

RB108-13

R305.1, R305.1.1

Proposed Change as Submitted

Proponent: Rick Davidson, City of Maple Grove, Association of Minnesota Building Officials
(rdavidson@maplegrovern.gov)

Revise as follows:

SECTION R305 CEILING HEIGHT

R305.1 Minimum height. *Habitable space*, hallways, ~~bathrooms, toilet rooms, laundry rooms~~ 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).

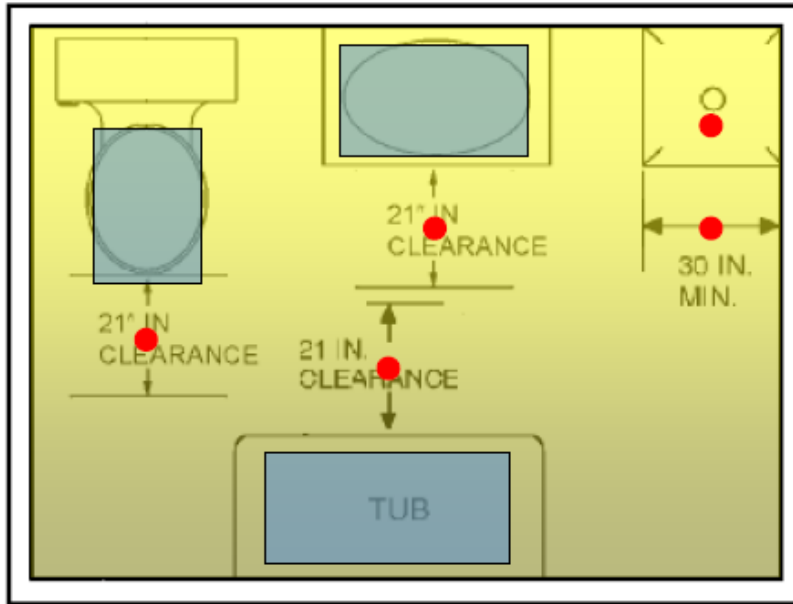
Exceptions:

1. For rooms with sloped ceilings, at least 50 percent of the required floor area of the room must have a ceiling height of at least 7 feet (2134 mm) and no portion of the required floor area may have a ceiling height of less than 5 feet (1524 mm).
2. ~~Bathrooms shall have a minimum ceiling height of 6 feet 8 inches (2032 mm) at the center of the front clearance area for fixtures as shown in Figure R307.1.~~ 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 minimum ceiling height of 6 feet 8 inches (2032 mm) above a minimum area 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.

R305.1.1 Basements. Portions of *basements* that do not contain *habitable space*, or hallways, ~~bathrooms, toilet rooms and laundry rooms~~ shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).

Exception: Beams, girders, ducts or other obstructions may project to within 6 feet 4 inches (1931 mm) of the finished floor.

Reason: This proposal sets the required ceiling height for bathrooms, toilet rooms, and laundry rooms at 6 feet 8 inches. The current language requires ceiling heights in these spaces to be 7 feet. Then the exception allows the ceiling height to be 6 feet 8 inches in front of the fixtures (the most used area of the space) so the exception is really the rule. It only makes sense that the entire room be permitted to be 6 feet 8 inches, not just the most used areas of the room.



- 7" Ceiling height required.
- 6' 8" Ceiling height permitted.
- Fixture capable of being used.

Cost Impact: None

R305.1-RB-DAVIDSON

Committee Action Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The committee approved this code change proposal because they felt that, if the ceiling height can be 6'-8" in front of a plumbing fixture, why not the entire bathroom. This will provide more flexibility in basements. Laundries are similar to bathrooms in that their use is temporary and a lower ceiling in these types of spaces would not create an inconvenience or sacrifice health or safety concerns.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

SECTION R305 CEILING HEIGHT

R305.1 Minimum height. ~~Habitable space, spaces and~~ 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 that are not~~ habitable spaces shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).

Exceptions:

1. ~~For Habitable rooms with sloped ceilings; shall have~~ at least 50 percent of the required floor area ~~of the room must have with~~ a ceiling height of at least 7 feet (2134 mm) and no portion of the required floor area may have a ceiling height of less than 5 feet (1524 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. Rooms that are not habitable spaces with sloped ceilings shall have a ceiling height of not less than 6 feet 8 inches over 50 percent of the provided floor area. Bathrooms and toilet rooms shall have not less than 6 feet 8 inches at the front of fixtures.~~ A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6 feet 8 inches (2032 mm) above a minimum area 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.

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:

3. Beams, girders, ducts or other obstructions may project to within 6 feet 4 inches (1931 mm) of the finished floor.

Reason: The ICC Building Code Action Committee (BCAC) is submitting this public comment to address the code development committees concerns. The BCAC thinks that RB108 (*approved as submitted*) has technical flaws and reads poorly. The BCAC recommends several changes:

507.1. As we interpret the proponent's change, he wants to allow 7' ceilings in all habitable spaces and hallways and 6'-8" ceilings in all other non-habitable spaces.

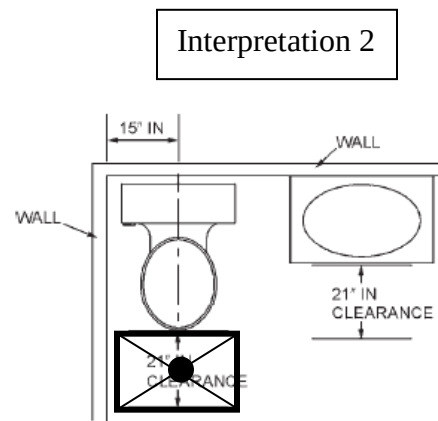
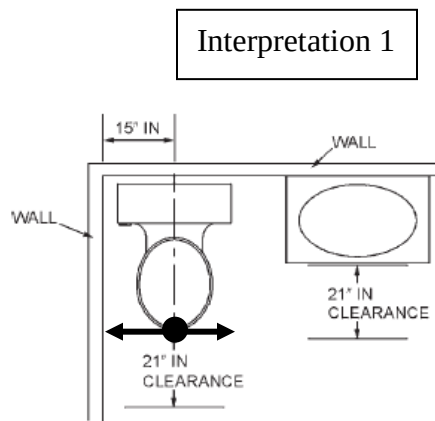
In our public comment we rewrote this section to more clearly differentiate the requirements between habitable rooms/hallways with other non-habitable rooms: bathrooms, toilet rooms, laundry rooms plus closets, utility rooms, etc.

The BCAC tried to close a hole in the proponents proposal: what height are *other* non-habitable spaces, such as closets, utility rooms, corridors, storage rooms, etc, which were not mentioned – you don't know if they are supposed to be 6'-8" or 7'-0".

Exception 1: We tried to more clearly say that this exception only applies to habitable rooms and hallways with sloped ceilings. The existing language never applied to non-habitable rooms anyway, because they never had a "required floor area".

Exception 2 has flaws:

1. The proponent purposely eliminated the 6'-8" headroom requirement in front of bathroom and toilet room fixtures by striking the first sentence. He is relying on vague language that says that the headroom above the fixtures shall be such that it can accommodate the intended purpose of the fixture. THIS IS FUNDAMENTALLY WRONG! We are not designing for the "intended purpose" of the fixture, but rather the height of the user. The code has always designed for 6'-8" tall people (i.e. doorways, stairways, etc).
2. As currently approved, bathrooms and toilet rooms would have to have a minimum head room of 6'-8" and preclude many applications for powder rooms under stairs. Therefore we drafted a new first sentence to mirror exception 1, but for "other non-habitable rooms with sloped ceilings". Similar to exception 1, we added a provision that at least 50% of the *provided* floor area had to have at least 6'-8" headroom. We put back in the 6'-8" headroom requirement in front of fixtures for bathrooms and toilet rooms.
3. From the 2012 IRC: What does "center of the clearance area" really mean? I thought that this was perfectly clear, but after talking with others, I have found out that my interpretation was not universal. The existing language is confusing, and RB108, as submitted, does not rectify the issue.



Some folks would argue that the word “center” applies to the center of the *front* of the clearance area as in interpretation 1. I have always thought “center” applied to the center of the *clearance area*, as shown in interpretation 2 (i.e. half way back of the 21” clearance as measured from the edge of the fixture). Exception 2 was reworded to say that interpretation 1 is the intention.

R305.1.1

By changing the language in Section R305.1, Section R305.1.1 was no longer required.

We moved the exception up to number 3.

Public Comment 2:

Matt Black, Hampton city, representing self, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

SECTION R305 CEILING HEIGHT

R305.1 Minimum height. ~~Habitable spaces, and~~ 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, closets, storage rooms and utility spaces shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).

Exceptions:

1. For rooms with sloped ceilings, at least 50 percent of the required floor area of the room must have a ceiling height of at least 7 feet (2134 mm) and no portion of the required floor area may have a ceiling height of less than 5 feet (1524 mm).
2. Bathrooms, toilet rooms, laundry rooms, closets, storage rooms and utility spaces with sloped ceilings shall have a ceiling height of not less than 6 feet-8 inches over 50 percent of the provided floor area or 35 square feet, whichever is the lesser. The ceiling height above bathroom and toilet room fixtures shall be such that the fixture is capable of being used for its intended purpose. Bathrooms and toilet rooms shall have a ceiling height of not less than 6 feet 8 inches at the front of fixtures. A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6 feet 8 inches (2032 mm) above a minimum area 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.
3. Crawl spaces and attic spaces shall not have a minimum head room clearance.

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:

4. Beams, girders, ducts or other obstructions in basements may project to within 6 feet 4 inches (1931 mm) of the finished floor.

Commenter's Reason: RB108 was approved by the Committee but it has an inherent oversight, and this public comment is to fill in the missing blanks. The author specified the ceiling height for bathrooms, toilet rooms and laundry rooms, but did not specify the height of functional spaces, like closets and storage rooms. It also addresses when no ceiling height is required: crawl spaces and attic spaces. This public comment covers these other situations and does not leave the reader in the doubt.

The 50 percent or 35 square feet is based on two different conditions: If the room is greater than 70 square feet, all you need is 35 square feet of ceiling at 6'-8"; if the room is like a powder room under a stair and is less than 70 square feet, the minimum area would be half of the floor area. In either case, you would need 6'-8" in front of any fixtures. The language of fixtures and their "intended purpose" is extremely vague and not consistent with good code language, and has been replaced.

Public Comment 3:

Michael D. Fischer, Kellen Company, representing American Institute of Building Design, requests Approval as Modified by this Public Comment.

Replace the proposal as follows:

Revise as follows:

SECTION R305 CEILING HEIGHT

R305.1 Minimum height. *Habitable space*, hallways, ~~bathrooms, toilet rooms, laundry rooms~~ 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, at least 50 percent of the required floor area of the room must have a ceiling height of at least 7 feet (2134 mm) and no portion of the required floor area may have a ceiling height of less than 5 feet (1524 mm).
2. Bathrooms shall have a minimum ceiling height of 6 feet 8 inches (2032 mm) at the center of the front clearance area for fixtures as shown in Figure R307.1. 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 minimum ceiling height of 6 feet 8 inches (2032 mm) above a minimum area 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 (1931mm) of the finished floor.

R305.1.1 Basements. Portions of *basements* that do not contain *habitable space*, or hallways, ~~bathrooms, toilet rooms and laundry rooms~~ shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).

Exception: Beams, girders, ducts or other obstructions may project to within 6 feet 4 inches (1931 mm) of the finished floor.

Commenter's Reason: During the past several code cycles, there have been numerous changes to the ceiling height and support beam projection height for habitable spaces in basements. This creates an issue when homes built to the previous standards include beams located in unfinished basements at heights that would allow the conversion to habitable space. Once the code changes, these spaces no longer fit the dimensions, and the option to convert this "future finished basement" evaporates. Rarely do codes become retro-active to previous construction, but this is one case where code changes can affect existing designs.

The 2003 IRC allowed ceiling heights in habitable basement spaces to be at 7 feet above the finished floor (a.f.f.), and beams could project 6 inches lower than the ceiling (to 6'6"). Non-habitable spaces in basements could have ceilings at 6'8", with beams at 6'4". Designers could set the non-habitable basement ceiling height at 7', with beams at 6'6", knowing that the space could later be converted to habitable space.

The 2009 IRC removed the 6" projection below the ceiling height as an option. Under this change, designers would have no option for any beam heights below 7' in any habitable basement space. Beams could be located at 6'4" in non-habitable basements. The proposed modification would reinstate the option to accommodate beams and girders in basements containing habitable spaces. With this language added, the designer can establish the ceiling height of an unfinished basement at 7 feet, while setting the beam height at 6'4" a.f.f., thus allowing for the basement to be converted to habitable space.

There are numerous reasons why restoring this design option make sense. Allowing ducts to be located within conditioned basement space can help improve the energy efficiency of the home, and finishing basements to add living space is an important design option- saving space and optimizing the available floor area. The sloped ceiling option would theoretically allow the designer to encase beams within sloped ceilings that are permitted to be as low as 5 feet a.f.f., so restoring this option does nothing to adversely impact ceiling clearances. This option provides greater design flexibility and versatility of the space, while maintaining appropriate levels of safety.

RB108-13

Final Action:

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