we recommend a trench-shield or shoring be used as a protective system to workers in the trench. As an alternative to shoring or shielding, trench walls may be laid back at one and one half horizontal to one vertical (1½H:1V) (34 degrees) in accordance with OSHA Type C soils. Trench walls may need to be laid back at a steeper grade pending evaluation of soil conditions by the geotechnical engineer. Where dolomite is exposed, lay-back or shoring of the trench probably will not be required, except where adverse jointing/bedding patterns or other hazardous geologic conditions prevail. Soil conditions should be evaluated in the field on a case-by-case basis. Large rocks exposed on excavation walls should be removed (scaled) to minimize rock fall hazards.

### 5.2.4 Structural Fill and Compaction

All fill placed for the support of structures, flatwork or pavements should consist of structural fill. Structural fill should consist of granular native soils, which may be defined as soils with less than 25% fines, 10-60% sand, and contain no rock larger than 4 inches in nominal size (6 inches in greatest dimension). Structural fill should also be free of vegetation and debris. All structural fill should be 1 inch minus material when within 1 foot of any base coarse material. Soils not meeting these criteria may be suitable for use as structural fill; however, such soils should be evaluated on a case by case basis and should be approved by IGES prior to use.

All structural fill should be placed in maximum 4-inch loose lifts if compacted by small hand-operated compaction equipment, maximum 6-inch loose lifts if compacted by light-duty rollers, and maximum 8-inch loose lifts if compacted by heavy duty compaction equipment that is capable of efficiently compacting the entire thickness of the lift. Additional lift thickness may be allowed by IGES provided the Contractor can demonstrate sufficient compaction can be achieved with a given lift thickness with the equipment in use. We recommend that all structural fill be compacted on a horizontal plane, unless otherwise approved by IGES. Structural fill underlying all shallow footings and pavements should be compacted to at least 95 percent of the MDD as determined by ASTM D-1557. **The moisture content should be at, or slightly above, the OMC for all**

**structural fill.** Any imported fill materials should be approved prior to importing. Also, prior to placing any fill, the excavations should be observed by IGES to confirm that unsuitable materials have been removed. In addition, proper grading should precede placement of fill, as described in the General Site Preparation and Grading subsection of this report.

Specifications from governing authorities such as Weber County, Cache County, and/or special service districts having their own precedence for backfill and compaction should be followed where more stringent.

#### 5.2.5 Oversize Material

The majority of the 3.1-acre site consists of bedrock outcrops of dolomite. In addition, large boulders up to 24 inches are known to occur on the surface in the vicinity of the development; larger boulders may also be present within the colluvial soil. As such, development of the individual lots could generate a substantial amount of over-size material (rocks larger than 6 inches in greatest dimension). Large rocks, particularly boulders, may require special handling, such as segregation from structural fill, and disposal. Bedrock is expected to require specialized equipment for removal during excavation of the foundations.

#### 5.2.6 Utility Trench Backfill

Utility trenches should be backfilled with structural fill in accordance with Section 6.2.4 of this report. Utility trenches can be backfilled with the onsite soils free of debris, organic and oversized material. Prior to backfilling the trench, pipes should be bedded in and shaded with a uniform granular material that has a Sand Equivalent (SE) of 30 or greater. Pipe bedding may be water-densified in-place (jetting). Alternatively, pipe bedding and shading may consist of clean ¾-inch gravel, which generally does not require densification. Native earth materials can be used as backfill over the pipe bedding zone. All utility trenches backfilled below pavement sections, curb and gutter, and hardscape, should be backfilled with structural fill compacted to at least 95 percent of the MDD as determined by ASTM D-1557. All other trenches should be backfilled and compacted to approximately 90 percent of the MDD (ASTM D-1557). However, in all cases the pipe bedding and shading should meet the design criteria of the pipe manufacturer. Specifications from governing authorities having their own precedence for backfill and compaction should be followed where they are more stringent.

### 5.3 FOUNDATION RECOMMENDATION

Subsurface conditions across the site vary, and may consist of bedrock, coarse colluvium, undocumented fill, or in limited cases more than one soil type may underlie a building footprint. The following sections are intended to address specific conditions that are anticipated for specific lots.

#### 5.3.1 Bedrock Foundations



**Lots 1 and 9 through 15** are expected to be founded entirely on dolomite bedrock. As such, we recommend that the footings for the proposed homes be founded *entirely* on competent bedrock. Bedrock/soil transition zones are not allowed. Shallow spread or continuous wall footings constructed entirely on competent bedrock may be proportioned utilizing a maximum net allowable bearing pressure of **5,000 pounds per square foot (psf)** for dead load plus live load conditions. The net allowable bearing value presented above is for dead load plus live load conditions. The minimum recommended footing width is 20 inches for continuous wall footings and 30 inches for isolated spread footings.

It should be noted that the bedrock at the site is expected to be very difficult to excavate (see Section 5.10, *Construction Considerations*).

### 5.3.2 Colluvium Foundations

**Lots 6 and 7** are expected to be founded entirely on coarse natural colluvium deposits. As such, we recommend that the footings for the proposed homes be founded *entirely* on competent granular colluvium. It is possible that bedrock (e.g., Wasatch Formation conglomerate) may be encountered at depth; if encountered, the foundation excavation should be deepened such that all foundations bear on competent bedrock – bedrock/soil transition zones are not allowed. Shallow spread or continuous wall footings constructed entirely on competent colluvial soils may be proportioned utilizing a maximum net allowable bearing pressure of **3,500 psf** for dead load plus live load conditions. The net allowable bearing value presented above is for dead load plus live load conditions. The minimum recommended footing width is 20 inches for continuous wall footings and 30 inches for isolated spread footings.

### 5.3.3 Undocumented Fill

**Lot 4** is mapped within an area designated as potentially undocumented fill; regardless of whether these soils consist of a natural deposit or man-made, by observation the soils are generally loose and easy to excavate. As such, IGES recommends that the foundations for Lot 4 be underlain by a minimum of three feet of structural fill. Shallow spread or continuous wall footings constructed entirely on properly prepared structural fill may be proportioned utilizing a maximum net allowable bearing pressure of **2,200 psf** for dead load plus live load conditions. The net allowable bearing value presented above is for dead load plus live load conditions. The minimum recommended footing width is 20 inches for continuous wall footings and 30 inches for isolated spread footings.

### 5.3.4 Transitions Zones

**Lots 2, 3, 5, and 8** are mapped as being in a *transition zone*, e.g. part of the foundation will be on rock and part of the foundation will be on surficial soils. Founding a structure partly on bedrock and partly on soil will greatly increase the likelihood of long-term differential settlement damaging the home; therefore, IGES recommends that the homes be founded entirely on bedrock. If the

footings are deepened such that they bear entirely on bedrock, then the recommendations presented in Section 5.3.1 apply.

Founding the home on bedrock may necessitate significant over-excavation, depending on the depth of surficial soils. For Lots 5 and 8, the depth of surficial soil is not expected to present a significant challenge to development; however, for Lots 2 and 3, the depth of surficial soil could be up to several feet deep. Therefore, for Lots 2 and 3, it may be more cost-effective to support that portion of the home *not supported by bedrock* with micropiles extending to bedrock.

As an alternative to deepening foundations or underpinning, the homes may be moved such that there is no bedrock underlying the footprint (this alternative is considered most applicable to Lots 2 and 3). If a home is moved away from bedrock, the recommendations presented in Section 5.3.3 may be followed. A second alternative would be to over-excavate both the bedrock and soils a minimum of three feet and replace with structural fill, such that *the entire structure is underlain by a uniform 3-foot thick fill blanket*, in which case the recommendations presented in Section 5.3.3 would apply.

#### 5.3.5 Micropiles

Micropiles, if used for underpinning, should be designed by IGES or an engineer experienced in deep foundation design. *For planning purposes*, micropiles should conform to the following criteria:

- Injection Bore micropile, R38N hollow bar, uncased.
- 6-inch grouted diameter.
- Socket a minimum of three feet into bedrock or 20 feet into colluvium, whichever is shorter.
- A single micropile, as described above, may be assumed to have an allowable axial capacity of 35 kips.

Lateral resistance, if required by the Structural Engineer, will require a cased micropile and must be designed for specific project requirements.

#### 5.3.6 Additional Recommendations

All conventional foundations exposed to the full effects of frost should be established at a minimum depth of 42 inches below the lowest adjacent final grade. Interior footings, not subjected to the full effects of frost (i.e., *a continuously heated structure*), may be established at higher elevations, however, a minimum depth of embedment of 12 inches is recommended for confinement purposes. Exception: where the foundations will be poured directly on rock (dolomite), the minimum depth below nearest adjacent grade may be reduced to 24 inches.

## 5.4 SETTLEMENT

### 5.4.1 Static Settlement

Static settlements of properly designed and constructed conventional foundations, founded as described in Section 5.3, are anticipated to be on the order of 1 inch or less. Differential settlement is expected to be half of total settlement over a distance of 30 feet.

### 5.4.2 Dynamic Settlement

Dynamic settlement (or seismically-induced settlement) consists of dry dynamic settlement of unsaturated soils (above groundwater) and liquefaction-induced settlement (below groundwater). During a strong seismic event, seismically-induced settlement can occur within loose to moderately dense sandy soil due to reduction in volume during, and shortly after, an earthquake event. Settlement caused by ground shaking is often non-uniformly distributed, which can result in differential settlement.

Based on the subsurface conditions encountered, dynamic settlement arising from a MCE seismic event is expected to be negligible.

## 5.5 EARTH PRESSURES AND LATERAL RESISTANCE

Lateral forces imposed upon conventional foundations due to wind or seismic forces may be resisted by the development of passive earth pressures and friction between the base of the footing and the supporting soils. In determining the frictional resistance against concrete, a coefficient of friction of 0.45 for sandy native soils or structural fill should be used.

**Table 5.5**  
**Lateral Earth Pressure Coefficients**

Condition	Level Backfill		2H:1V Backfill	
	Lateral Pressure Coefficient	Equivalent Fluid Density (pcf)	Lateral Pressure Coefficient	Equivalent Fluid Density (pcf)
Active ( $K_a$ )	0.33	35	0.53	56
At-rest ( $K_o$ )	0.50	55	0.80	85
Passive ( $K_p$ )	3.0	320	—	—

Ultimate lateral earth pressures from *granular* backfill acting against retaining walls, temporary shoring, or buried structures may be computed from the lateral pressure coefficients or equivalent fluid densities presented in Table 5.5. These lateral pressures should be assumed even if the backfill is placed in a relatively narrow gap between a vertical bedrock cut and the foundation wall. These coefficients and densities assume no buildup of hydrostatic pressures. The force of water should be added to the presented values if hydrostatic pressures are anticipated.

Clayey soils drain poorly and may swell upon wetting, thereby greatly increasing lateral pressures acting on earth retaining structures; therefore, clayey soils should not be used as retaining wall backfill. Backfill should consist of native granular soil with an Expansion Index (EI) less than 20.

Walls and structures allowed to rotate slightly should use the active condition. If the element is to be constrained against rotation (i.e., a basement wall), the at-rest condition should be used. These values should be used with an appropriate factor of safety against overturning and sliding. A value of 1.5 is typically used. Additionally, if passive resistance is calculated in conjunction with frictional resistance, the passive resistance should be reduced by ½.

## 5.6 CONCRETE SLAB-ON-GRADE CONSTRUCTION

To minimize settlement and cracking of slabs, and to aid in drainage beneath the concrete floor slabs, all concrete slabs should be founded on a minimum 4-inch layer of compacted gravel overlying properly prepared subgrade. The gravel should consist of free-draining gravel or road base with a 3/4-inch maximum particle size and no more than 5 percent passing the No. 200 mesh sieve. The layer should be compacted to at least 95 percent of the MDD as determined by ASTM D-1557.

All concrete slabs should be designed to minimize cracking as a result of shrinkage. Consideration should be given to reinforcing the slab with a welded wire fabric, re-bar, or fibermesh. Slab reinforcement should be designed by the structural engineer; however, as a minimum, slab reinforcement should consist of 4'×4' W4.0×W4.0 welded wire mesh within the middle third of the slab. We recommend that concrete be tested to assess that the slump and/or air content is in compliance with the plans and specifications. We recommend that concrete be placed in general accordance with the requirements of the American Concrete Institute (ACI). A Modulus of Subgrade Reaction of **400 psi/inch (bedrock)** or **260 psi/inch (soil)** may be used for design.

A moisture barrier (vapor retarder) consisting of 10-mil thick Visqueen (or equivalent) plastic sheeting should be placed below slabs-on-grade where moisture-sensitive floor coverings or equipment is planned. Prior to placing this moisture barrier, any objects that could puncture it, such as protruding gravel or rocks, should be removed from the building pad. Alternatively, the subgrade may be covered with 2 inches of clean sand.

## 5.7 MOISTURE PROTECTION AND SURFACE DRAINAGE

Moisture should not be allowed to infiltrate into the soils in the vicinity of the foundations. As such, design strategies to minimize ponding and infiltration near the home should be implemented. Some home sites may be subject to sheet flow during periods of heavy rain or snow melt; therefore, the Civil Engineer may also wish to consider construction of additional surface drainage to intercept surface runoff.

We recommend roof runoff devices be installed to direct all runoff a minimum of 10 feet away from structures. The home builder should be responsible for compacting the exterior backfill soils around the foundation. Additionally, the ground surface within 10 feet of the house should be constructed so as to slope a minimum of **five** percent away from the home. Pavement sections (if any) should be constructed to divert surface water off the pavement into storm drains, curb/gutter, or another suitable location.

The new homes are expected to be on-grade structures; however, for any subterranean components such as storage space or a mechanical room, IGES recommends a perimeter foundation drain be constructed in accordance with the International Residential Code (IRC).

### 5.8 PAVEMENT SECTION DESIGN

Based on our field reconnaissance, the parking lot is expected to expose bedrock at, or very near the pavement subgrade; this earth material will provide substantial support for the pavement section. Therefore, IGES recommends that the minimum pavement section per Weber County be used for the parking lot:

**Table 5.8**  
**Recommended Pavement Section – Parking Lot**

<b>Asphalt (in.)</b>	<b>Untreated Road Base (in.)</b>	<b>Sub Base (Granular Borrow) (in.)</b>
3	6	8

The pavement section should be constructed on properly prepared subgrade or exposed competent bedrock. Alternative pavement section(s) may also be acceptable if they can provide equal or greater structural capacity to the section presented in Table 5.8, pending acceptance by Weber County (in particular, reduction or elimination of the granular borrow section with the use of geosynthetics).

Asphalt has been assumed to be a high stability plant mix and base course material composed of crushed stone with a minimum CBR of 70, granular borrow should have a minimum CBR of 30. Road base and granular borrow should be compacted to 95% of MDD as determined by ASTM D-1557 (Modified Proctor). Asphalt should be compacted to a minimum of 96 percent of the Marshall maximum density. Asphalt and aggregate base material should conform to local requirements. Subgrade should be scarified to a depth of 8 inches and compacted to 95% of MDD as determined by ASTM D-1557 (not required where bedrock is exposed). Positive drainage away from parking lot must be provided to minimize the potential for saturation of subgrade soils beneath constructed pavements.

Where Portland Cement Concrete (PCC) pavements are planned, such as near trash enclosures or other areas expected to support heavy truck traffic, we recommend a minimum of 6 inches PCC underlain by a minimum 6 inches of aggregate base course.

If conditions vary significantly from our stated assumptions (including stated traffic assumptions) IGES should be contacted so we can modify our pavement design parameters accordingly.

## 5.9 SOIL CORROSION POTENTIAL

Laboratory testing of soil samples obtained from nearby explorations during previously completed geotechnical work in 2012 (IGES, 2012b) indicated that the near-surface soil sample tested had a sulfate content of 127 ppm or less. Based on the subsurface conditions observed during our field work and the results of chemical testing in 2012, the prevailing earth materials are classified as having a 'low' potential for deterioration of concrete due to the presence of soluble sulfate. As such, conventional Type I/II Portland cement may be used for all concrete in contact with site soils.

Based on the subsurface conditions observed during our field work and the results of chemical testing in 2012, the on-site soils are considered *moderately corrosive* to ferrous metal. In addition, due to low soil pH (acidic soil chemistry) identified in soils throughout the project area, a corrosion engineer should also provide an assessment of any concrete that will be in contact with native soils.

## 5.10 CONSTRUCTION CONSIDERATIONS

### 5.10.1 Excavation Difficulty

Bedrock consisting of relatively hard dolomite is exposed over most of the surface within the project site. Based on conversations with contractors currently working in the vicinity, this rock is expected to be relatively difficult to remove. Special heavy-duty excavation equipment will likely be required, such as a hoe ram.

### 5.10.2 Over-Size Material

Most of the site consists of bedrock outcrop (surface exposures of dolomite); as such, development of most of the lots is expected to generate a substantial amount of over-size material (rocks larger than 6 inches in greatest dimension). Large rocks may require special handling, such as segregation from structural fill, and disposal. Bedrock is expected to require specialized equipment for removal during excavation of the basement. Please refer to Figure A-2 for a map of bedrock exposures.

## 6.0 CLOSURE

### 6.1 LIMITATIONS

The recommendations presented in this report are based on limited field exploration, review of existing hazard studies and other geotechnical data, and our understanding of the proposed construction. The subsurface data used in the preparation of this report were obtained from the explorations made for this investigation. It is possible that variations in the soil and groundwater conditions could exist between and beyond the points explored. The nature and extent of variations may not be evident until construction occurs. If any conditions are encountered at this site that are different from those described in this report, we should be immediately notified so that we may make any necessary revisions to recommendations contained in this report. In addition, if the scope of the proposed construction changes from that described in this report, IGES should also be notified.

This report was prepared in accordance with the generally accepted standard of practice at the time the report was written. No warranty, expressed or implied, is made.

It is the Client's responsibility to see that all parties to the project including the Designer, Contractor, Subcontractors, etc. are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

### 6.2 ADDITIONAL SERVICES

The recommendations made in this report are based on the assumption that an adequate program of tests and observations will be made during the construction. IGES staff or other qualified personnel should be on site to verify compliance with these recommendations. These tests and observations should include at a minimum the following:

- Observations and testing during site preparation, earthwork and structural fill placement.
- Consultation as may be required during construction.
- Quality control on concrete placement to verify slump, air content, and strength.
- Quality control and testing during placement and compaction of asphalt.

We also recommend that project plans and specifications be reviewed by us to verify compatibility with our conclusions and recommendations. Additional information concerning the scope and cost of these services can be obtained from our office.

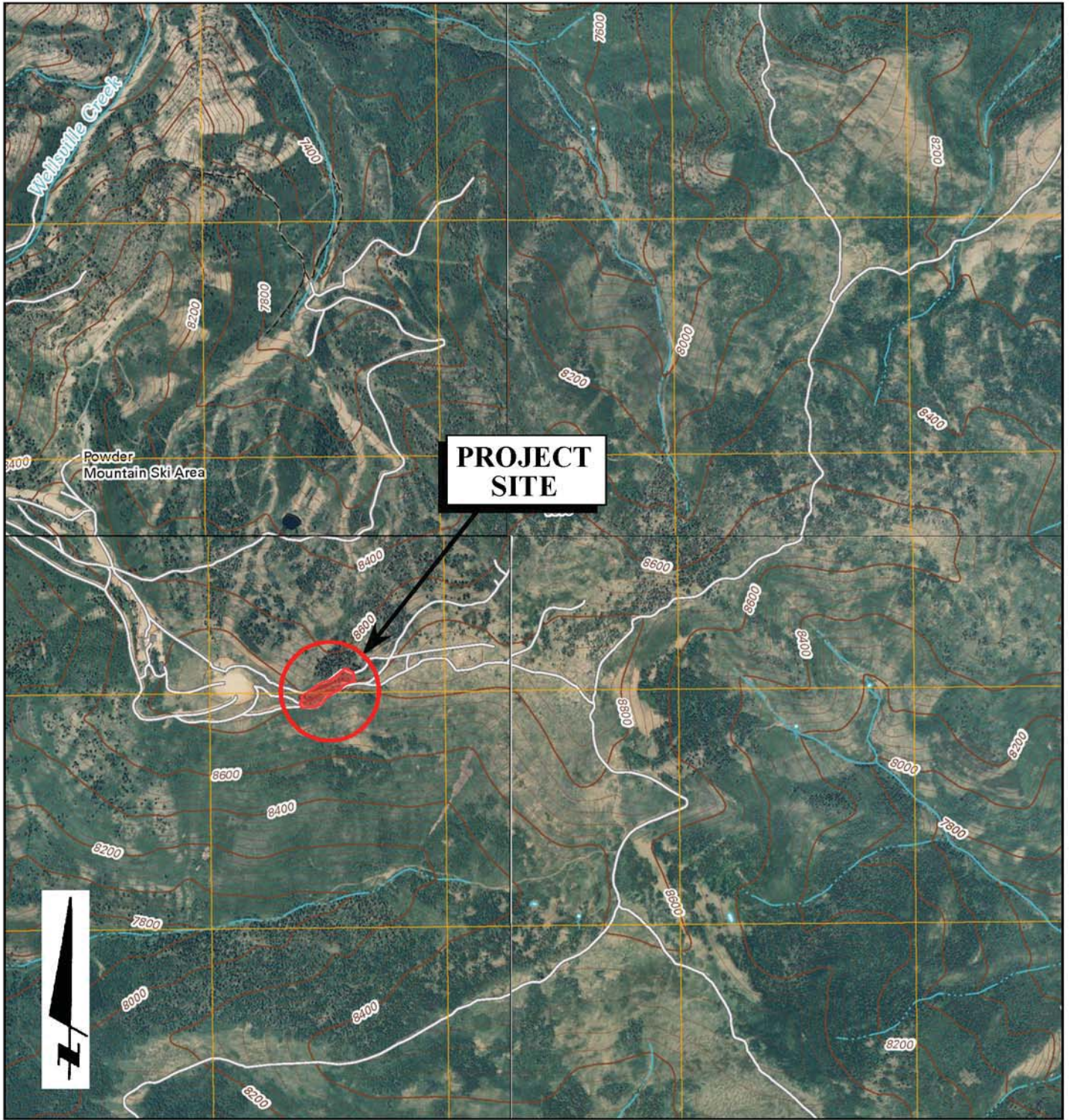
We appreciate the opportunity to be of service on this project. Should you have any questions regarding the report or wish to discuss additional services, please do not hesitate to contact us at your convenience (801) 748-4044.



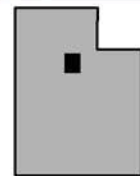
## 7.0 REFERENCES

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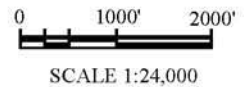
# **APPENDIX A**



BASE MAP:  
 USGS Huntsville, Browns Hole, James Peak and Sharp Mountain  
 7.5-Minute Quadrangle Topographic Maps (2011)



MAP LOCATION



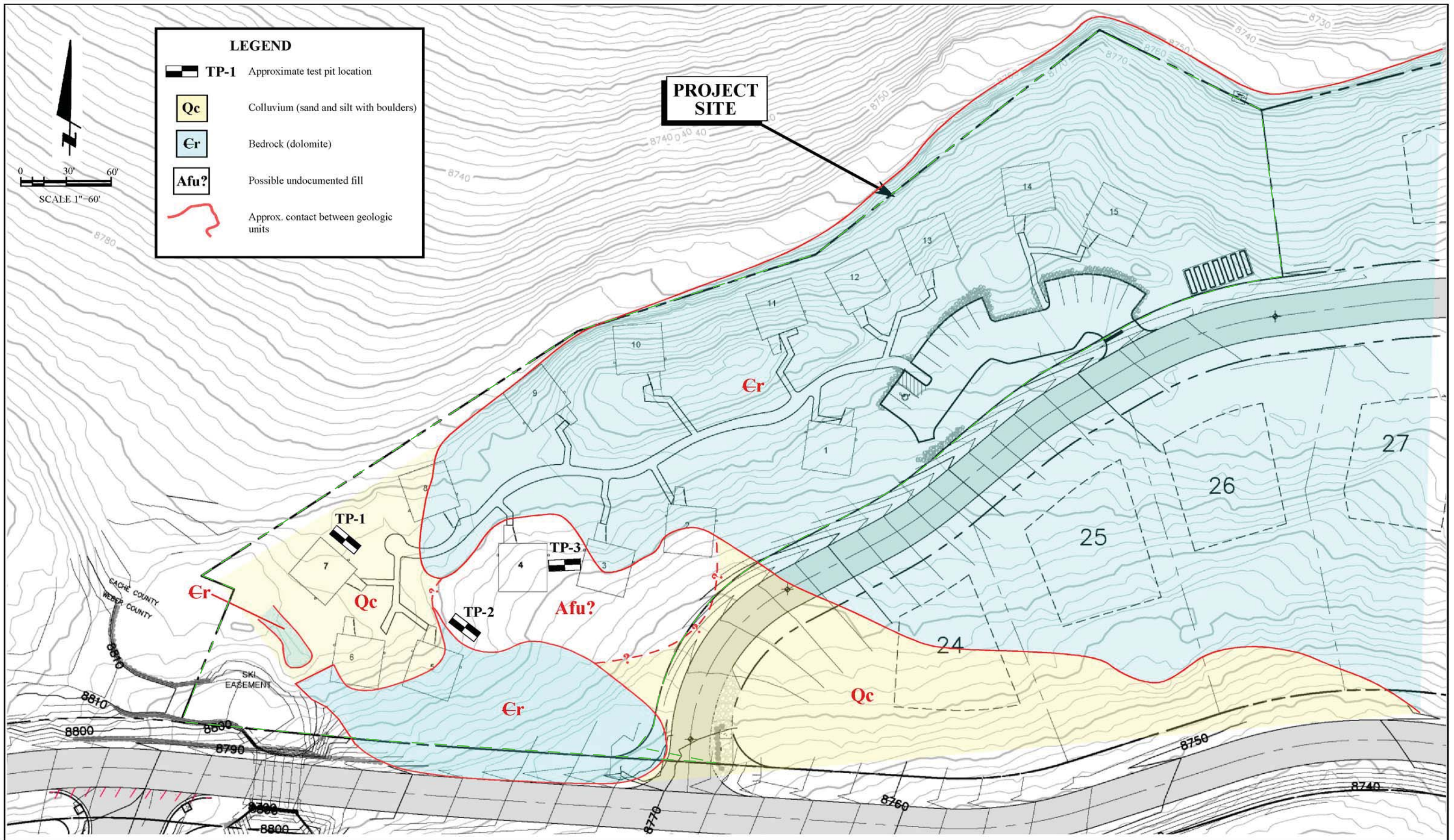

**IGES<sup>®</sup>**  
 Project No. 01628-008

Geotechnical Investigation  
 The Ridge Nests Development  
 Powder Mountain Resort  
 Weber County, Utah

**SITE VICINITY MAP**

**Figure**  
**A-1**





Basemap: Undated/uncredited 50-scale topographic map provided by Summit LLC



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Project No. 01628-008

Geotechnical Investigation  
 The Ridge Nests Development  
 Powder Mountain Resort  
 Weber County, Utah

**GEOTECHNICAL MAP**

**Figure**  
**A-2**



LOG OF TEST PITTS (A) - (4 LINE HEADER W ELEV) 01628-008.GPJ IGES.GDT 9/14/14

DATE		STARTED: 9/5/14		<b>Geotechnical Investigation</b> <b>The Ridge Nests</b> <b>Powder Mountain Resort</b> <b>Weber &amp; Cache Counties, Utah</b> Project Number 01628-008			IGES Rep: DAG		TEST PIT NO:									
		COMPLETED: 9/5/14					Rig Type: 315C		<h1 style="text-align: center;">TP-1</h1> Sheet 1 of 1									
		BACKFILLED: 9/5/14																
DEPTH		ELEVATION		LOCATION			Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits						
FEET		SAMPLES		LATITUDE LONGITUDE ELEVATION 8,804 near Lot 7								Plastic Limit Moisture Content Liquid Limit						
		WATER LEVEL		<b>MATERIAL DESCRIPTION</b>  Topsoil - Clayey SAND, dark brown, loamy appearance, abundant roots, about 6 inches thick, rocky  @ 1/2' <b>Colluvium (Oc)</b> Clayey SAND with abundant cobbles and boulders, hard/dense, mottled, moist, grayish brown, difficult to excavate  @ 3 1/2' <b>Wasatch Formation (Tw)</b> Conglomerate, well-cemented, hard, highly weathered, rounded boulders and cobbles in a reddish-brown clayey matrix, very difficult to excavate, boulders to 2 1/2 feet  Refusal at 5 feet No groundwater  Bottom of Test Pit @ 5 Feet			<table border="1"> <tr> <td>10</td> <td>20</td> <td>30</td> <td>40</td> <td>50</td> <td>60</td> <td>70</td> <td>80</td> <td>90</td> </tr> </table>			10	20	30	40	50	60	70	80	90
10	20	30	40				50	60	70	80	90							
8800		GRAPHICAL LOG		UNIFIED SOIL CLASSIFICATION														
5				SC														
8795																		



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**SAMPLE TYPE**

- ☐ - GRAB SAMPLE
- ⊠ - 3" O.D. THIN-WALLED HAND SAMPLER

**WATER LEVEL**

- ▼ - MEASURED
- ▽ - ESTIMATED

**NOTES:**

**FIGURE**

**A - 3**

LOG OF TEST PITTS (A) - (4 LINE HEADER W/ ELEV) 01628-008.GPJ IGES.GDT 9/14/14

DATE		STARTED: 9/5/14		<b>Geotechnical Investigation</b> <b>The Ridge Nests</b> <b>Powder Mountain Resort</b> <b>Weber &amp; Cache Counties, Utah</b> Project Number 01628-008			IGES Rep: DAG		TEST PIT NO:										
		COMPLETED: 9/5/14					Rig Type: 315C		<b>TP-2</b> Sheet 1 of 1										
		BACKFILLED: 9/5/14																	
DEPTH		ELEVATION		LOCATION			Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits							
ELEVATION		FEET		LATITUDE LONGITUDE ELEVATION 8,798								Plastic Limit Moisture Content Liquid Limit			10 20 30 40 50 60 70 80 90				
		SAMPLES		MATERIAL DESCRIPTION															
		WATER LEVEL		@ 0' Topsoil, clayey, dark brown, well-rounded gravel and cobble, moist, poorly developed  @ 1/2' <b>Colluvium (Oc)</b> Sandy Lean Clay, stiff, low plasticity, reddish-brown, moist, rounded cobbles to 6 inches, easy to excavate, exposed electrical wires at bottom of unit															
		GRAPHICAL LOG					UNIFIED SOIL CLASSIFICATION												
				@ 4' Silty SAND, medium dense, about 20% non-plastic fines, fine-grained, moderate yellowish brown, moist, occasional rounded gravel and cobble to 4 inches, iron staining															
				Total depth 7 feet No groundwater Possible undocumented fill (Afu?), but not substantiated Bedrock outcrop 10 feet away from test pit  Bottom of Test Pit @ 7 Feet															



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**SAMPLE TYPE**

- ☐ - GRAB SAMPLE
- ☒ - 3" O.D. THIN-WALLED HAND SAMPLER

**WATER LEVEL**

- ▼ - MEASURED
- ▽ - ESTIMATED

**NOTES:**

**FIGURE**

**A - 4**

DATE		STARTED: 9/5/14		Geotechnical Investigation The Ridge Nests Powder Mountain Resort Weber & Cache Counties, Utah Project Number 01628-008			IGES Rep: DAG		TEST PIT NO:					
		COMPLETED: 9/5/14					Rig Type: 315C		<b>TP-3</b> Sheet 1 of 1					
		BACKFILLED: 9/5/14												
DEPTH		ELEVATION		LOCATION			Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits		
ELEVATION FEET		SAMPLES		LATITUDE LONGITUDE ELEVATION 8,790 west of Lot 3								Plastic Limit Moisture Content Liquid Limit		
		WATER LEVEL		UNIFIED SOIL CLASSIFICATION						10 20 30 40 50 60 70 80 90				
		GRAPHICAL LOG		MATERIAL DESCRIPTION										
0				@ 0' Topsoil, thin (3" to 6"), poorly developed, abundant rootlets, sandy  @ 1/2' <b>Colluvium (Oc)</b> Silty SAND, loose to medium dense, fine-grained, moderate brown, moist, occasional rounded cobbles, easy to excavate										
5				@ 4' abundant dolomite fragments, angular, appears as possible rubble, within a sandy matrix, undocumented fill?, easy to excavate										
8785														
8780				Total depth 7 1/2 feet No groundwater Possible undocumented fill (Afu?) Bedrock exposure 15 feet away from test pit  Bottom of Test Pit @ 7.5 Feet										



**SAMPLE TYPE**  
 □ - GRAB SAMPLE  
 ▣ - 3" O.D. THIN-WALLED HAND SAMPLER

**WATER LEVEL**  
 ▼ - MEASURED  
 ▽ - ESTIMATED

NOTES:

**FIGURE**  
**A - 5**



UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		USCS SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS  (More than half of material is larger than the #200 sieve)	GRAVELS  (More than half of coarse fraction is larger than the #4 sieve)	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
	SANDS  (More than half of coarse fraction is smaller than the #4 sieve)	GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
FINE GRAINED SOILS  (More than half of material is smaller than the #200 sieve)	SANDS  (More than half of coarse fraction is smaller than the #4 sieve)	SW	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
	SILTS AND CLAYS  (Liquid limit less than 50)	SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
		SC	CLAYEY SANDS SAND-GRAVEL-CLAY MIXTURES
SILTS AND CLAYS  (Liquid limit greater than 50)	SILTS AND CLAYS  (Liquid limit less than 50)	ML	INORGANIC SILTS & VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
	SILTS AND CLAYS  (Liquid limit greater than 50)	OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
HIGHLY ORGANIC SOILS	SILTS AND CLAYS  (Liquid limit greater than 50)	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY
		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

LOG KEY SYMBOLS

	BORING SAMPLE LOCATION		TEST-PIT SAMPLE LOCATION
	WATER LEVEL (level after completion)		WATER LEVEL (level where first encountered)

CEMENTATION

DESCRIPTION	DESCRIPTION
WEAKLY	CRUMBLES OR BREAKS WITH HANDLING OR SLIGHT FINGER PRESSURE
MODERATELY	CRUMBLES OR BREAKS WITH CONSIDERABLE FINGER PRESSURE
STRONGLY	WILL NOT CRUMBLE OR BREAK WITH FINGER PRESSURE

OTHER TESTS KEY

C	CONSOLIDATION	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	DS	DIRECT SHEAR
UC	UNCONFINED COMPRESSION	T	TRIAXIAL
S	SOLUBILITY	R	RESISTIVITY
O	ORGANIC CONTENT	RV	R-VALUE
CBR	CALIFORNIA BEARING RATIO	SU	SOLUBLE SULFATES
COMP	MOISTURE/DENSITY RELATIONSHIP	PM	PERMEABILITY
CI	CALIFORNIA IMPACT	-200	% FINER THAN #200
COL	COLLAPSE POTENTIAL	Gs	SPECIFIC GRAVITY
SS	SHRINK SWELL	SL	SWELL LOAD

MODIFIERS

DESCRIPTION	%
TRACE	<5
SOME	5 - 12
WITH	>12

GENERAL NOTES

- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.
- No warranty is provided as to the continuity of soil conditions between individual sample locations.
- Logs represent general soil conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification designations presented on the logs were evaluated by visual methods only. Therefore, actual designations (based on laboratory tests) may vary.

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH
MOIST	DAMP BUT NO VISIBLE WATER
WET	VISIBLE FREE WATER, USUALLY SOIL BELOW WATER TABLE

STRATIFICATION

DESCRIPTION	THICKNESS	DESCRIPTION	THICKNESS
SEAM	1/16 - 1/2"	OCCASIONAL	ONE OR LESS PER FOOT OF THICKNESS
LAYER	1/2 - 12"	FREQUENT	MORE THAN ONE PER FOOT OF THICKNESS

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT (blows/ft)	MODIFIED CA. SAMPLER (blows/ft)	CALIFORNIA SAMPLER (blows/ft)	RELATIVE DENSITY (%)	FIELD TEST
VERY LOOSE	<4	<4	<5	0 - 15	EASILY PENETRATED WITH 1/2-INCH REINFORCING ROD PUSHED BY HAND
LOOSE	4 - 10	5 - 12	5 - 15	15 - 35	DIFFICULT TO PENETRATE WITH 1/2-INCH REINFORCING ROD PUSHED BY HAND
MEDIUM DENSE	10 - 30	12 - 35	15 - 40	35 - 65	EASILY PENETRATED A FOOT WITH 1/2-INCH REINFORCING ROD DRIVEN WITH 5-LB HAMMER
DENSE	30 - 50	35 - 60	40 - 70	65 - 85	DIFFICULT TO PENETRATED A FOOT WITH 1/2-INCH REINFORCING ROD DRIVEN WITH 5-LB HAMMER
VERY DENSE	>50	>60	>70	85 - 100	PENETRATED ONLY A FEW INCHES WITH 1/2-INCH REINFORCING ROD DRIVEN WITH 5-LB HAMMER

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT (blows/ft)	TORVANE	POCKET PENETROMETER	FIELD TEST
		UNTRAINED SHEAR STRENGTH (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	
VERY SOFT	<2	<0.125	<0.25	EASILY PENETRATED SEVERAL INCHES BY THUMB. EXUDES BETWEEN THUMB AND FINGERS WHEN SQUEEZED BY HAND.
SOFT	2 - 4	0.125 - 0.25	0.25 - 0.5	EASILY PENETRATED ONE INCH BY THUMB. MOLDED BY LIGHT FINGER PRESSURE.
MEDIUM STIFF	4 - 8	0.25 - 0.5	0.5 - 1.0	PENETRATED OVER 1/2 INCH BY THUMB WITH MODERATE EFFORT. MOLDED BY STRONG FINGER PRESSURE.
STIFF	8 - 15	0.5 - 1.0	1.0 - 2.0	INDENTED ABOUT 1/2 INCH BY THUMB BUT PENETRATED ONLY WITH GREAT EFFORT.
VERY STIFF	15 - 30	1.0 - 2.0	2.0 - 4.0	READILY INDENTED BY THUMBNAIL.
HARD	>30	>2.0	>4.0	INDENTED WITH DIFFICULTY BY THUMBNAIL.



Key to Soil Symbols and Terminology

Figure A-6

# **APPENDIX B**


**Design Maps Detailed Report**

2012 International Building Code (41.3696°N, 111.7579°W)

Site Class B – “Rock”, Risk Category I/II/III

**Section 1613.3.1 — Mapped acceleration parameters**

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain  $S_s$ ) and 1.3 (to obtain  $S_1$ ). Maps in the 2012 International Building Code are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 1613.3.3.

From [Figure 1613.3.1\(1\)](#) <sup>[1]</sup>  $S_s = 0.826 \text{ g}$

From [Figure 1613.3.1\(2\)](#) <sup>[2]</sup>  $S_1 = 0.274 \text{ g}$

**Section 1613.3.2 — Site class definitions**

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class B, based on the site soil properties in accordance with Section 1613.

2010 ASCE-7 Standard – Table 20.3-1  
SITE CLASS DEFINITIONS

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
Any profile with more than 10 ft of soil having the characteristics:			
<ul style="list-style-type: none"> <li>• Plasticity index <math>PI &gt; 20</math>,</li> <li>• Moisture content <math>w \geq 40\%</math>, and</li> <li>• Undrained shear strength <math>\bar{s}_u &lt; 500 \text{ psf}</math></li> </ul>			
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft<sup>2</sup> = 0.0479 kN/m<sup>2</sup>

### Section 1613.3.3 — Site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters

TABLE 1613.3.3(1)  
VALUES OF SITE COEFFICIENT  $F_a$

Site Class	Mapped Spectral Response Acceleration at Short Period				
	$S_s \leq 0.25$	$S_s = 0.50$	$S_s = 0.75$	$S_s = 1.00$	$S_s \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of  $S_s$

**For Site Class = B and  $S_s = 0.826$  g,  $F_a = 1.000$**

TABLE 1613.3.3(2)  
VALUES OF SITE COEFFICIENT  $F_v$

Site Class	Mapped Spectral Response Acceleration at 1-s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of  $S_1$

**For Site Class = B and  $S_1 = 0.274$  g,  $F_v = 1.000$**

**Equation (16-37):**

$$S_{MS} = F_a S_s = 1.000 \times 0.826 = 0.826 \text{ g}$$

---

**Equation (16-38):**

$$S_{M1} = F_v S_1 = 1.000 \times 0.274 = 0.274 \text{ g}$$

---

## Section 1613.3.4 — Design spectral response acceleration parameters

**Equation (16-39):**

$$S_{DS} = \frac{2}{3} S_{MS} = \frac{2}{3} \times 0.826 = 0.551 \text{ g}$$

---

**Equation (16-40):**

$$S_{D1} = \frac{2}{3} S_{M1} = \frac{2}{3} \times 0.274 = 0.183 \text{ g}$$

---

## Section 1613.3.5 — Determination of seismic design category

TABLE 1613.3.5(1)

SEISMIC DESIGN CATEGORY BASED ON SHORT-PERIOD (0.2 second) RESPONSE ACCELERATION

VALUE OF $S_{DS}$	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	C
$0.33g \leq S_{DS} < 0.50g$	C	C	D
$0.50g \leq S_{DS}$	D	D	D

For Risk Category = I and  $S_{DS} = 0.551 g$ , Seismic Design Category = D

TABLE 1613.3.5(2)

SEISMIC DESIGN CATEGORY BASED ON 1-SECOND PERIOD RESPONSE ACCELERATION

VALUE OF $S_{D1}$	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \leq S_{D1} < 0.133g$	B	B	C
$0.133g \leq S_{D1} < 0.20g$	C	C	D
$0.20g \leq S_{D1}$	D	D	D

For Risk Category = I and  $S_{D1} = 0.183 g$ , Seismic Design Category = C

Note: When  $S_1$  is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category  $\equiv$  "the more severe design category in accordance with Table 1613.3.5(1) or 1613.3.5(2)" = D

Note: See Section 1613.3.5.1 for alternative approaches to calculating Seismic Design Category.

## References

1. Figure 1613.3.1(1): [http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2012-Fig1613p3p1\(1\).pdf](http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2012-Fig1613p3p1(1).pdf)
2. Figure 1613.3.1(2): [http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2012-Fig1613p3p1\(2\).pdf](http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2012-Fig1613p3p1(2).pdf)

# USGS Design Maps Summary Report

## User-Specified Input

**Report Title** Lot 34R  
Tue August 12, 2014 00:42:37 UTC

**Building Code Reference Document** 2012 International Building Code  
(which utilizes USGS hazard data available in 2008)

**Site Coordinates** 41.3696°N, 111.7579°W

**Site Soil Classification** Site Class B – “Rock”

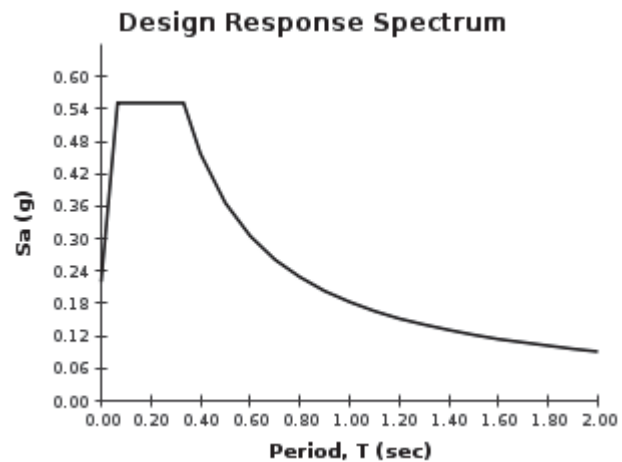
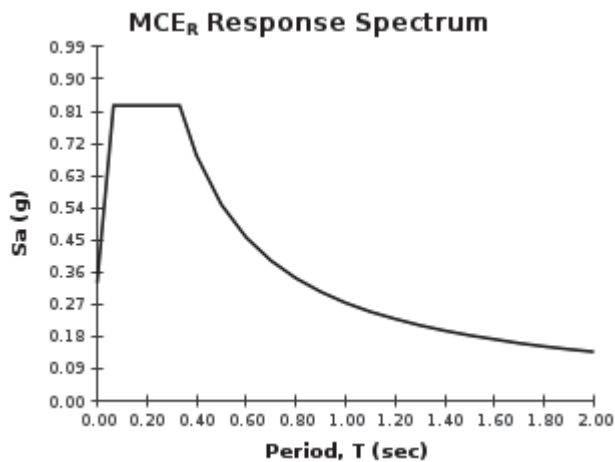
**Risk Category** I/II/III



## USGS-Provided Output

$$\begin{array}{lll}
 S_s = 0.826 \text{ g} & S_{MS} = 0.826 \text{ g} & S_{DS} = 0.551 \text{ g} \\
 S_1 = 0.274 \text{ g} & S_{M1} = 0.274 \text{ g} & S_{D1} = 0.183 \text{ g}
 \end{array}$$

For information on how the  $S_s$  and  $S_1$  values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the “2009 NEHRP” building code reference document.



Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.





April 7, 2015

Summit Powder Mountain  
c/o Ms. Andrea Milner  
3632 North Wolf Creek Drive  
Eden, Utah 84310

IGES Project No. 01628-008

Subject: Response to Review Comments  
Geotechnical Investigation  
The Ridge Nests Development  
Powder Mountain Resort  
Weber and Cache Counties, Utah

Reference: IGES, Inc., 2014, Geotechnical Investigation, The Ridge Nests Development, Powder Mountain Resort, Weber and Cache Counties, Utah Project No. 01628-008, dated September 16, 2014

Ms. Milner:

As requested, IGES has prepared the following response to recent review comments regarding the referenced geotechnical report for the Ridge Nests development, part of the larger Powder Mountain Resort expansion project in Weber County, Utah. The review comments to be addressed were prepared by Taylor Geotechnical and were posted on the Weber County website on November 19, 2014. For convenience, the review comments will be presented first, followed by our response.

**Comment No. 1**

*“Please have IGES provide their hand calculations that substantiate the allowable bearing capacity and settlement analysis.”*

**Response to Comment No. 1**

The bearing capacity and settlement calculations are attached. For material properties, IGES has made the following conservative assumptions:

- Coarse natural colluvium: friction angle = 38 degrees, Es ~ 350 ksf
- Fine sandy structural fill soils: friction angle = 34 degrees, Es ~ 100 ksf
- In-place dolomite: intact uniaxial compressive strength ~ 1,000 ksf (lower-bound of typically reported values)

Unit weight of the colluvium and the sandy alluvial soils/structural fill has been approximated as 125 pcf.

Based on the Hoek-Brown criterion, the equivalent soil strength of the rock (Mohr-Coulomb Fit) is estimated to be: friction angle = 14 degrees, cohesion = 9.5 ksf. These values were

estimated using RocLab1 software, available as a free download from Rocscience. In consideration of these estimated equivalent values, settlement of the rock is expected to be negligible under the anticipated relatively light loads of a residential structure (e.g., a small cabin or cottage).

**Comment No. 2**

“Confirm that the recommendations for Lot 4 is three feet of compacted structural fill over potentially undocumented fill for foundation support.”

**Response to Comment No. 2**

With a 3-foot over-excavation below the footings, the total over-excavation below existing ground will be on the order of 6½ feet. This is expected to remove most, if not all, deleterious earth materials below the foundation.

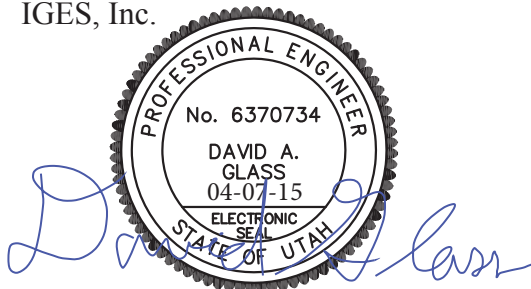
Per our recommendations in the referenced geotechnical report, IGES should observe the foundation subgrade prior to placement of structural fill, steel or concrete. The purpose of this recommendation is to allow IGES to qualitatively assess the condition of the subgrade and to identify adverse conditions that could impact the structure (e.g., soft, loose soil, undocumented fill, rock/soil transition zones, etc.). This recommendation is particularly relevant to Lot 4, as the lot is entirely within an area that may be undocumented fill, but is at the very least in an area of a natural soil deposit that is relatively loose and potentially compressible. The reviewer correctly alludes to the implications of building a structure on undocumented fill, which is risky and is considered outside of the *standard of care*.

If soft, loose, or otherwise deleterious earth materials are identified by IGES within the foundation subgrade, additional over-excavation will be required.

**Closure**

We appreciate the opportunity to provide you with our services. If you have any questions please contact the undersigned at your convenience (801) 748-4044.

Respectfully Submitted,  
IGES, Inc.



David A. Glass, P.E.  
Senior Geotechnical Engineer

Attachments:

Bearing Capacity, Settlement, and Hoek-Brown Rock Strength Calculations

# Allowable Bearing Capacity Calculations

## Modified Meyerhof (1963)

IGES Project No.: 01628-008  
 Date: 4/7/2015  
 Model: Coarse Colluvium

c	0	psf
$\phi$	38	deg.
$\gamma$	125	pcf
B	1.67	ft.
D	3.5	ft.
L	20	ft.
$\beta$	0	deg.
FS	3	
FS <sub>shear</sub>	1.5	

- c cohesion
- $\phi$  friction angle
- $\gamma$  wet unit weight of soil
- B width of footing
- D depth of footing
- $\beta$  inclination of the load on the foundation with respect to the vertical
- L length of footing

Note<sup>1</sup>: if round footing, L=B=diameter of footing  
 Note<sup>2</sup>: you may want to neglect depth factors for shallow foundations

### Bearing Capacity Factors

N <sub>q</sub>	48.9	(Reissner, 1924)
N <sub>c</sub>	61.4	(Prandtl, 1921)
N <sub>y</sub>	78.0	(Vesic, 1973)

### Shape Factors (De Beer, 1970)

F <sub>cs</sub>	1.1
F <sub>qs</sub>	1.1
F <sub>ys</sub>	0.97

### Modified Bearing Capacity Factors (Shear)

c <sub>d</sub>	0	psf
$\phi_d$	27.5	deg.
N <sub>q</sub> '	14.0	
N <sub>c</sub> '	24.9	
N <sub>y</sub> '	15.6	

### Depth Factors (Hansen, 1970)

F <sub>cd</sub>	1.5
F <sub>qd</sub>	1.3
F <sub>yd</sub>	1

### Inclination Factors (Meyerhof 1963; Hanna and Meyerhof 1981)

F <sub>ci</sub>	1.00
F <sub>qi</sub>	1.00
F <sub>yi</sub>	1.00

### Bearing Capacity

gross			net		
q <sub>u</sub>	q <sub>all</sub>	q <sub>all(shear)</sub>	q <sub>u</sub>	q <sub>all</sub>	q <sub>all(shear)</sub>
36,602	12,201	9,766	36,164	12,055	9,328

$$q_u = cN_c F_{cs} F_{cd} F_{ci} + \gamma DN_q F_{qs} F_{qd} F_{qi} + 0.5\gamma BN_y F_{ys} F_{yd} F_{yi}$$

$$q_{all} = q_u / FS$$

$$q_{all(shear)} = c_d N'_c F_{cs} F_{cd} F_{ci} + \gamma DN'_q F_{qs} F_{qd} F_{qi} + 0.5\gamma BN'_y F_{ys} F_{yd} F_{yi} \text{ where } c_d = c / FS_{shear} \text{ and } \phi_d = \tan^{-1}(\tan(\phi / FS_{shear}))$$

Note: net values do not take into account removal of existing overburden (D $\gamma$ )

Figure 1

# Allowable Bearing Capacity Calculations

## Modified Meyerhof (1963)

IGES Project No.: 01628-008  
Date: 4/7/2015  
Model: Sandy structural fill

c	0	psf
$\phi$	34	deg.
$\gamma$	125	pcf
B	1.67	ft.
D	3.5	ft.
L	20	ft.
$\beta$	0	deg.
FS	3	
FS <sub>shear</sub>	1.5	

c	cohesion
$\phi$	friction angle
$\gamma$	wet unit weight of soil
B	width of footing
D	depth of footing
$\beta$	inclination of the load on the foundation with respect to the vertical
L	length of footing

Note<sup>1</sup>: if round footing, L=B=diameter of footing  
Note<sup>2</sup>: you may want to neglect depth factors for shallow foundations

### Bearing Capacity Factors

N <sub>q</sub>	29.4	(Reissner, 1924)
N <sub>c</sub>	42.2	(Prandtl, 1921)
N <sub>y</sub>	41.1	(Vesic, 1973)

### Modified Bearing Capacity Factors (Shear)

c <sub>d</sub>	0	psf
$\phi_d$	24.2	deg.
N <sub>q</sub> '	9.8	
N <sub>c</sub> '	19.6	
N <sub>y</sub> '	9.7	

### Shape Factors (De Beer, 1970)

F <sub>cs</sub>	1.1
F <sub>qs</sub>	1.1
F <sub>ys</sub>	0.97

### Depth Factors (Hansen, 1970)

F <sub>cd</sub>	1.5
F <sub>qd</sub>	1.3
F <sub>yd</sub>	1

### Inclination Factors (Meyerhof 1963; Hanna and Meyerhof 1981)

F <sub>ci</sub>	1.00
F <sub>qi</sub>	1.00
F <sub>yi</sub>	1.00

### Bearing Capacity

gross			net		
q <sub>u</sub>	q <sub>all</sub>	q <sub>all(shear)</sub>	q <sub>u</sub>	q <sub>all</sub>	q <sub>all(shear)</sub>
21,762	7,254	6,857	21,325	7,108	6,420

$$q_u = cN_c F_{cs} F_{cd} F_{ci} + \gamma DN_q F_{qs} F_{qd} F_{qi} + 0.5\gamma BN_y F_{ys} F_{yd} F_{yi}$$

$$q_{all} = q_u / FS$$

$$q_{all(shear)} = c_d N'_c F_{cs} F_{cd} F_{ci} + \gamma DN'_q F_{qs} F_{qd} F_{qi} + 0.5\gamma BN'_y F_{ys} F_{yd} F_{yi} \text{ where } c_d = c / FS_{shear} \text{ and } \phi_d = \tan^{-1}(\tan(\phi / FS_{shear}))$$

Note: net values do not take into account removal of existing overburden (D $\gamma$ )

Figure 2

## Static Settlement Calculations Simplified Schmertmann Method Coarse Colluvium

For continuous footings ( $L/B \geq 10$ )

$$\delta = \frac{C_1 C_2 C_3 (q - \sigma'_{zD}) (2I_{\epsilon p} + 0.1) B}{E_s}$$

For square and circular foundations ( $L/B=1$ )

$$\delta = \frac{C_1 C_2 C_3 (q - \sigma'_{zD}) (I_{\epsilon p} + 0.025) B}{E_s}$$

$$C_1 = 1 - 0.5 \left( \frac{\sigma'_{zD}}{q - \sigma'_{zD}} \right) \quad C_2 = 1 + 0.2 \log \left( \frac{t}{0.1} \right) \quad C_3 = 1.03 - \frac{0.03L}{B} \geq 0.73$$

$$I_{\epsilon p} = 0.5 + 0.1 \sqrt{\frac{q - \sigma'_{zD}}{\sigma'_{zp}}}$$

Input:

$q = \underline{3,500}$  psf  
 $D = \underline{3.5}$  ft (assume zero for engineered fill)  
 $B = \underline{1.7}$  ft  
 $L = \underline{50}$  ft  
 $E_s = \underline{300}$  ksf (conservative estimate)  
 $t = \underline{50}$  years  
 $Y' = \underline{125}$  unit weight, pcf

Calculated Values:

$\sigma'_{zD} = \underline{0}$  psf  
 $\sigma'_{zp} = \underline{650}$  psf  
 $C_1 = \underline{1}$   
 $C_2 = \underline{1.54}$   
 $C_3 = \underline{0.73}$   
 $I_{\epsilon p} = \underline{0.73}$

$\delta = \underline{0.42}$  inches

where...

- $\delta$  = total static settlement (inches)
- $q$  = bearing pressure (psf)
- $D$  = depth to bottom of footing measured from original grade (ft)
- $\sigma'_{zD}$  = vertical effective stress at depth D below the ground surface (psf)
- $\sigma'_{zp}$  = initial vertical effective stress at depth of peak strain influence factor\*
- $I_{\epsilon p}$  = peak strain influence factor (no units)
- $B$  = width of footing (ft)
- $L$  = length of footing (ft)
- $E_s$  = equivalent modulus of elasticity in soil layer (ksf)
- $C_1$  = depth factor
- $C_2$  = secondary creep factor
- $C_3$  = shape factor (equals 1 for square and circular foundations)
- $t$  = time since application of load (yr, typically taken as a 50-year design life)

\* (for square and circular foundations, compute at a depth of  $D+B/2$  below the ground surface; for continuous footings ( $L/B > 10$ ), compute at a depth of  $D+B$ )

## Static Settlement Calculations Simplified Schmertmann Method structural fill

For continuous footings ( $L/B \geq 10$ )

$$\delta = \frac{C_1 C_2 C_3 (q - \sigma'_{zD}) (2I_{\epsilon p} + 0.1) B}{E_s}$$

For square and circular foundations ( $L/B=1$ )

$$\delta = \frac{C_1 C_2 C_3 (q - \sigma'_{zD}) (I_{\epsilon p} + 0.025) B}{E_s}$$

$$C_1 = 1 - 0.5 \left( \frac{\sigma'_{zD}}{q - \sigma'_{zD}} \right) \quad C_2 = 1 + 0.2 \log \left( \frac{t}{0.1} \right) \quad C_3 = 1.03 - \frac{0.03L}{B} \geq 0.73$$

$$I_{\epsilon p} = 0.5 + 0.1 \sqrt{\frac{q - \sigma'_{zD}}{\sigma'_{zp}}}$$

Input:

$q = \underline{2,200}$  psf  
 $D = \underline{0}$  ft (assume zero for engineered fill)  
 $B = \underline{1.7}$  ft  
 $L = \underline{50}$  ft  
 $E_s = \underline{100}$  ksf (conservative estimate)  
 $t = \underline{50}$  years  
 $Y' = \underline{125}$  unit weight, pcf

Calculated Values:

$\sigma'_{zD} = \underline{0}$  psf  
 $\sigma'_{zp} = \underline{212.5}$  psf  
 $C_1 = \underline{1}$   
 $C_2 = \underline{1.54}$   
 $C_3 = \underline{0.73}$   
 $I_{\epsilon p} = \underline{0.82}$   
 $\delta = \underline{0.88}$  inches

where...

- $\delta$  = total static settlement (inches)
- $q$  = bearing pressure (psf)
- $D$  = depth to bottom of footing measured from original grade (ft)
- $\sigma'_{zD}$  = vertical effective stress at depth D below the ground surface (psf)
- $\sigma'_{zp}$  = initial vertical effective stress at depth of peak strain influence factor\*
- $I_{\epsilon p}$  = peak strain influence factor (no units)
- $B$  = width of footing (ft)
- $L$  = length of footing (ft)
- $E_s$  = equivalent modulus of elasticity in soil layer (ksf)
- $C_1$  = depth factor
- $C_2$  = secondary creep factor
- $C_3$  = shape factor (equals 1 for square and circular foundations)
- $t$  = time since application of load (yr, typically taken as a 50-year design life)

\* (for square and circular foundations, compute at a depth of  $D+B/2$  below the ground surface; for continuous footings ( $L/B > 10$ ), compute at a depth of  $D+B$ )

## Analysis of Rock Strength using RocLab

### Hoek-Brown Classification

intact uniaxial comp. strength ( $\sigma_{ci}$ ) = 1000 ksf  
GSI = 45  $m_i$  = 9 Disturbance factor (D) = 1  
intact modulus ( $E_i$ ) = 240000 ksf

### Hoek-Brown Criterion

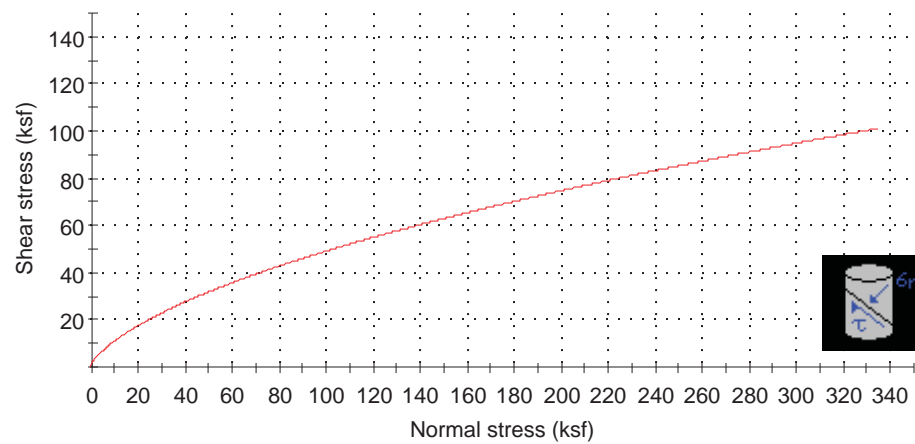
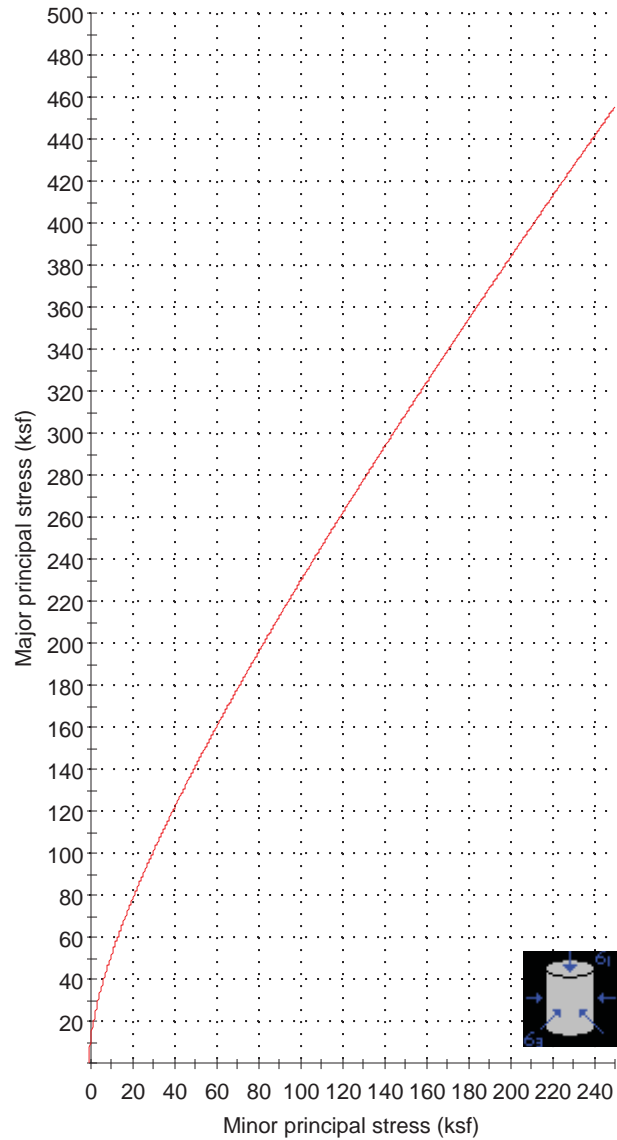
$m_b$  = 0.177  $s$  = 0.0001  $a$  = 0.508

### Mohr-Coulomb Fit

cohesion = 20.880 ksf friction angle = 14.38 deg

### Rock Mass Parameters

tensile strength = -0.590 ksf  
uniaxial compressive strength = 9.491 ksf  
global strength = 53.814 ksf  
deformation modulus = 12165.97 ksf







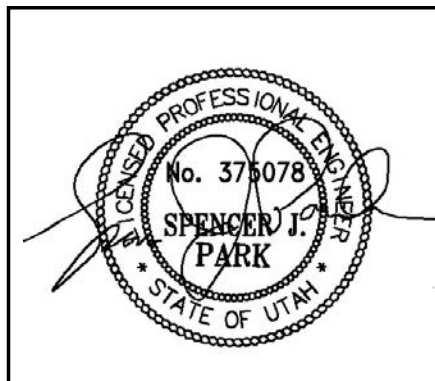
**Park Engineering, LLC**

90 West 200 South  
Heber, Utah 84032  
Ph. (435) 654-1456  
Fx. 1-(800) 375-2156

Structural Calculations for:  
**Summit Powder Mountain RidgeNest 13**

Property Located at:  
**Ridge Nest lot 13**  
**Weber County Utah**

May 2015

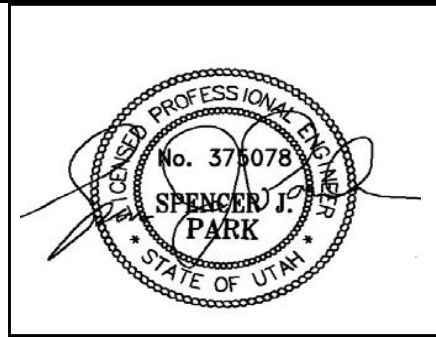




**STRUCTURAL SPECIFICATIONS FOR:**

**Summit Powder Mountain RidgeNest 13  
Ridge Nest lot 13  
Weber County Utah**

**May 2015  
PROJECT #**



**DESIGN LOADS**

Roof Dead Load: **12** psf  
 Roof Snow Load: **202** psf (See attached Snow Calculations)  
 Radiant Heating?: **Yes**  
 Floor Dead Load: **30** psf (Radiant Heating Used)  
 Floor Live Load: **40** psf (Table 16A)

**BEAM SCHEDULE**

Loc	Beam Name	Beam Type	Trimmer	Remarks	Hanger
B-1	STANDARD HDR	(3) 1.75 x 9.5 LVL	3		Built in Beam Pocket
B-2	ROOF BEAM	(1) 8.75 x 28.5 GLB	column		Built in Beam Pocket
B-3	FLOOR BEAM	(2) 1.75 x 11.875 LVL	1		Built in Beam Pocket
B-4	FLOOR BEAM	(1) 8.75 x 24 GLB	2		Built in Beam Pocket
B-5	ENTRY BEAM	(1) 12 x 12 DF-L #1	2		Built in Beam Pocket

**COLUMN SCHEDULE**

Loc	Column Name	Column Type	Remarks	Base / Cap
C-1	(1) 9in x 6in DF-L #2	(1) 9in x 6in DF-L #2	Built-up Column	None
C-2	(1) 6in x 9in 1.8E Parallam PSL	(1) 6in x 9in 1.8E Parallam PSL	Built-up Column	None

**FLOOR JOIST SCHEDULE**

Loc	Joist Name	Joist	Hanger
FJ-1	UPSTAIRS FLOOR JOISTS	(1) 11.875in 360 TJI Joist(s) @ 16in O.C.	none
FJ-2	MAIN FLOOR JOISTS	(1) 14in 210 TJI Joist(s) @ 16in O.C.	none
FJ-3	ENTRY JOISTS	(1) 4in x 12in DF#2 Joists(s) @ 12in O.C.	none

**ROOF RAFTERS SCHEDULE**

Loc	Rafter Name	Rafter	Hanger
RR-1	ROOF RAFTERS	(1) 16in 360 TJI Joist(s) @ 12in O.C.	none

**STEEL BEAM SCHEDULE**

Loc	Beam Name	Beam Type	Remarks	Connection
SB-1	B-2 STEEL OPTION	W24x62		
SB-2	B-4 STEEL OPTION	W10x77		
SB-3	FLOOR BEAM	W12x35		
SB-4	FLOOR BEAM	W12x35		
SB-5	FLOOR BEAM	W12x35		



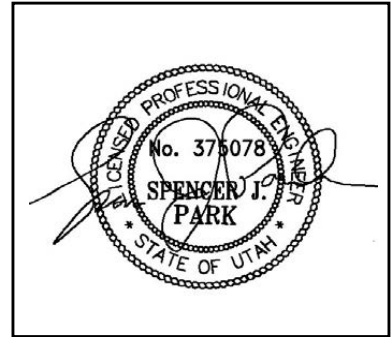

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**FOOTING & FOUNDATION SPECIFICATIONS**

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Summit Powder Mountain RidgeNest 13  
 Ridge Nest lot 13  
 Weber County Utah

May 2015  
 PROJECT #



**FOOTING SCHEDULE**

Loc	Footing Name	Footing Type	Remarks
F-1	24 in Strip Footing	24in x 10in x Cont Footing w/ (2) #4 bar	
F-2	42 in x 42 in Spot Footing	42in x 42in x 10in Footing w/ (4) #4 bar each way	
F-3	48 in x 48 in Spot Footing	48in x 48in x 10in Footing w/ (5) #4 bar each way	



**ROOF SNOW LOADS**

**Utah Snow Loads per 1608.1.2 (State Ammended)**

County: **Cache**  
 Elevation: **9000 ft.**  
 Flat Roof Snow Load: **201.5 psf**

$$P_g = [P_0^2 + S^2 (A - A_0)^2]^{0.5}$$

Where

- $P_g$  = Ground Snow Load at a given elevation (psf)
- $P_0$  = Base ground snow load (psf) from Table No. 1608.1.2(a)
- $S$  = Change in ground snow load with elevation (psf/100 ft.) from Table No. 1608.1.2(a)
- $A$  = Elevation above Sea Level at the site (ft/1000)
- $A_0$  = Base ground snow elevation from Table 1608.1.2(a) (ft/1000)

**Information for Cache County**

$P_0$	<b>50</b>	psf	(Table 1608.1.2(a))
$S$	<b>63</b>	psf/100ft	(Table 1608.1.2(a))
$A_0$	<b>4.5</b>	ft/1000	(Table 1608.1.2(a))
$P_g$	<b>288</b>	psf	

**ROOF SNOW LOAD FACTORS**

Flat Roof Factor **0.7** Exposure Factor,  $C_e$  **1.0**  
 Thermal Factor,  $C_t$  **1.0** (Heated) Importance Factor,  $I$  **1.0**

**SLOPED ROOF SNOW LOADS**

Slope	Angle (degrees)	Slope Factor, $C_s$		Snow Load, $P_s$	
		Slip**	Non-Slip*	Slip	Non-Slip
1:12	4.76	1.00	1.00	<b>202</b>	<b>202</b>
2:12	9.46	0.93	1.00	<b>188</b>	<b>202</b>
3:12	14.04	0.86	1.00	<b>173</b>	<b>202</b>
4:12	18.43	0.79	1.00	<b>160</b>	<b>202</b>
5:12	22.62	0.73	1.00	<b>147</b>	<b>202</b>
6:12	26.57	0.67	1.00	<b>135</b>	<b>202</b>
7:12	30.26	0.61	0.99	<b>123</b>	<b>200</b>
8:12	33.69	0.56	0.91	<b>113</b>	<b>183</b>
9:12	36.87	0.51	0.83	<b>103</b>	<b>167</b>
10:12	39.81	0.46	0.75	<b>94</b>	<b>152</b>
11:12	42.51	0.42	0.69	<b>85</b>	<b>138</b>
12:12	45.00	0.38	0.63	<b>78</b>	<b>126</b>

\**Non-slip* roofs include asphalt shingles and wood shingles.

\*\**Slip* roofs include metal, glass, and slate type roofs.



**BEAM CALCULATIONS**  
Summit Powder Mountain RidgeNest 13  
May 2015  
PROJECT #

**STANDARD HDR**

**B-1**

Calculations for beam with the top end supported

**Beam Information:**

Span: **8** ft  
 Number of Trimmers req'd: 3 (Trimmers are 2x members)  
 Beam has floor loads: **Yes**  
 Roof Slope: **6:12**  
 Roof Material: **S** (S=Slip, NS=Non-Slip)

Beam Type Selection: **2**

**USE:**  
**(3) 1.75 x 9.5 LVL**

Hanger Selected

**Built in Beam Pocket**

**Load Information:**

Roof Dead Load: 12 psf Trib: **10.25** ft  
 Roof Live Load: 135 psf Trib: **10.25** ft  
 Floor Dead Load: 30 psf Trib: **10** ft  
 Floor Live Load: 40 psf Trib: **10** ft  
 Point Load (Dead): lbs End Dist: ft  
 Point Load (Live): lbs End Dist: ft  
 Wall Uniform Load: plf  
 Total Uniform Load: 2,203.2 plf

**Design Values:**

$\Delta LL_{Allow}$ :	L/410	0.23 in.				<b>Adjustment Factors</b>	
$\Delta DL_{Allow}$ :	L/240	0.40 in.				Cd = <b>1.0</b>	
						Cf bend = <b>1.0</b>	
						Cr = <b>1.0</b>	
F <sub>b</sub> :	900	2,600	2,400	2,900	1,200	1,350	Cv = <b>1.0</b>
F <sub>v</sub> :	180	285	240	290	180	170	Ct = <b>1.0</b>
E:	1,600,000	1,900,000	1,800,000	2,000,000	1,800,000	1,600,000	Cm = <b>1.0</b>
							Cl = <b>1.0</b>
							Kl = <b>1.0</b>

**Calculations:**

Moment, M<sub>max</sub>: 17,626 lb-ft  
 Reaction (Near End): 8,812.9 lbs  
 Reaction (Far End): 8,812.9 lbs  
 Shear, V<sub>max</sub>: 8,812.9 lbs

**Beam Properties**

	DF#2	Microlam	Glulam	Parallam	Log	DF#1
Width:	<b>2</b>	<b>1.75</b>	<b>3.125</b>	<b>3.5</b>	<b>8</b>	<b>2</b>
Height:	<b>10</b>	<b>9.5</b>	<b>9</b>	<b>9.5</b>		<b>10</b>
Number of Ply:	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>
Factor F <sub>b</sub> :	900		2400		1200	1350
S <sub>req'd</sub> :	235.01		88.13		176.26	156.67
S <sub>Act</sub> :	64.17		42.19		30.16	64.17
I <sub>Act</sub> :	296.79	375.10	189.84	250.07	120.62	296.79
A <sub>Act</sub> :	41.63	49.88	28.13	33.25	31.99	41.63
M <sub>Allow</sub> :		17655		13055		
	<b>Not Ok</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>
Deflection (Live Load):	0.35	0.23	0.48	0.33	0.76	0.35
Deflection (Dead Load):	0.08	0.05	0.11	0.08	0.18	0.08
Deflection (Total):	0.47	0.31	0.65	0.44	1.02	0.47
Deflection Check:	<b>Not Ok</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>
Shear, V:	6976.90	7068.71	7160.51	7068.71	7774.48	6976.90
F <sub>v</sub> :	251.4	212.6	381.9	318.9	364.5	251.4
F' <sub>v</sub> :	540.0	855.0	240.0	290.0	180.0	510.0
	<b>OK</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>



**BEAM CALCULATIONS**  
Summit Powder Mountain RidgeNest 13  
May 2015  
PROJECT #

**ROOF BEAM**

**B-2**

Calculations for beam with the top end supported

**Beam Information:**

Span: **30.75** ft  
 Number of Trimmers req'd: column (Trimmers are 2x members)  
 Beam has floor loads: **No**  
 Roof Slope: **6:12**  
 Roof Material: **S** (S=Slip, NS=Non-Slip)

Beam Type Selection: **3**

**USE:**  
**(1) 8.75 x 28.5 GLB**

Hanger Selected

**Built in Beam Pocket**

**Load Information:**

Roof Dead Load: 12 psf Trib: **15.5** ft  
 Roof Live Load: 135 psf Trib: **15.5** ft  
 Floor Dead Load: 12 psf Trib: **0** ft  
 Floor Live Load: 60 psf Trib: **0** ft  
 Point Load (Dead): lbs End Dist: ft  
 Point Load (Live): lbs End Dist: ft  
 Wall Uniform Load: plf  
 Total Uniform Load: 2,273.2 plf

**Design Values:**

$\Delta LL_{Allow}$ :	L/240	1.54 in.				<b>Adjustment Factors</b>	
$\Delta DL_{Allow}$ :	L/180	2.05 in.				Cd = <b>1.15</b>	
	1	2	3	4	5	Cf bend = <b>1.0</b>	
	Sawn Beam	Microlam	Glulam	Parallam	DFL#1 Log	DF#1	Cr = <b>1.0</b>
F <sub>b</sub> :	900	2,600	2,400	2,900	1,200	1,350	Cv = <b>1.0</b>
F <sub>v</sub> :	180	285	240	290	180	170	Ct = <b>1.0</b>
E:	1,600,000	1,900,000	1,800,000	2,000,000	1,800,000	1,600,000	Cm = <b>1.0</b>
							Cl = <b>1.0</b>
							Kl = <b>1.0</b>

**Calculations:**

Moment, M<sub>max</sub>: 268,679 lb-ft  
 Reaction (Near End): 34,950.2 lbs  
 Reaction (Far End): 34,950.2 lbs  
 Shear, V<sub>max</sub>: 34,950.2 lbs

**Beam Properties**

	1	2	3	4	5	6
	DF#2	Microlam	Glulam	Parallam	Log	DF#1
Width:	<b>2</b>	<b>1.75</b>	<b>8.75</b>	<b>3.5</b>	<b>8</b>	<b>2</b>
Height:	<b>10</b>	<b>9.5</b>	<b>28.5</b>	<b>9.25</b>		<b>10</b>
Number of Ply:	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>
Factor F <sub>b</sub> :	1035		2760		1380	1552.5
S <sub>req'd</sub> :	3115.12		1168.17		2336.34	2076.75
S <sub>Act</sub> :	64.17		1184.53		30.16	64.17
I <sub>Act</sub> :	296.79	375.10	16879.57	230.84	120.62	296.79
A <sub>Act</sub> :	41.63	49.88	249.38	32.38	31.99	41.63
M <sub>Allow</sub> :		17655		0		
	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>
Deflection (Live Load):	88.42	58.91	1.38	90.95	193.38	88.42
Deflection (Dead Load):	7.88	5.25	0.12	8.10	17.23	7.88
Deflection (Total):	100.24	66.79	1.57	103.10	219.23	100.24
Deflection Check:	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>
Shear, V:	33055.85	33150.57	29551.36	33197.92	33878.74	33055.85
F <sub>v</sub> :	1191.2	997.0	177.8	1538.1	1588.5	1191.2
F' <sub>v</sub> :	621.0	983.3	276.0	333.5	207.0	586.5
	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>



**BEAM CALCULATIONS**  
Summit Powder Mountain RidgeNest 13  
May 2015  
PROJECT #

**FLOOR BEAM**

**B-3**

Calculations for beam with the top end supported

**Beam Information:**

Span: **20.25** ft  
 Number of Trimmers req'd: 1 (Trimmers are 2x members)  
 Beam has floor loads: **Yes**  
 Roof Slope: **6:12**  
 Roof Material: **NS** (S=Slip, NS=Non-Slip)

Beam Type Selection: **2**

**USE:**  
**(2) 1.75 x 11.875 LVL**

Hanger Selected

**Built in Beam Pocket**

**Load Information:**

Roof Dead Load: 12 psf Trib: **0** ft  
 Roof Live Load: 202 psf Trib: **0** ft  
 Floor Dead Load: 30 psf Trib: **2** ft  
 Floor Live Load: 40 psf Trib: **2** ft  
 Point Load (Dead): **0** lbs End Dist: **0** ft  
 Point Load (Live): **0** lbs End Dist: **0** ft  
 Wall Uniform Load: **0** plf  
 Total Uniform Load: 140.0 plf

**Design Values:**

$\Delta L_{Allow}$ :	L/480	0.51 in.				<b>Adjustment Factors</b>	
$\Delta D L_{Allow}$ :	L/240	1.01 in.				Cd = <b>1.0</b>	
	1	2	3	4	5	Cf bend = <b>1.0</b>	
	Sawn Beam	Microlam	Glulam	Parallam	DFL#1 Log	DF#1	Cr = <b>1.0</b>
F <sub>b</sub> :	900	2,600	2,400	2,900	1,200	1,350	Cv = <b>1.0</b>
F <sub>v</sub> :	180	285	240	290	180	170	Ct = <b>1.0</b>
E:	1,600,000	1,900,000	1,800,000	2,000,000	1,800,000	1,600,000	Cm = <b>1.0</b>
							Cl = <b>1.0</b>
							Kl = <b>1.0</b>

**Calculations:**

Moment, M<sub>max</sub>: 7,176 lb-ft  
 Reaction (Near End): 1,417.5 lbs  
 Reaction (Far End): 1,417.5 lbs  
 Shear, V<sub>max</sub>: 1,417.5 lbs

**Beam Properties**

	DF#2	Microlam	Glulam	Parallam	Log	DF#1
Width:	<b>2</b>	<b>1.75</b>	<b>3.125</b>	<b>3.5</b>	<b>8</b>	<b>2</b>
Height:	<b>10</b>	<b>11.875</b>	<b>9</b>	<b>9.25</b>		<b>10</b>
Number of Ply:	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>
Factor F <sub>b</sub> :	900		2400		1200	1350
S <sub>req'd</sub> :	95.68		35.88		71.76	63.79
S <sub>Act</sub> :	64.17		42.19		30.16	64.17
I <sub>Act</sub> :	296.79	488.41	189.84	230.84	120.62	296.79
A <sub>Act</sub> :	41.63	41.56	28.13	32.38	31.99	41.63
M <sub>Allow</sub> :		17850		0		
	<b>Not Ok</b>	<b>OK</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>
Deflection (Live Load):	0.64	0.33	0.89	0.66	1.39	0.64
Deflection (Dead Load):	0.48	0.24	0.66	0.49	1.05	0.48
Deflection (Total):	1.35	0.69	1.88	1.39	2.96	1.35
Deflection Check:	<b>Not Ok</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>
Shear, V:	1300.83	1278.96	1312.50	1309.58	1351.51	1300.83
F <sub>v</sub> :	46.9	46.2	70.0	60.7	63.4	46.9
F' <sub>v</sub> :	540.0	570.0	240.0	290.0	180.0	510.0
	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>



**BEAM CALCULATIONS**  
Summit Powder Mountain RidgeNest 13  
May 2015  
PROJECT #

**FLOOR BEAM**

**B-4**

Calculations for beam with the top end supported

**Beam Information:**

Span: **27.5** ft  
 Number of Trimmers req'd: 2 (Trimmers are 2x members)  
 Beam has floor loads: **No**  
 Roof Slope: **6:12**  
 Roof Material: **NS** (S=Slip, NS=Non-Slip)

Beam Type Selection: **3**

<b>USE:</b>
<b>(1) 8.75 x 24 GLB</b>

Hanger Selected

<b>Built in Beam Pocket</b>
-----------------------------

**Load Information:**

Roof Dead Load: 12 psf Trib: **0** ft  
 Roof Live Load: 202 psf Trib: **0** ft  
 Floor Dead Load: 30 psf Trib: **0** ft  
 Floor Live Load: 40 psf Trib: **0** ft  
 Point Load (Dead): **8,400** lbs End Dist: **10** ft  
 Point Load (Live): **8,400** lbs End Dist: **10** ft  
 Wall Uniform Load: **0.0** plf  
 Total Uniform Load: 0.0 plf

**Design Values:**

$\Delta L_{Allow}$ :	L/240	1.38 in.				<b>Adjustment Factors</b>	
$\Delta D L_{Allow}$ :	L/180	1.83 in.				Cd = <b>1.0</b>	
	1	2	3	4	5	Cf bend = <b>1.0</b>	
	Sawn Beam	Microlam	Glulam	Parallam	DFL#1 Log	DF#1	Cr = <b>1.0</b>
F <sub>b</sub> :	900	2,600	2,400	2,900	1,200	1,350	Cv = <b>1.0</b>
F <sub>v</sub> :	180	285	240	290	180	170	Ct = <b>1.0</b>
E:	1,600,000	1,900,000	1,800,000	2,000,000	1,800,000	1,600,000	Cm = <b>1.0</b>
							Cl = <b>1.0</b>
							Kl = <b>1.0</b>

**Calculations:**

Moment, M<sub>max</sub>: 53,455 lb-ft  
 Reaction (Near End): 5,345.5 lbs  
 Reaction (Far End): 3,054.5 lbs  
 Shear, V<sub>max</sub>: 5,345.5 lbs

**Beam Properties**

	DF#2	Microlam	Glulam	Parallam	Log	DF#1
Width:	<b>2</b>	<b>1.75</b>	<b>8.75</b>	<b>3.5</b>	<b>8</b>	<b>2</b>
Height:	<b>10</b>	<b>9.5</b>	<b>24</b>	<b>9.25</b>		<b>10</b>
Number of Ply:	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>
Factor F <sub>b</sub> :	900		2400		1200	1350
S <sub>req'd</sub> :	712.73		267.27		534.55	475.15
S <sub>Act</sub> :	64.17		840.00		30.16	64.17
I <sub>Act</sub> :	296.79	375.10	10080.00	230.84	120.62	296.79
A <sub>Act</sub> :	41.63	49.88	210.00	32.38	31.99	41.63
M <sub>Allow</sub> :		17655		0		
	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>
Deflection (Live Load):	1.00	0.67	0.03	1.03	2.18	1.00
Deflection (Dead Load):	0.00	0.00	0.00	0.00	0.00	0.00
Deflection (Total):	1.00	0.67	0.03	1.03	2.18	1.00
Deflection Check:	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>Not Ok</b>	<b>OK</b>
Shear, V:	5021.49	5037.69	4567.93	5045.79	5162.22	5021.49
F <sub>v</sub> :	181.0	151.5	32.6	233.8	242.1	181.0
F' <sub>v</sub> :	540.0	855.0	240.0	290.0	180.0	510.0
	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>Not Ok</b>	<b>OK</b>





**BEAM CALCULATIONS**  
Summit Powder Mountain RidgeNest 13  
May 2015  
PROJECT #

**ENTRY BEAM**

**B-5**

Calculations for beam with the top end supported

**Beam Information:**

Span: **15** ft  
 Number of Trimmers req'd: 2 (Trimmers are 2x members)  
 Beam has floor loads: **No**  
 Roof Slope: **6:12**  
 Roof Material: **NS** (S=Slip, NS=Non-Slip)

Beam Type Selection: **1**

**USE:**  
**(1) 12 x 12 DF-L #1**

**Load Information:**

Roof Dead Load: 12 psf Trib: **4** ft  
 Roof Live Load: 202 psf Trib: **4** ft  
 Floor Dead Load: 30 psf Trib: **0** ft  
 Floor Live Load: 40 psf Trib: **0** ft  
 Point Load (Dead): lbs End Dist: ft  
 Point Load (Live): lbs End Dist: ft  
 Wall Uniform Load: plf  
 Total Uniform Load: 854.1 plf

Hanger Selected

**Built in Beam Pocket**

**Design Values:**

$\Delta L_{Allow}$ :	L/240	0.75 in.				<b>Adjustment Factors</b>	
$\Delta D L_{Allow}$ :	L/180	1.00 in.				Cd = <b>1.0</b>	
	1	2	3	4	5	Cf bend = <b>1.0</b>	
	Sawn Beam	Microlam	Glulam	Parallam	DFL#1 Log	DF#1	Cr = <b>1.0</b>
F <sub>b</sub> :	1,350	2,600	2,400	2,900	1,200	1,350	Cv = <b>1.0</b>
F <sub>v</sub> :	170	285	240	290	180	170	Ct = <b>1.0</b>
E:	1,600,000	1,900,000	1,800,000	2,000,000	1,800,000	1,600,000	Cm = <b>1.0</b>
							Cl = <b>1.0</b>
							Kl = <b>1.0</b>

**Calculations:**

Moment, M<sub>max</sub>: 24,020 lb-ft  
 Reaction (Near End): 6,405.4 lbs  
 Reaction (Far End): 6,405.4 lbs  
 Shear, V<sub>max</sub>: 6,405.4 lbs

**Beam Properties**

	1	2	3	4	5	6
	DF#2	Microlam	Glulam	Parallam	Log	DF#1
Width:	<b>12</b>	<b>1.75</b>	<b>3.125</b>	<b>3.5</b>	<b>8</b>	<b>10</b>
Height:	<b>12</b>	<b>9.5</b>	<b>9</b>	<b>9.25</b>		<b>12</b>
Number of Ply:	<b>1</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
Factor F <sub>b</sub> :	1350		2400		1200	1350
S <sub>req'd</sub> :	213.51		120.10		240.20	213.51
S <sub>Act</sub> :	242.58		42.19		30.16	200.39
I <sub>Act</sub> :	1364.50	375.10	189.84	230.84	120.62	1127.20
A <sub>Act</sub> :	129.38	49.88	28.13	32.38	31.99	106.88
M <sub>Allow</sub> :		17655		0		
	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>
Deflection (Live Load):	0.42	1.29	2.69	1.99	4.23	0.51
Deflection (Dead Load):	0.03	0.08	0.16	0.12	0.25	0.03
Deflection (Total):	0.46	1.40	2.93	2.17	4.61	0.55
Deflection Check:	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>
Shear, V:	5551.33	5729.26	5764.85	5747.05	6002.84	5551.33
F <sub>v</sub> :	64.4	172.3	307.5	266.3	281.5	77.9
F' <sub>v</sub> :	170.0	855.0	240.0	290.0	180.0	170.0
	<b>OK</b>	<b>OK</b>	<b>Not Ok</b>	<b>OK</b>	<b>Not Ok</b>	<b>OK</b>



**COLUMN CALCULATIONS**  
 Summit Powder Mountain RidgeNest 13  
 May 2015  
 PROJECT #

**(1) 9in x 6in DF-L #2**

(C-1)

Calculations for Pinned-Pinned column

**Column Properties:**

Unsupported Length:	130	inches
Load:	34,717	lbs
Column Material:	DF-L #2	
Column Ply:	1	
Width:	9	in (Actual)
Depth:	5.5	in (Actual)
Area:	49.50	in <sup>2</sup>
Log Column?:	No	

**USE:**

**(1) 9in x 6in DF-L #2**

**Base and Cap**

None

F <sub>c</sub> :	1350	psi, (Table 4A, 2005 NDS Supplement)
E:	1600000	psi, (Table 4A, 2005 NDS Supplement)
E <sub>min</sub> :	580000	psi, (Table 4A, 2005 NDS Supplement)

**Load Factors:**

C <sub>d</sub>	1	(Pg 8, 2005 NDS)
C <sub>m</sub>	1	(Pg 24, 2005 NDS)
C <sub>t</sub>	1	(Pg 9, 2005 NDS)
C <sub>f</sub>	1	(Pg 27, 2005 NDS)
C <sub>i</sub>	1	(Pg 27, 2005 NDS)
C <sub>p</sub>	0.520	(Pg 19, 2005 NDS)
K <sub>c</sub>	1	(Pg 156, 2005 NDS)

**Calculations:**

l <sub>e</sub> :	130	in
(le/d):	23.64	
E <sub>min</sub> :	580000	psi
F <sub>ce</sub> :	853.4	psi
F* <sub>c</sub> :	1350	psi
F <sub>ce</sub> /F* <sub>c</sub> :	0.632	
F <sub>c</sub> :	701.56	psi
A <sub>req'd</sub> :	49.49	in <sup>2</sup>
<b>P<sub>max</sub>:</b>	<b>34,727</b>	<b>lb/ft</b> <b>OK</b>



**COLUMN CALCULATIONS**  
 Summit Powder Mountain RidgeNest 13  
 May 2015  
 PROJECT #

**(1) 6in x 9in 1.8E Parallam PSL**

(C-2)

Calculations for Pinned-Pinned column

**Column Properties:**

Unsupported Length:	<b>108</b>	inches
Load:	<b>107,851</b>	lbs
Column Material:	<b>1.8E Parallam PSL</b>	
Column Ply:	<b>1</b>	
Width:	<b>5.5</b>	in (Actual)
Depth:	<b>9</b>	in (Actual)
Area:	49.50	in <sup>2</sup>
Log Column?:	No	

<b>USE:</b>
<b>(1) 6in x 9in 1.8E Parallam PSL</b>

**Base and Cap**

<b>None</b>
-------------

F <sub>c</sub> :	2500	psi, (Table 4A, 2005 NDS Supplement)
E:	1800000	psi, (Table 4A, 2005 NDS Supplement)
E <sub>min</sub> :	900000	psi, (Table 4A, 2005 NDS Supplement)

**Load Factors:**

C <sub>d</sub>	1	(Pg 8, 2005 NDS)
C <sub>m</sub>	1	(Pg 24, 2005 NDS)
C <sub>t</sub>	1	(Pg 9, 2005 NDS)
C <sub>f</sub>	1	(Pg 27, 2005 NDS)
C <sub>i</sub>	1	(Pg 27, 2005 NDS)
C <sub>p</sub>	0.872	(Pg 19, 2005 NDS)
K <sub>c</sub>	1	(Pg 156, 2005 NDS)

**Calculations:**

l <sub>e</sub> :	108	in
(le/d):	12.00	
E <sub>min</sub> :	900000	psi
F <sub>ce</sub> :	5137.5	psi
F* <sub>c</sub> :	2500	psi
F <sub>ce</sub> /F* <sub>c</sub> :	2.055	
F <sub>c</sub> :	2179.02	psi
A <sub>req'd</sub> :	49.50	in <sup>2</sup>
<b>P<sub>max</sub>:</b>	<b>107,861</b>	<b>lb/ft</b> <b>OK</b>



**FOOTING CALCULATIONS**  
Summit Powder Mountain Ridge Nest 13  
May 2015  
PROJECT #

**24 in Strip Footing**

**F-1**

**Footing Information:**

Footing Thickness: **10** in.  
 Footing Width: **24** in.  
 Footing Depth: **Cont** in.  
  
 Wall Thickness: **8** in.  
 Wall Height: **4** ft.  
 Depth Below Grade: **3** ft.

**USE:**  
  
**24in x 10in x Cont Footing**  
**w/ (2) #4 bar**

**Design Properties:**

Compressive Strength,  $f_c$ : **3,000** psi  
 Soil Pressure,  $q_a$ : **4,000** psf (Table R401.4.1)  
 Soil Type: **Sedimentary & Foliated Rock**  
 Soil Density,  $\gamma_s$ : **120** pcf

**Load Information:**

Live Load: **1,200** plf  
 Dead Load: **400** plf

**Calculations:**

Width Req'd: 5.4 in. **OK**  
 $q_n$ : 3,555.0 psf  
 $q_{nu}$ : 5,332.5 psf  
 $d$ : 6.8 in.  
 $v_{Trib}$ : 1.3 in.  
 $v_{Trib2}$ : 0.7 ft  
 $V_u$ : 555 lbs  
 $\phi V_c$ : 4,437 lbs **OK**  
  
 $M_u$ : 1.19 k-ft  
 $A_s$ : 0.04 in.<sup>2</sup>  
 [GOVERNS]  $A_{s_{min}}$ : 0.14 in.<sup>2</sup>  
 $a$ : 1.18 in.  
 $\phi M_n$ : 11.09 k-ft **OK**  
 $\epsilon_t$ : 0.013 in/in **OK**

**Reinforcement:**

Steel Strength: **60** ksi  
 Cover: **3** in.

**Transverse:**

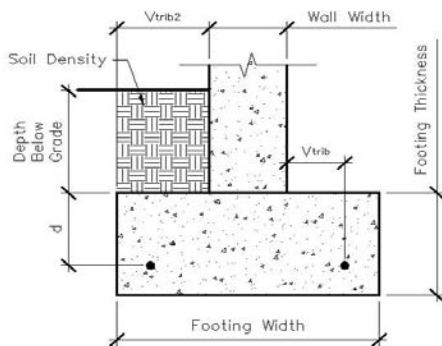
Bar Size: **#4**  
 Bar Count: **2**  
 Spacing: 7.00 in. O.C.  
 $A_{s_{Act}}$ : 0.40 in.<sup>2</sup> **OK**

**Longitudinal:**

Bar Size: **#4**  
 Spacing: **7** in. O.C. **OK**  
 $A_s$ : **0.40** in.<sup>2</sup> **OK**  
 Bar Count: **2**

**Development Length:**

$l_d$ : **21.9** in.  
 $\alpha$ : 1  
 $\beta$ : 1  
 $\gamma$ : 1  
 $d_b$ : 0.5 in.  
 Factor: 25



**TABLE R401.4.1**  
**PRESUMPTIVE LOAD-BEARING VALUES OF**  
**FOUNDATION MATERIALS**

CLASS OF MATERIAL	LOAD BEARING PRESSURE (PSF)
Crystalline Bedrock	12000
Sedimentary and Foliated Rock	4000
Sandy Gravel and/or Gravel (GW & GP)	3000
Sand, silty sand, clayey sand, silty gravel, and clayey gravel (SW, SP, SM, SC, GM & GC)	2000
Clay, sandy clay, silty clay, clayey silt, silt & sandy silt (CL, ML, MH, & CH)	1500
Geotechnical Soils Report	



**FOOTING CALCULATIONS**  
Summit Powder Mountain Ridge Nest 13  
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PROJECT #

**42 in x 42 in Spot Footing**

**F-2**

**Footing Information:**

Footing Thickness:	<b>10</b>	in.
Footing Width:	<b>42</b>	in.
Footing Depth:	<b>42</b>	in.
Area:	12.25	ft <sup>2</sup>
Column Thickness:	<b>24</b>	in.
Column Height:	<b>8</b>	ft.
Depth Below Grade:	<b>3</b>	ft.

<b>USE:</b>
<b>42in x 42in x 10in Footing w/ (4) #4 bar each way</b>

**Design Properties:**

Compressive Strength, $f_c$ :	<b>3,000</b>	psi
Soil Pressure, $q_a$ :	<b>4,000</b>	psf (Table R401.4.1)
Soil Type:	Sedimentary & Foliated Rock	
Soil Density, $\gamma_s$ :	<b>120</b>	pcf

**Load Information:**

Live Load:	<b>18,000</b>	lbs
Dead Load:	<b>6,000</b>	lbs

**Calculations:**

$A_{req'd}$ :	7.7	ft <sup>2</sup>	<b>OK</b>
$q_n$ :	3,123.2	psf	
$q_{nu}$ :	2,938.8	psf	
$d$ :	6.8	in.	
$v_{Trib}$ :	2.3	in.	
$v_{Trib2}$ :	0.8	ft	
$V_u$ :	16,703	lbs	
$\phi V_c$ :	136,424	lbs	<b>OK</b>
$b_o$ :	123.0	in.	
$M_u$ :	2.89	k-ft	
$A_s$ :	0.11	in. <sup>2</sup>	
[GOVERNS] $A_{s,min}$ :	0.76	in. <sup>2</sup>	
$a$ :	0.78	in.	
$\phi M_n$ :	22.89	k-ft	<b>OK</b>
$\epsilon_t$ :	0.021	in/in	<b>OK</b>

**Reinforcement:**

Steel Strength:	<b>60</b>	ksi
Cover:	<b>3</b>	in.

**Transverse:**

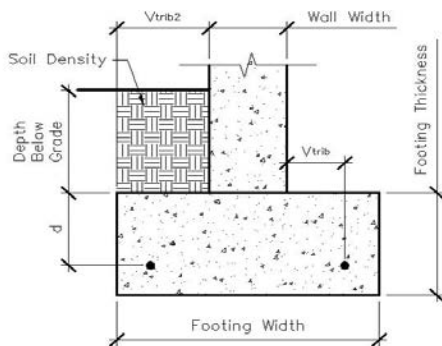
Bar Size:	<b>#4</b>	
Bar Count:	<b>4</b>	
Spacing:	7.00	in. O.C.
$A_{s,Act}$ :	0.80	in. <sup>2</sup> <b>OK</b>

**Longitudinal:**

Bar Size:	<b>#4</b>	
Spacing:	<b>7</b>	in. O.C. <b>OK</b>
$A_s$ :	<b>0.80</b>	in. <sup>2</sup> <b>OK</b>
	<b>4</b>	

**Development Length:**

$l_d$ :	<b>21.9</b>	in.
$\alpha$ :	1	
$\beta$ :	1	
$\gamma$ :	1	
$d_b$ :	0.5	in.
Factor:	25	



**TABLE R401.4.1  
PRESUMPTIVE LOAD-BEARING VALUES OF  
FOUNDATION MATERIALS**

CLASS OF MATERIAL	LOAD BEARING PRESSURE (PSF)
Crystalline Bedrock	12000
Sedimentary and Foliated Rock	4000
Sandy Gravel and/or Gravel (GW & GP)	3000
Sand, silty sand, clayey sand, silty gravel, and clayey gravel (SW, SP, SM, SC, GM & GC)	2000
Clay, sandy clay, silty clay, clayey silt, silt & sandy silt (CL, ML, MH, & CH)	1500
Geotechnical Soils Report	



**FOOTING CALCULATIONS**  
Summit Powder Mountain Ridge Nest 13  
May 2015  
PROJECT #

**48 in x 48 in Spot Footing**

**F-3**

**Footing Information:**

Footing Thickness:	<b>10</b>	in.
Footing Width:	<b>48</b>	in.
Footing Depth:	<b>48</b>	in.
Area:	16.00	ft <sup>2</sup>
Column Thickness:	<b>24</b>	in.
Column Height:	<b>4</b>	ft.
Depth Below Grade:	<b>3</b>	ft.

<b>USE:</b>
<b>48in x 48in x 10in Footing w/ (5) #4 bar each way</b>

**Design Properties:**

Compressive Strength, $f_c$ :	<b>3,000</b>	psi
Soil Pressure, $q_a$ :	<b>4,000</b>	psf (Table R401.4.1)
Soil Type:	Sedimentary & Foliated Rock	
Soil Density, $\gamma_s$ :	<b>120</b>	pcf

**Load Information:**

Live Load:	<b>33,750</b>	lbs
Dead Load:	<b>11,250</b>	lbs

**Calculations:**

A req'd:	13.4	ft <sup>2</sup>	<b>OK</b>
$q_n$ :	3,365.0	psf	
$q_{nu}$ :	4,218.8	psf	
d:	6.8	in.	
$v_{Trib}$ :	5.3	in.	
$v_{Trib2}$ :	1.0	ft	
$V_u$ :	39,798	lbs	
$\phi V_c$ :	136,424	lbs	<b>OK</b>
$b_o$ :	123.0	in.	
$M_u$ :	8.44	k-ft	
$A_s$ :	0.31	in. <sup>2</sup>	
[GOVERNS] $A_{s,min}$ :	0.86	in. <sup>2</sup>	
a:	0.98	in.	
$\phi M_n$ :	28.17	k-ft	<b>OK</b>
$\epsilon_t$ :	0.016	in/in	<b>OK</b>

**Reinforcement:**

Steel Strength:	<b>60</b>	ksi
Cover:	<b>3</b>	in.

**Transverse:**

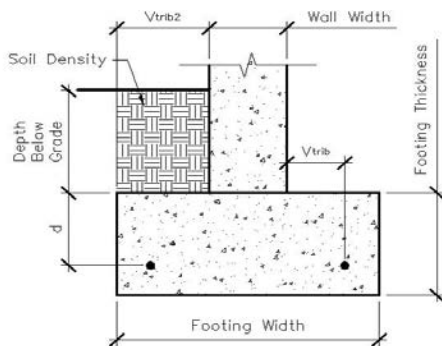
Bar Size:	<b>#4</b>	
Bar Count:	<b>5</b>	
Spacing:	7.00	in. O.C.
$A_{s,Act}$ :	1.00	in. <sup>2</sup> <b>OK</b>

**Longitudinal:**

Bar Size:	<b>#4</b>	
Spacing:	<b>7</b>	in. O.C. <b>OK</b>
$A_s$ :	<b>1.00</b>	in. <sup>2</sup> <b>OK</b>
	<b>5</b>	

**Development Length:**

$l_d$ :	<b>21.9</b>	in.
$\alpha$ :	1	
$\beta$ :	1	
$\gamma$ :	1	
$d_b$ :	0.5	in.
Factor:	25	



**TABLE R401.4.1  
PRESUMPTIVE LOAD-BEARING VALUES OF  
FOUNDATION MATERIALS**

CLASS OF MATERIAL	LOAD BEARING PRESSURE (PSF)
Crystalline Bedrock	12000
Sedimentary and Foliated Rock	4000
Sandy Gravel and/or Gravel (GW & GP)	3000
Sand, silty sand, clayey sand, silty gravel, and clayey gravel (SW, SP, SM, SC, GM & GC)	2000
Clay, sandy clay, silty clay, clayey silt, silt & sandy silt (CL, ML, MH, & CH)	1500
Geotechnical Soils Report	





**JOIST CALCULATIONS**  
 Summit Powder Mountain RidgeNest 13  
 May 2015  
 PROJECT #

**UPSTAIRS FLOOR JOISTS**

**FJ-1**

Calculations for floor joist with the top end supported

**Joist Information:**

Span: **20** ft  
 $\Delta L_{Allow}$ : L/460 0.52 in.  
 $\Delta D_{Allow}$ : L/240 1.00 in.

Joist Type Selection: **1**

**USE:**  
**(1) 11.875in 360 TJI Joist(s) @**  
**16in O.C.**

**Load Information:**

Floor Dead Load: 30 psf  
 Floor Live Load: 40 psf  
 Point Load (Dead): lbs End Dist: ft  
 Point Load (Live): lbs End Dist: ft  
 Wall Uniform Load: plf  
 Total Uniform Load: 0.0 plf

Hanger: none

**Design Values:**

	1	2	3	4	5	6	7	Adjustment Factors	
	TJI-1	TJI-2	RFPI-1	RFPI-2	LVL	DF#2	DF LOG	Cd =	Kl =
$F_b$ :	NA	NA	NA	NA	1,200	900	1,850	1.0	1.0
$F_v$ :	NA	NA	NA	NA	180	180	115	1.0	1.0
E/EI:	4.19E+08	1.57E+08	6.18E+06	6.18E+06	1,800,000	1,600,000	1,500,000	1.0	1.0

**Calculations:**

Uniform Load:	93.3	112.0	93.3	140.0	93.3	93.3	210.0	plf
Moment, $M_{max}$ :	4,667	5,600	4,667	7,000	4,667	4,667	10,500	lb-ft
Reaction (Near End):	933.3	1,120.0	933.3	1,400.0	933.3	933.3	2,100.0	lbs
Reaction (Far End):	933.3	1,120.0	933.3	1,400.0	933.3	933.3	2,100.0	lbs
Shear, $V_{max}$ :	933.3	1,120.0	933.3	1,400.0	933.3	933.3	2,100.0	lbs

**Properties**

	1	2	3	4	5	6	7
	TJI-1	TJI-2	RFPI-1	RFPI-2	LVL	DF#2	DF LOG
Depth/Diam:	11.875	9.5	11.875	11.875	5.5	6	10
Width/Grade:	360	110	RFPI 40	RFPI 70	1.75	2	
Joist Ply:	1	1	1	1	1	1	1
Joist Spacing:	16	19.2	16	24	16	16	36
Factor $F_b$ :						900	1850
$S_{req'd}$ :						62.22	68.11
$S_{Act}$ :						6.89	98.17
$I_{Act}$ :					24.26	18.09	490.87
$A_{Act}$ :					9.63	7.88	78.54
$M_{Allow}$ :	6180.0	2500.0	3545.0	6595.0	2125		
	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>
Deflection (Live Load):	0.51	1.54	0.62	0.75	4.40	6.63	0.59
Deflection (Dead Load):	0.38	1.15	0.47	0.56	3.30	4.98	0.44
Deflection (Total):	1.08	3.27	1.32	1.59	9.34	14.10	1.25
Deflection Check:	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>
Shear, V:	1705.0	1220.0	1420.0	1420.0	1830.00	886.67	1925.00
$F_v$ :						168.9	36.8
$F_v$ :						180.0	115.0
	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>



**JOIST CALCULATIONS**  
Summit Powder Mountain RidgeNest 13  
May 2015  
PROJECT #

**MAIN FLOOR JOISTS**

**FJ-2**

Calculations for floor joist with the top end supported

**Joist Information:**

Span: **16.75** ft  
 $\Delta L_{Allow}$ : L/480      0.42 in.  
 $\Delta D_{Allow}$ : L/240      0.84 in.

Joist Type Selection: **1**

**USE:**  
**(1) 14in 210 TJI Joist(s) @**  
**16in O.C.**

**Load Information:**

Floor Dead Load: 30 psf  
Floor Live Load: 40 psf  
Point Load (Dead):      lbs      End Dist:      ft  
Point Load (Live):      lbs      End Dist:      ft  
Wall Uniform Load:      plf  
Total Uniform Load: 0.0 plf

Hanger  
**none**

**Design Values:**

	1	2	3	4	5	6	7	Adjustment Factors	
	TJI-1	TJI-2	RFPI-1	RFPI-2	LVL	DF#2	DF LOG	Cd =	
$F_b$ :	NA	NA	NA	NA	1,200	900	1,850	Cf bend =	1.0
$F_v$ :	NA	NA	NA	NA	180	180	115	Cr =	1.0
E/EI:	4.62E+08	1.57E+08	6.18E+06	6.18E+06	1,800,000	1,600,000	1,500,000	Cv =	1.0
			3.30E+08	4.20E+08				Ct =	1.0
								Cm =	1.0
								Cl =	1.0
								Kl =	1.0

**Calculations:**

Uniform Load:	93.3	112.0	93.3	140.0	93.3	93.3	210.0	plf
Moment, $M_{max}$ :	3,273	3,928	3,273	4,910	3,273	3,273	7,365	lb-ft
Reaction (Near End):	781.7	938.0	781.7	1,172.5	781.7	781.7	1,758.8	lbs
Reaction (Far End):	781.7	938.0	781.7	1,172.5	781.7	781.7	1,758.8	lbs
Shear, $V_{max}$ :	781.7	938.0	781.7	1,172.5	781.7	781.7	1,758.8	lbs

**Properties**

	1	2	3	4	5	6	7
	TJI-1	TJI-2	RFPI-1	RFPI-2	LVL	DF#2	DF LOG
Depth/Diam:	14	9.5	11.875	11.875	5.5	8	10
Width/Grade:	210	110	RFPI 40	RFPI 70	1.75	2	
Joist Ply:	1	1	1	1	1	1	1
Joist Spacing:	16	19.2	16	24	16	16	36
Factor $F_b$ :						900	1850
$S_{req'd}$ :						43.64	47.77
$S_{Act}$ :						13.14	98.17
$I_{Act}$ :					24.26	47.63	490.87
$A_{Act}$ :					9.63	10.88	78.54
$M_{Allow}$ :	4490.0	2500.0	3545.0	6595.0	2125		
	<b>OK</b>	<b>Not Ok</b>	<b>OK</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>
Deflection (Live Load):	0.23	0.77	0.32	0.38	2.16	1.24	0.29
Deflection (Dead Load):	0.17	0.58	0.24	0.29	1.62	0.93	0.22
Deflection (Total):	0.50	1.64	0.67	0.81	4.60	2.63	0.61
Deflection Check:	<b>OK</b>	<b>Not Ok</b>	<b>OK</b>	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>
Shear, $V$ :	1945.0	1220.0	1420.0	1420.0	1830.00	719.44	1583.75
$F_v$ :						99.2	30.2
$F_v$ :						180.0	115.0
	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>



**JOIST CALCULATIONS**  
 Summit Powder Mountain RidgeNest 13  
 May 2015  
 PROJECT #

**ENTRY JOISTS**

**FJ-3**

Calculations for floor joist with the top end supported

**Joist Information:**

Span: **14** ft  
 $\Delta L_{Allow}$ : L/480      0.35 in.  
 $\Delta D_{Allow}$ : L/240      0.70 in.

Joist Type Selection: **6**

**USE:**  
**(1) 4in x 12in DF#2 Joists(s) @**  
**12in O.C.**

**Load Information:**

Floor Dead Load: 15 psf  
 Floor Live Load: 190 psf  
 Point Load (Dead):      lbs      End Dist:      ft  
 Point Load (Live):      lbs      End Dist:      ft  
 Wall Uniform Load:      plf  
 Total Uniform Load: 0.0 plf

Hanger  
none

**Design Values:**

	1	2	3	4	5	6	7	<b>Adjustment Factors</b>	
	TJI-1	TJI-2	RFPI-1	RFPI-2	LVL	DF#2	DF LOG	Cd =	1.0
$F_b$ :	NA	NA	NA	NA	1,200	900	1,850	Cf bend =	1.0
$F_v$ :	NA	NA	NA	NA	180	180	115	Cr =	1.0
E/EI:	1.57E+08	1.57E+08	6.18E+06	6.18E+06	1,800,000	1,600,000	1,500,000	Cv =	1.0
			3.30E+08	4.20E+08				Ct =	1.0
								Cm =	1.0
								Cl =	1.0
								Kl =	1.0

**Calculations:**

	1	2	3	4	5	6	7
	TJI-1	TJI-2	RFPI-1	RFPI-2	LVL	DF#2	DF LOG
Uniform Load:	273.3	328.0	273.3	410.0	273.3	205.0	615.0 plf
Moment, $M_{max}$ :	6,697	8,036	6,697	10,045	6,697	5,023	15,068 lb-ft
Reaction (Near End):	1,913.3	2,296.0	1,913.3	2,870.0	1,913.3	1,435.0	4,305.0 lbs
Reaction (Far End):	1,913.3	2,296.0	1,913.3	2,870.0	1,913.3	1,435.0	4,305.0 lbs
Shear, $V_{max}$ :	1,913.3	2,296.0	1,913.3	2,870.0	1,913.3	1,435.0	4,305.0 lbs

**Properties**

	1	2	3	4	5	6	7
	TJI-1	TJI-2	RFPI-1	RFPI-2	LVL	DF#2	DF LOG
Depth/Diam:	9.5	9.5	11.875	11.875	5.5	12	10
Width/Grade:	110	110	RFPI 40	RFPI 70	1.75	4	
Joist Ply:	1	1	1	1	1	1	1
Joist Spacing:	16	19.2	16	24	16	12	36
Factor $F_b$ :						900	1850
$S_{req'd}$ :						66.97	97.74
$S_{Act}$ :						73.83	98.17
$I_{Act}$ :					24.26	415.28	490.87
$A_{Act}$ :					9.63	39.38	78.54
$M_{Allow}$ :	2500.0	2500.0	3545.0	6595.0	2125		
	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	OK	OK
Deflection (Live Load):	1.53	1.84	0.76	0.93	5.01	0.25	0.67
Deflection (Dead Load):	0.12	0.15	0.06	0.07	0.40	0.02	0.05
Deflection (Total):	1.72	2.06	0.85	1.04	5.61	0.28	0.75
Deflection Check:	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	OK	Not Ok
Shear, V:	1220.0	1220.0	1420.0	1420.0	1830.00	1230.00	3792.50
$F_v$ :						46.9	72.4
$F_v$ :						180.0	115.0
	Not Ok	Not Ok	Not Ok	Not Ok	Not Ok	OK	OK



**RAFTER CALCULATIONS**  
Summit Powder Mountain RidgeNest 13  
May 2015  
PROJECT #

**ROOF RAFTERS**

**RR-1**

Calculations for Roof Rafter with the top end supported

**Rafter Information:**

Span: **20** ft  
Roof Slope: **6:12**  
Roof Material: **S** (S=Slip, NS=Non-Slip)

Rafter Type Selection: **1**

**USE:**  
**(1) 16in 360 TJI Joist(s) @**  
**12in O.C.**

**Load Information:**

Roof Dead Load: 12 psf  
Roof Live Load: 135 psf

Hanger

none

Point Load (Dead):  lbs      End Dist:  ft  
Point Load (Live):  lbs      End Dist:  ft  
Wall Uniform Load:  plf  
Total Uniform Load: 0.0 plf

**Design Values:**

	1	2	3	4	5	6	7	Adjustment Factors
$\Delta L_{Allow}$ :	L/240							Cd = <b>1.0</b>
$\Delta D L_{Allow}$ :	L/180							Cf bend = <b>1.0</b>
	TJI-1	TJI-2	RFPI-1	RFPI-2	LVL	DF#2	DF LOG	Cr = <b>1.0</b>
$F_b$ :	NA	NA	NA	NA	1,200	900	1,850	Cv = <b>1.0</b>
$F_v$ :	NA	NA	NA	NA	180	180	115	Ct = <b>1.0</b>
			4.94E+06	6.18E+06				Cm = <b>1.0</b>
E/EI:	8.30E+08	1.57E+08	1.45E+08	4.20E+08	1,800,000	1,600,000	1,500,000	Cl = <b>1.0</b>
								Kl = <b>1.0</b>

**Calculations:**

Uniform Load:	146.7	293.3	293.3	293.3	293.3	293.3	440.0	plf
Moment, $M_{max}$ :	7,333	14,666	14,666	14,666	14,666	14,666	21,999	lb-ft
Reaction (Near End):	1,466.6	2,933.1	2,933.1	2,933.1	2,933.1	2,933.1	4,399.7	lbs
Reaction (Far End):	1,466.6	2,933.1	2,933.1	2,933.1	2,933.1	2,933.1	4,399.7	lbs
Shear, $V_{max}$ :	1,466.6	2,933.1	2,933.1	2,933.1	2,933.1	2,933.1	4,399.7	lbs

**Properties**

	1	2	3	4	5	6	7
	TJI-1	TJI-2	RFPI-1	RFPI-2	LVL	DF#2	DF LOG
Depth/Diam:	16	9.5	9.5	11.875	9.5	10	10
Width/Grade:	360	110	RFPI 20	RFPI 70	1.75	2	
Joist Ply:	1	1	1	1	1	1	1
Joist Spacing:	12	24	24	24	24	24	36
Factor $F_b$ :						900	1850
$S_{req'd}$ :						195.54	142.69
$S_{Act}$ :						21.39	98.17
$I_{Act}$ :					125.03	98.93	490.87
$A_{Act}$ :					16.63	13.88	78.54
$M_{Allow}$ :	8405.0	2500.0	2520.0	6595.0	5885		
	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>
Deflection (Live Load):	0.67	6.48	6.95	2.52	4.31	6.12	1.98
Deflection (Dead Load):	0.06	0.58	0.62	0.22	0.38	0.55	0.18
Deflection (Total):	0.76	7.34	7.88	2.85	4.88	6.94	2.24
Deflection Check:	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>
Shear, V:	2190.0	1220.0	1120.0	1420.0	3160.00	2688.71	4033.06
$F_v$ :						290.7	77.0
$F_v$ :						180.0	115.0
	<b>OK</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>Not Ok</b>	<b>OK</b>	<b>Not Ok</b>	<b>OK</b>



**STEEL BEAM CALCULATIONS**

Summit Powder Mountain Ridge Nest 13

May 2015

PROJECT #

**B-2 STEEL OPTION**

**SB-1**

For Steel Beam With Top End Supported for a uniform loaded beam LRFD Design

**Beam Information:**

Span:	31	ft	
Number of Trimmers req'd:	column		(Trimmers are 2x members)
Beam has floor loads:	No		
Roof Slope:	6:12		
Roof Material:	S		(S=Slip, NS=Non-Slip)

<b>USE:</b>
<b>Use a W24x62 50</b>
<b>ksi Steel Beam</b>

**Connection**

<b>Built in Beam Pocket</b>
-----------------------------

**Load Information:**

Roof Dead Load:	12	psf	Trib:	16	ft
Roof Live Load:	135	psf	Trib:	16	ft
Floor Dead Load:	30	psf	Trib:		ft
Floor Live Load:	40	psf	Trib:		ft
Point Load (Dead):		lbs	End Dist:		ft
Point Load (Live):		lbs	End Dist:		ft
Wall Uniform Load:		plf			
Total Distributed Load, W:	2346.51	plf			

**Calculations:**

Factored Distributed Load, $W_U$ :	3.68	K/ft
Moment, $M_U$ :	441.77	kip-ft
$Z_x$ :	117.81	in <sup>3</sup>
Reaction (Near End):	36,370.9	lbs
Reaction (Far End):	36,370.9	lbs
Shear, $V_{max}$ :	36,370.9	lbs

**Deflection:**

$\Delta LL_{Allow}$ :	0.78	in.	L/480
$\Delta TL_{Allow}$ :	1.55	in.	L/240
$\Delta LL_{Act}$ :	0.74	in.	<b>OK</b>
$\Delta TL_{Act}$ :	0.82	in.	<b>OK</b>

**Steel Beam Properties**

Beam Section:	<b>W24x062</b>		
Beam Shape:	W		
Depth, d:	23.7	in	
Beam Weight	62	plf	
Steel Strength, $f_y$ :	<b>50</b>	ksi	
Width, $b_f$ :	7.04	in	
$Z_x$ :	200	in <sup>3</sup>	<b>OK</b>
$I_x$ :	2100	in <sup>4</sup>	
$\Phi_b M_p$ :	750	kip-ft	<b>OK</b>
Beam Size:	W24x62		



**STEEL BEAM CALCULATIONS**

Summit Powder Mountain Ridge Nest 13

May 2015

PROJECT #

**B-4 STEEL OPTION**

**SB-2**

For Steel Beam With Top End Supported for a uniform loaded beam LRFD Design

**Beam Information:**

Span:	27.25	ft
Number of Trimmers req'd:	column	(Trimmers are 2x members)
Beam has floor loads:	Yes	
Roof Slope:		
Roof Material:	NS	(S=Slip, NS=Non-Slip)

<b>USE:</b>
<b>Use a W10x77 50</b>
<b>ksi Steel Beam</b>

**Connection**

<b>Built in Beam Pocket</b>
-----------------------------

**Load Information:**

Roof Dead Load:	12	psf	Trib:	0	ft
Roof Live Load:	202	psf	Trib:	0	ft
Floor Dead Load:	30	psf	Trib:	6.0	ft
Floor Live Load:	40	psf	Trib:	6.0	ft
Point Load (Dead):		lbs	End Dist:		ft
Point Load (Live):	8,400	lbs	End Dist:	10	ft
Wall Uniform Load:		plf			
Total Distributed Load, W:	420.00	plf			

**Calculations:**

Factored Distributed Load, $W_U$ :	0.60	K/ft
Moment, $M_U$ :	55.69	kip-ft
$Z_x$ :	14.85	in <sup>3</sup>
Reaction (Near End):	11,039.9	lbs
Reaction (Far End):	8,805.1	lbs
Shear, $V_{max}$ :	11,039.9	lbs

**Deflection:**

$\Delta L_{Allow}$ :	0.68	in.	L/480
$\Delta T_{Allow}$ :	1.36	in.	L/240
$\Delta L_{Act}$ :	0.65	in.	<b>OK</b>
$\Delta T_{Act}$ :	0.47	in.	<b>OK</b>

**Steel Beam Properties**

Beam Section:	<b>W10x077</b>	
Beam Shape:	W	
Depth, d:	10.6	in
Beam Weight	77	plf
Steel Strength, $f_y$ :	<b>50</b>	ksi
Width, $b_f$ :	10.2	in
$Z_x$ :	97.6	in <sup>3</sup> <b>OK</b>
$I_x$ :	455	in <sup>4</sup>
$\Phi_b M_p$ :	366	kip-ft <b>OK</b>
Beam Size:	W10x77	





**STEEL BEAM CALCULATIONS**

Summit Powder Mountain Ridge Nest 13

May 2015

PROJECT #

**FLOOR BEAM**

**SB-3**

For Steel Beam With Top End Supported for a uniform loaded beam LRF Design

**Beam Information:**

Span:	16	ft
Number of Trimmers req'd:	column	(Trimmers are 2x members)
Beam has floor loads:	Yes	
Roof Slope:	6:12	
Roof Material:	S	(S=Slip, NS=Non-Slip)

**USE:**  
**Use a W12x35 50**  
**ksi Steel Beam**

**Connection**

**Built in Beam Pocket**

**Load Information:**

Roof Dead Load:	12	psf	Trib:	10	ft
Roof Live Load:	135	psf	Trib:	10	ft
Floor Dead Load:	30	psf	Trib:	2.0	ft
Floor Live Load:	40	psf	Trib:	2.0	ft
Point Load (Dead):		lbs	End Dist:		ft
Point Load (Live):		lbs	End Dist:		ft
Wall Uniform Load:		plf			
Total Distributed Load, W:	1606.57	plf			

**Calculations:**

Factored Distributed Load, $W_U$ :	2.50	K/ft
Moment, $M_U$ :	79.95	kip-ft
$Z_x$ :	21.32	in <sup>3</sup>
Reaction (Near End):	12,852.6	lbs
Reaction (Far End):	12,852.6	lbs
Shear, $V_{max}$ :	12,852.6	lbs

**Deflection:**

$\Delta_{LL_{Allow}}$ :	0.40	in.	L/480
$\Delta_{TL_{Allow}}$ :	0.80	in.	L/240
$\Delta_{LL_{Act}}$ :	0.25	in.	<b>OK</b>
$\Delta_{TL_{Act}}$ :	0.29	in.	<b>OK</b>

**Steel Beam Properties**

Beam Section:	<b>W12x035</b>	
Beam Shape:	W	
Depth, d:	12.5	in
Beam Weight	35	plf
Steel Strength, $f_y$ :	<b>50</b>	ksi
Width, $b_f$ :	6.56	in
$Z_x$ :	51.2	in <sup>3</sup> <b>OK</b>
$I_x$ :	285	in <sup>4</sup>
$\Phi_b M_p$ :	192	kip-ft <b>OK</b>
Beam Size:	W12x35	



**STEEL BEAM CALCULATIONS**

Summit Powder Mountain Ridge Nest 13

May 2015

PROJECT #

**FLOOR BEAM**

**SB-4**

For Steel Beam With Top End Supported for a uniform loaded beam LRF Design

**Beam Information:**

Span:	17	ft
Number of Trimmers req'd:	2	(Trimmers are 2x members)
Beam has floor loads:	Yes	
Roof Slope:		
Roof Material:	NS	(S=Slip, NS=Non-Slip)

**USE:**  
**Use a W12x35 50**  
**ksi Steel Beam**

**Connection**

**Built in Beam Pocket**

**Load Information:**

Roof Dead Load:	12	psf	Trib:	2	ft
Roof Live Load:	202	psf	Trib:	2	ft
Floor Dead Load:	30	psf	Trib:	2.0	ft
Floor Live Load:	40	psf	Trib:	2.0	ft
Point Load (Dead):		lbs	End Dist:		ft
Point Load (Live):		lbs	End Dist:		ft
Wall Uniform Load:		plf			
Total Distributed Load, W:	567.03	plf			

**Calculations:**

Factored Distributed Load, $W_U$ :	0.87	K/ft
Moment, $M_U$ :	96.00	kip-ft
$Z_x$ :	25.60	in <sup>3</sup>
Reaction (Near End):	4,819.7	lbs
Reaction (Far End):	4,819.7	lbs
Shear, $V_{max}$ :	4,819.7	lbs

**Deflection:**

$\Delta_{LL_{Allow}}$ :	0.43	in.	L/480
$\Delta_{TL_{Allow}}$ :	0.85	in.	L/240
$\Delta_{LL_{Act}}$ :	0.11	in.	<b>OK</b>
$\Delta_{TL_{Act}}$ :	0.14	in.	<b>OK</b>

**Steel Beam Properties**

Beam Section:	<b>W12x035</b>	
Beam Shape:	W	
Depth, d:	12.5	in
Beam Weight	35	plf
Steel Strength, $f_y$ :	<b>50</b>	ksi
Width, $b_f$ :	6.56	in
$Z_x$ :	51.2	in <sup>3</sup> <b>OK</b>
$I_x$ :	285	in <sup>4</sup>
$\Phi_b M_p$ :	192	kip-ft <b>OK</b>
Beam Size:	W12x35	



**STEEL BEAM CALCULATIONS**

Summit Powder Mountain Ridge Nest 13

May 2015

PROJECT #

**FLOOR BEAM**

**SB-5**

For Steel Beam With Top End Supported for a uniform loaded beam LRF Design

**Beam Information:**

Span:	15.5	ft	
Number of Trimmers req'd:	column	(Trimmers are 2x members)	
Beam has floor loads:	Yes		
Roof Slope:	6:12		
Roof Material:	S	(S=Slip, NS=Non-Slip)	

<b>USE:</b>
<b>Use a W12x35 50</b>
<b>ksi Steel Beam</b>

**Connection**

<b>Built in Beam Pocket</b>
-----------------------------

**Load Information:**

Roof Dead Load:	12	psf	Trib:	5	ft
Roof Live Load:	135	psf	Trib:	5	ft
Floor Dead Load:	30	psf	Trib:	10.0	ft
Floor Live Load:	40	psf	Trib:	10.0	ft
Point Load (Dead):		lbs	End Dist:		ft
Point Load (Live):		lbs	End Dist:		ft
Wall Uniform Load:		plf			
Total Distributed Load, W:	1433.28	plf			

**Calculations:**

Factored Distributed Load, $W_U$ :	2.15	K/ft
Moment, $M_U$ :	64.54	kip-ft
$Z_x$ :	17.21	in <sup>3</sup>
Reaction (Near End):	11,108.0	lbs
Reaction (Far End):	11,108.0	lbs
Shear, $V_{max}$ :	11,108.0	lbs

**Deflection:**

$\Delta LL_{Allow}$ :	0.39	in.	L/480
$\Delta TL_{Allow}$ :	0.78	in.	L/240
$\Delta LL_{Act}$ :	0.17	in.	<b>OK</b>
$\Delta TL_{Act}$ :	0.23	in.	<b>OK</b>

**Steel Beam Properties**

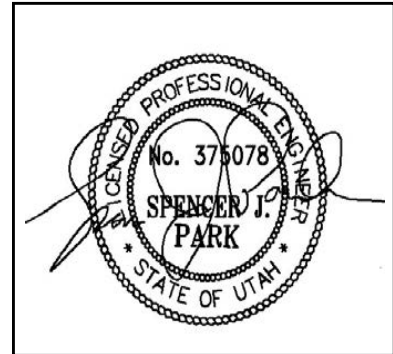
Beam Section:	<b>W12x035</b>	
Beam Shape:	W	
Depth, d:	12.5	in
Beam Weight	35	plf
Steel Strength, $f_y$ :	<b>50</b>	ksi
Width, $b_f$ :	6.56	in
$Z_x$ :	51.2	in <sup>3</sup> <b>OK</b>
$I_x$ :	285	in <sup>4</sup>
$\Phi_b M_p$ :	192	kip-ft <b>OK</b>
Beam Size:	W12x35	



**LATERAL FORCE AND SHEAR WALL CALCULATIONS**

**Summit Powder Mountain RidgeNest 13**  
**Ridge Nest lot 13**  
**Weber County Utah**

**May 2015**



**DESIGN CRITERIA**

Wind Speed:	<b>115</b>	mph
Exposure:	<b>C</b>	
Seismic Site Class:	<b>D</b>	
Occupancy Category:	<b>II</b>	
Importance Factor:	<b>1.00</b>	

**SHEAR WALL LOCATION SCHEDULE**

<b>Loc</b>	<b>Description</b>	<b>Shear Wall</b>	<b>Floor Tie</b>	<b>Hold Down</b>	<b>Anchor Bolts</b>
Wall 1	LEFT WALL	SW-3	MST 60	STHD14RJ	AB-4
Wall 2	FRONT WALL	SW-3	none	STHD14RJ	AB-1
Wall 3	RIGHT WALL	SW-5	none	STHD14RJ	AB-4
Wall 4	RIGHT LOWER WALL	SW-5	none	HDU8	AB-1
Wall 5	REAR WALL	SW-5	none	HDU8	AB-1
Wall 6	LEFT LOWER WALL	SW-5	none	HDU8	AB-1



**WIND LOADS**  
Summit Powder Mountain RidgeNest 13  
May 2015

Shear Wall Calculations - 2012 IBC Envelope Procedure

Used Simplified Method? **Yes**

**Design Criteria**

Wind Speed: 115 mph  
Exposure: C  
Importance Factor: 1.00  
Roof Slope (x/12): 6:12  
Mean Roof Height: 15 ft  
Adjustment Factor, λ: 1.21

P <sub>S30</sub> Values			
A	B	C	D
21.6	14.8	17.2	11.8

P <sub>S</sub> Values			
A	B	C	D
26.136	17.908	20.812	14.278

**Calculations**

Wall #	Additional load (lbs)	Max Trib Height (ft)	Wall Height (ft)	Tributary Length, ft	a (ft)	Wind Direction	Total Force (lbs)	Area ft <sup>2</sup>			
								a	b	c	d
Wall 1	0.0	20	19	16	7.6	Trav	8148.04	288.80	15.2	15.2	0.8
Wall 2	0.0	20	19	16	7.6	Trav	8148.04	288.80	15.2	15.2	0.8
Wall 3	0.0	20	19	16	7.6	Trav	8148.04	288.80	15.2	15.2	0.8
Wall 4	0.0	20	9	16	3.6	Trav	6142.35	64.80	79.2	79.2	96.8
Wall 5	0.0	23	9	16	3.6	Trav	6906.10	64.80	100.8	79.2	123.2
Wall 6	0.0	20	9	16	3.6	Trav	6142.35	64.80	79.2	79.2	96.8
Wall 7	0.0	0	0	0	3	Trav	0.00	0.00	0	0	0
Wall 8	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 9	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 10	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 11	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 12	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 13	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 14	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 15	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 16	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 17	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 18	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 19	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 20	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 21	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 22	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 23	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 24	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 25	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 26	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 27	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 28	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 29	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 30	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 31	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 32	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 33	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 34	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 35	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 36	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 37	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 38	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 39	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0
Wall 40	0.0	8	8	0	3.2	Trav	272.59	51.20	0	-51.2	0



**SEISMIC LOADS**  
Summit Powder Mountain RidgeNest 13  
May 2015

Shear Wall Calculations - 2012 IBC Envelope Procedure

Used Simplified Method? **Yes**

**Design Criteria**

$F_a$ :	1.32	(IBC 1613.3.3)	Seismic Site Class:	<b>D</b>
$S_S$ :	0.6	(IBC 1613.5(1-4))	Occupancy Category:	<b>II</b>
$S_{MS}$ :	0.792	(IBC 1613.5.3)	Importance Factor:	<b>1.00</b>
$S_{DS}$ :	0.53	(IBC 1613.5.4)		
R:	6.5	(See ASCE 7, Table 12.2-1)		
Base Shear, V:	0.10	$[V=(1.2*S_{DS}/R)*W]$		

**Calculations**

Wall #	Additional load (lbs)	Weight (psf)	Length (ft)	Tributary (ft)	Force (lbs)
Wall 1	0.00	50	40	16	3119.28
Wall 2	0.00	50	40	16	3119.28
Wall 3	0.00	50	40	16	3119.28
Wall 4	779.82	50	40	16	3899.10
Wall 5	0.00	50	40	16	3119.28
Wall 6	779.82	50	40	16	3899.10

Governing Load	Design Force
WIND	8148.0
WIND	8148.0
WIND	8148.0
WIND	6142.3
WIND	6906.1
WIND	6142.3



**SCHEDULES & NOTES**  
Summit Powder Mountain RidgeNest 13  
May 2015

Shear Wall Calculations - 2012 IBC Envelope Procedure

**Shear Wall Schedule**

LOC	Description			Size	Nailing		Strength (plf)
	Sheathing	Both Sides	Edge Stud		Edge	Field	
SW-1	7/16" OSB	NO	2 X 4	8d	6"	12"	280
SW-2	7/16" OSB	NO	2 X 4	8d	4"	12"	430
SW-3	7/16" OSB	NO	2 X 4	8d	3	12"	550
SW-4	7/16" OSB	NO	2x flat or 4x	8d	2"	12"	730
SW-5	7/16" OSB	YES	2x flat or 4x	8d	4"	12"	860
-or-	19/32" OSB	NO	2x flat or 4x	10d	2"	12"	870

**Anchor Bolt Schedule**

LOC	Bolt Type	Spacing	Washer	Sill Plate	Strength (plf)
AB-1	5/8" Standard	48	3" x 3" x 1/4"	2x	232
AB-2	5/8" Standard	32	3" x 3" x 1/4"	2x	348
AB-3	5/8" Standard	24	3" x 3" x 1/4"	2x	465
AB-4	5/8" Standard	16"	3" x 3" x 1/4"	2x	697
AB-5	5/8" Standard	12"	3" x 3" x 1/4"	2x	930
AB-6	5/8" Standard	12"	3" x 3" x 1/4"	3x	1180

Notes:

1. All Studs for shear walls shall be 16" o/c unless noted otherwise.
2. 16d common nail transfer through sill.
3. Staples must be placed with axis parallel to framing member.
4. Minimum anchor bolt size should be abolt-1 if not specified.
5. All anchor bolts should be embedded 7" minimum and should be positioned between two rebar.
6. Holdowns and straps should be "Simpson Strong-tie" brand.
7. All holddowns and straps should be attached per manufacturer's specifications to a minimum of two full height studs. Trimmers should not be used to attach to.

**Hold Down Schedule**

LOC	DESCRIPTION	NOTES
AA	STHD 14/14RJ	INTO (2) STUDS MIN.
BB	HDU8	INTO (2) STUDS MIN.
CC	HDQ8	SOLID 6X6
DD	MST37	INTO (2) STUDS MIN.
EE	MST48	INTO (2) STUDS MIN.
FF	MST60	INTO (2) STUDS MIN.





**WALL SEGMENT DESIGN**  
Summit Powder Mountain RidgeNest 13  
May 2015

**LEFT WALL**

**Wall - 1**

Shear Wall Calculations - 2012 IBC Envelope Procedure

**Wall Description**

Wall Description: **LEFT WALL**  
 Top Plate Length: 24 ft.  
 Sill Plate Length: 11.5 ft.  
 Dead Load along wall: 250 plf  
 Anchor Bolt Size: 0.625 in.  
  
 Force at Top Strut: 8148.0432 lbs  
 Top of Wall Shear: 339.50 lb/ft

**Wall Summary**

Uplift: 4452.53 lbs  
 Floor Tie: **MST 60 OK**  
 Holddown: **STHD14RJ OK**  
 Peir Sum: 15 ft  
 Shear Stress: 543.20 lb/ft  
 Sill Stress: 708.53 lb/ft  
 Shear Wall Type: **SW-3**  
 Anchor Bolt Spacing: **AB-4**

**Perforated Wall Segment**

Wall Height: 19 ft  
 Shear Force: 8148.0432 lbs  
 Length: 15 ft

Pier	Length ft	Height ft	Aspect (H/L)	Ratio (L/Sum)	Force lbs
P1	4		0.00	0.27	2172.81
W1					0.00
P2	11		0.00	0.73	5975.23
W2					0.00
P3			0.00	0.00	0.00
W3					0.00
P4			0.00	0.00	0.00

Sum Pier Length: 15 ft

Full Height Sheathing %: 100%

Shear Resistance Factor, C<sub>O</sub>: **1.00** (IBC 2305.3.8.2)

MAX Opening: **0.00**

TABLE 2305.3.8.2 (With Extrapolated Values)

Holdowns	
none	
HDU8	5980
HDQ8	9230
STHD14	5345
STHD14RJ	5345

Floor Ties	
none	
MST 37	2465
MST 48	3960
MST 60	5240

	Maximum Opening Height					
	H/6	H/3	H/2	2H/3	5H/6	H
8' Wall	1.33	2.67	4.00	5.33	6.67	8
9' Wall	1.50	3.00	4.50	6.00	7.50	9
10' Wall	1.67	3.33	5.00	6.67	8.33	10
12' Wall	2.00	4.00	6.00	8.00	10.00	12
14' Wall	2.33	4.67	7.00	9.33	11.67	14

% Full-Height	Shear Adjustment Factor, C <sub>o</sub>					
	2.33	4.67	7.00	9.33	11.67	14.00
10%	1.00	1.00	0.69	0.53	0.43	0.36
20%	1.00	1.00	0.71	0.56	0.45	0.38
30%	1.00	1.00	0.74	0.59	0.49	0.42
40%	1.00	1.00	0.77	0.63	0.53	0.45
50%	1.00	1.00	0.80	0.67	0.57	0.50
60%	1.00	1.00	0.83	0.71	0.63	0.56
70%	1.00	1.00	0.87	0.77	0.69	0.63
80%	1.00	1.00	0.91	0.83	0.77	0.71
90%	1.00	1.00	0.95	0.91	0.87	0.83
100%	1.00	1.00	1.00	1.00	1.00	1.00



**WALL SEGMENT DESIGN**  
Summit Powder Mountain RidgeNest 13  
May 2015

**FRONT WALL**

**Wall - 2**

Shear Wall Calculations - 2012 IBC Envelope Procedure

**Wall Description**

Wall Description: **FRONT WALL**  
 Top Plate Length: 32 ft.  
 Sill Plate Length: 32 ft.  
 Dead Load along wall: 150 plf  
 Anchor Bolt Size: 0.625 in.  
 Force at Top Strut: 8148.0432 lbs  
 Top of Wall Shear: 254.63 lb/ft

**Wall Summary**

Uplift: 3239.50 lbs  
 Floor Tie: none  
 Holddown: **STHD14RJ OK**  
 Peir Sum: 17.5 ft  
 Shear Stress: 465.60 lb/ft  
 Sill Stress: 254.63 lb/ft  
 Shear Wall Type: **SW-3**  
 Anchor Bolt Spacing: **AB-1**

**Perforated Wall Segment**

Wall Height: 19 ft  
 Shear Force: 8148.0432 lbs  
 Length: 17.5 ft

Pier	Length ft	Height ft	Aspect (H/L)	Ratio (L/Sum)	Force lbs
P1	3.5		0.00	0.20	1629.61
W1					0.00
P2	3		0.00	0.17	1396.81
W2					0.00
P3	7		0.00	0.40	3259.22
W3					0.00
P4	4		0.00	0.23	1862.41

Sum Pier Length: 17.5 ft

Full Height Sheathing %: 100%

Shear Resistance Factor, C<sub>O</sub>: **1.00** (IBC 2305.3.8.2)

MAX Opening: **0.00**

TABLE 2305.3.8.2 (With Extrapolated Values)

Holdowns	
none	
HDU8	5980
HDQ8	9230
STHD14	5345
STHD14RJ	5345

Floor Ties	
none	
MST 37	2465
MST 48	3960
MST 60	5240

	Maximum Opening Height					
	H/6	H/3	H/2	2H/3	5H/6	H
8' Wall	1.33	2.67	4.00	5.33	6.67	8
9' Wall	1.50	3.00	4.50	6.00	7.50	9
10' Wall	1.67	3.33	5.00	6.67	8.33	10
12' Wall	2.00	4.00	6.00	8.00	10.00	12
14' Wall	2.33	4.67	7.00	9.33	11.67	14

% Full-Height	Shear Adjustment Factor, C <sub>o</sub>					
	2.33	4.67	7.00	9.33	11.67	14.00
10%	1.00	1.00	0.69	0.53	0.43	0.36
20%	1.00	1.00	0.71	0.56	0.45	0.38
30%	1.00	1.00	0.74	0.59	0.49	0.42
40%	1.00	1.00	0.77	0.63	0.53	0.45
50%	1.00	1.00	0.80	0.67	0.57	0.50
60%	1.00	1.00	0.83	0.71	0.63	0.56
70%	1.00	1.00	0.87	0.77	0.69	0.63
80%	1.00	1.00	0.91	0.83	0.77	0.71
90%	1.00	1.00	0.95	0.91	0.87	0.83
100%	1.00	1.00	1.00	1.00	1.00	1.00



**WALL SEGMENT DESIGN**  
Summit Powder Mountain RidgeNest 13  
May 2015

**RIGHT WALL**

**Wall - 3**

Shear Wall Calculations - 2012 IBC Envelope Procedure

**Wall Description**

Wall Description: **RIGHT WALL**  
 Top Plate Length: 24 ft.  
 Sill Plate Length: 11.5 ft.  
 Dead Load along wall: 150 plf  
 Anchor Bolt Size: 0.625 in.  
  
 Force at Top Strut: 8148.0432 lbs  
 Top of Wall Shear: 339.50 lb/ft

**Wall Summary**

Uplift: 5251.73 lbs  
 Floor Tie: none  
 Holddown: **STHD14RJ OK**  
 Peir Sum: 11 ft  
 Shear Stress: 740.73 lb/ft  
 Sill Stress: 708.53 lb/ft  
 Shear Wall Type: **SW-5**  
 Anchor Bolt Spacing: **AB-4**

**Perforated Wall Segment**

Wall Height: 19 ft  
 Shear Force: 8148.0432 lbs  
 Length: 11 ft

Pier	Length ft	Height ft	Aspect (H/L)	Ratio (L/Sum)	Force lbs
P1	4.5		0.00	0.41	3333.29
W1					0.00
P2	3.5		0.00	0.32	2592.56
W2					0.00
P3	3		0.00	0.27	2222.19
W3					0.00
P4			0.00	0.00	0.00

Sum Pier Length: 11 ft

Full Height Sheathing %: 100%

Shear Resistance Factor, C<sub>O</sub>: **1.00** (IBC 2305.3.8.2)

MAX Opening: **0.00**

TABLE 2305.3.8.2 (With Extrapolated Values)

Holdowns	
none	
HDU8	5980
HDQ8	9230
STHD14	5345
STHD14RJ	5345

Floor Ties	
none	
MST 37	2465
MST 48	3960
MST 60	5240

	Maximum Opening Height					
	H/6	H/3	H/2	2H/3	5H/6	H
8' Wall	1.33	2.67	4.00	5.33	6.67	8
9' Wall	1.50	3.00	4.50	6.00	7.50	9
10' Wall	1.67	3.33	5.00	6.67	8.33	10
12' Wall	2.00	4.00	6.00	8.00	10.00	12
14' Wall	2.33	4.67	7.00	9.33	11.67	14

% Full-Height	Shear Adjustment Factor, C <sub>o</sub>					
	2.33	4.67	7.00	9.33	11.67	14.00
10%	1.00	1.00	0.69	0.53	0.43	0.36
20%	1.00	1.00	0.71	0.56	0.45	0.38
30%	1.00	1.00	0.74	0.59	0.49	0.42
40%	1.00	1.00	0.77	0.63	0.53	0.45
50%	1.00	1.00	0.80	0.67	0.57	0.50
60%	1.00	1.00	0.83	0.71	0.63	0.56
70%	1.00	1.00	0.87	0.77	0.69	0.63
80%	1.00	1.00	0.91	0.83	0.77	0.71
90%	1.00	1.00	0.95	0.91	0.87	0.83
100%	1.00	1.00	1.00	1.00	1.00	1.00



**WALL SEGMENT DESIGN**  
Summit Powder Mountain RidgeNest 13  
May 2015

**RIGHT LOWER WALL**

**Wall - 4**

Shear Wall Calculations - 2012 IBC Envelope Procedure

**Wall Description**

Wall Description: **RIGHT LOWER WALL**  
 Top Plate Length: 20 ft.  
 Sill Plate Length: 20 ft.  
 Dead Load along wall: 150 plf  
 Anchor Bolt Size: 0.625 in.  
  
 Force at Top Strut: 6142.3472 lbs  
 Top of Wall Shear: 307.12 lb/ft

**Wall Summary**

Uplift: 1765.06 lbs  
 Floor Tie: none  
 Holddown: **HDU8 OK**  
 Peir Sum: 8 ft  
 Shear Stress: 767.79 lb/ft  
 Sill Stress: 307.12 lb/ft  
 Shear Wall Type: **SW-5**  
 Anchor Bolt Spacing: **AB-1**

**Perforated Wall Segment**

Wall Height: 9 ft  
 Shear Force: 6142.3472 lbs  
 Length: 8 ft

Pier	Length ft	Height ft	Aspect (H/L)	Ratio (L/Sum)	Force lbs
P1	3		0.00	0.38	2303.38
W1					0.00
P2	5		0.00	0.63	3838.97
W2					0.00
P3			0.00	0.00	0.00
W3					0.00
P4			0.00	0.00	0.00

Sum Pier Length: 8 ft

Full Height Sheathing %: 100%

Shear Resistance Factor, C<sub>O</sub>: **1.00** (IBC 2305.3.8.2)

MAX Opening: **0.00**

TABLE 2305.3.8.2 (With Extrapolated Values)

Holdowns	
none	
HDU8	5980
HDQ8	9230
STHD14	5345
STHD14RJ	5345

Floor Ties	
none	
MST 37	2465
MST 48	3960
MST 60	5240

	Maximum Opening Height					
	H/6	H/3	H/2	2H/3	5H/6	H
8' Wall	1.33	2.67	4.00	5.33	6.67	8
9' Wall	1.50	3.00	4.50	6.00	7.50	9
10' Wall	1.67	3.33	5.00	6.67	8.33	10
12' Wall	2.00	4.00	6.00	8.00	10.00	12
14' Wall	2.33	4.67	7.00	9.33	11.67	14

% Full-Height	Shear Adjustment Factor, C <sub>o</sub>					
	1.50	3.00	4.50	6.00	7.50	9.00
10%	1.00	1.00	0.69	0.53	0.43	0.36
20%	1.00	1.00	0.71	0.56	0.45	0.38
30%	1.00	1.00	0.74	0.59	0.49	0.42
40%	1.00	1.00	0.77	0.63	0.53	0.45
50%	1.00	1.00	0.80	0.67	0.57	0.50
60%	1.00	1.00	0.83	0.71	0.63	0.56
70%	1.00	1.00	0.87	0.77	0.69	0.63
80%	1.00	1.00	0.91	0.83	0.77	0.71
90%	1.00	1.00	0.95	0.91	0.87	0.83
100%	1.00	1.00	1.00	1.00	1.00	1.00



**WALL SEGMENT DESIGN**  
Summit Powder Mountain RidgeNest 13  
May 2015

**REAR WALL**

**Wall - 5**

Shear Wall Calculations - 2012 IBC Envelope Procedure

**Wall Description**

Wall Description: **REAR WALL**  
 Top Plate Length: 32 ft.  
 Sill Plate Length: 32 ft.  
 Dead Load along wall: 150 plf  
 Anchor Bolt Size: 0.625 in.  
  
 Force at Top Strut: 6906.0992 lbs  
 Top of Wall Shear: 215.82 lb/ft

**Wall Summary**

Uplift: 343.94 lbs  
 Floor Tie: none  
 Holddown: **HDU8 OK**  
 Peir Sum: 8 ft  
 Shear Stress: 863.26 lb/ft  
 Sill Stress: 215.82 lb/ft  
 Shear Wall Type: **SW-5**  
 Anchor Bolt Spacing: **AB-1**

**Perforated Wall Segment**

Wall Height: 9 ft  
 Shear Force: 6906.0992 lbs  
 Length: 8 ft

Pier	Length ft	Height ft	Aspect (H/L)	Ratio (L/Sum)	Force lbs
P1	4		0.00	0.50	3453.05
W1					0.00
P2	4		0.00	0.50	3453.05
W2					0.00
P3			0.00	0.00	0.00
W3					0.00
P4			0.00	0.00	0.00

Sum Pier Length: 8 ft

Full Height Sheathing %: 100%

Shear Resistance Factor, C<sub>O</sub>: **1.00** (IBC 2305.3.8.2)

MAX Opening: **0.00**

TABLE 2305.3.8.2 (With Extrapolated Values)

Holdowns	
none	
HDU8	5980
HDQ8	9230
STHD14	5345
STHD14RJ	5345

Floor Ties	
none	
MST 37	2465
MST 48	3960
MST 60	5240

	Maximum Opening Height					
	H/6	H/3	H/2	2H/3	5H/6	H
8' Wall	1.33	2.67	4.00	5.33	6.67	8
9' Wall	1.50	3.00	4.50	6.00	7.50	9
10' Wall	1.67	3.33	5.00	6.67	8.33	10
12' Wall	2.00	4.00	6.00	8.00	10.00	12
14' Wall	2.33	4.67	7.00	9.33	11.67	14

% Full-Height	Shear Adjustment Factor, C <sub>o</sub>					
	1.50	3.00	4.50	6.00	7.50	9.00
10%	1.00	1.00	0.69	0.53	0.43	0.36
20%	1.00	1.00	0.71	0.56	0.45	0.38
30%	1.00	1.00	0.74	0.59	0.49	0.42
40%	1.00	1.00	0.77	0.63	0.53	0.45
50%	1.00	1.00	0.80	0.67	0.57	0.50
60%	1.00	1.00	0.83	0.71	0.63	0.56
70%	1.00	1.00	0.87	0.77	0.69	0.63
80%	1.00	1.00	0.91	0.83	0.77	0.71
90%	1.00	1.00	0.95	0.91	0.87	0.83
100%	1.00	1.00	1.00	1.00	1.00	1.00



**WALL SEGMENT DESIGN**  
Summit Powder Mountain RidgeNest 13  
May 2015

**LEFT LOWER WALL**

**Wall - 6**

Shear Wall Calculations - 2012 IBC Envelope Procedure

**Wall Description**

Wall Description: **LEFT LOWER WALL**  
 Top Plate Length: 20 ft.  
 Sill Plate Length: 20 ft.  
 Dead Load along wall: 250 plf  
 Anchor Bolt Size: 0.625 in.  
 Force at Top Strut: 6142.3472 lbs  
 Top of Wall Shear: 307.12 lb/ft

**Wall Summary**

Uplift: 1099.06 lbs  
 Floor Tie: none  
 Holddown: **HDU8 OK**  
 Peir Sum: 9 ft  
 Shear Stress: 682.48 lb/ft  
 Sill Stress: 307.12 lb/ft  
 Shear Wall Type: **SW-5**  
 Anchor Bolt Spacing: **AB-1**

**Perforated Wall Segment**

Wall Height: 9 ft  
 Shear Force: 6142.3472 lbs  
 Length: 9 ft

Pier	Length ft	Height ft	Aspect (H/L)	Ratio (L/Sum)	Force lbs
P1	5		0.00	0.56	3412.42
W1					0.00
P2	4		0.00	0.44	2729.93
W2					0.00
P3			0.00	0.00	0.00
W3					0.00
P4			0.00	0.00	0.00

Sum Pier Length: 9 ft

Full Height Sheathing %: 100%

Shear Resistance Factor, C<sub>O</sub>: **1.00** (IBC 2305.3.8.2)

MAX Opening: **0.00**

TABLE 2305.3.8.2 (With Extrapolated Values)

Holdowns	
none	
HDU8	5980
HDQ8	9230
STHD14	5345
STHD14RJ	5345

Floor Ties	
none	
MST 37	2465
MST 48	3960
MST 60	5240

	Maximum Opening Height					
	H/6	H/3	H/2	2H/3	5H/6	H
8' Wall	1.33	2.67	4.00	5.33	6.67	8
9' Wall	1.50	3.00	4.50	6.00	7.50	9
10' Wall	1.67	3.33	5.00	6.67	8.33	10
12' Wall	2.00	4.00	6.00	8.00	10.00	12
14' Wall	2.33	4.67	7.00	9.33	11.67	14

% Full-Height	Shear Adjustment Factor, C <sub>O</sub>					
	1.50	3.00	4.50	6.00	7.50	9.00
10%	1.00	1.00	0.69	0.53	0.43	0.36
20%	1.00	1.00	0.71	0.56	0.45	0.38
30%	1.00	1.00	0.74	0.59	0.49	0.42
40%	1.00	1.00	0.77	0.63	0.53	0.45
50%	1.00	1.00	0.80	0.67	0.57	0.50
60%	1.00	1.00	0.83	0.71	0.63	0.56
70%	1.00	1.00	0.87	0.77	0.69	0.63
80%	1.00	1.00	0.91	0.83	0.77	0.71
90%	1.00	1.00	0.95	0.91	0.87	0.83
100%	1.00	1.00	1.00	1.00	1.00	1.00



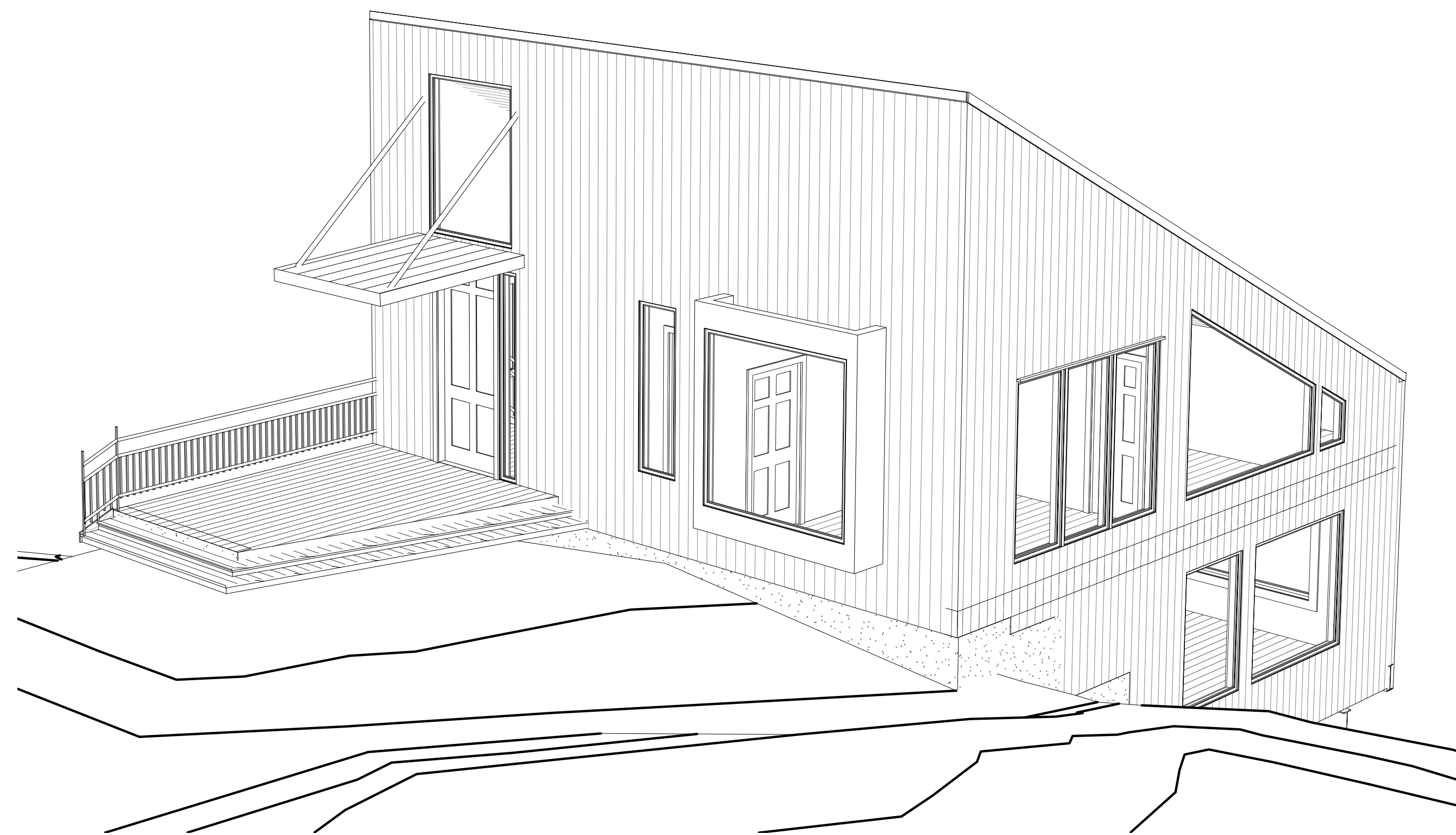
RESIDENCE FOR:

# SUMMIT POWDER MOUNTAIN

## RIDGE NEST 13 CACHE COUNTY, UTAH

### DEFERRED SUBMITTAL NOTES

1. CONTRACTOR TO PROVIDE MAKE, MODEL, BTU's, APPROVAL LISTINGS, AND EFFICIENCY OF FURNACE AND ANY ADDITIONAL EQUIPMENT TO BUILDING DEPARTMENT.
2. CONTRACTOR TO PROVIDE APPLIANCE I.C.B.O. NUMBERS TO BUILDING DEPARTMENT AND INSTALLATION GUIDES FOR GAS FIREPLACE INSERTS.
3. THE CONTRACTOR SHALL PROVIDE GAS LINE SPECIFICATIONS, PLANS, AND CALCULATIONS TO BUILDING DEPARTMENT IF THE GAS PIPE LINE SYSTEM IS OVER 4 oz. PRESSURE. CONTRACTOR SHALL ALSO INCLUDE REGULATOR VALVE SPECIFICATIONS AND SHOW PLACEMENT ON PLANS.
4. CONTRACTOR TO PROVIDE THE NUMBER OF BACKFLOW PREVENTORS TO BE INSTALLED IN THIS STRUCTURE.
5. INSPECTIONS ARE REQUIRED FOR ALL STUCCO/CULTURED STONE AND EIFS SYSTEMS. PROVIDE ICBO EVALUATION REPORT (OR EQUAL) FOR ANY SUCH SYSTEM USED. IRC R109.1.5
6. CONTRACTOR TO PROVIDE TRUSS DETAILS AND LAYOUT AT FRAMING INSPECTION.
7. CONTRACTOR TO PROVIDE THE LISTING FOR THE FIREPLACE STOVES, FIREPLACE INSERTS & SHOWER STEAMERS SHOWN IN PLANS @ MECHANICAL INSPECTION.



**TABLE N1102.1.1 (R402.1.1)**

#### MINIMUM INSULATION & FENESTRATION REQUIREMENTS

WINDOW & DOORS U-FACTORS	SKYLIGHT U-FACTOR	CEILING R-VALUE	WALL R-VALUE	FLOOR R-VALUE	BASEMENT/CRAWL WALL R-VALUE
0.35	0.60	49	19	30	13

NOTE: R-VALUES ARE MINIMUMS. U-FACTORS ARE MAXIMUMS. R-19 INSULATION SHALL BE PERMITTED TO BE COMPRESSED INTO 2X6 CAVITY

Area Schedule	
Level	Area
MAIN LEVEL	1024 SF
LOWER LEVEL	1663 SF

NO	DATE	ISSUE

ALL FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, REGULATIONS, ETC., SHALL BE CONSIDERED AS PART OF THE SPECIFICATIONS FOR THIS BUILDING AND SHALL TAKE PRECEDENCE OVER ANYTHING SHOWN, DESCRIBED, OR IMPLIED WHERE SAME ARE AT VARIANCE.

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DRAWINGS FOR:  
**SUMMIT POWDER MOUNTAIN**  
RIDGE NEST 13  
CACHE COUNTY, UTAH

DRAWING INDEX	
Sheet Number	Sheet Name
A0	COVER SHEET
A001	NOTES / SCHEDULES
A101	SITE PLAN
A202	FLOOR PLANS
A205	ROOF PLAN
A301	ELEVATIONS
A302	ELEVATIONS
A304	3D VIEWS
A501	BUILDING SECTIONS
A601	DETAILS
E101	ELECTRICAL PLAN
S0.0	STRUCTURAL NOTES
S1.0	FOUNDATION/SHEAR PLAN
S2.1	FRAMING PLAN - MAIN FLOOR
S4.1	DETAILS
S4.2	DETAILS
S4.3	DETAILS

DRAWING TITLE:  
**COVER SHEET**

PROJECT #:  
DRAWN BY: TM  
CHECKED BY: SP  
SCALE: As indicated

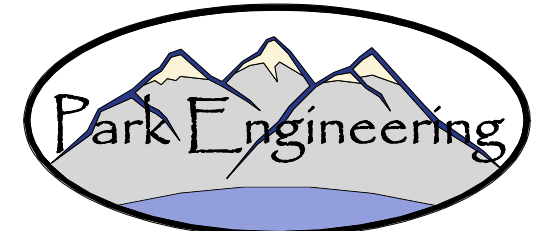
NOTE: IF THIS DRAWING IS NOT 36" x 24", IT HAS BEEN REVISED FROM ITS ORIGINAL SIZE. SCALE IS NO LONGER APPLICABLE.

SEAL:  
  
06.17.2015

### CONSULTANTS

DESIGNER: \_\_\_\_\_ ENGINEER OF RECORD: \_\_\_\_\_

**LIFE EDITED, INC.**  
228 PARK AVENUE  
SOUTH PMB 11190  
NEW YORK, NY 10003



**PARK ENGINEERING, LLC**  
90 West 200 South, Suite #1  
Heber City, Utah 84032  
Ph: (435) 654-1456

DRAWING NO:  
**A0**



## GENERAL CONSTRUCTION NOTES

- MAXIMUM RISE OF A STEP IS 7/32" AND THE MINIMUM RUN OF A STEP IS 10" (IRC R311.5.3).
- A CONTINUOUS HANDRAIL IS REQUIRED ALONG ONE SIDE OF STAIRWAYS & IS REQUIRED TO BE 34"-38" ABOVE THE NOSING OF THE STEPS. HANDRAIL MUST TERMINATE INTO A SAFETY TERMINAL. SIZE TO BE 1 3/8" MIN. - 2 1/2" MAX DIA. (IRC R311.5.6).
- ALL DECKS, PORCHES, OR STAIRS HIGHER THAN 30" ABOVE THE WALKING SURFACE REQUIRE A GUARD RAIL 36" HIGH WITH MAXIMUM OPENINGS LESS THAN 4" (INTERIOR OR EXTERIOR) (IRC R312.1).
- ANY ENCLOSED USABLE SPACE UNDER STAIRS ARE REQUIRED TO BE PROTECTED BY 1 HOUR FIRE-RESISTIVE CONSTRUCTION. (USE 1/2" GYP. BOARD)(R311.2.2)
- THE MINIMUM STAIRWAY HEADROOM HEIGHT VERTICALLY FROM NOSING LINE IS 6'-8" MIN (IRC R311.5.2).
- THE GARAGE MUST BE SEPARATED FROM THE DWELLING BY 1 HOUR FIRE-RESISTIVE CONSTRUCTION ON THE GARAGE SIDE, CEILING & THE BEARING WALLS. USE 1/2" GYP. BOARD. USE 5/8" TYP X GYP. BOARD ON CEILING IF THERE IS HABITABLE SPACE ABOVE (IRC R309.2).
- ANY IGNITION UNIT ON ALL FURNACES & WATER HEATERS SHALL BE AT LEAST 18" ABOVE THE FLOOR IN THE GARAGE UNLESS FIRE RESISTIVE CONSTRUCTION IS USED TO SEPARATE THE UNITS FROM THE GARAGE (IRC G2408.2).
- THE DOOR SEPARATING THE GARAGE FROM THE DWELLING IS REQUIRED TO BE 1-3/8" SOLID CORE OR 20 MINUTE RATED, WITH APPROVED SELF CLOSING MEANS.
- ICE & SNOW SHIELD MUST BE USED OVER ALL EAVES AT LEAST 24" INSIDE THE HEATED WALLS IF SHINGLES ARE USED.
- ALL SHOWER AREAS TO BE FINISHED UP A MINIMUM OF 72" ABOVE SHOWER DRAIN WITH NONABSORBENT MATERIAL.
- PROVIDE FLOOR VENTILATION FOR CRAWLS SPACES AT 1 SQ. FT. PER 150 SQ. FT. OF UNDER FLOOR AREA, OR A RATION OF 1:1,500 WHERE THE SOIL IS COVERED WITH PLASTIC. VENTS TO BE ARRANGED ON AT LEAST TWO SIDES TO PROVIDE CROSS VENTILATION ON OPPOSING SIDES. (IRC R408 & R402.2, EXCEPTION 2).
- PROVIDE 30" MINIMUM CLEARANCE FROM RANGE TOP TO COMBUSTIBLE MATERIALS. SIDE CLEARANCE SHALL BE AS SPECIFIED BY PERMANENT MARKINGS ON THE APPLIANCE. RANGE HOODS SHALL BE VENTED TO THE OUTSIDE BY SINGLE WALL PIPE HAVING A 1" MINIMUM CLEARANCE FROM COMBUSTIBLE MATERIALS (IRC R1901.1).
- UNLESS OTHERWISE SPECIFIED, ALL BASEMENT WINDOWS NOT FULLY 6" ABOVE FINISHED GRADE SHALL BE PROTECTED BY G.I. OR CONCRETE WINDOW WELLS. WINDOW WELLS TO BE DUG A DEPTH BELOW THE WINDOW SILL OF 10" TO ALLOW 1" AGGRAVATED GRAVEL TO BE 6" BELOW THE WINDOW SILL.
- FIREPLACE CHIMNEYS SHALL EXTEND 2'-0" ABOVE ANY ROOF LINE WITHIN 10'. ALL MASONRY CHIMNEYS SHALL HAVE TERRA COTTA FLUE LINERS & SHALL BE CAPPED WITH A 4" MINIMUM CONCRETE CAP.
- PROVIDE MINIMUM 100 sq. in. OF MAKE-UP AIR TO LAUNDRY ROOM (IRC G2439.4).
- THE MAXIMUM DRYER EXHAUST VENT LENGTH NOT TO EXCEED 15 FEET WITH NO MORE THAN (2) 90 DEGREE BENDS (IRC R1902.6)(M1902.6).
- INSULATE ALL DUCT WORK IN COLD AREAS. THIS IS BOTH HEAT RUNS & COLD AIR RETURN. IT ALSO INCLUDES GARAGES, CRAWL SPACES, & UNFINISHED BASEMENTS. (IECC 503.3.3.3)
- SIZE & CONSTRUCTION OF HEARTH TO BE PER MANUFACTURERS SPECIFICATIONS.
- ALL FOOTINGS SHALL BE PLACED ON UNDISTURBED EARTH AND BELOW FROST DEPTH (PER LOCAL CODE). TOPS OF FOUNDATIONS SHALL BE 8" MINIMUM ABOVE FINISHED GRADE. FINISHED GRADE SHALL HAVE A SLOPE AWAY FROM THE BUILDING OF 6" MINIMUM FOR THE FIRST 10' & A 2% SLOPE THEREAFTER. ALL DRAINAGE FROM LOT SHALL DRAIN INTO AN APPROVED DRAINAGE SYSTEM.
- SOLID BLOCKING TO BE PROVIDED BETWEEN TJ'S, RAFTERS, & TRUSSES OVER ALL BEARING WALLS AND BETWEEN OPEN BEARING STUDS. SUCH BLOCKING SHALL BE 2" MINIMUM THICKNESS AND FULL DEPTH OF TJI, RAFTER, OR STUD.
- ALL EARTH FILL TO RECEIVE CONCRETE FLOORS, WALKS, DRIVES, ETC. SHALL BE SETTLED AND TAMPED TO 90% COMPACTION.
- ENCLOSED ATTICS & ENCLOSED SPACES BETWEEN RAFTERS SHALL HAVE CLEAR CROSS-VENTILATION AREA TO THE OUTSIDE VENTS. VENTS SHALL PROVIDE AIR INTAKE TO MEET THE FOLLOWING CRITERIA: A. 1/150 OF ATTIC AREA, OR B. 1/300 OF ATTIC AREA IF CROSS-VENTILATED WITH VAPOR BARRIER. ATTICS SHALL BE PROVIDED WITH AN ACCESS OPENING 22" x 30" WITH MINIMUM HEAD ROOM CLEARANCE ABOVE ACCESS OPENING OF 30".
- PROVIDE COMBUSTION AIR FOR ALL GAS APPLIANCES AT A RATE OF 1 SQ. INCH PER 4000 BTU'S WHERE SPACE IS DIRECTLY COMMUNICATING WITH THE OUTDOORS, OR WHERE COMMUNICATING WITH THE OUTDOORS BY MEANS OF VERTICAL DUCTS. WHERE HORIZONTAL DUCTS ARE USED, EACH OPENING SHALL HAVE A FREE AREA OF AT LEAST 1 SQ. INCH PER 2000 BTU'S. PROVIDE ONE DUCT OPENING IN THE TOP 12" OF THE ROOM AND ONE DUCT IN THE BOTTOM 12" OF THE ROOM (IRC R1703.2).
- WINDOW WELLS SHALL PROVIDE A MIN. NET CLEAR OPENING OF 9 sq. ft. WITH A MIN. DIMENSION OF 36" IF WINDOW WELL IS DEEPER THAN 44". PROVIDE PERMANENT LADDER.
- GARAGE ATTIC ACCESS DOOR TO BE 20 MIN. FIRE-RATED CONST. OR EQUIVALENT.
- PROVIDE A GAS SHUTOFF VALVE WITHIN 6' OF ALL GAS APPLIANCES.
- ALL SHOWER DOORS & GLASS IN SHOWER ENCLOSURES TO BE TEMPERED GLASS.
- PROVIDE AN ACCESS PANEL TO ALL JACOZZI TYPE TUBS.
- WATER HEATERS & EXPANSION TANKS TO BE TIED DOWN WITH SEISMIC STRAPS. STRAPS TO BE (2) 16 GA x 1" WIDE STRAPS LAGGED INTO (2) STUDS MIN. WITH 1/4" LAG SCREWS. (2) STUD WALL SHEATHED OR COVERED WITH GYP. BOARD OR SOLID BLOCKING MAY BE DONE AT STRAP HEIGHT. PROVIDE A MAX. 1" SPRAGE BETWEEN WATER HEATER AND WALL OR BLOCKS.
- GARAGE DOOR OPENERS, IF PROVIDED, SHALL BE LISTED IN ACCORDANCE WITH UL325.R309.6.
- EMERGENCY EGRESS SHALL BE PROVIDED FOR BASEMENTS & SLEEPING ROOMS. THE SILL HEIGHT SHALL NOT BE MORE THAN 44" ABOVE THE FLOOR. THE MINIMUM AREA SHALL NOT BE LESS THAN 5.7 sq. ft. HEIGHT SHALL NOT BE LESS THAN 24" & WIDTH SHALL NOT BE LESS THAN 20" (R310.1).
- PRIVATE RESIDENCE ELEVATORS AND LIMITED USE LIFTS SHALL COMPLY WITH ASME17.1 AND ASME 18.1
- GAS PIPING SHALL NOT BE INSTALLED IN OR THROUGH A DUCTED SUPPLY, RETURN/EXHAUST, CLOTHS CHUTE, CHIMNEY, DUMBWAITER, OR ELEVATOR SHAFT. GAS PIPING INSTALLED DOWNSTREAM OF THE POINT OF DELIVERY SHALL NOT EXTEND THROUGH ANY TOWNHOUSE UNIT OTHER THAN THE UNIT SERVED BY SUCH PIPING.
- APPLIANCES SHALL NOT BE LOCATED IN SLEEPING ROOMS, BATHROOMS, TOILET ROOMS, STORAGE ROOM OR A SPACE THAT OPENS INTO SUCH ROOMS.
- GAS PIPING INSTALLED UNDERGROUND BENEATH BUILDINGS IS PROHIBITED EXCEPT WHERE THE PIPING IS ENCASED IN A CONDUIT. SUCH CONDUIT SHALL EXTEND NOT LESS THAN 4" OUTSIDE THE BUILDING. SHALL BE VENTED ABOVE GRADE TO THE OUTDOORS AND SHALL BE INSTALLED SO AS TO PREVENT THE ENTRANCE OF WATER OR INSECTS.
- GAS PIPING SHALL NOT PENETRATE BUILDING FOUNDATION WALLS AT ANY POINT BELOW GRADE.
- EXTERIOR PLASTER WHEN INSTALLED OVER WOOD BASED SHEATHING, REQUIRES THE APPLICATION OF TWO LAYERS OF GRADE D BUILDING PAPER. EACH LAYER SHALL PROVIDE A SEPARATE CONTINUOUS PLANE AND ANY FLASHING INTENDED TO DRAIN TO THE WATER RESISTIVE BARRIERS IS DIRECTED BETWEEN THE TWO LAYERS.
- STEEL LINTELS SHALL BE SHOP COATED WITH A RUST-INHIBITIVE PAINT, EXCEPT FOR LINTELS MADE OF CORROSION-RESISTANT STEEL.

## PLUMBING NOTES

- ALL PLUMBING SHALL COMPLY WITH CURRENT ADDITION OF THE INTERNATIONAL RESIDENTIAL CODE.
- PROVIDE LOCATION FOR GAS & ELECTRICAL METERS IN AN AREA THAT IS PROTECTED FROM SNOW AND ICE DAMAGE.
- PROVIDE WATER CLOSETS WITH A FLOW RATE OF NOT MORE THAN 1.6 GALLONS PER FLUSH (IRC R2903.2)
- PROVIDE SHOWER HEADS WITH A FLOW RATE OF NOT MORE THAN 2.5 GALLONS PER MINUTE (IRC P2903.2)
- PROVIDE AN EXPANSION TANK ON THE CULINARY WATER SYSTEM.
- WATER HEATERS AND EXPANSION TANKS TO BE ANCHORED OR STRAPPED IN THE UPPER THIRD OF THE APPLIANCE TO RESIST A HORIZONTAL FORCE EQUAL TO ONE THIRD OF THE OPERATING WEIGHT. (IRC P2901.2)
- HOSE BIBS TO BE NON-FREEZE TYPE BACK-FLOW PREVENT (IRC P2902.3.3, P2603.6).
- ALL PLUMBING VENTS THROUGH ROOF TO BE 3" PIPE MINIMUM.(IRC P3103.2).
- PROVIDE LOCATION OF ACCESS FOR WHIRLPOOL TYPE TUBS. NO GROUTED TILE ACCESS. (IRC P2720, E4109.3)
- SHOWERS SHALL BE FINISHED TO A HEIGHT OF NOT LESS THAN 72" ABOVE THE FLOOR. MATERIAL SHALL BE NON-ABSORBENT. (IRC R307.2)
- PROVIDE A FLOOR DRAIN BY THE WATER HEATER. SHOW A METAL PAN UNDER THE WATER HEATER OR STEAM SHOWER EQUIPMENT IF LOCATED ON A WOOD FLOOR. (IRC R801)
- MINIMUM FINISHED SPACE WIDTH FOR WATER CLOSET TO BE 30" WITH A MINIMUM CLEARANCE OF 21" IN FRONT OF THE WATER CLOSET.
- PROVIDE A SHUTOFF VALVE FOR ALL PLUMBING FIXTURE SUPPLIES.
- GREEN BOARD CAN NOT BE USED BEHIND THE TILE IN THE SHOWER AND TUB ENCLOSURES.
- THE HOT WATER SUPPLIED TO BATHTUBS AND WHIRL POOL TUBS SHALL BE LIMITED TO 120 DEGREES MAX BY A WATER TEMPERATURE LIMITING DEVICE ( ASSE 1070) OR BY AN APPROVED COMBINATION TUB/SHOWER VALVE P 2723.3

Window Schedule					
Mark	Width	Height	Sill Height	Level	Operation

1	2' - 0"	7' - 0"	2' - 0"	UPPER LEVEL.	FIXED FRAME
2	4' - 0"	4' - 0"	2' - 0"	UPPER LEVEL.	FIXED FRAME
3	5' - 0"	6' - 10"	10' - 0"	UPPER LEVEL.	FIXED FRAME
4	8' - 0"	3' - 10"	0' - 0"	UPPER LEVEL.	FIXED FRAME
5	2' - 0"	1' - 10"	1' - 0"	UPPER LEVEL.	FIXED FRAME
6	9' - 8"	3' - 0"	1' - 0"	UPPER LEVEL.	FIXED FRAME
7	3' - 0"	7' - 0"	1' - 0"	UPPER LEVEL.	CASEMENT
8	3' - 0"	7' - 0"	2' - 0"	MAIN LEVEL	CASEMENT
9	3' - 0"	7' - 0"	2' - 0"	MAIN LEVEL	CASEMENT
10	7' - 0"	7' - 0"	2' - 0"	MAIN LEVEL	FIXED FRAME
11	8' - 0"	7' - 0"	2' - 0"	MAIN LEVEL	FIXED FRAME
12	8' - 0"	9' - 0"	0' - 0"	MAIN LEVEL	SLIDING GLASS
13	7' - 0"	6' - 0"	2' - 0"	MAIN LEVEL	FIXED FRAME
14	4' - 2"	6' - 0"	2' - 0"	MAIN LEVEL	CASEMENT
15	1' - 0"	9' - 0"	0' - 0"	UPPER LEVEL.	FIXED FRAME
16	7' - 0"	7' - 0"	2' - 0"	UPPER LEVEL.	FIXED FRAME
17	2' - 0"	2' - 0"	3' - 0"	UPPER LEVEL.	FIXED FRAME

Door Schedule				
Mark	Width	Height	Type	Level

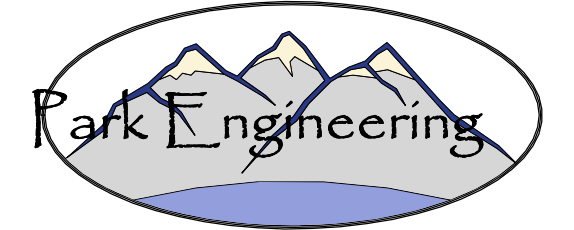
1	3' - 0"	6' - 8"	36" x 80"	UPPER LEVEL.
2	3' - 0"	6' - 8"	36" x 80"	UPPER LEVEL.
3	3' - 0"	6' - 8"	36" x 80"	UPPER LEVEL.
4	2' - 4"	6' - 8"	28" x 80"	UPPER LEVEL.
5	2' - 8"	6' - 8"	32" x 80"	UPPER LEVEL.
6	2' - 0"	7' - 0"	24" x 7"	UPPER LEVEL.
7	3' - 0"	6' - 8"	36" x 80"	MAIN LEVEL
8	3' - 6"	9' - 0"	42" x 108"	UPPER LEVEL.
9	2' - 8"	6' - 8"	32" x 80"	MAIN LEVEL
10	2' - 0"	7' - 0"	24" x 7"	MAIN LEVEL
11	2' - 8"	6' - 8"	32" x 80"	UPPER LEVEL.
12	2' - 8"	6' - 8"	32" x 80"	UPPER LEVEL.

NO	DATE	ISSUE
1	05.13.15	PRELIMINARY SET

ALL FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, REGULATIONS, ETC. SHALL BE CONSIDERED AS PART OF THE SPECIFICATIONS FOR THIS BUILDING AND SHALL TAKE PRECEDENCE OVER ANYTHING SPECIFIED, DESCRIBED, OR IMPLIED WHERE SAME ARE AT VARIANCE.

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DRAWINGS FOR:

SUMMIT POWDER MOUNTAIN

RIDGE NEXT 13  
CACHE COUNTY, UTAH

DRAWING TITLE:

NOTES /  
SCHEDULES

PROJECT #:  
DRAWN BY: TM  
CHECKED BY: SP  
SCALE:

NOTE: IF THIS DRAWING IS NOT 36" x 24", IT HAS BEEN REVISED FROM ITS ORIGINAL SIZE SCALE IS NO LONGER APPLICABLE.

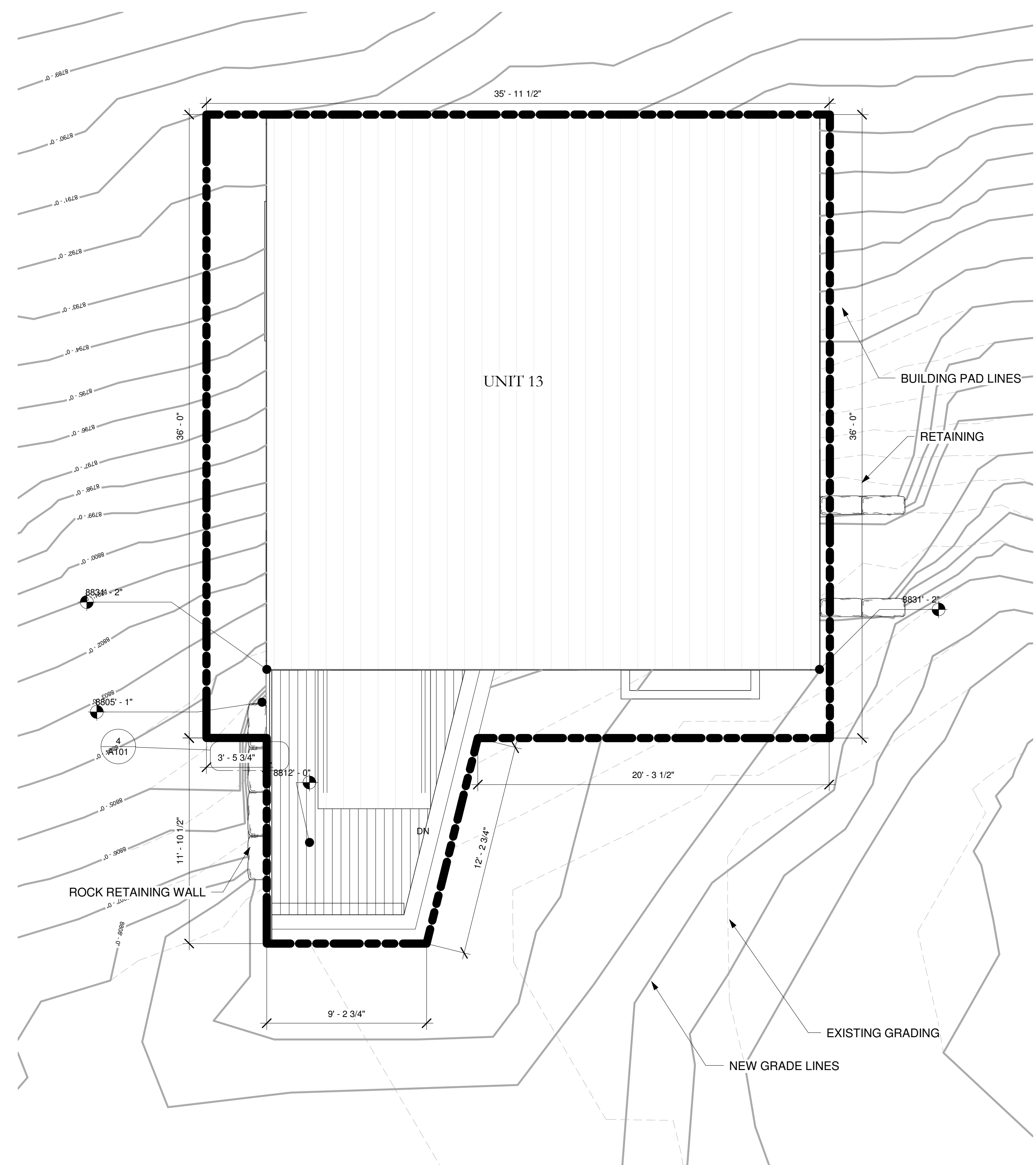
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DRAWING NO:

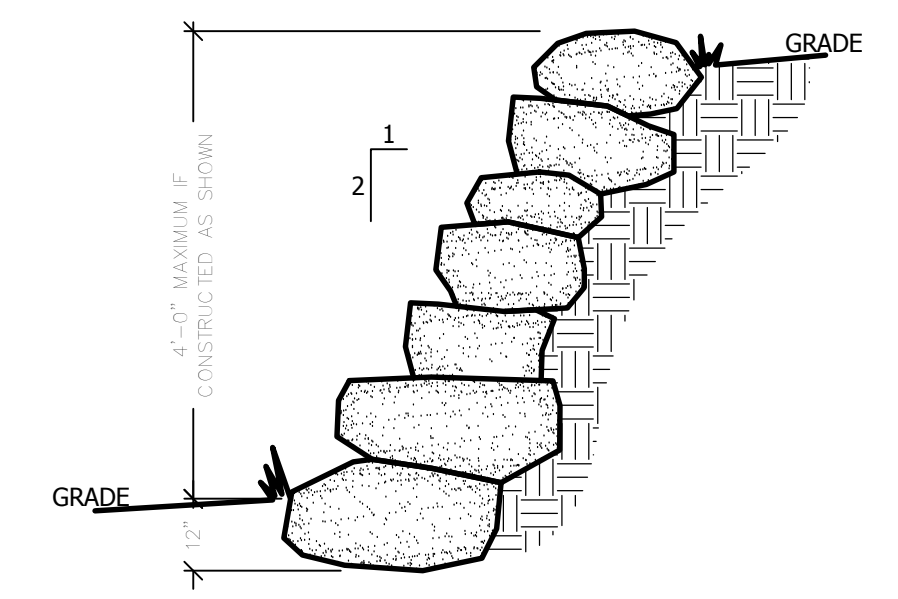
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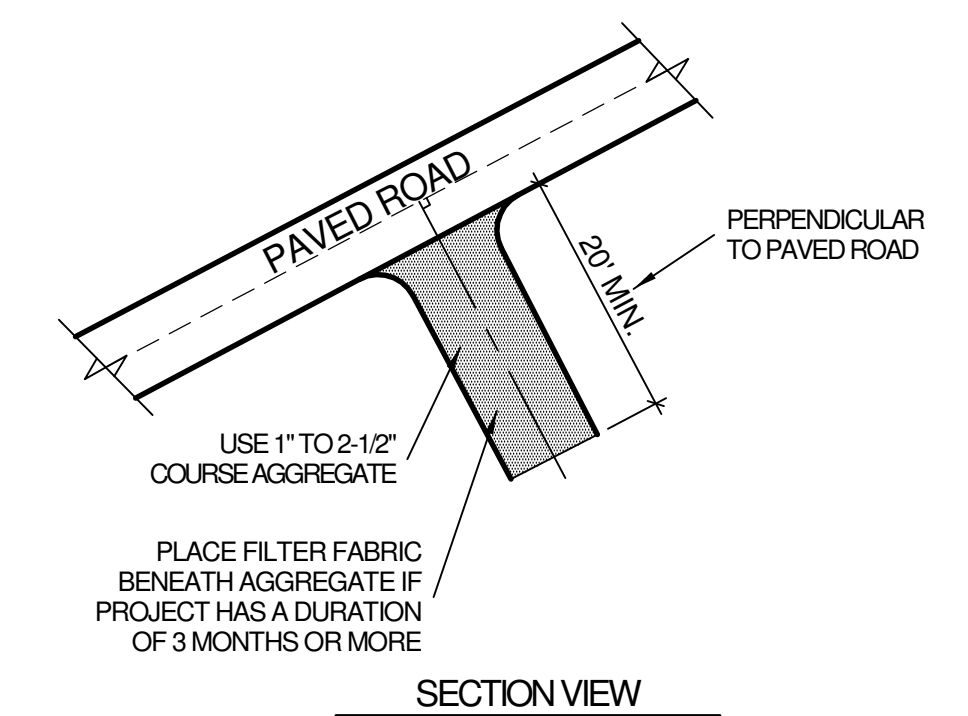
**1** SITE PLAN  
SCALE: 1/4" = 1'-0"



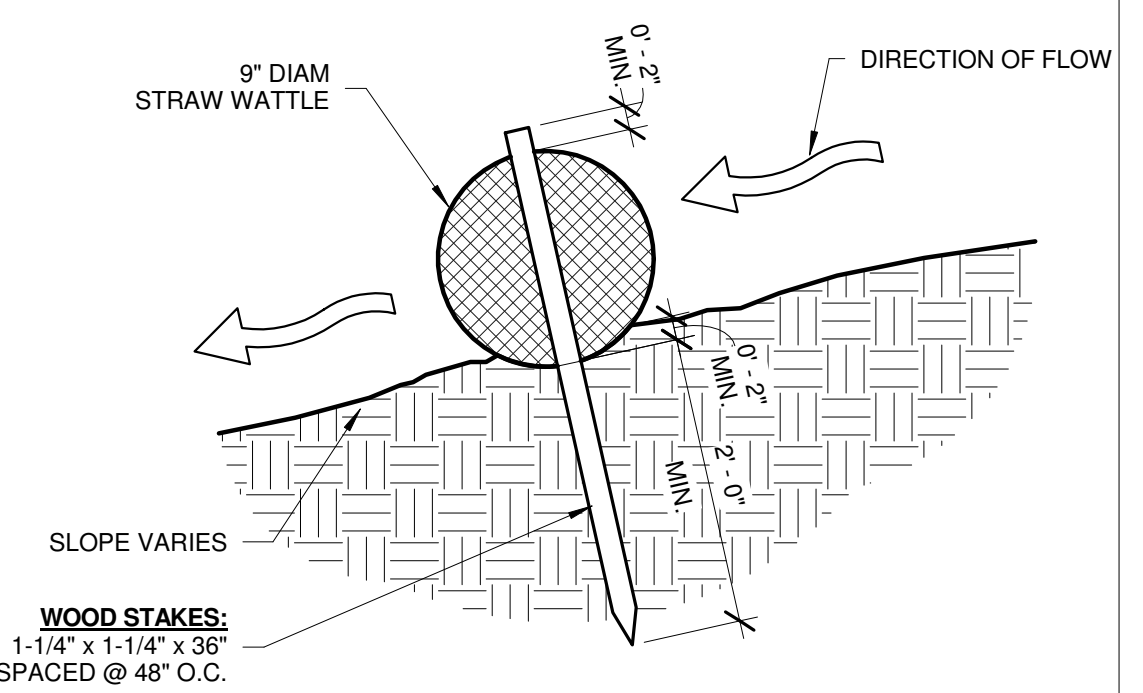
**4** RETAINING WALL  
A101/A101



- GENERAL SITE NOTES**
- GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
  - PROVIDE CON. SPLASH BLOCKS @ ALL DOWNSPOUT LOCATIONS.
  - INSTALL EXPANSION JOINTS @ 40'-0" MAX IN CONC. WALKS & CONTROL JOINTS @ 5'-0" MAX.
  - ALL WALK INTERSECTIONS TO HAVE A 24" RADIUS.
  - ALL STUMPS, ROOTS, AND ORGANIC MATERIAL SHALL BE REMOVED FROM THE SOIL IN THE BUILDING AREA TO A DEPTH OF 12".
  - ALL EARTH FILL TO RECEIVE CONC. FLOORS, WALKS, DRIVES, ETC. SHALL BE SETTLED AND TAMPED TO 90% COMPACTION.
  - APPROVED NUMBERS FOR ADDRESS SHALL BE PROVIDED FOR ALL NEW BUILDINGS IN SUCH A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROADWAY FRONTING THE PROPERTY.
  - SURFACE WATER SHALL DRAIN AWAY FROM HOUSE AT ALL POINTS. DIRECT THE DRAINAGE WATER TO THE STREET OR TO AN APPROVED DRAINAGE COURSE, BUT NOT ONTO NEIGHBORING PROPERTIES. THE GRADE SHALL DROP A MINIMUM OF 6 INCHES WITHIN THE FIRST 10 FEET. -IRC R401.3.
  - FINISH GRADE CUTS & FILLS THAT HAVE A SLOPE GREATER THAN 2:1 REQUIRE A SOILS REPORT.
  - ROCK RETAINING WALLS HIGHER THAN 4' AND A COMBINATION OF ROCK RETAINING WALLS THAT CREATE A SLOPE GREATER THAN 2:1 REQUIRE ENGINEERING.
  - SURVEYOR & CONTRACTOR TO PROVIDE A CERTIFICATE OF ELEVATION WHEN REQUIRED.



- INSTALLATION:**
- INSTALL AT ANY POINT OF INGRESS OR EGRESS AT A CONSTRUCTION SITE WHERE ADJACENT TRAVELED WAY IS PAVED.
  - CLEAR AND GRUB AREA AND GRADE TO PROVIDE SLOPE FOR DRIVEWAY. IF ADJACENT TO WATERWAY, USE A MAXIMUM SLOPE OF 2%.
  - COMPACT SUBGRADE AND PLACE FILTER FABRIC IF REQUIRED.
  - PLACE COURSE AGGREGATE, 1 TO 2-1/2", TO A DEPTH IF 4".
- MAINTENANCE:**
- INSPECT DAILY FOR GRAVEL LOSS OF SEDIMENT BUILDUP.
  - INSPECT ADJACENT ROADWAY FOR SEDIMENT DEPOSIT. CLEAN IF NECESSARY.
  - REPAIR ENTRANCE AND REPLACE GRAVEL AS REQUIRED TO MAINTAIN GOOD WORKING CONDITION.
  - EXPAND STABILIZED AREA AS REQUIRED TO ACCOMMODATE TRAFFIC, AND TO PREVENT EROSION OF DRIVEWAY.



- NOTES:**
- STAKE SPACING SHALL NOT EXCEED 48" O.C.
  - PROVIDE A STAKE WITHIN 24" OF THE END OF WATTLES.
  - WATTLES SHALL BE PLACED IN 2" DEEP TRENCH AND SHALL FOLLOW THE CONTOURS OF THE PROPERTY.
  - ENDS OF WATTLES SHALL BE TURNED SLIGHTLY UPHILL.
  - IF SPLICES ARE REQUIRED, TIE THE ENDS TOGETHER USING HEAVY TWINE AND PROVIDE A WOOD STAKE ON BOTH SIDES OF THE SPLICE.

**2** WATTLE DETAIL  
A101

NO	DATE	ISSUE
1	05.13.15	PRELIMINARY SET

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Tel. 435.654.1456  
www.parkeng.net

DRAWINGS FOR:  
**SUMMIT POWDER MOUNTAIN**  
RIDGE NEST 13  
CACHE COUNTY, UTAH

DRAWING TITLE:  
**SITE PLAN**

PROJECT #:  
DRAWN BY: RP  
CHECKED BY: SP  
SCALE: As indicated

NOTE: IF THIS DRAWING IS NOT 36" x 24", IT HAS BEEN REVISED FROM ITS ORIGINAL SIZE SCALE IS NO LONGER APPLICABLE.

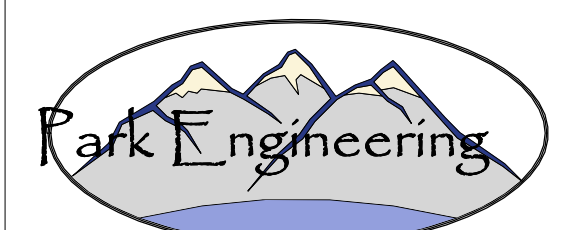
SEAL:

DRAWING NO:  
**A101**

NO	DATE	ISSUE
1	05.13.15	PRELIMINARY SET

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SUMMIT POWDER MOUNTAIN  
RIDGE NEST 13  
CACHE COUNTY, UTAH

DRAWINGS FOR:

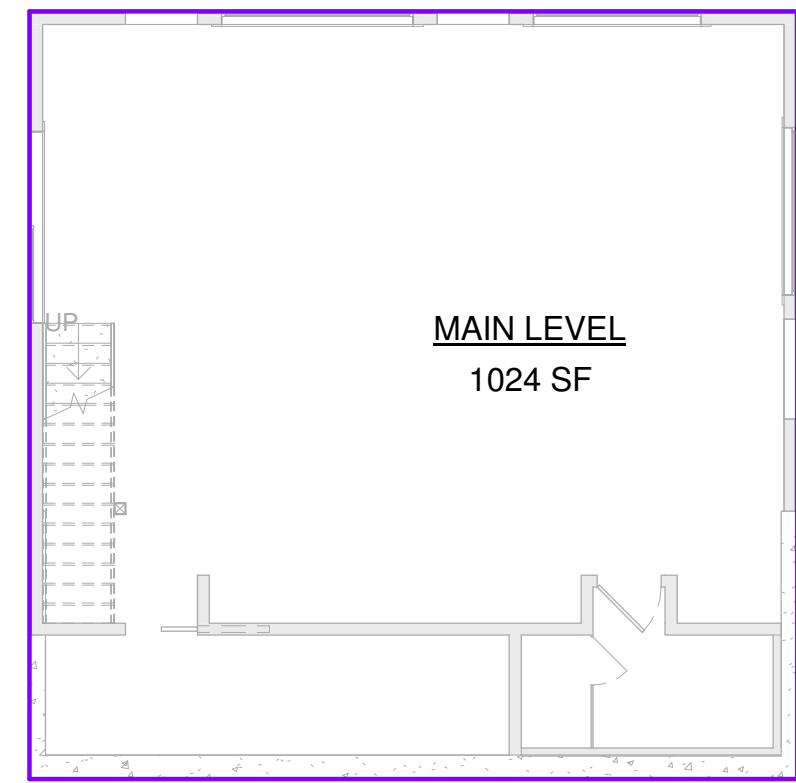
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FLOOR PLANS

PROJECT # :  
DRAWN BY : TM  
CHECKED BY : SP  
SCALE : As indicated

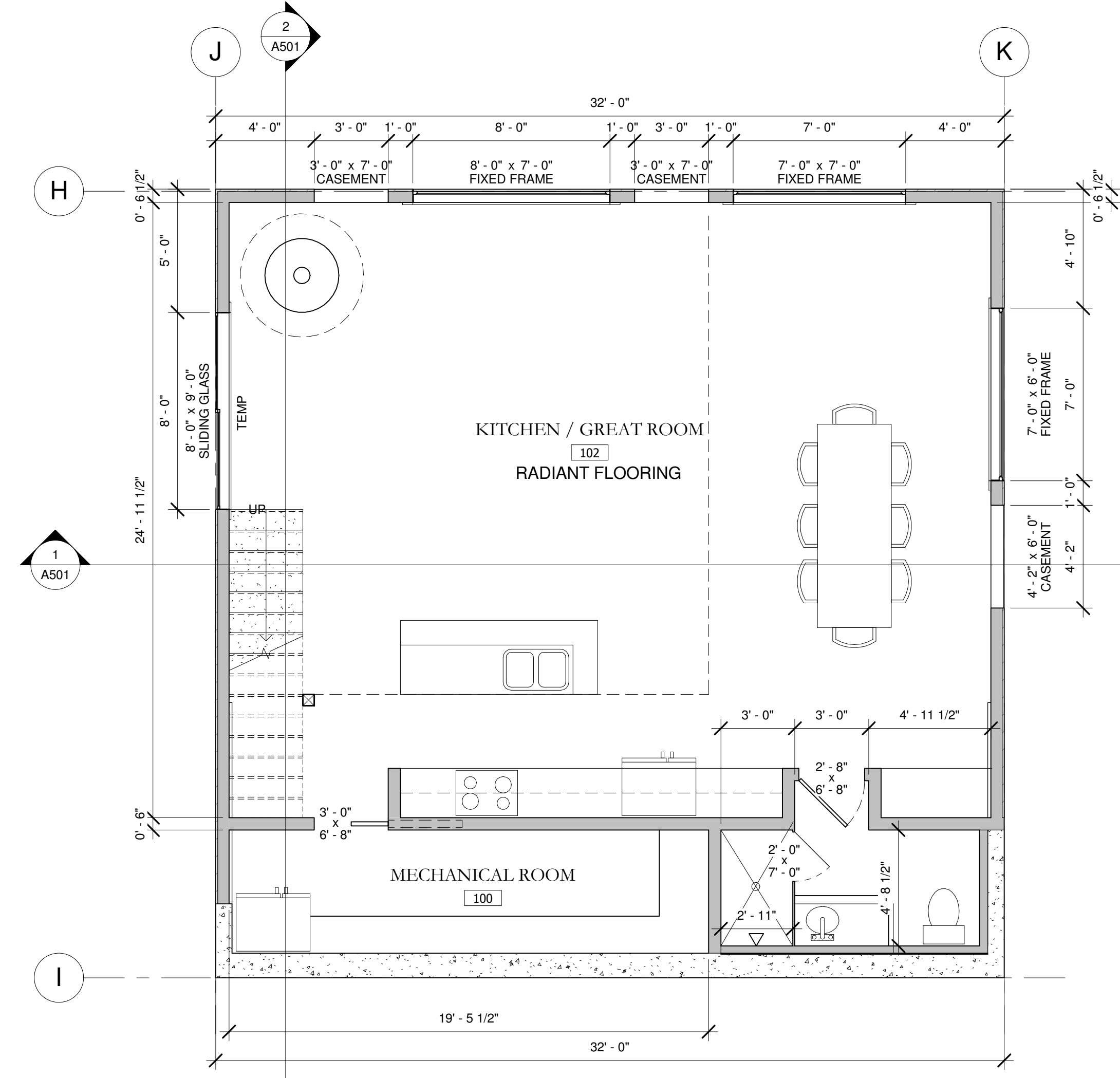
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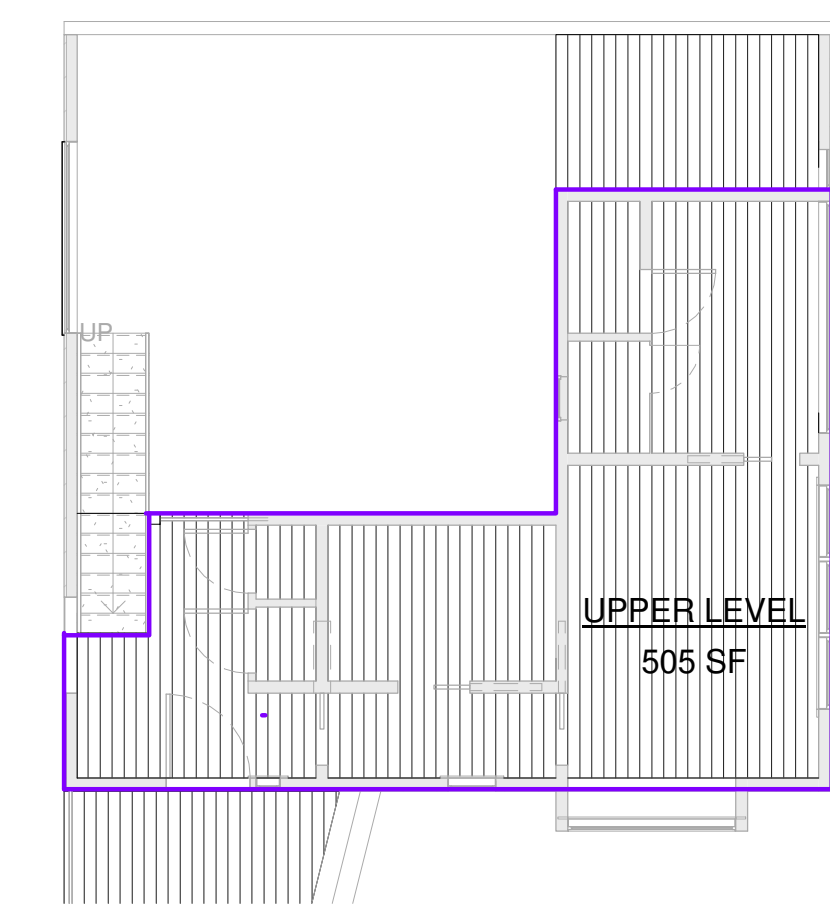
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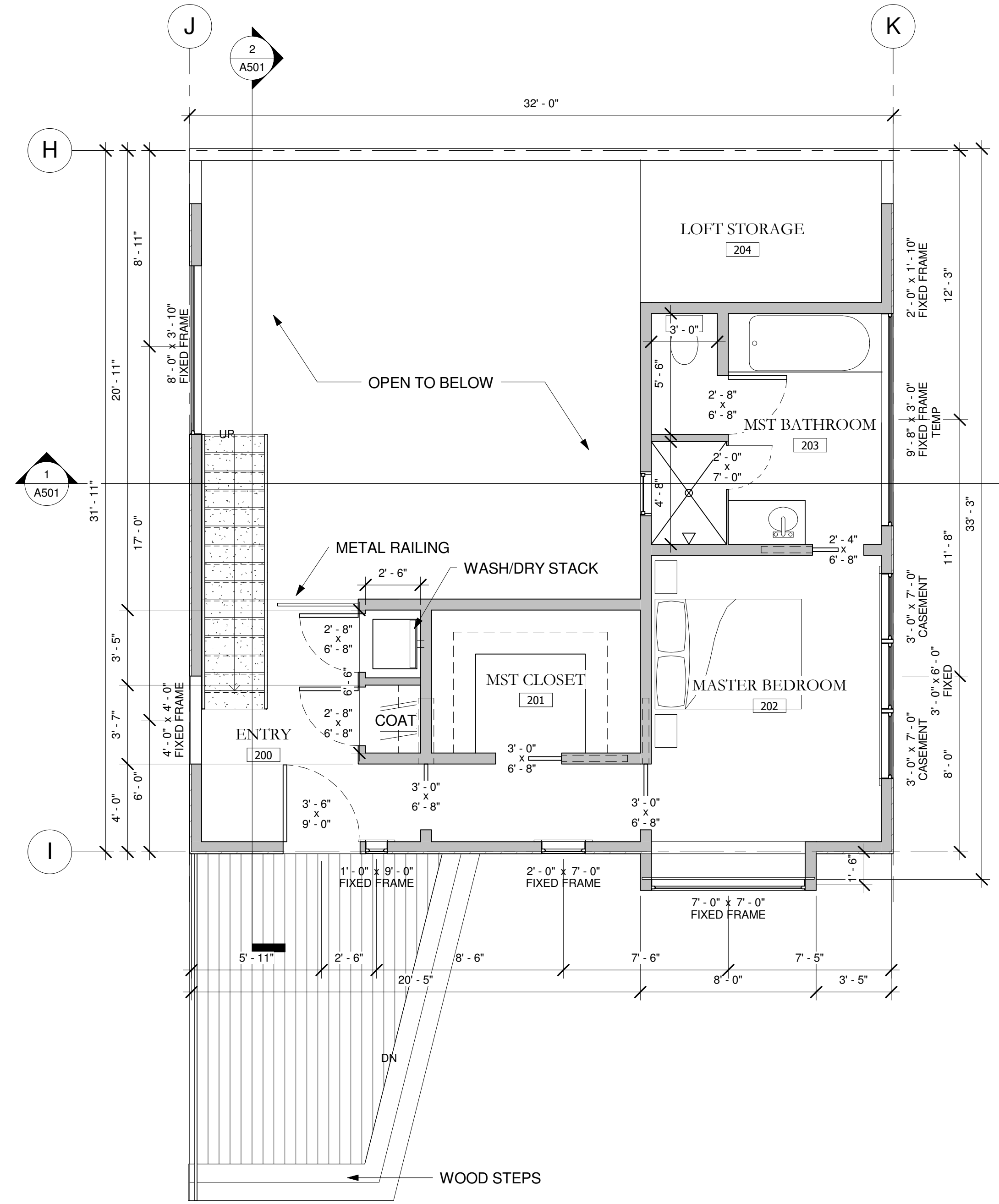
1 MAIN LEVEL AREA PLAN  
SCALE: 1/8" = 1'-0"



2 FLOOR PLAN - MAIN LEVEL  
SCALE: 1/4" = 1'-0"



4 UPPER LEVEL  
SCALE: 1/8" = 1'-0"



3 FLOOR PLAN - UPPER LEVEL  
SCALE: 1/4" = 1'-0"

NO	DATE	ISSUE
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DRAWINGS FOR:  
**SUMMIT POWDER MOUNTAIN**  
 RIDGE NEST 13  
 CACHE COUNTY, UTAH

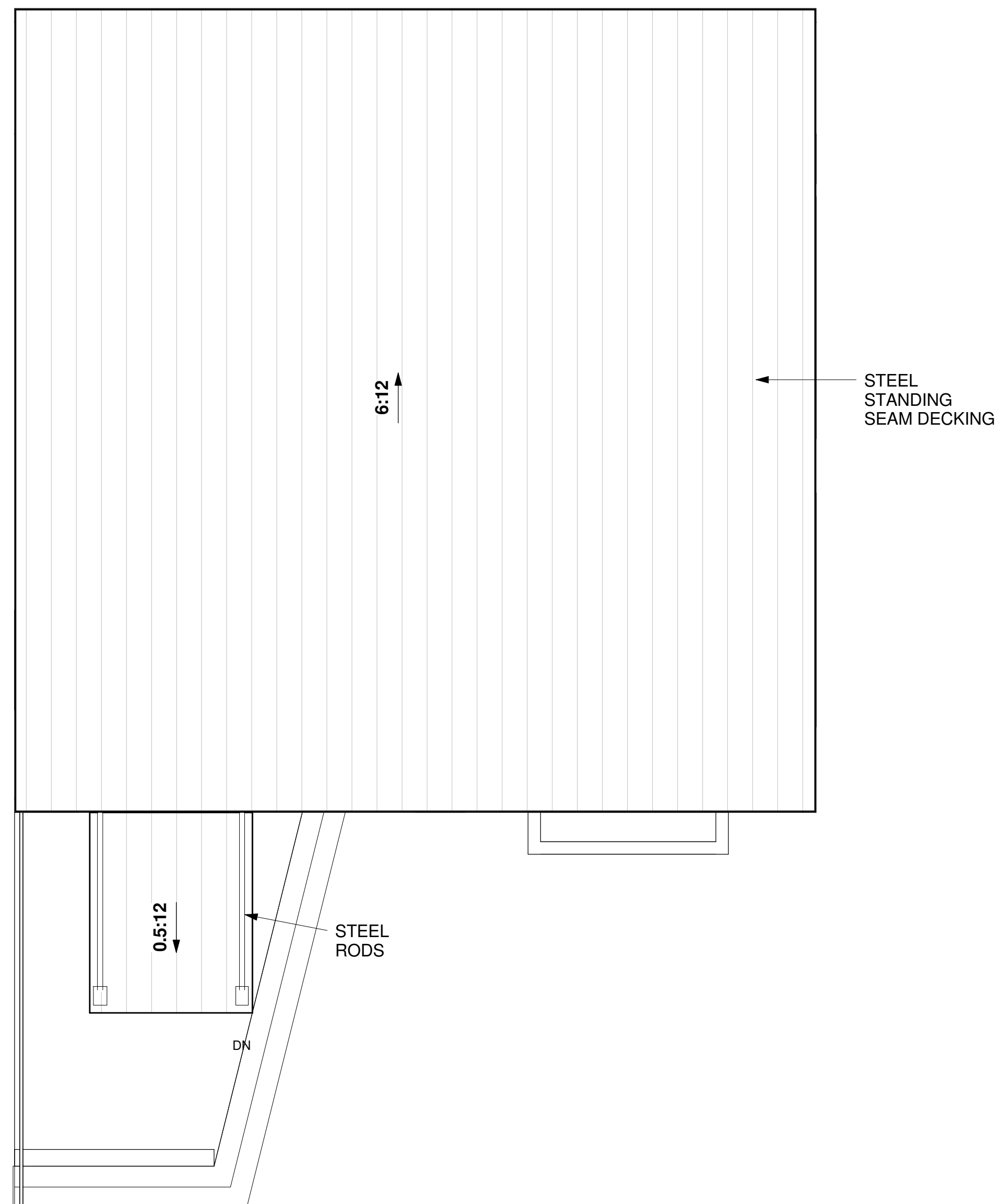
DRAWING TITLE:  
**ROOF PLAN**

PROJECT #:  
 DRAWN BY: TM  
 CHECKED BY: SP  
 SCALE: 1/4" = 1'-0"

NOTE: IF THIS DRAWING IS NOT 36" x 24", IT HAS BEEN REVISED FROM ITS ORIGINAL SIZE. SCALE IS NO LONGER APPLICABLE.

SEAL:

DRAWING NO:  
**A205**



**1 ROOF PLAN**  
 SCALE: 1/4" = 1'-0"

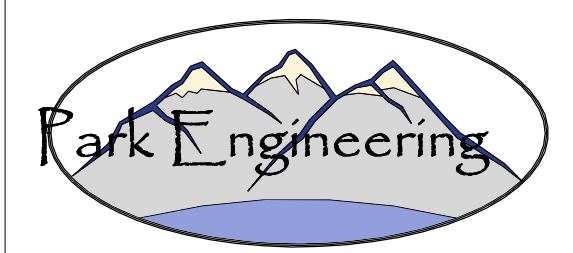


NO	DATE	ISSUE
1	05.13.15	PRELIMINARY SET

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DRAWINGS FOR:  
**SUMMIT POWDER MOUNTAIN**  
RIDGE NEST 13  
CACHE COUNTY, UTAH

DRAWING TITLE:  
**ELEVATIONS**

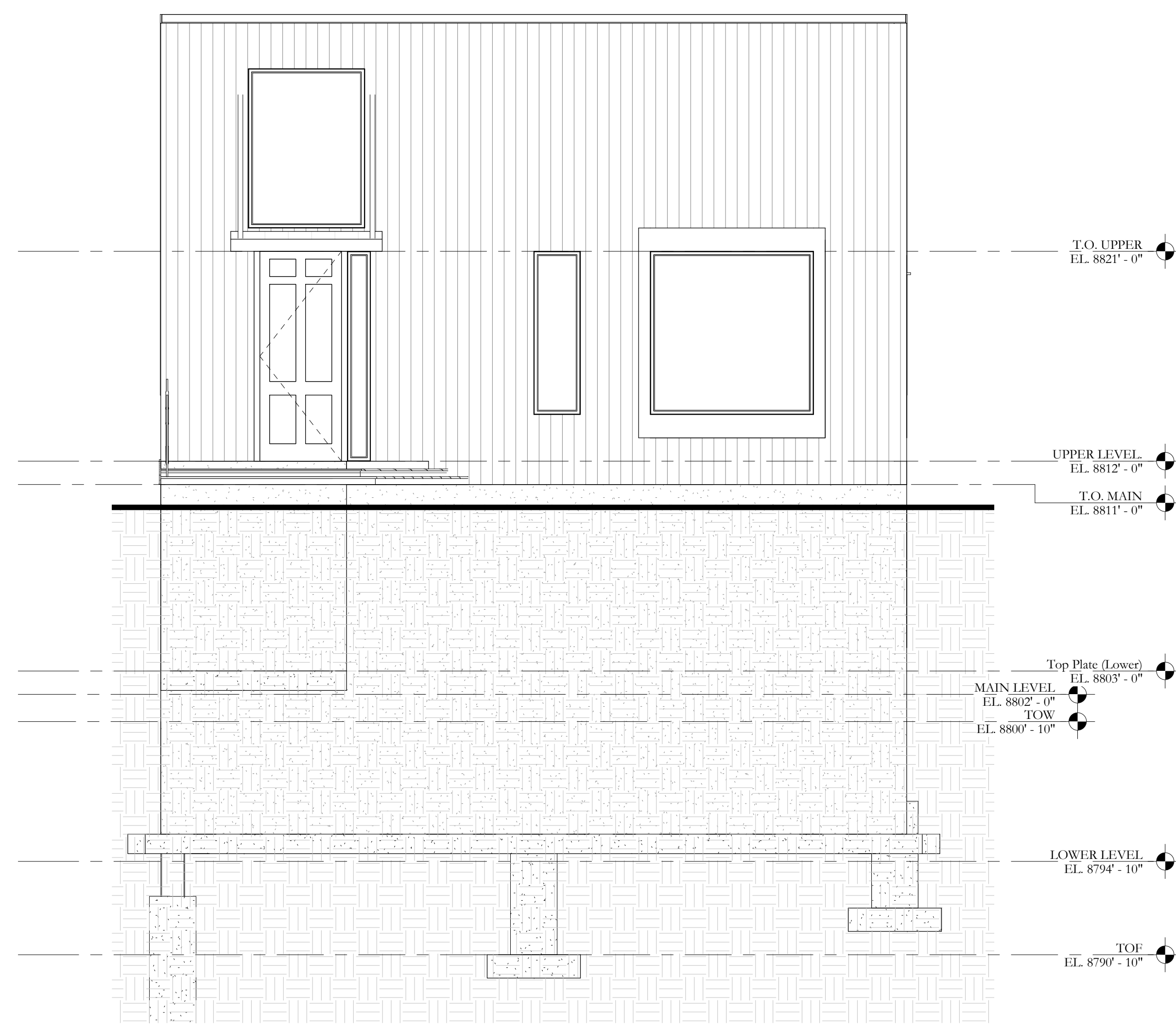
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CHECKED BY : SP  
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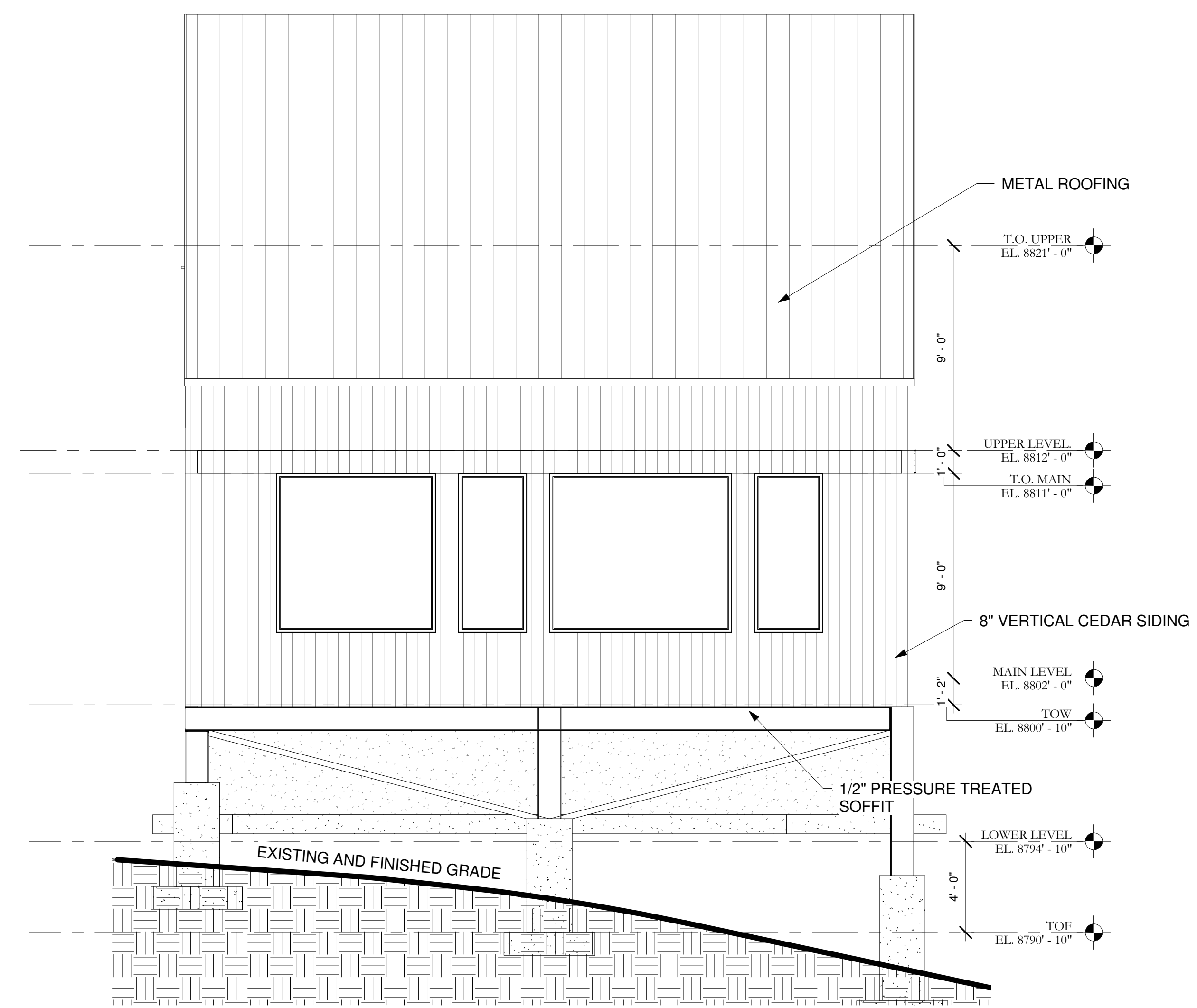
SEAL :

DRAWING NO.:

**A301**



**1 EAST ELEVATION**  
SCALE: 1/4" = 1'-0"



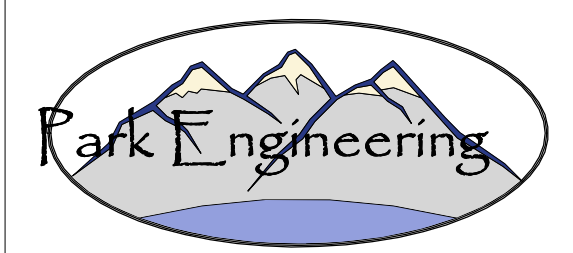
**2 WEST ELEVATION**  
SCALE: 1/4" = 1'-0"

NO	DATE	ISSUE

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DRAWINGS FOR:  
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CACHE COUNTY, UTAH

DRAWING TITLE:  
**ELEVATIONS**

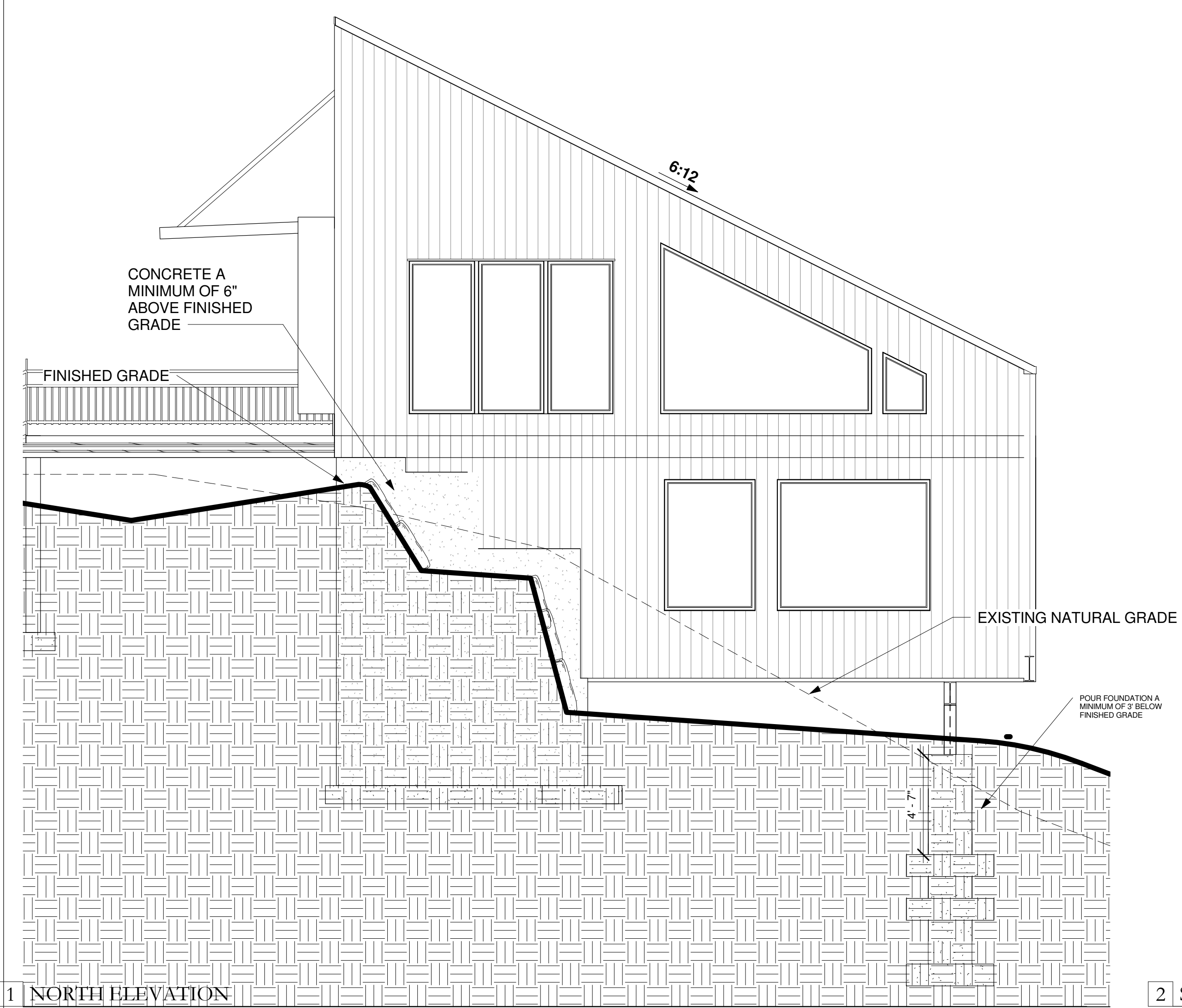
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CHECKED BY : Checker  
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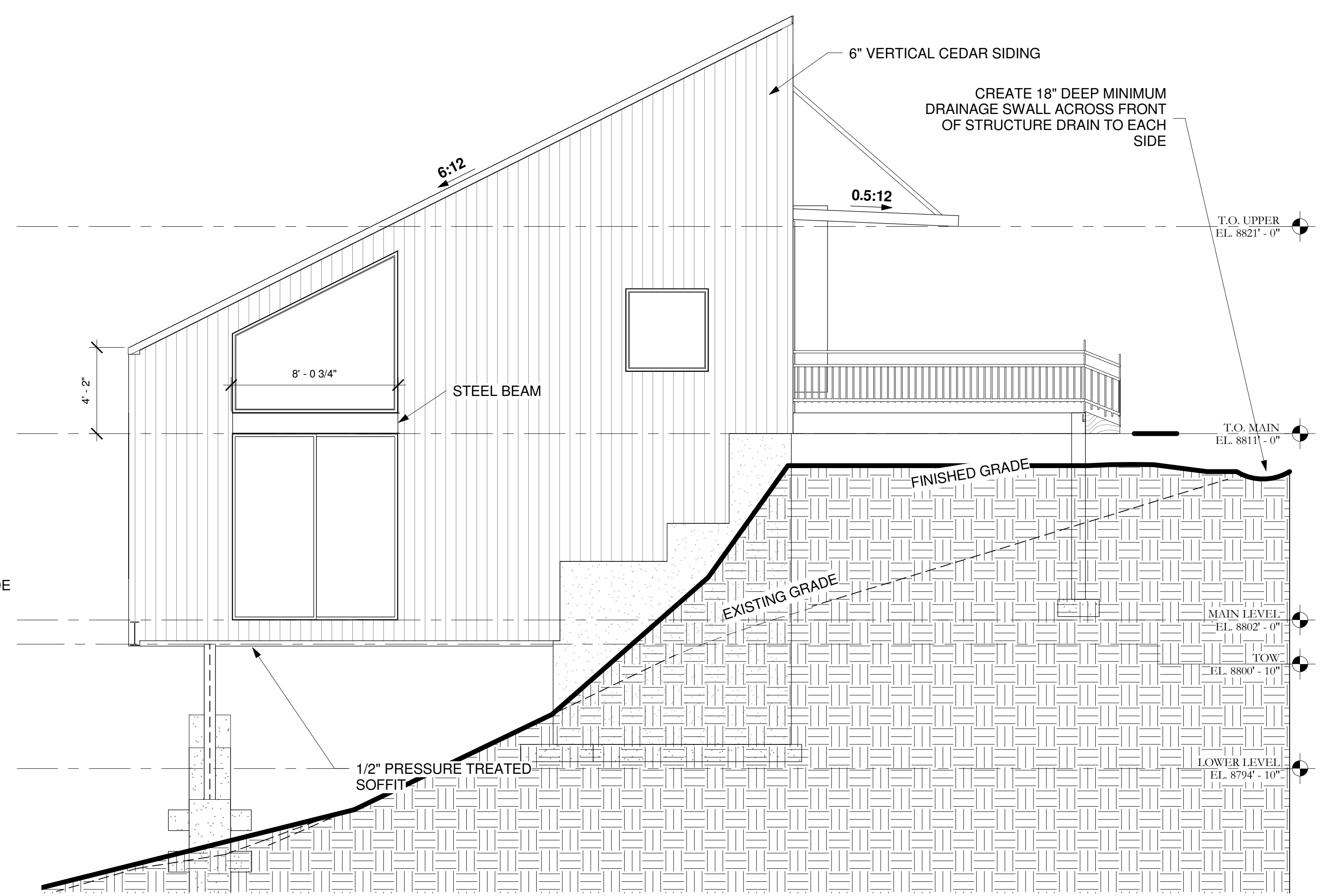
SEAL :

DRAWING NO.:

**A302**



**1 NORTH ELEVATION**  
SCALE: 1/4" = 1'-0"



**2 SOUTH ELEVATION**  
SCALE: 1/4" = 1'-0"



NO	DATE	ISSUE
1	05.13.15	PRELIMINARY SET

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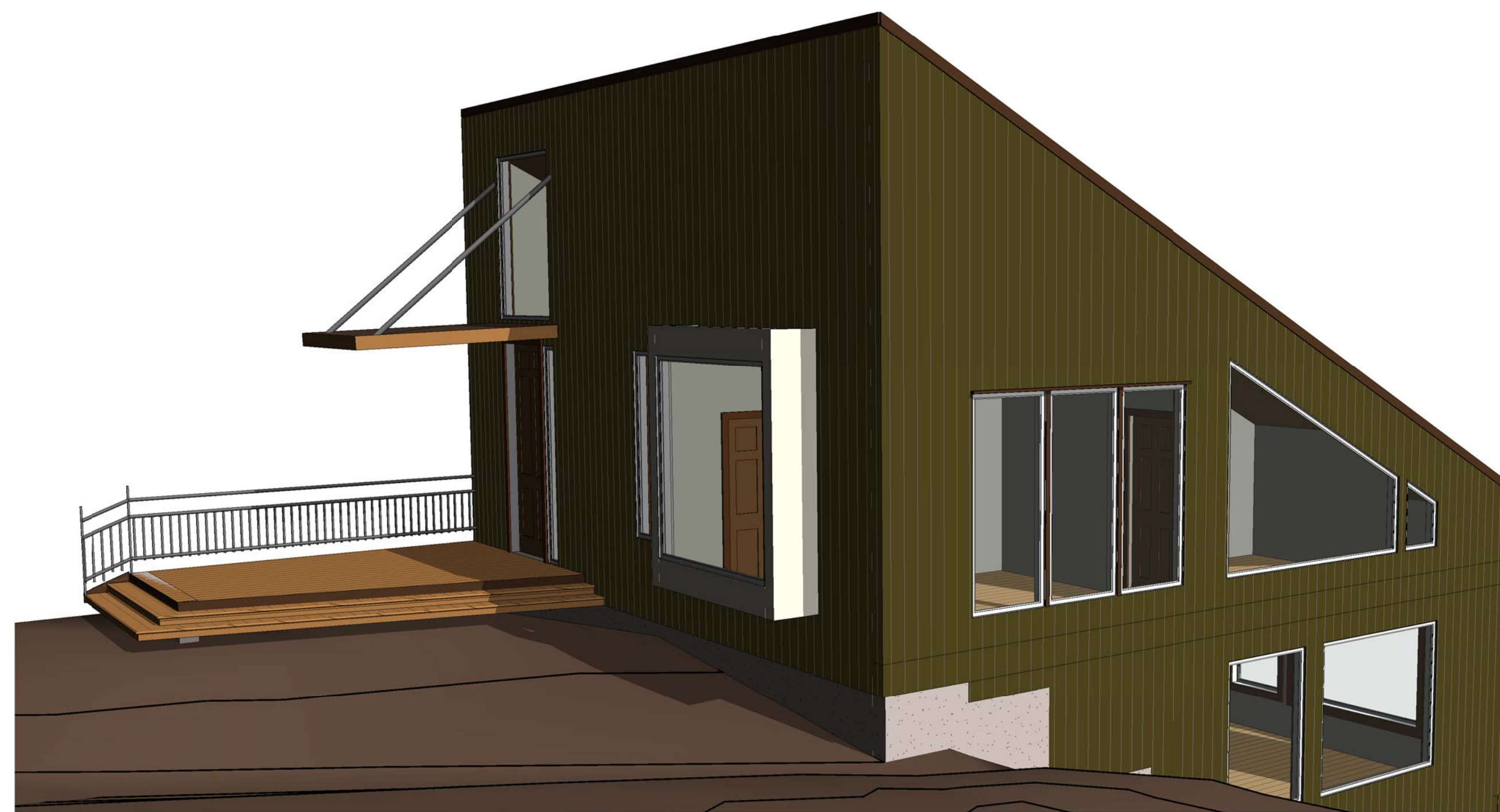
DRAWINGS FOR:  
**SUMMIT POWDER MOUNTAIN**  
 RIDGE NEST 13  
 CACHE COUNTY, UTAH

DRAWING TITLE:  
**3D VIEWS**

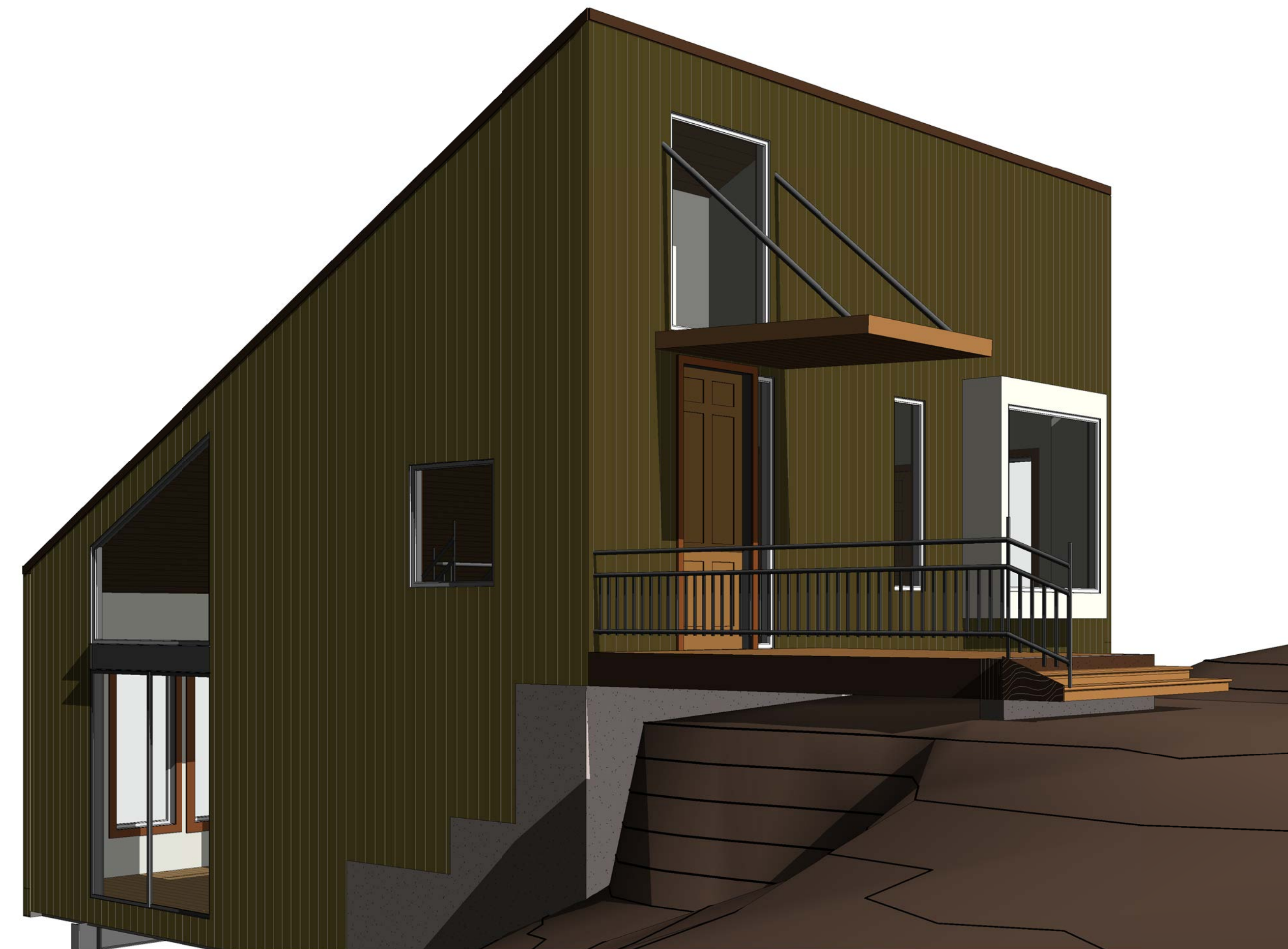
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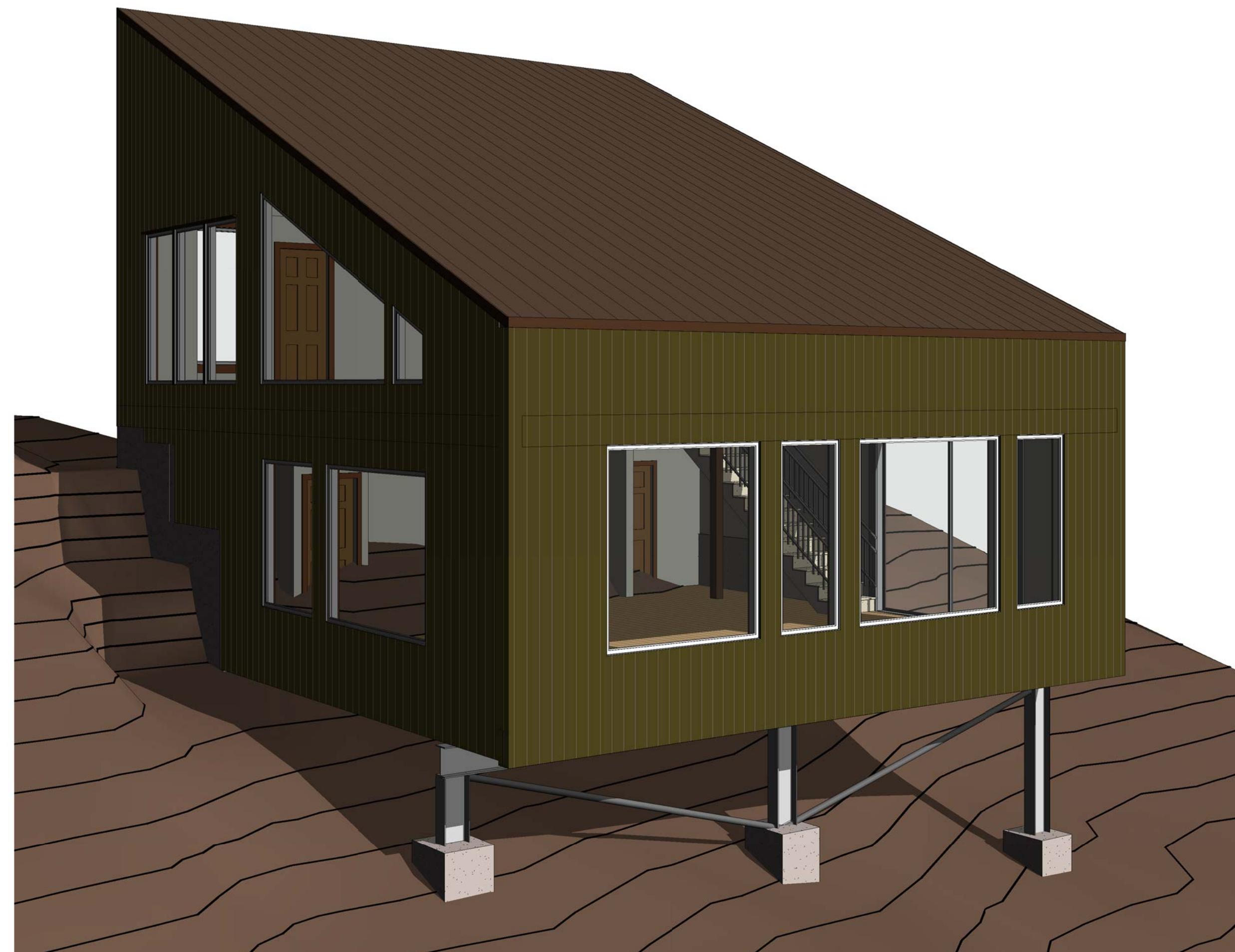
DRAWING NO:  
**A304**



1 PERSPECTIVE - FRONT RIGHT  
 SCALE:



2 PERSPECTIVE - FRONT LEFT  
 SCALE:



3 PERSPECTIVE - BACK RIGHT  
 SCALE:

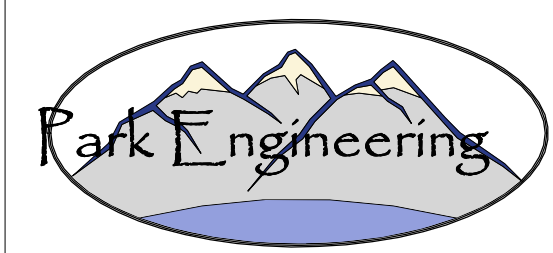


NO	DATE	ISSUE
1	05.13.15	PRELIMINARY SET

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DRAWINGS FOR:

**SUMMIT POWDER MOUNTAIN**

RIDGE NEST 13  
CACHE COUNTY, UTAH

DRAWING TITLE:

**BUILDING SECTIONS**

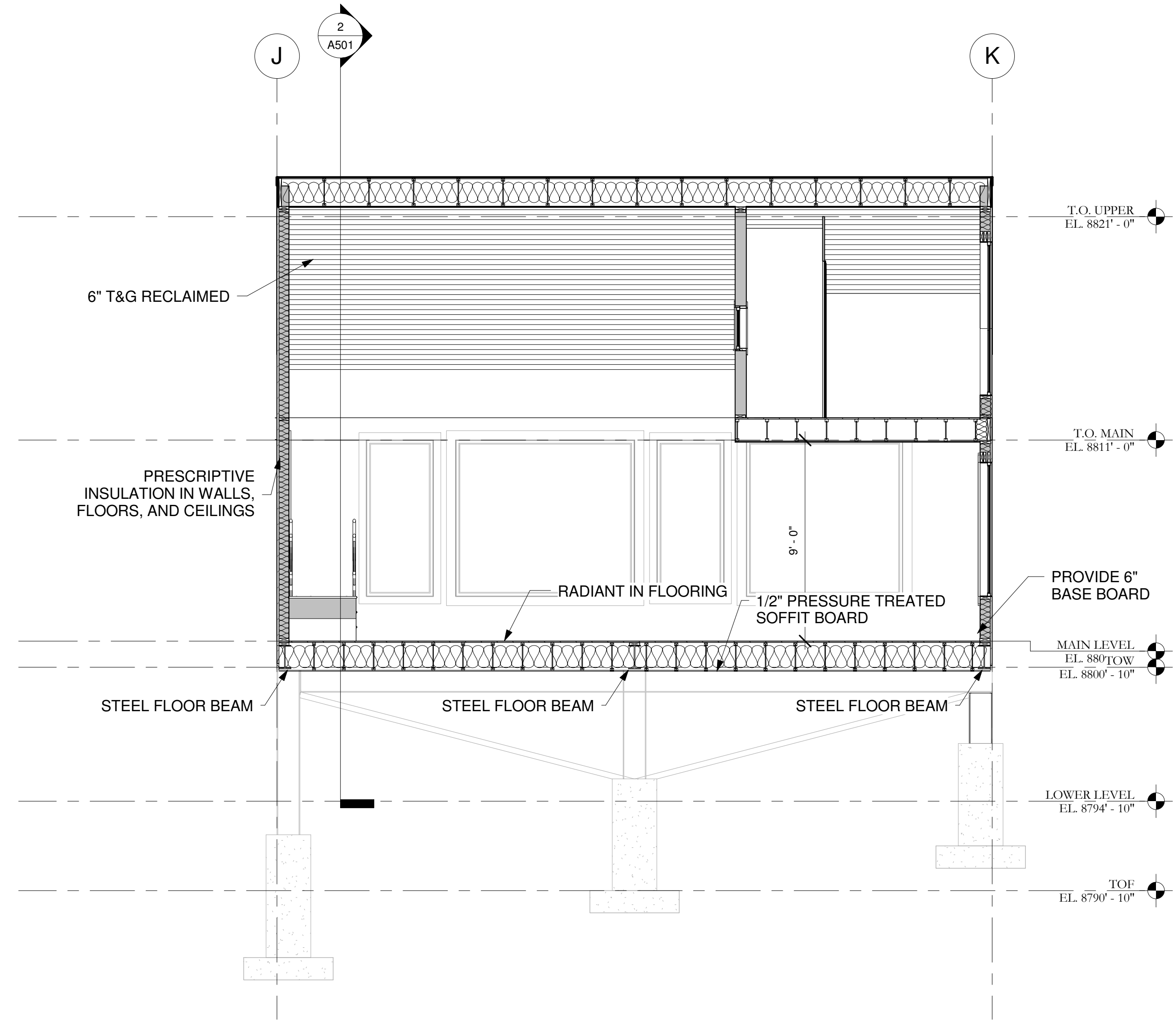
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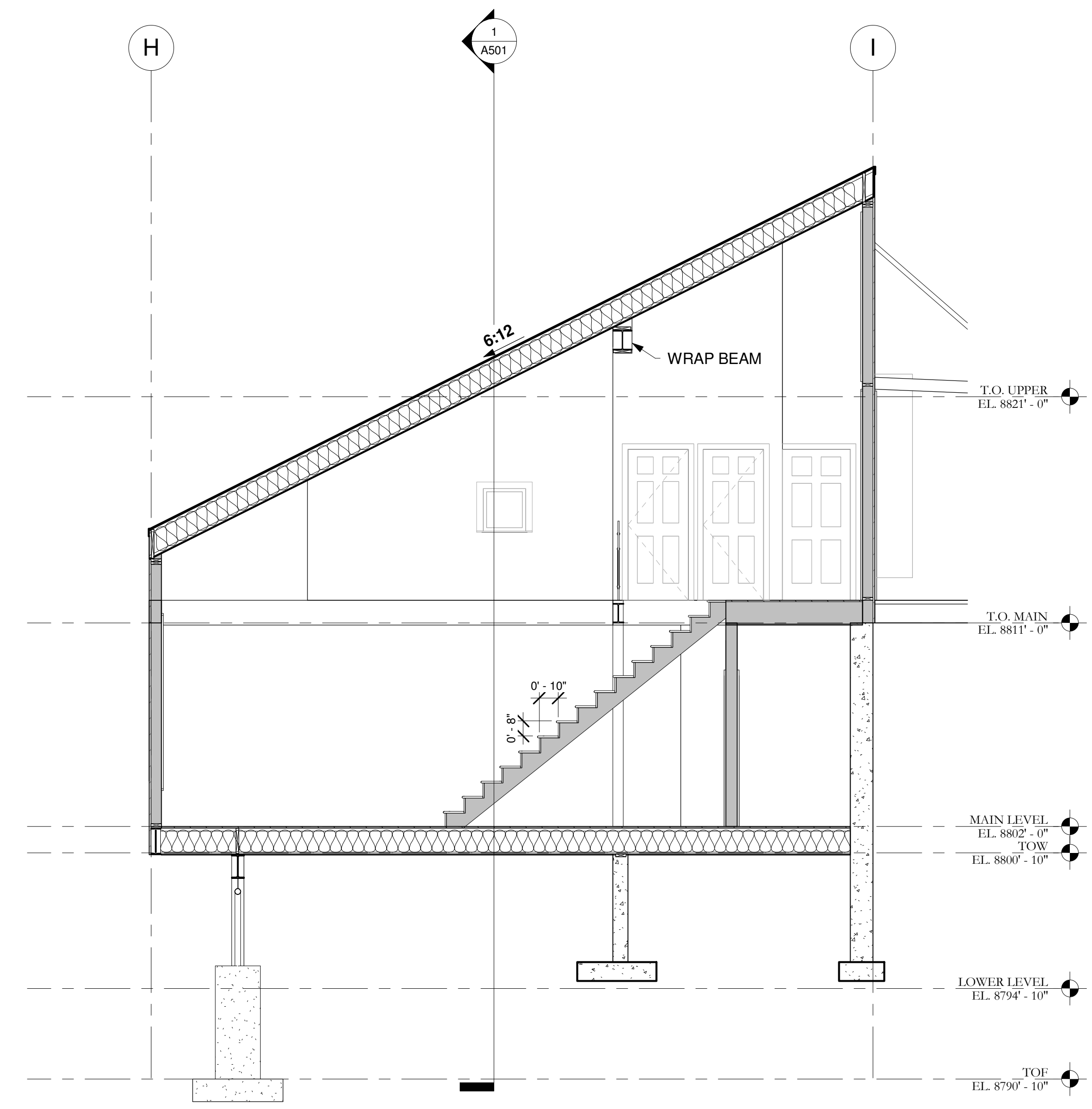
SEAL :

DRAWING NO.:

**A501**



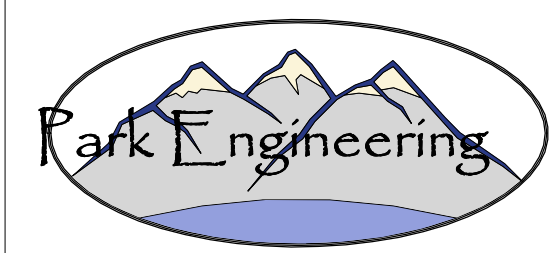
**1 Section 1**  
SCALE: 1/4" = 1'-0"



**2 Section 2**  
SCALE: 1/4" = 1'-0"

NO.	DATE	ISSUE

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DRAWINGS FOR:  
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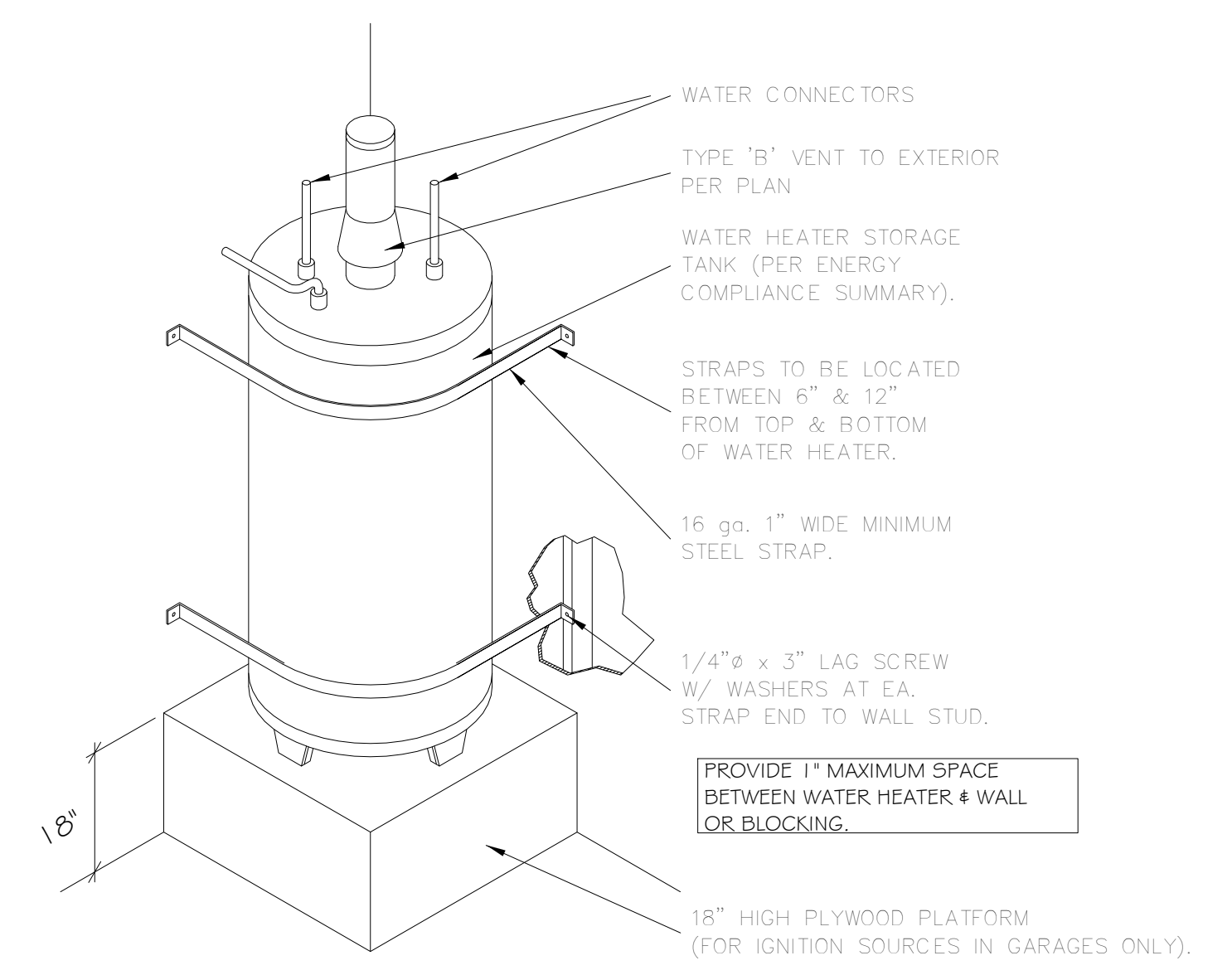
DRAWING TITLE:  
**DETAILS**

PROJECT #:  
 DRAWN BY: TM  
 CHECKED BY: SP  
 SCALE: As indicated

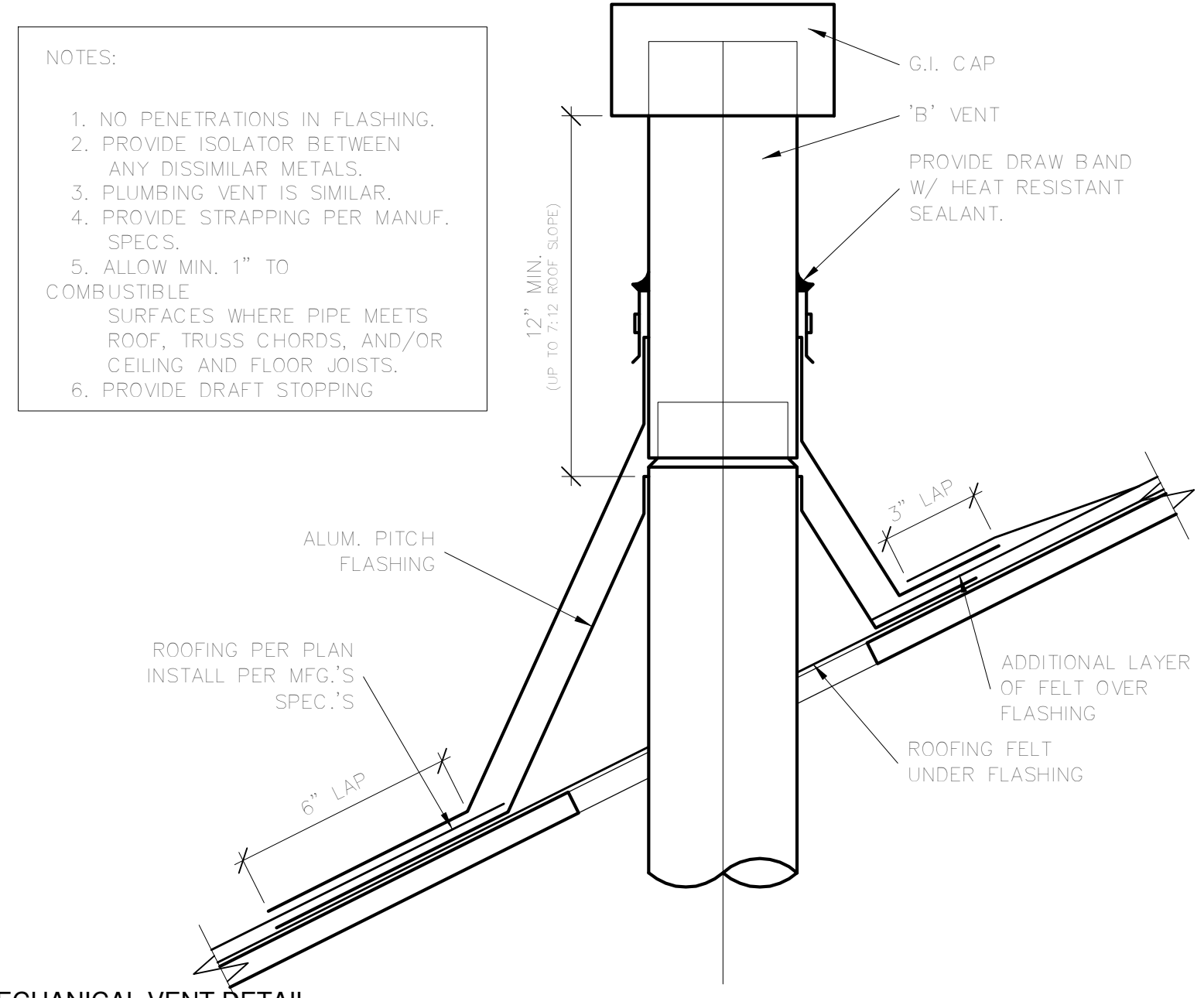
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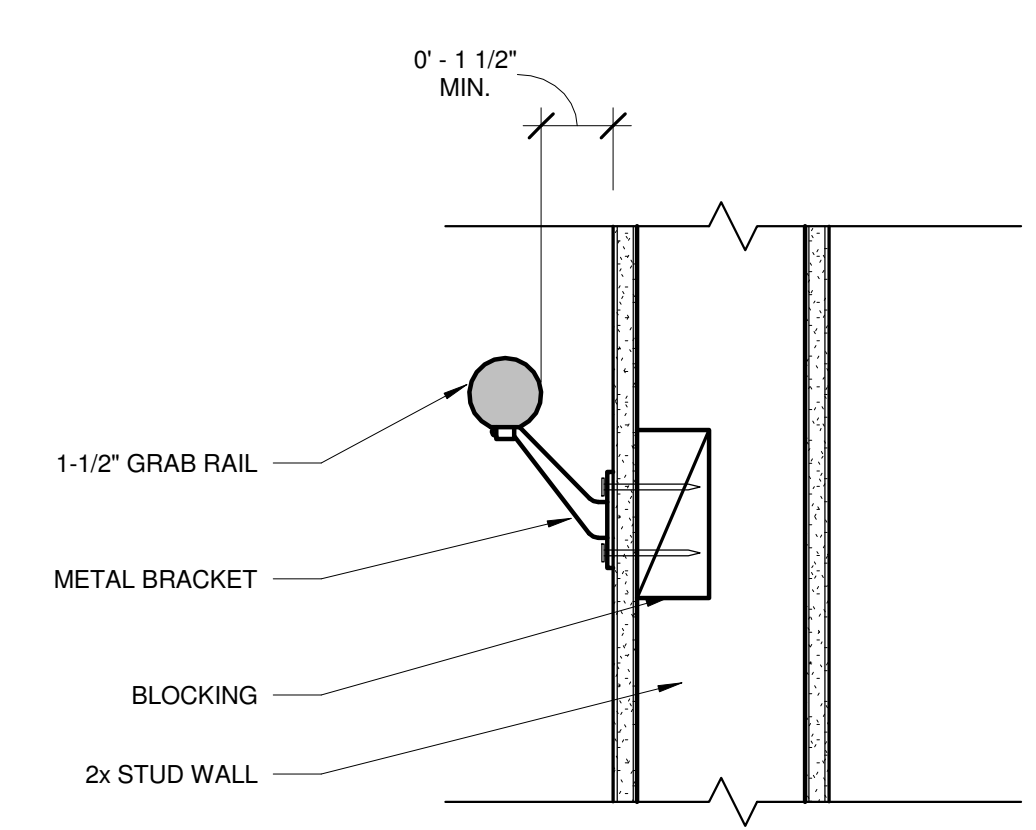
DRAWING NO:  
**A601**



**3 WATER HEATER STRAPPING DETAIL**  
 A601

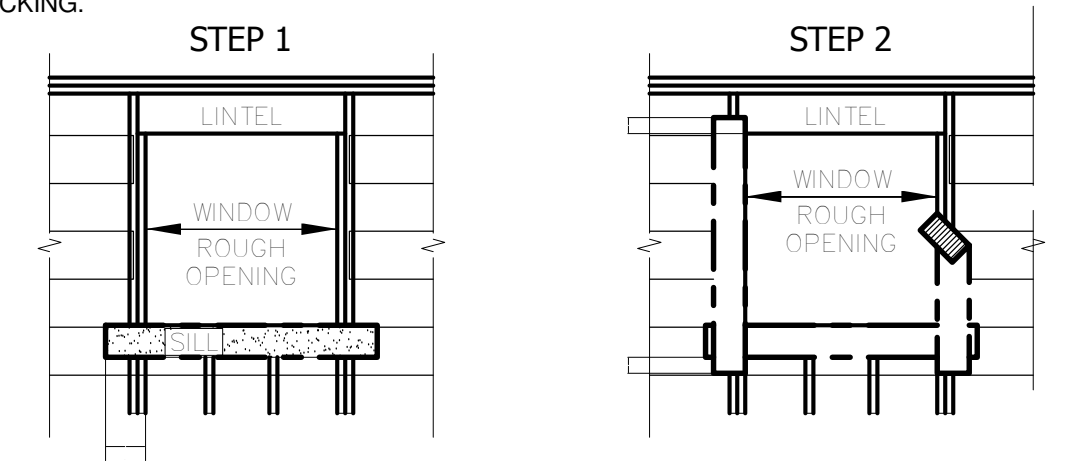


**4 MECHANICAL VENT DETAIL**  
 A601



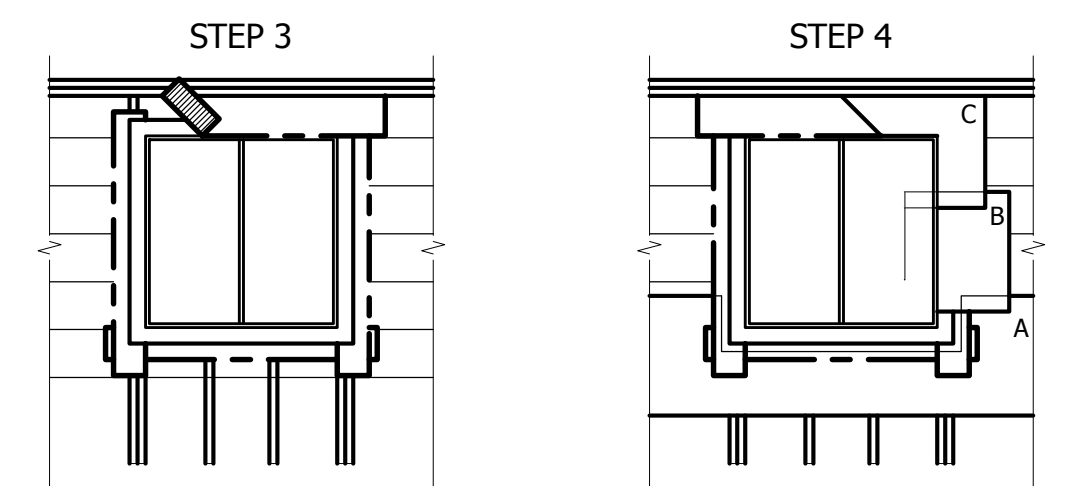
**7 GRAB RAIL DETAIL**  
 A601

**FLASHING NOTES:**  
 1- LINE WIRE, WHEN USED AS BACKING TO SUPPORT BUILDING PAPER BENEATH WIRE LATH (NETTING) FOR PORTLAND CEMENT (STUCCO), SHALL BE INSTALLED, AS FOLLOWS:  
 WIRE GAUGE, SPACING AND ATTACHMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIFICATIONS.  
 PERIPHERAL FLASHING AT ALL EDGES OF WALL OPENINGS MUST COVER THE WIRE BACKING.  
 NO ATTACHMENT DEVICES NOR THE WIRE BACKING SHALL COVER OR PENETRATE THE FLASHING MATERIAL.  
 2- FLASHING TO BE A MINIMUM OF 6" WIDE.  
 3- PROVIDE SEALANT AS RECOMMENDED BY WINDOW MANUFACTURER PRIOR TO INSTALLATION OF WINDOW OR SLIDING DOOR.



**ATTACH SILL STRIP WITH TOP EDGE LEVEL WITH, ROUGH SILL. EXTEND BEYOND EDGE OF ROUGH OPENING 8" MIN. SECURE ALL APPROVED FLASHING MATERIAL W/ GALVANIZED NAILS OR POWER-DRIVEN STAPLES.**

**ATTACH JAMB STRIPS WITH SIDE EDGE EVEN WITH ROUGH JAMB FRAMING. START STRIP 1" BELOW LOWER EDGE OF SILL STRIP AND EXTEND 4" ABOVE LOWER EDGE OF LINTEL.**

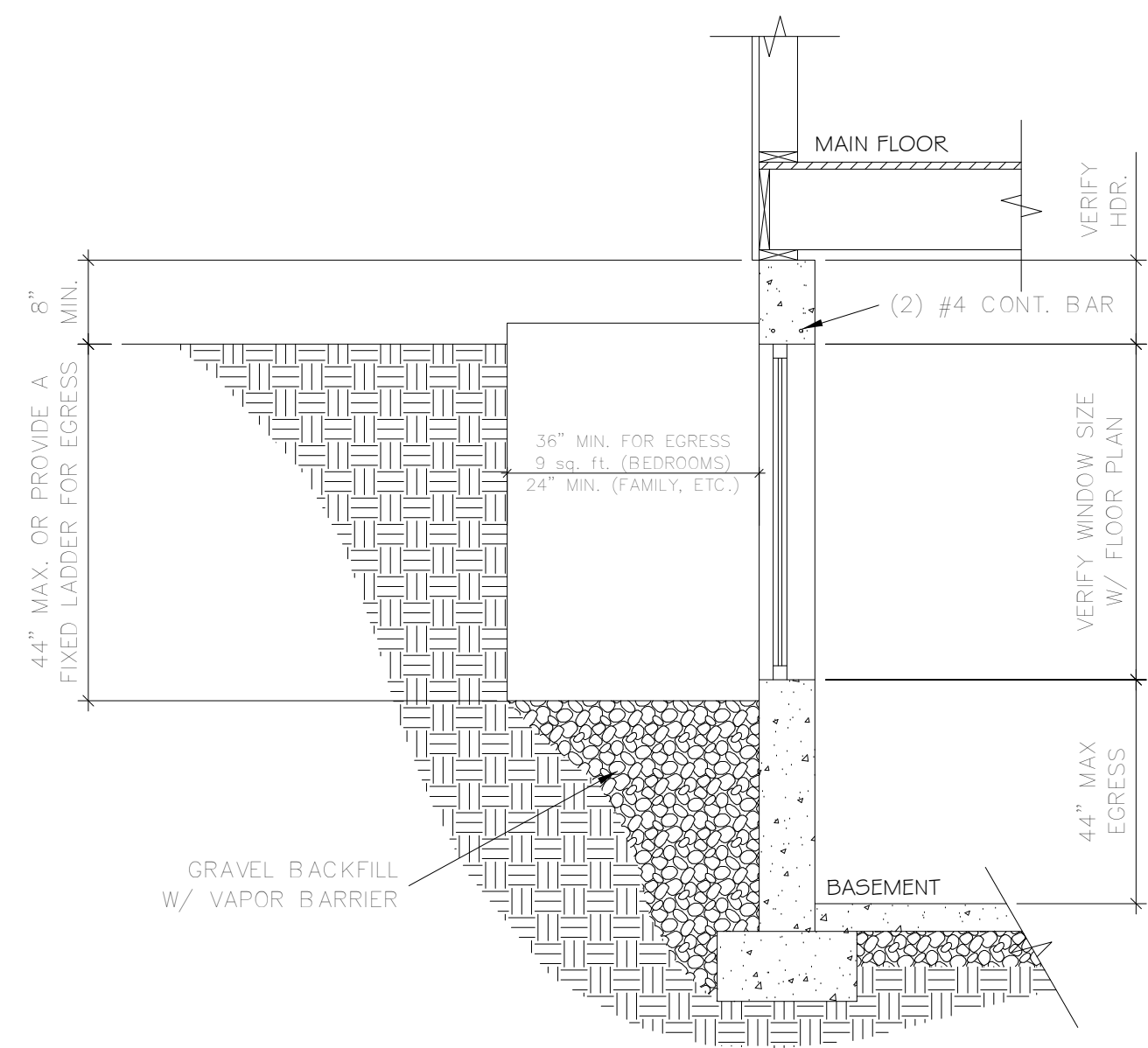


**INSTALL WINDOW INTO ROUGH OPENING WITH SILL AND JAMB FLANGES OVER PREVIOUSLY INSTALLED FLASHING. ATTACH HEAD FLASHING OVER THE WINDOW FLANGE.**

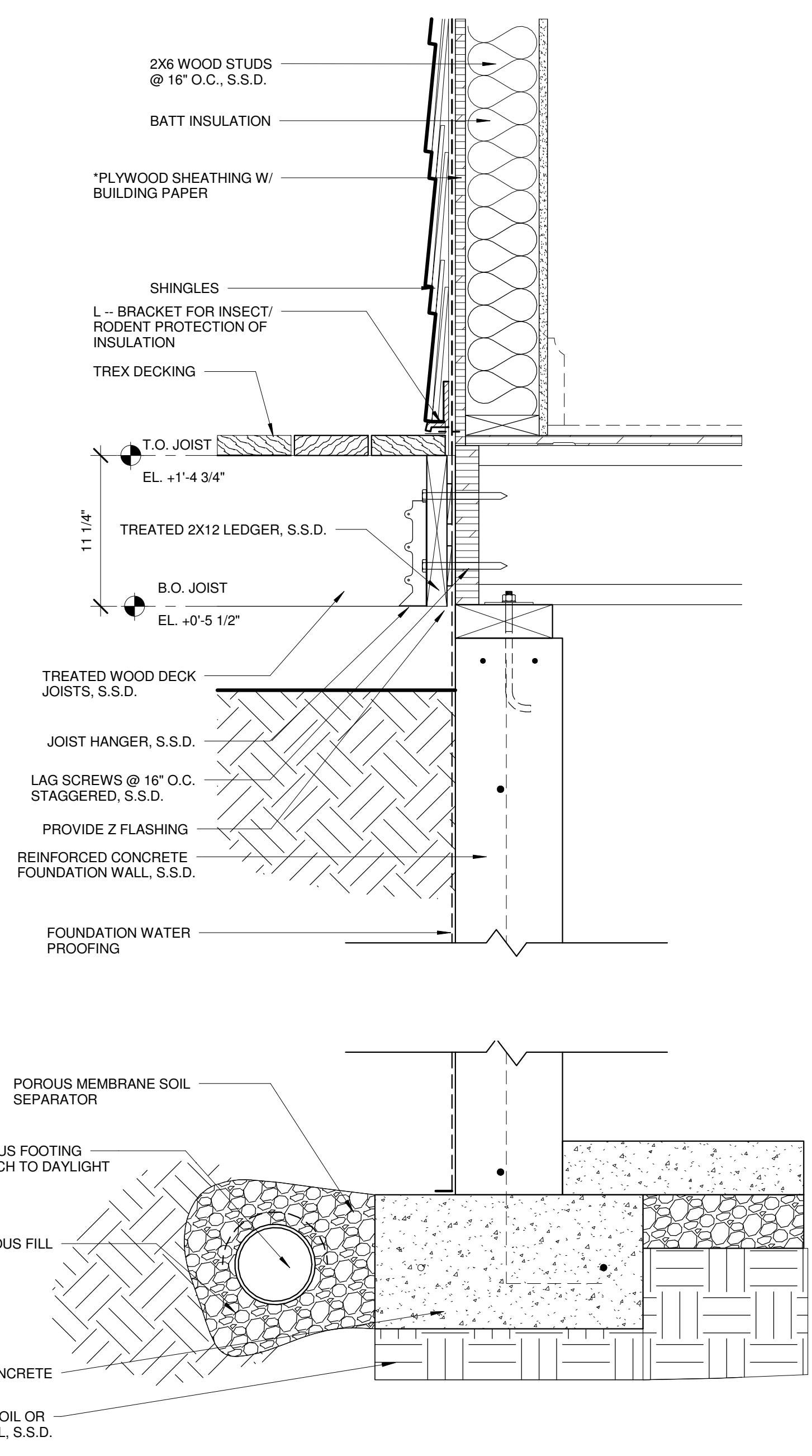
**NOTE: CUT ANY EXCESS BUILDING PAPER THAT MAY EXTEND ABOVE THE SILL FLANGE LINE ON EA. SIDE OF THE OPENING (SHOWN AS DASHED LINES).**

**DO NOT SPLICE BUILDING PAPER HORIZONTALLY SO THAT THE PAPER WILL LAP OVER THE JAMB STRIPS. INSTALL SUCCESSIVE LINES OF BUILDING PAPER (B.C.D. ETC.) OVER JAMB AND HEAD FLASHING, LAPPING EA. COURSE.**

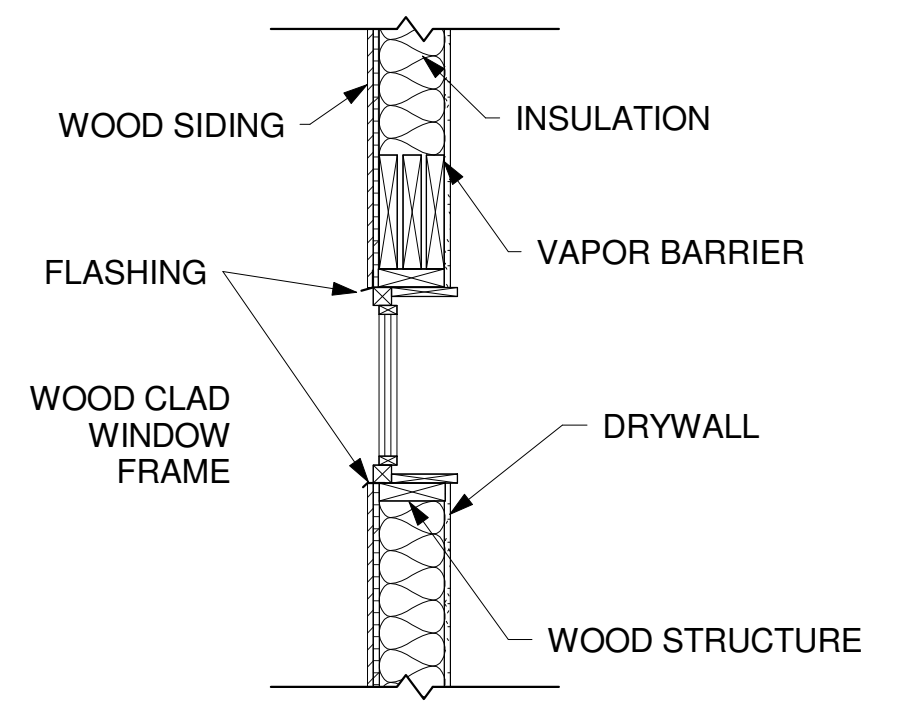
**2 NOTES-FLASHING**  
 A601



**6 WINDOW WELL DETAIL**  
 A601

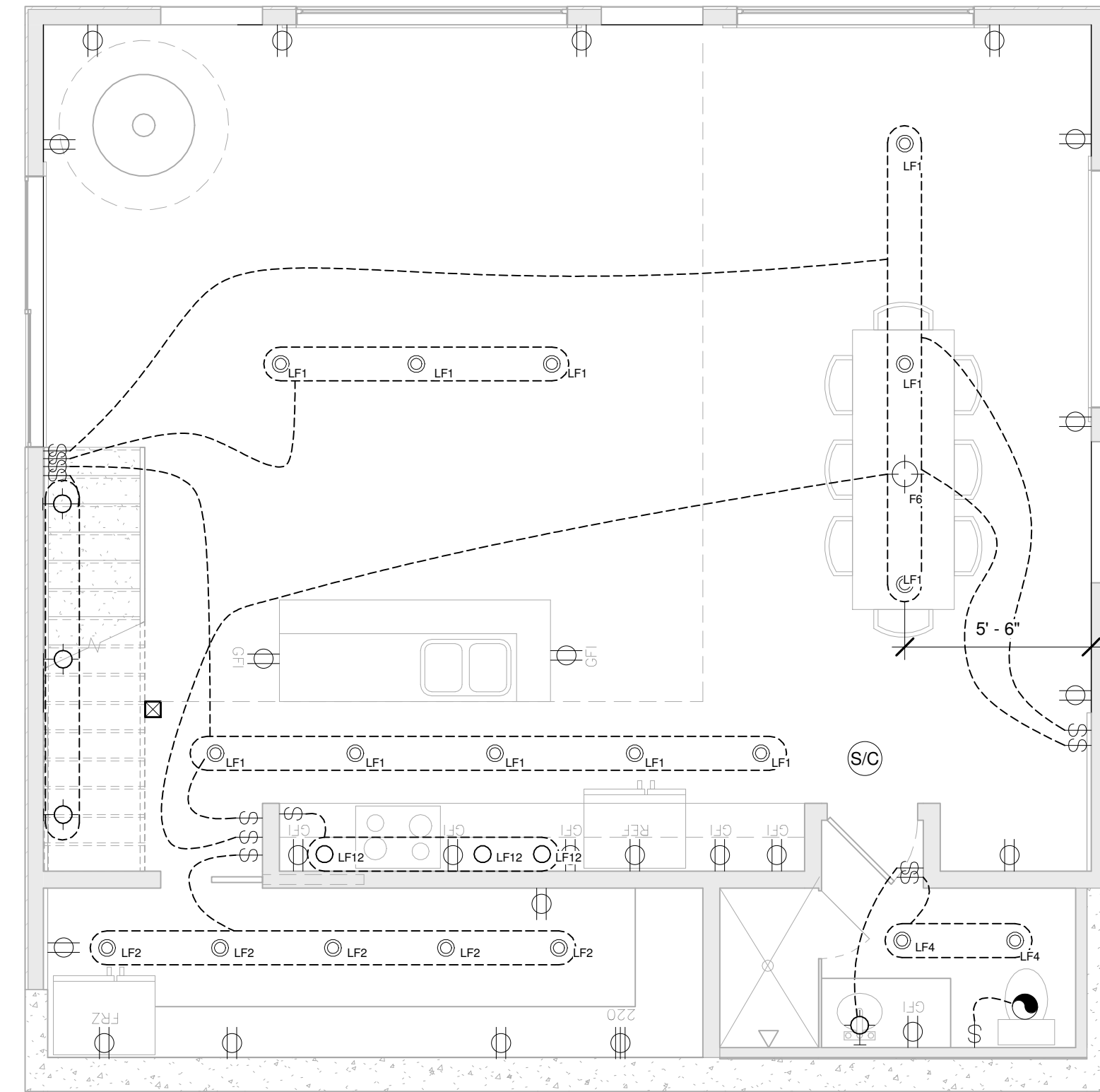


**1 FOOTING DTL. @ BUILDING / DECK CONNECTION**  
 A601 SCALE: 1 1/2" = 1'-0"



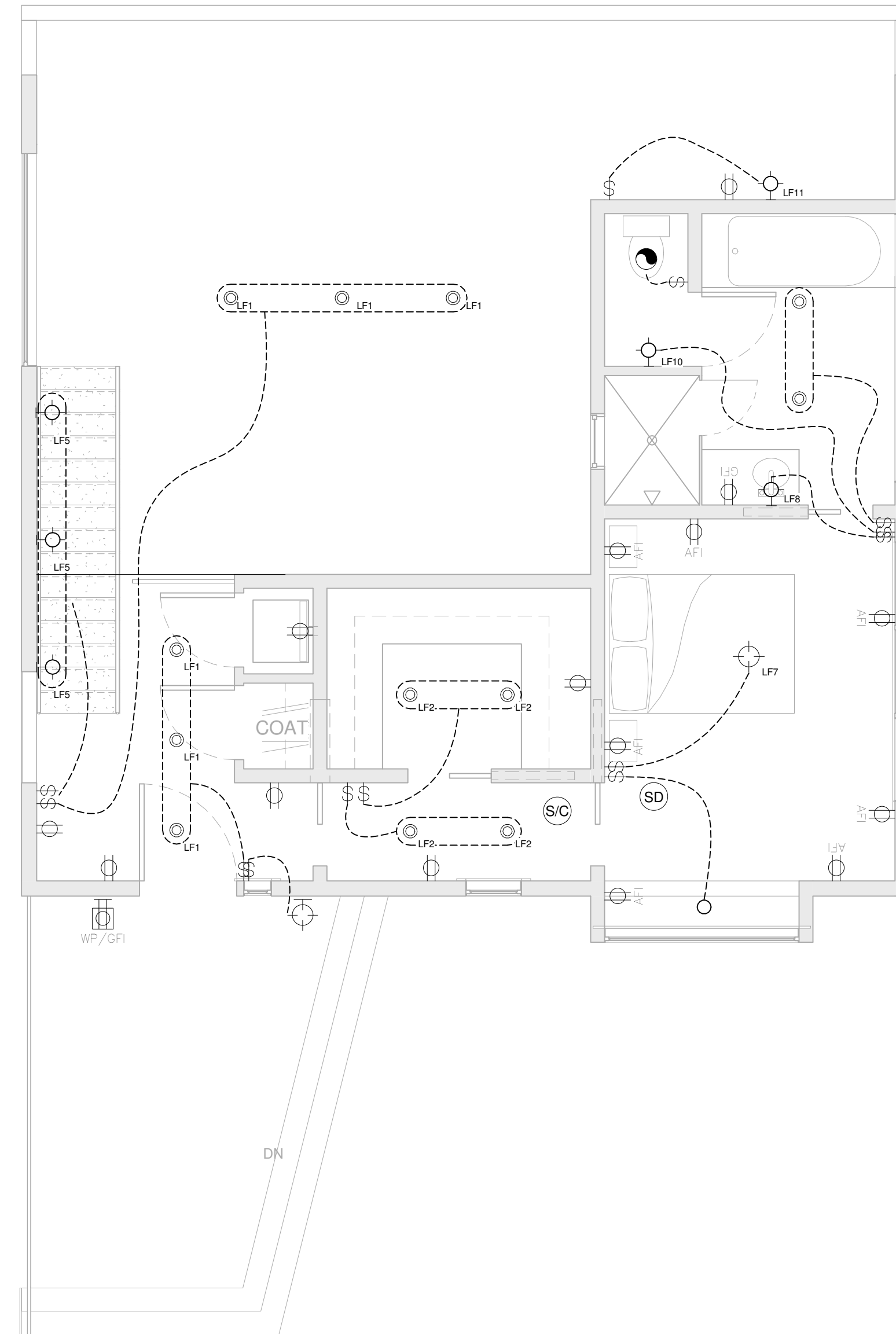
**5 TYP WINDOW DETAIL**  
 A601





1 ELECTRICAL PLAN - MAIN LEVEL

SCALE: 1/4" = 1'-0"



2 ELECTRICAL PLAN - UPPER LEVEL

SCALE: 1/4" = 1'-0"

ELECTRICAL NOTES

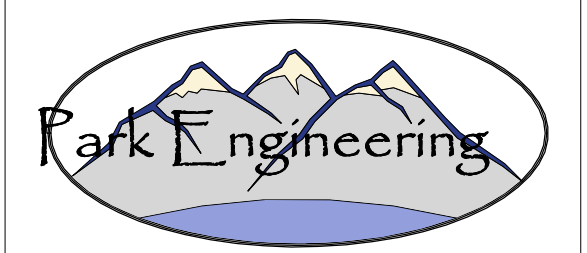
- PLEASE CONTACT ELECTRICIAN & LOG STACKER PRIOR TO CONSTRUCTION OF BUILDING TO ENSURE ACCURACY OF ALL ELECTRICAL WIRING.
- ELECTRICAL WIRING ON THESE PRINTS ARE USED AS A GUIDE ONLY. CONSULT ELECTRICIAN FOR PROPER PLACEMENT OF ELECTRICAL FIXTURES.
- ALL RECEPTACLES SERVING KITCHEN COUNTERTOPS, IN GARAGES, BATHS, UNFINISHED BASEMENTS AND OUTSIDE RECEPTACLES SHALL BE GFCI PROTECTED (IRC E3802).
- EXTERIOR OUTLETS SHALL HAVE WATERPROOF COVERINGS.
- ALL ELECTRICAL OUTLET BRANCH CIRCUITS IN ALL BEDROOMS TO BE PROVIDED WITH/ ARC FAULT PROTECTION.
- PROVIDE SMOKE DETECTORS CONFORMING TO IRC SECTION R313. ALL LEVELS, ALL BEDROOMS, ACCESS TO ALL BEDROOMS, AND IN ALL ROOMS WITH SLOPED CEILINGS NEXT TO HALLS SERVING BEDROOMS. ALL SMOKE DETECTORS SHALL BE WIRED IN SERIES WITH/ BATTERY BACK UP. SMOKE DETECTORS SHALL BE INTERCONNECTED SUCH THAT ACTUATION OF ONE SHALL ACTUATE ALL SMOKE DETECTORS. (R313.1-2)
- CARBON MONOXIDE DETECTORS SHALL BE INSTALLED ON EACH HABITABLE LEVEL OF A DWELLING UNIT EQUIPPED WITH A FUEL BURNING APPLIANCE AND SHALL BE INTERCONNECTED WITH/ SMOKE DETECTORS & HARD WIRED WITH/ BATTERY BACK-UP. (R313.2 AS AMENDED BY STATE).
- ALL BATHROOM FANS TO BE VENTED TO EXTERIOR AT A RATE OF 50 CUBIC FEET PER MINUTE FOR INTERMITTENT OR 20 CUBIC FEET PER MINUTE FOR CONTINUOUS VENTILATION (IRC R303.3).
- COPPER GROUND ROD TO BE 1/2" x 8" DRIVEN VERTICALLY INTO GROUND BELOW METER BASE/DISCONNECT LOCATION FOR GROUNDING AND BONDING OF ALL METAL PIPING INCLUDING GAS.
- ALL RECEPTACLES SERVING UNFINISHED BASEMENTS TO BE GFCI PROTECTED.
- ELECTRICAL PANELS MUST HAVE 30" WIDE BY 36" DEEP WORKING SPACE & 6'-6" HEADROOM. PROVIDE PROPER FIRE RATING FOR BOXES FACING INTO GARAGES.
- LL SPAS AND HOT TUBS SHALL COMPLY WITH THE CURRENT INTERNATIONAL RESIDENTIAL CODE. SPECIFICALLY EQUIPMENT LOCATION AND CLEARANCES SHALL COMPLY WITH E4103.
- PROVIDE A COMFORT HEATING SYSTEM CAPABLE OF MAINTAINING 68 DEGREES FAHRENHEIT AT A POINT 36 INCHES ABOVE THE FLOOR IN ALL ROOMS (IRC R303.8).
- OUTLETS ARE REQUIRED TO BE INSTALLED SO THAT NO POINT ALONG WALLS IS MORE THAN 6 FEET FROM AN OUTLET.
- A PERMANENT CERTIFICATE SHALL BE POSTED ON OR IN THE ELECTRICAL DISTRIBUTION PANEL LISTING THE PREDOMINANT R-VALUES OF INSULATION INSTALLED IN OR ON CEILING/ROOF, WALLS, FOUNDATION, SLAB BASEMENT WALL, CRAWLSPACE WALL AND/OR FLOOR) AND DUCTS OUTSIDE THE CONDITIONED SPACES; U-FACTORS OF WINDOWS, AND SOLAR HEAT GAIN COEFFICIENT OF WINDOWS. THE TYPE AND EFFICIENCY OF HEATING, COOLING AND SERVICE WATER HEATING EQUIPMENT SHALL ALSO BE LISTED. (IRC N1101.9)
- A MINIMUM OF 50 PERCENT OF LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH-EFFICIENCY LAMPS.
- ALL 15 AND 20 AMP RECEPTACLES WITH-IN THE DWELLING UNIT SHALL BE TAMPER RESISTANT RECEPTACLES.
- IN THE KITCHEN, A MINIMUM OF TWO 20 AMPERE SMALL-APPLIANCE BRANCH CIRCUITS SHALL SERVE ALL WALL AND FLOOR RECEPTACLE OUTLETS.

ELECTRICAL SYMBOL LEGEND

⊕	SWITCH	⊗	CEILING FAN w/ FAN LIGHT
⊕	DIMMER SWITCH	●	PENDANT LIGHT FIXTURE
⊕	FAN SWITCH	⊕	WALL SCONCE
⊕	JAMB-MOUNTED AUTOMATIC SWITCH	⊕	SURFACE MOUNTED LIGHT FIXTURE
○	RECESSED LIGHTING	⊗	DIRECTIONAL LIGHT FIXTURE
○	RECESSED LIGHTING	○	DOWNLIGHT (4" CAN)
⊕	DUPLEX OUTLET	○	WATERPROOF SHOWER LIGHT
⊕	DUPLEX OUTLET - HALF SWITCHED	—	CONTINUOUS UNDERCABINET LIGHT
⊕	DUPLEX OUTLET w/ GROUND FAULT CIRCUIT INTERRUPTER	⊕	CLOSET UTILITY LIGHT
⊕	DUPLEX OUTLET w/ GROUND FAULT CIRCUIT INTERRUPTER LOCATED 42" MIN. A.F.F.	SD	SMOKE DETECTOR
⊕	DEDICATED OUTLET OR JUNCTION BOX TO COORDINATE w/ EQUIP.	CO	CARBON MONOXIDE DETECTOR
⊕	FLOOR RECEPTACLE	⊠	EXHAUST FAN VENT
⊕	FLOOR RECEPTACLE - HALF SWITCHED	—	WALL MOUNT FIXTURE (BATH BAR)
⊕	EXTERIOR RECEPTACLE w/ WATERPROOF COVER & GROUND FAULT INTERRUPTER	⊕	DOOR CHIME
⊕	TV / DATA	⊕	THERMOSTAT
⊕	TELEPHONE JACK		

NO	DATE	ISSUE

LIFEEDITED INC.  
228 PARK AVENUE  
SOUTH PMB 11190  
NEW YORK, NY 10003



90 West 200 South, Suite #1  
Heber City, Utah 84032  
Tel. 435.654.1456  
www.parkeng.net

DRAWINGS FOR:  
**SUMMIT POWDER MOUNTAIN**  
RIDGE NEST 13  
CACHE COUNTY, UTAH

DRAWING TITLE:  
**ELECTRICAL PLAN**

PROJECT # :  
DRAWN BY : Author  
CHECKED BY : Checker  
SCALE : 1/4" = 1'-0"  
NOTE: IF THIS DRAWING IS NOT 36" x 24", IT HAS BEEN REVISED FROM ITS ORIGINAL SIZE. SCALE IS NO LONGER APPLICABLE.

SEAL :

DRAWING NO :  
**E101**

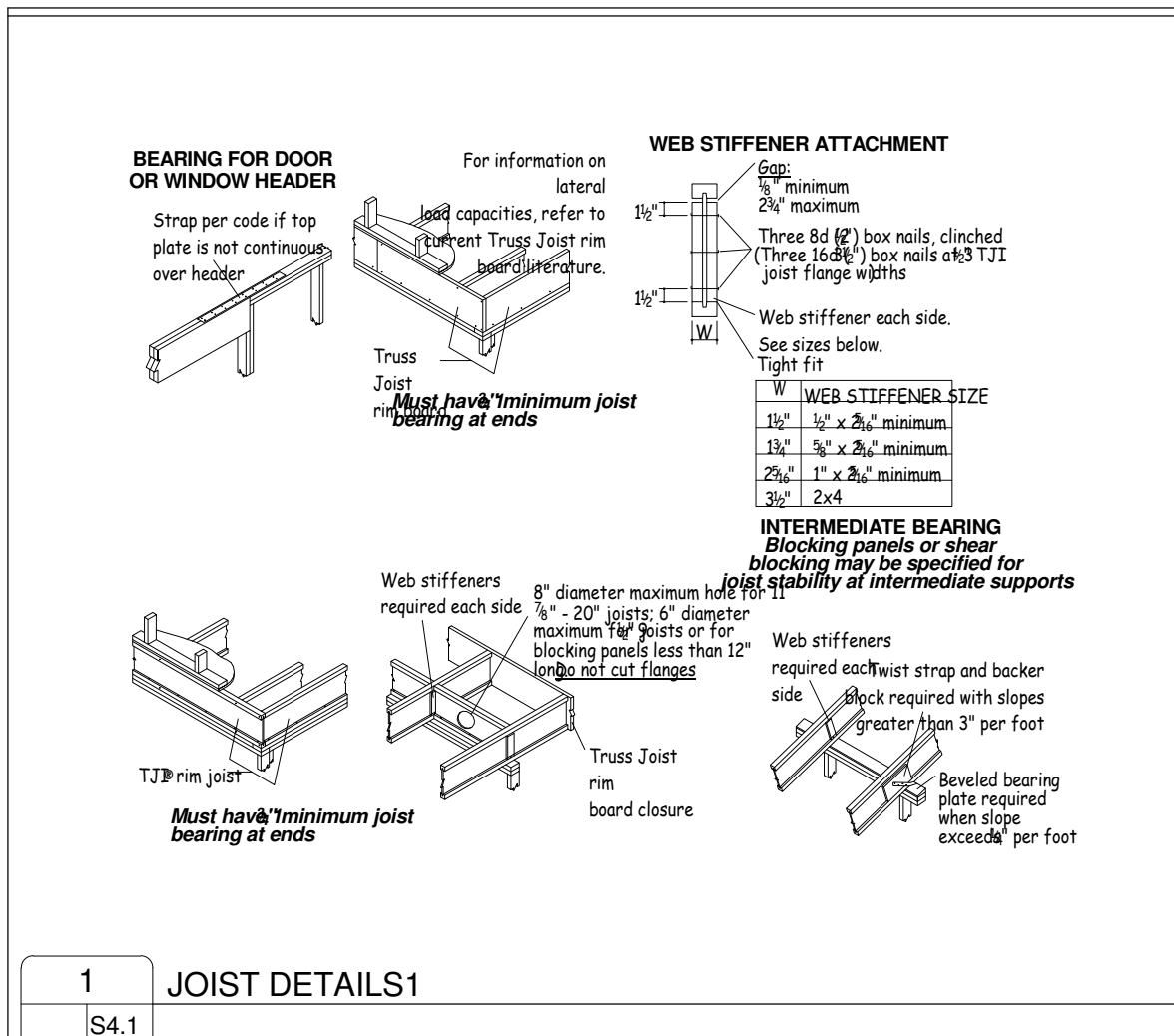




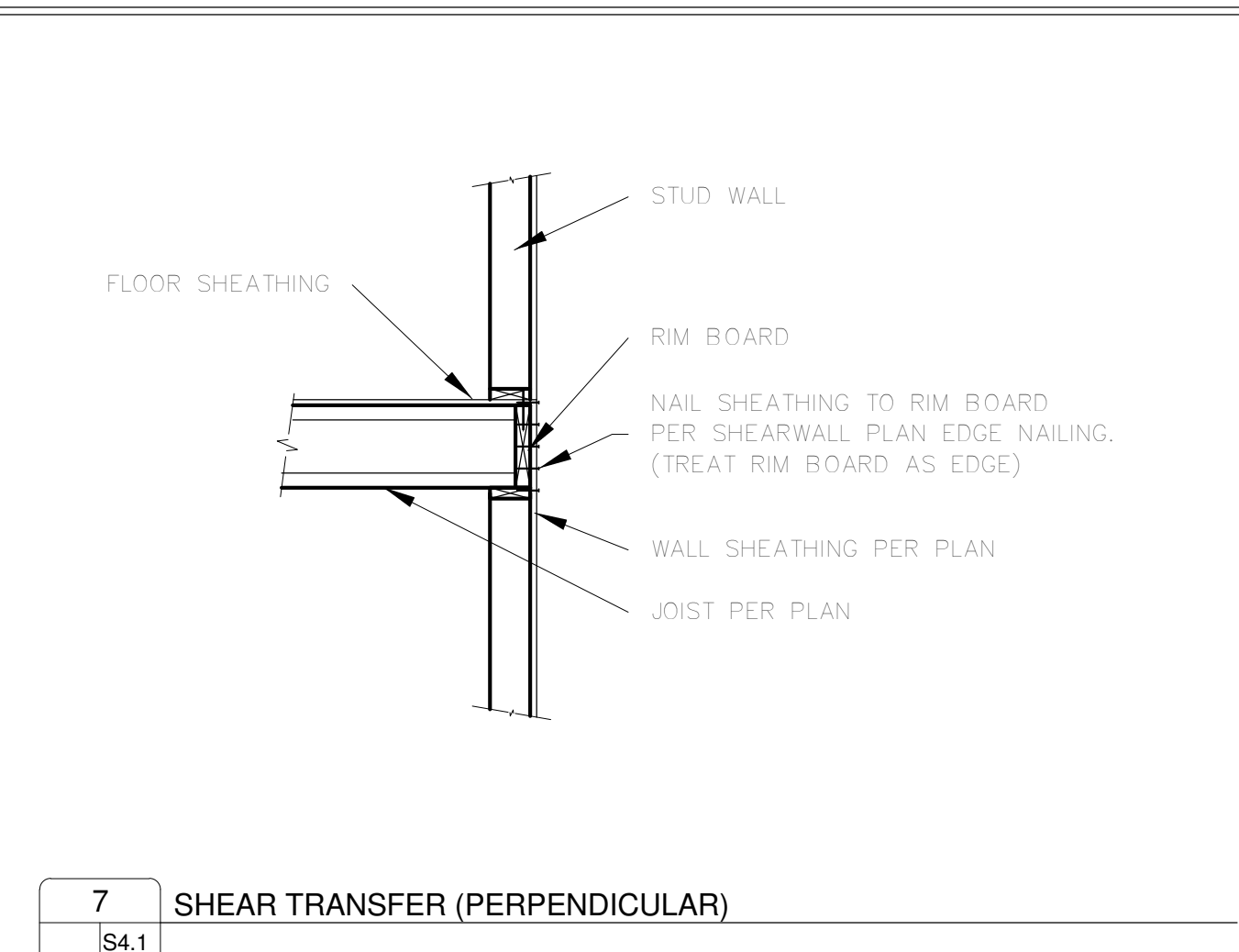




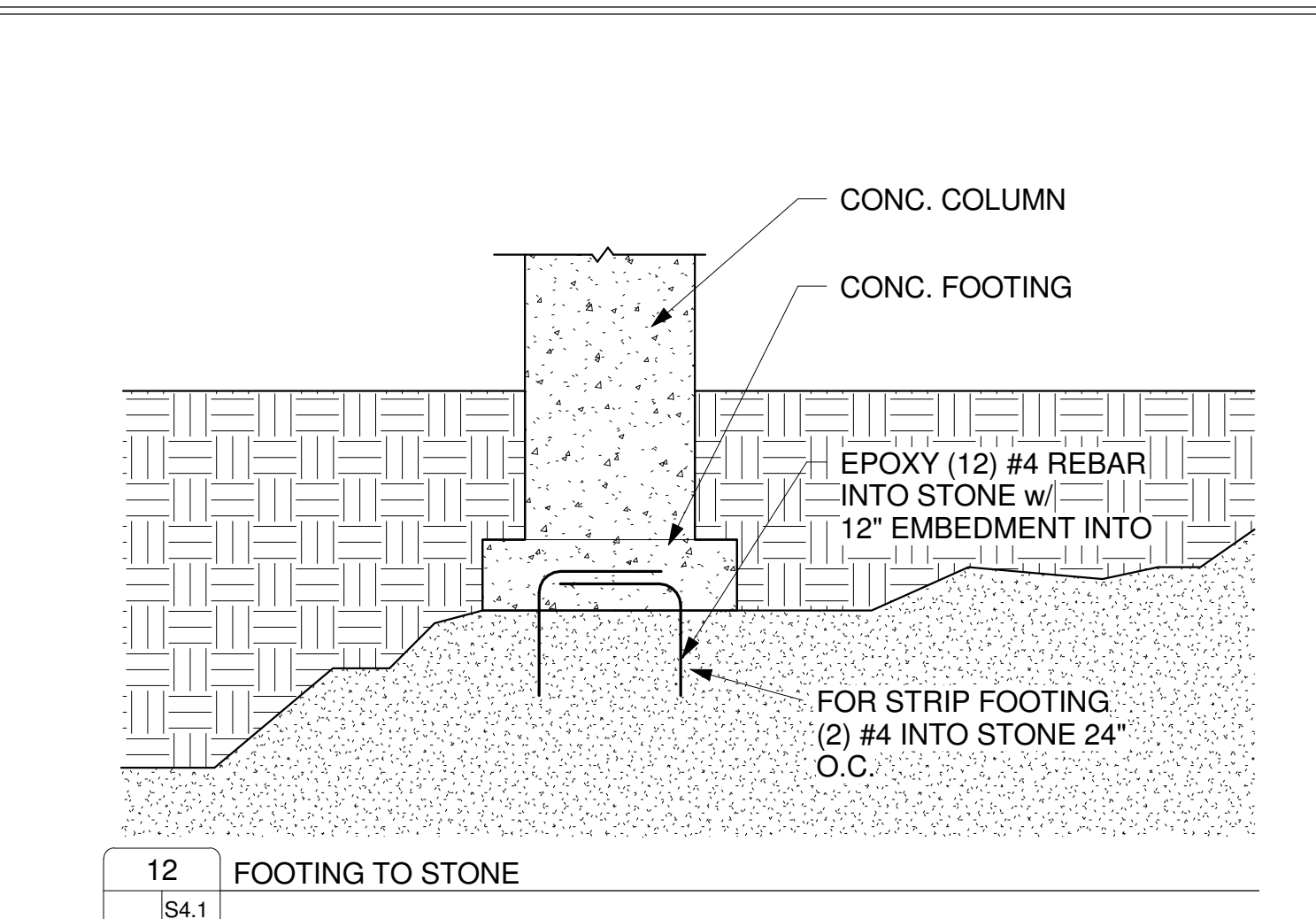




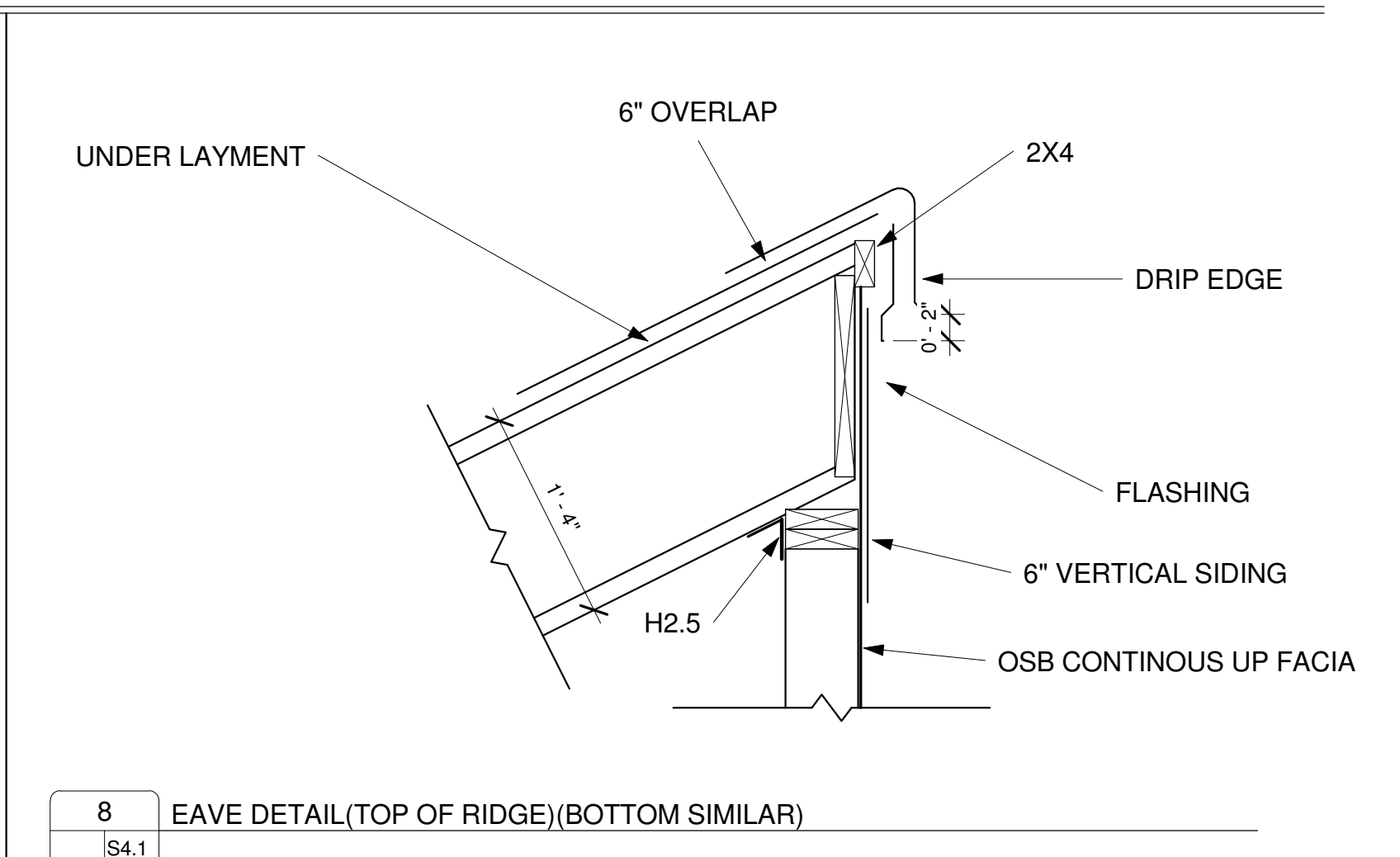
1 JOIST DETAILS  
S4.1



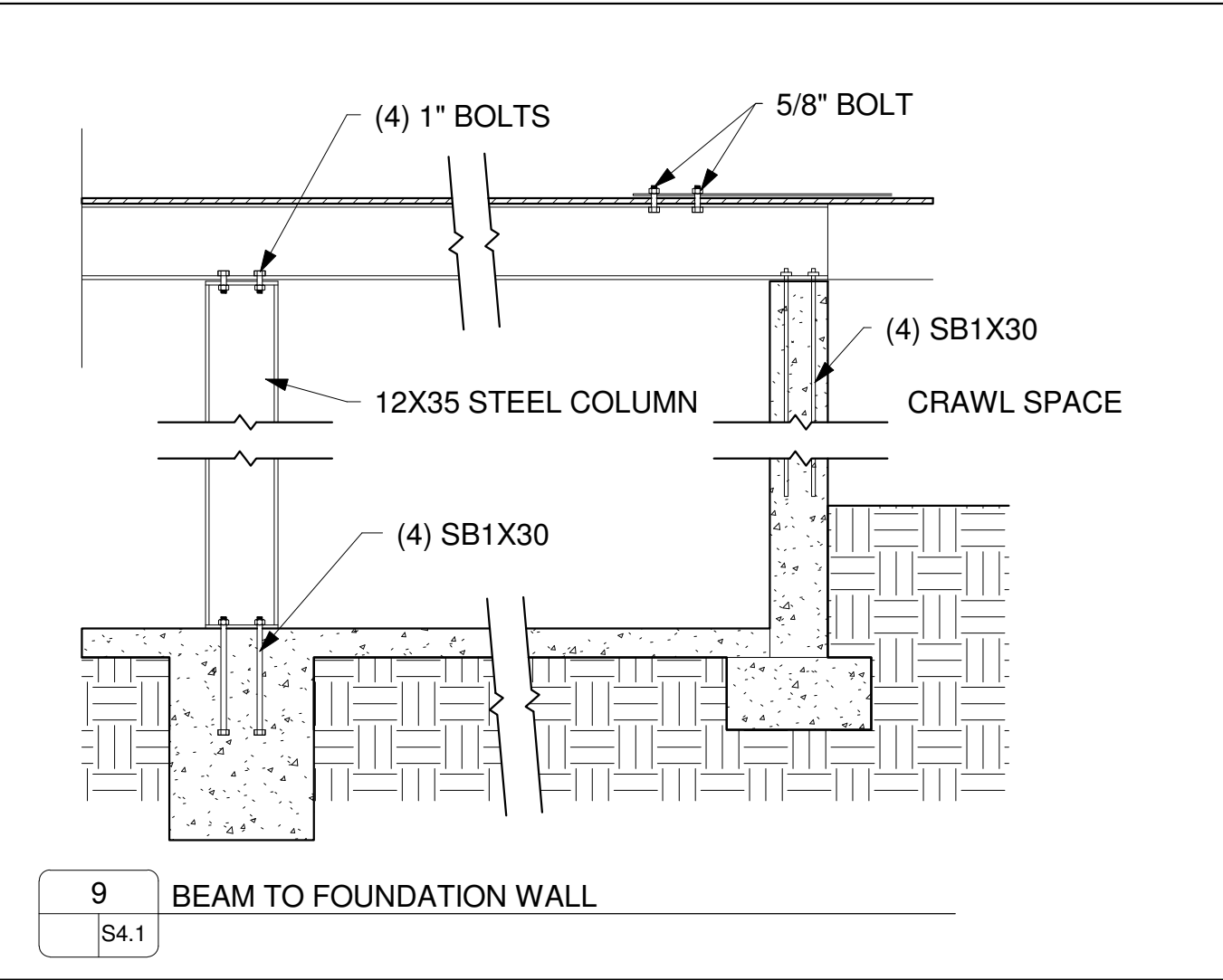
7 SHEAR TRANSFER (PERPENDICULAR)  
S4.1



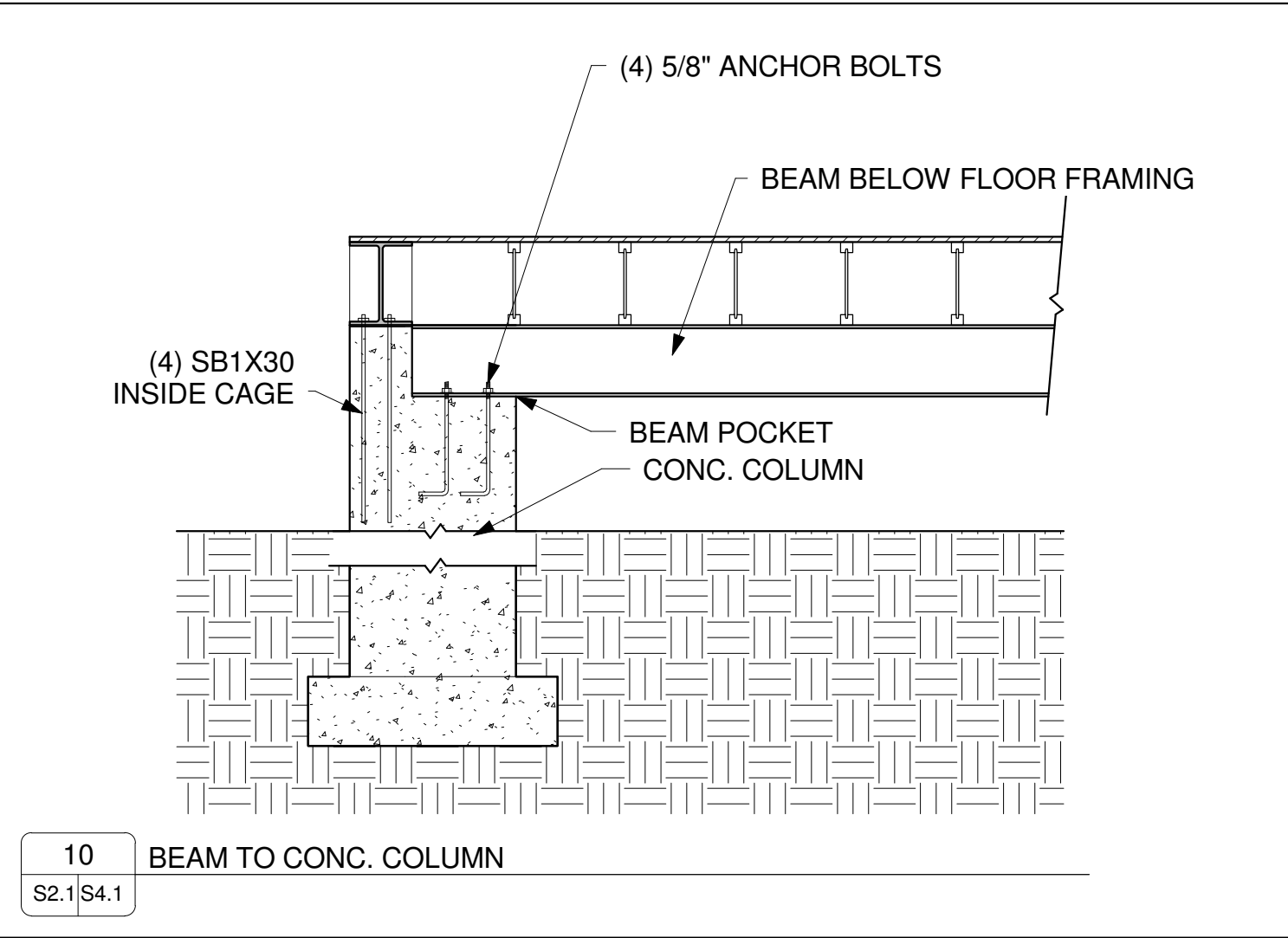
12 FOOTING TO STONE  
S4.1



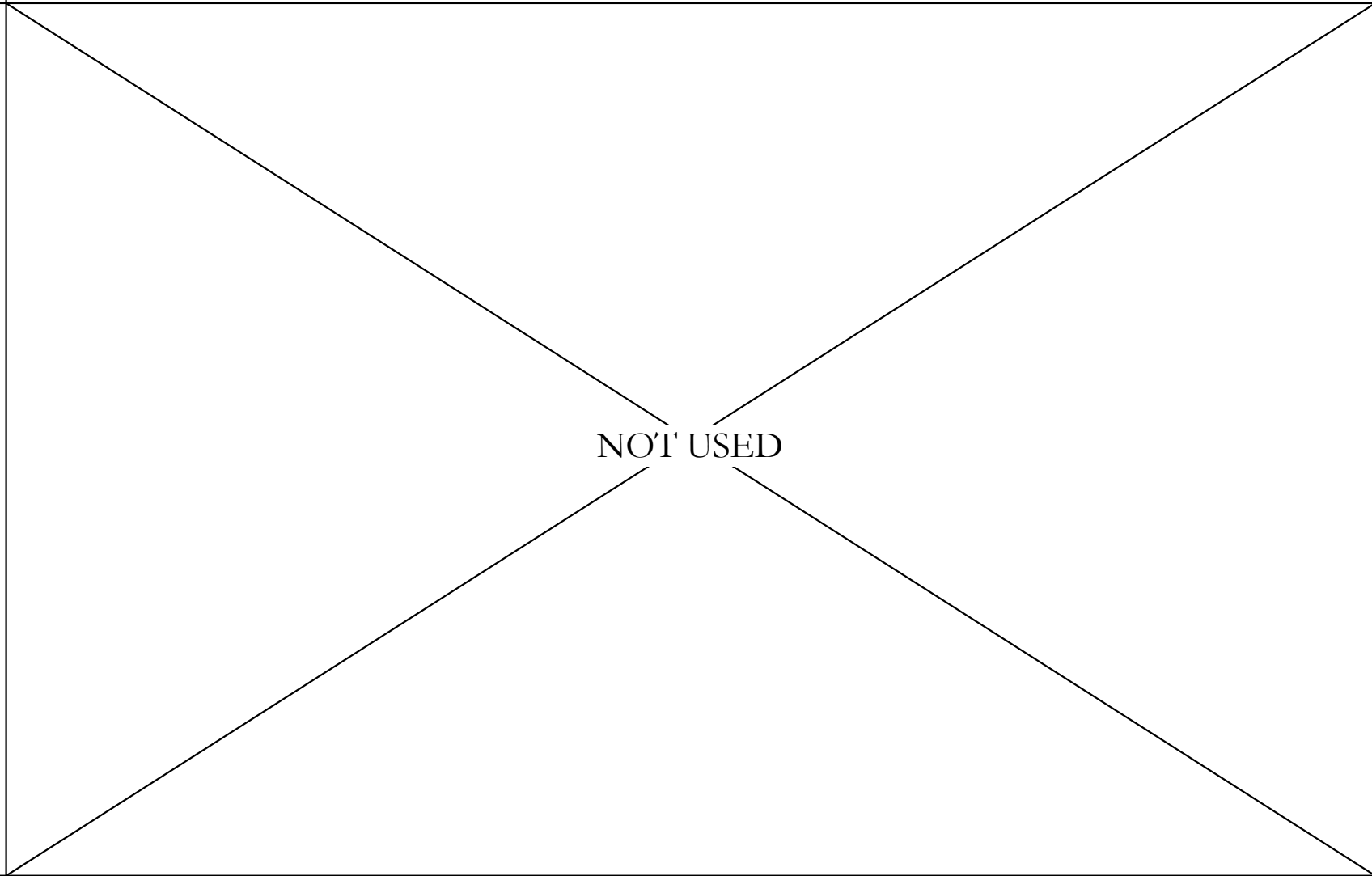
8 EAVE DETAIL (TOP OF RIDGE) (BOTTOM SIMILAR)  
S4.1



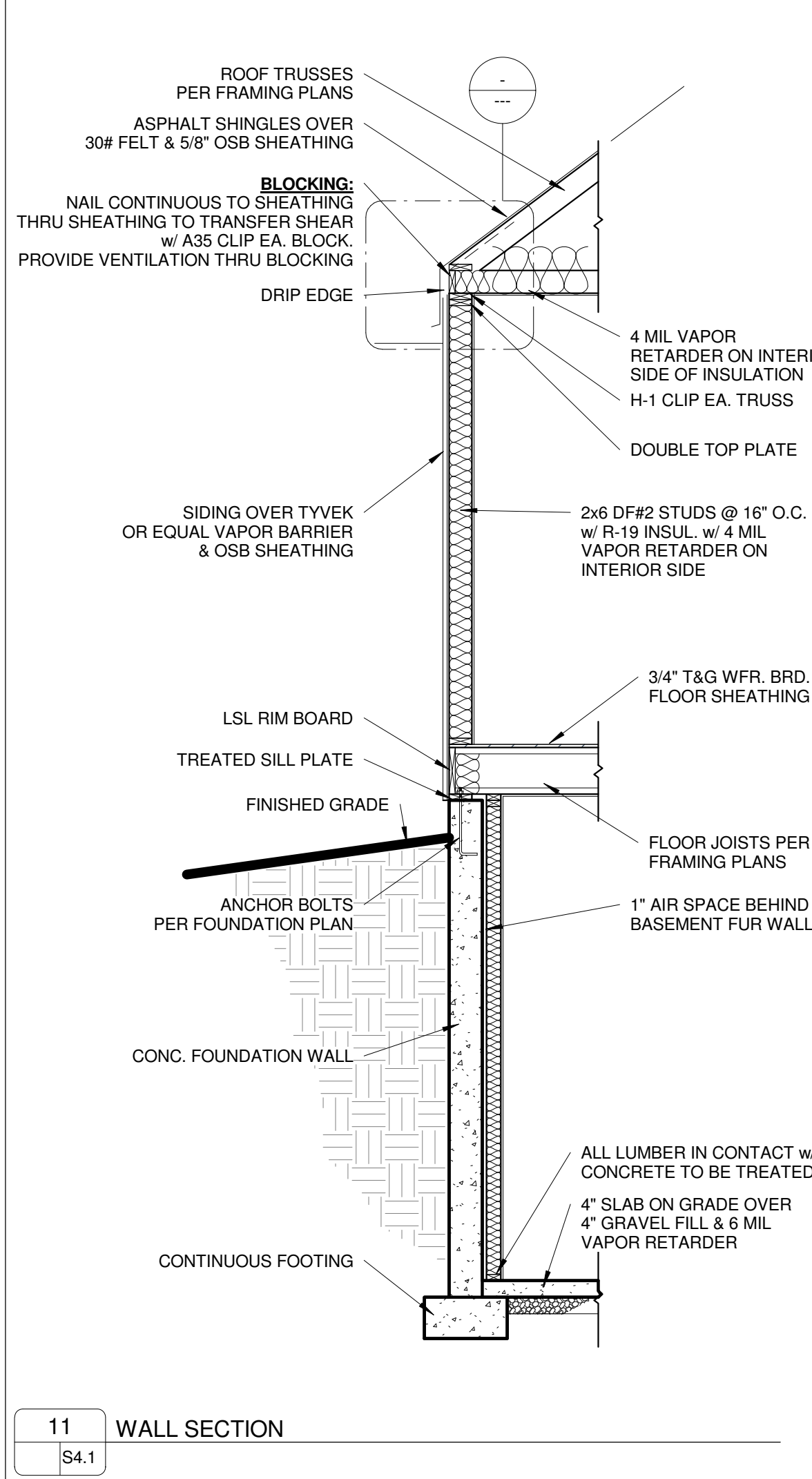
9 BEAM TO FOUNDATION WALL  
S4.1



10 BEAM TO CONC. COLUMN  
S2.1 S4.1



3 PORCH AWNING DETAIL  
S2.1 S4.1



11 WALL SECTION  
S4.1

NO	DATE	ISSUE
1	05.13.15	PRELIMINARY SET

ENGINEER:

90 West 200 South  
Suite #1  
Heber City, Utah 84032  
Tel. 435.654.1456  
www.parkeng.net

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DRAWING FOR:

**SUMMIT POWDER MOUNTAIN**

RIDGE NEST 13  
CACHE COUNTY, UTAH

DRAWING TITLE:

**DETAILS**

PROJECT #:  
DRAWN BY: TM  
CHECKED BY: SP  
SCALE: As indicated

NOTE: IF THIS DRAWING IS NOT 36" x 24", IT HAS BEEN REVISED FROM ITS ORIGINAL SIZE SCALE IS NO LONGER APPLICABLE.

SEAL:

06.17.2015

DRAWING NO.:

**S4.1**

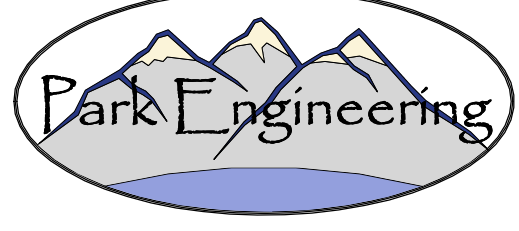




NO	DATE	ISSUE

ALL FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, REGULATIONS, ETC., SHALL BE CONSIDERED AS PART OF THE SPECIFICATIONS FOR THIS BUILDING, AND SHALL TAKE PRECEDENCE OVER ANYTHING SHOWN, DESCRIBED, OR IMPLIED WHERE SAME ARE AT VARIANCE.

**ENGINEER:**



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DRAWING FOR:

**SUMMIT POWDER MOUNTAIN**

RIDGE, NEST 13  
CACHE COUNTY, UTAH

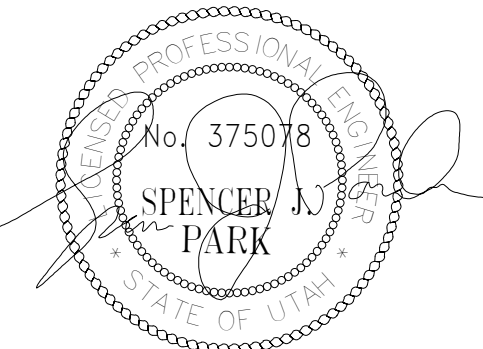
DRAWING TITLE:

**DETAILS**

PROJECT # :  
DRAWN BY : Author  
CHECKED BY : Checker  
SCALE : As indicated

NOTE: IF THIS DRAWING IS NOT 36" x 24", IT HAS BEEN REVISED FROM ITS ORIGINAL SIZE SCALE IS NO LONGER APPLICABLE.

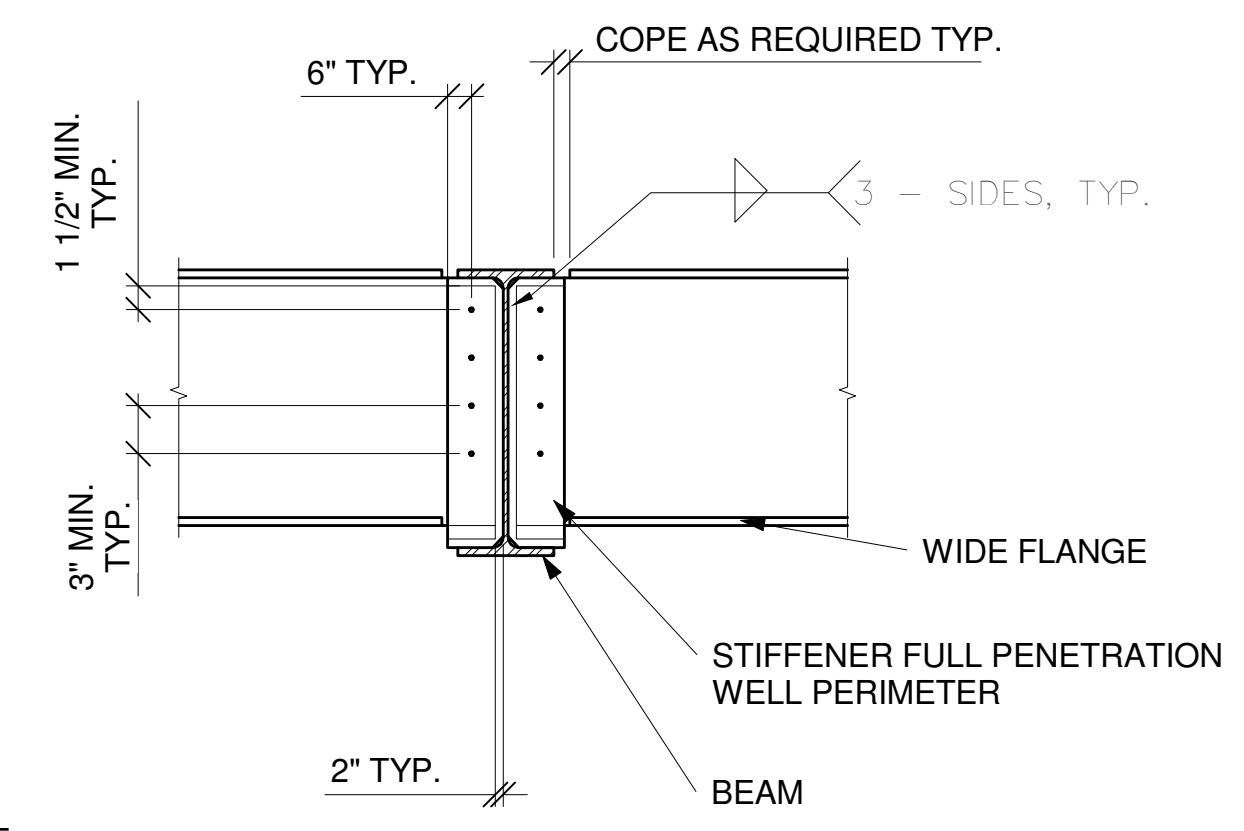
SEAL:



06.17.2015

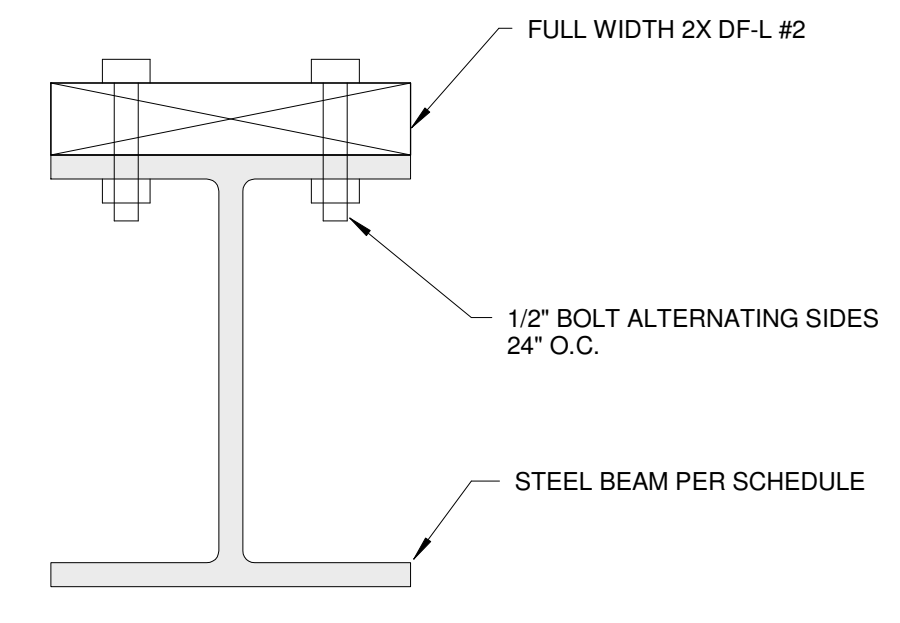
DRAWING NO.:

**S4.3**

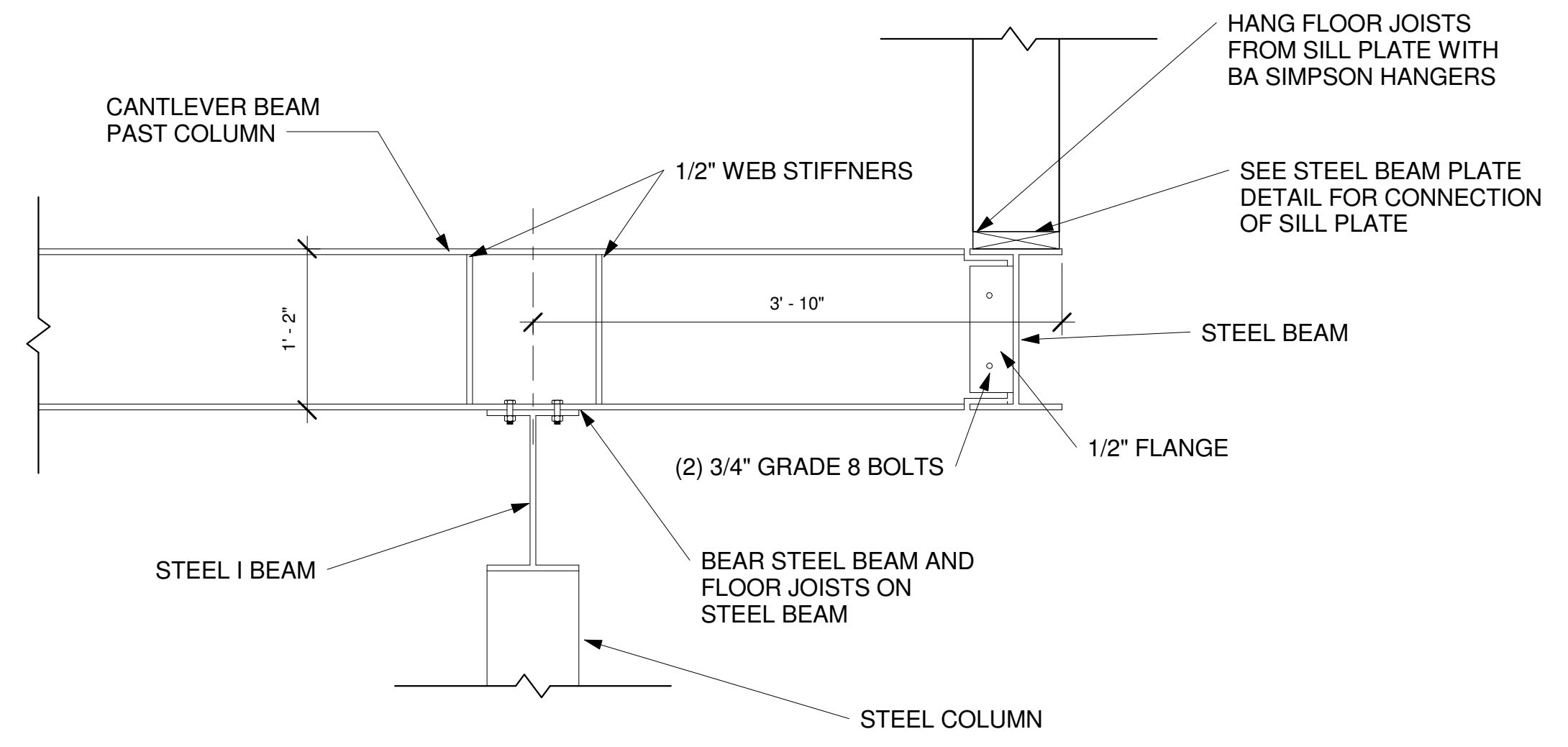


**NOTE:**  
1. CONNECTIONS SHOWN ARE TYP. UNLESS SPECIFICALLY DETAILED OTHERWISE.  
2. WHERE DEPTH OF CONNECTED BEAM AND SUPPORTING BEAM DIFFER BY 9" OR MORE, SHEAR PLATE MAY BE TERMINATED A DISTANCE OF 2" BELOW THE LOWEST BOLT.

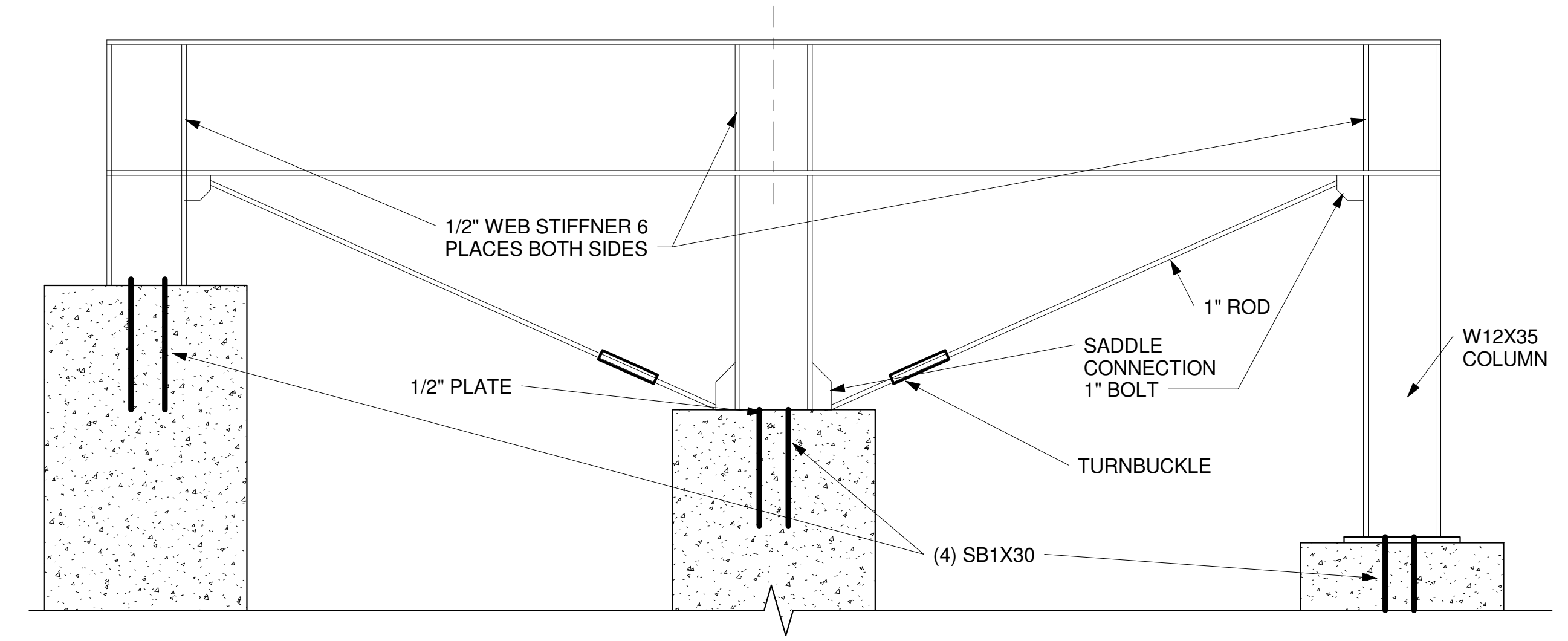
**1 STEEL BEAM TO BEAM**  
S4.3



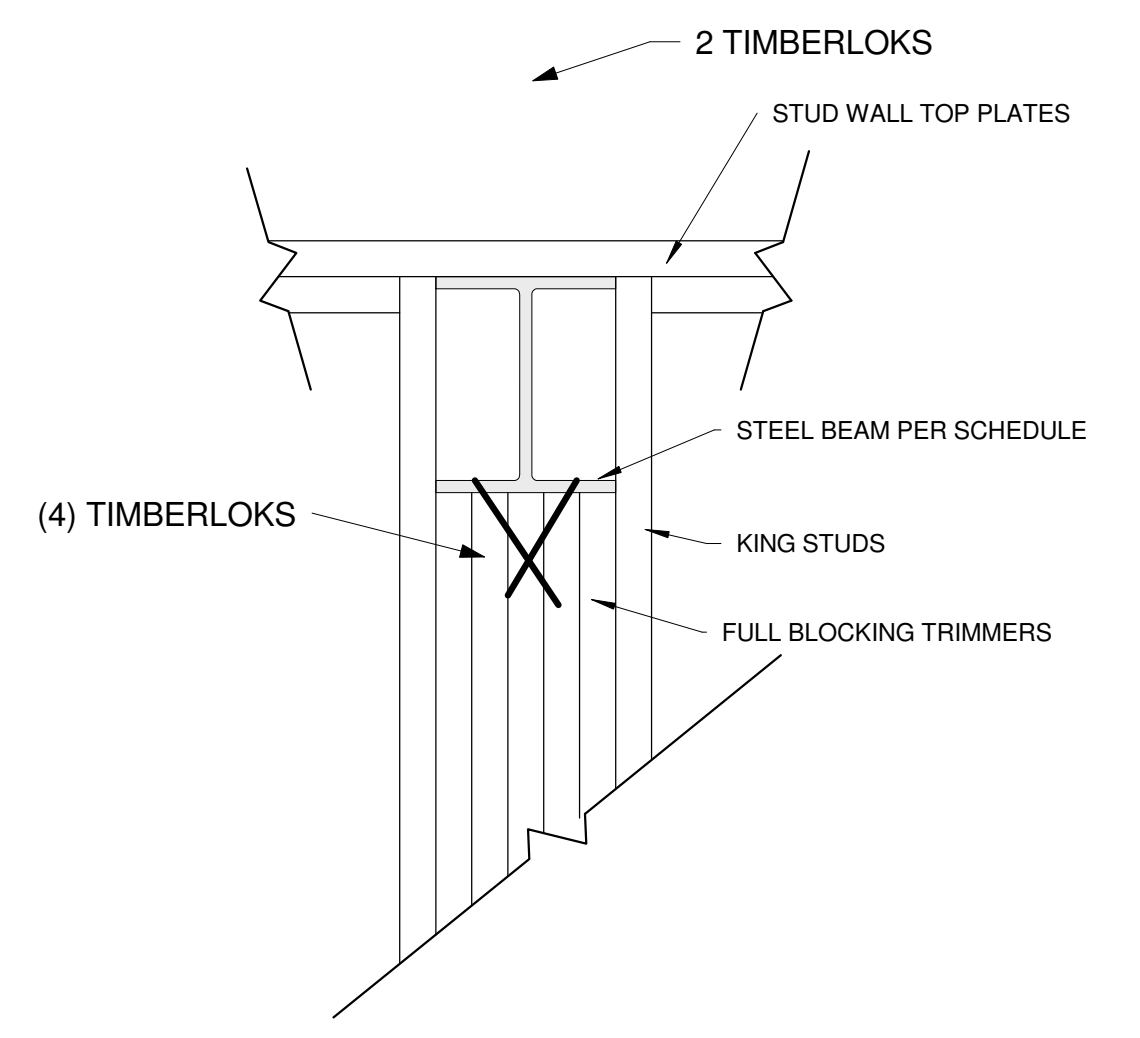
**2 STEEL BEAM PLATE DETAIL**  
S2.1/S4.3



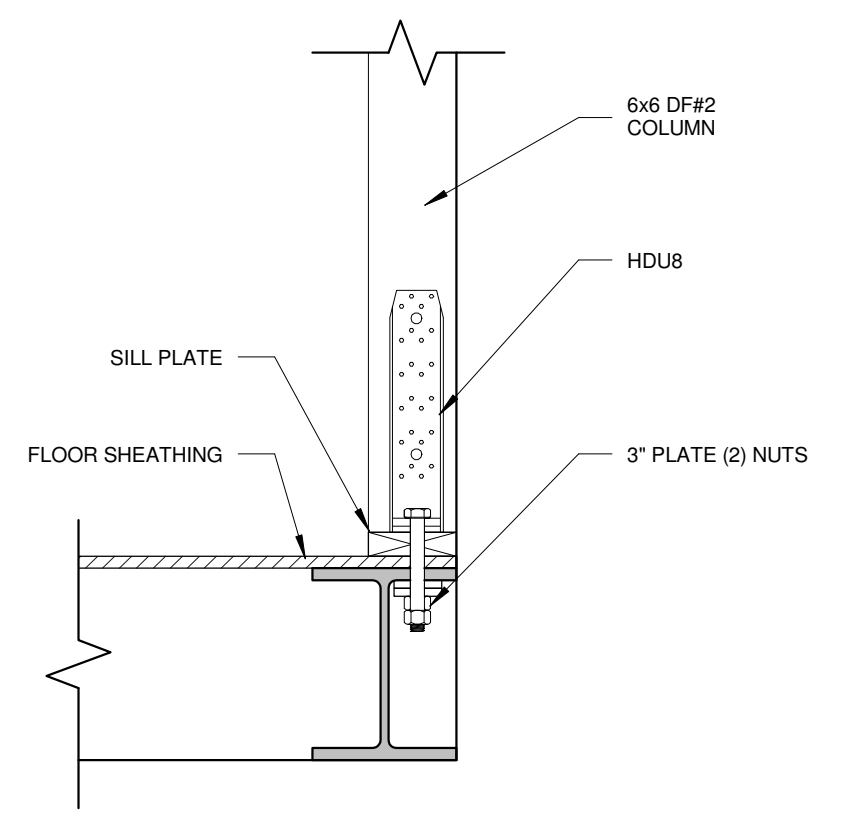
**3 STEEL CANTILEVER**  
S2.1/S4.3



**6 STEEL LATERAL REINFORCING**  
S4.3



**7 STEEL BEAM POCKET**  
S4.3

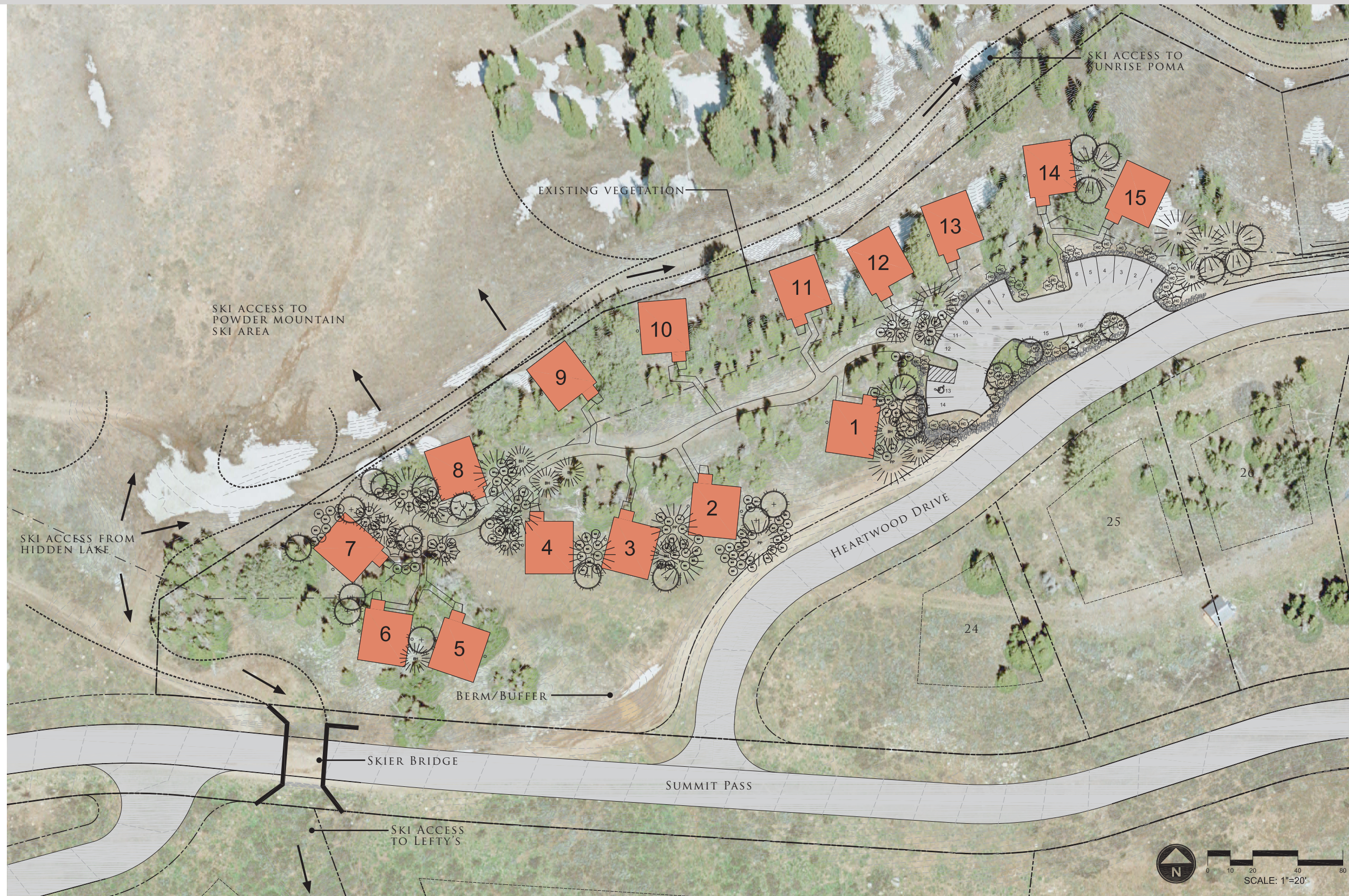


**8 STRONG-TIE HDU8**  
S4.3



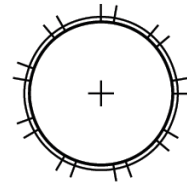
# RIDGE NESTS

S U M M I T E D E N

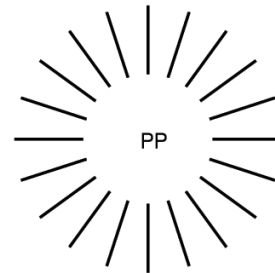




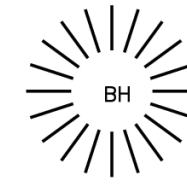
PLANT MATERIALS - TREES



ABIES LASIOCARPA  
SUB-ALPINE FIR  
-NATIVE & NARROW/STEEPLE SHAPED  
EVERGREEN TREE EXCELLENT FOR  
TIGHT SPACES.



PICEA PUNGENS  
COLORADO SPRUCE  
-NATIVE, GREEN TO BLUE-GREEN  
EVERGREEN WITH STIFF, REGULAR,  
HORIZONTAL BRANCHES THAT  
FORMS A BROAD PYRAMID.



PICEA GLAUCA DENSATA - BLACK  
HILLS SPRUCE  
-MODERATE TO SLOW GROWING,  
DENSE, PYRAMIDAL EVERGREEN TREE.  
WITHSTANDS WIND, HEAT, DROUGHT  
& COLD.

PLANT MATERIALS - SHRUBS



PICEA ABIES FORMANEK -  
FROMANEK NORWAY  
SPRUCE  
-FORMS A DENSELY  
SPREADING MATTED  
CARPET.



MAHONIA AQUIFOLIUM -  
OREGON GRAPE  
-NATIVE, SLOW GROWING  
BROAD LEAF EVERGREEN WITH  
PURPLE FALL COLOR, YELLOW  
SPRING FLOWERS YIELD BLUE  
FRUIT.



PINUS SYLVESTRIS 'ALBYN  
PROSTRATE' - ALBYN SPREADING  
SCOTCH PINE  
-VIGOROUS EVERGREEN MAKES  
AN EXCELLENT GROUNDCOVER  
THAT SPILLS OVER BANKS  
AND RAMBLES THROUGH THE  
LANDSCAPE.



PINUS SYLVESTRIS 'HILLSIDE  
CREEPER' - HILLSIDE CREEPER  
SCOTCH PINE  
-CREEPING VERSION OF THE  
SCOTCH PINE, BRIGHT GOLD  
COLOR IN WINTER. EXCELLENT  
FOR ROCK GARDENS.







# SUMMIT EDEN RIDGE NESTS - PRUD

A PART OF SUMMIT EDEN PHASE 1B SUBDIVISION, LOCATED IN THE SOUTH 1/2 OF SECTIONS 5 & 6, TOWNSHIP 7 NORTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN JANUARY 2014

FOUND WEBER COUNTY LINE MONUMENT PER WEBER COUNTY SURVEYOR 2013, GOOD CONDITION

(N 89°56'05" W 1380.98' RECORD)  
BASIS OF BEARINGS  
N 89°55'51" W 1381.07'

NORTHEAST CORNER SECTION 1, TOWNSHIP 7 NORTH, RANGE 1 EAST SALT LAKE BASE AND MERIDIAN FOUND GLO 1944 BRASS CAP, GOOD CONDITION

S89°30'01"E 4866.98'

NORTHEAST CORNER SECTION 6, TOWNSHIP 7 NORTH, RANGE 2 EAST SALT LAKE BASE AND MERIDIAN FOUND 1944 GLO BRASS CAP, GOOD CONDITION (CLOSING CORNER 17.68' SOUTH)

EAST QUARTER CORNER SECTION 6, TOWNSHIP 7 NORTH, RANGE 2 EAST SALT LAKE BASE AND MERIDIAN FOUND 1941 GLO BRASS CAP, GOOD CONDITION

WEST 150.96' (TIE)

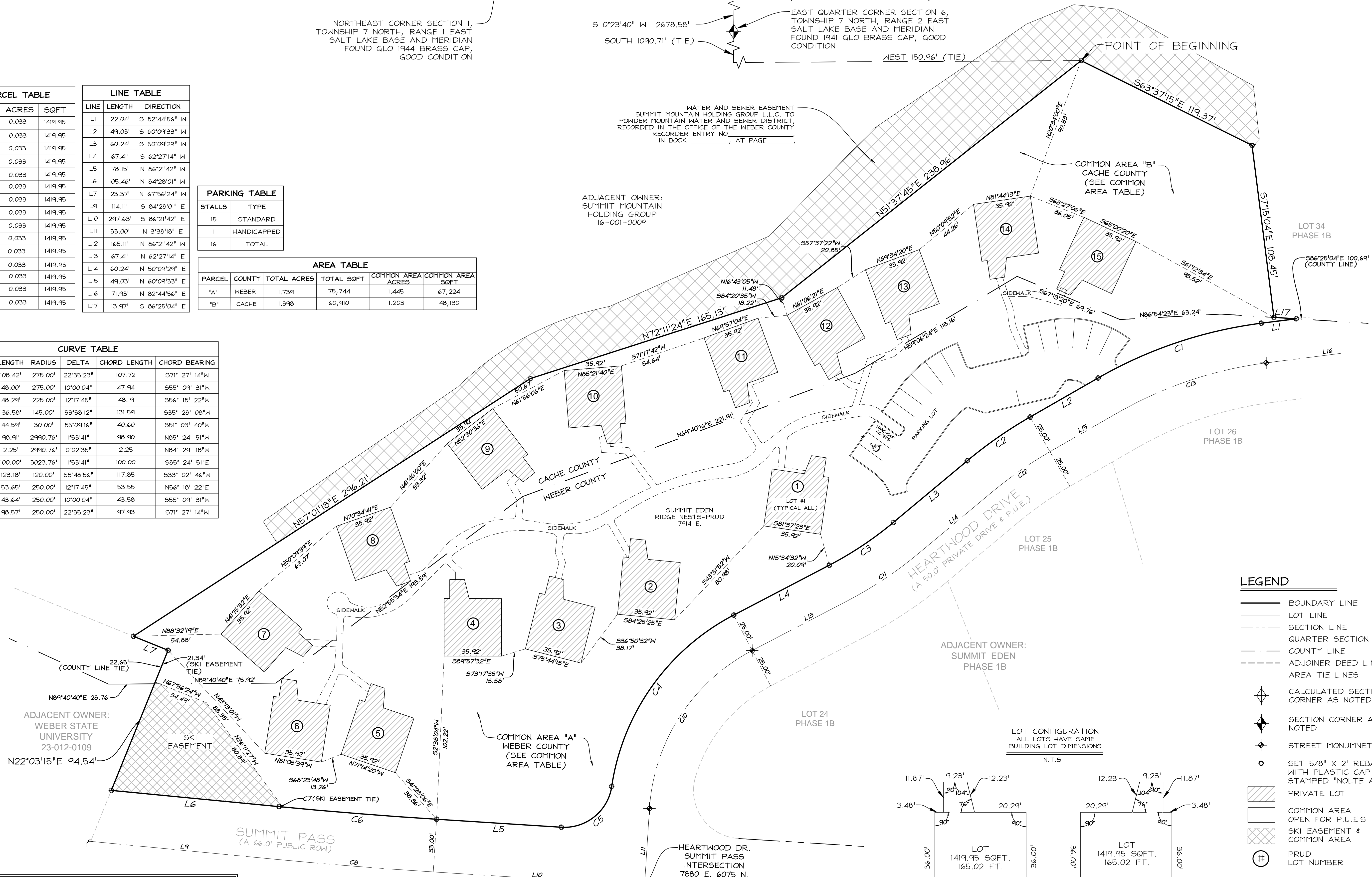
POINT OF BEGINNING

PARCEL TABLE			LINE TABLE	
LOT #	ACRES	SQFT	LINE	DIRECTION
1	0.033	1419.95	L1	22.04' S 82°44'56" W
2	0.033	1419.95	L2	49.03' S 60°09'33" W
3	0.033	1419.95	L3	60.24' S 50°09'29" W
4	0.033	1419.95	L4	67.41' S 62°27'14" W
5	0.033	1419.95	L5	78.15' N 86°21'42" W
6	0.033	1419.95	L6	105.46' N 84°28'01" W
7	0.033	1419.95	L7	23.37' N 67°56'24" W
8	0.033	1419.95	L8	114.11' S 84°28'01" E
9	0.033	1419.95	L9	297.63' S 86°21'42" E
10	0.033	1419.95	L10	33.00' N 3°38'18" E
11	0.033	1419.95	L11	165.11' N 86°21'42" W
12	0.033	1419.95	L12	67.41' N 62°27'14" E
13	0.033	1419.95	L13	60.24' N 50°09'29" E
14	0.033	1419.95	L14	49.03' N 60°09'33" E
15	0.033	1419.95	L15	71.93' N 82°44'56" E
16	0.033	1419.95	L16	13.97' S 86°25'04" E

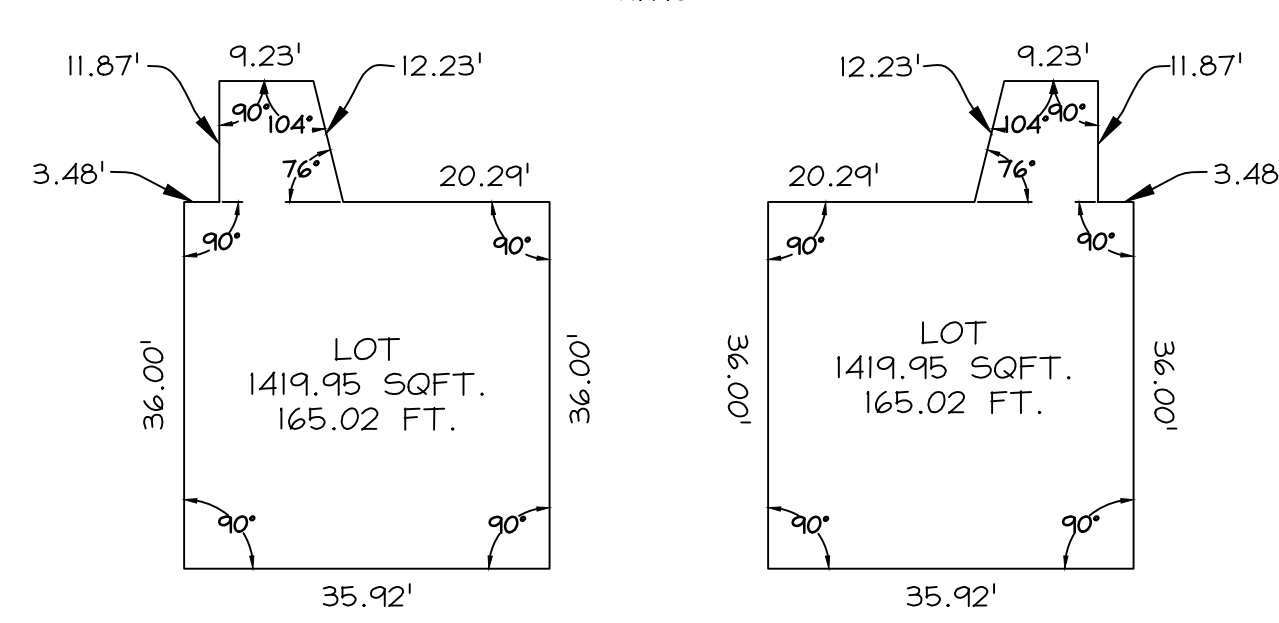
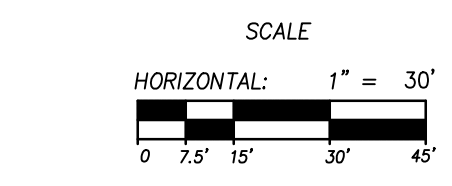
PARKING TABLE	
STALLS	TYPE
15	STANDARD
1	HANDICAPPED
16	TOTAL

AREA TABLE					
PARCEL	COUNTY	TOTAL ACRES	TOTAL SQFT	COMMON AREA ACRES	COMMON AREA SQFT
*A*	WEBER	1.739	75,744	1.445	67,224
*B*	CACHE	1.398	60,910	1.203	48,130

CURVE TABLE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD BEARING
C1	108.42'	275.00'	22°35'23"	107.72	S71° 27' 14" W
C2	48.00'	275.00'	10°00'04"	47.94	S95° 04' 31" W
C3	48.29'	225.00'	12°17'45"	48.19	S56° 18' 22" W
C4	136.58'	145.00'	53°58'12"	131.59	S35° 28' 08" W
C5	44.59'	30.00'	85°09'16"	40.60	S51° 03' 40" W
C6	98.91'	2990.76'	1°53'41"	98.90	N85° 24' 51" W
C7	2.25'	2990.76'	0°02'35"	2.25	N84° 29' 18" W
C8	100.00'	3023.76'	1°53'41"	100.00	S85° 24' 51" E
C9	123.18'	120.00'	58°48'56"	117.85	S33° 02' 46" W
C10	53.65'	250.00'	12°17'45"	53.55	N56° 18' 22" E
C11	43.64'	250.00'	10°00'04"	43.58	S55° 04' 31" W
C12	98.57'	250.00'	22°35'23"	97.93	S71° 27' 14" W



- LEGEND**
- BOUNDARY LINE
  - LOT LINE
  - SECTION LINE
  - QUARTER SECTION LINE
  - COUNTY LINE
  - ADJOINER DEED LINES
  - AREA TIE LINES
  - CALCULATED SECTION CORNER AS NOTED
  - SECTION CORNER AS NOTED
  - STREET MONUMENT
  - SET 5/8" X 2' REBAR WITH PLASTIC CAP STAMPED "NOLTE ASSOC."
  - PRIVATE LOT
  - COMMON AREA OPEN FOR P.U.E.'S
  - SKI EASEMENT & COMMON AREA
  - PRUD LOT NUMBER



SUMMIT EDEN RIDGE NESTS - PRUD PLAT

LOCATED IN THE SOUTH 1/2 OF SECTIONS 5 & 6, TOWNSHIP 7 NORTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN, WEBER COUNTY, UTAH

Sheet 2 of 2

**NIVIS**  
NOLTE VERTICALFIVE

5217 SOUTH STATE STREET, SUITE 300 MURRAY, UT 84107  
801.743.1300 TEL. 801.743.0300 FAX WWW.NOLTE.COM

**CACHE RECORDED #**  
STATE OF UTAH, COUNTY OF CACHE, RECORDED AND FILED AT THE  
REQUEST OF: \_\_\_\_\_  
ENTRY NO: \_\_\_\_\_  
DATE: \_\_\_\_\_ TIME: \_\_\_\_\_  
BOOK: \_\_\_\_\_ PAGE: \_\_\_\_\_  
FEE \$ \_\_\_\_\_  
CACHE COUNTY RECORDER

**WEBER RECORDED #**  
STATE OF UTAH, COUNTY OF WEBER, RECORDED AND FILED AT THE  
REQUEST OF: \_\_\_\_\_  
ENTRY NO: \_\_\_\_\_  
DATE: \_\_\_\_\_ TIME: \_\_\_\_\_  
BOOK: \_\_\_\_\_ PAGE: \_\_\_\_\_  
FEE \$ \_\_\_\_\_  
WEBER COUNTY RECORDER