

# General Building Code Requirements For The City of Saratoga Springs

## SINGLE FAMILY RESIDENTIAL CONSTRUCTION

ITS EASIER TO SOLVE PROBLEMS AT THE PLANNING STAGES THAN ON THE JOB  
PLEASE CONTACT THE BUILDING DEPT. WITH ANY QUESTIONS

### A. GENERAL

A1. The following list was put together with the intent of summarizing some of the general requirements for the construction of single family dwelling and townhouse construction of three stories or less. The following information has been compiled from the **2006 INTERNATIONAL RESIDENTIAL CODE** and the Utah State Amendments to the International Codes and the National Electrical Code. The wording is not the actual wording from the code and is not intended to indicate any changes to the code. The actual code should be used for all of the exact wording, details and requirements.

A2. Design requirements for the City of Saratoga Springs are as follows.

- a. Min. Frost Line Depth 30 inches.
- b. Ground Snow Load 43 psf {roof 30 psf}
- c. Seismic Zone D2
- d. Basic Wind Speed 90 mph {3 sec gust}

A3. Plans shall be Drawn To Scale,  $\frac{1}{4}'' = 1'$  or larger, and shall be sufficient clarity to indicate the location, extent and the nature of the work proposed and show in detail that it will be in compliance with the provisions of the codes, ordinances, rules and regulations. R106.1

### B. SITE PLAN

B1. Building location must comply with all regulations of the City of Saratoga Springs.

B2. Buildings closer than 3 ft. to property line shall be of 1-hr construction without doors or windows.

B3. Eaves, overhangs and projections cannot be less than 2 ft. from the property line and must be of 1-hr. if within 3 ft. of the property line. R302.1

B4. Parapets or special roof construction may be required on common walls for townhouses.  
See R317 for requirements

B5. Buildings cannot be located on any easements or right of ways.

B6. Ground slopes may not exceed 2 units horizontal to 1 unit vertical unless retained in an approved manner. Appendix J 2006 IBC

B7. Footings of structures located adjacent to slopes steeper than 3 units horizontal to 1 unit vertical shall be set back from the slope at least  $\frac{1}{3}$  the height of the slope if at the top, and  $\frac{1}{2}$  the height of the slope if at the bottom of the slope. R403.1.7

- B8. **Site shall be graded such that the ground slopes away from the foundation at least 6” in the first 10’ of the foundation.** R401.3
- B9. Any retaining wall over 2 feet in height from the bottom of the footing to the top of the wall must be an approved design with engineers details included. R404.5
- B10. Cuts or fills are not permitted within 2 feet of the property line. Appendix J 2006 IBC
- B11. Drainage from the property may not exceed that which existed prior to development. Paved areas and roof drains may need to be provided with appropriate sumps or means of mitigating their flow. Appendix J 2006 IBC
- B12. Roof runoff shall be collected and discharged well outside of the backfill limits, and at least 10’ from the structure or as per soils report recommendations.
- B13. Driveways shall have an all weather driving surface. A driveway, serving as an egress path, shall not slope more than 1 unit vertical to 8 units horizontal. **Such driveways exceeding 1 unit vertical to 12 units horizontal must have a handrail.** R311.6
- B14. Each lot shall have a soils report from a State Licensed Engineer after the hole is dug, the report and recommendations from the engineer must be on site at the time of the footing inspection.
- B15. Water meters cannot be located in driveways, approaches, sidewalks or similar areas.
- B16. Homes located in potential flood areas will be required to have elevation certificates prior to and after completion of construction. R106.1.3
- B17. Addresses shall be installed which are plainly visible and legible from the street. R321.1

## C. FOOTINGS AND FOUNDATIONS

- C1. **In all cases perimeter footing shall be continuous** and extend below the 30” frost line depth measured from the bottom of the footing to the finished grade. R403.1.2 & 403.1.4
- C2. Foundations supporting wood walls shall extend at least 6” above the finished grade or 4” above grade with masonry veneer. R404.1.6
- C3. All foundation plates or sills shall be of treated wood or foundation redwood. R319
- C4. Connections of the structure to the foundation shall be adequate to transfer forces.  
a. Anchor bolts must be min. 1/2”  
b. Hold downs shall be as required by the engineer or as for alternate braced wall panels.
- C5. Foundation construction for buildings which are constructed as light wood frame structures shall comply with Utah State Amendments table 1805.5.5
- C6. Where ground slopes more than 1 foot in 10 feet, footing shall be stepped so both top and bottom of the foundation are level. R403.1.5

C7. All footings shall be designed to minimize differential settlement. Footing shall be placed on soils approved by the soils engineer and follow all recommendations included in the soils report.

R401.4.1 and R403.1 and Saratoga Springs policies.

- a. Where footings are dug rather than formed the soil shall be stable enough to maintain near vertical edge without sluffing or forms must be used.
- b. Exterior and interior footings may be inspected at the same time or separately.

**ALL FOOTINGS, INCLUDING INTERIOR FOOTINGS PLACED WITH THE BASEMENT SLAB, MUST BE INSPECTED AND APPROVED PRIOR TO CONCRETE PLACEMENT. IF POURED MONOLITHICALLY WITH THE FLOOR THE FOOTING MUST BE 18" DEEP FROM THE TOP OF THE SLAB. R403.1.4**

C8. **Crawl Spaces:**

- a. Wood girders shall be located not less than 12" above exposed ground and floor joist not less than 18" unless they are pressure treated. R319
- b. Crawl space shall be provided with a 18"x 24" access. R408.4
- c. If furnace is located in the crawl space the access shall be min. 22"x 30" or the size of the equipment if larger within 20' of the furnace. M1305.1.4
- d. Crawl space ventilation shall be provided by an approved mechanical means or opening in the exterior wall. The openings shall be a min. of 1 sq. ft. per 150 sq. ft. of area under the floor. The openings shall be located within 3' of the corners and shall provide cross ventilation. R408.3

## D. FLOOR PLANS

D1. Fire Separation between House and Garage

- a. Fire separation between the house and garage with fire resistive construction on the garage side. As per R309.2
- b. A common method of providing 1-hr. fire protection to these framing members is to use 5/8" type "x" sheetrock on the garage side of the studs and ceiling joists nailed 7" on center or screwed 12" on center. ICBO ES #1602
- c. Fire resistive construction of the separation shall be both horizontal and vertical. Common walls between the house and the garage must be completely protected. All structural members supporting the fire separation shall also be fire protected, this includes bearing walls, columns and beams.
- d. Any door between the house and the garage must be solid wood 1-3/8" thick tight fitting doors or a 20 min. labeled door{closer not required} R309.1
- e. 22"x30" attic access door located in the garage ceiling shall be of 1hr. fire resistive construction{5/8" sheetrock or 7/16" OSB min. Access doors shall be latched. All latches shall be screwed into a solid member. { not into sheetrock only} R309.2
- f. Duct penetrations shall be minimum 26 gage sheet metal with **no openings into the garage.** R309.1.1
- g. Under no circumstances shall a door be permitted between the garage and a sleeping room. R309.1

D2. Stairways

- a. Stair shall have a maximum rise of 8" and a minimum run of 9", stairs with a run of less than 10" must have nosing of not less than 3/4" or more than 1 1/4". Tread rise and run shall not vary more than 3/8" between the largest and the smallest rise or run on a set of stairs.R311.5.3
- b. Winders in stairs shall have a minimum tread dimension of 6" on the narrow side of the stairs. A 10" tread is required at a point not more than 12" from the narrowest side of the winders.
- c. Stairways in homes shall not be less than 36" in width. R311.5.1

- d. Stairways with more than 3 risers shall have at least one handrail. Handrails shall have a minimum and maximum height of 34" to 38" respectively. R311.5.6
- e. Stairways shall have a minimum headroom of not less than 6'8". Clearance shall be measured from a line along the nose of the treads to the soffit above. R311.5.2
- f. Enclosed accessible space under the stairs shall have the walls and the soffit protected with ½" sheetrock.
- g. All porches, balconies or raised floors more than 30" above the floor or grade level must have a guard rail not less than 36" in height. Guard rails shall be designed so that at no point between the rail will a sphere of 4" pass through. Required guards shall not be built with horizontal rails or other pattern that will create a ladder affect. R312.2
- g. Ramps shall have a maximum slope of 1 unit vertical to 8 units horizontal. A handrail is required if over slope is steeper than 1 in 12. R311.6

### D3. EXITING REQUIREMENTS

- a. At least one exit door minimum 3' wide and 6'8" in height with side hinges shall be provided for dwelling unit. Any lock shall be operable from the inside without the use of a key. R311
- b. All hallways shall not be less than 36" in width. R311.3
- c. Hallways and all other habitable rooms shall have a ceiling height of 7' minimum. R305
- d. Every sleeping room and basements shall have at least one operable, exterior window or door for emergency escape and rescue. The egress units shall be operable from the inside without tools.

#### **All of the following shall apply R310**

- 1. Min. 5.7 sq. ft. net clear opening of windows. [5 sq. ft. for windows on ground floor]
- 2. Min. net clear opening height of 24"
- 3. Min. net clear opening width of 20"
- 4. Max. finished sill height of 44" above floor level.
- 5. Window wells for egress windows shall have a min.net clear opening of 9 sq. ft. with a min. dimension of 36". Window wells deeper than 44" in depth shall be provided with a ladder. Ladders shall be at least 12" wide and 3" from the well with rungs not over 18" apart.

### D4. Light, Ventilation and Sanitation

- a. All habitable rooms shall be provided with **natural light** from window equaling not less than 8% of the floor area of such room. R303.1
- b. All habitable rooms shall be provided with natural ventilation by means of direct opening to the exterior equaling 4% of the floor area of such room. R303.1
- c. Bathrooms shall be provided with ventilation from exterior window with an area of 3 sq. ft., not less than 1 ½ sq. ft. operable. A fan may be substituted provide 50 cfm min. The fan must exhaust outside house not less than 3" from any building opening. R303.3
- d. Every house shall have at least one water closet, lavatory, bathtub or shower and kitchen sink equipped with hot and cold running water. R306
- e. Make-up air shall be provide for all cloths dryers installed in closets through a door or by other means.
- f. Provide an attic access of not less than 22"X 30" with min. 30" of headroom in the hallway or other readily accessible location (not in closets) for all attic areas 30 sq. ft. or larger with at least 30" in height.
- g. All attic areas shall be provided with attic ventilation of not less than 1 sq. ft. per 150 sq. ft. of attic area or 1 sq. ft. per 300 sq. ft. if 50% to 80% of the ventilation is provided in the top 3' of the attic area and the rest is provided from soffit vents. R806

#### D5. Glazing

- a. Glazing in doors shall be safety glazed. R308.4
- b. Glazing within a 24" arc of either edge of a door when closed shall be safety glazed if the bottom edge is less than 60" of the ground. R308.4
- c. Glazing panels larger than 9 sq. ft located less than 18" above or within 36" horizontally of a floor or walking surface shall be safety glazed. R308.4
- d. Glazing within shower or tub enclosures less than 60" above the tub/shower drain shall be of safety glazing. R308.4
- e. Glazing within 60" horizontally or vertically of any indoor or outdoor pool or spa deck shall be of safety glazing. R308.4
- f. Glazing in walls enclosing stairs and landings and within 60" horizontally from the stairs and less than 60" above the floor shall be of safety glazing. R308.4
- g. Glazing in handrails shall be tempered or laminated. R308.4
- h. Safety glazing material shall be permanently labeled. R308.1
- i. In dwelling units, where the opening of an operable window is located more than 72" 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. R613.2

#### D6. Room Dimensions/Miscellaneous

- a. Ceiling height is required to be a minimum of 7'-0" in all rooms, halls and basements. The bottom of all beams spaced more than 48" on center may be 6'6". Sloped ceilings require the minimum height for more than ½ of the room. R305
- b. Houses shall have at least one room not less than 120 sq. ft. of floor area. Other habitable rooms except kitchens shall have area of not less than 70 sq. ft. Kitchens shall have an area of not less than 50 sq. ft. R.304
- c. Habitable rooms other than kitchens shall have a minimum dimension of not less than 7'. R304
- d. There shall be a clear passage between cabinets and appliances or walls of not less than 36". R304.3 UT Amend, exception.

#### E. ROOFING

- E1. Roofing material must have an approval from an approved testing agency. Roof slope will determine the type of roofing material that may be used. Roofing must be installed exactly as intended by the approval agency. Asphalt shingles installed on roofs less than 4/12 pitch must be over an approved water shield. Asphalt shingles cannot be installed on roofs with less than a 2/12 pitch. R905.2
- E2. Ice and water shield shall be installed at all eaves and valleys, it shall extend from the eave edge to 24" inside the exterior wall. R905.2
- E3. Step flashing shall be used where the roof meets a vertical surface. Counter flashing shall be installed at all roof and wall junctures. R905.2

#### F. MASONRY

- F1. See IRC Section R606 for general masonry construction.
- F2. Wood members shall not be used to permanently support the load of any masonry or concrete except nonstructural floor or roof surfacing not more than 4" thick.
- F3. Brick and stone veneer are only permitted on the first floor above grade unless all of the provisions of the state amendment for additional bracing are met. Veneer shall be attached with

corrosion resistant sheet metal ties 22 ga. X 7/8" or 9 ga. Wire. Stud spacing shall be a maximum of 16" on center. Tie spacing shall be so that no more than 2 sq. ft. of wall is unsupported (16" on center both ways). A 9 ga. Wire shall be provided as horizontal bedjoint reinforcement to ties. Brick ties shall engage the #9 wire. R703.

- F4. Stone units, 5" maximum thickness, may be applied with a 1" minimum grout backing space which is reinforced by not less than a 2"x 2" 16 ga. galvanized wire mesh placed over waterproof paper backing and anchored directly to studs spaced no more than 16" on center. Mesh must be furred out from sheathing for embedment in grout. R703.
- F5. Fireplaces and Chimneys.
- a. Masonry and Concrete Fireplaces. See R1003
  - b. Factory-built Chimneys and Fireplaces.
    - (1) Factory built chimneys and fireplaces shall be listed by an approved testing agency and have an ICC approval number. They shall be installed in exact accordance with the terms of their listing and manufacturers instructions. Specific approval numbers and installation standards must be made available to the building inspector.R1004
    - (2) Fire blocking with non-combustible materials is required at space between floors and ceilings through which chimneys pass.
    - (3) Hearth extensions of listed factory built fireplaces shall conform to the conditions of the listing and manufacturers instructions. R1004.2

## G. ELECTRICAL

### G1. Lighting Outlets

- a. At least one wall switch controlled lighting outlet shall be installed in every habitable room, bathroom, hallway, stairway, attached garage, detached garage with electrical power and at all outdoor entrances. E3803
- b. At least one switch controlled lighting outlet shall be installed at the entrance to all attics, basements, crawl spaces and utility rooms with storage or equipment. E3803.4
- c. Lighting is required at all interior and exterior stairways. Lighting outlet shall be switched at each floor level where the difference between floor level is six steps or more. E3803.3 and R303.6
- d. Incandescent fixtures in closets shall be a minimum of 12" from any shelf edge, measured horizontally. (6" from fluorescent fixtures). The dimension when shelf is less than 12" shall be 24" from the wall. E3903.11
- e. Fixtures cannot be located less than 3' horizontally or 8' vertically of bath tub or shower. E3903.10
- f. Switches shall not be installed in the tub or the shower space. E3901.7

### G2. Receptacle Outlets

- a. In every kitchen, family room, dining room, living room, parlor, library, den, sun room, bed room, recreation room, or similar room receptacle outlets shall be installed so that no point along the floor line in any wall space is more than 6' from an outlet. The wall space created by fixed wall dividers, such as free standing bar type counters or railings shall be included. Any wall space 2' in or more in width shall be considered as another wall space within a room. E3801.2
- b. Kitchens shall be provided with a minimum of 2 small appliance branch circuits that will serve counters, dining area, breakfast room and similar areas. Counter top areas serving kitchens shall have outlets spaced so that at no point along the counter there is no more than 24" from an outlet. One outlet is required for each island and at the end of each peninsular. Outlets shall not be installed in a face up position. E3801.3 and 3801.4

- c. 120 V receptacles for service or maintenance shall be located within 25' of furnace and air conditioning equipment in attics and crawl spaces. E3801.11
- d. Outlets shall be installed in bathrooms within 36" of the outside edge of the basin on the wall adjacent to the basin. E3801.6
- e. At least two outlets accessible to ground level shall be installed outdoors. There shall be at least one outlet shall be in the back and one in the front of the house within 6'6" of grade. E3801.7
- f. At least one outlet shall be installed for the laundry room. E3801.8
- g. At least one outlet, in addition to any provided for the laundry, shall be installed in each basement and in each attached garage and in each detached garage with electrical power. E3801.9
- h. For hallways 10' or more in length at least one outlet shall be provided. E3801.10
- i. Outlets installed in garages shall be a minimum of 18" above the floor. IMC 304.3

G3. Ground fault and arc fault interrupters (GFCI/AFCI) are required as follows.

- a. Receptacles in bathrooms, garages (except ceiling and dedicated outlets), outdoors including balconies, roofs, under eaves, etc., crawl spaces and unfinished spaces, all receptacles serving kitchen counters shall be GFCI protected. E3802
- b. Receptacles for hot tubs shall be GFCI protected. E4108
- c. Hydro-massage bathtubs shall have all metal parts, pump motors, metal piping and electrical equipment shall be bonded together with #8 solid conductor. E4109
- d. All branch circuits that supply 125 Volt, single phase, 15 or 20 ampere receptacle outlets installed in dwelling units shall be protected by arc-fault circuit interrupters. NEC 210-12

G5. Smoke Detectors

- a. Smoke detectors shall receive their primary power from the building wiring and have battery back-up and must be wired in series. R313
- b. Smoke detectors shall be located in every sleeping room and in every hallway adjacent to the sleeping rooms, at the top of the stairs and in each level of the house. R313
- c. Carbon monoxide alarm shall be installed on each habitable level of a dwelling unit with fuel burning appliances. All carbon monoxide detectors shall be listed and comply with U.L 2034 and shall be installed in accordance with provisions of this code and NFPA 720.

G6. The electrical panel shall have a clear working space of 30" wide, 36" deep and be at least 6'6" in height in front of the panel. E3305

## **H. PLUMBING AND MECHANICAL**

- H1. Each water closet shall be located with a clear space of not less than 30" in width (15" from the center on both sides) and have a clear space in front of not less than 21". P2705 IRC and Figure 405.3.1 IPC
- H2. A shower compartment shall have not less than 900 sq. in. of floor area and be sufficient in size to inscribe a circle not less than 30" in diameter. P2708
- H3. Tubs and showers with tile walls and wall panels in shower areas, require cement, fiber-Cement, glass mat gypsum backer. [Green board is no longer allowed in this application] R702.4
- H4. All appliances (water heaters, boilers, etc..) which require pressure relief valves shall be provided with a full sized drain which shall extend from the valve to an indirect waste. P2803.6.1
- H5. Gas fired appliances and water heater which provide a spark, flame or a pilot light, when installed

in a garage shall be installed at least 18" above the floor. G2408.2

- H6. Gas fired appliances and water heaters shall not be installed in a bedroom, bathroom, storage closet, toilet room or in any room accessed only through such rooms. G2406
- H7. Water heaters and heating appliances installed in garages or other areas where they are subject to damage shall be guarded against such damage. G2408
- H8. The water heater and furnace room shall have an opening or door with a continuous passageway at least 24" in width and large enough to remove the largest piece of equipment in the room. M1305.1.2
- H9. It must be possible to remove the water heater without first removing any part of the structure. M1305.1
- H10. An unobstructed working space at least 30" deep and the height of the furnace or water heater shall be provided along the entire front of the appliance. M1305.1
- H11. Combustion air for all fuel burning appliances shall be taken from the outdoors. When combustion air is taken from the attic, enough ventilation must be provided from gable end type vents to supply air for combustion and attic ventilation. Combustion air shall not be dampered. Combustion air openings shall be located within the upper 12" of the appliance area. One vertical or horizontal duct shall be provided in the enclosure with a minimum of 1 sq. inch per 3000 btu/h input. M1700 (When calculating free area of louvers or grills, it may be assumed that wood louvers will have 25% free area and metal grills will have 75% free area.)
- H12. A furnace shall not be installed in a closet or alcove less than 12" wider than the furnace and shall provide a minimum working space of 3" along the top, back and sides. The furnace shall have a minimum of 6" along the combustion chamber side. M1305.1.1
- H13. The minimum diameter of a dryer exhaust duct shall be per the manufacturers recommendations, but at least the diameter of the outlet. Maximum length is 25' to be reduced 2 1/2' for each 45° bend and 5' for each 90° bend. M1502.
- H14. Cooking appliances shall be tested, listed and labeled as household type for domestic use and installed per the manufacturers instructions. G2447.3
- H15. An evaporative cooler must be located a minimum of 10' from all vents, flues and exhaust terminations. Flues may extend 3' above intake openings of evaporative cooler in lieu of 10' horizontal separation.
- H16. Water closets shall have a maximum flow rate of 1.6 gallons per flush. Shower heads shall have a maximum flow rate 2.5 gpm. P2903.2

## **J. CONSTRUCTION DETAILS**

- J1. Any truss to be used must have a detail provided for the specific house. R502.11
- a. A truss layout indicating location and orientation of all types of trusses must be provided from the truss manufacturer before the review can be completed. This information is necessary to accurately determine loading of structural members.

- b. Details are required for all types of trusses used ( scissor, mono, girder, etc.).
- c. Truss details must be provide from an approved fabricator. Home made trusses are not acceptable unless designed, stamped and inspected by a structural engineer.
- d. All details must indicate correct designed snow loads for the area.
- e. Specific engineered design for connections of trusses to each other and other framing members which are supported by trusses must accompany the details
- f. Details must be stamped by a Utah State licensed engineer.

J2. Joist spans shall be in accordance with Table R502.3.1 or designed under IBC criteria.

J3. Bearing partitions perpendicular to solid sawn joists shall not be offset from supporting girders, walls or partitions more than the joist depth. Bearing partitions over “I” joists shall not be offset from bearing below unless engineered.

J4. Roof rafter spans shall be in accordance with Table R802.5.1.

J5. Beams must be carefully sized. Lumber suppliers can usually help suggest beams for simple span, uniform loads. The Building Inspection Department will check beams shown on the plans. Beams or girders with concentrated loads, cantilevers or any other special conditions should be designed by a structural engineer.

J6. There are currently many good, manufactured wood products available for building framing. Any product used shall be approved as an alternate by an ICC Evaluation report. Span charts, details and installation instruction recommendations are readily available from lumber suppliers and local factory representatives and must all be followed as approved.

#### J7. Walls

- a. Walls supporting two floors shall 2X6 or 3X4 studs at not less than 16” on center. Stud height in bearing wall shall not exceed 10’. Stud walls in non- bearing wall cannot exceed 14’ for 2X4’s or 20’ for 2X6’s at 8” o.c. unless engineered. R602 and Footnote A Table R602.3.1
- b. When cripple walls exceed 4’ in height, they shall be framed of studs having the size required for an additional story. (Walls having stud height exceeding 14”shall be considered to be the first story when determining required bracing). Studs in bearing wall shall be at least 14” in length. Solid blocking or plywood sheathing nailed at 6”o.c. may be used brace cripple walls with studs less than 14”. R602.9
- c. Wall bracing shall be in accordance with R602.10.9, R602.11 and table 602.10.3. Braced wall lines must be provided a minimum of every 25’ in each direction at the interior and exterior of the building ( spacing may be 35’ for one 900sf room). Braced wall lines shall be offset not more than 4’. Braced wall panels shall be installed within 8’ of the end of the braced wall line. Braced wall panels shall be installed not more than 25’ o.c.. The braced wall panel must be at least 48” in width to provide the required bracing. Braced wall panels cannot occur over 2X8 cantilevered joists. All vertical joints in panel sheathing shall occur over studs. Horizontal joints shall occur over blocking the same size as the studs. Inlet diagonal bracing is not permitted. Braced wall panels shall be shown on the floor plans. Homes that do not provide the proper bracing shall have a design by an engineer for lateral strength. R602.10
- d. Alternate braced wall panels may be accepted as a replacement for braced wall panels. R602.10.6
- e. All openings in bearing walls shall require headers using the 50psf column in table R502.5(1) Headers with concentrated loads may require engineering.

J8. Columns shall be of sufficient size and strength to resist the forces imposed and shall be restrained at the bottom. R407

J9. Subfloor and roof sheathing shall be in accordance with R503 and R803.

NOTE: All sheathing manufacturers recommend spaces between sheathing sheets of at least 1/8". This should always be done and is very important when using inflexible final finishes such as stucco.

J10. All weather exposed surfaces shall have a weather-resistive barrier to protect the walls under the finish material. The most common type is a waterproof building paper or felt applied weather board fashion, lapped at least 2" at all horizontal joints and 6" at vertical joints. One coat stucco requires 2 layers. R703.2

J11. Stucco systems shall be installed in accordance with R703.6 or shall be an approved system with ICC Evaluation Service number. All systems must be applied in strict compliance with the manufactures recommendations.

NOTE: There are currently no EFIS systems approved for wood frame construction without a drainage system.

J12. Engineered Design

- a. Any house deemed by the building official to be of unusual shape, size or a spilt-level may require design by a licensed structural engineer. Some guide lines for determining a building of unusual shape are the following:
  - (1) When there are out of plan offsets of the braced wall panels from the foundation to the top story.
  - (2) When a section of floor or roof is not laterally supported by a braced wall line at all edges.
  - (3) When braced wall panels extend more than 1' into an opening below except if there is at least a 4X12 header and the opening below is 8' or less.
  - (4) When the opening in the floor or roof exceeds the lesser of 12' or 50% of the least floor or roof dimension.
  - (5) When portions of floors are offset vertically and cannot be tied together unless directly supported by foundations.
  - (6) When braced wall lines do not occur in two perpendicular directions.
  - (7) When shear walls or braced wall lines are constructed of dissimilar systems.
  - (8) Other configurations which create irregularities or discontinuities. R301.2.2.2.2
- b. Stick framed roofs, other than those with symmetrical gables and hips which comply with the conventional framing provisions of IRC chapter 8 and the referenced tables, shall be designed by a structural engineer. IBC 2305.2.5
- c. When a building does not have the required braced wall lines and braced wall panels, a lateral design from a structural engineer will be required. R602
- d. Any component of a house which does not fall under the provisions of the IRC for conventional construction may require structural engineering. R301.2

