

Township of Raritan

FINISH BASEMENT REQUIREMENTS IN EXISTING ONE- AND TWO-FAMILY DWELLINGS

Revised 05/21/2020

The following are requirements from other agencies and/or departments that must be obtained before we can review your application:

* Hunterdon County Health Department permit (if your property has a septic system) Approved copy must be provided with Construction Permit application.

*Raritan Township Zoning Permit approved copy must be provided with Construction Permit application

1. As part of your completed Construction Permit Application, please submit two sets of scaled drawings including detailed dimensions. All drawings should indicate owner's name, address of job site, block and lot number. Owner's signature must be on all pages of drawings. To draw your own plans, you must be owner and occupant of said property, if not, you will need drawings by a New Jersey registered architect.

CONTRACTORS CANNOT PREPARE DRAWINGS.

2. **Plans:** The drawings submitted shall include the following information.

(a) Label use of all rooms.

(b) Show entire basement floor plan indicating the locations of partitions, doors, windows, stairways, guards, handrails, closets, columns, electrical layout, furnace, water heater, chimney, draft stopping, and smoke detector.

(c) Show wall cross section indicating top and bottom plate, stud sizes, stud spacing, insulation, all fire blocking, wall covering materials, floor material, and ceiling material.

(d) Indicate on the plans if the finished basement will be heated or unheated. If the basement is to be heated please indicate the location of all supply and return diffusers and or other type of heating for the basement to be used.

Note: Any separate unconditioned space must be properly separated from the thermal envelope space. Building Thermal Envelope means the floors, walls, and other building elements that create a boundary between the conditioned and unconditioned spaces.

3. **Bedrooms:** A room in the basement may not be used as a bedroom unless it has a door directly to the outside, or a means of egress window.

4. **Guardrails:** Guards on the sides of stairways with a total rise over 30 inches must be 34 inches or more in height measured vertically from leading edge of tread to the top of the rail. The guardrails on stairways shall be constructed so that a sphere with a diameter of 4 3/8 inches cannot pass through any opening. Raised floor surfaces located more than 30 inches above the floor or grade below shall have guards not less than 36 inches in height. Required guards on raised floor areas shall have intermediate rails or ornamental closures which do not allow passage of a sphere 4 inches in diameter. Guards shall be designed and constructed for a concentrated load of 200 pounds applied at any point and in any direction along the top railing member. The in-fill area of a guardrail system shall be designed and constructed for a horizontal concentrated load of 50 pounds applied on a one square foot area at any point in the system, including intermediate rails or other elements serving this purpose.

5. **Stairways:** Stairways shall have a minimum width of 36 inches, maximum riser height of 8 ¼ inches, and minimum tread depth of 9 inches. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. A nosing not less than ¾ inch but not more than 1 ¼ inches shall be provided on stairways with solid risers. Minimum headroom of 6 feet 8 inches measured vertically from the tread nosing.

Fire blocking shall be installed in concealed spaces between stair stringers at the top and bottom of the run. Fire blocking material shall consist of two-inch nominal lumber or one thickness of 23/32 plywood.

6. Handrails:

- a. Required on at least one (1) side of all continuous run of treads or flight with 4 or more risers.
- b. Minimum of 30" and maximum of 38" high measured vertically from top of nosing of tread.
- c. Equivalent grasp ability of all handrails is required. There are 2 types of handrails, (See 2018 IRC/NJ Edition section R311.7.7.3. for complete grasp ability requirements).
- d. If mounted on a wall or a guardrail, minimum space between the wall or guard and the handrail is 1 1/2 ".
- e. Ends of the handrails shall be returned to a post or wall or terminate into a post or safety terminal.

7. Combustion Air: Combustion air is required to keep your fuel-fired furnace and water heater burning properly. Consult the manufacturer's instruction manual or contact the Plumbing Subcode Official for guidance in this area.

8. Wood in contact with concrete or masonry:

Protection of wood and wood-based products from decay shall be provided in the following locations by the use of naturally durable wood or wood that is preservative-treated in accordance with AWPA U1 for the species, product, preservative and end use. Preservatives shall be listed in Section 4 of AWPA U1. Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier. Wood furring strips or other wood framing members attached directly to the interior of exterior masonry walls or concrete walls below grade except where an approved vapor retarder is applied between the wall and the furring strips or framing members.

9. Interior Finish:

Flame spread index. Wall and ceiling finishes shall have a flame-spread classification of not greater than 200. Smoke – development index. Wall and ceiling finishes shall have a smoke-developed index of not greater than 450.

10. Paneling: Wood veneer paneling and hardboard paneling shall be placed on wood or cold-formed steel framing spaced not more than 16 inches on center. Wood veneer and hard board paneling less than ¼ inch nominal thickness shall have not less than 3/8-inch gypsum board backer. Wood veneer paneling not less than ¼ inch nominal thickness shall conform to ANSI/HPVA HP-1. Hardboard paneling shall conform to CPA ANSI/ A135.5.

11. Heating/Cooling: Several things need to be provided and considered when finishing a basement. If you are to provide any heating or cooling of the finished area of the basement or if the space has uninsulated ductwork, then there are energy conservation code issues that must be addressed. This involves creating a barrier between the "conditioned space" and that of the "unconditioned space". This is known as the "Building Thermal Envelope". This envelope is the barrier between the heated/cooled space and any space that is not heated or cooled. An insulation barrier is required to create this barrier. Important to note is the definition of "Conditioned Space" which is an area or room within a building being heated or cooled, containing uninsulated ducts, or with a fixed opening directly into an adjacent conditioned space. Therefore, even areas where there is UNINSULATED DUCTWORK a conditioned space is created. There are several methods that one can use to deal with this energy conservation matter. The method or methods use must be based on the establishment of the Building Thermal Envelope and the "encapsulation of the conditioned space. With that in mind, the plans submitted must identify the following items to indicate code compliance:

1. Is the existing ductwork insulated or not. If insulation is to be installed on the ductwork, this needs to be noted on the plans and the minimum R value is R-6

2. Any newly installed ductwork will need to be insulated IF it is in not located within the Building Thermal Envelope.

3. Indication on the plans of the location of the Building Thermal Envelope. This could be a statement on the plans identifying the walls to be used as the barrier between the conditioned and unconditioned spaces.

4. Note that you may need to provide insulation on a wall that is not part of the actual construction work such as within an unfinished area or the utility space. This is all dependent on where the Building Thermal Envelope is to be created or designated.

INTERNATIONAL RESIDENTIAL CODE 2018 – NEW JERSEY EDITION

R302.11 Fire blocking required.

In combustible construction, fire blocking shall be provided to cut off all concealed draft openings (both vertical and horizontal) and to form an effective fire barrier between stories, and between a top story and the roof space. Fire blocking shall be provided in wood-frame construction in the following locations:

1. In concealed spaces of stud wall and partitions, including furred spaces and parallel rows of studs or staggered studs, as follows:

1.1 Vertically at the ceiling and floor levels.

1.2 Horizontally at intervals not exceeding 10 feet.

2. At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.

3. In concealed spaces between stair stringers at the top and bottom of the run. Enclosed spaces under stairs shall comply with Section R302.7.

4. At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion. The material filling this annular space shall not be required to meet the ASTM E 136 requirements.

5. For the fire blocking of chimneys and fireplaces, see Section R1003.19.

R302.11.1 Materials.

Except as provided in Section R302.11, Item 4, fire blocking shall consist of the following materials.

1. Two-inch nominal lumber.

2. Two thicknesses of 1-inch nominal lumber with broken lap joints.

3. One thickness of 23/32-inch wood structural panels with joints backed by 23/32 -inch wood structural panels.

4. One thickness of 3/4 -inch particleboard with joints backed by 3/4-inch particleboard.

5. One-half-inch gypsum board.

6. One-quarter-inch cement-based millboard.

7. Batts or blankets of mineral wool or glass fiber or other approved materials installed in such a manner as to be securely retained in place.

R302.11.1.1 Batts or blankets of mineral or glass fiber.

Batts or blankets of mineral or glass fiber or other approved non-rigid materials shall be permitted for compliance with the 10-foot horizontal fire blocking in walls constructed using parallel rows of studs or staggered studs.

R302.11.2 Fire blocking integrity.

The integrity of all fire blocks shall be maintained.

R317.3.1 Fasteners.

Fasteners for pressure-preservative and fire-retardant-treated wood shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Coating types and weights for connectors in contact with preservative-treated

wood shall be in accordance with the connector manufacturer's recommendations. In the absence of the manufacturer's recommendations, a minimum of ASTM A 653 type G185 zinc-coated galvanized steel, or equivalent, shall be used.

R302.12 Draftstopping required.

In combustible construction where there is usable space both above and below the concealed space of a floor/ceiling assembly, draft stops shall be installed so that the area of the concealed space does not exceed

1,000 square feet. Draft stopping shall divide the concealed space into approximately equal areas. Where the assembly is enclosed by a floor membrane above and a ceiling membrane below draft stopping shall be provided in floor/ceiling assemblies under the following circumstances:

1. Ceiling is suspended under the floor framing.
2. Floor framing is constructed of truss-type open-web or perforated members.

R302.12.1 Materials.

Draft stopping materials shall not be less than ½-inch gypsum board, 3/8-inch wood structural panels, 3/8-inch Type 2-M-W particleboard or other approved materials adequately supported. Draft stopping shall be installed parallel to the floor framing members unless otherwise approved by the building official. The integrity of all draft stops shall be maintained.

UCC N.J.A.C.5:23-6.6 (e)15. Insulation. When the work being performed creates or exposes the roof decking/sheathing or the framing of any wall, floor, ceiling, or roof assembly that is part of the building thermal envelope (encloses conditioned space), any accessible voids in insulation shall be filled using insulation meeting the R-values of Table 402.1.1 of the residential energy code for wood framing and of Table 402.2.5 of the residential energy code for metal framing equivalents or of residential energy code for metal framing equivalents or of Table 5.5-5 of the commercial energy code, as applicable.

i. In the event that insulation meeting the R-values above cannot be installed due to space constraints, insulation that fills the cavities of the framed assembly shall be installed.

The following is a list of necessary inspections (as applicable):

Rough Electrical

Rough Plumbing

Plumbing Venting, Waste, Waster and Gas pressure test.

Rough Fire (as applicable).

Draft Stopping

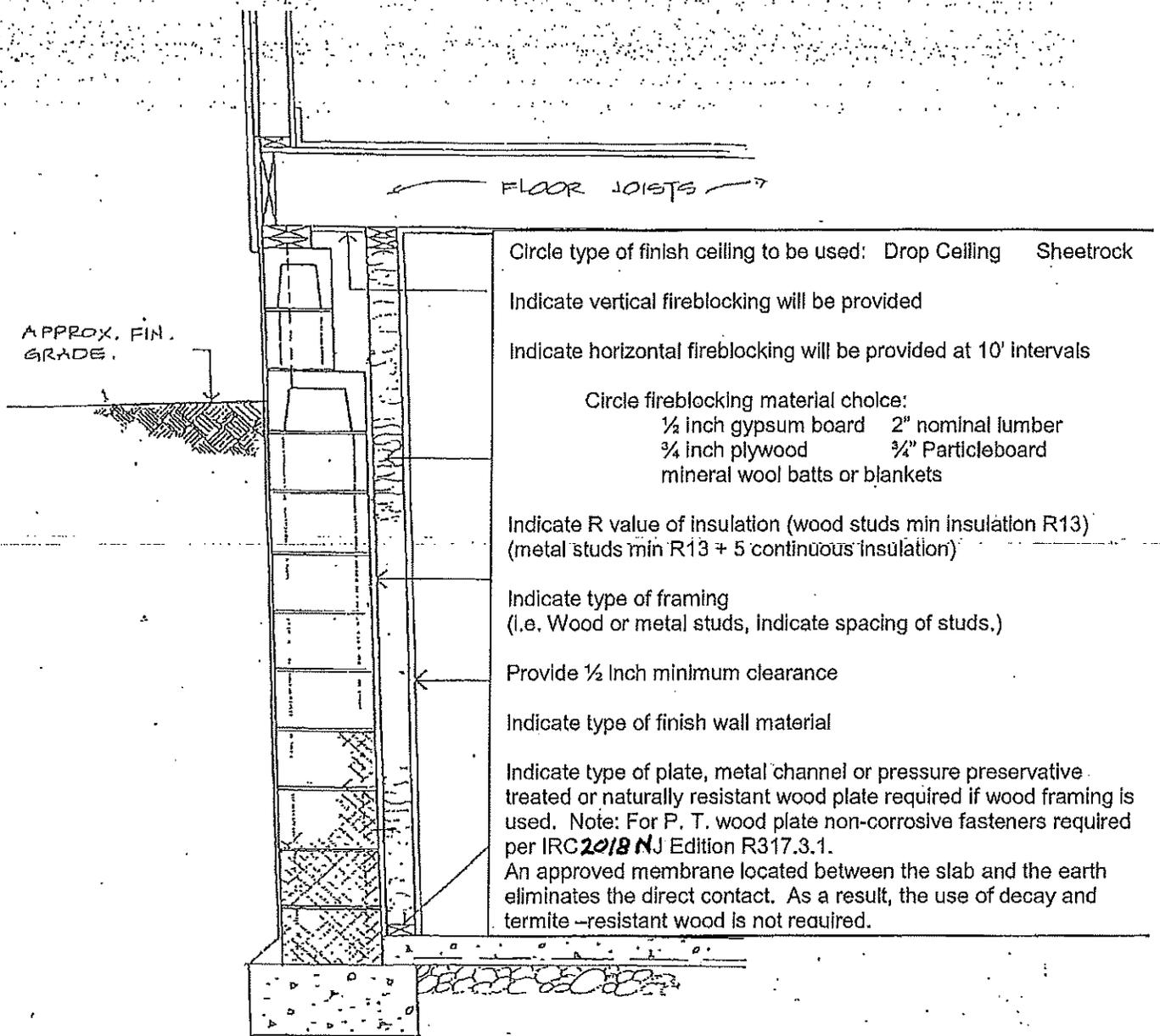
Framing (**after all rough inspections have been approved**)

Insulation

Above Ceiling Building

Above Ceiling Electric

All Finals (Building, Electric, Plumbing, Fire)



Circle type of finish ceiling to be used: Drop Ceiling Sheetrock

Indicate vertical fireblocking will be provided

Indicate horizontal fireblocking will be provided at 10' intervals

Circle fireblocking material choice:

- 1/2 inch gypsum board 2" nominal lumber
- 3/4 inch plywood 3/4" Particleboard
- mineral wool batts or blankets

Indicate R value of insulation (wood studs min insulation R13)
(metal studs min R13 + 5 continuous insulation)

Indicate type of framing
(i.e. Wood or metal studs, indicate spacing of studs.)

Provide 1/2 inch minimum clearance

Indicate type of finish wall material

Indicate type of plate, metal channel or pressure preservative treated or naturally resistant wood plate required if wood framing is used. Note: For P. T. wood plate non-corrosive fasteners required per IRC **2018** NJ Edition R317.3.1.

An approved membrane located between the slab and the earth eliminates the direct contact. As a result, the use of decay and termite-resistant wood is not required.

Wall Section

Finished Basement Requirements

Scale: 3/4" = 1'-0"