

## **RESIDENTIAL BUILDING INFORMATION**



## BUILDING PERMIT INFORMATION & CHECKLIST REQUIREMENTS

**APPLICATION REQUIREMENTS** – Along with your approved development permit from the Municipality, ensure the listed supporting documentation is included with the completed building permit application, or delays may occur with regards to issuing the building permit.

**NEW HOME BUYERS PROTECTION ACT** – When constructing a new home, cabin, garage with living quarters or moving in a new manufactured home you must provide the New Home Warranty Certificate at time of application.

**BUILDERS' LICENSE** – Effective December 1, 2017, new requirements are in effect for residential builders in Alberta. All residential builders are required to have a builder license in order to construct new homes

**NATIONAL ENERGY CODE (NEC)** – The NEC came into effect November 1, 2016. Ensure the attached 9.36 Compliance Report is completed and submitted with the building permit applications and documentation.

<p><b>CONSTRUCTION OF NEW HOMES &amp; ADDITIONS</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> site plan                      <input type="checkbox"/> floor plan(s)</li> <li><input type="checkbox"/> foundation plan              <input type="checkbox"/> elevation views</li> <li><input type="checkbox"/> building cross sections</li> <li><input type="checkbox"/> roof truss layouts          <input type="checkbox"/> manufactured floor joist layouts (Layouts can be on site at the framing stage)</li> <li><input type="checkbox"/> engineered stamped drawings for attached garage if it is pile and grade beam</li> <li><input type="checkbox"/> Preserved Wood Foundations require plans designed by an Engineer, registered in the Province of Alberta. (unless designed to the CAN/CSA S406-16 (R2003))</li> <li><input type="checkbox"/> Hydronic Heating design information and designer certification</li> </ul>	<p><b>MANUFACTURED, MODULAR, MOBILE HOMES</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> site plan                      <input type="checkbox"/> floor plan</li> <li><input type="checkbox"/> foundation plan**          <input type="checkbox"/> CSA, QAI or Intertek #</li> <li><input type="checkbox"/> Serial #                      <input type="checkbox"/> AMA #</li> <li><input type="checkbox"/> square footage              <input type="checkbox"/> year of manufacture</li> </ul> <p><b>ONE ROOM ADDITIONS &amp; MANUFACTURED SUNROOMS</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> site plan                      <input type="checkbox"/> floor plan</li> <li><input type="checkbox"/> foundation plan**          <input type="checkbox"/> cross section view</li> <li><input type="checkbox"/> if manufactured sunroom, supplier's full product information is required or an engineer's approval</li> </ul> <p style="text-align: center;"><b>** NOTE: Pile foundations require engineering</b></p>
<p><b>STORAGE BUILDINGS / GARAGES / SHEDS</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> site plan                      <input type="checkbox"/> floor plan</li> <li><input type="checkbox"/> elevation views              <input type="checkbox"/> building cross sections</li> <li><input type="checkbox"/> roof truss and beam design information</li> <li><input type="checkbox"/> Hydronic Heating design information and designer certification (if applicable)</li> <li><input type="checkbox"/> pole buildings <u>require</u> engineering</li> </ul> <p><b><u>Foundation Requirements:</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 4 foot frost wall and strip footing</li> <li><input type="checkbox"/> concrete slab over 55 sq. meters (592 sq.ft) must be engineered</li> <li><input type="checkbox"/> engineered grade beam and pile</li> <li><input type="checkbox"/> any other foundation will require a structural engineered stamped plan</li> </ul> <p><b><u>Wall Requirements:</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> walls up to 3.6 m in height are acceptable</li> <li><input type="checkbox"/> walls over 3.6 m will require an <u>engineered</u> stamped plan <i>unless built to Standata 14-BCV-002R1.</i></li> </ul>	<p><b>BASEMENT DEVELOPMENTS AND MINOR RENOVATIONS</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> floor plan showing layout of new walls, bathrooms, bedrooms, windows and doors</li> </ul> <p><b>HOT TUBS / SWIMMING POOLS</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> site plan with dimensions of tub / pool</li> <li><input type="checkbox"/> fence information</li> </ul> <p><b>DECKS</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> site plan</li> <li><input type="checkbox"/> floor layout</li> <li><input type="checkbox"/> cross section view or example plan with dimensions filled in</li> </ul> <p><b>WOOD STOVES</b> (including fireplaces, pellet and coal stoves)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> floor plan</li> <li><input type="checkbox"/> manufacturers installation instructions</li> <li><input type="checkbox"/> references to certification listing</li> </ul> <p><b>NOTE: Pile foundations require engineering</b></p>

**Construction checklists for decks, garages, mobile homes and wood stoves are also available.**

If you require any information regarding building permits or plans that are required, please contact Superior Safety Codes.

## **RESIDENTIAL BUILDING INFORMATION**

### **Foundation Requirements**

There are several variations of building foundations that can be used. Each is designed for various purposes and has specific requirements. Remember, this information is to be used as a guide only. Please contact our office for more detailed information.

### **Concrete Strength**

The compressive strength of unreinforced concrete after 28 days shall be not less than:

15 MPa for walls, columns, fireplaces and *chimneys*, footings, *foundation* walls, grade beams and piers,

20 MPa for floors other than those in garages and carports

32 MPa Garage slabs, carport slabs and the exterior steps

### **Height**

Concrete foundation walls must extend a minimum of 150 mm (6") above finished grade level.

### **Anchorage**

Building frames must be anchored to the foundation unless specific analysis is conducted.

### **Anchorage – Mobile Homes**

Anchorage for mobile homes is to prevent the structure from overturning.

Mobile homes shall be rated as to their resistance to overturning and installed in accordance with the manufacturer's instructions.

## FOUNDATION TYPES



### Thickened Slab

The Alberta Building Codes states that thickened slabs are allowed up to 55m<sup>2</sup> (592 ft<sup>2</sup>). Slabs greater than 55 m<sup>2</sup> require engineering.

### Concrete Foundation Wall on Strip Footings

The thickness of concrete foundation wall relies on the height and lateral support at the top of foundation. An 8" thick foundation would be permitted in most residential construction.

### Concrete Strip Footing

10" x 4" minimum supporting one floor

14" x 4" minimum supporting two floors

18" x 6" minimum supporting three floors

Depth of footings must be at least 1.2 m (4') below finish grade.

### Pile and Grade Beam

A pile and grade beam foundation requires engineering

### Pier Type Foundation (typically wood blocking for mobile homes)

Piers shall be spaced not more than 3.5 m apart. The height of piers shall not exceed three times their least dimension at the base of the pier.

### Slab on Ground

Granular material under the slab is recommended, but not mandatory.

Thickness of slab shall not be less than 3" exclusive of topping. When concrete topping is provided, it shall not be less than 20 mm.

### **PWF Foundation**

A preserved wood foundation may be either designed by a professional engineer or be designed and constructed in conformance to the CSA standard CAN/CSA S-406-92 (dependent on size or complexity).

### **ICF (Insulated Concrete Foundation)**

ICF foundation wall must conform to the Alberta Building Code (ABC) with the following conditions:

- must be listed under CCMC,
- must be created under direct supervision of a certified installer.
- Construction must be in compliance with the manufacturer's specifications.
- Must be protected from the interior with a minimum 15-minute thermal barrier (i.e. ½" drywall).

### **Screw Pilings**

Screw pilings must be either pre-engineered or custom engineered. They must also be fabricated by a CWB certified welder.

## USEFUL CONSTRUCTION TIPS



### Mark the location of the joists and beams

Start at one side and work towards the other using a measuring tape and a pencil to mark the location of the floor joists and beams, keeping with the engineers required joist spacing as per the structural plan, or the manufacturer's specifications.

### Install the beams and floor joists

Install the beams as specified on the plan. The ends of the beams should rest in the notches provided for that purpose in the foundation wall (if specified on the plan). Based on the beams length and load-bearing requirements, it is determined how many adjustable posts are required in the basement. There are several types of beams: steel beams, LVL (laminated veneer lumber), several types of I joists. Joists must be attached to the beams with joist hangers.

### Sub Floor

Before laying down the sub floor panels, spread a construction adhesive over the joists. The adhesive will increase the rigidity of the floor and reduces and/or prevents squeaking.

Lay the sub floor sheets perpendicularly to the joists in order to conform to building codes and get maximum rigidity. Be sure not to align seams with unsupported joints. Screws are recommended as an alternative method of fastening the sub floor.

When using tongue and groove sub floor, use a piece of wood to hit the edges of the panels to reduce edge damage.

### Assemble the exterior walls

Assemble the walls horizontally on the floor. Lay the bottom plate where you want to erect the wall and nail the studs perpendicularly onto it. Be sure to nail the studs on 16 in. centers. Install top plates – two 2" x 6" (38 mm x 152 mm) nailed together – on top of the studs.

### Build window headers

Headers transmit their weight to the king studs located on either side of the window opening. To install a header, all you need to do is make a sandwich of lumber and plywood consisting of two 2" x 10" (38 mm x 235 mm) and a piece of ½" plywood nailed together. Header material may vary according to super-imposed load e.g. LVL, Glue Lam or Timber Stand products.

Once the outside walls are framed, it's time to install the sheathing. The sheathing consists of large panels measuring 4 ft. x 8 ft. (1.22 m x 2.44 m), which act as a screen against wind and rain and stiffens the structure.

### **Erect inside partitions**

There are load-bearing walls that support the weight of the ceiling of the upper floor and non-load bearing walls whose only role is to divide space into rooms. Load-bearing walls are built with 2" x 6" (38 mm x 140 mm) studs and require double plates.

Non-load-bearing walls don't need double plates. They can be built of 2" x 4" (38 mm x 89 mm) studs.

Use a chalk string to mark the interior partitions on the floor. The chalk string is easy to use and prevents errors. First erect the longer partitions, then the cross-partitions before erecting the closet and vestibule partitions.

### **Miscellaneous Information**

The province has introduced **energy efficiency** requirements for buildings that deal with the energy used by buildings. These requirements look at the building envelope and the design and construction of heating, ventilation, air conditioning and service water heating equipment. All conditioned spaces are required to meet the energy efficiency requirements, please contact your local safety codes officer to discuss these requirements.

The distance between houses (spatial separation) determines the construction type, fire rating (if any) and maximum window sizes allowed by code. The main consideration is how quickly the fire department is able to respond to a fire. You may be required to confirm whether your fire department can respond in less than 10 minutes.

Soil gas (mainly radon) mitigation measures must be roughed-in to basement slabs. This consists of a 4" ABS or PVC pipe located at the center of the slab and often routed to the mechanical room. The pipe protruding from the slab is to be capped and identified as a radon rough-in. This pipe is for future use should radon be detected at some point. The perimeter of the slab is to be caulked/sealed to prevent soil gas ingress.

Flashing must be installed at:

- 1-every horizontal junction between cladding elements
- 2-every horizontal offset in the cladding, and
- 3-every horizontal line where cladding materials change

Flashing end dams are to be installed above/below windows etc.

Roof ventilation is to be provided at 1 square foot for every 300 square feet of insulated ceiling area. The ventilation of flat roofs or roofs with a slope of less 1 in 6 requires at least 1/150 of the insulated ceiling area. Vents may be roof type, eave type, gable-end type or any combination thereof, and are to be distributed uniformly on opposite sides of the *building*,

Crawl spaces are to be ventilated by natural or mechanical means. Natural ventilation must be at least 1 ft<sup>2</sup> of unobstructed vent for every 50 m<sup>2</sup> of floor area.

Attic or crawl space access hatchways are to be at least 500 mm x 700 mm (20" x 28") and attic hatches are to be insulated and be weather-stripped around the perimeter.

A smoke alarm is to be installed on every floor level, every bedroom and also in hallways within 5m (~16') of bedroom doors. Smoke alarms are to be interconnected so that if one is set off they will all sound.

A carbon monoxide alarm is to be installed inside each bedroom or outside each bedroom within 5 m of each bedroom door. Combination smoke/carbon monoxide alarms are readily available to avoid the installation of multiple devices.

Attached garages require walls and ceilings to be covered with:

- a) ½" drywall,
- b) lath & plaster, or
- c) a material that will remain in place and prevent the passage of flames for at least 15 minutes. Using this method will require written confirmation be submitted that the product meets or exceeds the requirements of CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials".

Any door between the garage and the house is to be tight fitting, weather-stripped, and fitted with a self-closing device.

Bedroom windows are to have a clear opening area of 542 square inches with no dimension less than 15 inches. For example, the open area could be 15"x37" or 23"x24" etc.

### **Secondary Suites**

Significant changes to the requirements of Secondary Suites were adopted in the building code. Please contact Superior Safety Codes Inc. for further information regarding secondary suites.