Dear Permit Applicant:

PRIOR TO ISSUE OF THIS PERMIT APPLICATION, REVIEW AND WRITTEN APPROVAL BY THE FOLLOWING TOWN DIVISIONS AND LISTED ALTERNATE AGENCIES ARE REQUIRED.

Please review the table at the bottom of this page. If the status of a Town Division is checked as “Not Approved”, a list of conditions for their approval has been attached to this document. Review the conditions, provide appropriate additional documentation and/or revisions to plans to comply with those conditions and return to the Building Division front counter. The Building Division will route the returned documentation to appropriate locations for their review and approval. Once all approvals have been obtained, the permit application will be “Approved” and the applicant will be notified.

If you have questions regarding specific conditions for approval, please direct them to the individual who wrote them. Staff member names and telephone numbers are included with the corresponding comment list from each division.

(It is the intent of the Community Development Department to obtain all Town Division approvals, or attach a list of their conditions for approval, prior to contacting the applicant in regards to the permit status. If however, the status of a Division below is marked as “Not Approved” and no comments have been attached, please contact that division at the number listed to obtain either their written approval or a list of conditions for their approval.)

TOWN DIVISION STATUS IS AS FOLLOWS:

| □ Approved Date: | □ Not Approved, see attached | Building and Safety Division (530) 582-7820 |
| □ Approved Date: | □ Not Approved, see attached | Engineering Division (530) 582-7700 |
| □ Approved Date: | □ Not Approved, see attached | Planning Division (530) 582-7820 |

ALTERNATE AGENCY STATUS IS AS FOLLOWS:

Review and written approval from the following agencies is required as noted. Please contact them directly for their requirements and forward their approval to the Building and Safety Division.

| □ Approved □ Not Approved | X Not Applicable | Nevada County Environmental Health (530) 582-7884 |
| □ Approved □ Not approved | X Not Applicable | Truckee Fire Protection District (530) 582-7850 |
| □ Approved □ Not approved | X Not Applicable | Truckee Sanitary District (530) 587-3804 |
| □ Approved □ Not approved | X Not Applicable | Truckee Donner Public Utility District (530) 587-3896 |

Sincerely,

The Town of Truckee

The approval of plans and specifications does not permit the violation of any section of the above codes, Town Ordinances or State Law.

These corrections and comments shall become part of the plans and shall be on the job site along with the approved plans, engineering, and energy calculations for all inspections. All items noted in this list shall be on the plans and are the responsibility of the architect, engineer, and contractor to see that they are complied with during the construction process.

I do hereby certify that this structure will not be occupied without a Certificate of Occupancy and that I have read these documents and will comply with them and all codes, Town Ordinances and State Laws adopted by the Town of Truckee.

_________________________________________  ______________________________________
Signature (Owner, Contractor, Agent)                                            Date
Please respond in writing to each comment on the following pages by marking the attached comment list or creating a response letter. Indicate which detail or specification on plans, and/or calculation(s) shows the requested information. Your complete and clear responses will expedite the re-check and hopefully approval of this project. ANY DOCUMENTATION/RESPONSE REQUIRED BY ENGINEER SHALL BE PROVIDED WITH ENGINEER’S WET STAMP AND SIGNATURE. Thank you for your assistance.

If re-submittal includes new plans – please provide original marked plans when resubmitting. Thank you for your assistance.

<table>
<thead>
<tr>
<th>BUILDER’S COMMENT</th>
<th>CORRECTION / CLARIFICATION REQUIRED AND / OR ADDITIONAL COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>These documents have been spot checked for code and structural compliance. Plans may be lacking sufficient information, details, and engineering, for complete review and construction of the structure. If there are errors or a lack of information or details for construction and code compliance, additional engineering, details, documentation, and fees may be required by Building Inspectors during construction or at the time of inspection(s).</td>
<td></td>
</tr>
<tr>
<td>This single family residence and garage requires the installation of a fire sprinkler. CRC R313. Please note on plans that a separate permit for residential fire sprinkler is required and the submittal, review and approval of the permit shall occur prior to requesting a rough inspection on the residence. <em><strong>Suggest contacting water utility district to determine available water pressure and begin process for design of sprinkler system so the utilities installed under the permit for the residence will accommodate the sprinkler design.</strong></em></td>
<td></td>
</tr>
<tr>
<td>1 Per SB407, effective January 1, 2014, alterations or improvements to single-family residences which were originally finaled prior to 01/01/94, shall include the replacement of all noncompliant plumbing fixtures with water-conserving plumbing fixtures. (Water closets (toilets) shall be 1.6 gallons or less per flush; Urinals shall be 1 gallon less per flush; single showerhead shall have a maximum flow rate of 2.5 gallons or less per minute; Any interior faucet shall emit 2.2 or less gallons of water per minute)(If project is subject to California Green Building Code, these values shall meet that code).</td>
<td></td>
</tr>
</tbody>
</table>

Address any of the following items which have been marked with an “X” by adding additional notations, details and/or documentation to the plan submittal documentation. Some items may be duplicates of comments above, and have been marked for further information/clarification.
SPECIAL INSPECTION REQUIREMENTS IN COMPLIANCE WITH THE 2013 CBC

CBC 1704, Responsibilities of the Registered Design Professional in Responsible Charge:
Per 2013 California Building Code (CBC) Chapter 17, where special inspection or testing is required by CBC Section 1704 & 1705, the registered design professional in responsible charge shall prepare a statement of special inspections for submittal by the permit applicant. The Town of Truckee requires the Statement of Special Inspections be included on the drawings and shall identify the following:

- The materials, systems, components and work required to have special inspection or testing
- The type and extent of each special inspection
- The type and extent of each test
- For each type of special inspection, identification as whether it will be continuous or periodic inspection.
- The seismic-force-resisting systems that are subject to special inspection
- The designated seismic systems (where required by Chapter 13 of ASCE 07-10)
- The main wind force-resisting system (where required by 1704.5.2)
- Additional requirements for structural testing for seismic resistance (1704.5.1 & 1705)

CBC 1704, Responsibilities of the Special Inspector:
- Special inspections shall be documented by the special inspector(s). The special inspector(s) shall furnish inspection reports to the building official, and to the registered design professional in responsible charge.
- Reports shall indicate that work inspected was done in conformance to approved construction documents.
- Discrepancies shall be brought to the immediate attention of the contractor for correction.
- If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and to the registered design professional in responsible charge prior to the completion of that phase of the work.
- A final report documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted prior to continuation of construction which would cover the work.

CBC 1704, Responsibilities of the Owner:
The owner or the registered design professional in responsible charge acting as the owner’s agent shall employ one or more special inspectors to provide inspections during construction on the types of work listed under Section 1704.

CBC 1704 & 1704.4, Responsibility of the Contractor:
Each contractor responsible for the construction of a main wind- or seismic-force-resisting system, designated seismic system or a wind- or seismic-resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the building official and the owner prior to permit issuance. The contractor’s statement of responsibility shall contain the following:

- Acknowledgment of awareness of the special requirements contained in the statement of special inspection;
- Acknowledgement that control will be exercised to obtain conformance with the construction documents approved by the building official;
- Procedures for exercising control within the contractor’s organization, the methods and frequency of reporting and the distribution of the reports; and
- Identification and qualifications of the person(s) exercising such control and their position(s) in the organization.
Section(s) A, B and/or C, as applicable to this project, shall be completed and signed as noted by Registered Design Professional in Responsible Charge, Special Inspector(s), Owner and Contractor.

A) To be completed, as applicable, by Design Professional in Responsible Charge:

<table>
<thead>
<tr>
<th>Special inspection(s) for this project as required by CBC 1704 are:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Reinforced Concrete (Table 1705.3)</td>
</tr>
<tr>
<td>☐ Structural Welding (Per 1705.2.2.1)</td>
</tr>
<tr>
<td>☐ Structural Masonry (Per 1705.4)</td>
</tr>
<tr>
<td>☐ High Strength Bolting</td>
</tr>
<tr>
<td>☐ High-load diaphragms (designed per Table 2306.2 w/ multiple rows of fasteners) (1705.5.1)</td>
</tr>
<tr>
<td>☐ Chemical Adhesive Anchors</td>
</tr>
</tbody>
</table>

Special inspections and reporting requirements for this project as required by CBC 1704 will be performed by:

___________________________________________________________________________________________________

Special Inspector(s)/Special Inspection Firm(s) and their contact number(s)

The Statement of Special Inspections is provided on sheet(s) ________ of drawings. The statement describes all work requiring special inspection as specified above and identifies “periodic” or “continuous” inspection requirements as applicable.

The specific detailing for this work is provided on sheet(s) ____________________________________________ of drawings.

B) To be completed by Design Professional in Responsible Charge, Owner and Special Inspector(s) as noted.

(Design Professional)

Special Inspection(s) of the Seismic Resisting System for this project shall be provided or exempted based on the following:

☑ Is not required as allowed by CBC-1705.11.2, exception (fastener spacing of the sheathing is more than 4” o.c.). Or,

☑ Is not required as allowed by CBC 1704.2, exception 2 (structure is a normally non occupied single family dwelling accessory structure).

☑ Is not required as allowed by CBC 1705.11, exception 3 (structure is one or two family dwelling, not exceeding two stories in height and does not have any horizontal or vertical irregularities as listed in exception 3). Or,

☑ Shall be performed by: _______________________________________. The requirements and specific scheduling for the inspection of the lateral resisting system have been included in the statement of special inspections. (If this box is marked, the Contractor shall complete Section C of this form).

I have provided clear and concise documentation as required by CBC 1704 and 1705.

___________________________________________________________          ______________________________
Signature of the Registered Design Professional in Responsible Charge              Date

I understand I am responsible to hire special inspector(s) for my project.

___________________________________________________________          ______________________________
Signature of the Owner                                                                                          Date

I understand I am responsible to schedule special inspections of the lateral resisting system with my design professional in responsible charge.

___________________________________________________________          ______________________________
Signature of the Owner                                                                                          Date

The Statement of Special Inspections and detailing for work requiring my special expertise is complete and provides the information I require to perform the work. I will provide appropriate records/reports of my inspections in a timely fashion.

___________________________________________________________          ______________________________
Signature and contact number(s) of the Special Inspector(s)                                Date
C) To be completed by the Contractor, or if project is by an Owner/Builder, the Owner.

Contractor’s Acknowledgement of Special Inspections of the Lateral Resisting System

<table>
<thead>
<tr>
<th>Project Name</th>
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<tbody>
<tr>
<td>Project APN</td>
<td></td>
</tr>
<tr>
<td>Project Address</td>
<td></td>
</tr>
<tr>
<td>Project Permit Number</td>
<td></td>
</tr>
</tbody>
</table>

Please read (and complete) the following statements and mark the check box to acknowledge the requirements of CBC 1704:

□  The Statement of Special Inspections is located on page(s) _________________ of plans.

□  I have read the Statement of Special Inspections prepared by the design professional in responsible charge.

□  The Statement of Special Inspections clearly defines the special inspection requirements of the Lateral Resisting System.

□  The special inspection(s) for the Lateral Resisting System will be performed by ______________________.

□  The Statement of Special Inspections clearly defines when and how often I shall schedule these inspections.

□  The person(s) within my organization who will be responsible to schedule the special inspections of the Lateral Resisting System is: ________________________________________.

□  I will distribute all report documents resulting from the special inspection(s) of the Lateral Resisting System to the field inspector in order to obtain approval to cover any such work.

I understand the scheduling, inspection and reporting requirements for the special inspections of the Lateral Resisting System and will exercise the appropriate control to comply with the approved construction documents.

Signature of Contractor                   License #                  Date

I will be completing the project as an owner/builder. Therefore, I have completed and take responsibility for compliance with all of the above requirements.

Signature of Owner/Builder (if permit is to be issued as owner/builder)                  Date
**GB 2013 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN) MANDATORY MEASURES**

**Per 101.3, The provisions of Cal Green shall apply to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure.**

**Per 301.1.1 the provisions of Cal Green shall apply to additions or alterations of existing residential buildings where the addition or alteration increases the building’s conditioned area, volume, or size.** The requirements shall apply only to and/or within the specific area of the addition or alteration.)

**Per 102.3 Documentation of conformance for applicable green building measures shall be provided to the enforcing agency.**

**GB4**

The standards in the 2013 CALGreen are prescriptive standards with specified water use criteria pursuant to the Health and Safety Code. Therefore, these requirements no longer support the flexibility allowed in using the performance method for compliance as was allowed in the 2010 CALGreen. As a consequence, the option for the performance method has been repealed and is not in the 2013 CALGreen.

**Water Conserving Plumbing Fixtures (water closets & Urinals)** shall comply with the following:

**Water closets:** The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank--type water closets shall be certified to the performance criteria of the US EPA Water Sense Specification for Tank-type Toilets. (Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush. Section 4.303.1.1

**Urinals:** The effective flush volume of urinals shall not exceed 0.5 gallons per flush. Section 4.303.1.2.

**Water Conserving Plumbing Fittings (faucets and shower heads)** shall comply with the following:

**Shower Heads:** Single showerheads shall have a max. flow rate of not more than 2.0 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the US EPA Water Sense Specification for Showerheads. Section 4.303.1.3.1

**Multiple showerheads serving one shower:** The combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 2.0 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time. Note: A hand-held shower shall be considered a showerhead. Section 4.303.1.3.2.

When shower is served by more than one shower-head, the combined flow rate of all the showerheads shall not exceed the maximum flow rate of 2.0gpm@80 psi. Cal Green 4.303..1.3.2

**Faucets:** The maximum flow rate of residential lavatory faucets shall not exceed 1.5 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi.

**Lavatory faucets in common and public use areas:** The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gallons per minute at 60 psi.

**Metering faucets:** Metering faucets when installed in residential buildings shall not deliver more than 0.25 gallons per cycle.

**Kitchen faucets:** The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minutes at 60 psi.
GB5 Automatic irrigation systems controllers installed at the time of final inspection shall be weather-or soil based to adjust irrigation in response to changes in plants’ needs as weather conditions change. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input. Cal Green 4.304.1

GB6 Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls, shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or similar method acceptable to the building official. Cal Green 4.406.1

GB7 A minimum of 50% of the construction waste generated at the site shall be diverted to recycle or salvaged for re-use. **Project shall incorporate a construction waste management plan which addresses this requirement and which shall be followed and documented throughout the construction of the project including the provision to forward supporting documentation to field inspector prior to or concurrent with the final inspection.** (Some or all of the following methods may be used to comply with these requirements: Subcontractors shall participate in compliance with the project’s Construction Waste Management (CWM) Plan; Waste prevention and recycling activities will be discussed at the beginning of weekly subcontractor meetings; Present new and/or sub-contractors on the project with a tour of the jobsite to identify materials to be salvaged and the procedures for handling jobsite debris; Verifies subcontractors acknowledge in writing that they have read and will abide by the CWM Plan; This shall be an on-going part of the construction documentation process; Using a Diversion Calculation Sheet, or some other tabulation method, along with the supporting weight receipts; Track and calculate the quantity of all waste leaving the project and calculate the waste diversion rate for the project; Create monthly diversion reports on gross weight hauled and the waste diversion rate being achieved on the project; Track separately the gross weights and diversion rates for commingled debris and for each source-separated waste stream leaving the project; In the event that Subcontractors furnish their own debris boxes as part of their scope of work, such Subcontractors shall not be excluded from complying with the CWM Plan and will provide weight and waste diversion data for their debris boxes; In the event that site use constraints (such as limited space) restrict the number of debris boxes that can be used for collection of designated waste, allocation will be made on site for specific areas where individual material types are to be consolidated. These collection points are not to be contaminated with non-designated waste types; Excess materials that cannot be used in the project, nor returned to the vendor, will be offered to site workers, the owner, or donated to charity if feasible.) Cal Green 4.408.1; 4.408.2

**Completion of the CGBC submittal document will be accepted to meet this requirement:** http://www.townoftruckee.com/home/showdocument?id=8277

GB8 At the time of final inspection, a manual, compact disc, web-based reference or other media shall be placed in the building. **[Such media shall include: 1) Directions that the manual shall remain with the building throughout the life of the structure; 2) Operation and maintenance instructions for equipment and appliances, roof and yard drainage, space conditioning systems, landscape irrigation systems, water reuse systems; 3) Info from local utility providers, including recycle programs and locations; 4) Public transportation info; 5) Educational material on the positive impacts of an interior relative humidity between 30-60% and what methods an occupant may use to maintain the level in that range; 6) Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5' away from the foundation; 8) Info on required routine maintenance measures, including but not limited to caulking, painting, grading around the building, etc.; 9) Info about state solar energy and incentive programs available; 10) A copy of all special inspection verifications required by the enforcing agency or the Cal Green Code.]** Cal Green 4.410 An example of a manual available at: (http://www.hcd.ca.gov/codes/calgreen/BldgOp_MaintenanceManual.pdf)
| GB9 | Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with EPA Phase II emission limits. Cal Green 4.503.1 |
| GB10 | At the time of rough installation or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of dust or debris which may collect in the system. Cal Green 4.504.1. Provide appropriate notation on plans. |
| GB11 | Documentation shall be provided to verify that compliant VOC limit finish materials have been used. (Building inspector will accept manufacturer's product specifications and/or field verification of on-site product containers. CalGreen 4.504.2.4 Adhesives, sealants and caulks shall be compliant with VOC and other toxic compound limits. Paints, stains and other coatings shall be compliant with VOC limits. Aerosol paints and coatings shall be compliant with product weighted MIR limits for ROC and other toxic compounds. Carpet and carpet systems shall be compliant with VOC limits. 50% of floor area receiving resilient flooring shall comply with the VOC-emission limits defined in the Collaborative for High Performance Schools (CHPS) Low-emitting Material List or be certified under the Resilient Floor Covering Institute (RFCI) Floor Score program. Particleboard, medium density fiberboard (MDF) and hardwood plywood used in interior finish systems shall comply with low formaldehyde emission standards. Cal Green 4.504.1 – 4.504.5 Provide notation on plans. Forms to demonstrate compliance are available at: http://www.townoftruckee.com/home/showdocument?id=9610 |
| GB12 | Concrete slab foundations require vapor retarder and capillary break. Cal Green 4.505.2, CRC Section R506.2.3. |
| GB13 | Moisture content of building materials used in wall and floor framing is checked before enclosure. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19% moisture content as verified by the following: 1) Moisture content shall be determined with either a probe-type or contact-type moisture meter; 2) Moisture reading shall be taken at a point 2' to 4' from the grade stamped end of each piece to be verified; 3) at least three random moisture reading shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.] Insulation products which are visibly wet or have high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers’ drying recommendations prior to enclosure. Cal Green 4.505.3 |
| GB14 | Bathroom exhaust fans SHALL BE: 1) ENERGY STAR compliant and be ducted to terminate outside the building; 2) Controlled by a humidistat (unless functioning as a component of a whole house ventilation system). Humidistat controls shall be capable of adjustment between a relative humidity range of 50 to 80 percent. (Bathroom contains a bathtub, shower or tub/shower combination) Cal Green 4.506.1 |
| GB15 | Heating and air-conditioning systems shall be sized, designed and have their equipment selected using the following: 1) The heat loss and heat gain is established according the ACCA Manual J, ASHRAE handbooks or other equivalent design software or methods; (FYI – Compliance is demonstrated within performance approach of energy) 2) Duct systems are sized according to ACCA 29-D Manual D, ASHRAE handbooks or other equivalent design software |
or methods 3) Select heating and cooling equipment according to ACCA 36-S Manual S or other equivalent design software or methods. Cal Green 4.507. Provide duct sizing calculations to field inspector prior to concealing/covering ducts. Assume understood. No further comment required.

GB16  HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Cal Green 702.1. (Verification of compliance with this requirement may include construction documents, plans, specifications builder or installer certification, inspection reports, or other methods acceptable to the building official and SHALL BE PROVIDED TO FIELD INSPECTOR AT TIME OF ROUGH MECHANICAL INSPECTION. Assume understood. No further comment required.

1.00 GENERAL ENGINEERING AND DOCUMENTATION REQUIRED ON PLANS (Plans, specifications, engineering calculations, diagrams, soil investigation reports, special inspection and structural observation programs and other data shall constitute the submittal documents and shall be submitted with each application for a permit. Plans shall show in detail that scope of work will conform to the provisions of all pertinent codes, laws, ordinances, rules and regulations. CBC Section 107.2.1; CRC R106.1.1)

1.01 Complete engineering is required for all structures by a California State licensed architect or registered engineer. T.M.C. Section 15.03.020. Documents shall be stamped and signed by the architect/engineer. The results of all engineering shall be called out in calcs and on plans, including but not limited to: posts, beams, headers, trimmers, positive connections, size of footings, steel requirements, lateral resisting system requirements, etc. All such call outs should be provided on appropriate pages of framing plans to which they pertain. Plans and calcs shall agree.

1.02 If structural engineer/architect has stamped plans for compliance with structural calcs only, drafter or the owner/builder is required to sign "responsibility statement" on pages of plans to accept responsibility for plan contents and compliance with life safety issues on plans.

1.03 Soils report completed for this parcel of property, as required by CBC 1803 shall be included in submittal documentation, and shall be included and/or referenced by the engineer’s design calcs and incorporated in the plans. RESUBMIT. Or if work is minor in nature, provide appropriate documentation to justify use of exemption 1 or 2 as outlined within “Town of Truckee Soils Report Requirements”: http://www.townoftruckee.com/home/showdocument?id=2126

1.04 Projects submitted for permit on, or after July 1, 2008 shall show compliance with CBC Chapter 7A, Materials and Construction Methods for Exterior Wildfire Exposure. Complete and incorporate Chapter 7A Compliance worksheet (available on the Town of Truckee website) into plan drawings. Plans shall demonstrate full compliance, i.e. define proposed materials used, detail
compliance as required, etc.

The following items, as marked with an “X” need additional detailing and/or specifications added to plans to demonstrate compliance:

*a) Vegetation Clearance: Plans shall specify and demonstrate requirement to maintain fire break. Remove and clear away all flammable vegetation or combustible growth for 30’ from each side of building. Remove any tree limbs within 10 feet of chimney outlet. Eliminate any dead wood from trees overhanging building. Maintain the roof to be free of leaves, needles or dead vegetation. Inspection and written approval by the Fire Marshall shall be obtained prior to final of the building permit. CBC 701A.5; CRC R327.1.5.*

*b) Roofing: Spaces proposed between the roof covering and roof decking shall be constructed to prevent the intrusion of flames and embers, shall be fire stopped with approved materials, or have one layer of No. 72 ASTM cap sheet installed over the combustible decking. Provide detail for method of compliance, incorporate into plans and provide reference to detail location. CBC 705A.2; CRC R327.5.2.

*c) Roofing: Where valley flashing is installed, the flashing shall be not less than 0.019-inch No. 26 gage galvanized sheet corrosion-resistant metal installed over not less than one layer of minimum 72 pound mineral-surfaced non perforated cap sheet complying with ASTM D3909, at least 36 inch wide running the full length of the valley. CBC 705A.3; CRC R327.5.3.

*d) Roofing: Roof gutters shall be provided with the means to prevent the accumulation of leaves and debris in the gutter. Specify where notation has been provided on plans. CBC 705A.4; CRC R327.5.4.

*e) Vents: Vents shall not be installed on the underside of eaves and cornices. (Enforcing agency may accept or approve special eave and cornice vents that resist the intrusion of flame and burning embers) CBC 706A.3; CRC R327.6.3. Define and detail how attic will be vented. Provide calculation to verify appropriate size of vents provided, including consideration for the reduced capacity of airflow for the intrusion resistant material. Verify required cross ventilation can occur. Show vent locations in relation to truss profile. If a non-vented roof system is proposed, provide manufacturer’s specifications and detailing for non-vented assembly construction, including air and water permeability testing data. (See Town website for previously approved materials, or provide alternate product with appropriate data for review by building official.)

*f) Vents: Ventilation openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and under floor ventilation openings shall be fully covered with metal wire mesh, vents, other materials or other devices that meet the following: 1. Dimensions of the openings shall be a min. of 1/16-inch and shall not exceed 1/8-inch. 2. Material used shall be noncombustible. CBC 706A.2. These vents may be used on the underside of eaves and cornices if/when – The attic space being ventilated is fully protected by an automatic NFPA 13 Sprinkler system or, the exterior wall covering and exposed underside of the eave are of noncombustible material, or ignition-resistant Material and the vent is located more than 12-feet from the ground or walking surface of a deck,
porch, patio or similar surface. CBC 706A.3; CRC R327.6.3.

*g) Unenclosed roof eaves: The exposed roof deck on the underside of unenclosed roof eaves shall consist of one of the following: 1. Noncombustible material; 2. Ignition-resistant material; 3. One layer of 5/8” Type X gypsum sheathing applied behind an exterior covering on the underside exterior of the roof deck; 4. The exterior portion of a 1 hour fire resistive exterior wall assembly applied to the underside of the roof deck designed for exterior fire exposure including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual. CBC 707A.4; CRC R327.7.4.

Enclosed roof eaves and roof eave soffits: The exposed underside of enclosed roof eaves having either a boxed-in roof eave soffit with a horizontal underside, or sloping rafter tails with an exterior covering applied to the underside of the rafter tails, shall be provided by one of the following: 1) Noncombustible material; 2) Ignition-resistant material; 3) One layer of 5/8” Type X gypsum sheathing applied behind an exterior covering on the underside of the rafter tails or soffit; 4) the exterior portion of a 1 hour fire resistive exterior wall assembly applied to the underside of the rafter tails or soffit including assemblies using the gypsum panel and sheathing products; 5) Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria of SFM Standard 12-7A-3. CBC 707A.5; CRC 327.7.5.

*h) Exterior Walls: Exterior wall shall be approved noncombustible or ignition-resistant material, heavy timber or log wall construction or shall provide protection in accordance with SFM Standard 12-7A-1. Specify siding Product Company Name, Product Description, Test Protocol and Flame Spread. Indicate if listed in SFM Handbook. CBC 707A.3; CRC R327.7.3.

*i) Exterior Walls: Exterior wall coverings shall extend from the top of the foundation to the roof, and terminate at 2-inch nominal solid wood blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure. Specify where notation has been provided on plans. CBC 707A.3.1; CRC R327.7.3.1.

*j) Exterior Porch Ceilings, Floor Projections, Under Floor Protection, Underside of Appendages: The exposed underside of exterior porch ceilings, floor projections, underside of exposed under floor or exposed under floor shall be protected by one of the following: 1) Noncombustible material; 2) Ignition-resistant material; 3)One layer of 5/8” Type X gypsum sheathing applied behind the exterior covering on the underside of the component; 4) The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the component including assemblies using the gypsum panel and sheathing products listed in Gypsum Design Manual; 5) Porch ceiling assemblies with a horizontal underside that meet SFM Standard 12-7A-3. CBC 707A.6, 707A.7, 707A.8; CRC R327.7.6, R327.7.6, R327.7.7, R327.7.8, R327.7.9.

*k) Exterior Windows: Exterior windows, exterior glazed door assemblies, glazed openings within exterior doors, glazed openings within exterior garage doors, exterior structural glass veneer shall comply with one of the following: 1) Be constructed of multi-pane glazing with a minimum of one tempered pane meeting the requirements of section 2406 or 2) be constructed of glass block units, or 3) have a fire resistance rating of not less than 20 minutes when tested according to NFPA 257, or 4) Be tested to meet SFM Standard 12-7A-2. The wall assembly behind structural glass veneer shall comply with “exterior wall” requirements (see h and i). CBC 708A.2; CRC R327.8.2.
Exterior Doors: Exterior doors shall comply with one of the following: 1) The exterior surface of cladding shall be on noncombustible or ignition-resistant material, or 2) shall be constructed of solid core wood that comply with the following: Stiles and rails shall not be less than 1 3/8 inches thick; Raised panels shall not be less than 1.25 inch thick, except for the exterior perimeter of the raised panel that may taper to a tongue not less than 3/8 inch thick; or, 3) shall have a fire-resistance rating of not less than 20 minutes when tested in accordance with NFPA 252; or 4) shall be tested to meet SFM Standard 12-7A-1. Specify where notation has been provided on plans and provide garage door construction specifics. CBC 708A.3; CRC R327.8.3.

Decking: The walking surface material of decks, porches, balconies and stairs, when located within 10 feet of the building shall be constructed with one of the following materials: 1) Ignition-resistant material that complies with performance requirements of both SFM Standard 12-7A-4 and 12-7A-5; 2) Exterior fire retardant treated wood; 3) Noncombustible material; 4) Any material that complies with the performance requirements of SFM Standard 12-7A-4A when attached to exterior wall covering is also either noncombustible or ignition-resistant material (Exception: Wall material may be of any material that otherwise complies with this chapter when the decking surface material complies with the performance requirements of ASTM84 with a Class B flame spread rating). CBC 709A.3; CRC R327.9.

Underfloor: The under floor area of elevated or overhanging buildings shall be enclosed to grade or protect exposed underfloor area (see item j). CBC 707A.8; CRC R327.7.8.

Underside of Appendages: The underside of overhanging appendages shall be enclosed to grade, or protect exposed underfloor area (see item j). CBC 707A.8; CRC R327.7.9.

The plans for this project lack essential structural details and information and/or the structural calculations lack critical design information. Key and reference all details, which pertain to this set of plans. Eliminate details and general notes which do not apply to this specific job. In lieu of typical details which do not pertain to the proposed construction of this structure, provide pertinent detailing and references. RESUBMIT.

Three story structures are required to be designed by an architect or engineer, i.e. "structural only" designation by engineer not allowed. Business and Professional Code.

Specify size, grade and species of all framing lumber (structural review normally assumes Douglas Fir #2 or better for 4x and #1 for 6x). Call out the grade of glu-lam in calcs and on plans.

Effective January 1, 2000 - For new construction, all lots require a Topographic Survey prepared by a California licensed Land Surveyor, or Civil Engineer or Architect licensed to perform such services. T.M.C. Section 15.03.030

Effective January 1, 2000 - For new construction, all lots require a Boundary Survey prepared by a California licensed Land Surveyor or Civil engineer licensed to perform such services. T.M.C. Section 15.03.030
1.10 Plans submitted shall include an Erosion Prevention Plan prepared by a certified professional in erosion and sediment control, or a California registered civil engineer, licensed architect or landscape architect competent to do the work. (T.M.C. 15.03.170 (Standard for One and Two Family Dwelling Construction Projects). The Town recommends consideration of Low Impact Designs. The plan must show the following:

A. The limits of ground disturbance. Provide a section detail and reference(s) for its appropriate installation and proposed location(s).

B. A schedule showing timelines within which grading/excavation work will be completed and temporary and permanent erosion control will be installed relative to construction progress (minimal disturbance and minimal exposure for erosion, for minimal amount of time is the goal).

C. The quantity of grading material to be removed and/or imported. CBC Appendix J104.1.

D. Erosion Prevention barriers, their locations (placement shall be correctly designated as parallel to contours) and a section detail and reference(s) showing their correct installation and location(s) for all disturbed soils areas.

E. Calculations to determine the required size and method(s) of retaining and infiltrating 20 year, one hour storm event (3/4” – 1”/HR) runoff from newly created impervious surfaces including roofs and driveways such as low impact design, dry wells or detention basins. Include documentation of how permeability of parcel has been determined. Filtration system shall be designed to maintain all runoff on the parcel.

F. Winterization procedures apply if construction will occur beyond the normal building season (defined as May 1 to October 15).

G. Methods of protecting dirt stockpiles

H. Concrete washout area

I. Permanent erosion prevention measures. Include appropriate detailing and references for proper size, placement and installation, including required level placement and/or provisions to address placement on steep slope(s). (Per CBC Section 1804.3, the ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than 5% for a minimum distance of 10 feet measured perpendicular to the building. EPP plans shall incorporate these requirements.

1.11 The faces of cut and fill slopes shall be prepared and maintained to control erosion. Erosion control for the slopes shall be installed as soon as practicable. CBC Appendix J110.1.

1.12 Submit three copies of the site/plot plan accurately drawn to scale. Include a north orientation arrow. Show both eave and foundation lines of existing and/or new structure(s), including all decks/retaining walls and other appendages. Show location of all property lines, set backs, easements (recreational, utility, access, etc.). Show proposed location of all utility connections. CBC 107.2.5; CRC R106.2

1.13 Site plan drawing shall show contours called out in 2’ increments, to agree with topographic survey documentation. Any proposed revision(s) to grade shall be
represented on site drawing. Foundation setback from ascending and descending slope surfaces shall comply with CBC 1808.7.

1.14 Where required to protect adjacent properties at the toe of a slope from adverse effects of the grading, additional protection, approved by the building official shall be included. 2013 CBC Appendix J108.3. Provide appropriate detailing and references to accomplish requirements.

1.15 Drainage across property lines shall not exceed that which existed prior to grading. Excess or concentrated drainage shall be contained on site or directed to an approved drainage facility. Erosion of the ground in the area of discharge shall be prevented by installation of non-erosive down drains or other devices. CBC Appendix J109.4.

1.16 Unless soils engineering report is provided all cut/fill slopes shall comply with Appendix Chapter J of the 2013 CBC. Any proposed retention of slope in excess of 2(h):1(v) shall be designed by an engineer, or a soils report is required to justify a steeper slope. The top of cut slopes and/or the toe of fill slopes shall not be made nearer to a property line than 1/5 of the vertical height of cut with a minimum of 2’ and a maximum of 10’. CBC App. J108.2 (Or justify up to 1.5:1 slope in compliance with exceptions of J106.1) Show appropriate dimensions and revisions to existing contour lines to show compliance with these requirements. Define existing and finished grades at top and toe of all proposed cuts and fills, provide rip rap design and show accurate placement of toe and top of slopes as part of site plan drawing.

1.17 Proposed finished floor heights in relation to topography of lot (as provided by topographic survey) shall be specified on plans. Both natural and finished grade representations shall accurately be represented on all elevation drawings.

1.18 All of the Town of Truckee is declared a snow area. In addition to 2013 CBC Section 1608.2, the design of structure shall consider snow loading in compliance with T.M.C. 15.03.110: http://www.townoftruckee.com/home/showdocument?id=263

These snow loads are given as “ground snow loads”. Design calcs submitted for incorrect snow load. Engineer to resubmit plans with design calcs and call outs for correct snow load for complete plan review. RESUBMIT.

1.19 Reduction in snow load for pitch of roof is applicable only to roofs having an eave height above the anticipated general depth of snow on the ground (ground snow level may be calculated by dividing the tabulated ground snow load by 25 lbs). Also in the building design, consideration shall be given to the condition wherein the snow from the upper portion of the roof slides down on top of the ground snow and consequently further increases the loading on the lower portion of said roof. T.M.C. 15.03.110 and ASCE 7-10, Section 7.9.

1.20 In the design of buildings and structures, consideration shall be given to the following: Unbalanced loading of roofs; Drifting due to adjacent obstructions; Accumulations in valleys and adjacent to parapet walls and chimneys; Ice loads on cornices; possible impact loadings from snow falling/accumulating on structure from higher roof; snow sliding off roof and dynamically loading sidewalls by being forced against same due to snow embankment adjacent to
the structure; ice weight where it will refreeze on unheated overhangs after having melted and run off from portions of roofs with heat below; projections through the roof, such as ventilation and plumbing vents, which may be torn off or damaged by sliding snow T.M.C. 15.03.110.

1.21 In the design of structures, protection of entrances, exits and windows from the danger of falling icicles and snow sliding off pitched roofs shall be considered. T.M.C. 15.03.110

1.22 Gabled, hipped, or curved roofs shall be designed to resist stresses caused by snow loading 0.84 times the values in Tables 1608.3 and 1608.4 on one-half of the roof if such loading results in larger members or connections. T.M.C. 15.03.110.

1.23 Unbalanced roof snow loads shall be considered (see policy). T.M.C. 15.03.120.

1.24 LPG second stage regulator and riser pipe shall be installed on the gable end of the building and 20’ from snow shed from adjoining roofs. Regulators installed in front of garages shall be protected by a 3” post. A protective cover engineered for 2 times the snow load shall be installed over the regulator and securely supported to the ground or the building wall. LPG tank required to be located 10’ from structure (20’ required if subject to snow shed from roof) and must comply with required front, side and rear yard building setbacks. Show proposed tank location, indicate if above grade or below grade tank proposed. Provide LPG Supplier’s Stamp required on plans.

X 1.25 Provide (2) copies of natural gas schematic drawings at time of rough plumbing inspection. The schematic must be completed by a licensed plumber or engineer, must indicate length of all pipes, BTU rating of all appliances and size of all pipes required per 2013 CPC. In addition, per the 2013 Energy Standards, a gas supply line with a capacity of at least 200,000 Btu/hr shall be provided to the water heater (for possible conversion to an instantaneous water heater), 2013 Energy Efficiency Standards Section 150.0(o). Gas meters shall be placed on non-shed side of building. Gas meter sheds shall be designed to resist 1.4 times the ground snow load (Pg). Approved designs of cover may be found on Town website: http://www.townoftruckee.com/departments/building-and-safety/natural-gas

1.26 Truckee Sanitary District has found that based upon the sewer configuration and site topography, your parcel should include backwater valves as required per California Plumbing Code (CPC) 710.1. Please provide notation on plans.

FOUNDATION  2.00

2.01 Specified compressive strength of concrete, strength or grade of reinforcement shall be noted on foundation plan CBC 1901.3

2.02 Minimum compressive strength of 2500 psi at 28 days required for concrete footings. CBC 1807.1.6.2, item 6; CRC R402.2.

2.03 Proposed 3 story Group R-3, R-1, or U occupancy requires concrete strength of not less than 3000 psi (structures assigned to Seismic Design Category D, E or F). Table 1808.8.1.
2.04 Spread footings for structures assigned to Seismic Design Category D, E or F which are founded on site class E or F soil shall be interconnected by ties. CBC 1809.13.

2.05 Provide a fully dimensioned foundation plan, including dimensions to all interior piers. CBC 107.2.1. CRC 106.1.1

2.06 Show size, reinforcing, post attachment and location of all pier footings. CBC 107.2.1. CRC 106.1.1

2.07 Foundations supported on fill require a soil investigation report and a report of satisfactory fill placement. CBC 1803.5. Show areas to be graded. Indicate the top of cut and toe of fill slopes on plot plans. Appendix J108

2.08 Exterior footings and foundations shall extend below the frost line. Depth of 18” required minimum if below 7000 foot elevation, and 24” for 7000 foot elevation and above. T.M.C. 15.03.150. Interior footings shall extend 12” minimum. The top surface of footings shall be level. The bottom surface of footings is permitted to have a slope not exceeding 1(v):10(h)(10%). Footings shall be stepped where necessary to change the elevation of the top surface of the footing. CBC 1809.3; CRC R403.1.5

2.09 Footings on or adjacent to slopes: The placement of buildings and structures on or adjacent to slopes steeper than 33.3% shall conform to CBC 1808.7.1 – 1808.7.5; A soils investigation report shall be provided. CBC 1803.5.10.

2.10 Wood framing members, including wood sheathing, that rest on exterior foundation walls shall extend at least 8 inches above the adjacent finish grade. CRC R317.1, CBC 2304.11.2.2.

2.11 Columns or posts that are either exposed to the weather or located in basements or cellars, supported by concrete piers or metal pedestals shall project at least 1 inch above the slab or deck and 6 inches above exposed earth, and shall be separated therefrom by an impervious moisture barrier, unless they are of naturally durable or preservative-treated wood. CBC 2304.11.2.7.

2.12 Posts or columns in enclosed crawl spaces of unexcavated areas located within the periphery of the building, shall be supported by a concrete pier or metal pedestal at a height greater than 8 inches from exposed ground, and shall be separated therefrom by an impervious moisture barrier, unless they are of naturally durable or preservative-treated wood. CBC 2304.11.2.7.

2.13 The ends of wood girders entering exterior masonry or concrete walls shall be provided with ½ inch air space on top, sides and end, unless naturally durable or preservative-treated wood is used. CBC 2304.11.2.5.

2.14 Provide foundation section detail(s) with dimensions and rebar placement called out in calcs and on plans, including thickness specifications for stem wall(s). Engineer to specify if/when vertical steel required once wall exceeds a certain
height and if that height is measured from top or bottom of footing. Verify any general and specific notes and detail(s) agree in all cases.

2.16 Concrete protection for reinforcement (rebar) of 3” minimum cover required for concrete cast against and permanently exposed to earth. Concrete exposed to earth or weather requires minimum 2” cover for No. 6 through No. 18; 1½” minimum coverage required for No. 5 bars or smaller. CBC 1907.7/ACI 318.05, Section 7.7.

2.17 Minimum thickness of concrete floor slabs supported directly on the ground shall be not less than 3½”. Slab inspection required. Within habitable space, a 6-mil polyethylene vapor retarder (with joints lapped not less than 6 inches), or other approved methods/materials, shall be used to retard vapor transmission through the floor slab and shall be placed between the base course or sub-grade and the concrete floor slab, Section 1910.1 of the CBC. Slab on grade construction with hydronic requires R-10 slab edge insulation per CA energy standards. CRC R506.1; 506.2.3. Foundation details shall include installation detail for any slab edge insulation as may be required by project’s energy compliance documentation.

2.18 Provide calculations for retaining wall design. Include a summary of design criteria used in design of wall(s), which includes snow load and/or vehicle surcharge loads (where appropriate), overturning and sliding resistance safety factor of 1.5. CBC 1807.2. In calcs and on plans, provide complete cross section detail(s) and reference(s) for retaining walls. Include proposed drainage to daylight provisions. Damp proofing and waterproofing membrane required if retaining wall placed at conditioned area. Damp proofing materials for walls shall be installed on the exterior surface of the wall, and shall extend from the top of the footing to above ground level. CBC 1805.2.2. Engineer to specify required attachment of framing members to wall (where appropriate). Retaining wall details shall include any slab edge insulation as may be required by project’s energy compliance documentation.

2.19 On foundation plan, define approximate location(s) where differences in retaining wall heights occur.

2.20 Foundation grade redwood or pressure treated mudsill required. CBC 2304.11.2.2.

2.21 Extend sill bolts 7" into foundation; maximum spacing 6’ apart with minimum 2 bolts each sill board within 12” of but not less 4” from each end of each piece. CBC 2308.6. Plate washers a minimum of 3”x3”x 0.229 inches thick shall be used on each sill bolt. Specify on plans the required size and spacing of anchor bolts at each shear wall line as defined by engineer within lateral analysis. Suggest placing designations at each wall line on foundation plan where 3x foundation sill and longer anchor bolts required.
2.22 Identify on the plan, the type of lumber to be used for sole plates. If pressure treated materials, specify the anchor bolt washers, nails and any other connector materials that are in direct contact with the sole plates on plan also. Connectors used in conjunction with pressure treated lumber must be hot-dipped zinc-coated galvanized, stainless steel, silicon bronze or copper (CBC 2304.9.5.1). If galvanized, a minimum galvanization level of G185 is required. Alternatively, borate pressure treated sole plates may be used with standard steel connectors. CRC R317.3.1

2.22a All longitudinal bars in compression should be enclosed within lateral ties and shall comply with ACI-318 Section 7.10.5. Provide detail(s) and reference(s) for the proper installation of laterally supported column bars.

2.23 Install anchored veneer in compliance with CBC 1405. Foundation support required for exterior rock veneer. Anchor ties shall be provided to horizontal joint reinforcement wire of no. 9 gauge or equivalent. Provide foundation support (and referenced installation detail) for veneer. CBC 1604.2

FRAMING PLANS  3.00

3.01 The strength of a nail is essentially a function of the shank diameter, penetration in the connecting members, and the species of the connecting members. All nails and staples shall meet the requirements of ASTM F 1667. CBC 2303.6. 

Nails used for structural applications shall be designed and clearly specified by nail type, diameter and length in calcs and on plans. Structural calculations for wood structural panel horizontal diaphragms and shear walls shall be based on the tabulated values per ICBO NER-272 (or other approved listing) for cooler nails of the specified pennyweight. Structural calculations for 2x connections (i.e. top plate splices, ledgers, etc.) shall be based on 16d sinker nail values. Engineer to consider the above information in their design and include in construction documentation to communicate the requirements to the framing contractor.

3.02 Where post and beam or girder construction is used, positive connection shall be provided to ensure against uplift and lateral displacement. CBC 2304.9.7. All such connections shall be placed on appropriate pages of framing plans to which they pertain and/or within pertinent detail(s).

3.03 Engineer to specify truss loading and design criteria in calcs and on plans. Engineer shall verify and indicate method of obtaining required bearing area at top plates. All transfer of loads and anchorage of each truss to the supporting structure is the responsibility of the registered design professional. CBC 2303.4.1.2. The design, manufacture and quality assurance of metal-plate connected wood trusses shall be in accordance with TPI 1. CBC 2303.4. Engineer shall certify that they have reviewed truss calculations. (Strongly suggest review be provided prior to manufacturing of trusses). This certification shall be provided to the field inspector with the truss calculations/drawings on the jobsite at the time of framing inspection.

3.04 Location and loading requirements shall be indicated for drag trusses, including proper specification of straps, correlation of strap and chord member widths, negative reactions requiring resistance to uplift, etc. on roof framing plan and in truss design criteria specifications. Calculations of drag forces shall be included
Engineer to check compression and bending of wall studs at tall bearing walls. Engineer/architect to investigate wall studs over 10’ in lateral unsupported height for allowable column loading. Exterior wall studs (and king stud members) over 10’ shall also be investigated to be adequate for bending stress due to wind. Provide exterior wall stud calculations for the combined loading due to vertical and lateral loads applied perpendicular to the walls.

Plans shall include detail(s) and reference(s) for any required lateral bracing of gable end trusses (typically as their height exceeds 10’). Or specify and detail balloon framed wall studs. Height of balloon framed wall studs should be considered in overturning analysis and wall stud analysis as well. Include required connection of raked wall plates at ridge for continuity of chord/collector.

Engineer to provide complete structural framing connection details and structural connection calculations.

Tie opposing rafters of the roof structure together at the ridge. Engineer to specify the required tie. Call out required truss or rafter to plate connection in calcs and on plans.

Engineer to provide design calculation and detail (in calcs and on plans) for proposed gable/barge rafter framing. Include allowed overhang span and required spacing of framing members, required back span into roof framing system, and required roof ply nailing. **Verify appropriate eave loading considered.**

Engineer to provide design and detail (in calcs and on plans) for California framing, including required member sizes, spacing and all required connections of framing members, including attachment to roof below.

Residential passenger vehicle garage point load design shall consider 3000 pounds, acting on an area 4.5 inches by 4.5 inches. CBC Table 1607.1, footnote a.

Wood structural members supporting moisture-permeable floors that are exposed to the weather, such as concrete or masonry slabs, shall be approved wood of natural resistance to decay or treated wood unless separated from such floors by an impervious moisture barrier. CBC 2304.11.4.2. Engineer to specify required thickness and panel index of the solid floor sheathing required to support tributary garage floor/parking deck loads in calcs and on plans.

Raised garage floors: Specify water resistive membrane and provide test and research data. Verify membrane material is approved for direct contact with and supporting a concrete floor. Installation shall be in accordance with listing requirements. (Roofing materials are normally not approved for this use.) The garage floor needs to slope toward the driveway (or to an area drain) and the driveway should not slope into the garage. Effort needs to be made to assure that surface water drains out of the garage. The designer needs to carefully detail the flashing and water resistive barrier at the front of the garage to assure outside water does not enter the building.
3.14 Engineer to specify required rim joist material to be used with floor truss members. Verify sufficient bearing capacity of proposed member(s) with manufacturer's specifications.

3.15 Portions of structural glu-lam beams, which are exposed to weather, shall be pressure treated or of wood of natural resistance to decay. Section 2304.11.3 of the CBC. Equivalent protection may be provided with two coats minimum of sealer.

3.16 Skylights (any glazing installed at a slope of 15 degrees or more from the vertical plane) shall be designed to carry tributary roof loads. (Most skylights are designed for 20 PSF). Provide evidence of compliance at framing inspection. CBC 2404.2; 2405.5. (See code section for information regarding glazing in skylights.)

3.17 Flues and heating appliance vents projecting through the roof shall be protected from damage by sliding snow or ice. When roof pitch is steeper than 2 in 12 provide metal-formed snow splitter with a minimum vertical height (at the apex) at least one-half of the required vertical height of the vent extension above the roof. In no case shall a snow splitter measuring less than 8 inches at the apex be used. All snow splitters shall be secured to the roof frame and sheathing to withstand the shear loads anticipated. All heating appliance vents, flues and chimneys shall be strapped to the snow splitter near its apex with a galvanized steel strap. Minimum thickness of the steel strap shall be 16 gauge. (Exception: Flues, appliance vents and chimneys greater than four inches in diameter and which penetrate the roof w/l 36" of the ridge shall be permitted without snow splitters.) Show roof vent termination locations and required splitters as required. TMC Code 15.03.140

3.18 When framed chimney chases or masonry chimneys project above the roof, they shall be engineered and protected by a snow splitter with a minimum height equal to one-half of the required height of the flue or chimney. The width, at the base of the snow splitter, shall be equal to or greater than the width of the chimney or chase. (Exception: Flues, appliance vents and chimneys greater than four inches in diameter and which penetrate the roof w/l 36" of the ridge shall be permitted without snow splitters.) Engineer to provide design and appropriate framing detail/specifications for construction of chimney chase and required splitter. Municipal Code 15.03.140

LATERAL 4.00

4.01 Engineer must provide complete lateral analysis for structure. Call out all shear details on plans and in calcs (nailing, hold downs, straps, etc.). Call out and detail continuous posts, top plate splices, sole plate nailing, shear wall schedule, roof nailing etc.

4.02 Provide any/all specifications/details on plans for proper installation of hold-downs, including showing hold-down hardware installation on elevation drawings. Specify requirement for solid blocking for full thickness of wall where perpendicular joists occur and requirement for HD studs to continue at floor below (@ floor to floor hold-downs). Specify required size of attachment members for all hold-down hardware. Engineer to specify required attachment
of any proposed multiple HD members to each other in order to act as one unit. Specify required boundary nailing of shear ply to each HD stud for full height. (The hold-down device must be connected to the edge (chord) members of the shear wall.)

4.03 Define required anchor hardware at hold-down members (on foundation plan). Specify minimum embedment required at custom hold-down anchors. Verify continuous foundation at high value anchors is sufficient to resist overturning.

4.04 When allowable values of shear walls exceed 350 pounds per foot, foundation sill plates and all framing members receiving edge nailing from abutting panels shall not be less than a single 3-inch nominal member, or two 2-inch nominal members fastened together as specified by design engineer. (CBC 2306.3; AF&PA SDPWS). In shear walls where total wall design shear does not exceed 600 pounds per foot, a single 2-inch nominal sill plate may be used, provided anchor bolts are designed for a load capacity of 50 percent or less of the allowable capacity and bolts have a minimum of 3"x3" by 0.226" thick plate washers. Plywood joint and sill plate nailing shall be staggered in all cases. Provide appropriate revisions to shear wall schedules in calcs and on plans as well as revisions to details to reflect compliance with this requirement.

4.07 Engineer to provide and reference complete structural cross section connection details for typical exterior shear walls. Details shall designate all required connections for the accomplishment of a complete lateral load path from diaphragm(s) (point of origin) to foundation (load resisting element).

4.08 Engineer to provide complete structural cross section connection details and appropriate references at all interior shear walls. Details shall designate all required connections for the accomplishment of a complete lateral load path from diaphragm(s) (point of origin) to foundation (or alternate load resisting element).

4.09 Engineer to specify the panel index of the solid roof sheathing required to support tributary roof loads, in calcs and on plans. (A.P.A. Report NER-108) Provide lateral design analysis of the wood diaphragm(s). CBC 2305.2. Define the required size and spacing of roof and floor diaphragm nailing in design calculations and on plans. Indicate required boundary nailing at diaphragms (including nailing for entire length of member) at appropriate framing plans, i.e. continuation of boundary nailing (rather than field nailing) over interior shear wall, etc.

4.10 Size and shape of shear walls, perforated shear wall segments within perforated shear walls and wall piers within shear walls that are designed for force transfer around openings shall be limited to 2:1 maximum height-width ratio for design to resist seismic forces. If shear wall h/w ratio is greater than 2:1, but not exceeding 3.5:1, verify the allowable shear values are multiplied by 2w/h. 2008 American Wood Council Special Design Provisions for Wind and Seismic, Chapter 4

4.11 Verify balloon framed and tall wall stud heights and perforated shear wall segments have been considered in overturning analysis.

4.12 Collector members shall be provided to transmit tension and compression forces
to resist the moment in the diaphragm(s). Provide appropriate calculations to justify proposed top plate splice(s) resist the maximum diaphragm shear capacity in all cases. Include any required connections at discontinuous plates.

4.13 Engineer to verify area of decks and/or roof extensions have been considered in lateral analysis. Verify appropriate lateral connections provided at framing members of these elements.

4.14 Exterior landings, decks, balconies, stairs and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Engineer to consider lateral loads from roof snow shedding normally or in an earthquake, or from an earthquake on a snow loaded deck. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal. For decks with cantilevered framing members, connections to exterior walls or other framing members, shall be designed and constructed to resist uplift resulting from the full live load acting on the cantilevered portion of the deck. CRC R311.5, CRC R507.1.

4.15 Deck ledger connection to building structure shall be pressure treated or lumber with natural resistance to decay. Lag bolts, screws, bolts and washers shall be hot-dipped galvanized or stainless steel. CRC R507.2. Additionally, the deck ledger shall be flashed (CRC R703.8, item 5). Provide a flashing detail.

FLOOR PLAN 5.00

5.01 Address signs and porta-potti shall be on the job site at the time of first inspection L.U.D.C. *(Permanent identification of site address shall be placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4” high with a minimum stroke width of ½”. Where access is by means of a private road and the building address cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. CRC R319. Illuminated address signs shall consume no more than 5 watts of power. 2013 Energy Standards150.0(k)10)*

5.02 Water supply piping shall be protected from freezing by a minimum of 36” of earth covering. If installed in exterior walls, install to the inside surface and insulate on the unheated side of the pipes with material of equivalent r-value of wall insulation as considered/required in energy analysis. Water piping shall not be installed or concealed in unheated walls, ceiling and attics. CPC 313.13. Water supply system, including hot and cold, shall be designed and installed for winterization and freeze protection, such as allowing for routine drainage of the system to prevent freezing. The water supply shall be equipped with a readily accessible shut off valve. Valve(s) and/or drain port(s) when used shall be readily accessible, insulated for protection from freezing, and shall be protected from the potential for back flow. All water piping shall be graded to drain. Plastic materials for water service piping outside underground shall have a blue insulated copper tracer wire or other approved conductor installed adjacent to the piping. The tracer wire size shall be not less than 18 AWG and the insulation type shall be suitable for direct burial. Waterline to be inspected before covering. PE pipe is prohibited if more than 5’ inside the foundation. CPC 604.9, exception.
5.03 Garage floor surfaces shall be of approved noncombustible material. The area of
the floor used for parking of autos or other vehicles shall be sloped toward the
main vehicle entry doorway. Carports shall be open on at least two sides. CRC
R309.1 and R309.2.

5.04 Automatic garage door openings, if provided, shall be listed and labeled in
accordance with UL 325. (Door openings shall have an automatic reverse safety
device; in order to operate, it requires the inclusion of a tactile garage door edge
sensor, an optical sensor, or a similar device that when activated is designed to
cause a closing door to open and prevent an open door from closing.

5.05 Door openings between a private garage and the dwelling unit shall be equipped
with either solid wood doors or solid or honeycomb core steel doors not less than 1
3/8" thick, doors shall be self-closing and self-latching. No openings between
garage and rooms used for sleeping. CRC 302.5.1; CBC 406.3.4 item 1.

5.06 Private garage shall be separated from the dwelling unit and its attic area by a
minimum ½-inch gypsum board applied to the garage side. CRC R302.5.1; CBC
406.3.4 item 1. Garages beneath habitable rooms shall be separated from all
habitable rooms above by not less than a 5/8" Type X gypsum board or equivalent.
CRC R302.6; T-R302.6; CBC 406.3.4 item 1.

5.09 Ducts in a private garage and ducts penetrating the walls or ceilings separating the
dwelling unit from the garage shall be constructed of a minimum N0. 26 gage
(0.019-inch; 0.48 mm) sheet steel and shall have no openings into the garage.
CRC 302.5.2; CBC 406.1.4 item 2.

5.10 Appliances designed to be fixed in position shall be securely fastened in place.
Supports for appliances shall be designed and constructed to sustain vertical and
horizontal loads within the stress limitations specified in the building code. Anchor
straps for water heaters shall be located within the upper and lower 1/3 of its
vertical dimension, lower anchor/strap location to maintain a minimum distance of
4" above the controls. (This criteria will be enforced) CPC 507.2. (Steel braces
required, not plumber's tape.) A water heater supported from the ground shall rest
on level concrete or other approved base extending not less than 3" above the
adjoining ground level. CBC 507.3

5.11 Gas utilization appliances in a residential garage and in adjacent spaces that open
to the garage and are not part of the living space of a dwelling unit shall be
installed so that burners and burner-ignition devices are located not less than 18"
above the floor unless listed as flammable vapor ignition resistant. CPC 507.14.

5.12 HVAC appliance/water heater space shall be provided with an opening or doorway
sufficient in size for its removal. ( Appliances must be readily accessible for
inspection, repair and placement. A 30" x 30" working space must be provided at
the front or service side of the appliance. CMC 305. The space in which any floor
furnace is installed shall be accessible by an opening in the foundation not less
than 24" x 18", or by a trapdoor not less than 24"x 24" and a passageway not less
than 24" x 18".CMC 912.8.

5.13 Appliances installed in attics shall be accessible through an opening and
passageway at least as large as the largest component of the appliance and not less than 22" x 30". The appliance shall be located within 20’ of the passageway access when the attic has less than 6’ headroom. The passageway shall be unobstructed and shall have solid flooring not less than 24 inches wide from the entrance opening to the appliance. A permanent 120-volt receptacle outlet and a lighting fixture shall be installed near the appliance. The switch controlling the lighting fixture shall be located at the entrance to the passageway. CMC 904.11; CPC 509.4.

5.16 Any water system provided with a check valve, backflow preventer, or any other normally closed device that prevents dissipation of building pressure back into the water main shall be provided with an approved, listed, and adequately sized expansion tank (or other device designed for intermittent operation for thermal expansion control).

Any water system containing storage water heating equipment shall be provided with an approved, listed, automatic type with drain, adequately sized combination pressure and temperature relief valve, except for listed non-storage instantaneous heaters have an inside diameter of not more than three inches. CPC 608.3. Valve shall be set at a pressure of not more than 150 pounds psi. No shutoff valve shall be installed between the relief valve and the system or in the drain line. Relief drains shall not terminate in a building’s crawl space.

5.17 Furnaces or boilers may be installed in a closet located in a bedroom or bathroom, provided the closet is equipped with a listed, gasketed door assembly and a listed, self-closing device and in compliance with CMC 904.1.1. The door assembly shall be installed with a threshold and bottom door seal and shall meet the requirements of CMC 904.1.2. All combustion air for such installations shall be obtained from the outdoors. The closet shall be for the exclusive use of the central heating furnace or low-pressure boiler. Or the unit shall be a direct vent sealed combustion unit. CMC 904.1. Self-closing doors shall swing easily and freely and shall be equipped with a self-closing device to cause the door to close and latch each time it is opened. The closing mechanism shall not have a hold-open feature. CMC 904.1.1. Gasketing on gasket doors or frames shall be furnished in accordance with the published listings of the door, frame, or gasketing material manufacturer. CMC 904.1.2.

5.18 An LPG appliance shall not be installed in an above-grade underfloor space unless such location is provided with a minimum 3” drain for removal of unburned gas. An LPG appliance shall not be installed in a pit or basement. CMC 303.8.1.

5.19 Central-heating furnaces and low pressure boilers installed in rooms that are NOT large (such as alcoves and closets) in comparison with the size of the equipment shall be listed for such installation Listed clearances shall not be reduced, regardless of whether the enclosure is of combustible or noncombustible material. CMC 904.2

5.20 If the volume of the room or space in which fuel-burning appliances are installed is equal to or greater than 50 cubic feet per 1,000 Btu/hr of aggregate input rating of appliances, infiltration may be regarded as adequate to provide combustion air. If not, provide combustion air for appliances. CMC 205, 223 and 701.2.1. Makeup air requirements for the operation of exhaust fans, kitchen ventilation systems, clothes dryers, and fireplaces shall be considered in determining the
adequacy of space to provide combustion-air requirements. CMC 701.1.4.

5.21 Combustion air opening locations shall be provided in compliance with CMC 701.4: Two Permanent openings Method (701.4.1) or One Permanent Opening Method (701.4.2). Or provide calculations to comply with allowed interior and exterior air provisions as allowed by CMC 701.5. Combustion air ducts: shall be provided with a galvanized sleeve of not less than 26 gauge steel or other approved material; shall have a minimum cross-sectional dimension of 3"; shall terminate in an unobstructed space, extending from the floor to the ceiling of the appliance compartment, at least 3" in depth open to the front or firebox side of the appliance; shall serve a single appliance compartment; shall serve only upper or lower combustion-air openings, the separation between ducts serving upper and lower combustion-air openings shall be maintained to the source of combustion air. Neither end of ducts, which terminate in an attic shall be screened. CMC 701.10.

5.22 Every dwelling unit shall be provided with heating facilities capable of maintaining a minimum room temperature of 68 degrees F at point 3 feet above the floor and 2 feet from exterior wall in all habitable rooms. CRC R303.9.

5.23 If attic has a vertical height of more than 30", provide a readily accessible access opening not less than 20" x 30" for emergency entry to attic (exception to 20" dimension normally allowed when no mechanical equipment is installed in attic). Minimum 30" unobstructed headroom in the attic space shall be provided at or above the access opening. CRC R807.1; CBC 1209.2. Show location of access on plans.

5.24 Provide 18" by 24" underfloor access (30"x24" required when simultaneously providing appliance access). If plumbing is installed in underfloor space, access to be provided within 20' of each plumbing clean-out. Pipes, ducts and other construction shall not interfere with the accessibility to or within under-floor areas. CRC R408.4; CBC 1209.1; CPC 707.10. Show location of access on plans.

5.25 Clothes dryer vent shall be of metal and shall have smooth interior surfaces. Approved flexible duct connectors not more than 6' in length and not concealed within construction are allowed. Clothes dryer to vent to outside and shall be equipped with a back-draft damper. CMC 504.3.1 Unless otherwise permitted or required by the dryer manufacturer's specifications, domestic dryer moisture exhaust ducts shall not exceed a total combined horizontal and vertical length of 14', including two 90-degree elbows. Two feet shall be deducted for each 90-degree elbow in excess of two. Section 504.3.2.2 of the CMC.

5.26 When a compartment or space for domestic clothes dryer is provided, a minimum four inch diameter moisture exhaust duct of approved material shall be installed. When a closet is designed for the installation of a clothes dryer, a minimum opening of 100 square inches for makeup air shall be provided in the door or by other approved means. CMC 504.3.2

5.27 Enclosed accessible space under stairs shall have walls, under-stair surface and any soffits protected on the enclosed side with ½" gypsum board. CRC R302.7; CBC 1009.6.3 exception.

5.28 Spiral stairways are permitted, provided the minimum clear width at and below the
handrail shall be 26" with each tread having a 7.5" minimum tread depth at 12" from the narrower edge. All treads shall be identical, and the rise shall be no more than 9.5". Minimum headroom of 6 feet 6 inches shall be provided. CRC R311.7.10.1.

5.29 Stairways shall not be less than 36" in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4.5 inches on either side of the stairway and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than 31.5" where a handrail is installed on one side and 27" where handrails are installed on both sides. CRC R311.7. The minimum width of a hallway shall be not less than 3 feet. CRC R311.6. The minimum tread depth shall be 10". The tread depth shall be measured horizontally between the vertical plans of the foremost project of adjacent treads and at a right angle to the tread’s leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8". CRC R311.7.5.2.

5.30 The maximum riser height shall be 7.75 inches. The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8". Riser shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees from the vertical. Open risers are permitted provided that the opening between treads does not permit the passage of a 4" diameter sphere. CRC R311.7.5.1.

5.33 Stairways within dwelling units shall have an illumination level on tread runs and landings of not less than 1 foot candle. Exterior stairways serving a dwelling unit The illumination of exterior stairways shall be controlled from inside the dwelling. CRC R303.7; CBC 1205.4.

5.35 Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers. Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34" and not more than 38". Handrails for stairways shall be continuous for the full length of the flight, from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminal. Handrails adjacent to a wall shall have a space of not less than 1.5" between the wall and the handrails. CRC R311.7.8.

5.36 All required handrails shall be of one of the following types or provide equivalent graspability: **Type I handrail:** Handrails with a circular cross section shall have an outside diameter of at least 1.25" and not greater than 2". If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches and not greater than 6.25 inches with a maximum cross-section dimension of 2.25 inches. Edges shall have a minimum radius of 0.01 inch. CBC 1012.3.1 **Type II Handrail:** Handrails with a perimeter greater than 6.25" shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of .75" measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the widest portion of the profile. The minimum width of the handrail above the recess shall be 1.25 inches to a maximum of 2.75 inches. Edges shall have a minimum radius of 0.01 inch.
Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30" measured vertically to the floor or grade below at any point within 36" horizontally to the edge of the open side. CRC R312.1.1.

Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 42" high measured vertically above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of the treads. CRC R312.1.2. Required guards shall not have openings from the walking surface to the required guard height which allow passage of a sphere 4" in diameter. (The triangular openings at the open side of stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6" in diameter). CRC R312.1.3.

In R-3 occupancy and within individual dwelling units in R-2, guards on the open sides of stairs shall have a height not less than 34 inches measured vertically from a line connecting the leading edges of the treads. Where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34" and not more than 38" measured vertically from a line connecting the leading edges of the treads. CRC R312.1.2 exceptions.

Handrails and guards shall be adequate in strength and attachment in accordance with CBC 1607.7. (Those constructed of glass shall also comply with CBC 2407. CBC 1012.1, 1013.1. Glass in handrails and guards shall be designed in compliance with CBC 2407.

In R-2 and R-3 occupancies, where the opening of an operable window is located more than 72 inches above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 24" above the finished floor of the room in which the window is located. Operable section of windows shall not permit openings that allow passage of a 4" sphere where openings are located within 24" of the floor. Or provide window guards in compliance with ASTM F 2090; the window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required for egress. CRC R312.2.2.

The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the dwelling to the exterior of the dwelling at the required egress door without requiring travel through a garage. CRC R311. The minimum width of egress doors shall provide a clear width of not less than 32 inches, measured with the door open 90 degrees. (Exception for interior egress doors within a dwelling unit.) CBC 1008.1.1. The height of the required exit door in a dwelling unit shall not be less than 80 inches (6'8"). Exterior door openings other than the required exit door, shall not be less than 76 inches (6'4") in height. CRC R311.2; CBC 1008.1.1, exc. 6. Door openings within a dwelling unit shall not be less than 78 inches (6'6") in height. CBC 1008.1.1, exc. 6, 7. CRC R311.2.

There shall be a floor or landing on each side of each exterior door. Landings or finished floors at the required egress door shall not be more than 1.5" lower than
the top of the threshold. (Exception: The landing or floor on the exterior side shall not be more than 7.75" below the top of the threshold provided the door does not swing over the landing or floor. Landings shall have a width not less than the width of the stairway or the door, whichever is greater and the landing length, in the direction of travel, shall measure 36 inches. CRC R311.3; CBC 1008.1.5 CBC 1008.1.6.

5.46 There shall be a floor or landing at the top and bottom of each stairway. The minimum width perpendicular to the direction of travel shall be no less than the width of the flight served. Landing of shapes other than square or rectangular shall be permitted provided the depth at the walk line and the total area not less than that of a quarter circle with a radius equal to the required landing width. Where the stairway has a straight run, the minimum depth in the direction of travel shall be not less than 36 inches. A door may open at the top step of an interior flight of stairs provided the door does not swing over the top step. CRC R311.7.6; CBC 1009.5. CBC 1009.5, exc. 2

5.47 Ramps (w/ occ. load <50 & not ADA required) shall not be less than 36" in width. Ramps shall not be steeper than 1(v):8(h) (12.5%). If used as part of the means of egress the slope shall not exceed 1(v):12(h) (8%). CBC 1010.3. Cross slope shall not exceed 2%. CBC 1010.4. The maximum rise for any ramp run shall be 30 inches. CBC 1010.5. Construct in compliance with CBC 1010. Handrails for ramps shall comply with CBC 1010.9; CRC R311.8.

5.48 Glazing in hazardous locations shall be safety glazing. The following shall be considered hazardous locations: Glazing in doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers; Glazing in any portion of a building wall enclosing these compartments where the bottom exposed edge of the glazing is less than 60" above a standing surface; Glazing within a 24" arc of either vertical edge of a door (in a closed position) and the bottom exposed edge of the glazing is less than 60" above the walking surface; (exception allowed in walls perpendicular to the plane of the door in a closed position, other than the wall towards which the door swings when opened. Glazing in walls enclosing stairway landings or w/1 5’ of the bottom of stairways, or within 36” of the top of stairways, where the bottom edge of the glass is < 36" above a walking surface. CRC R308.4; CBC2406.3. (Sliding glass doors, which are reversible, are to have tempered glazing w/l 24" arc of either edge of entire glass enclosure.) Glazing with exposed area of an individual pane greater than 9 square feet and exposed bottom edge less than 18 inches above the floor and exposed top edge greater than 36 inches above the floor and one or more walking surface within 36 inches horizontally of the plan of the glass. Show specific windows on plans, which require safety glazing.

5.49 Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanisms shall be readily accessible. The minimum openable area to the outdoors shall be 4% of the floor area being ventilated. (For ventilation, where rooms and spaces without openings to the outdoors are ventilated through an adjoining room the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8% of the floor area of the interior room or space, but not less than 25 square feet. The minimum openable area to the outdoors shall be based on the total floor area being ventilated) Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings. Or by artificial light. The minimum net glazed area shall not be less than 8%of the floor area of
the room served. CRC R303.1; CBC 1203.4; CBC 1205. Specify size and opening action of all windows on plans to verify compliance with these requirements. (For lighting, any room is permitted to be considered as a portion of an adjoining room where one-half of the area of the common wall is open and unobstructed ad provides an opening of not less than 10% of the floor area of the interior room or 25 square feet whichever is greater) CRC R303.2.

5.50 Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated. CRC R303.3.1; CBC 1203.4.2.1. A mechanical ventilating system connected directly to the outside shall be provided with the point of discharge at least 3' from any opening that allows air entry into occupied parts of the buildings. CMC 504.5. (See local exhaust requirements as well).

5.51 Water closet stool shall be located minimum 15” from its center to any side wall or obstruction (minimum 30” clear space in width) and have a clear space in front of the water closet stool not less than 24” CPC 407.6. Water closets must be ultra low flush fixtures, which use no more than 1.28 gallons per flush. CGBC

5.52 All shower compartments, regardless of shape, shall have a minimum finished interior of one thousand twenty-four (1024) square inches and shall also be capable of encompassing a 30" circle. This measurement shall be maintained to a point 70" above the shower drain. CPC 411.7. Shower compartments and walls above bathtubs with installed shower heads shall be finished with a smooth, nonabsorbent surface to a height not less than 6 feet above the drain inlet. CRC R307.2; CBC 1210.3.

5.53 Showers and tub-shower combinations shall be provided with individual control valves of the pressure balance or the thermostatic mixing valve type, conforming to ASSE1016 (to resist thermal shock). Handle position stops shall be provided on such valves and shall be adjusted per manufacturer's instructions to deliver a maximum mixed water setting of 120ºF (49ºC). The water heater thermostat shall not be considered a suitable control for meeting this provisions. CPC 418. (ASSE 1016 listed valves provide the user with both scald protection and thermal shock protection).

5.53a The maximum hot water temperature discharging from the bathtub and whirlpool bathtub filler shall be limited to 120ºF (to resist scald. The water heater thermostat shall not be considered a control for meeting this provision. CPC 414.5 (The device(s) used shall be ASSE 1070-2004 compliant and shall be installed at all applicable fixtures). (ASSE1070 valves provide scald protection only)

5.54 A removable panel shall be provided to access and remove the pump for whirlpool bathtubs. The circulation pump shall be located above the crown weir to the trap. Whirlpool pump access located in the crawl space shall be located no more than 20 feet from an access door, trap door, or crawl hole. The pump and the circulation piping shall be self-draining to minimize water retention. Suction fittings shall comply with the listed standards. CPC 414.

5.55 Habitable space, hallways, bathrooms, toilet rooms, laundry rooms and portions of basements containing these spaces shall have a ceiling height of not less than 7 feet. For rooms with sloped ceilings, at least 50 percent of the required floor area of the room must have a ceiling height of at least 7 feet and no portion of the required floor area may have a ceiling height of less than 5 feet. Bathrooms shall have a minimum ceiling height of 6 feet 8 inches at the center of the front
clearance area for fixtures. The ceiling height above fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6 feet 8 inches above a minimum area 30” x 30” at the showerhead. CRC R305.1.

5.56 Basements in dwelling units and every sleeping room shall have at least one operable window or door approved for emergency escape and rescue opening. Emergency escape and rescue openings shall have the bottom of the clear opening not greater than 44 inches measured from the floor with a minimum net clear openable area of 5.7 square feet (5.0 square feet allowed if the window or other opening is located with the sill height not more than 44” above or below the finished ground level adjacent to the opening); minimum net clear openable height of 24”; and minimum net clear openable width of 20”. Openings shall open directly into a public way or to a yard or court that opens to a public way. CRC R310.1; CBC1029.

5.57 Emergency escape and rescue opening with a finished sill height below the adjacent ground shall be provided with a window well. The minimum horizontal area of the window well shall be 9 square feet with a minimum horizontal projection and width of 36”. The area of the window well shall allow the emergency escape and rescue opening to be fully opened. Window wells with a vertical depth greater than 44” shall be equipped with a permanently affixed ladder or steps usable with the window in the fully open position. (The ladder or steps required shall be permitted to encroach a maximum of 6” into the required dimensions of the window well. Design window wells for proper drainage. CRC R310.2; CBC 1029.5

5.58 Install listed woodstove/factory-built fireplace to manufacturer's specifications. All solid fuel burning appliances shall be E.P.A. Phase II Certified and meet California energy requirements. (Total particles of all solid fuel burning stoves installed in structure to not exceed 7.5 grams/hr.) Title 7 of the municipal Code. http://www.townoftruckee.com/home/showdocument?id=1598

5.58a Per Town Municipal Code Section 7.06.030, any proposed construction in excess of $5000 value requires the removal and/or replacement of any existing non-compliant solid fuel burning appliances. Indicate if existing solid fuel burning appliances or EPA Phase II certified, or amend scope of work to include its removal/replacement. Refer to manufacturer's specifications for hearth requirements.

5.60 Fire blocking shall be provided in concealed spaces of stud walls and partitions, including furred spaces and parallel rows of studs or staggered studs vertically at the ceiling and floor levels; horizontally at intervals not exceeding 10 feet. Fire blocking shall be provided at interconnections between concealed vertical stud wall or partition spaces and concealed horizontal spaced created by an assembly of floor joists or trusses and between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings, cove ceilings and similar locations. Fire blocking shall be provided in concealed spaces between stair stringers at the top and bottom of the run. Fire blocking shall be installed at openings around vents, pipes, ducts, chimneys and fireplaces at ceiling and floor levels, with an approved non combustible material to resist the free passage of flame and the products of combustion and shall be securely fastened in place. Factory built chimneys and fireplaces shall be fire blocked in accordance with UL 103 and UL 127. CBC
Solid fuel chimneys shall extend at least 3’ above the highest point where it passes through the roof and at least 2’ higher than any portion of the building within a horizontal distance of 10’. CRC R1003.9; CMC 802.5.2. Spark arrester required.

Type B or BW gas vents with listed vent caps 12" in size or smaller shall be permitted to be terminated in accordance with Figure 8-2, provided they are located at least 8’ from a vertical wall or similar obstruction. All other gas vents shall terminate not less than 2’ above the highest point where they pass through the roof and at least 2’ higher than any portion of a building within 10’. CMC 802.6.2.

All gas vents extending through the roof shall extend through the roof flashing, roof jack, or roof thimble and terminate with a listed cap or listed roof assembly CMC 802.6.2.5. A gas vent shall terminate at least 3 feet above a forced air inlet located within 10 feet. CMC 802.6.2.6; CMC 802.8.1.

Horizontal or side wall venting systems shall terminate not less than 4' below or 4' horizontally from, and not less than 1' above a door, an openable window or a gravity air inlet into a building. CMC 802.8.2. (See exception for vent terminals of direct vent appliances.) Direct vent appliances shall be installed per manufacturer’s specifications. The vent height shall be above the anticipated snow depth TMC Code 15.05.020 (CMC 802.8.6) Divide the ground snowload (“Pg” value as shown on sheet 2 of this correction list) by 25 to obtain the required height. Suggest verification or approval of height/location of vent be made with an inspector prior to installation of appliance. Consider these requirements when determining the location of a direct vent appliance and its vent termination.

Exit terminals and combustion air intakes shall not be located under decks which could be sealed off around the perimeter with snow accumulation. TMC 15.05.010 (CMC 802.3.3.5)

*Roof covering material shall be metal, non-combustible or shall be listed as Class "A" fire retardant material. Certificate of Compliance shall be filed with the Building Department. TMC Section 15.03.050.

An “Ice Guard” is required on roofs of heated areas of buildings. Roofs, regardless of covering, with a pitch of less than 8 in 12 shall be protected against leakage (caused by ice and snow) using an approved manufactured membrane installed per the manufacturer’s specifications and as approved by the building official. This application shall extend from the eave edge of the roof up the roof slope measured 5 feet beyond the wall line separating the conditioned and unconditioned space, and up 30 inches along each side of a valley. This “Ice Guard” shall be in addition to any underlayment if required. TMC Section 15.03.100

Exterior stucco walls shall have a weep screed at or below the foundation plate line and 4" above grade or 2" above paved areas that will allow trapped water to drain to the exterior of the building. The weather-resistive barrier shall lap the attachment flange, and the exterior lath shall cover and terminate on the attachment flange of the screed. CBC2512.1.2.
5.69 Per CBC Section 1803.3, the ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than 5% for a minimum distance of 10 feet measured perpendicular to the building.

5.70 Minimum clearance from ground under girders shall be 12 inches; under joists shall be 18 inches, or shall be of naturally durable or preservative-treated wood. CRC R317.1, CBC 2304.11.2.1. (Appropriate clearances shall be provided at access path to mechanical equipment).

5.71 Enclosed attic and enclosed rafter spaces where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. A minimum of 1 inch of airspace shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/300 of the area of the space ventilated with 50% of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents. CBC 1203.2. Exterior openings into the attic space of any building intended for human occupancy shall be protected to prevent the entry of critters. Openings for ventilation have a least dimension of 1/16th inch minimum and 1/4 inch maximum shall be permitted. Openings for ventilation have a least dimension larger than 1/2 inch shall be provided with corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material with openings have a least dimension 1/16 inch minimum and 1/4 inch maximum CRC R806.1; CBC 1203.2.1.

5.72 Underfloor vents shall equal 1 square foot for each 150 square feet of underfloor area, and must provide cross ventilation. Ventilation openings shall be covered for their height and width in compliance with CRC R408.1; CBC 1203.3.1.

ELECTRICAL  6.00

6.01 Any proposed installation of electrical panel within a shear wall shall be addressed with engineer.

6.02 Overcurrent devices shall not be located in the vicinity of easily ignitable material such as in clothes closets. In R-3 or R-2, overcurrent devices shall not be located in bathrooms. Overcurrent devices shall be readily accessible and shall be installed so that the center of the grip of the operating handle of the switch or circuit breaker in highest position not greater than 6’7” above floor or working platform. CEC Article 240-24(A, D, E) Indicate proposed location of sub-panel.

6.03 Sufficient access and working space shall be provided and maintained at main electrical panel and sub-panel locations to permit ready and safe operation and maintenance of such equipment. Such working space shall be a clear area with minimum 30” width and 36” depth, and shall extend from the floor or platform to a height of not less than 6’6, but not less than the height of the equipment.) Indicate proposed location of sub-panel. CEC Article 110-26.

6.04 Single or multiple-station smoke alarms shall be installed and maintained on the
ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms; in each room used for sleeping purposes; in each story within a dwelling unit, including basements. Smoke alarms shall receive their primary power from the building wiring and shall be equipped with a battery backup. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection. The smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the dwelling unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed. CRC R314.3; CBC 907.2.11.2 907.2.11.3; 907.2.11.4.

6.05 Wiring for smoke alarms shall be permanent and without a disconnecting switch other than as required for overcurrent protection, i.e. smoke detectors shall not be interconnected with alarm system. CRC R314.4; CBC 907.2.11.4.

6.06 When additions, alterations or repairs to a Group R occupancy exceed $1000 and a permit is required, or when one or more sleeping rooms are added or created in existing Group R occupancies, smoke detectors shall be installed in accordance with CRC R314.3.1 (one in every sleeping room; outside each separate sleeping area in the immediate vicinity of the bedroom(s); on each additional story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. (To the extent practicable, alarms shall be hardwired and interconnected with existing). CRC314.4, exc. 3.

6.06a When the value of additions, alterations or repairs exceeds $1000, existing dwellings or sleeping units that have attached garages or fuel-burning appliances shall be provided with a carbon monoxide alarm. (In existing dwelling units a carbon monoxide alarm is permitted to be solely battery operated where repairs or alterations do not result in the removal of wall and ceiling finishes or there is no access by means of attic, basement or crawl space.). Carbon monoxide alarms shall be installed outside of each separate dwelling unit sleeping area in the immediate vicinity of the bedroom(s) and on every level of a dwelling unit including basements. Single and multiple station carbon monoxide alarms shall be listed as complying with the requirements of UL 2034. Carbon monoxide detectors shall be listed as complying with the requirements of UL 2075. Carbon monoxide alarms and carbon monoxide detectors shall be installed in accordance with this code, the current edition of NFPA 720 and manufacturer’s specifications. Other carbon monoxide alarm and detection devices as recognized in NFPA 720 are also acceptable. CRC R315.

6.06b Carbon monoxide alarms combined with smoke alarms shall comply with CRC R315, all applicable standards, and requirements for listing and approval by the Office of the State Fire Marshall, for smoke alarms.

6.07 Receptacles that provide power for a spa, hot tub or hydro massage bathtub shall be ground-fault circuit interrupter protected. Electrical lighting fixtures and outlets in area of spas and hot tubs shall comply with CEC Article 680.

6.08 Electrical plan for kitchen shall incorporate electric fluorescent lighting in compliance with the Mandatory Measures of the 2013 Energy Efficiency Standards Section 150.0(k). The installation of fluorescent fixtures will be
enforced. At least 50% of the total wattage shall be by high efficacy fixtures and shall be switched separately from other fixtures. 150.0(k)(3). (The switches may be mounted on the same faceplate, there are no restrictions on where the control for high efficacy kitchen lighting is located.) (Because high efficacy fixtures typically consume less power than other fixtures, about ¾ of the fixtures in the kitchen are likely to be high efficacy; The wattage of electrical boxes finished with a blank cover or where no electrical equipment has been installed and where it can be used for light fixture shall be calculated as 180 watts per electrical box).

6.08(a) Electrical plans shall show lighting in bathrooms provides at least one luminaire to be high efficacy. All other luminaires in a bathroom must be either high efficacy, or controlled by vacancy sensors. Mandatory Measures of 2013 Energy Efficiency Standards Section 150.0(k)5.

6.08(b) Exhaust fans shall be switched separately from lighting systems. Lighting integral to an exhaust fan may be on the same switch as the fan provided the lighting can be switched OFF while allowing the fan to continue to operate for an extended period of time. Lighting integral to exhaust fan shall be high efficacy or switched by a vacancy sensor. Mandatory Measures of 2013 Energy Efficiency Standards Section (150.0(k)1 and 2)

6.09 Electrical plans shall show all lighting in garages, laundry rooms and utility rooms to be in compliance with Mandatory Measures of 2013 Energy Efficiency Standards Section 150.0(k)6. All fixtures shall be high efficacy AND shall be controlled by a vacancy sensor. (See LIGHTING section of this correction list for requirements).

6.09a Electrical plans shall show all permanently installed fixtures in other rooms to be either high efficacy or shall be controlled by either dimmers or vacancy sensors. 150(k)7. (See LIGHTING section of this correction list for requirements) Dimmer/sensor locations shall be shown on electrical plan(s). Closets that are less than 70 sq. ft. are exempt). Mandatory Measures 2013 Energy Efficiency Standards 150(k)7.

6.09b Electrical plans shall show all fixtures mounted to the building or to other buildings on the same lot as high efficacy fixtures. Mandatory Measures 2013 Energy Efficiency Standards 150(k)9. Or they shall comply with all of requirements as specified in 150(k)(9)A(I, ii, iii). (Controlled by a manual ON and OFF switch, a motion sensor AND photocontrol) (See LIGHTING section of this correction list for requirements).

6.09c All revisions proposed due to remodel/alteration shall comply with Mandatory Measures of 2013 Energy Standards Section 150.0.

6.10 In kitchens and dining areas of dwelling units a receptacle outlet shall be installed at each counter space wider than 12". Receptacles shall be installed so that no point along the wall line is more than 24" measured horizontally from a receptacle outlet in that space. Island and peninsula counter tops 12" or deeper with a long dimension of 24" or greater shall be provided with at least one receptacle. (A peninsula counter is measured from the connecting edge. Receptacle outlets shall be located not more than 18" above the countertop. CEC Section 210-52(C)(1) through (C)(5).

6.11 Specify on electrical plans that the countertop receptacle outlets in kitchens must
be supplied by no fewer than two 20 AMP small-appliance branch circuits. These circuits may also supply the receptacle outlets for the refrigerator and in the pantry, dining room, and breakfast room. CEC Section 210-52(B)(2) of the CEC.

6.12 In every habitable room or area of dwelling units, receptacle outlets shall be installed so that no point along the floor line in any wall space is more than 6' measured horizontally, from an outlet in that space, including any wall space 2' or more in width and the wall space occupied by fixed panels in exterior walls, but excluding sliding panels in exterior walls. The wall space allowed by fixed room dividers i.e. bar-type counters or railings shall be included in the 6-foot measurement. CEC Section 210-52(A).

6.13 Provide switch controlled lighting outlet in every habitable room, bathroom, hallway, stairway, garage and at outdoor entrances or exits. At least one lighting outlet controlled by a light switch located at the point of entry to the attic, underfloor space, utility room and basement shall be installed where these spaces are used for storage or contain equipment-requiring servicing. Where lighting outlets are installed in interior stairways, there shall be a wall switch at each floor level to control the lighting outlet where the difference between floor levels is 6 steps or more. CEC Article 210-70(A).

6.14 All lighting fixtures recessed into insulated ceilings must be approved for zero-clearance insulation cover (I.C) They shall be certified and labeled as air tight (AT) and shall be sealed with a gasket or caulk between the housing and ceiling. Mandatory Measures 2013 Energy Standards 150(k)8.

6.15 Electrical lighting fixtures in clothes closets shall be installed as follows: (1) Surface mounted incandescent fixtures with a completely enclosed lamp may be installed on the wall above the door or on the ceiling provided there is a minimum clearance of 12" between the fixture and the storage area. (2) Surface mounted fluorescent fixtures installed on the wall above the door or on the ceiling, Recessed incandescent fixtures with a completely enclosed lamp, recessed fluorescent fixtures installed in the wall or the ceiling may be installed provided there is a minimum clearance of 6" from the storage area. CEC Article 410-8(B-D).

6.16 GFCI protection is required for receptacles installed in bathrooms, garages, outdoors (w/i 6'6" of grade), kitchens (all outlets serving the countertop spaces), w/1 6' of wetbar sinks, laundry and utility sinks (where outlets are installed within 6; of the edge of the sink), on construction power pole, in crawl spaces at or below grade level, in unfinished basements, grade level portions of unfinished accessory buildings used for storage or work areas. CEC Section 210-8. At least one wall receptacle outlet shall be installed adjacent to each basin location (i.e. 2 sinks, 2 outlets, if installed at each end of the counter space or a single outlet may be installed between the 2 sinks.) CEC 210-52(D).

6.17 Specify a dedicated 20-amp circuit to serve the required bathroom outlets. This circuit cannot supply any other receptacles, lights, fans, etc. CEC Section 210-11(C)(3).

6.18 Receptacle outlets required outside at grade (w/i 6'-6"); (at least one receptacle outlet, accessible at grade level, shall be installed at the front and back of the
dwelling); at laundry area; in attached garage and basement. For hallways of 10' or more in length at least one receptacle outlet shall be required. CEC Article 210-52.

6.19 Arc fault protection required. All 125 volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in dwelling unit family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas shall be protected by a listed arc-fault circuit interrupter, combination type, installed to provide protection of the branch circuit. Multi-wire or shared neutral circuits cannot be used (CEC 210.12).

*6.20 Dwelling unit tamper resistant receptacles. In all areas specified in CEC 210.52, all 125 volt 15 and 20 ampere receptacles shall be listed tamper resistant receptacles (CEC 406.11).

**LIGHTING:** The lighting revisions as required by the Mandatory Measures of the 2013 Energy Standards have been incorporated into the electrical comments listed above. It is important that fixtures are described fully in the specifications. The specifications should be clear and complete so that contractors and installers understand what is required to comply with the standards.

**LED Fixtures:** To qualify as high efficacy for compliance with the residential lighting Standards, a residential LED luminaire (fixture) shall be certified to the Energy Commission. The database and certification instructions are available at: www.energy.ca.gov/appliances/database/index.html and www.energy.ca.gov/appliances/forms/

LED lighting not certified to the Energy Commission shall be classified as low efficacy. (110.9(e). Retro-fit of a low efficacy fixture to LED bulbs is still considered a low efficacy fixture and wattage shall be calculated on wattage of fixture, not LED bulb installed.

**Adaptors** which convert an incandescent lamp holder to a high-efficacy lamp holder shall not be used to classify a luminaire as high efficacy, even if the manufacturer declares that such adaptors as permanent. (T-150.0-A)

**High Efficacy Light Sources:** 1). Pin based linear or compact fluorescent lamps with electronic ballasts. Compact fluorescent lamps ≥ 13 watts shall have 4 pins for compliance with the electronic ballast requirements in Section 150.0(k)1D. 2) Pulse-start metal halide lamp. 3) High pressure sodium lamps. 4) GU-24 sockets rated for LED lamps. 5) GU-24 socket rated for compact fluorescent lamps. 6) Luminaires using LED light sources which have been certified to the Commission as high efficacy (per JA8). 7) Luminaire housings rated by the manufacturer for use with only LED light engines. 8) Induction lamps.

(See T-10.0-B for minimum requirements for other light sources to qualify as high efficacy).

**Vacancy Sensors:** Manual-on/automatic-off occupant sensors, automatically turn lights “OFF” if an occupant forgets to turn them off when a room is unoccupied. The vacancy sensor shall allow the occupant to manually turn the lights “OFF” when leaving the room, and “OFF” while still occupying a room, and “ON” when entering the room. Vacancy sensors shall be certified to the Energy Commission, Title 20 Appliance Efficiency Regulations before they can be sold or offered for sale in California.

**Dimmers:** Switching device which varies the luminous flux of the electric lighting system by changing the power delivered to that lighting system. Dimmers shall meet all requirements for Dimmer Control devices in the Title 20 Appliance Efficiency Regulations.

**Outdoor Lighting:** Shall be high efficacy fixtures. OR Shall be controlled by a manual “ON” and “OFF” switch that does not override to ON the other automatic functions; AND shall be controlled by a motion sensor not having an override or bypass switch that disables the motion sensor, or controlled by a motion sensor having a temporary override switch which temporarily by passes the motion sensing function and automatically reactivates the motion sensor with 6 hours AND Photocontrol not having an override or bypass switch that
disables the photocontrol; (for option other than photocontrol, see 150.0(k)9)

**Recessed Luminaires in Insulated Ceilings**: Shall be listed for zero clearance insulation contact by UL or nationally recognized testing laboratory; and Have a label that certifies that the luminaire is airtight with air leakage less than 2.0 CFM at 75 Pascal’s when tested in accordance with ASTM E283 (An exhaust fan housing shall not be required to be certified airtight); and Be sealed with a gasket or caulk between the luminaire housing and ceiling, and shall have all air leak paths between conditioned and unconditioned spaces sealed with a gasket or caulk; (An exhaust fan shall be sealed with a gasket or caulk between the exhaust fan housing and ceiling); and For recessed luminaires with ballasts to qualify as high efficacy, the ballasts shall be certified to the Commission to comply; and Allow ballast maintenance and replacement to be readily accessible to building occupants from below the ceiling without requiring the cutting of holes in the ceiling.
ENERGY COMPLIANCE
HERS: Home Energy Rating System – provides training and certification of HERS raters
HERS raters are 3rd party inspectors who provide field verification and/or diagnostic testing
HSPP: hole for a static pressure probe on forced air cooling systems
RA: 2013 Residential Appendices
(http://www.energy.ca.gov/title24/2013standards/rulemaking/documents/final_rulemaking_documents/44_Final_Express_Terms/2013_RA_FINAL.pdf)

The following comments (MM1 – MM13) are Mandatory Measures of the 2013 Energy Standards and shall be communicated on plans.

X MM1 Please Note: Mandatory Measures require all newly constructed homes have duct sealing (leakage testing), duct system airflow 150.0(m).and fan watt draw (and if cooling installed ,HSPP/PSPP) be verified by a HERS rater. Field Verification and Procedures for Field Verification and Diagnostic Testing of Air Distribution Systems can be location in Residential Appendix RA3. (See link above). Heating systems shall be equipped with setback thermostats (Unless ECMS)(150.0(i)).

X MM2 Please Note: Mandatory Measures require Measurement of Whole-building mechanical ventilation to be verified by a HERS rater. 2013 Energy Efficiency Standard Section 150(o), ASHRAE 62.2. Field Verification and Diagnostic Testing of Mechanical Ventilation System Procedures can be located in Residential Appendix RA3. (See link above)

X MM3 Please note: Ceilings and rafter roofs shall be insulated with R-30 value for the insulation alone minimum. (Exception allowed for R-19 in an alteration). Attic access doors shall have permanently attached insulation using adhesive or mechanical fasteners. The attic access shall be gasketed to prevent air leakage. 150.0(a).

X MM4 Please note: Insulation installed in 2x6 walls shall have an installed thermal resistance of R-19 minimum. (Minimum R-13 in 2x4 walls).

X MM5 Please note: Raised floors separating conditioned space from unconditioned space or ambient air shall be R-19 or greater. [Exception allowed for Controlled ventilation or unvented crawlspace if all requirements of 2013 Standards Section 150.0(d) exception are met (insulated foundation walls; class I or II vapor retarder over entire floor of the crawlspace; and vents between the crawlspace and outside air are fitted with automatically operated louvers that are temperature actuated; and per RA4.5.1)]. (See link above)

X MM6 Please note: In Climate Zone (CZ) 16, a Class II vapor retarder shall be installed on the conditioned space side of all insulation in all exterior walls, vented attics and unvented attics with air-permeable insulation; and in CZ16 with unvented crawl spaces the earth floor of the crawl space shall be covered with a Class I or Class II vapor retarder; or if a controlled ventilation crawl space is proposed complies with (150.0(d). (See MM4).

X MM7 Please Note: HVAC load shall be determined using, ASHRAE Handbook, SMACNA, or Manual J. 2013 Standards Section 150.0(h). The indoor design temperatures shall be 68 degrees F for heating and 75 degrees F for cooling. Installed air conditioner and heat pump outdoor condensing units shall have a clearance of at least 5’ from the outlet of any dryer vent.

X MM8 Please Note: In order to facilitate future installations of high efficiency equipment, the Mandatory Measures require water heating systems using gas or propane, serving individual dwelling unit shall include: A 120V electrical receptacle that is within 3 feet from the water heater and accessible to the water heater with no obstructions; and A proper vent with straight pipe between the outside termination and the space where the water heater is installed; and A condensate drain that is no more than 2” higher than the base of installed water heater, and allows natural draining without pump assistance, and A gas supply line with a capacity of at least 200,000 Btu/hr. 2013 Energy Efficiency Standards Section 150.0(o).

X MM9 Please Note: Storage gas water heaters with energy factor equal to or less than the federal minimum standard [20-55 gal: 0.67 (0.675 after 4/16/15); 55-100 gal: .67 (.0.8912 after 4/16/15)] shall be externally wrapped with R-12 or greater insulation. Unfired hot water tanks, shall be externally wrapped with R-12 or greater insulation, or have internal insulation of at least R-16 and a label on the exterior of the tank showing the insulation R-value. (150.0(j)(1)).

X MM10 Please Note: Water piping and cooling system lines shall be insulated as follows: The first 5’ of hot and cold water pipes from the storage tank; all piping with a nominal diameter of ½” or larger; all piping associated with a domestic hot water recirculation system, regardless of the pipe diameter; piping from the heating source to storage tank or between tanks; piping buried below grade; all hot water pipes from the heating source to the kitchen sink and dishwasher. 150.0(j)(2). (Underground

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Piping: All piping below grade must be installed in a waterproof and non-crushable casing or sleeve that allows for installation, removal and replacement of the enclosed pipe and insulation. The internal cross-section or diameter of the casing or sleeve shall be large enough to allow for insulation of the hot water piping. Piping below grade that serves any island sinks or other island fixtures or appliances may be insulated with 1/2” wall thickness insulation. Pipe insulation may be omitted where hot water distribution piping is buried within attic, crawlspace or wall insulation. In attics and crawlspaces the insulation shall completely surround the pipe with at least 1” of insulation. If burial within the insulation does not meet these specifications, then this exception does not apply, and the section of pipe not meeting the specification must be insulated.

Please Note: Zonally controlled central forced air cooling systems shall deliver an airflow of greater than or equal to 350 CFM per ton of nominal cooling capacity and operating at an handling unit fan efficacy of less than or equal to 0.58 W/CFM and requires HERS verification. (150.0(m)(15).

Procedures can be located in RA3.3 (See link above).

Please Note: Fenestration separating conditioned space from unconditioned space or outdoors shall meet the requirements of either 1) Fenestration, including skylight products, must have a maximum U-factor of 0.58; or the weighted average U-factor of all fenestration, including skylight products, shall not exceed 0.58. (Exemption: Up to 10 square feet of fenestration area or 0.5 percent of the CFA, whichever is greater, is exempt from the maximum U-factor requirement.

Please Note: All new single family subdivisions (with 10 or more single-family residences with a subdivision map deemed complete after 1/1/4 and ALL low-rise multi-family project must submit a copy of the Solar Ready Area – New Construction (CF1R-SRA-01-E form showing how the home or building is complying with the solar ready requirements. (The solar zone must be located on the roof or overhang of the building and have a total area no less than 250 s.f. for a SFR); For multi-family project, the solar zone must be located on the roof or overhang of the building, the roof or overhang of another structure located within 250 feet of the building or on covered parking installed with the building. The solar zone must have a total area of no less than 15% of the total roof area of the building excluding any skylight area.) See Standards Section 110.10 for additional requirements.

The 2013 Residential Energy Efficiency Standards require residential energy compliance documents to be registered with a HERS provider data registry prior to submittal for permit application when HERS verification is required for compliance. Registered Certificate of Compliance (CF1R) must be signed electronically by both the designer and documentation author prior to submittal to the enforcement agency. Provide the required registered documentation. (Exception allowed for HVAC change outs – the registered forms may be provided at final inspection).

Certificates of Installation (CF2R forms – CF2R-ENV, CF2R-LTG, CF2R-MECH) shall be completed during the construction process by the installer(s). If HERS verification is required for ANY component, ALL installation certificates (CF2R) shall bear the matching registration number as the Certificates of compliance (CF1R, CF1R-ADD, CF1R-ALT or CF1R-ALT-HVAC). For all measures which require field verification and/or diagnostic testing, a registered Certificate of Verification (CF3R) shall also be made available to the building inspector. A copy of the registered forms shall be provided to the field inspector at final inspection and a copy shall be provided to the owner, along with instructions for operating and maintaining the features of the building efficiently, as part of their homeowner manual. Blank copies of the Certificate of Installation forms can be downloaded at: http://www.energy.ca.gov/title24/2013standards/res_compliance_forms/CF2R/

HVAC INSTALLATION

Proposed FAU change out and/or extension(s) of the existing duct system are considered an “alteration” per the 2013 Energy Standards and shall comply with Mandatory Measures of Section 150.0(m), requiring duct system sealing. The new and/or existing ducting shall be sealed and tested for leakage and verified by a HERS rater. (Exception to testing allowed if: existing ducts have already been sealed, tested and certified by a HERS rater; or if duct systems have <40 linear ft of duct in unconditioned spaces; or if existing duct systems are insulated or sealed with asbestos.) Provide completed and...
signed CF1R-ALT-03-E form to document compliance.  

EN4  Per Prescriptive Package A requirements, within Climate Zone 16, any new duct extensions to existing system shall comply with R-8 duct insulation requirements.

EN5 Proposed hydronic heating system (without ducts) is required to comply with the mandatory measures for pipe insulation, tank insulation and boiler efficiency. Combined hydronic systems require compliance with mandatory measures as they apply to the water heating portion of the system as well. Provide appropriate installation criteria as part of plans.

EN6 Proposed hydronic heating installed in slab on grade requires slab edge insulation. Install vertical insulation as follows: R-10 Insulation shall be applied vertically down to the top of the footing). Insulation may be installed either inside or outside the foundation wall. Or, install vertical and horizontal insulation in compliance with the following: R-10 insulation from the top of the slab at the inside edge of the outside wall down to the top of the horizontal insulation and install R-7 horizontal insulation from the outside edge of the vertical insulation extending 4 feet toward the center of the slab in a direction normal to the outside of the building in the plan view. For below-grade slabs, vertical insulation shall be extended from the top of the foundation wall to the top of the retaining wall footing).

QUALITY INSULATION INSTALLATION

EN7 Per energy documentation, credit has been taken for quality insulation installation (QII) in wood framed wall and ceiling applications. Procedures for verifying the quality of insulation installation shall be followed by insulation installer and verified by a qualified HERS rater. Procedures for verification can be found in RA3.5. (See link above). Plans shall incorporate requirements, or provide appropriate reference to how/where requirements can be communicated to the installing contractor. The Insulation Installation Certificate (CF2R-ENV-23-H) also delineates the requirements.  

WATER HEATER INSTALLATION:

Storage gas water heater has input <4000 Btu/hr/gallon of stored water
Small storage water heater has input of 75k Btu/hr or less; Electric storage water heater with input of 12kW or less; All small storage water heaters are rated using an Energy Factor.
Large Storage Gas with input capacity >75K Btu/hr and rated with an AFUE.
Instantaneous gas water heater has an input rating of at least 4,000 Btu/hr/gallon of stored water.

Proper Installation of Pipe Insulation: Pipe insulation shall fit tightly to the pipe and all elbows and tees shall be fully insulated. No piping should be visible due to insulation voids, with the exception of the last segment of piping that penetrates walls and delivers hot water to the sink, appliance, etc.

EN8 Credit taken for Pipe Insulation Credit (PIC). All piping in the hot water distribution system must be insulated from the water heater to each fixture or appliance. Insulation shall be installed in accordance with the provision of Proper Installation
Installation requirements for all recirculation systems: The supply portion of each circulation loop, the first five feet of branches off the loop and the dedicated return line shall be insulated and installed per Proper Installation of Pipe Insulation requirements (one inch or R-4 typically on pipe <2" and 1.5" if pipe greater than 2") A check valve shall be installed in the recirc loop to prevent unintentional circulation of the water (thermo-siphoning) and back flow when the system is not operating. The hot water distribution system piping from the water to the fixtures and appliances must take the most direct path. RA4.4.7; T-120.3-A.

Credit taken in the energy documentation for the following DHW distribution system shall have installation instructions added to plans as specified in the listed RA sections.

Central Parallel Piping (PP) – see RA4.4.4.
Demand Recirculation with non-demand controls (R-ND). RA4.4.8;
Demand Recirculation; Manual Control (R-DRmc). RA4.4.9;
Demand Recirculation; sensor Control (RdRsc); RA4.4.10;
HERS-Verified Parallel Piping (PP-H). RA4.4.15
HERS-Verified Compact Hot Water Distribution System (CHWDS-H) RA4.4.16.
HERS-Verified Point of Use (POU-H) RA4.4.17
HERS Verified Demand Recirculation: Sensor Control (RdRsc-H) RA4.4.19
HERS-Verified Multiple Recirculation Loops for DHW systems serving Multiple Dwelling Units. RA4.4.20

Swimming Pool and Spa Heating shall comply with the 2013 Standards 110.5 (no continuously burning pilot lights); 110.4 (Cover Required – exception: listed package unit with fully insulated enclosures with tight fitting covers, insulated to at least R-6); pools/spa getting 60% or more of their annual heating from solar or recovered energy); 150.0(p)1 maximum flow rates of pumps and motors); 110.4(b) Controls to allow pumps to run only during off-peak demand period); 150.0(p)1 (Multi-speed pump requirements); 110.4(b) and 150(p)2 (Pool piping sizing).

New or altered water heater project shall comply with Mandatory Measures. (See MM8, MM9 and MM10 above).

*INDOOR AIR QUALITY AND MECHANICAL VENTILATION: All newly constructed low-rise residential buildings, additions and alterations shall meet the requirements of ANSI/ASHRAE Standard 62.2 for Indoor Air Quality and Mechanical Ventilation. (Mandatory Measures Section 150.0(o); 152(a), exc. 5).

The whole building ventilation airflow requirements in ASHRAE 62.2 are required in residential project additions greater than 1,000 SF. The required size of the new system shall consider both the existing and new conditioned space. Field verification and diagnostic testing of airflow performance by HERS rater required.

Local exhaust requirements (ASHRAE 62.2) are applicable to additions of any size and to alterations. Include appropriate provisions as part of electrical plan.
Local exhaust and whole-building ventilation systems are required. (Can consist of supply, exhaust, or a balanced combination of the two). Plans shall include the following notations and/or design considerations regarding the mechanical ventilation of the space:

- Ventilation air shall come from the outdoors and shall not be transferred from adjacent dwelling units, garages or crawlspaces.
- Ventilation system controls shall be labeled and the homeowner shall be provided with instructions on how to operate the system.
- Combustion appliances shall be properly vented and air systems shall be designed to prevent back drafting.
- The wall and openings between the house and the garage shall be sealed.
- Habitable rooms shall have windows with a ventilation area of at least 4% of the floor area.
- Mechanical systems including heating and air conditioning systems that supply air to habitable spaces shall have MERV 6 filters or better.
- Air inlets (not exhaust) shall be located away from known contaminants.
- Whole house exhaust fans shall have insulated louvers or covers which close when the fan is off. Covers or louvers shall have a minimum insulation value of R-4.2. Cal Green 4.507
- Air moving equipment used to meet either the whole-building ventilation requirement or the local ventilation exhaust requirement shall be rated in terms of airflow and sound:
  - All continuously operating fans shall be rated at a maximum of 1.0 sone.
  - Intermittently operated whole-building ventilation fans shall be rated at a maximum of 1.0 sone.
  - Intermittently operated local exhaust fans shall be rated at a maximum of 3.0 sone.
  - Remotely located air-moving equipment (mounted outside of habitable spaces) need not meet sound requirements if there is at least 4 feet of ductwork between the fan and the intake grill.

Whole Building Mechanical Ventilation system shall be confirmed through field verification and diagnostic testing by a HERS rater and in compliance with RA3.7. (See MM2 above). The Installer shall complete CF2R-MECH-27 and upload to the State database. Once the HERS rater completes the testing, they will then complete the CF3R forms and upload them to the registry. Copies of all the registered energy documentation will be required to be provided at the time of final inspection.

If a central heating/cooling system air handler fan is utilized for providing ventilation to the dwelling (central fan integrated ventilation), the air handler must meet the prescriptive fan Watt draw which requires HERS rater inspection as well.

Whole building mechanical ventilation systems require “appropriately labeled” controls. Provide appropriate notation/specifications on plans for labeling to inform occupant(s) that the fan should be operating whenever the home is occupied. The sign and its posting shall be permanent. (Suggested verbiage: “To maintain minimum levels of outside air ventilation required for good health, the fan control should be on at all times when the building is occupied, unless there is severe outdoor air contamination.”) Provide appropriate notation(s) on plans.

Where atmospherically vented combustion appliances or solid-fuel burning appliances are located inside the pressure boundary, the total net exhaust flow of the two largest exhaust fans (not including a summer cooling fan intended to be operated only when windows or other air inlets are open) shall not exceed 15 cfm/100 square feet of occupied space when in operation at full capacity. If the designed total net flow exceeds this limit, the net exhaust flow must be reduced by reducing the exhaust flow or providing compensating outdoor airflow.

********************************************************************************************
Complete the following, as applicable for this project and include on plans:

\[
\frac{\text{Total net flow (sfnms) of the two largest fans) x (100)}}{\text{Total Floor Area}} = \frac{\left( \text{cfm of fan 1} + \text{cfm of fan 2} \right) \times 100}{\text{Insert total floor area}} = \text{Insert calculated value}
\]

(Atmospherically vented combustion appliances do not include direct-vent appliances.)

Design outdoor air flow is: □ Not required (if calculated value does not exceed 15)
Design outdoor air flow is: □ Required (if calculated value exceeds 15). See sheet ___ for design details.

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EN20 Kitchens shall have local exhaust system vented to the outdoors. (Kitchen is defined as any room containing cooking appliances.) (Recirculating range hoods that do not exhaust to the outside do not meet requirement. The only way to avoid a vented kitchen hood is to provide more than 5 air changes per hour of constant local exhaust ventilation).

Design for continuous or intermittent operation.

- Continuously operating kitchen fans must operate at 5 air changes per hour. With a sound rating of 1 sone and installed to operate without occupant intervention.
- Intermittent ventilation airflow of 100 cfm is required with a sound rating of 3 sones for the kitchen range hood. Or ceiling or wall-mounted exhaust fan, or a ducted fan or ducted ventilation system that provides at least 5 air changes of the kitchen volume per hour.
- Intermittent local exhaust fans to be operated by the occupant (wall switch, etc.)

On plans, define the proposed operation of and required cfm rate of kitchen local exhaust system.

EN21 Bathrooms shall have local exhaust systems vented to the outdoors. (Bathroom is any room containing a bathtub, shower, spa, or other similar source of moisture – does not include a toilet or sink). Design for continuous or intermittent operation.

- Continuously operating bathroom fans must operate at a minimum of 20 cfm with a sound rating of 1 sone or less.
- A minimum intermittent ventilation airflow of 50 cfm is required for the bath fan with a sound rating of 3 sones or less, without occupant intervention.
- Intermittent local exhaust fans to be operated by the occupant. (Wall switch, etc.) and an integral timer shall be used to define the fractional time considered in design.

On plans, define the proposed operation of and required cfm rate of bathroom local exhaust systems.

EN22 ASHRAE 62.2 requires that the installer or builder provide written information on the basic ventilation concept being used and the expected performance of the system. These instructions must include how to operate the system and what maintenance is required. Provide appropriate notation on the plans to communicate the requirement with the contractor/owner to provide this information as part of home manual.