



# BASEMENT FINISHING

## City of Lawrence

Department of Public Works  
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[www.cityoflawrence.org](http://www.cityoflawrence.org)

This handout is intended only as a guide to the subject matter covered herein and is based in part on the 2020 Indiana Residential Code. While every attempt has been made to insure the correctness of this handout, no guarantees are made to its accuracy or completeness. Responsibility for compliance with applicable codes and ordinances falls on the owner or contractor. For specific questions regarding code requirements, refer to the Indiana Building Code or contact your local Building Department.

### PERMITS AND PLANS

Building permits are required if you are finishing unfinished space in your basement, changing the use of space such as converting a recreation room to a bedroom, and for some repairs. Other permits that may be needed include electrical, hvac and plumbing.

Plans are required for any finishing or change of use. Plans should be neat scale drawings that include a floor plan, window sizes and locations, cross sections, and any notes that would help explain the nature and extent of your project. Once submitted, it takes about 5 working days before your permit will be ready so please submit your plans and permit application well in advance of the date when work will begin.

Inspections are required of all work. When your permit is issued, the back of the permit has a list of required inspections and the number to call. Requests for inspections should be made at least 24-48 hours in advance.

If you have any questions on the permitting process, contact the Building Department.

### REQUIRED PERMITS

Building Permit for framing and finish work

Plumbing Permit for any plumbing for bathrooms, hot tubs, wet bars, etc.

Electrical Permit for receptacles, lights, electric floor heat, etc.

Mechanical Permit for gas piping, gas fireplaces, heat supply/return runs, bathroom ventilation, etc.

### NOW IS THE TIME!!!!

Prior to finishing any basement space, it is advisable to address any deferred maintenance items prior to the start of work. This would include dampproofing walls, patching any cracks in concrete or masonry walls and concrete floors, and repairing any joists or studs that have been over-bored or cut without being properly supported. If you have considered installing drain tile and a sump pump, now would be the time to do that as well.

### GENERAL INFORMATION

\*Minimum ceiling height is 7' with 6 feet 4 inches allowed for projections such as beams, ducts etc.

\*Electrical outlets are required every 12' along walls and 6' from door openings.

\*Electrical panels are not allowed in bathrooms or clothes closets.

- \*Bathrooms require a dedicated GFI circuit.
- \*Bathrooms must be provided with ventilation via a window with at least 1.5 square feet of open area or a mechanical exhaust fan with a minimum rating of 50 cfm. Rigid metal duct creates much less resistance to air flow and will improve the efficiency of your bath fan.
- \*Toilets must be installed in a space at least 30 inches wide and at least 21 inches of clear space must be provided in front of the toilet.
- \*Showers should have a clear space within the stall of at least 30 inches.
- \*Fireplaces and stoves may be installed in basements but must be installed in strict accordance with the manufacturers written instructions.
- \*Gas-fired furnace or water heater cannot be in a bedroom, bathroom or closet.
- \*You must provide combustion air to furnace and clear 30" working space in front of furnace.
- \*A water heater must be able to be removed with the furnace intact.
- \*Supply and return air is required for all habitable rooms.
- \*Bedrooms must be at least 70 square feet in area.
- \*Nail plates should be installed wherever nails or screws may come in contact with electrical wiring, plumbing, or gas piping.

### **EGRESS WINDOWS**

An egress window is required whenever a bedroom is created or whenever a basement is enlarged unless the dwelling has a fire sprinkler system. If an egress window is installed in a basement bedroom, an additional egress window is not required in the balance of the basement unless there are additional bedrooms. See the Windows and Doors handout for information on egress windows.

### **GENERAL FRAMING INFORMATION**

Non-bearing wood framed walls may be 2X4 studs at 16 or 24 inches on center. Walls must have a bottom plate and at least a single top plate. Plates in contact with concrete floors must be treated wood, redwood, or cedar unless there is a vapor retarder under the slab. For stud size and spacing for bearing walls, contact the Building Department. Wood used for framing soffits may be 2X2 material.

Headers in non-bearing walls may consist of a 2X4 laid flat for openings up to 8 feet wide. No cripples or blocking are required above the header provided the distance from the header to the floor joist above is not more than 24 inches. For headers in bearing walls, contact the Building Department.

Do not remove any existing partitions unless you have determined that they are not load bearing partitions. If any portion of a load bearing partition is removed, a header or beam must be installed to transfer the load to a footing.

Treated wood furring strips not less than 1X2 inches may be attached directly to the interior of exterior masonry or concrete walls below grade or untreated strips may be used if an approved vapor retarder is installed between the wall and the furring strips.

Wood veneer paneling must be placed on wood framing spaced not more than 16 inches on center. Wood veneer paneling less than  $\frac{1}{4}$  inch nominal thickness must have not less than a  $\frac{3}{8}$  inch gypsum board backer.

### **DRILLING AND NOTCHING OF FRAMING MEMBERS**

Drilling and notching of open web trusses or laminated veneer lumber (LVL) beams is not permitted without an approved design from the manufacturer or a structural engineer.

Drilling and notching of I-joists is permitted in accordance with the manufacturers written installation instructions. You should obtain a copy of these instructions before starting any work.

#### **FIREBLOCKING**

Fireblocking is required in a number of locations throughout a dwelling to impede the spread of smoke, hot gases, and flames through the framework in the event of a fire. The two most common locations where fire blocking is required in a basement are at concealed wall to ceiling intersections and at wire/pipe/duct penetrations. Anytime there is a concealed path from a stud space into the ceiling, that path must be fireblocked. Also, whenever a pipe, wire, or duct penetrates the top of a wall, the space around the penetration must be fireblocked. Fireblocking may consist of 2-inch nominal lumber, two thicknesses of 1-inch nominal lumber,  $\frac{3}{4}$  -inch plywood or particleboard with joints backed with  $\frac{3}{4}$  -inch plywood or particleboard,  $\frac{1}{2}$  -inch gypsum board, or batts or blankets of mineral wool or glass fiber insulation. Fireblocking should be installed and inspected as part of the framing or insulation inspection.

There are also a number of approved caulk on the market that are approved for fireblocking small areas. You may find these easier and quicker to use than the more generic methods. These materials are available a local building supply stores. Be sure the caulk that you buy is labeled as non-combustible.

Please obtain a copy of the handout on Fireblocking available from the Building Department.

#### **CARBON DIOXIDE AND SMOKE ALARMS**

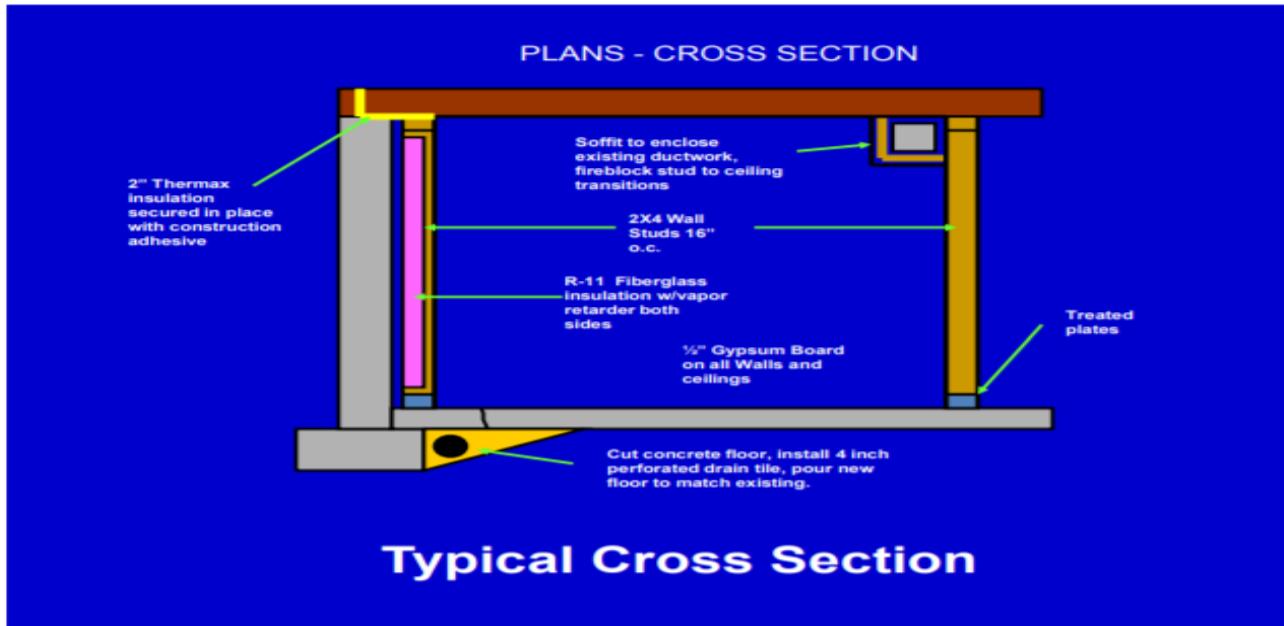
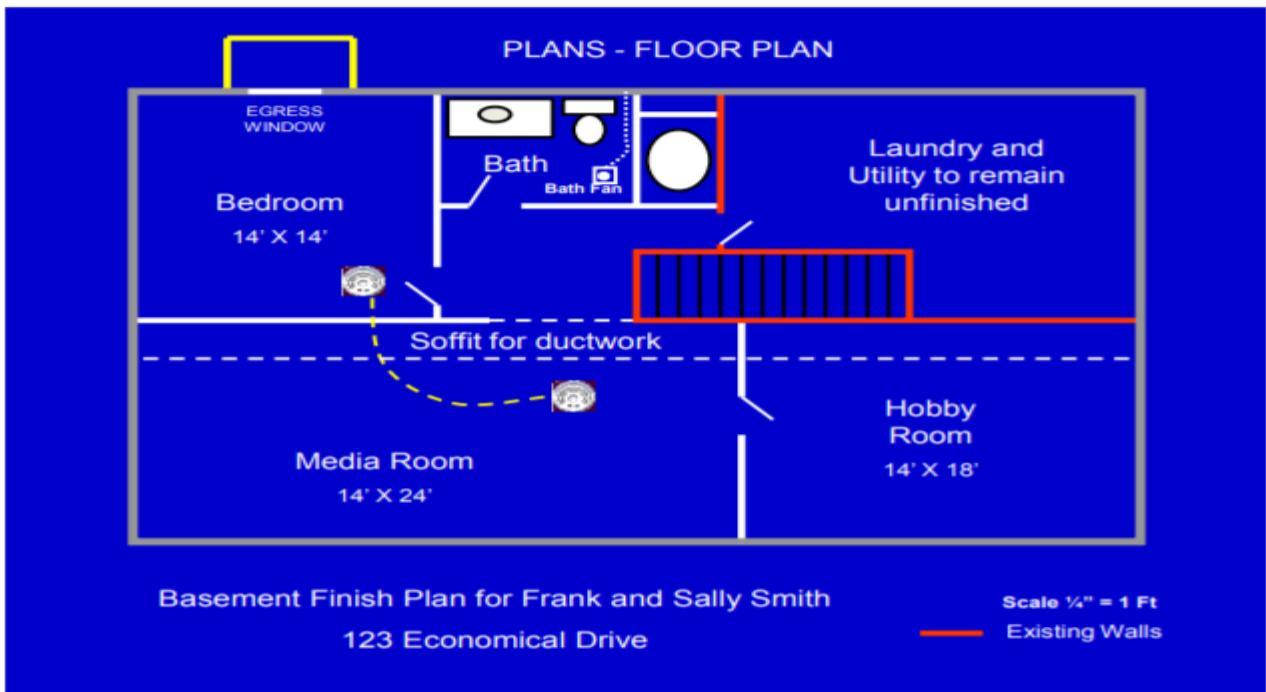
Carbon monoxide alarms must be installed outside and not more than ten feet from each sleeping room on each floor. Smoke alarms must be located in each bedroom and on each floor of the dwelling including the basement. Alarms must be installed in accordance with the manufacturers written instructions. Where framing is exposed, alarms must be hard wired with a battery backup and must be interconnected with other hardwired alarms. When framing is not exposed or it is not feasible to hardwire a smoke alarm, one detector must be hardwired and the others communicate with it.

#### **COMBUSTION AIR FOR FURNACES AND WATER HEATERS**

If you are enclosing the space housing your furnace and/or water heater, you may need to provide additional combustion air by installing an exterior combustion air duct or providing openings in the enclosing walls or doors. If you have any questions regarding the issue of combustion air, please contact the Building Department.

#### **ELECTRICAL, PLUMBING, AND HEATING INSTALLATIONS**

All electrical, plumbing, and mechanical work is subject to permits and inspections. Separate permits are required and may be obtained through the Building Department. A licensed contractor is recommended for these trades.



**R305.1 Minimum height.**

*Habitable space*, hallways and portions of *basements* containing these spaces shall have a ceiling height of not less than 7 feet (2134 mm).

Bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).

**Exceptions:**

1. For rooms with sloped ceilings, the required floor area of the room shall have a ceiling height of not less than 5 feet (1524 mm) and not less than 50 percent of the required floor area shall have a ceiling height of not less than 7 feet (2134 mm).
2. The ceiling height above bathroom and toilet room fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a showerhead shall have a ceiling height of not less than 6 feet 8 inches (2032 mm) above an area of not less than 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.
3. Beams, girders, ducts or other obstructions in *basements* containing *habitable space* shall be permitted to project to within 6 feet 4 inches (1931 mm) of the finished floor.

**R305.1.1 Basements.**

Portions of *basements* that do not contain *habitable space* or hallways shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).

**Exception:** At beams, girders, ducts or other obstructions, the ceiling height shall be not less than 6 feet 4 inches (1931 mm) from the finished floor.