

## TOWN OF LOS ALTOS HILLS

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# 2019 Residential Building Guide

This Guide has been developed to serve as a simplified explanation of building requirements within the Town of Los Altos Hills. The Guide can help answer general questions that arise during residential construction or remodeling. Please visit the Town website (<http://www.losaltoshills.ca.gov/>) for additional information or call the Building Official at **650-944-7222** for further assistance.

This Guide is not intended to serve as code.

Beginning on January 1, 2017, the Los Altos Hills Building Department is required by State law to enforce the 2016 Edition of California Building Standards Codes (a.k.a., Title 24 of the California Codes of Regulations).

## 2019 Edition of the California Building Standards Code

The California Building Standards Code consists of the following 12 parts:

- Part 1 Administrative Code
- Part 2 California Building Code (CBC)
- Part 2.5 California Residential Code (CRC)
- Part 3 California Electrical Code (CEC)
- Part 4 California Mechanical Code (CMC)
- Part 5 California Plumbing Code (CPC)
- Part 6 California Energy Code
- Part 7 (Currently Vacant)
- Part 8 California Historical Building Code
- Part 9 California Fire Code (CFC)
- Part 10 California Existing Building Code
- Part 11 California Green Building Standards Code (CAL Green)
- Part 12 California Reference Standards Code

All construction is required to be built under the 2016 California Code Series. The 2016 California Green Building Standards Code (Cal Green) requires new homes, additions and commercial buildings to utilize sustainable construction practices in the areas of energy efficiency, water efficiency and conservation, material conservation and environmental quality.

***Note:** All architects, engineers, designers, developers, owners and contractors **must** be familiar with the codes in effect at the time of plan submittal. As required by State law, the Building Department **cannot** approve projects that do not comply with the codes in effect at the time of plan submittal.*

## General Information

### **Permit Issuance Hours**

Building Permits are issued between the hours of 9 - 11 a.m. and 2 - 4 p.m. Monday through Friday.

### **Construction Hours**

- **Weekdays:** 8 a.m. to 5:30 p.m.
- **Saturdays:** No heavy equipment allowed on Saturdays (domestic power tools allowed 9:00 a.m. to sunset)
- **Sundays and Holidays:** No construction allowed. (Check list of public holidays.)

## **Parking**

Parking is not allowed on pathways. All parking is to be accommodated on the site under construction. *Consult the Engineering Department for construction operation plan requirements.*

## **Zoning, Setbacks & Height**

*Consult the Planning Department for Further Guidelines.*

## **Grading/Drainage/Erosion Control**

*Consult the Engineering Department for Further Guidelines.*

Grading is prohibited between October 1 and April 30, except with special approval. No grading is permitted within ten feet of the property lines of any site except as required for construction of pathways or to allow access for driveways crossing a property line.

All grading operations shall be carried on between the hours of 8:00 a.m. and 5:30 p.m., Monday through Friday. No grading on weekends.

## **Other Approvals**

### Engineering Department

Prior to completion of any plans, the Engineering Department should be contacted at (650) 941-7222 to find out the requirements due to the location of any easements, and if the property is in a special flood hazard area.

### Planning Department

Prior to completion of any plans, the Planning Department should be contacted at (650) 941-7222 to find out the requirements for the proposed location and type of the project.

### Geotechnical Review

May be required. Check with the Planning Department.

### Fire Department

Fire Sprinkler Systems shall comply with the 2016 California Fire Code and Los Altos Hills Municipal Code Section 8-1.2.02. *Contact the Fire Department for more information at (408) 378-4010.*

### Santa Clara County Environmental Health Department

Homes may be subject to Health Department review and approval if connection to a private sewage disposal system (septic) is to be made or if an on-site water well must be capped or relocated. If required, drawings approved by the Health Department must be submitted prior to permit issuance.

### School District

All new buildings and additions over 500 square feet require payment of school impact fees. Refer to the handout "*School Impact Fees*" for additional information.

## **Building Permit Costs**

Refer to the *Building Department Fee Schedule FY 2020/21* for application and permit fees.

- **For New Dwellings or Additions**
- **For Garages**
- **For Decks**

## **For Remodels**

The Contractors' and Owner/Builders' estimate must include both labor **and** material costs. The Building Official makes the final determination of "valuation," per State law. This determination is based on current average costs for construction in this area.

## For Combined Addition/Remodel Improvements

Separate valuation figures must be specified for the Remodel and the Addition.

**Example:** Valuation of Remodel: \$ \_\_\_\_\_

Valuation of Addition: \$ \_\_\_\_\_

## **Procedures for Obtaining Building Permits for New Construction**

Check with the Planning and Engineering Departments to confirm you have received the necessary approvals.

1. Fill Out the Building Application Form. *Please note that separate permits are required for each dwelling unit and/or structure being built.*
2. Submit...
  1. four (4) sets of working drawings (stamped and signed by the professional who drew them)
  2. two (2) sets of structural calculations
  3. two (2) sets of energy calculations
  4. two (2) copies of the soils report
3. **Wait for a Call or email.**
  - Typically, plan check comments are issued for the first and/or second round of plan submittals.
  - When the permit is ready to be issued, all applicable fees will be paid and a final deposit of \$100 or 1% of the valuation will be charged.
4. Call for All Needed In-Progress Inspections.
  - During construction, please call for inspections at least 24 hours in advance.
  - We do not take specific times for inspections; you may request A.M. or P.M. only.
  - Inspections called without approved plans on the job or when not ready will be subject to a re-inspection fee paid at Town Hall prior to requesting another inspection.
5. Schedule a Final Inspection. *Prior to the Final Inspection being made to any new residence or addition, the following requirements must be met:*
  - Verify with the Building Department that all forms and letters have been submitted as required during the course of construction; Energy documentation, Special Inspection final affidavit, engineering letters, HERS certificates, etc.
  - Every subcontractor on the list must have a current business license with the Town for the period of time that they worked in Los Altos Hills. A subcontractor list of all those who worked on the job must be completed on the Town form and turned in to the Finance Department.
  - The landscape plan must be submitted and approved by the Site Development Committee. (See Planning Department for details.)
  - A landscape deposit of an amount set by the Site Development Committee must be paid prior to final inspection.
  - A final inspection by Planning, Engineering, and Fire must pass prior to requesting the Building Final.

**Note:** *A final inspection must be requested and approved prior to the release of the final deposit. If a final inspection is not requested and obtained prior to expiration of the permit, the final deposit shall be forfeited to the Town of Los Altos Hills.*

## **Section R110 Certificate of Occupancy**

### **R110.1 Use and Occupancy**

No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made until the *building official* has issued a certificate of occupancy therefore as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the *jurisdiction*. Certificates presuming to give authority to violate or cancel the provisions of this code or other ordinances of the *jurisdiction* shall not be valid.

### **R110.3 Certificate Issued**

After the *Building Official* inspects the building or structure and finds no violations of the provisions of this code or other laws that are enforced by the department of building safety, the *Building Official* shall issue a certificate of occupancy which shall contain the following:

- The building permit number.
- The address of the structure.
- The name and address of the owner.
- A description of that portion of the structure for which the certificate is issued.
- A statement that the described portion of the structure has been inspected for compliance with the requirements of this code.
- The name of the Building Official.
- The edition of the code under which the permit was issued.
- If an automatic sprinkler system is provided and whether the sprinkler system is required.
- Any special stipulations and conditions of the building *permit*.

## **Work That Requires Permits**

### **R105.1 Required (CRC)**

Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the *Building Official* and obtain the required *permit*.

- Re-Roof  
Class A fire retardant roofing is required for all roofs. Los Altos Hills Municipal Code Section 8-1.2.02.
- Demolition Permits  
A permit from the Bay Area Air Quality Management District is required for all demolition work. You can pick up an application and informational packet at Town Hall published by the BAAQMD. A letter of their approval (J#) must be submitted prior to applying for a demolition permit through the Town Building Department. You must have PG&E approval for removal of utilities prior to receiving your demolition permit. Please see the Town's incentive for property owners to deconstruct buildings on their property for recycling and reuse. **The Town strongly recommends that building materials be recycled.**

The Santa Clara County Recycling Hot Line can be reached at 1 800 533-8414.

### **R105.2 Residential work exempt from permit**

*Permits* shall **not** be required for the following. Exemption from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction*.

Planning Department approval is required for some of the following exempted items. *Contact the Planning Department for a more complete list of requirements.* Building...

- One-story detached accessory structures provided the floor area does not exceed 120 square feet. Contact the Planning Department for requirements.
- Fences not over 7 feet high. Contact the Planning Department for requirements.
- Retaining walls that are not over four (4) feet in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
- Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons and the ratio of height to diameter or width does not exceed 2 to 1.
- Sidewalks and driveways. Contact the Planning Department for requirements.
- Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
- Prefabricated swimming pools that are less than 24 inches deep.
- Swings and other playground equipment.

- Window awnings supported by an exterior wall which do not project more than 54 inches from the exterior wall and do not require additional support.
- Decks not exceeding 200 square feet in area, that are not more than 30 inches above grade at any point, are not attached to a dwelling and do not serve the exit door required by Section R311.4. Contact the Planning Department for requirements.

### **R105.5 Expiration**

Every *permit* issued shall become invalid unless the work authorized by such *permit* is commenced within 180 days after its issuance, or if the work authorized by such *permit* is suspended or abandoned for a period of 180 days after the time the work is commenced. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

### **R108.6 Work commencing before permit issuance**

Any person who commences work requiring a *permit* on a building, structure, electrical, gas, mechanical or plumbing system before obtaining the necessary permits shall be subject to a fee established by the applicable governing authority that shall be in addition to the required *permit* fees.

## **Building Plan Requirements**

Plan submittals must clearly indicate the nature and scope of work. A typical plan submittal may include a site plan (plot plan), foundation plan, the existing floor plans, proposed floor plans including electrical, plumbing and mechanical plans, roof plan, sections, framing details, exterior elevations and supporting energy, soils reports and structural calculations.

Anyone can prepare plans; however, plans must be drawn to scale and clearly show the scope of work being proposed. If any portion of a structure deviates from conventional framing, the building official may require the preparation of plans, drawings, specifications or calculations for that portion by or under the direct supervision of a registered engineer or architect. The documents for that portion shall bear the stamp and signature of the licensee who is responsible for their preparation. Specific plan requirements will depend largely upon the extent, nature and complexity of the work to be done. Some items listed below may not be required for your specific project. **BE SURE TO INCLUDE ALL OF THE PERTINENT INFORMATION AND DRAWINGS.**

Three (3) complete sets of drawings, and two (2) copies of structural calculations, soils report, and Title 24 Energy report showing the following must be submitted for any new residence or addition.

#### **Plan Size**

Prepare plans on paper that is at least 18" x 24" in size and does not exceed 24" x 36".

#### **Clarity**

All plans shall be prepared to be sufficiently readable and clear for creating a digitized record. Plans shall be quality blue or black ink line drawings with uniform light (white) background color.

#### **Dimensions**

Plot Plans, Floor Plans, and other plan view drawings shall be fully dimensioned and shall have a north arrow.

#### **Scale**

All drawings shall be drawn to an adequate scale with scale indicated. (1/4" = 1'-0" is standard)

#### **Signature**

The person who prepared the plans must sign each sheet. If any of the plan sheets are prepared by a licensed architect or registered engineer, that individual must stamp and "wet" sign at least two copies of each of the sheets he or she has prepared in accordance with the California Business and Professions Code prior to plan approval. Digital signature is allowed. Plans for elements of the structure designed by others must be reviewed and signed by the Engineer or Architect of record. (California Business and Professional Code 5536.1, 6735)

#### **Project Information**

On the first sheet of the plans, provide the following information:

- The Job Address and Assessor Parcel Number (APN) shall be on each sheet.

- Name of Architect, Engineer or Designer – Include the printed name, address and telephone number of the person who prepared the plans.
- Address and Owner - List the street address of the property and the name of the legal owner of the property.
- An Index of the Drawings - List each sheet number and a description in an Index of the Drawings.
- Scope of Work - State the complete scope of work to be performed under this permit.
- Building Area - Area in square feet of the new construction per each story, the garage, basement and the total area.
- Deferred Submittals - List all proposed deferred submittals (e.g. roof trusses, prefab stairs, etc.). Deferred submittal documents shall be reviewed by the Architect or Engineer of record with a notation indicating that the documents have been reviewed and are in general conformance with the design of the building prior to being submitted to the Town for approval.

### Site Plan

- Show the property lines and the location of the proposed new building, other structures on the site, location of easements, and locations of adjacent streets or alleys.
- Setback dimensions including front, side and rear. Dimensions to easements, and dimensions between buildings, if there is more than one building on the site.
- Show finish floor elevations, elevations of finish grade adjacent to buildings, established street grades, drainage patterns, locations, and gradients of cut or fill slopes.
- Prior to issuance of building permit, all the easements including private storm drain easement through adjacent parcels shall be recorded. See Engineering Department for requirements.
- Interim erosion control provisions and schedules in the construction plans for areas which will not have permanent erosion control features installed (such as landscaping). Erosion and sediment control shall be sustained through the rainy season. *Contact the Engineering Department for requirements.*

### Floor Plan

The Floor Plan must show all rooms, their dimensions and the **USE** of each room shall be labeled.

- Buildings exceeding 3 stories in height shall use the 2016 CBC for construction.
- Provide automatic residential fire sprinkler system per CRC Section R313.2.
- Provide a minimum of 7 ft. dimension (in any direction) in all habitable rooms other than kitchen per CRC Section R304.3. At least one room shall have a minimum of 120 sq. ft. net floor area and all other habitable rooms a minimum of 70 sq. ft. per CRC Section R304.1 & R304.2.
- At least one side-hinged exterior door shall be provided for egress purposes with a minimum clear opening of 32” wide and 78” high per CRC Section R311.2.
- Indicate size and elevation of landings at all exterior exit doors as per CRC Section R311.2 & R311.3.
- There shall be a floor or landing on each side of a door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 2% slope as per CRC Section R311.3.
- The floor or landing shall be provided on each side of the exterior door at max. 1.5” below the top of threshold for egress doors and max. 7.75” for non-egress doors per CRC Section R311.3, except:
  - Exterior egress doors may have exterior landing not more than 7.75” below the top of the threshold provided the door does not swing over the landing, except storm and screen doors.
  - A landing is not required where a stairway of two or fewer rises is located on the exterior side of the non-egress door, provided that the door does not swing over the stairway.
- Egress doors shall be readily open able from the egress side without the use of a key or special knowledge or effort per CRC Section R311.2.
- Vertical Egress - Habitable levels more than 1-story above/below the level of an egress door may not have a point located more than 50 ft. maximum travel distance from an egress stair. CRC Section R311.4
- Each bedroom shall have an emergency egress and rescue window or door with a clear net opening of 5 sq. ft. if located on a floor at grade level, and 5.7 sq. ft. for upper floors. The window or door shall have a minimum clear opening height of 24”, a minimum clear opening width of 20” and shall be installed so the bottom of the clear opening is not greater than 44” above the finished floor per CRC Section R310.1.
- An emergency escape and rescue opening with a finished sill height below the adjacent ground level shall have window wells and comply with CRC Section R310.2. Bars, grilles, grates, or similar devices installed on rescue windows, window wells, or exits shall be equipped with approved release mechanisms in compliance with CRC Section R310.4.

- Provide detailed information for stairway and landing construction. Indicate clear width (36" minimum per CRC Section R311.7.1), rise (7.75" maximum per CRC Section R311.7.4.1), run (10" minimum per CRC Section R311.7.4.2), headroom (minimum 80" per CRC Section R311.7.2), landings (36" minimum length in travel direction and width not less than the stairway width per CRC Section R311.7.5.)
- Spaces underneath interior stairways shall be protected with a minimum of ½" gypsum board on walls and under-stair surface and any soffits. CRC Section R302.7
- Stairways shall have a minimum of one handrail of each continuous run of treads or flight of stairs with four or more risers installed in accordance with CRC Section R311.7.7.
- Open-sided walking surfaces, including stairs, ramps, landings and balconies, which are more than 30" above grade or floor below require guards per CRC Section R312.1. Guards shall be not less than 42" in height, except where the top rail also serves as a handrail where the guard shall have a height of not less than 34" and not more than 38" per CRC Section R312.2.
- Open guards shall have intermediate rails or an ornamental pattern such that a sphere 4" in diameter cannot pass through, except openings in guards on the sides of stair treads where the sphere shall not exceed 4 ¾". The triangular opening formed by the riser, tread and bottom rail at the open side of a stairway shall be of a maximum size such that a sphere of 6" in diameter cannot pass through the opening as per CRC Section R312.3.
- Provide safety glazing in the locations as described in CRC Section R308.4. For all occupied spaces, provide exterior openings for natural light (8% of floor area) per CRC Section R303.1.
- Artificial lighting may be provided in-lieu of natural lighting to provide average of 6 foot-candles over the area of the room at a height of 30" above floor level per CRC Section R303.1 Exception 2.
- An artificial light source shall be provided in the immediate vicinity of each landing of interior stairways and at top landing of exterior stairways per CRC Section R303.6.
- Provide natural ventilation (4% of floor area) or a mechanical system for all habitable rooms per CRC Section R303.1.
- Indicate the location of crawl space access with a minimum of 18" x 24" floor opening or 16" x 24" wall opening per CRC Section R408.4.
- Provide cross ventilation for the space between the bottom of floor joists and the earth underneath the building per CRC Section R408.1. The net area of ventilation openings shall not be less than 1 sq. ft. for each 150 sq. ft. of crawl-space area with a minimum of one (1) opening within 3 ft. of each corner of the building. The total area of ventilation openings may be reduced to 1/150 where the ground surface is treated with an approved vapor retarder material. Openings shall be covered with the materials as listed in CRC Section R408.2.
- Provide attic accesses with a minimum of 22" x 30" opening and minimum 30" clear headroom per CRC Section R807.1.
- Enclosed attic & enclosed rafter spaces shall have cross ventilation not be less than 1/150 of the area of the ventilated space per CRC Section R806.2. A minimum of 1" airspace shall be provided between insulation and the roof sheathing per CRC Section R806.3. Where vapor retarder is used to reduce the ventilating area to 1/300 of ventilated space, indicate on the building section that the location of vapor retarder to be on the warm side of the attic insulation. The ventilating area may also be reduced to 1/300 provided 50% - 80% is provided by ventilators installed at least 3 ft. above eave or cornice vents with the balance of the required area provided by eave or cornice vents.
- Provide a clear space of 24" in front of the water closet and a minimum 15" from its center to side wall or obstruction and a minimum of 30" center to center to any similar fixture per CRC Section 407.5.
- Shower stalls shall have a clear interior finish area of 1,024 sq. in. and be able to accommodate a minimum 30" circle at the threshold level. These clearances shall be maintained up to a height of 70" above shower drain per CRC Section 411.7.
- Bathtub/shower compartments: shall have a nonabsorbent surface extending 72" above the floor. CRC Section R307.2
- Provide hard-wired smoke alarms in all bedrooms, outside each sleeping area in the immediate vicinity of bedrooms, and on each story per CRC Section R314.3.
- Provide hard-wired carbon monoxide alarms outside each new sleeping area in the immediate vicinity of bedrooms and on each story per CRC Section R315.3.
- Openings shall not be installed in fire rated walls.
- Private garages shall be separated from the dwelling unit and its attic area by a minimum of ½" gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8" Type X gypsum board.

- Door openings between a private garage and the dwelling unit shall be equipped with either solid wood doors not less than 1 3/8" inches thick or 20 min. rated fire doors. Doors shall be self-closing and self-latching. Doors between a sleeping room and a garage are not permitted. CRC Section R302.5 & R302.6
- Sump required in basements extending 24" below floor level. CRC Section R405.2.3

### **Ceiling Plan**

If needed, the Ceiling Plan should show all ceiling heights, finishes, electrical and mechanical work.

- Required ceiling height is 7'-0" minimum in habitable space, hallways, bathrooms, toilet rooms, laundry rooms per CRC Section R305.1.
- Indicate the location of attic access.

### **Roof Plan**

Show a plan view of the roofs.

- Indicate roof slope, roof slope direction, proposed roofing material and its fire-resistive classifications.
- All roof shall be class "A" and non-reflective.
- Spark arrestors must be installed on wood burning fireplace chimneys per CRC Section R1003.9.1.
- Show the location and construction details of all skylights. Include skylights in the Title 24 Energy Compliance Reports. *Consult the Skylight handout.*

### **Elevations**

Show elevations or views of all sides of the building.

- Clearly show the maximum building height.
- Indicate if the lower level is a basement or story, based on the definitions in CRC Section R202.
- Provide building with a weather-resistant exterior wall envelope per CRC Section R703.1.
- The exterior wall envelope shall include flashing as described in CRC Section R703.8. Specify the proposed exterior wall finish, material and thickness.

### **Cross Sections**

- At least one (1) detailed cross section is required. Provide additional sections where needed to fully explain the intended construction.
- Provide the important details of the relationship of foundations, floors walls, ceilings, roof and other construction. Be sure to indicate cross section cut lines on the Floor Plan.

### **Details and Notes**

Include all construction details of the foundation, floor, walls, ceilings, roof and how each system is connected, details of fireplaces, handrails, guardrails, and stairs (including rise and run). Provide all necessary notes to explain the planned construction.

- The top of any exterior foundation shall extend above the elevation of the street gutter at point of discharge at the inlet of an approved drainage device a minimum 12" plus 2% per CRC Section R403.1.7.3. Provide elevations on the site plan to show compliance.
- Provide a minimum of 18" clearance between wood joists and 12" between wood girders and exposed earth, otherwise wood shall be naturally durable or preservative-treated wood per CRC Section R317.1.
- Provide/detail draft stops in floor/ceiling spaces above per CRC Section R302.12.
- Indicate the exterior finishes including the water-resistive barrier and all flashings. Refer to CRC Chapter 7 for specific requirements.
- Indicate two layers of Grade D paper between plywood shear panel and exterior lath per CRC Section R703.6.3.
- Provide details for a corrosion-resistant weep screed on all exterior stud walls at or below the foundation plate line a minimum of 4" above grade, or 2" above paved areas per CRC Section R703.6.2.1.
- Provide veneer design and installation details: thickness, anchors, backing, lintels and support systems.

### **Structural Plans**

The following are minimum structural plan requirements for most projects based on CRC:



### Foundation Plan

- Indicate the type of foundation, and size and depth of footings. Include a dimensioned foundation plan with sufficient details to clearly show foundation construction. Include details of the floor to foundation connection and footing reinforcement details.
- All foundation designs for new residences in Hillside areas shall be designed and prepared by a civil or structural engineer licensed in the State of California and require a soils report.
- Provide a letter from Soils Engineer confirming that the foundation plan, grading plan and specifications have been reviewed and it has been determined that the recommendations in the soil report are properly incorporated in the plans.

### Floor Framing Plan

Provide size, spacing and direction of floor beams or joists; include sub-floor sheathing and nailing.

### Roof Framing Plan

Show size and location of roof beams, roof rafter and ceiling joist span and sizes, overhangs and details and indicate any required modifications of the existing roof plan.

### Prefabricated Roof Trusses

- If trusses are to be used, provide two (2) copies of the truss shop drawings, layout plan and calculations with the engineer's stamp and wet signature, reviewed and signed approved by the project architect or engineer.
- If shop drawings are not submitted for review prior to issuance of the building permit, it shall be noted on the first page of the drawings that the truss shop drawings will be a deferred submittal.
- Submit the truss drawings for review at least two weeks prior to fabrication of the trusses.

### Wind and Seismic Bracing

Indicate on the plans how the construction is to be braced against wind and seismic forces, either by conventional construction means or by engineered shear walls. If bracing is by engineered shear walls, dimension the length of each shear wall and show the structural sheathing material, nailing, bolting and hold downs where needed. Wind and seismic bracing calculations are required for "Hillside Area" houses. Design for a basic wind speed of 110 mph and exposure C.

### Structural Details and Notes

- Provide structural details such as post-to-beam connections, framing details, shear transfer details, material notes and specifications.
- Sleepers and sill plates on concrete or masonry in direct contact with the earth shall be of naturally durable or preservative-treated wood per CRC Section R317.1.
- Wood framing members, including wood sheathing, that rest on exterior foundation walls and are less than 8" from exposed earth shall be of naturally durable or preservative-treated wood per CRC Section R317.1.
- Provide one (1)  $\frac{5}{8}$ " anchor bolts embedded a minimum of 7" into the concrete spaced a maximum of 4 ft. apart per CRC Section R403.1.6 with 0.229" x 3" x 3" plate washer per CRC Section R602.11.1.
- Lots shall be graded to drain surface water away from foundation walls with grade falling a min. of 6" within the first 10 ft. Impervious surfaces within 10 ft. of the building foundation shall be sloped a min. of 2% from the building per CRC Section R401.3. *Consult the Engineering Department for drainage requirements.*

### Structural Calculations

Structural calculations are required for building components, including vertical load carrying members and the lateral force resisting system, which do not meet "Conventional Construction" provisions as defined in the California Building Code. If calculations are required, they must be stamped and signed by a California licensed architect or registered engineer. Calculations must be numbered by page and indexed for complex projects.

### **Electrical, Mechanical, and Plumbing Plans**

Mechanical, plumbing and electrical plans shall include all information necessary to show how the space is to be heated, cooled and ventilated, how the plumbing fixtures are connected to plumbing system and how the electrical energy is distributed and connected to the building power system.

Specific mechanical, plumbing and electrical plan requirements will depend largely upon the extent, nature and complexity of the work to be done. The following are general guidelines for preparation and submittal of these plans:

## Mechanical Plans

- Show on the plans the installation of all mechanical work. *All equipment weighing more than 400 pounds requires structural calculations for lateral bracing and anchorage.*
- All habitable rooms must have a heating system capable of maintaining a room temperature of 68° F at a location of 3 ft. above the floor and 2 ft. from exterior walls. Portable heaters shall not be used for compliance. Indicate on the plans the heating system or method to be used. CRC Section R303.8.
- Show the location of all HVAC equipment. Provide a one-line layout of the proposed duct and register system. Include duct length, size, register/boot size, cold air return location, and static pressure/volume at furnace location.
- Provide an equipment schedule with all specifications noted.
- Specify and note how condensate drains are routed and discharged via an indirect waste pipe to an approved plumbing fixture.
- For roof-mounted equipment, provide a roof plan with the location, size and weight of all equipment, location and size of ductwork, details of equipment anchorage, how equipment is being supported and details of required roof access. Provide a profile section through the roof and parapets or screen enclosure showing how equipment is screened, (*consult the Planning Department requirements for noise restrictions*) if any or show all equipment and ductwork on the elevation plans.
- For attic installed equipment, provide a section through the attic showing the location, size and weight of all equipment, details of equipment anchorage, how equipment is being supported, size and location of access opening, distance from opening to equipment, size and location of platforms and walkways, and required headroom and clearances.
- The walkway to attic appliance shall not exceed 20 ft. unless the attic height exceeds 6 ft. and it shall have solid flooring not less than 24" wide. There shall be a 30"x30" minimum working platform in front of the service side of the appliance as per CMC Section 904.11. There shall be a 120-volt receptacle outlet and a light fixture installed near the appliance and the light switch shall be near the attic access entrance.
- 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 0.019" (no. 26 gage) sheet steel and shall have no openings into the garage per CRC Section R302.5.2.
- Note on plans Air ducts installed under a floor in a crawl space shall not prevent access and 18" minimum vertical clearance is required under ducts. CMC Section 604.1
- Single-wall metal pipe shall not be used as a vent in a dwelling/residential occupancy. CMC Section 802.7.4.1
- Provide aggregate glazing area in windows of at least 3 sq ft., ½ of which must be openable in bathrooms, water closet compartment and other similar rooms per CRC Section R303.3, unless exhaust fan directly vented to outside is provided. When exhaust fan is provided, provide fan location, and size fan a minimum of 25 cfm for continuous system operation with a maximum of 1.0 sone rating per current edition of the CEC. For intermittent bath fan operation, provide minimum ventilation airflow of 50 cfm and maximum of 3.0 sone rating per current edition of the CEC.
- Provide dryer duct layout, size and length. If duct size or length is not in compliance with minimum code requirements (CMC Section 504.3.2), provide booster fan or engineering justification.
- Factory-built gas fireplaces shall be installed in accordance with their listing and the manufacturer's installation instructions. The manufacturer's instructions must be present on the job site for the installer and the inspector. *Consult floor plan notes above for additional details.*
- Mechanical exhaust fans which exhaust directly from bathrooms shall comply with ASHRAE 62.2, Section 5; exhaust fans shall be ENERGY compliant; exhaust fans shall terminate outside the building.

## Electrical Plans\*

- Show on the plans the installation of all electrical work.
- Show on the plans the size and location of electrical service, any other panels, all switches, lights, receptacles, smoke detectors, and any equipment requiring electrical connections (ranges, furnaces, etc.).
- All new electrical services shall be underground as per LAH municipal code.
- Provide panel schedules and load calculations to verify service is adequate for the loads.
- New electrical panels shall be installed in accordance with CEC Article 230.70, Article 240.24.
- Over-current devices are not allowed to be located above stairways. CEC Article 240.24(F)
- Grounding (connect to earth) electrode systems in all new buildings shall be provided and installed as required per CEC Article 250 III. (250.52 Grounding Electrodes).

- The grounding electrode conductor shall be sized in accordance with CEC Article 250.66.
- **All** multi-wire branch circuits require a simultaneous means of disconnect at the source of supply. (Identified handle ties in single pole circuit breakers are permitted.) CEC Article 210.4
- Bonding (connecting parts together) shall be installed according to CEC Article 250 V.
- Note on plans bonding of piping systems and exposed structural steel as required in CEC Article 250.104.
- Bonding Other Systems CEC Article 250.94. An intersystem bonding termination is required at:
  - Meter socket enclosure
  - Service equipment enclosure
  - Grounding electrode conductor
- Note when receptacles are Ground-Fault Circuit-Interrupter (GFCI) or Arc-Fault Circuit Interrupter (AFCI) protected.
- Combination type **Arc-Fault Circuit Interrupters** (AFCI) shall be installed in **all** dwelling unit family rooms, living rooms, bedrooms, closets, hallways, and similar rooms/areas. CEC Article 210.12
- GFCI protected receptacles shall be installed in bathrooms, garages, outdoors, crawl spaces, kitchen, unfinished basements and receptacles within 6 ft. of the outside edge of laundry, utility, and wet sinks as per CEC Article 210.8.
- Every room, kitchen, and living space of dwelling units shall be provided with receptacle outlets installed so that no point along the floor line in any wall space is more than 6 ft. from a receptacle outlet per CEC Article 210.52.
- All required 15/20 ampere receptacles listed in section 210.52 for dwelling units shall be **listed tamper-resistant receptacles**. CEC Article 406.11
- A receptacle outlet is required on dwelling unit balconies, decks, and porches. CEC Article 210.52(E)
- All 15- and 20-ampers, 125- and 250-volt non-locking receptacles shall be listed **weather-resistant type**. CEC Article 406.8 (B) (1)
- Provide a wall switch controlling exterior light at all exterior entrances or exits as per CEC Article 210.70. *For additional lighting and ventilation requirements see Energy Requirements below.*
- Raceways (conduits) installed underground or in wet locations. The interior of the raceway shall be considered a wet location. Insulated conductors shall be listed for wet locations. CEC Article 300.5 & 300.9
- Romex is not permitted in wet or damp locations. CEC Article 334.12(B)
- Romex installed in crawl spaces must be protected. Cables smaller than # 8/3 or # 6/2 are no longer allowed to be secured/stapled to the bottom edge of floor joists. CEC Article 334.15(C)

*\*See Kitchen and Bathroom handouts for additional electrical requirements.*

### Plumbing Plans

- Show on the plans the installation of all plumbing work.
- Show on the plans the location of all plumbing fixtures, hose bibs and water heaters.
- Show the location, materials and installation requirements of all piping located outside the building. Note the dimensions where minimums must be met at fixtures (toilets, shower stalls, etc.).
- Detail the installation of the water heater, including seismic bracing. Refer to the *Residential Water Heater* handout for more information.
- Indicate on plans the maximum flow rate standards for sink faucets are 205 GPM. CEES 110(A)
- Expansion tank is required when pressure regulator is installed. (CPC 608.2)
- Plastic pipe material used for water service installed underground shall have an 18awg blue insulated copper **tracer wire** suitable for direct burial. CPC 604.8

## Energy Requirements

Compliance with the current edition of the Energy Code is mandatory. Listed below are a few of the frequently referenced items:

### **Insulation**

- Indicate on the plans the exterior wall, ceiling and underfloor insulation type and thickness.
- Minimum insulation is R-13 in wall, R-30 in ceiling and R-19 in raised floors. Note type and location of radiant barriers if required.

## **Windows**

Indicate the size and type of all new windows and note the U-factor and SHGC ratings. Maximum U-factor is 0.40 and maximum SHGC is 0.40. Maximum glazing in west facing walls is 5% of the conditioned floor area. The 5% includes any west facing skylights.

## **Ducts**

Indicate on the mechanical drawings the duct insulation type and thickness, and if HERS testing of the duct sealing is required. Note that duct sealing is required as a prescriptive requirement per CEC Table 151-C.

## **Equipment**

- Equipment shall meet California Energy Code requirements. Indicate on the mechanical drawings the AFUE or HSPF ratings of heating equipment and SEER or EER rating of cooling equipment.
- Minimum AFUE (Annual Fuel Utilization Efficiency) of all new gas fueled central furnaces must be at least 78% for equipment with output capacity less than 225,000 Btu/hr. per prescriptive requirements for zone 4.
- Setback thermostats that comply with CEC Article 151 (f) 9 and Article 112 (c) shall be installed with all new space heating systems.

## **Title 24 Energy Compliance Reports**

Consult the Title 24 handout for copies of required forms and provide one (1) 8 ½” x 11” copy of the Title 24 energy calculations. Show calculations on the plans and the required forms.

## **CALGreen Requirements**

For **new** structures other than a **new** residence the 2019 California Green Building Standards Code applies as stated; Low-rise residential buildings constructed throughout the State of California, including but not limited to, hotels, motels, lodging houses, apartment houses, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory-built housing and **other types of dwellings containing sleeping accommodations with or without common toilets or cooking facilities** regulated by the Department of Housing and Community Development. *Review Section 104 for additional scoping provisions.* 101.3.1 CGBC

## **Other Approvals**

### Engineering Department

Prior to completion of any plans, the Engineering Department should be contacted at 650 941-7222 to find out the requirements due to the location and any easements, and if the property is located in a special flood hazard area.

### Planning Department

Prior to completion of any plans, the Planning Department should be contacted at 650 941-7222 to find out the requirements for the proposed location and type of the project.

### Geotechnical Review

Cotton, Shires & Associates

### Fire Department

Fire protection systems for homes in “Hillside Areas” and all homes provided with fire sprinklers or fire alarms shall have separate approval by the Fire Department. Contact the Fire Department for more information at (408) 378-4010.

### Santa Clara County Environmental Health Department

Homes may be subject to Health Department review and approval if connection to a private sewage disposal system (septic) is to be made or if an on-site water well must be capped or relocated. If required, drawings approved by the Health Department must be submitted prior to permit issuance.

### School District

All new residential buildings require payment of school impact (developer) fees. Refer to the handout “*School Impact Fees*” for additional information.

## **Required Inspections**

### **R109.1.1 Foundation inspection**

Inspection of the foundation *and footings* shall be made after poles or piers are set or trenches or *basement* areas are excavated, and any required forms erected, and any required reinforcing steel is in place and supported prior to the placing of concrete. The foundation *or footing* inspection shall include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports, or *equipment* and special requirements for wood foundations. *Materials for the foundation shall be on the job site except where concrete is ready mixed in accordance with ASTM C 94. Under this circumstance concrete is not required to be at the job site.*

#### **R109.1.1.1 Concrete slab and under-floor inspection**

Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduits, piping or other ancillary building trade products or equipment are installed, but before any concrete is placed or floor sheathing is installed, including the subfloor.

#### **R109.1.2 Plumbing, mechanical, gas and electrical systems inspection**

Rough inspection of plumbing, mechanical, gas and electrical systems shall be made prior to covering or concealment, before fixtures or *appliances* are set or installed, and prior to framing inspection.

*Exception: Back-filling of ground-source heat pump loop systems tested in accordance with Section M2105. 1 prior to inspection shall be permitted.*

#### **R109.1.4 Frame and masonry inspection**

Inspection of framing and masonry construction shall be made after the roof, masonry, all framing, fire stopping, draft stopping and bracing are in place and after *chimneys and vents to be concealed are completed and the rough electrical, plumbing, heating wires, pipes and ducts are approved.*

#### **R109.1.4.1 Lath and gypsum board inspection**

Lath and gypsum board inspections shall be made after lathing and gypsum board, interior and exterior, is in place, but before any plastering is applied or gypsum board joints and fasteners are taped and finished.

#### **R109.1.5 Other inspections**

In addition to the called inspections above, the *building official* may make or require any other inspections to ascertain compliance with this code and other laws enforced by the *building official*. Consult the **TOWN OF LOS ALTOS HILLS BUILDING INSPECTION RECORD** issued with the building permit for other inspections.

#### **R109.1.5.1 Fire-resistance-rated construction inspection**

#### **R109.1.5.2 Special Inspections**

*For special inspections, see California Building Code, Chapter 17.*

#### **R109.1.6 Final inspection**

Final inspection shall be made after the permitted work is complete and prior to occupancy.