



## COMMUNITY DEVELOPMENT DIVISION

200 West Oak Street, Suite 3100  
Post Office Box 1190  
Fort Collins, Colorado 80522-1190  
Building Department (970) 498-7700  
<http://www.larimer.org/building>

# RESIDENTIAL REQUIREMENTS

---

A Guide for the General Contractor or Home Builder



Updated April 3, 2015

# **TABLE OF CONTENTS**

<b>Permit Application and Parcel Number Requirement</b>	<b>1</b>
<b>Plan Submittal Check List for Residential Construction</b>	<b>2</b>
<b>Requirements for Building Permit Application (Residential Only)</b>	<b>3-5</b>
<b>Alteration Information</b>	<b>5</b>
<b>Addressing Information</b>	<b>5</b>
<b>Re-submittal Information</b>	<b>5</b>
<b>Engineered Foundation Requirements</b>	<b>6</b>
<b>Slope Profile Information and Examples</b>	<b>7-9</b>
<b>Energy Conservation Prescriptive Package</b>	<b>10-11</b>
<b>Blower Door/Air Leakage Tests</b>	<b>12</b>
<b>Whole House Mechanical Ventilation</b>	<b>12</b>
<b>Engineering Department Information</b>	<b>13</b>
<b>Flood Zone Information</b>	<b>13</b>
<b>Electric Permit Information</b>	<b>13</b>
<b>Fire Sprinkler Information</b>	<b>13</b>
<b>Radon Mitigation Information</b>	<b>14</b>
<b>Zoning Information</b>	<b>14</b>
<b>Health Department Information</b>	<b>14</b>
<b>Sewer and Water Information</b>	<b>14</b>
<b>Well Information</b>	<b>14</b>
<b>Required Building Inspections</b>	<b>15-18</b>
<b>Cancellation of Inspections</b>	<b>15</b>
<b>Certificate of Occupancy</b>	<b>18</b>

<b>Wildfire Information</b>	19-20
<b>Fireplace, Woodstove, and Fireplace Insert Information</b>	21
<b>Building-Mounted and Ground-Mounted Solar Energy Permits</b>	22
<b>Manufactured Homes Outside of Manufactured Home Parks</b>	23
<b>Access Permit Information</b>	24
<b>Health Department Application Requirements</b>	25
<b>Sewer and Water Approval Form</b>	26

### **ATTACHMENTS:**

<b>Wildfire Hazard/Roofing Classification/Engineered Foundation Map</b>	A
<b>Electrical Permit Application Example</b>	B-C
<b>Detailed Construction Drawing Examples</b> <i>(All Plans Must Be Drawn to Architect's and/or Engineer's Scale)</i>	
<b>Vicinity Map</b>	D
<b>Enlargement of Construction Site</b>	E
<b>Plot Plan</b>	F
<b>Footing and Foundation Plan and Details</b>	G
<b>Elevations</b>	H-I
<b>First Floor Plan</b>	J
<b>Second Floor Plan</b>	K
<b>Truss or Rafter Layout</b>	L
<b>Cross Section</b>	M-N
<b>Stair Detail</b>	O
<b>Passive Radon Systems – Crawlspace or Slab-on-Grab Details</b>	P-Q
<b>Fireplace Area Map</b>	R

## **PERMIT APPLICATIONS AND PARCEL NUMBERS**

All building permit applications submitted must have a current parcel number. **No** building permits can be accepted without a parcel number.

If the application is for a lot in a recorded subdivision and the parcel number has not yet been established by the Assessor's Office, the Building Department will accept an application.

Parcel numbers are to be obtained from the Assessor's Office. The Building Department can also research for parcel numbers; however, we may refer you to the Assessor's Office if we cannot locate a current parcel number.

If you do not have a parcel number, you must first meet with the Planning Staff on Call to determine if this is a legal lot before you can submit for a building permit. Applicants must provide a copy of the recorded deed to the planner, who will determine if this is a legal lot. This research may take minutes or days depending on the situation. If the Planner determines the lot in question is legal, the Building Department will accept the application at that time.

It is highly recommended to bring a warranty deed for the parcel. This will help identify the location and ownership at time of submittal.



**Plan Submittal Checklist**

**RESIDENTIAL  
CONSTRUCTION\***

The following items are required, along with a completed permit application and fees, to initiate a permit for a new structure. The applicant must be the homeowner or a County-licensed contractor. Plans will not be accepted that have been marked with a red marker or red pen (Plans Examiners use red ink to mark corrections on the plans). When in doubt, please call the Building Staff-on-Call at (970) 498-7700.

For properties located within the Estes Valley Area, call the Estes Park Community Development Department at (970) 577-3721 to confirm submittal items required by the Estes Park Development Code.

For properties located in or around a floodplain, see separate checklist for additional submittal items required by the Larimer County Engineering Department pursuant to the County's Land Use Code.

\_\_\_\_\_ **FIVE COPIES** of a **plot plan drawn to scale** (Scale 1"= 10' or Scale 1" = 100). Show entire property, location of all existing and proposed structures, natural water features, distance to property lines, easements, setbacks, direction north, roadways, streets and access, owner's name, parcel number, address.

**TWO COPIES** of the following **stapled together** and **drawn to scale** (1/8", 3/16" or 1/4" per foot):

\_\_\_\_\_ **Foundation Plan.** Engineered plans are usually required along the Front Range, and on steeply sloped lots in the foothills and mountains. Engineered plans must be wet-stamped and signed by a Colorado Registered Structural Engineer. All plans must show footing size and location, pad sizes and location, foundation wall details and beam sizes.

*If you are applying for an optional Footing and Foundation permit (F&F) you will need to supply five plot plans and two foundation plans for the F&F permit, in addition to the ones required when applying for the full permit.*

\_\_\_\_\_ **Floor Framing Plan.** Show size, spacing, species and grade of lumber to be used for floor joists. All beam and header sizes are to be noted on the plans. (For a simple one-floor house, these may be noted on the floor plan).

\_\_\_\_\_ **Roof Framing Plan.** Show size, spacing, species and grade of lumber to be used for the rafters. If using engineered trusses, truss layout plans from the truss manufacturer are required. These plans must show beam and header sizes. A full set of stamped, engineered truss plans must be on site for the framing inspection.

\_\_\_\_\_ **Floor Plans** of all levels. Label use of each room and show window sizes, door swings/sizes, plumbing fixture placement, stairways, etc.

\_\_\_\_\_ **Wall Bracing Plan.** Identify the bracing method used, location/spacing of braced wall lines, location and length of braced wall panels on each braced wall line, wall and floor diaphragm connections details, two-foot returns or hold-downs at ends of braced wall lines.

\_\_\_\_\_ **Elevations** of all sides. Show roof pitch, roofing material, window placements and siding.

\_\_\_\_\_ **Slope Profile (required for non-engineered foundation plans).** An accurate slope profile drawing is required for all structures in the Class "B" roofing area without engineered foundation plans.

\_\_\_\_\_ **Energy Conservation Prescriptive Package** Attach County Form to plans. Circle your choice of energy package. Attach Manual J calculations to plans. Show how you satisfy whole house mechanical ventilation requirements, specify system controls, efficiency of any fans or equipment that are part of this system. Manual J calculations can be a delayed submittal

\_\_\_\_\_ **Frame Section.** Identify cross-section submitted with plan. (Foundation section is not adequate.) Must show from bottom of footing to top of roofline. Identify framing and insulation details.

\_\_\_\_\_ **Stair Section.** Show cross-section, details including rise/run, stair openings, handrails, landings, etc.

\_\_\_\_\_ **Detail Sections** of critical construction points or special structural items such as decks, porches, retaining walls over four feet, etc.

\_\_\_\_\_ **Fire Sprinkler Plans.** If you are installing an NFPA-13 system, submit plans and obtain a permit through your local fire department. If you are installing a P2904 residential system, supply floor plans showing location of all sprinklers, size/type of pipe, sprinkler cut sheets, and hydraulic calculations for the two most hydraulically demanding heads.

\* For complete information, please see "Residential Requirements: A Guide for the General Contractor or Home Builder."

**BUILDING PERMIT APPLICATION REQUIREMENTS:**  
**SUBMITTING PLANS FOR ANY RESIDENTIAL STRUCTURE**

TWO COMPLETE SETS OF PLANS PLUS A MINIMUM OF FIVE PLOT PLANS shall be submitted with each application for a permit that involves proposed new construction or additions to existing structures. One set of plans remains on file in the office. One set is returned to the customer to keep on the job for subcontractor's and inspector's use. PLANS FOR ALTERATIONS, REPAIRS OR RESUBMITTALS NEED PERTAIN ONLY TO WORK TO BE DONE OR INVOLVED, BUT MUST BE COMPLETE ENOUGH TO DEMONSTRATE THAT THEY COMPLY WITH ZONING ORDINANCES AS WELL AS THE BUILDING CODE.

A plot plan fee will be collected with all plan check fees. An initial plan check fee is collected for house plans, garages, barns, house additions, and for footing & foundation and, if applicable, a \$50 County Road Access fee will be collected at permit submittal. The remainder of the permit fees, which are based on square footage of the structure and estimated valuation, and any other applicable fees are collected at building permit issuance. For further questions regarding plan check fees or building fees contact the Building Permit Technicians at (970) 498-7700.

It takes approximately ten to fifteen working days for small plans such as pole barns, garages, and small additions to be issued. Footing and Foundation permits are available and take approximately five to seven working days to be issued. Residential permits take about fifteen to twenty working days. During busy times this may take longer. Incomplete submittals may delay your project and we begin these time frames from the time we get all the information needed. We will call with the amount due and the status of your permit after plan review is complete.

**PLANS WILL NOT BE ACCEPTED THAT HAVE BEEN MARKED WITH A RED MARKER OR RED PEN.** Plans Examiners use red ink to mark corrections on the plans.

Following is a list of what is required to be submitted:

**I Five (5) plot plans of total parcel DRAWN TO SCALE.** (See examples attachment D-F)

- \_\_\_ A. Show all dimensions of all property lines.
- \_\_\_ B. Identify scale used. Minimum scale is 1 inch = 20 feet or 1/16 inch = one foot (preferred). For large parcels, a vicinity map accompanied by an enlargement of the construction site will be acceptable (max. size paper that will be accepted is 24" x 36").
- \_\_\_ C. Identify north direction.
- \_\_\_ D. Identify easements for utilities including overhead utilities (you are responsible for knowing where these are even if they are not on your plot plan).
- \_\_\_ E. Show name of all adjacent roads. Clearly show driveway location and access point.
- \_\_\_ F. Identify vehicle parking areas.
- \_\_\_ G. Show section, township, and range.
- \_\_\_ H. Show subdivision name, lot, block, and filing number, if applicable.
- \_\_\_ I. Show property owner's name, address and phone number.
- \_\_\_ J. Show and label all existing structures with their use and distance to the proposed structure. Include bay windows, window wells, and any structural appendages including their distance to property lines.
- \_\_\_ K. Show distance from the proposed structure to ALL property lines and to the centerline of all adjacent roads. If an existing structure straddles the property line, it must be shown on the plot plan.
- \_\_\_ L. Show location of any stream or stream bed (wet or dry), river, lake or any other body of water within 100 feet of the structure. Note distance from structure to water.

- \_\_\_ M. If your property is in a Flood Plain, approval from County Engineering is required. Applicants who suspect their property may be in a Flood Plain should contact Engineering as soon as possible at 498-5700. New structures cannot be built in floodways, and structures must be elevated in Flood Fringes.
- \_\_\_ N. Verify with Planning and Zoning the minimum setbacks for proposed structure(s) on your property. Failure to meet minimum setback requirements will result in delays in the review process.

**II Floor and Structural Plans (see attachments J-K for examples).**

- \_\_\_ A. Provide floor plan for each floor, stating the use of each room. Preferred scale is 1/4 inch = 1 foot.
- \_\_\_ B. Provide footing/foundation plan including cross section. If your property is in a subdivision, list subdivision name, lot, block, and filing number. If an engineered foundation plan is required, the engineer's seal must bear the words REGISTERED IN THE STATE OF COLORADO and must be an original, not a copy. These plans must be stamped and personally signed by the Structural Engineer.
- \_\_\_ C. Framing plan must show direction, size, type, span and spacing of floor joists, roof rafters, girders, beams, columns, piers and header sizes. If using engineered trusses, truss layout map at a minimum is required at plan submittal. Full set of engineered/stamped truss drawings is required on site for framing inspection.
- \_\_\_ D. Show door and window sizes and location, and direction of all door swings.
- \_\_\_ E. Show location of all bathroom fixtures, kitchen cabinets, water heater, boiler or furnace, and fireplaces.

**III Exterior Elevation all sides (see attachments H-I for examples).**

- \_\_\_ A. Show front view, scale at 1/4 inch = 1 foot.
- \_\_\_ B. Show rear and both side views, preferred scale 1/8 inch = 1 foot.
- \_\_\_ C. Identify finished floor lines.
- \_\_\_ D. Identify finished grade line at building.
- \_\_\_ E. Show exterior wall finish and roof covering material.

**IV Detail and Sections (see attachment M-O for examples).**

- \_\_\_ A. Provide cross-section of exterior wall showing details from footings to roof, and listing materials used, including insulation R-values. Preferred scale is 3/8 inch = 1 foot.
- \_\_\_ B. Provide cross-section of structure at critical points, such as where floors are at various levels, fireplaces, finished attic space, etc. Preferred scale is 1/4 inch = 1 foot.
- \_\_\_ C. Provide cross-section through stairs, including rise/run, headroom clearance, landings, railings and surrounding framing. Preferred scale is 1/4 inch = 1 foot.

**V Roof Details (see attachment L for example).**

- A. Provide truss or rafter layout and header sizes.

**VI Topography Requirement (See pages 7-9 for examples).**

If you are not providing an engineered footing and foundation plan, you must provide a slope profile to verify clearances to any slopes exceeding 1 unit vertical in 3 horizontal. There are two options you can use:

- o Slope Profile Option: Show the slope profile for a distance of 50 feet on each side of the building.
- o Corner Elevation Option: Include the elevations of all corners of your building on the plot plan.

**VII Energy Conservation Prescriptive Package (see pages 10-11)**

Show insulation R-values for ceiling, walls, floors, crawl spaces and basement walls, and U-value of windows on floor plans. Fill out Residential Energy Conservation form specifying which energy code compliance path you are using: Prescriptive, REScheck, or Performance.

## **OPTIONAL FOOTING AND FOUNDATION PERMIT REQUIREMENTS**

Footing and foundation permits are separate permits available through our office. This permit allows construction of the footings, foundation, underground plumbing, underslab radon mitigation, and slab perimeter insulation only. In order to apply for a footing & foundation permit, the applicant must provide the following:

- \_\_\_ A. Five plot plans (these are in addition to those needed for the full permit - also see access and flood plain requirements below).
- \_\_\_ B. Two foundation plans prepared, wet-stamped and signed by a Structural Engineer registered in the state of Colorado. (These are in addition to the foundation plans required for the full permit.)

## **ALTERATIONS**

For alterations, such as basement finishes, a floor plan drawn to scale is required showing walls to be constructed, as well as existing walls. Rooms must be labeled stating their use and show door, window, furnace, boiler,/water heater and fireplace locations.

## **ADDRESSING**

If the property needs an address, it may take up to 3 or 4 weeks. The plot plan must be drawn to scale and show the driveway access. Any parcel not located in a subdivision must show legal distance from a section corner.

## **RESUBMITTALS**

A resubmittal is required for any changes to your plans that alter the structure, such as moving beams, changing beam or header size, enlarging windows or doors, changing floor joist type, size or direction. Two sets of plans are required. A minimum \$44 fee is collected as existing plans must be pulled and rechecked. Additional fees based on valuation may apply if you are adding to the footprint or finishing additional space. Minor changes, such as moving a same size door or window a few feet on the same wall, or moving a non-bearing wall, usually do not require a resubmittal. Your building inspector will help determine if you need to resubmit plans. If square footage is added, or if the structure is relocated on the property, five additional plot plans are also required with the resubmittal. Resubmittals on properties with septic systems that either add to the footprint or add bedrooms, will be reviewed by the County Environmental Health Dept. Adding to the footprint will also trigger review by Zoning.

To avoid these additional costs and possible delay of your project, it is best to have your structural issues and building placement resolved before submitting for a building permit. No resubmittal can be accepted after framing is approved. At that point, a new permit for the addition or alteration will be required.

## **APPLICATIONS**

Building permit applications can be obtained at the Community Development Division or on the County web page at: [www.larimer.org/building](http://www.larimer.org/building). You are not able to submit on line at this time.

## **ENGINEERED FOOTING AND FOUNDATION REQUIREMENTS**

Larimer County is divided into two areas (Area “B” & “C”) by wildfire hazard area and roofing requirements. Area “B” is the foothill and mountain areas, while area “C” is along the Front Range. Due to the prevalence of shrink/swell soils in Larimer County, especially along the Front Range, an engineered footing and foundation plan or a site-specific soils report indicating non-expansive soil will be required on all home sites in area “C”.

New subdivisions already have soil reports done at the development stage, and are flagged as to whether engineered footings and foundations are required. These prescriptive requirements apply to older subdivisions, metes and bounds parcels, and 35-acre subdivisions or tracts in area “C”. If their soils report indicates that foundations can be poured on conventional spread footings, then the county’s minimum footings/foundation standards may be used and engineered designs are not required. Otherwise, engineered footing and foundation plans will be required.

**Exceptions: Unenclosed patio covers and porches, decks, one-story agriculture pole buildings under 3,000 square feet in area, and accessory unheated detached one-story utility buildings less than 24 feet in depth (truss length) and 48 feet wide are exempt from engineered footing and foundation requirements when they meet Larimer County’s Prescriptive Design Standards.**

In area “B” (foothills and mountains), where the subdivision approval requires an engineered footing and foundation, an engineered design will be required. (See below for other engineered foundation requirements.) If building on or near a steep slope or where the presence of shrink/swell soils is indicated, an engineered foundation system may be required. Slope profiles are required on non-engineered plans in area “B” to show the steepness of terrain 50 feet around the structure.

**Other Colorado Registered Engineered foundation requirements include:**

1. All steel buildings, throughout the county.
2. All foundation walls over 9’-0” and all retaining walls 4’-0” and more in height, throughout the county.
3. All commercial projects, throughout the county.
4. All unconventional building designs and foundation systems, throughout the county.
5. Utility buildings, depending on the size and type of construction (steel buildings with steel girders imposing point loads, for instance) throughout the county.
6. All habitable structures within 15 feet of the toe a slope or within 40 feet of the top of a slope when the slope exceeds 1 unit vertical in 3 units horizontal.

## SLOPE PROFILES

### **CLASS “B” ROOFING/WILDFIRE AREAS**

1. A slope profile drawing is required at the time of plan submittal for all structures in the Class “B” roofing area. Exceptions are when fully engineered footing and foundation plans are submitted, or if it is an interior remodel.
2. The applicant is to provide an accurate slope profile drawing. A Colorado Registered Structural Engineer may be required to design the foundation system for the structure if no slope profile is provided or is inadequate.

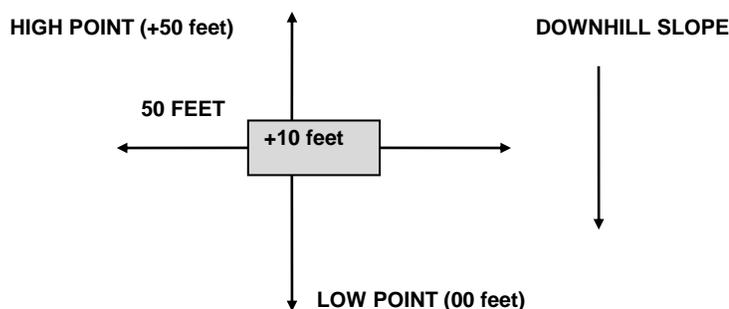
This procedure is for all habitable structures within the Class B roofing/Wildfire Hazard area (see attachment A for map). Any building site found to have “sloping site” concerns throughout Larimer County may come under the above listed requirements at the determination of the Chief Building Official or his designee. If you are building within 15 feet of the toe or 40 feet of the top of a slope exceeding one unit vertical in three units horizontal, to avoid delays at the footing stage it is recommended to have an engineer visit the site and design foundations accordingly.

### SLOPE PROFILE INSTRUCTIONS FOR BUILDING PERMIT APPLICATIONS

Your contractor or engineer should be able to produce these for you. If not, here’s some help.

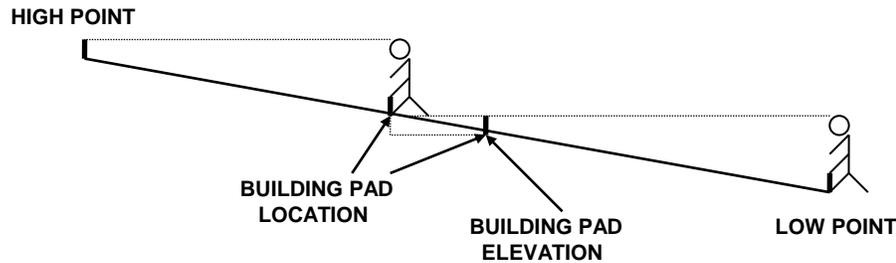
#### **Here’s how to start:**

1. Stake the four corners of the proposed building site.
2. Measure 50 feet out from the center on each side and place a stake.
3. Go to the low point on the line - we’ll call this elevation 00 feet.
4. Estimate the difference in elevation from this point to the other stake (high point).
  - \* Let’s say the difference is 50 feet higher - call this elevation +50 feet.
5. Estimate the elevation of the pad and draw its location on the slope.
  - \* In the side profile example below the pad is 10 feet higher than the low point.
  - \* Call this elevation + 10 feet.
6. Repeat this procedure for the other profile.



### How to estimate elevations:

- Measure the distance from the ground to your eye level - let's say it's 5½ feet.
- Stand at the stake at the low point - sight level along the line to a spot above you.
- Have your partner stand at this point so you are sighting on their feet.
  - \* This means that point is 5½ feet above the stake where you are standing.
- Repeat this procedure until you can sight level and see the upper stake or higher.



- Multiply the number of times you had to do this by 5½ feet.
  - \* Let's say you had to do it ten times -  $10 \times 5\frac{1}{2}$  feet = 55 feet.

**So the upper stake is 55 feet higher than the lower stake !**

**Adjustments:** Let's say the last time you sighted you were looking at your partner's belt. Measure the distance from the ground to the beltline - say 3 feet - and subtract that from the 55 feet. In this case the true elevation difference is 52 feet.

*If you have questions or would like help on site, please call Larimer County Building Dept. at (970) 498-7700.*

# TOPOGRAPHY REQUIREMENTS FOR BUILDING PERMIT APPLICATIONS

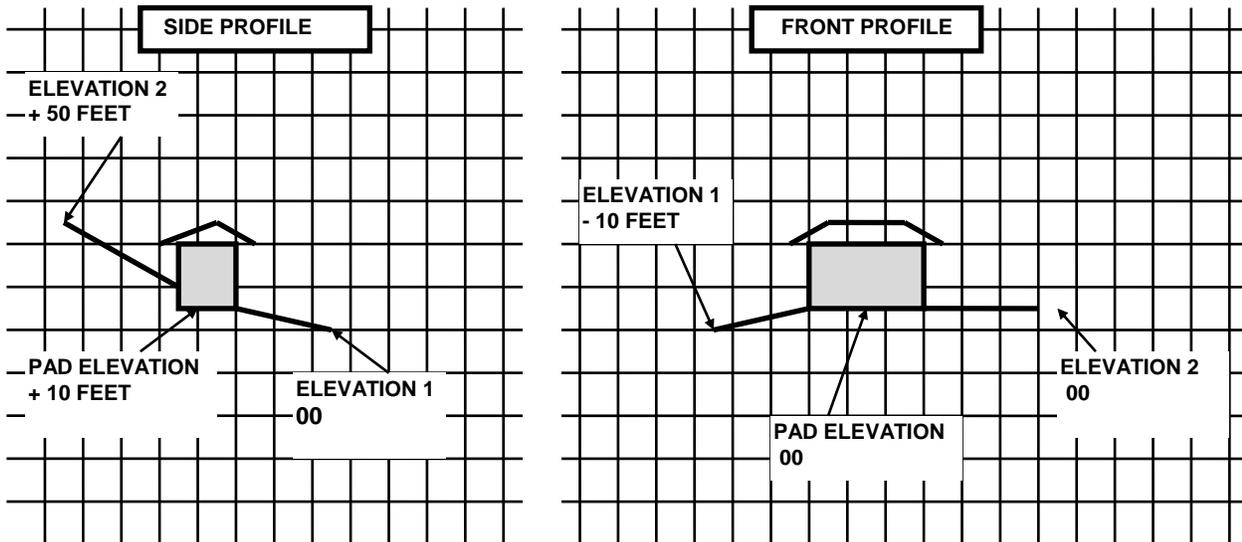
A review of the building site topography as it relates to your proposed building is required as part of the plan review process to assure that building code requirements for foundation design and/or setbacks are met. To properly assess these requirements, you must submit either:

- 1) cross-section drawings of the slope profile of the building site from the front and side, or
- 2) elevations of the staked corners of the building site on the plot plan.

**The plan review process cannot be completed without this information.**

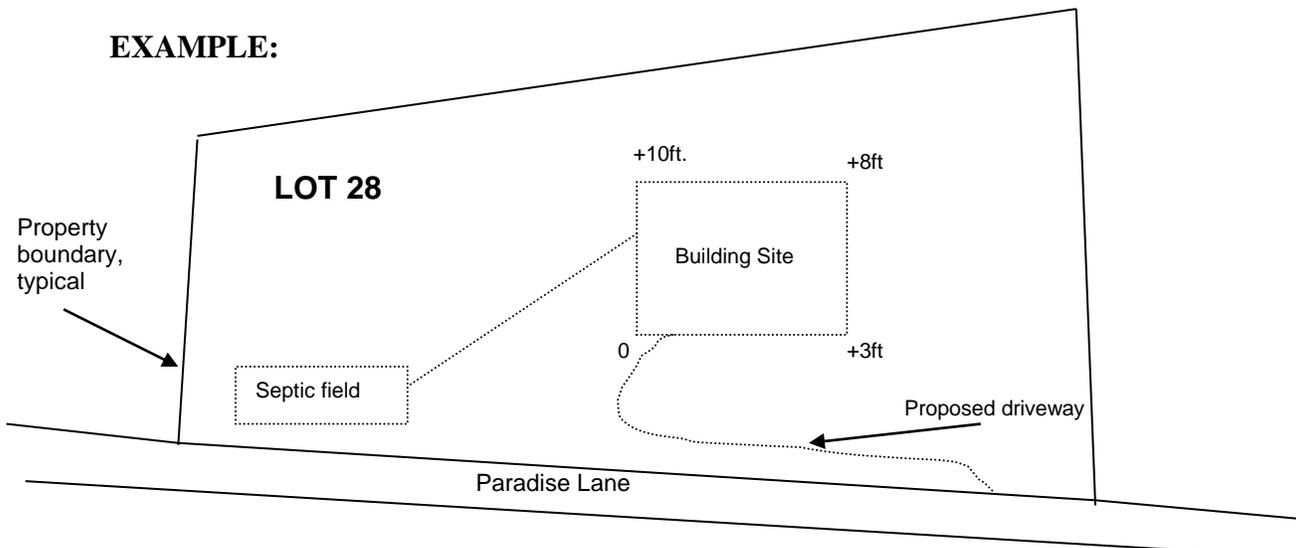
- 1) **SLOPE PROFILE OPTION:** Two sheets are provided to draw the slope profiles. Each side of the squares is 20 feet long. You are required to show the slope profile for a distance of 50 feet on either side of the building. To accurately represent the slope you will have to find the difference in elevation between the low point on this line and the highest point. You may want to show some points in between if the slope varies from one end of this line to the other. The building should be drawn near the middle of the sheet with the slope profile drawn for 50 feet on either side. A minimum of three elevations must be shown - the end points of the profile line and the building pad elevation.

## EXAMPLE SLOPE PROFILE SHEETS



- 2) **CORNER ELEVATION OPTION:** Use the techniques described on the accompanying page to find the elevations of the corners of the staked building site. Include the elevations on the plot plan included in your plans.

### EXAMPLE:



# Residential Energy Conservation Rules

*There are three options to comply with the energy code:*



- I. **Prescriptive Package:** see chart on reverse side for insulation and glazing requirements. Decide if you will be installing 2x6 stud walls with R-20 insulation or using footnote (f), and make sure that detail is on your plans. All window NFRC (U-factor) labels should be left on windows until the insulation inspection has been approved. Provide required information for Options A or B below.
- A) HVAC contractor shall size heating/cooling equipment to ACCA Manual J, 8<sup>th</sup> Edition. An ACCA Manual J 8<sup>th</sup> report shall be submitted with plans for new residences with a furnace. (Manual J calculations can be a delayed submittal for an additional plan check fee.) Heat Loss calculations from approved software choices (Wrightsoft, Adtek, or Elite) are required. Calculations shall show the size of the appliances (furnace and air conditioner) make, model, and BTU's/SEER Rating (A/C) for both.

*The following thermal design parameters shall be used for these calculations:*

- a. Winter Outdoor Design Dry-bulb (4<sup>0</sup>F),
- b. Winter Indoor Design Dry-bulb (72<sup>0</sup>F),
- c. Summer Outdoor Design Dry-bulb (89<sup>0</sup>F),
- d. Summer Indoor Design Dry-bulb (75<sup>0</sup>F),
- e. Summer Design Wet-bulb (62<sup>0</sup>F),
- f. 6368 Degree Days Heating, and
- g. 479 Degree Days Cooling.

B) For new residences with a boiler, provide spec. sheet listing boiler efficiency rating.

- II. **REScheck Program:** provide REScheck Compliance Certification showing you pass the 2009 IECC; an architect may be able to help you with this. Heating/AC equipment to be detailed on REScheck report with BTUs and efficiency ratings. For a free software download, go to [www.energycodes.gov](http://www.energycodes.gov) on the web and click on REScheck.
- III. **Simulated Performance Alternative (HERS)** done by a certified energy rater: go to [www.resnet.us](http://www.resnet.us) to find certified raters. Larimer County allows a \$75 rebate on permit fee if a certified energy rater inspects and documents with a compliance report showing how the home meets the 2009 IECC residential requirements.

**Please indicate which option you are choosing by marking I, II or III above.**

**IRC (Table N1102.1) Larimer County Single-Family Prescriptive Package<sup>(h)</sup>**

	Maximum	Maximum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum
<b>Climate Zone</b>	<b>Fenestration U-Factor</b>	<b>Skylight U-factor<sup>(b)</sup></b>	<b>Ceilings R-value<sup>(e)</sup></b>	<b>frame wall R-value</b>	<b>Mass Wall R-value<sup>(g)</sup></b>	<b>Floor R-value over unheated space</b>	<b>Basement Wall R-Value continuous/cavity<sup>(c)</sup></b>	<b>Slab perimeter R-value/Depth<sup>(d)</sup></b>	<b>Crawl Space R-value Cont./cavity<sup>(c)</sup></b>
<b>5</b>	<b>0.32</b>	<b>0.60</b>	<b>38</b>	<b>20<sup>(a)</sup> or 13+5<sup>(f)</sup></b>	<b>13/17</b>	<b>30<sup>(i)</sup></b>	<b>10/13</b>	<b>10, 2ft.</b>	<b>10/13</b>

- (a) R-19 permitted to be compressed into a 2x6 cavity such that the R-value is reduced by R-1 or more shall be marked with the compressed batt R-value in addition to the full thickness R-value. If this method is used, supplement with insulated sheathing of at least R-2.
- (b) The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
- (c) The first R-value applies to continuous insulation, the second to framing cavity insulation; either insulation method meets the requirement.
- (d) R-5 insulation shall be added to the required slab edge R-values for heated slabs.
- (e) R-30 shall be deemed to satisfy the requirements of R-38 wherever full height R-30 insulation extends over the wall top plate at the eaves.
- (f) 13+5 means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25% or less of the exterior, R-5 sheathing is not required where the structural sheathing is used. If structural sheathing covers more than 25% of the exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.
- (g) The second R-value applies when more than half the insulation is on the interior.
- (h) Larimer County will also accept a REScheck Compliance Report that passes using 2009 International Energy Conservation Code (IECC), and any Home Energy Rating Score (HERS) by a certified energy rater showing the home passes the 2009 IECC. For additional information on energy codes or free REScheck download, go to [www.energycodes.gov](http://www.energycodes.gov).
- (i) Or insulation sufficient to fill the framing cavity, R-19 minimum.

**Equipment Sized to ACCA Manual J, 8th Edition by HVAC Contractor**

<b>Furnace Make &amp; Model</b>	<b>Efficiency Rating</b>	<b>BTU/H of Furnace</b>	<b>AC Make &amp; Model</b>	<b>Efficiency Rating</b>	<b>Size of AC</b>	<b>Name of HVAC Contractor</b>

\*A minimum of 50 percent of the lamps in permanently installed lighting fixtures shall be *high-efficacy* lamps.

# **Blower Door/Air Leakage Test Report Requirements**

*Air leakage testing is required for new residences and accessory living areas under the 2012 International Residential (IRC) for all permits applied for on or after 1/1/14.*

The dwelling unit shall be tested and verified as having an air leakage rate of not exceeding three (3) air changes per hour. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weather-stripping or other infiltration control measures;
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;
3. Interior doors, if installed at the time of the test, shall be open;
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;
5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and
6. Supply and return registers, if installed at the time of the test, shall be fully open.

A note from the approved test agent shall be placed upon the final report submitted for building department review indicating either compliance with the 2012 IECC/IRC requirements, or test failure and recommendations as to corrections for a passing test. The actual test final reading of 3 ACH or less shall be clearly noted upon the report form submitted for review and acceptance of a passing test.

To be considered an “approved third party,” an air leakage tester must demonstrate knowledge and experience of test procedures and protocols, through certification by a recognized organization such as RESNET (Residential Energy Services Network) or BPI (Building Performance Institute), or otherwise demonstrate their competence at air leakage testing to the satisfaction of the Chief Building Official.

Many Home Energy (HERS) Raters will perform air leakage testing as part of their overall energy ratings. Either a complete rating report including air leakage testing, or a report of a stand-alone test, will be acceptable to meet the testing requirement.

## **Whole House Mechanical Ventilation**

In order to preserve indoor air quality and provide adequate air to occupants, a whole-house mechanical ventilation system is required. The system shall consist of one or more supply or exhaust fans, or a combination of such, and associated ducts and controls. Local exhaust or supply fans are permitted to serve as such a system. Outdoor air ducts connected to the return side of an air handler shall be considered to provide supply ventilation. The system shall be provided with controls that enable manual override. The system must either operate continuously, or allow intermittent operation for at least 25% of each 4-hour period. The net ventilation rate depends on the square footage of the home and the number of bedrooms. Care must be taken with an exhaust-only system to avoid backdrafting gas appliances like water heaters and fireplaces. Exhaust fans part of the whole-house ventilation system must meet minimum efficiency requirements. Contact the plans examiners at 498-7660 for more information.

# **LARIMER COUNTY ENGINEERING DEPARTMENT INFORMATION**

## **ACCESS PERMITS**

A County Road Access permit is required if the driveway accesses a county road or if the roads are county maintained. This permit is applied for along with the building permit. A \$50 fee must be paid at time of application. An additional plot plan will be required with this application showing the proposed access location. The Access and Utility Coordinator will field check property access locations, therefore please post your address in the field. The Access and Utility Coordinator will also verify the contractor's insurance coverage requirements. This process may involve five working days. The Access and Utility Coordinator can be reached at 498-5709 or Engineering at 498-5700. See page 26 for more information and permit application form.

## **GRADING CERTIFICATION**

A grading certification may be required for your home on your lot to show compliance with a subdivision grading plan. Check with County Engineering at 498-5700.

## **FLOOD HAZARD AREAS (FLOOD PLAIN)**

If your property is in a Flood Plain, review and approval from County Engineering is required. Applicants who may be in a Flood Plain should contact Engineering as soon as possible at 498-5700. New structures cannot be built in floodways, and new construction must be elevated in Flood Fringes.

# **STATE ELECTRICAL BOARD INFORMATION**

## **ELECTRIC PERMITS**

**LARIMER COUNTY DOES NOT ISSUE ELECTRIC PERMITS OR INSPECT ELECTRICAL WORK.** A separate permit is required by the State Of Colorado Electrical Board. (THIS IS SEPARATE FROM LARIMER COUNTY BUILDING INSPECTION DEPARTMENT.) Permit applications are available in our office. If you have any questions regarding electric requirements, please contact the Colorado Electrical Board at (303) 894-2985. See attachment B-C for an example of the permit application.

# **FIRE DEPARTMENT/FIRE SPRINKLER INFORMATION**

## **FIRE SPRINKLERS**

If your subdivision status sheet requires a fire sprinkler system be installed in the house, plans must be submitted to your local fire department for approval at the same time your building permit application is being made. If you are not in one of the fire districts below, you either need to get a permit from the State of Colorado, Division of Fire Prevention and Control (DFPC), OR through Larimer County by submitting two sets of sprinkler plans reviewed and approved by a state-certified Fire Suppression System Inspector. The list of state-certified fire suppression systems inspectors is located at <http://dfs.state.co.us/programs-2/emergency-management/certification-programs/fire-suppression-systems>

Berthoud Fire Protection District (970) 532-2264 \* Estes Valley Fire Protection District (970) 577-0900

Loveland Fire and Rescue Authority (970) 962-2536 \* Poudre Fire Authority (970) 221-6570

Windsor-Severance Fire Protection District (970) 686-2626

If allowed by the Fire Dept. and subdivision approval, a residential fire sprinkler system meeting the requirements of International Residential Code Section P2904 may be designed and installed by a Colorado Master Plumber (or homeowner). Submit two sets of plans to the Building Dept. including detailed floor plans drawn to scale, location and type of sprinklers, room sizes, ceiling configurations, distance to walls, heat sources, fans and obstructions, location of shutoff valves, pumps, cisterns and all other system equipment, water pipe material, size, spacing of supports, listing and manufacturer's cut sheets for each type of sprinkler, pressure/flow calculations for two most hydraulically demanding sprinkler heads, and freezing protection detail for sprinklers in non-conditioned spaces.

## **LARIMER COUNTY PLANNING DEPARTMENT INFORMATION**

### **ZONING**

New construction must meet minimum Land Use Code setback requirements. Setbacks are measured from all lot lines, adjacent roads, existing structure, streams, creeks and rivers, and must be shown on the plot plan. Please check with County Planning at 498-7683 prior to permit application for minimum setback and use requirements.

### **RADON**

Many new subdivisions require radon tests be done on finished homes before a Certificate of Occupancy can be issued (see back of permit inspection card for radon requirements). Certain areas require a passive radon system be installed and inspected at time of under-slab and rough-in plumbing inspections. If you have questions concerning your area, please contact the Building Dept. at 498-7700. If you have questions regarding mitigation requirements, please contact the plans examiners at 498-7660. See attachments P-Q for examples of Passive Radon Systems.

## **LARIMER COUNTY HEALTH DEPARTMENT INFORMATION**

### **HEALTH DEPARTMENT**

Septic permits are applied for at the Environmental Health Department AFTER applying for a building permit. See page 24 for septic permit information.

### **SEWER AND WATER**

Proof that sewer and water service is available for your proposed building is required. A copy of your Colorado well permit will be required or the verification form signed by your sewer and water services provider, which is provided when you apply for your building permit.

## **COLORADO DEPARTMENT OF WATER RESOURCES**

### **WELLS**

For well information contact: 970-352-8712

Water Resources Division:

810 9th Street, Suite 200

Greeley, CO 80631

[www.water.state.co.us](http://www.water.state.co.us)

# **BUILDING INSPECTIONS**

## **GENERAL INFORMATION**

The yellow building permit card must be posted on the job site. The address number must be posted at the County road or street. The customer's copy of the approved plans must be on the job site for **inspector's review for the inspection to be performed**. A \$45 re-inspection fee is charged if the permit card and plans are not on site for the inspection, or in cases of repeated trips on correction notices or as deemed necessary by the inspector. This is for the inspector's time and extra trip required returning for inspection.

Most areas of Larimer County are inspected daily. **There is one area that is Wednesday and Friday only**. If you are not sure which area applies to your permit, call our offices at 498-7700. To request an inspection call 498-7697 or use our online [Permit Fast Track](#) system. You must have the permit number to schedule inspections. Requests confirmed before 8:00 AM for an inspection will be done that business day. Requests received at 8:00 AM or after will be conducted the following working day.

**INSPECTION CANCELLATION**—The Building Official requires inspectors to charge \$45 for an inspection that is not ready as requested. The \$45 charge will not be assessed if our office is contacted and the inspection is canceled before the inspector goes to the site. Please call as early as possible to prevent assessing this fee.

## **REQUIRED INSPECTIONS**

The following is a list of required inspections in their normal order of completion. Although they all may not be applicable to your particular project, please use this list as a general guideline:

1. **Setback and footings**—this is the initial inspection. Property pins must be located. Concrete forms must be placed on undisturbed soil, installed as shown on approved building plans. Reinforcing steel, in place, supported and splices tied (**concrete cannot be placed before inspection approval**). Caissons must be inspected by the engineer of record, with a wet-stamped letter approving the caissons given to the inspector.
  - 1.a. If an open hole inspection is required by a design engineer, contact that engineer for an inspection after the crawl space or basement is excavated and prior to forming footing to make sure the soil and water table are per design perimeters.
  - 1.b. At the time of footing and setback inspection, if you are in a Wildfire Hazard Area, the initial Wildfire Inspection is required.
2. **Foundation**—this is done after the foundation walls have been formed and the reinforcing steel is installed, but also prior to placement of concrete. Any prescribed below-grade insulation must also be in place. If survey certification is required, it must be provided by foundation inspection.
  - 2.a. **Concrete slab**—inspections of interior slabs are only required when poured monolithically with the foundation wall; when the slab requires reinforcing in excess of 6x6 10/10 w.w.m.; or when building equipment, conduit, piping accessories, and other ancillary equipment items exist in-slab and under-slab. Exterior flatwork including driveways is exempt. All items to be placed in slab must be in place and soil compacted. **Concrete cannot be placed before inspection approval**.

3. **Rough-In Underground Plumbing**—this is done after the underground or under-slab plumbing is installed but prior to its being covered (water test or five psi air test is required). The water supply line is to be stubbed into the basement. Wrap all plumbing lines where they will penetrate the slab.
  - 3.a. **Radon mitigation**—If a radon mitigation system is required for the property (see conditions of approval on permit card), the sub-slab work must be ready at the time of underground plumbing inspection. The floor slab cannot be poured until this is completed. Radon pipe rough-in through the roof must be inspected prior to or concurrent with framing.
  - 3.b. **Slab insulation**—if you have a walk-out basement, slab insulation is required by the Energy Code. The slab insulation must be ready at the time of underground plumbing inspection. The foundation cannot be backfilled until this is approved.
4. **Septic System**—call the Larimer County Department of Health & Environment at (970) 498-6775 for septic system inspection requirements.
5. **Public Sewer Hook-Up**—call the applicable sewer district for your area for sewer hookup inspection requirements.
6. **Well or Water Service**—call the Colorado Division of Water Resources at (970) 352-8712 for well information or the water district for your area for water hookup inspection requirements.
7. **Gas Line Air Test**—this is done after gas piping, fittings, unions, and valves authorized by the permit have been installed and before any such piping has been covered or concealed or any fixture or appliance has been attached thereto. (A 10 psi air test is required.) Provide 18" depth for copper, polyethylene pipe (PE requires an 18 ga. tracer wire or metal tape), and factory-wrapped black iron. (Field-wrapped pipe cannot be installed underground.) If using an elevated pressure system (2 psi or greater meter set), a 30# pressure test is required upstream of the regulator. Regulator will be checked at final.
8. **Rough plumbing and Air/Water Test**—this is done after the above ground plumbing (water and drainage piping) is installed and prior to or concurrent with the framing inspection. A ten foot head of water test or five psi air test is required for the drain-waste-vent piping. Nails plates and stud shoes must be in place.
9. **Rough Heating & Vent**—this is done after the heating, vent, and duct work has been installed. This inspection should also precede or be concurrent with the framing inspection. Clearances and venting are required per the manufacturer's installation instructions, which must be at the job site for inspection. Heating and cooling equipment sized per Manual J and ducts sized properly.
10. **Electrical Rough-In**—Larimer County does not issue electrical permits or inspect electrical work. A separate permit is required by the State of Colorado Electrical Board. Call the State Electrical Board for permit and inspection requirements at (303) 894-2300. For the Estes Park area, call State Electrical Inspector Dave Cearlock at (970) 586-4464, extension 3309. Typically, a rough-in electrical inspection is done after the premises wiring system has been installed, and before or concurrent with the framing inspection.

11. **Fireplace/wood stoves**— this is done before or concurrently with the frame inspection. Wood- burning fireplaces must meet clean air emissions requirements (see page 23 for more information). Zero-clearance fireplace or wood stove chimney inspections are made during heat and vent inspection. Masonry fireplace inspections (a) firebox, throat and damper are in place, and the first flue tile is ready to be set; and (b) after all flue tile is in place before capping. The wood stove must be in place at time of final inspection or vent capped off in a finished manner. Listed wood stove installation instructions must be on site for final inspection so clearance to combustibles and venting can be verified.
12. **Fire Sprinkler**—if required, the fire sprinkler system is to be inspected and approved by the fire department having jurisdiction or the state-certified fire suppression system inspector (before frame inspection is called for). For a residential fire sprinkler when allowed (IRC P2904), the county inspector will need to do a rough and final sprinkler inspection. Check subdivision status sheet to see if sprinklers are required and what type.
13. **Frame**—this is done after the structure’s walls, floors, and other framing members are in place and after the exterior sheathing has been installed. The roof must be completed to the point where the building interior can be considered to be weather-protected. Stamped truss engineer’s drawings and truss layout must be on site with County-approved plans for inspector to check truss bracing. All sub-systems such as plumbing, mechanical, and electrical, must be inspected prior to the installation of insulation, interior sheathing and wallboard. Any engineer’s letters on footings and foundation, and perimeter drain, damp proofing roof and wall sheathing certifications must be on site for inspector. Interior shear walls will be inspected later.
  - 13.a. **Narrow Wall Bracing**—required where less than two feet of structural wood sheathing is installed by garage or window openings as called out on plans. Inspection called for before weather barrier and siding installed, with certification on sheathing fasteners signed and on site. In addition, porch roof or deck partial framing (such as columns that may be wrapped or roofs that may be soffit) must be inspected before being covered.
14. **Insulation** —(after approval of the framing inspection and prior to the installation of wallboard) the insulation inspection will verify proper R values, air sealing, insulation fire blocking, and general workmanship as required by the Energy Code. Blown attic insulation is inspected at final inspection, as are exposed insulation blankets attached to unfinished concrete walls in basement and crawl spaces. Combustible insulation facings cannot be left exposed. The county inspector *may* allow framing corrections reinspection along with insulation at his/her discretion, if corrections will be visible.

The following shall be caulked, gasketed, weatherstripped or otherwise sealed with an air barrier material, suitable film or solid material: all joints, seams & penetrations, site-built windows, doors, and skylights, openings between window and door assemblies and their respective jambs and framing, utility penetrations, dropped ceilings or chases adjacent to the thermal envelope, knee walls, walls and ceilings separating the garage from conditioned spaces, behind tubs and showers on exterior walls, common walls between dwelling units, attic access openings, rim joists junctions, and other sources of penetrations.

Recessed lights must meet one of the following conditions: **Type IC** rated with no penetrations between the inside of the fixture and ceiling cavity; **Type IC or non-IC** rated and installed in a sealed box constructed with ½” gypsum wallboard or other approved assembly; or **Type IC** rated, tested and labeled as “airtight”. See pages 10-11 for energy conservation insulation and window requirements.

15. **Gypsum board and plaster**—required ONLY where fire-resistive-rated construction is required between dwelling units, when exterior walls within three feet of property line or for gypsum shear walls required by design engineer. Gypsum inspections when needed will be made after gypsum board is in place, but before plaster or gypsum board joints and fasteners are taped and finished.

16. **Roofing**—this is done after roofing completed; need to leave proof of Class A or B label in the foothills or mountains and Class A, B, or C along the front range. Certification letter required from roofing contractor that roof fasteners were installed per manufacturer’s requirement for appropriate wind speeds of Larimer County and roof ice barrier was used in the Class B area.
17. **EIFS “Synthetic Stucco”**—this is done by certification letter. All wood residential structures must have a weather-resistive barrier. The first certification letter certifies that the installer wrapped windows, doors, and wood sheathing according to ICC acceptance criteria and their manufacturer’s installation requirements; the second certification letter certifies that the sealant is installed per ICC acceptance criteria and their manufacturer’s installation requirements.
18. **Final Inspections**—these are done after all work shown on the approved plans has been completed. Final inspection approvals are typically required from the Building Department, County Health & Environment (if on septic), State Electrical Board, and possibly Fire Dept.
19. **Building Department**—this inspection is done after finish grading, the building is completed and ready for occupancy, all plumbing fixtures set, heating equipment set and working, blower door test approval, and final electric inspection signed off by State inspector. All applicable conditions of approval, such as drainage certification, radon test, and fire-sprinkler approval by fire departments when required, must be provided for certificate of occupancy.

## **CERTIFICATE OF OCCUPANCY (CO), TEMPORARY CERTIFICATE OF OCCUPANCY (TCO), AND LETTER OF COMPLETION**

For new buildings, a CO is required prior to occupying the building. In certain cases, a Temporary Certificate of occupancy (TCO) can be issued pending minor remaining items awaiting completion or where only portions of the building are complete. For alterations to residences, outbuildings and projects which do not add significantly to the building space, a letter of completion is issued upon request.

**Temporary Certificates of Occupancy**—TCOs may be issued, but only when an inspector verifies that all life-safety issues have been addressed and all agencies approve issuing a TCO. There is a \$600 fee for TCOs, which are valid for 180 days. If a full CO is issued within the first 30 days, all but \$40 will be refunded. If a full CO is issued prior to the 180 day expiration, \$100 shall be refunded for each full 30 day period remaining out of the original 180 day TCO period Life-safety issues include:

- One complete working bathroom, with shower or tub, sink and toilet
- Kitchen sink installed and working
- Heating system (furnace, boiler or other) and water heater installed and working
- Electrical final approved by Colorado State Electrical inspector
- Health Department final (if applicable) approved
- Engineering drainage, access and flood finals (if applicable) approved
- Stairs, handrails, guardrails, smoke and CO detectors at building inspector’s discretion
- Wildfire final inspection approved
- Final approval from applicable Fire Department if required by conditions of approval

Once all final inspection approvals are obtained, a CO issued for residential and commercial permits. COs are not issued for cabins; a Letter of Completions is issued upon request. For accessory structures, such as barns, garages, or storage buildings, a Letter of Completion may be requested when final inspection has been approved.

If you are unsure which final inspections are required prior to certificate of occupancy or letter of completion issuance, please contact our offices at (970) 498-7700.

# Wildfire Safety

## Are you FireWise?

Wildfires are a major concern in the mountain areas of Larimer County. A study conducted by the Colorado State Forest service ranked Larimer County as the most hazardous county in Colorado for wildfire hazards. As more forested lands are developed and recreation uses increase, the potential for loss of life and property caused by wildfire is an ever increasing problem.

Protecting your home and property from wildfire is **YOUR** responsibility. Don't assume firefighters can save your home or property. As much as they may want to, resources are limited and conditions may make it impossible for emergency personnel to safely reach and protect your home

Advance planning and knowing how to protect structures in these areas can lessen the impacts of a wildfire. When designing or building your home, consider choosing a FireWise **location**, developing a **defensible space** around your structure, and selecting fire resistive **building materials**.

### FireWise Location

Choose the location of your home carefully. The chance that your home could survive a wildfire could depend on the decisions that you make.

#### Fire Protection

- Become familiar with your local fire department and see what fire protection is available in your area.

#### Building Site

- Evaluate the building site. Choose a site away from heavily vegetated areas (trees and shrubs). Build on the most level portion of the land.
- Avoid natural chimneys or draws, these act as natural pathways during a fire and could draw heat and flames to your home.
- Set your structure a minimum of 30 feet back from ridge or cliff ; increase the distance to 75-100 feet if home will be higher than one story.

#### Access

- Provide easy access for emergency vehicles. A steep, narrow or winding driveway can impede access of larger emergency vehicles.
- Try to place the driveway on the down hill side of your home or on the side that faces the wind. This makes a good fire break.
- A locked gate could stop firefighters from reaching your home. If you must have a locked gate, leave a spare key with your local fire agency.

#### Make Your Home Easy to Find

- Clearly mark your location so firefighters can find you.
- Addresses should be visible from both directions.
- Keep brush and trees cut back so that the address always stands out.

## **Create and maintain a FireWise environment around your home.**

Create a defensible space around your home and the major structures on your property by reducing the vegetation surrounding the structures. This does not mean that your landscape has to be barren. Defensible space is an area where the vegetation is modified to slow the rate of spread and intensity of an advancing wildfire. This space also provides room for the firefighters to work and protect the forest should a structure fire occur.

**For further information regarding these issues please refer to [www.larimer.org/wildfire](http://www.larimer.org/wildfire) or contact Tony Simons, Larimer County Wildfire Safety Coordinator at (970) 498-5303**

### **FireWise Construction**

#### **Roofing**

- A structure's number one danger in wildfires is a combustible roof. Roofs usually have the largest surface areas that are exposed to airborne sparks. Use class A or B roofing materials, such as asphalt shingles, slate or clay tile, or metal panels.

#### **Siding / walls**

- Use construction materials that are fire-resistant or non-combustible whenever possible.
- Use a minimum of a Class III flame spread siding material. Stone, brick and stucco are best.
- Shakes and shingles are required to be sawn and have a minimum Class B fire rating when used as siding material .
- Walls should be constructed of fire resistive materials from the ground to the roof overhang.

#### **Foundation**

- The foundation of a building is often the first area to come in contact with a spreading wildfire. Construct a closed foundation with concrete block, concrete poured walls, or use other fire resistive materials.

#### **Windows**

- Windows are often overlooked as fire hazards, but can be a serious risk. Radiant heat can pass through them and set fire to curtains and furniture.
- Minimize the size and number of windows on the side of the house that would most likely be exposed to a wildland fire- the side facing downhill.
- Consider both size and materials for windows, double pane glass and tempered glass are more effective than single pane glass by reducing the amount of radiant heat; plastic skylights can melt.

#### **Other Areas / Ideas**

- To prevent sparks from entering your home through vents, cover attic, soffit and floor vents with wire mesh no larger than 1/8 of an inch, make sure eave and soffit vents are closer to the roof line than the wall. Box in eaves, but provide adequate ventilation to prevent condensation.
- Prevent combustible materials and debris from accumulating beneath patio deck or elevated porches: screen under or box in areas below ground line with wire mesh no larger than 1/8 of an inch.
- Design decks so that they are not located at the top of a hill where they will be in direct line of a fire moving up slope.
- Place fire resistive landscaping-such as rocks, under decks. Keep areas under decks vegetation free by using a fabric weed barrier.
- Landscape with fire resistive plants.
- Incorporate walkways and retaining walls as man-made fuel breaks.
- Clean gutters, eaves and roofs regularly.
- Stack firewood uphill from or on the contour of your home.

## FIREPLACES, WOOD STOVES & FIREPLACE INSERTS



### DEFINITIONS

#### Fireplace –

A hearth and fire chamber or similar prepared place in which a fire may be made and which is built in conjunction with a chimney.

#### Factory-Built Fireplace –

A listed assembly of a fire chamber, its chimney and related factory-made parts designed for unit assembly without requiring field construction. Factory-built fireplaces are not dependent on mortar-filled joints for continued safe use.

#### Fireplace Insert –

A wood burning device designed to be installed in an existing fireplace.

#### Wood Stove –

An appliance designed for or capable of burning wood and capable of and intended for domestic space heating or domestic water heating.

#### Nonrestricted Area –

That part of unincorporated Larimer County located west of Range 71, or north of the north half of Township 10, and east of Range 72, as shown on the Larimer County Fireplace Area Map

#### Restricted Area –

That part of unincorporated Larimer County located outside the Nonrestricted Area as shown on the Larimer County Fireplace Area Map.

### INSTALLATION REQUIREMENTS

All fireplaces installed **on or after January 1, 2002** in the Restricted Area shown on the map on the reverse side shall be one of the following:

- (i) A gas fireplace or fireplace with a gas log installed and functioning at time of final inspection;
- (ii) An electric device; or
- (iii) A fireplace that meets the Phase III (Phase II EPA) emissions standards for wood stoves established by the Colorado Air Quality Control Commission or any other clean burning device that is approved by the commission.

Within the Nonrestricted Area, fireplaces, including but not limited to masonry and factory built fireplaces (such as metal and zero clearance fireplaces), are allowed and are not required to meet the standards above.

All fireplaces installed **prior to January 1, 2002** in the Restricted Area shall be allowed to remain in use until such time as the owner voluntarily replaces it. Upon replacement, such fireplace shall be one of the types specified above.

### EMISSION STANDARDS

All wood stoves and fireplace inserts installed **on or after January 1, 2002**, in unincorporated Larimer County shall meet the Phase III (Phase II EPA) emissions standards for wood stoves established by the Colorado Air Quality Control Commission.

Also, particulate matter emissions must be at:

Catalytic:	4.1 grams per hour maximum
Non-catalytic:	7.5 grams per hour maximum

All wood stoves and fireplace inserts installed **prior to January 1, 2002**, in unincorporated Larimer County shall be allowed to remain in use until such time as the owner voluntarily replaces it. Upon replacement, such wood stove or fireplace insert shall meet the Phase III (Phase II EPA) emission standards for wood stoves established by the Colorado Air Quality Control Commission.

### PERMITS & INSPECTIONS

A miscellaneous permit and inspection are required for factory-built fireplaces, fireplace inserts, and wood stoves. A masonry fireplace requires a combination permit to verify the building structure will support the weight. The manufacturer's recommended installation instructions must be on site for the inspector. The fireplace, fireplace insert, and/or woodstove must also meet all clearances to combustible materials per the manufacturer's instructions.

# **BUILDING-MOUNTED AND GROUND-MOUNTED** **SOLAR ENERGY PERMITS**

A building permit (separate from a residential, commercial or utility permit) is required to install solar systems/facilities, whether ground-, roof- or wall-mounted. Please refer to the Accessory Solar and Small Solar Facilities handout (page 22) for requirements for solar system permits. Solar permit fees are processed separately from building permits. All solar permits will be reviewed for compliance with zoning use, height and setback requirements of the Land Use Code.

## **A Colorado State Electrical Board Permit is also required**

Solar systems and facilities must obtain an electrical permit for inspection of electrical work. Please contact:

Colorado State Electrical Board  
1560 Broadway, Suite 1500  
Denver, CO 80202  
Telephone: 303-894-2985

# MANUFACTURED AND MODULAR HOMES OUTSIDE MANUFACTURED HOME PARKS

- A. Double wide manufactured and modular homes (DWMH) are allowed on legal lots if the structures have a HUD (Department of Housing and Urban Development) or Colorado Division of Housing Seal, Manufactured Housing Installation Program (MHIP) insignias, and are attached to a permanent foundation.
- B. Any single wide manufactured home (SWMH) transportable over state highways as a single, complete dwelling unit, located outside a manufactured home park, must meet the following requirements of Section 18.2.1, Larimer County Land Use Code.
  - 1. The manufactured home and any additions to it must be permanently anchored to a permanent foundation.
  - 2. The manufactured home and any additions to it must have standard exterior siding.
  - 3. The manufactured home and any additions to it must have a pitched roof structure with standard roofing materials.
  - 4. The manufactured home must be incorporated into a larger structure that includes one or more of the following: additional bedrooms; recreation room; patio; carport or garage.
  - 5. The requirements noted above must be completed within 18 months of the date that the building permit is issued. The Chief Building Official may grant an 18-month extension upon finding that significant progress has been made in the completion of the requirements or there have been other circumstances, beyond the control of the property owner, that have delayed completion.
- C. Manufactured homes may be used to provide dwellings for farm, ranch or dairy help as part of a Farmstead Accessory Dwelling when meeting the requirements of Section 4.3.10.A of the Larimer County Land Use Code (Reference the Farmstead handout proved by the Planning Department).
- A. Temporary manufactured homes are allowed for use as housing for up to 18 months during construction of a principal residential building when issued at the same time as the principal residential building. Temporary manufactured homes may be used as an Extended Family Dwelling when meeting the requirements of Section 4.3.10.I of the Larimer County Land Use Code (Reference the Extended Family Dwelling handout proved by the Planning Department).
- B. Site, support-blocking, foundation, floor, elevations, and setup plans need to be submitted by the applicant at the time of building permit application. Foundation plans east of the foothills in Larimer County may have to be designed by a Colorado Registered Engineer. Manufactured homes in the foothills and mountains may have to be designed for a 40, 50 or 70 pound snow load, meet site design wind load requirements, and have a Class “B” roof covering and siding that meets class III flame spread requirements to satisfy Wildfire Hazard requirements . Call 498-7700 for clarification.
- C. The permanent foundation may be a perimeter foundation of concrete, masonry, or all-weather wood foundation (AWWF) with dirt backfill against it. A permanent insulated perimeter skirting may be used when home is attached by rebar welded to each side of each chassis of manufactured home and embedded in 30 inch piers into the ground.
- D. Any manufactured home placed on a basement must have foundation designed and wet stamped by a Colorado Registered Engineer.
- E. Manufactured and modular homes need to comply with the State of Colorado’s Manufactured Home Installation Program (MHIP). The manufactured home set-up crew needs to be registered as a state-certified installer or be inspected by a state-certified inspector. For more information on state requirements, contact MHIP at (303) 864-7837.

# ACCESS PERMIT INFORMATION

**NOTE:** An access permit is separate from the Building Permit and requires separate submittals. The Engineering Department will be able to provide you with the Access Permit form. (To view the form visit the Larimer County Engineering Department website at [www.larimer.org/forms/access\\_permit.pdf](http://www.larimer.org/forms/access_permit.pdf)). On the permit, please provide as much information as possible. Clearly mark the proposed access location in the field and note on your plan the type of marking material used. The easier it is to find your proposed location, the quicker your permit can be processed. If your proposed access location is not properly marked, issuance of your Access and Building permits may be delayed.

**County Road Access assessments apply to all new structures on vacant parcels and in any case where new access from a county road is being added or changed. Once application is made, review of your permit for applicable county road requirements will take place. Those permits that have county road access requirements, will be assessed a \$50.00 fee that is due at issuance of the building permit.**

**Attach a sketch or plan showing the proposed location of the access and it's relationship to any landmarks on the property. The following shall be included on the sketch plan for access requirements:**

1. The property owner's name(s).
2. Identify the County Road number & supply any other name the road is commonly known by.
3. Give the property address as assigned by the Building Department. If no address has been assigned, provide an approximate distance from the nearest intersection, addressed property, or major easily identified landmark. Again, the easier it is to locate your proposed access point the more quickly your permit can be processed.
4. Provide the name of the nearest town or city to your property.
5. If applicable, give the name and filing of the subdivision in which your property is located.
6. Give the name of the closest intersecting street or county road.
7. Provide the section, township, and range where your property is located. You can get this information from the Larimer County road map, from your legal description, from the Building Department (498-7683) or the Engineering Department (498-5700).
8. Note which side of the road your access will be located on. Also note what type of access this will be: Residential (one single family residence), Multi-family ( more than 1 single family residence, subdivision, apartments, etc.), Commercial, Other (field access, temporary, etc.).
9. Provide the name of the contractor who will be doing the work. Make sure your contractor has submitted their insurance information to the Risk Management Department and that the insurance has been approved. If you are doing the work yourself, you will be required to provide proof of insurance. You can get specific information regarding Larimer County's insurance requirements for work within the County road right-of-way by contacting the Risk Management Department at 498-5961.
10. Your estimated time frame for starting and completing the work. Extensions to your permit may be requested by calling 498-5709.

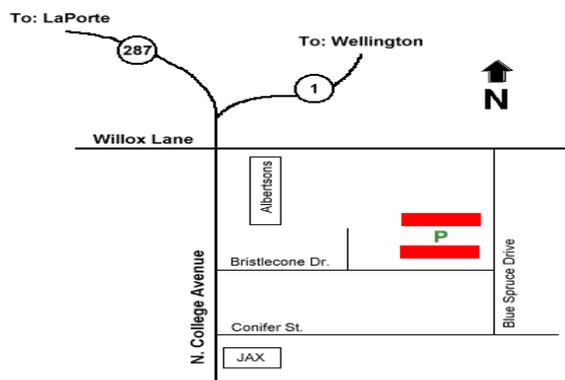
DEPARTMENT OF HEALTH AND ENVIRONMENT  
1525 BLUE SPRUCE DRIVE  
FORT COLLINS CO 80524-2004  
(970) 498-6775

Building Permit # \_\_\_\_\_

INDIVIDUALS WHO MUST APPLY FOR A SEPTIC PERMIT SHOULD BE AWARE OF THE FOLLOWING:

1. Application for an Onsite Wastewater Treatment Systems (OWTS) permit should be made IMMEDIATELY at the Health Department, 1525 Blue Spruce Drive, Fort Collins, CO or the Estes Park office, 1601 Brodie Avenue, Estes Park, CO.
2. Prior to visiting the Health Department, the applicant must obtain a site and soil evaluation from a licensed Professional Engineer or Geologist which includes a percolation test and an eight foot test pit excavation in the area of the proposed septic absorption field. Also included with this information should be a site plan showing locations of the building site, driveways, septic system, well and neighboring wells, property lines, etc.
3. A fee is collected at the time application is made. 2015 Fees are \$1023.00.
4. Upon receipt of the above requested documentation and fee, a preliminary site inspection will be conducted by the Health Department within five business days in order to evaluate suitability for the proposed Onsite Waste Treatment System (OWTS)
5. Health Department phone numbers are: 498-6775 Fort Collins or 577-2050 Estes Park.

DIRECTIONS TO THE HEALTH DEPARTMENT IN FORT COLLINS



# SAMPLE ONLY

**To: LARIMER COUNTY INSPECTION SERVICES**

Subject: **Water and Sewer Approval**

Date: \_\_\_\_\_ Permit Number: \_\_\_\_\_

Parcel Number: \_\_\_\_\_

This is to verify that (applicant's name) \_\_\_\_\_  
Has met the requirements and/or paid the applicable fees for  
Address of Building Site \_\_\_\_\_

Subdivision Name: \_\_\_\_\_ Filing Number: \_\_\_\_\_

Lot Number \_\_\_\_\_ Block \_\_\_\_\_

For approval to release the **footing and foundation** permit sign below:

Name of Water District and Authorized Signature: \_\_\_\_\_  
\_\_\_\_\_

Name of Sewer District and Authorized Signature: \_\_\_\_\_  
\_\_\_\_\_

---

---

Since all requirements have been satisfied for this property, a building permit may be issued at this time. The owner/contractor has been informed that it is necessary to call the appropriate district for inspections.

For approval to release the **STRUCTURE PERMIT** sign below:

Name of Water District: \_\_\_\_\_

Name of Authorized Signature: \_\_\_\_\_

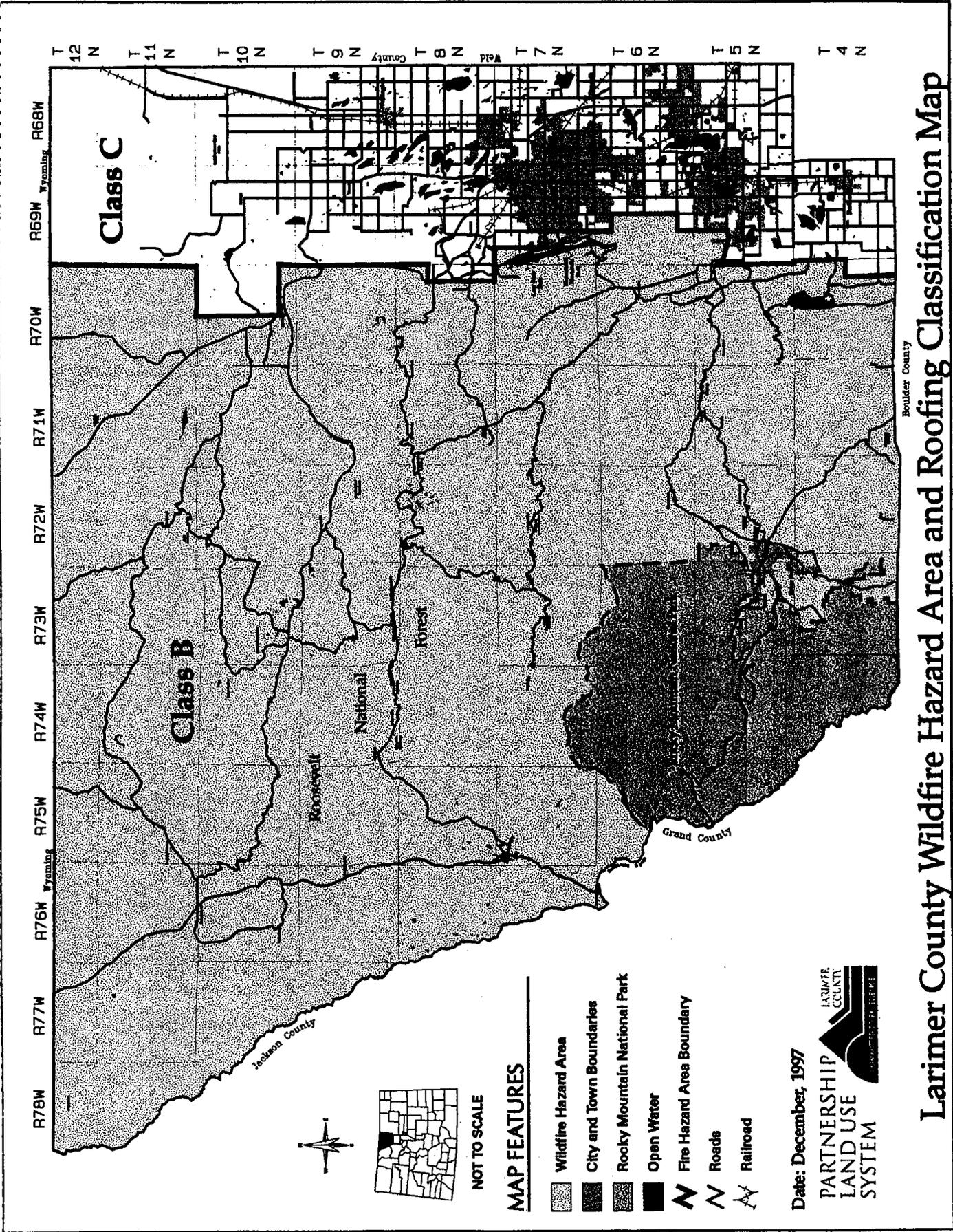
Name of Sewer District: \_\_\_\_\_

Name of Authorized Signature: \_\_\_\_\_

PLEASE RETURN THIS FORM COMPLETED TO THE LARIMER COUNTY BUILDING SERVICES  
WHEN PICKING UP YOUR BUILDING PERMIT.

# **ATTACHMENTS**





# Larimer County Wildfire Hazard Area and Roofing Classification Map

## ENGINEERED FOOTING AND FOUNDATIONS MAP

**A**





Division of Professions and Occupations
State Electrical Board

B

- Original permit
Trim for original permit #
Re-inspection for permit #
Add Fee for permit #

Work performed by:

- Electrical contractor registration #; AND responsible master's #
Homeowner \*(see clause below) Non-licensed contractor (solar, pump installer, and fire alarm, etc.)

Fill out this form completely. Incomplete applications will be returned for missing information.

Permit applicant mailing address:
Name
Company/contractor OR Home owner\*
Address
City State Zip code
Phone#
Fax #
Must have a separate (dedicated) phone line for fax
Email:

Job Site/Property address. If a designated numbered address is not available use lot, block, filing, or sub-division. ATTACH A MAP IF NECESSARY.
Property owner
Job address
City (or closest city) County
Power supplier Name City
Directions:

SIGNATURE: Date

By applicant performing work: Contractor or authorized representative / homeowner\*

Square footage: OR Cost of electrical work: \$ FEE ENCLOSED \$
(Residential - calculate fee from section A, page 2) (All other permits - calculate fee from section B, page 2)

Check mark (✓) ALL boxes that best describe the electrical installation:

- New Residential Mobile home Modular home
Remodel Commercial Temporary construction service only
Addition Other New service or service remodel

Briefly describe the work being performed:

- REQUESTING EXTENDED PERMIT - INSTALLATION WILL TAKE LONGER THAN 12 MONTHS (Attach explanation)

\* HOMEOWNER CLAUSE: The electrical law provides you, as the homeowner, the opportunity to perform your own wiring provided the following conditions are true: (1) you are the property owner and this property is not for sale or resale, is not rental property which is occupied or is to be occupied by tenants for lodging, either transient or permanent; and is not generally open to the public; (2) the wiring will be inspected prior to covering, i.e., insulation, drywall, etc., and again upon completion of the system prior to occupancy and permanent power release; and (3) all electrical work will be done in accordance with the National Electrical Code adopted by the Colorado State Electrical Board.

MAKE CHECKS PAYABLE TO: STATE OF COLORADO - DO NOT STAPLE CHECK TO THE APPLICATION

NOTE: MAILED OR HAND-DELIVERED PERMITS MAY TAKE 5-7 WORKING DAYS TO PROCESS AFTER RECEIPT.

PLEASE ENSURE THAT THE FEE IS CORRECT.

PERMITS EXPIRE ONE YEAR FROM THE DATE ISSUED.

NO REFUNDS WILL BE PROCESSED AFTER SIX MONTHS OF PERMIT ISSUE DATE.

The Content of this application must not be changed. If the content is changed, the applicant may be referred to the Colorado State Attorney General's Office for violation of the Colorado Law.

1560 Broadway, Suite 1350
Fax 303.894.2310

Denver, Colorado 80202
www.dora.state.co.us

Phone 303.894.2300
V/TDD 711



# ELECTRICAL PERMIT FEE SCHEDULE

Effective: September 8, 2014

Electrical permit fees are reviewed annually and may be adjusted as necessary. Fees are based on *either* RESIDENTIAL *or* ALL OTHER FEES. Do not use *both* categories to determine your fee. If an electrical permit is not filed in advance of the commencement of an installation, the inspection fee shall be twice the amount as prescribed by Colorado Revised Statute §12-23-117(3).

**Temporary construction meters** require a separate permit application from any other activity. Please use this form and check the “Temporary Construction Service Only” box on the first page.

**Trim permit.** If a permit expires *after* the rough-in inspection has been completed, inspected, and approved by the electrical inspector, but *before* the final inspection is approved, a TRIM permit must be obtained. The fee is based on the valuation of the electrical remaining work to be inspected. **Minimum fee is \$50**

**Section A. RESIDENTIAL:** This fee (based on the enclosed living area only) includes construction of, or remodeling or addition to a single family home, a unit in a duplex, a condominium, or a town house. *If you are only providing or changing a service and not wiring any portion on the above, see section ‘B’ below for correct permit fee.*

<u>LIVING AREA</u>	<u>FEE</u>
(1) Not more than 1,000 square feet.....	\$ 50
(2) 1,001 square feet and not more than 1,500 square feet.....	\$ 75
(3) 1,501 square feet and not more than 2,000 square feet.....	\$ 100
(4) Per 100 square feet in excess of 2,000 square feet.....	\$ 5

**Example:** The home is 2235 square feet  
 The base fee for 2000 sq ft (of the 2235 sq ft total) is \$100 (see item (3) above)..... \$100  
 The remaining 235 sq ft is rounded up, per section (4) above, to 300 sq ft (3 x \$5 = \$15)..... 15  
 The total fee is: ..... \$115

**Section B. ALL OTHER FEES** including some residential installations that are not based on square footage (not in a living area, i.e. garage, shop, and photovoltaic, etc.). Fees in this section are calculated from the total cost to customer, including electrical materials, items and labor – whether provided by the contractor or the property owner. Use this chart for a service connection, a temporary meter, and all commercial installations. Such fees shall be computed as follows: (See ‘C’ below for the permit fees for mobile/modular home and travel trailer parks).

**Valuation of Installation:** (based on cost to customer of labor, materials, and items):

	<u>FEE</u>
(1) Not more than \$2,000.....	\$ 50
(2) \$2,001 and above .....	\$ 5 per thousand OR FRACTION thereof <b>PLUS \$ 50</b>

**Example:** The cost of the installation is \$5,150 (round up to \$6000)  
 The base fee is calculated from section (2) above: 6 x \$5= \$30 **PLUS** \$50  
 The total fee is: **\$80**

**C. Mobile/Modular home and travel trailer parks, per space .....\$ 50**

**D. Reinspection fee for all of the above.....\$ 50**

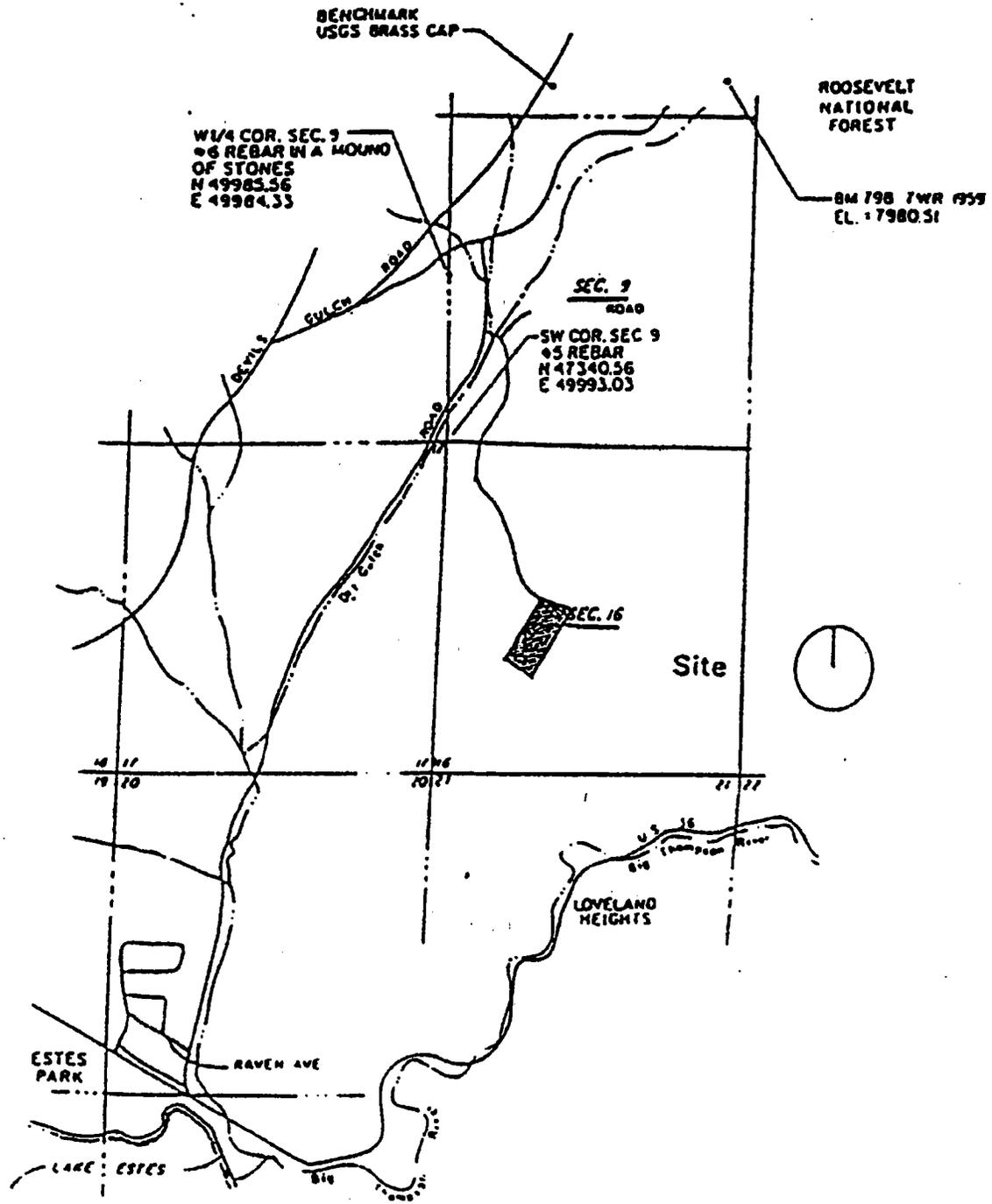
**E. Add Fee for Extra inspections.....\$ 25**

**F. Add Fee for Temporary heat release.....\$ 25**

**PLEASE NOTE: Applicants should be prepared to do the following:**

- ◆ Telephone, fax or e-mail request for inspection when job is ready
- ◆ ensure that the work is completed within the time limitation of the permit (by expiration date) *or*
- ◆ request up to a 6 month extension *prior* to the permit expiration date if work is not completed
- ◆ request an extended permit now, if work is substantial and it will take longer than 12 months
- ◆ obtain a new permit and pay required fee if current permit expires *prior* to completion
- ◆ pay the re-inspection fee, if due, *prior* to requesting a re-inspection
- ◆ install wiring according to the currently adopted edition of the National Electrical Code
- ◆ request an electrical installation inspection *prior* to covering
- ◆ request an electrical installation inspection *prior* to energizing system
- ◆ request an electrical installation inspection *prior* to occupancy

# SAMPLE ONLY



VICINITY MAP



# Plot Plan Requirements

September 2009

## What is a Plot Plan?

A plot plan is an accurate, scaled drawing illustrating the following:

- Property's dimension and shape
- Location of roads
- The relationship and precise location of man-made features on the property (buildings, structures, driveways)
- Natural water features (creeks, streams, rivers, lakes)

Plot plans show what currently exists on the site **and** the physical changes you plan to make to the site.

Sample PLOT PLAN on back page ➡

**A Plot Plan** is required when submitting a building permit application for:

- Residential Buildings
- Accessory Buildings
- Decks, porches, gazebos & awnings
- Garages (attached and detached)
- Pole Barns
- Storage Buildings larger than 120 sq ft

### Note: Commercial Buildings

Site Plan **approval** is required from the Planning Department **before** submitting a building permit application for a **commercial** building or alteration of an existing commercial building. Please contact the Planning Department at 970-498-7683.

## Plot Plan Basics

### 1. DRAWN TO SCALE

Like a map that depicts a 10-mile stretch of highway with a 1 inch line, a scaled plot plan represents the relationship between the actual property and its size on paper.

Common measures of scale for plot plans:

Scale 1" = 10'     0  10 ft  
Scale 1" = 100'     0  100 ft

- Include an arrow showing **North** 

### 2. PLOT PLAN PAPER

- Minimum Size 8½" x 11"
- Maximum Size 24" x 36"
- Larger parcels of land may require multiple sheets of paper.

### 3. PROPERTY DIMENSIONS

- Draw and label property lines and length
- Indicate if property is a corner lot and label all roads

### 4. EASEMENTS and RIGHT OF WAY

- Show easements, e.g., utility, drainage landscape, access.
- Structures cannot be built in, over or under ANY easement or right-of-way.

### 5. ROADS, STREETS, ACCESS

- Named and unnamed roads (public, private, county roads & state highways)
- Driveways, existing and proposed
- Vehicle parking area

## 6. SETBACKS Land Use Code Section 4.9 and 8.9

**Q.** What are setbacks?

**A.** The Larimer County Land Use Code defines setbacks as;

*"The distance, measured perpendicular or radial, from a property line or right-of-way centerline between a building and the property line or right-of-way centerline."*

**Q.** I'm getting ready to submit my building permit application. How can I find my setbacks?

**A.** Setbacks vary by Zoning District and a property's proximity to roads and highways. A planner can tell you what the setbacks are for your property. Contact the Larimer County Planning Department at 970-498-7683.

### SETBACK CERTIFICATION

Larimer County Land Use Code Regulations require the property owner to clearly identify the boundary corners of the lot and/or building envelope.

Whenever the proposed building is less than five feet beyond the required setback or building envelope boundary, the owner will be required to certify the building location.

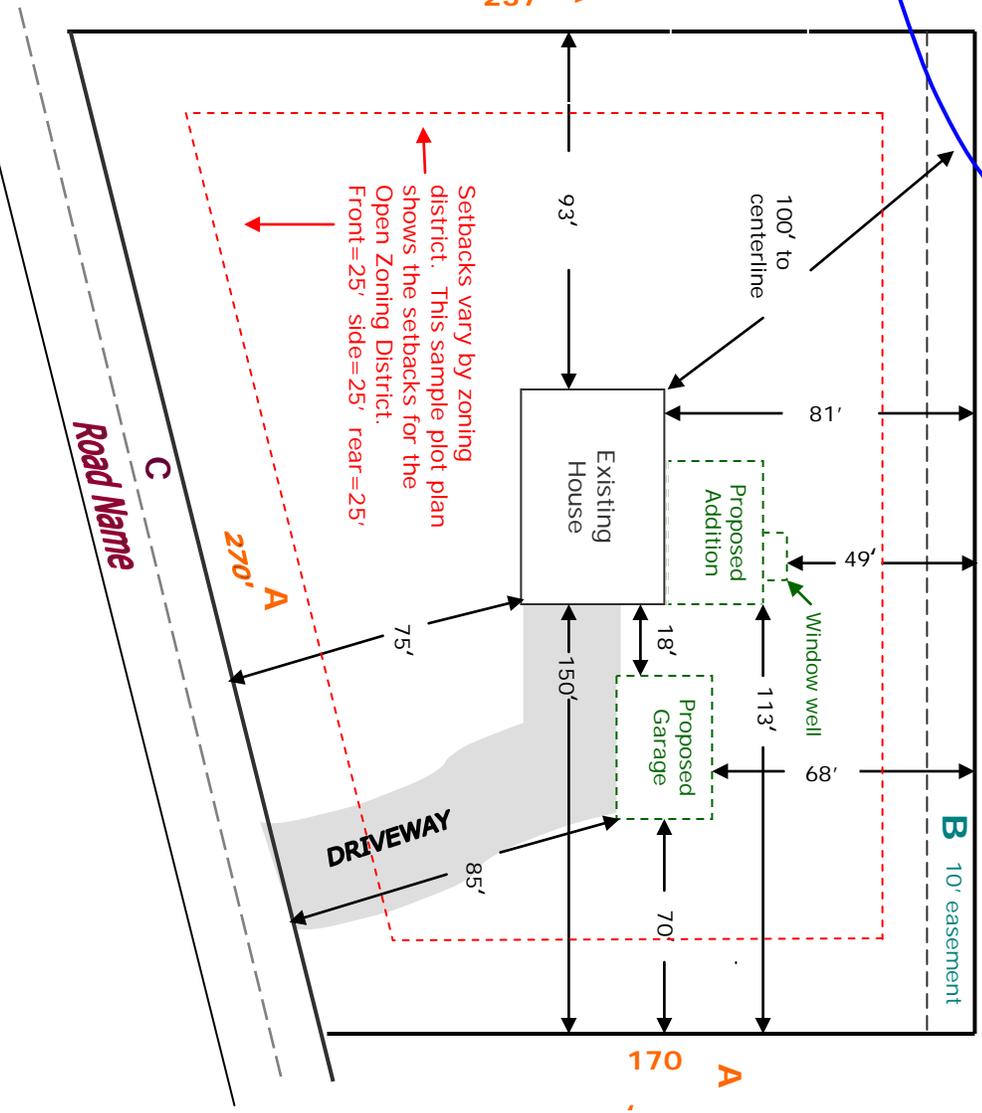
Certification, in the form of a letter, must be signed by and include the seal of a surveyor licensed to practice in the State of Colorado. The letter must include the building permit number issued for the site in question.

# Sample Plot Plan [8½ x 11]

September 2009

✓ Job Site Address: 123 Any Street, Fort Collins  
 ✓ Property Owner: John & Jane Doe  
 Owner's Phone: 970-555-5555  
 ✓ Parcel No.: 97114-13-901  
 Zoning District: Open  
 Setbacks: Front=25' side=25' rear=25'

✓ Scale 1 in = 50 ft  
 0' 10' 20' 50'  
 North  
 ✓ Stream, creek or river, (& intermittent streams)  
 ✓ D  
 ✓ A 237'  
 ✓ A 262'  
 ✓ B 10' easement  
 ✓ A 170'  
 ✓ C 270'  
 ✓ A 75'  
 ✓ A 85'  
 ✓ A 93'  
 ✓ A 81'  
 ✓ A 49'  
 ✓ A 113'  
 ✓ A 8'  
 ✓ A 70'  
 ✓ A 150'  
 ✓ A 18'  
 ✓ A 85'



Setbacks vary by zoning district. This sample plot plan shows the setbacks for the Open Zoning District. Front=25' side=25' rear=25'

## CHECKLIST

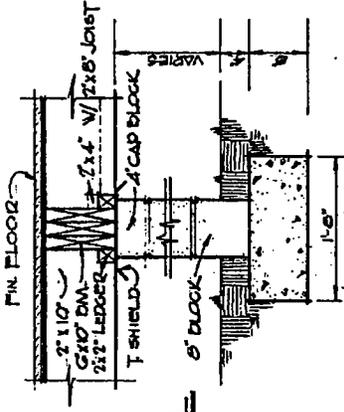
- ✓ North Arrow
- ✓ Plot Plan Scale
- ✓ Property Owner Info
- ✓ Parcel No. & Zoning
- A** Property Dimensions
- B** Easements
- C** Roads and Streets
- D** Stream, Creek or River (& intermittent streams)

Use arrows to show distance from buildings to setbacks.

Existing buildings  
 Use solid lines to indicate existing structures

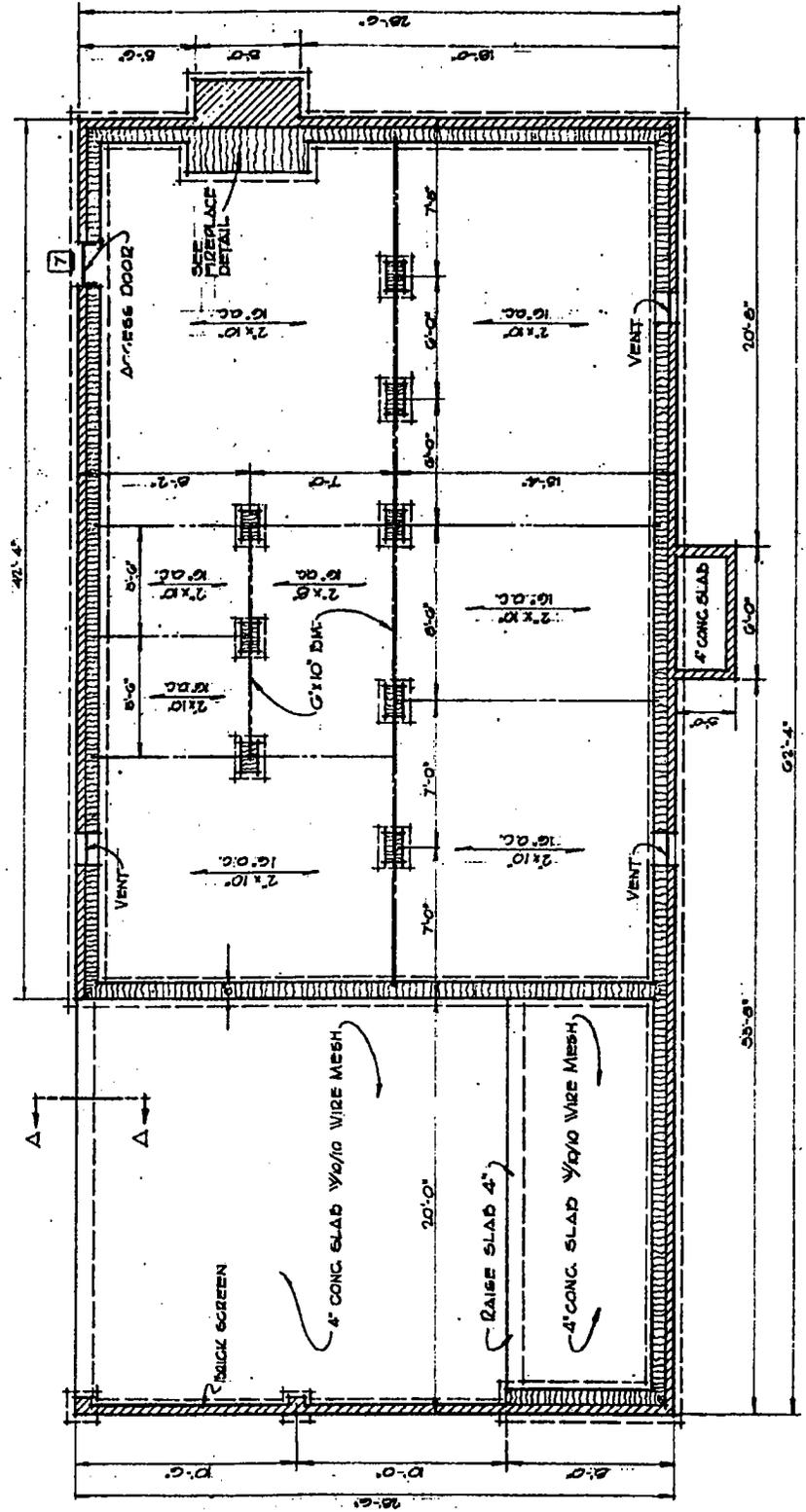
Proposed buildings  
 Use dotted lines to indicate **proposed** structures

Note:  
 This Sample Plot Plan uses color to clarify requirements.  
 Your Plot Plan **does not** need to be in color.



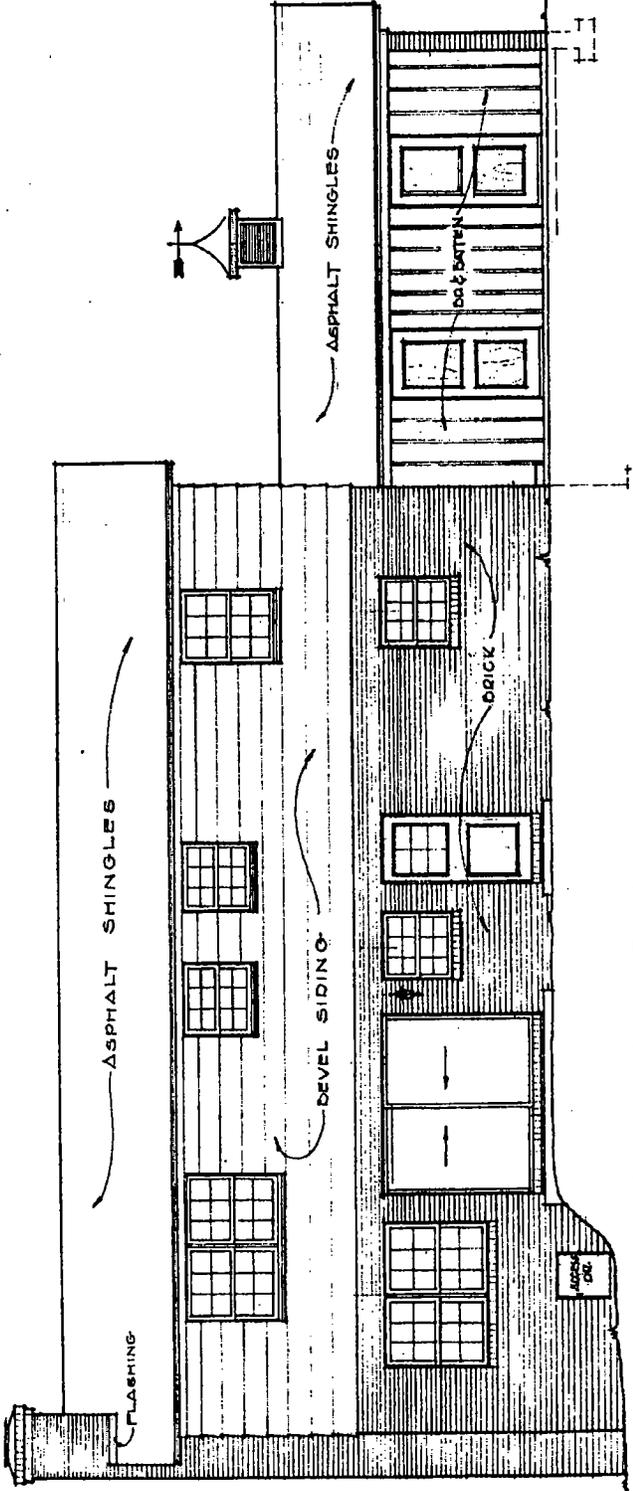
PIER DETAIL  
SCALE: 1/4"=1'-0"

**SAMPLE ONLY  
ENGINEERED FOUNDATION REQUIRED**



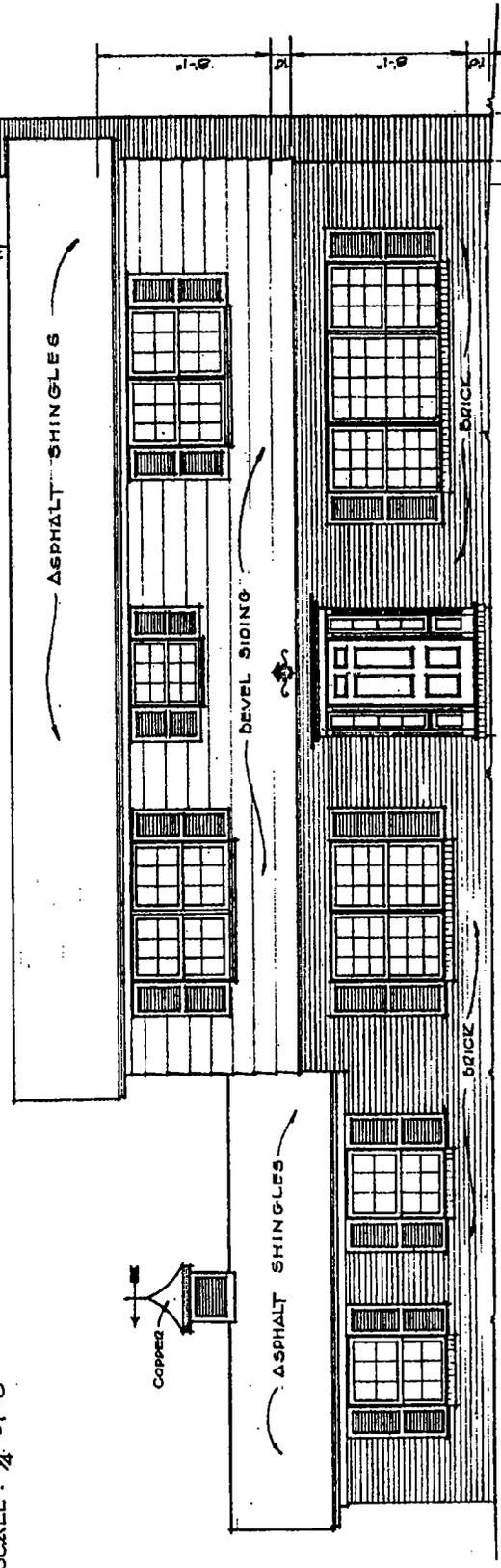
FOUNDATION PLAN  
SCALE: 1/4"=1'-0"

SAMPLE ONLY



REAR ELEVATION

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

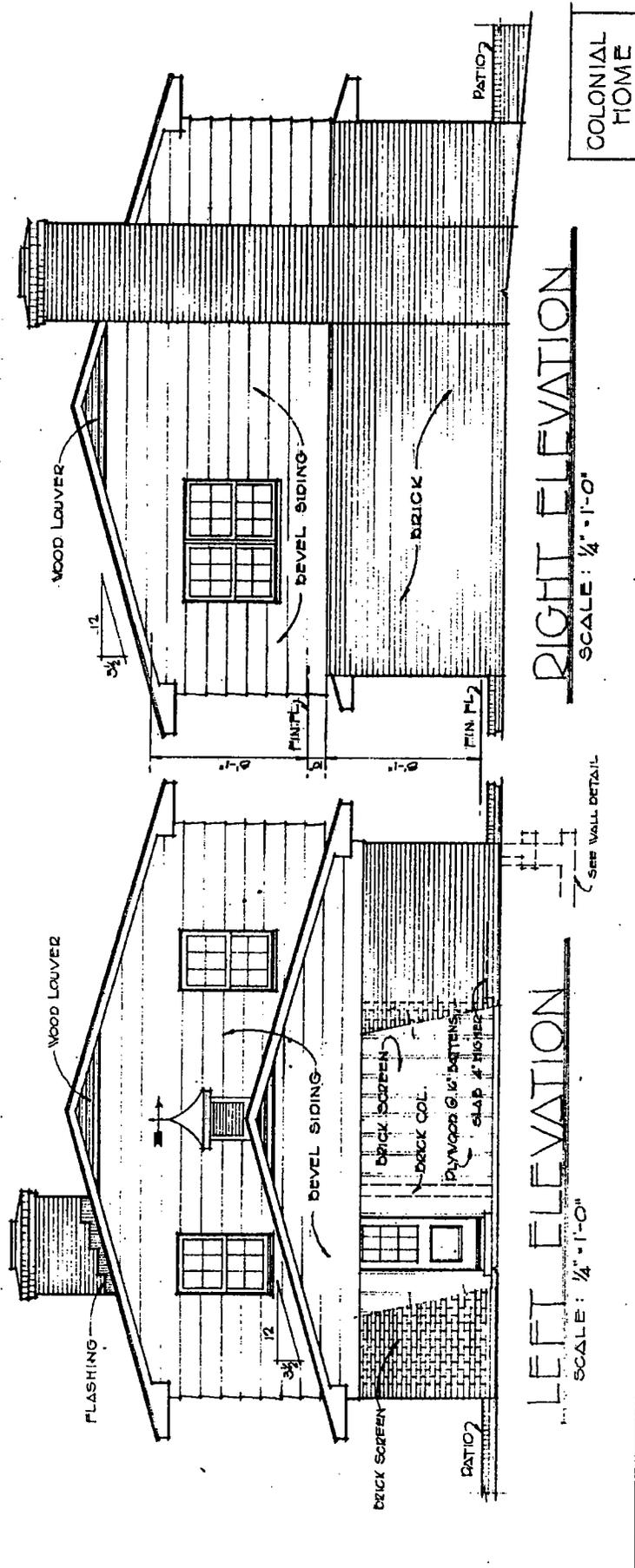


FRONT ELEVATION

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

SEE WALL DETAIL

H



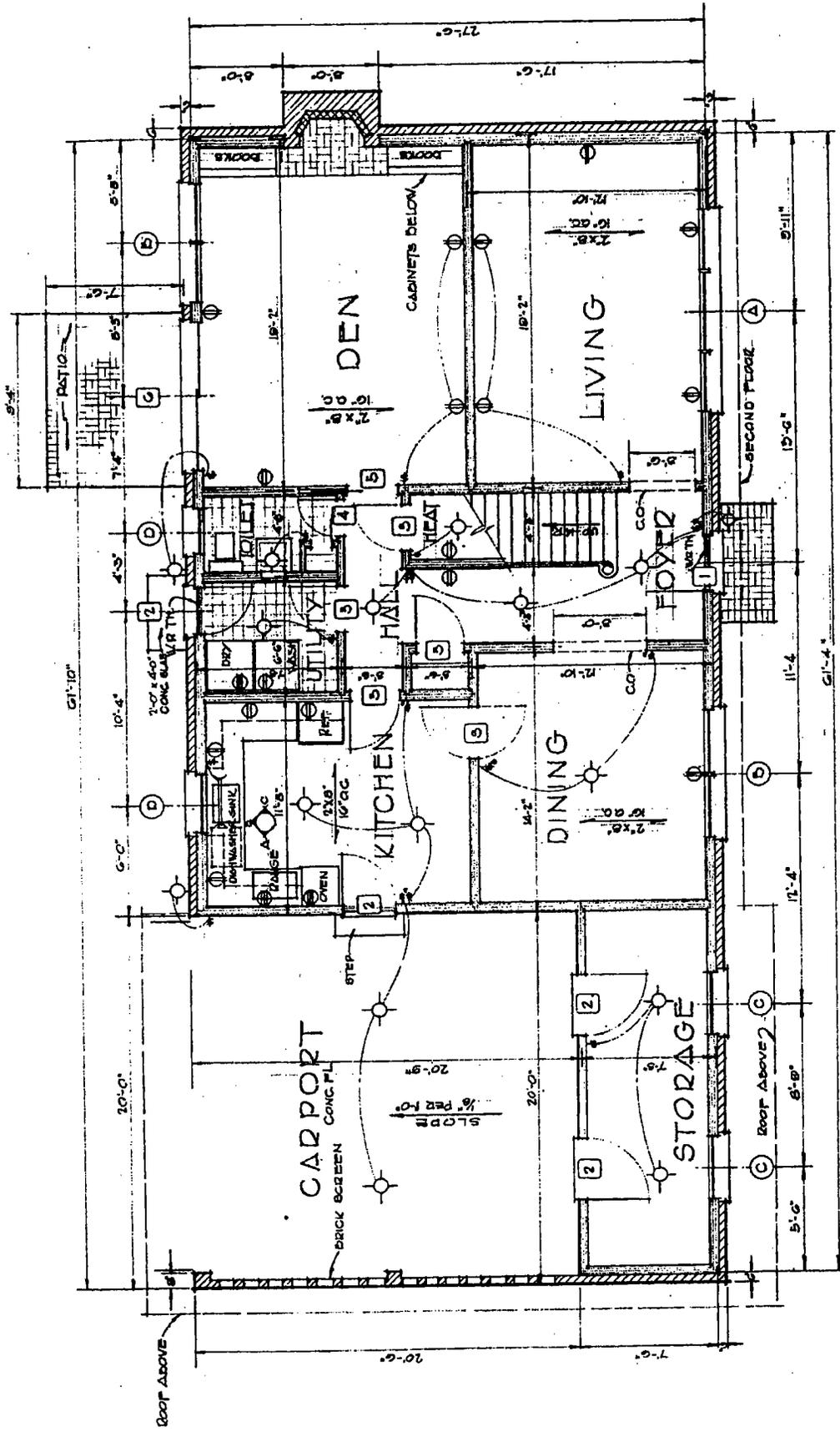
LEFT ELEVATION  
SCALE: 1/4" = 1'-0"

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

SEE WALL DETAIL

COLONIAL HOME

SAMPLE ONLY



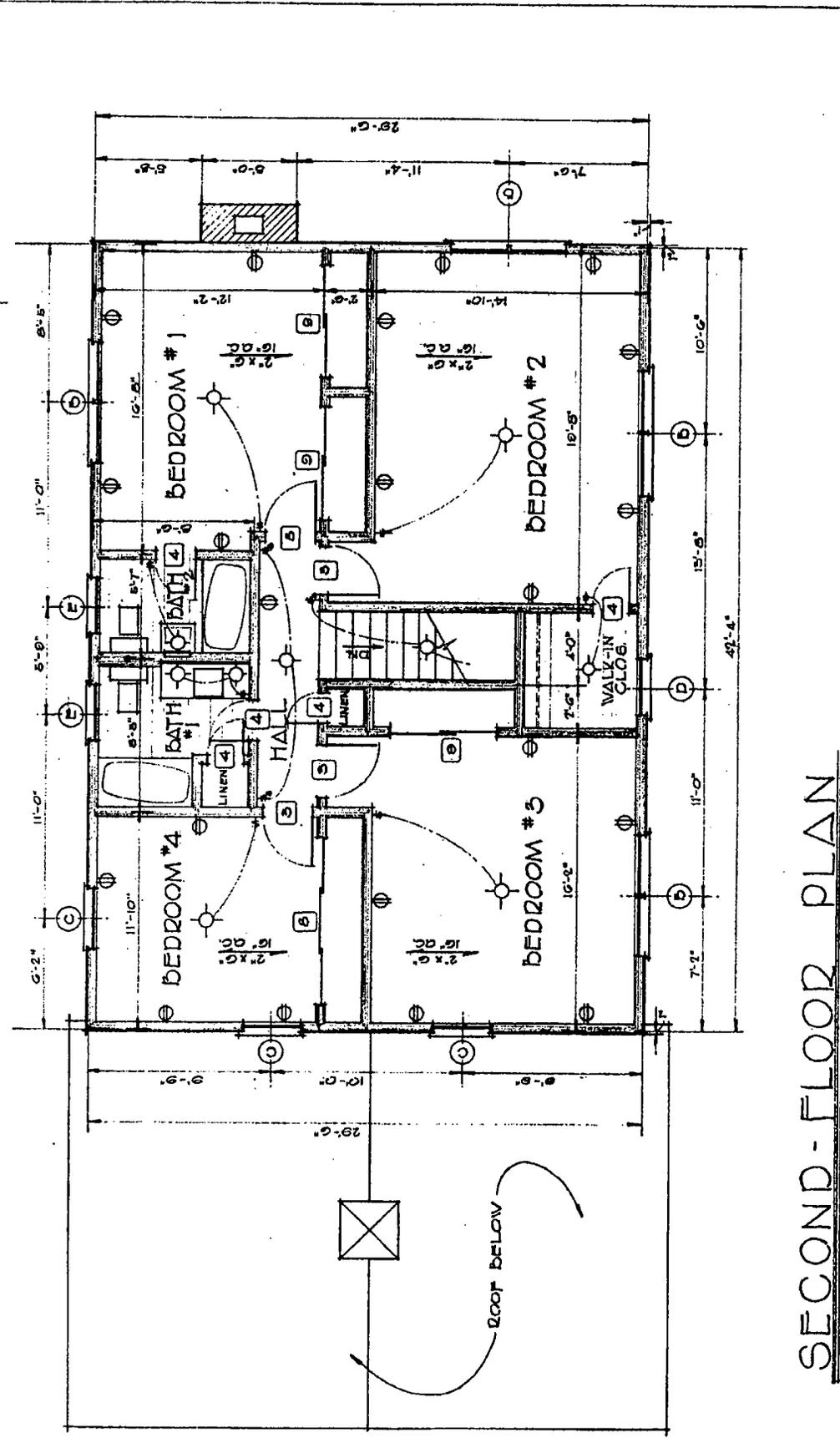
COLONIAL HOME 2

FIRST-FLOOR PLAN

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

SAMPLE ONLY





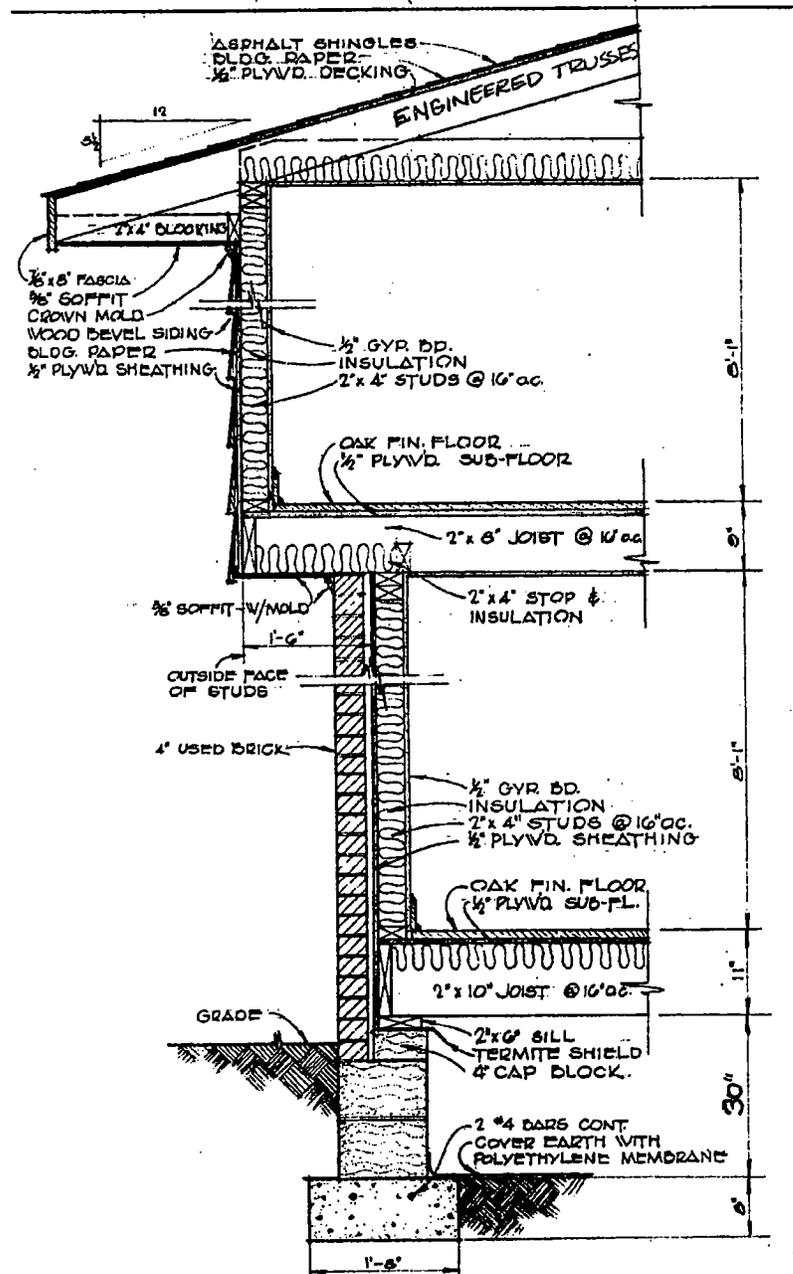
COLONIAL HOME 3

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

SAMPLE ONLY

K





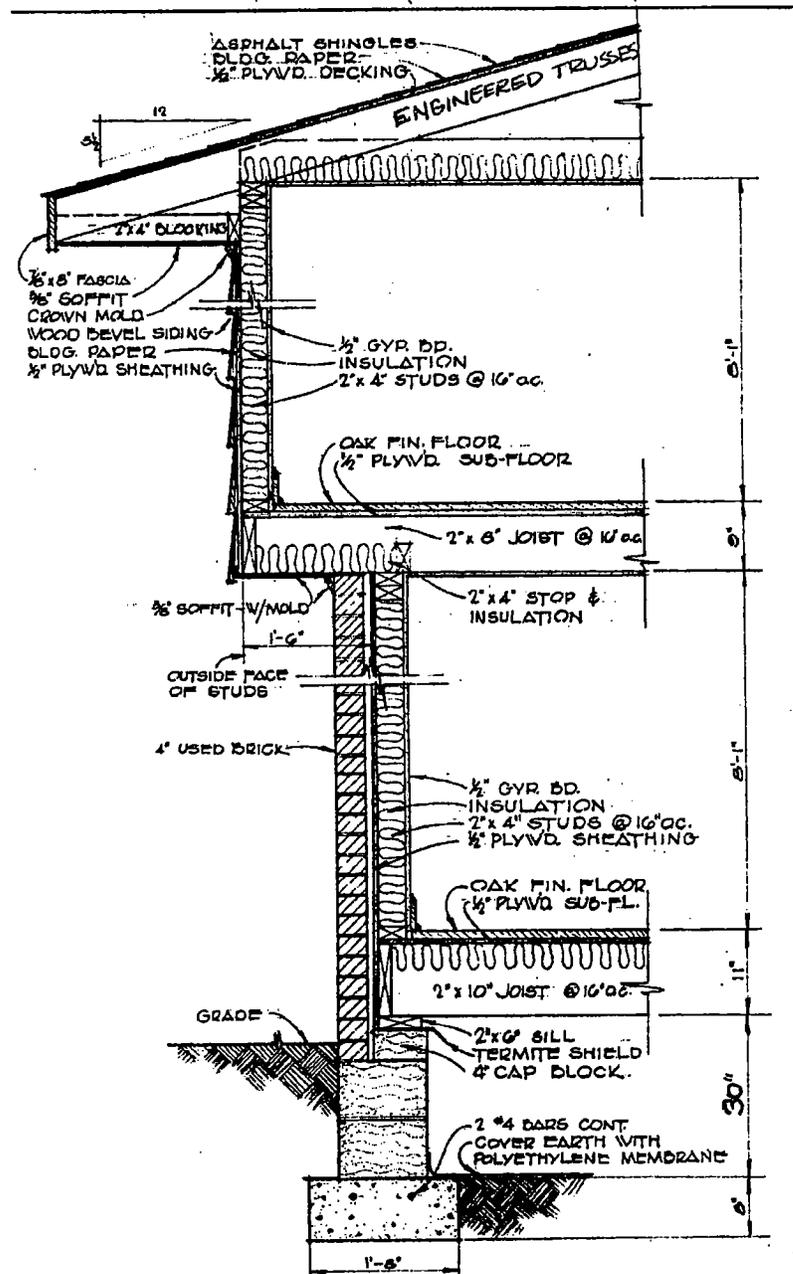
## FRONT WALL DETAIL

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

COLONIAL HOME

6

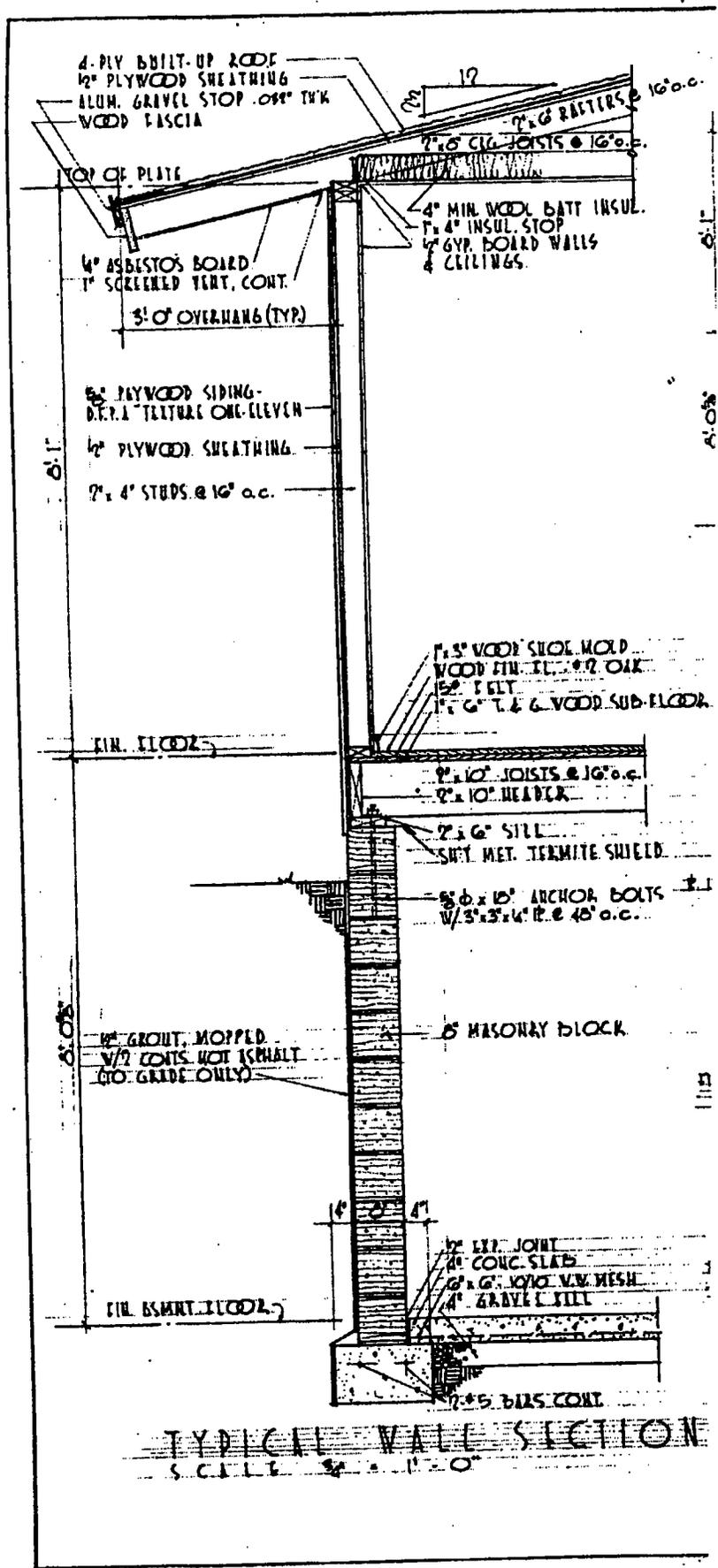
SAMPLE ONLY



FRONT WALL DETAIL  
 SCALE: 1" = 1'-0"

N

# SAMPLE ONLY



# STAIRWAYS (RESIDENTIAL)



February 2012

## STAIRS AND LANDINGS

Stairways must be at least 36" clear width above the handrail height. Handrails cannot project more than 4.5" into each side.

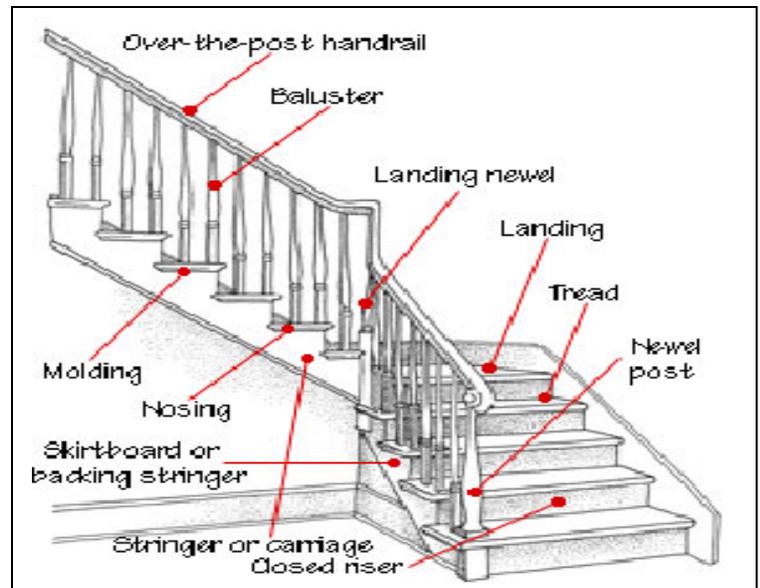
There must be at least 80" of headroom measured vertically from the sloped line of the nosing including landings throughout the stairway.

The maximum height of a riser is 7.75". Treads have to be at least 10" deep measured from nosing to nosing, and need to be a minimum of 4" tall. Treads and risers can vary 3/8" from smallest to largest as long as the maximum riser height and minimum tread depth are maintained.

If using winders, the treads cannot be shallower than 6" and need to be at least 10" deep when you are 12" into the winder at the walk line. The winder treads must also maintain uniform treads at the walk line with no tread depths varying more than 3/8" from largest to smallest.

The landings must be at least the width of the stairway and extend 36" in the direction of travel. Stairs cannot go up more than 12' without a landing.

Landings are not required at the top of interior stairways, including garage stairs, as long as the door does not swing over the stairs.



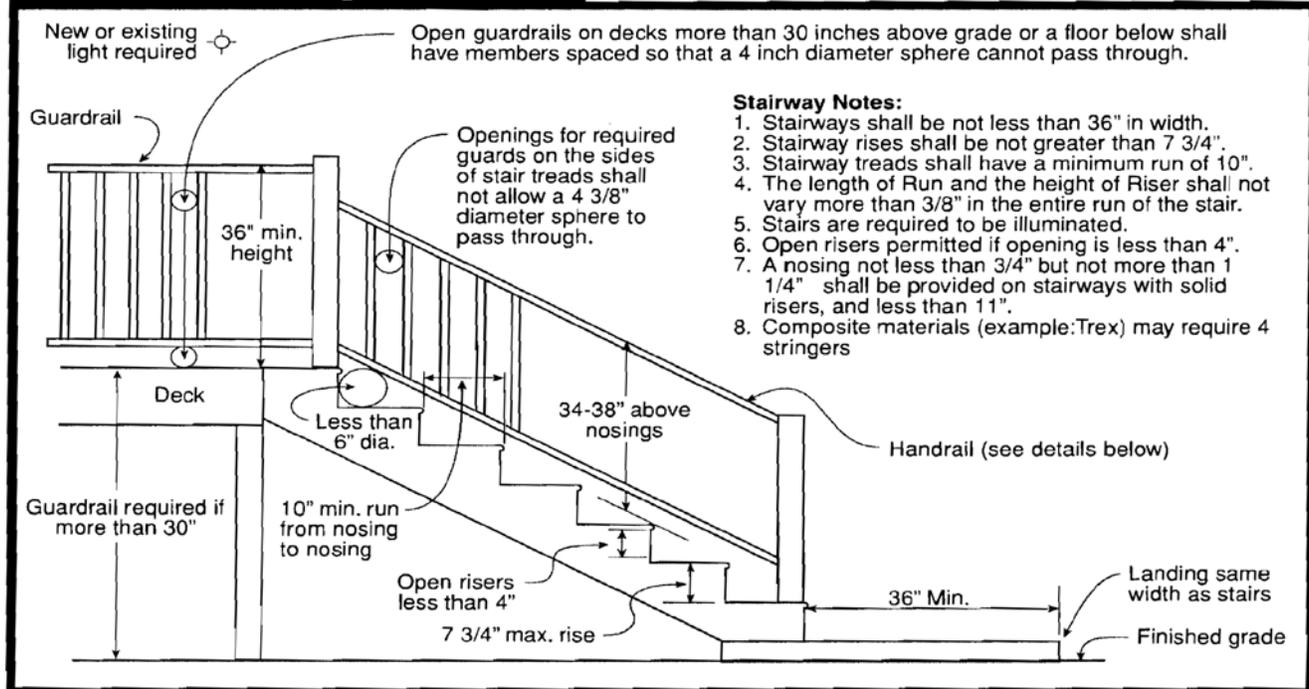
## GUARDRAILS

Guardrails are required when the walking surface is greater than 30" from the grade below and must be greater than 36" in height. When the top of the guardrail serves as the required handrail, the height can be reduced to 34" but no greater than 38".

Openings in guardrails shall not allow passage of a sphere 4" in diameter with a couple of exceptions. Openings in guardrails on the open side of stairs cannot allow the passage of a sphere greater than 4 3/8". The triangular opening created by a tread, riser, and guardrail cannot allow the passage of a sphere greater than 6". Open riser design in stairs also requires the opening to be no greater than 4" when 30" or higher to the grade below.

**See Stair and Handrail Specifications on page 2 for more details.**

## Stair & Handrail Specifications

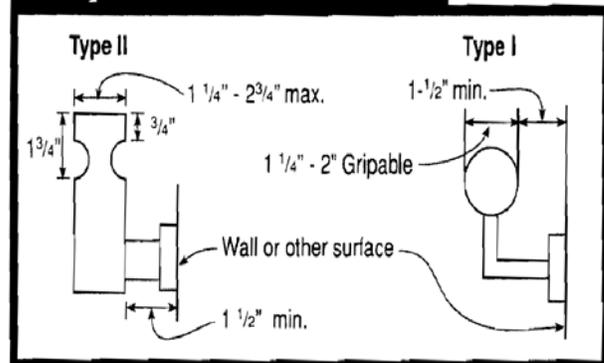


## HANDRAILS

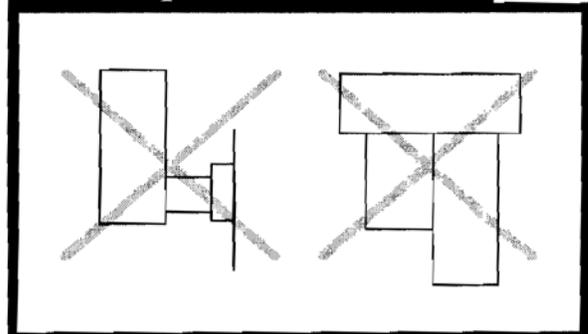
Handrails must be mounted between 34" and 38" above the tread nosing and must run the full length of the stairs. The handrails have to be at least 1.5" off the wall and where circular, need to be 1.25" to 2" in diameter. If the handrail is not circular, it must have a perimeter between 4" and 6.25" with a maximum cross section of 2.25". Other handrails may be acceptable as long as they are able to be grasped.

Handrails need to run continuously for the full flight of the stairs and return to the wall at the top and bottom. They can also stop and start at a newel post at landings. The use of a turnout, starting easing or volute, can also be used at the bottom tread.

## Acceptable Handrail Details



## Unacceptable Handrails



# Radon mitigation

P

## PASSIVE SUB-SLAB DEPRESSURIZATION RADON CONTROL SYSTEM FOR NEW CONSTRUCTION

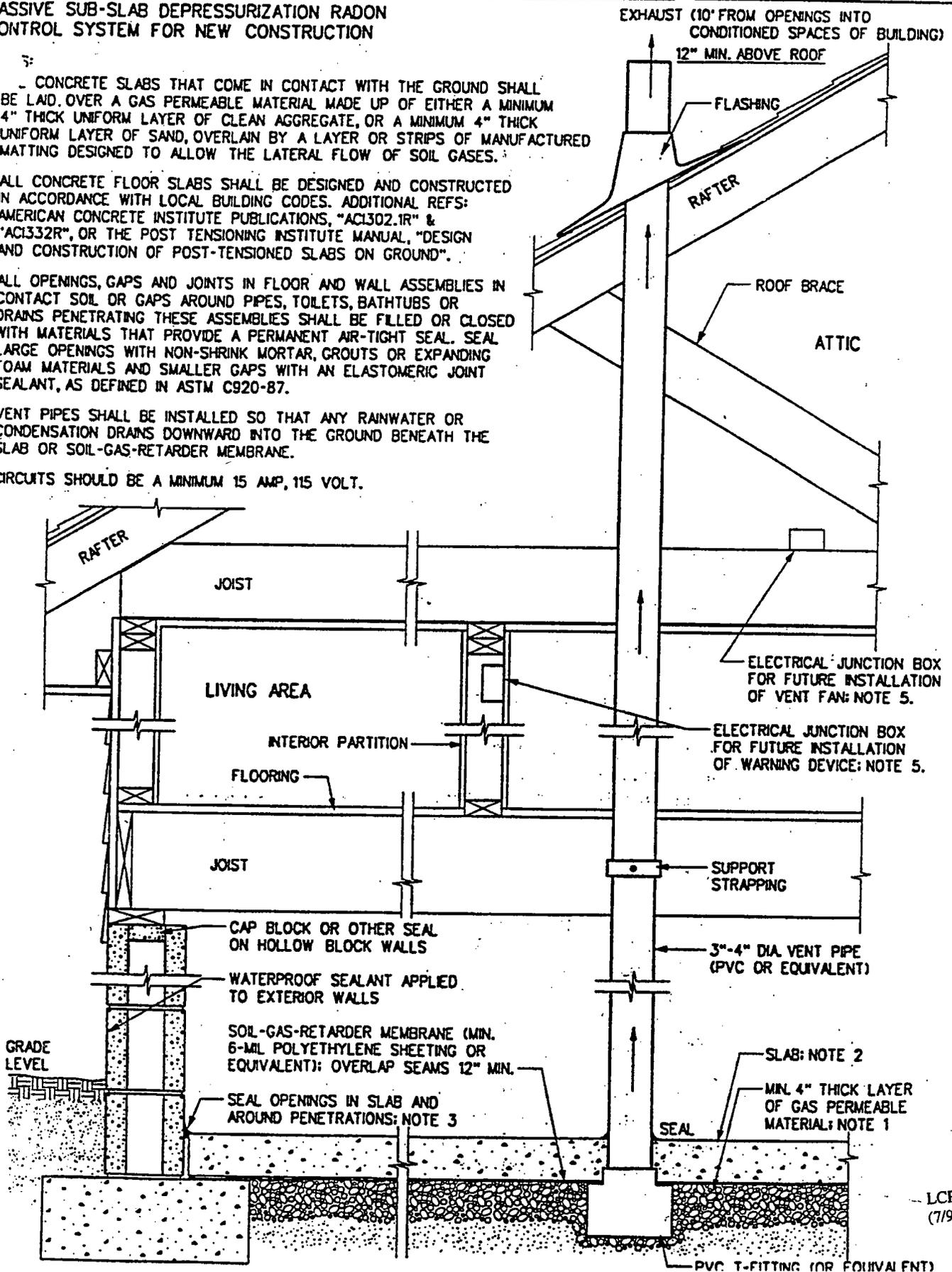
1. CONCRETE SLABS THAT COME IN CONTACT WITH THE GROUND SHALL BE LAID OVER A GAS PERMEABLE MATERIAL MADE UP OF EITHER A MINIMUM 4" THICK UNIFORM LAYER OF CLEAN AGGREGATE, OR A MINIMUM 4" THICK UNIFORM LAYER OF SAND, OVERLAIN BY A LAYER OR STRIPS OF MANUFACTURED MATTING DESIGNED TO ALLOW THE LATERAL FLOW OF SOIL GASES.

2. ALL CONCRETE FLOOR SLABS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LOCAL BUILDING CODES. ADDITIONAL REFS: AMERICAN CONCRETE INSTITUTE PUBLICATIONS, "ACI302.1R" & "ACI332R", OR THE POST TENSIONING INSTITUTE MANUAL, "DESIGN AND CONSTRUCTION OF POST-TENSIONED SLABS ON GROUND".

3. ALL OPENINGS, GAPS AND JOINTS IN FLOOR AND WALL ASSEMBLIES IN CONTACT SOIL OR GAPS AROUND PIPES, TOILETS, BATHTUBS OR DRAINS PENETRATING THESE ASSEMBLIES SHALL BE FILLED OR CLOSED WITH MATERIALS THAT PROVIDE A PERMANENT AIR-TIGHT SEAL. SEAL LARGE OPENINGS WITH NON-SHRINK MORTAR, GROUTS OR EXPANDING FOAM MATERIALS AND SMALLER GAPS WITH AN ELASTOMERIC JOINT SEALANT, AS DEFINED IN ASTM C920-87.

4. VENT PIPES SHALL BE INSTALLED SO THAT ANY RAINWATER OR CONDENSATION DRAINS DOWNWARD INTO THE GROUND BENEATH THE SLAB OR SOIL-GAS-RETARDER MEMBRANE.

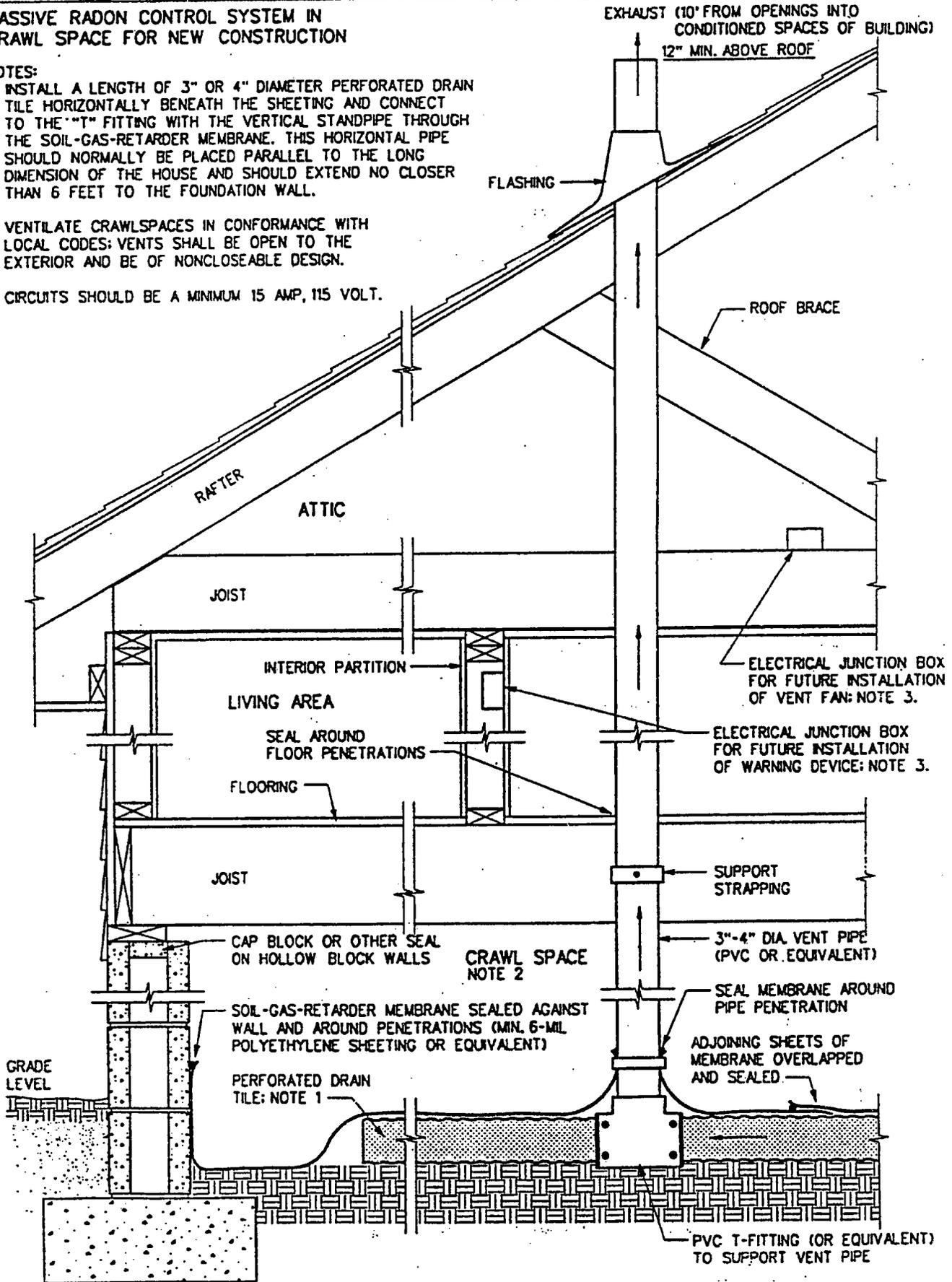
5. CIRCUITS SHOULD BE A MINIMUM 15 AMP, 115 VOLT.

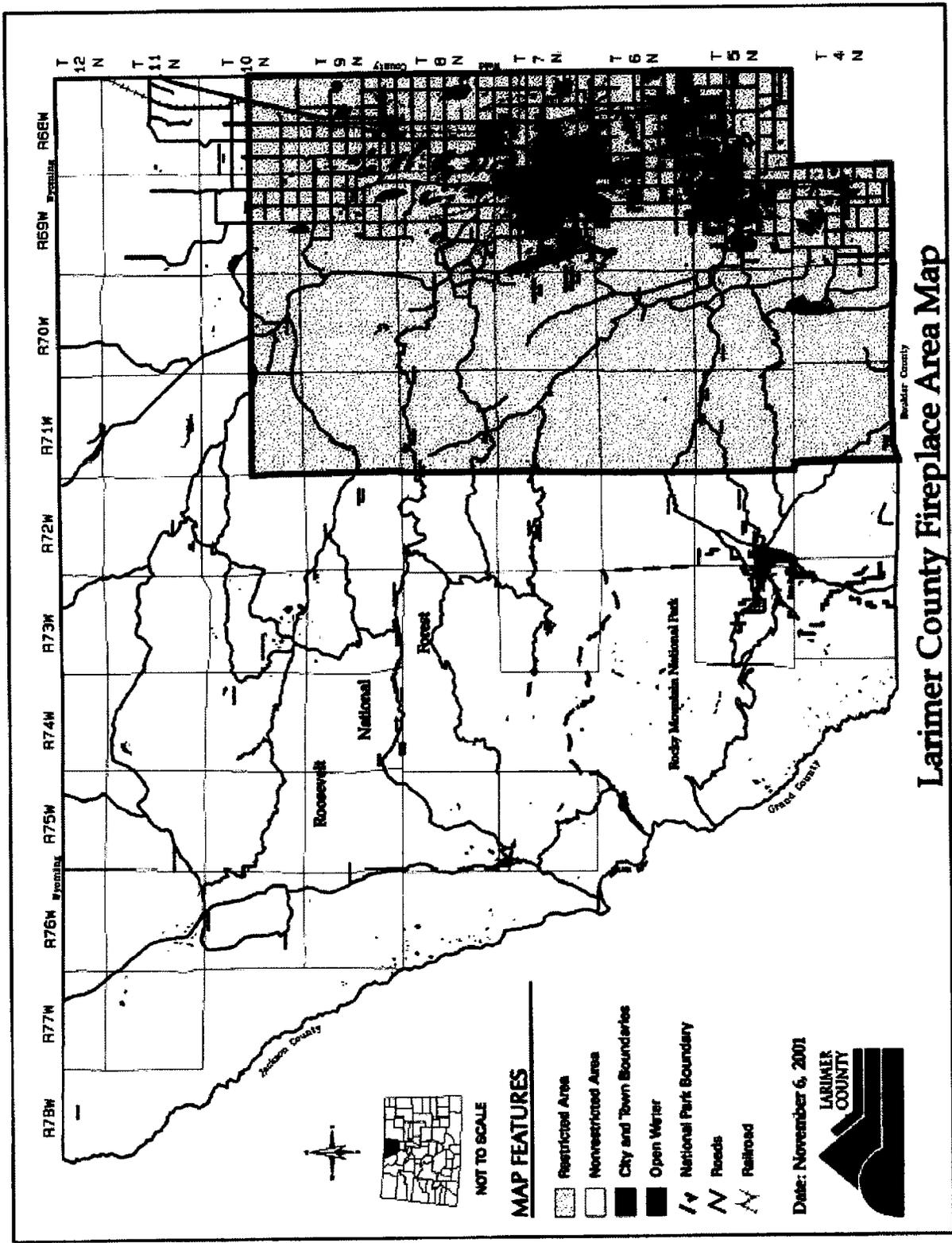


**PASSIVE RADON CONTROL SYSTEM IN CRAWL SPACE FOR NEW CONSTRUCTION**

**NOTES:**

1. INSTALL A LENGTH OF 3" OR 4" DIAMETER PERFORATED DRAIN TILE HORIZONTALLY BENEATH THE SHEETING AND CONNECT TO THE "T" FITTING WITH THE VERTICAL STANDPIPE THROUGH THE SOIL-GAS-RETARDER MEMBRANE. THIS HORIZONTAL PIPE SHOULD NORMALLY BE PLACED PARALLEL TO THE LONG DIMENSION OF THE HOUSE AND SHOULD EXTEND NO CLOSER THAN 6 FEET TO THE FOUNDATION WALL.
2. VENTILATE CRAWLSPACES IN CONFORMANCE WITH LOCAL CODES; VENTS SHALL BE OPEN TO THE EXTERIOR AND BE OF NONCLOSEABLE DESIGN.
3. CIRCUITS SHOULD BE A MINIMUM 15 AMP, 115 VOLT.





# Larimer County Fireplace Area Map

## MAP FEATURES

- Restricted Area
- Nonrestricted Area
- City and Town Boundaries
- Open Water
- National Park Boundary
- Roads
- Railroad

Date: November 6, 2001

