HAYES STRUCTURAL
Consulting & Design, PLLC

NC FIRM LICENSE NO.: P-2854
1991 EDDIE HOWARD ROAD | WILLOW SPRING, NC 27592
ZACH@HAYESSTRUCTURAL.COM | (919) 210-3480

Date: April 19, 2024

To: Kyle Terrett
Provision Building Co
PO Box 10092
Raleigh, NC 27605

Re: 24-FRM-051
Structural Analysis
50 Alban Row
Fuquay-Varina, NC 27526

Mr. Terrett:

At your request, the plans were reviewed for the above referenced single family residence renovation under construction to address two framing concerns noted by the inspector.

Observations:

1. You indicated the plan specified double rafter above the wall between the playroom and bedroom was not installed. You also indicated the plan specified knee wall on top of the noted wall was not installed.
2. You indicated a Schluter-Shower System will be installed to create a recessed curbless shower in the upstairs ADA bathroom in lieu of framing out the shower with flush beams and installing 2x8 floor joists beneath the shower per plan.

Recommendations:

1. Review of the plans revealed the wall between the playroom and bedroom to be a shear wall, requiring bracing at the top. The knee wall is to be framed on top of the noted wall per plan. In lieu of the double rafter, 2x8 blocking spaced 16” o.c. is to be installed between the adjacent rafters. Blocking is to be fastened to the adjacent rafter at each end with (2) 16d nails and to the double top plates of the knee wall with (3) 8d toe nails. See detail 1 on sheet SP2.0 and note D on sheet S4 for additional information.
2. The plan specified flush beams framing out the shower and 2x8 floor joists are not required. The Schluter-Shower System is to be installed per the attached detail.

These prescribed framing configurations will provide the required support for all applied loads.

Please call me if you have any questions.

Respectfully submitted,

Zachary H. Hayes, PE
Owner/Structural Engineer
Hayes Structural Consulting & Design, PLLC

Digitally signed by Zachary H. Hayes, PE
Date: 2024.04.19 18:28:10 -04'00'

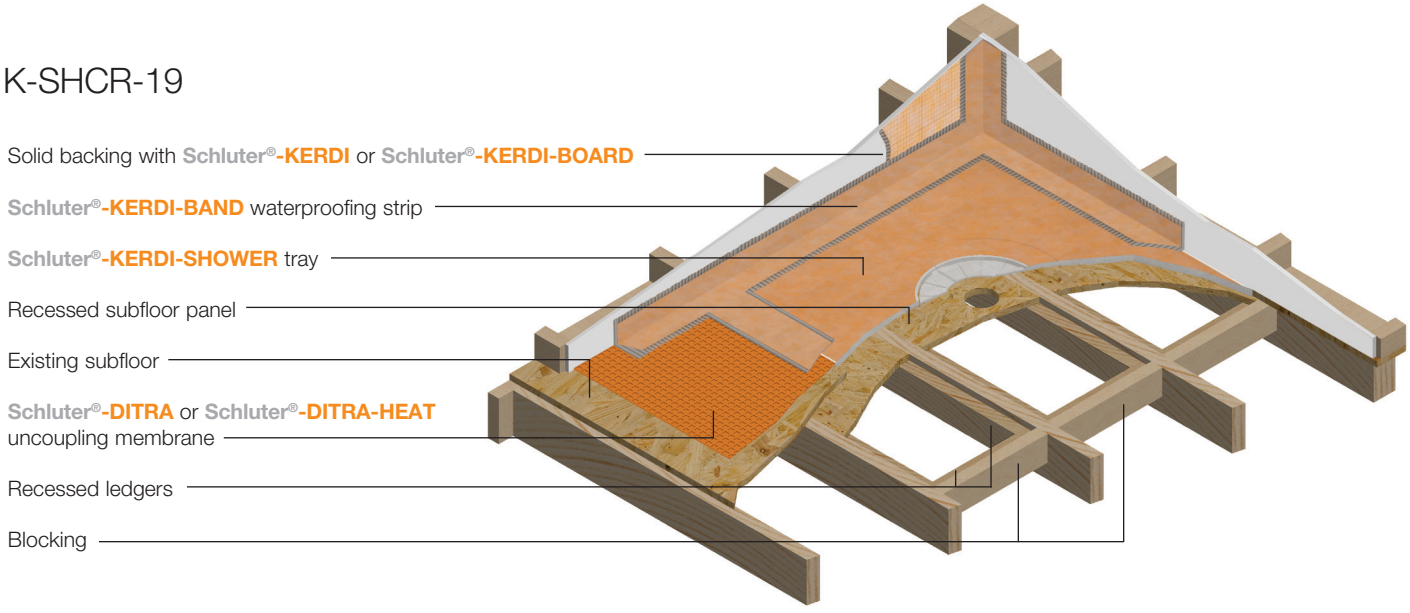
Attachment: Schluter-Shower System Recessed Curbless Shower Detail [(2) sheets]

Schluter®-Shower System

RECESSED CURBLESS SHOWER DETAIL

Open concept bathrooms are coveted for their sleek design and consummate functionality. While ideal for all life stages of a growing family, curbless showers are exceptionally optimal for those who wish to age in place. The lack of threshold or curb opens up the shower area to the rest of the bathroom, making the whole room easier to clean and maintain. Flexibility in design is enhanced through the use of tile, both large-format and mosaic. And now, with the new Schluter®-KERDI-SHOWER-TT shower tray featuring a thin perimeter height and specifically designed for curbless applications, you can create the shower of your dreams...

K-SHCR-19



Recessed Curbless Shower

Areas of Application
- interior showers with curbless access
- over wood subfloors. See the Base information under Requirements (below) for details.

Limitations
- certain glass tiles may not be compatible with bonded waterproof membranes and/or may require special setting materials. Consult glass tile manufacturer and Schluter®-Systems for more information.
- certain moisture sensitive stones, e.g., green marble, or resin-backed tiles may not be appropriate for use in wet areas such as steam showers or may require special setting materials. Consult stone supplier and Schluter®-Systems for more information.

Requirements
- plywood or OSB subfloor must be clean, even, and load bearing.
- maximum spacing of joists is 19" *(488 mm)* o.c.
- minimum subfloor thickness – 23/32", 3/4" nom. *(19 mm)* tongue-and-groove OSB or plywood with 1/8" gap between sheets. Canada: 19/32", 5/8" nom. *(16 mm)* tongue-and-groove OSB or plywood in Canada with 16" *(406 mm)* o.c. maximum joist spacing, but 23/32", 3/4" nom. *(19 mm)* subfloor recommended.
- existing subfloor panels extended over recessed panels to be installed according to Schluter Wood underlayment fastening schedule. See Wood Underlayment content in the Schluter®-DITRA Installation Handbook. Our recommendations currently support only dimensional lumber for floor joists. See alternate joist manufacturer for attachment specifications. Dimensional lumber shall not be ripped down from its original dimension and size.
- Recessing the floor of a bathroom must be done in a way that preserves the structural integrity and safety of the construction. This may require the services of a qualified design professional (e.g., architect, engineer, etc.). Verify with the local inspector or authority having jurisdiction (AHJ).
- Pre-drill holes in blocking and adjacent supports.
- Base – KERDI-SHOWER-T/-TS/TT/-LT/-LTS.
- Bench – KERDI-BOARD-SB, KERDI-BOARD, concrete, masonry block, or sawn lumber sheathed with solid backing (see above).
- KERDI-DRAIN/-LINE shall be properly supported.
- KERDI-DRAIN/-LINE shall be connected to the waste line; use ABS cement for ABS drains, PVC cement for PVC drains, a no-hub coupling for stainless steel drains with no-hub outlets, and thread sealing compound or tape for stainless steel drains with threaded outlets.
- KERDI, DITRA or DITRA-HEAT shall be installed in all floor areas subject to water exposure (i.e., wet area and drying area). Floor/wall connections shall be sealed with KERDI-BAND.
- When using the stainless steel KERDI-DRAIN bonding flange, use KERDI-FIX to bond KERDI to the drain.
- All horizontal surfaces (e.g. benches, window sills, shelves, etc.) must be sloped toward the shower drain. This can be done by sloping the substrate or the tile.

Substrate Preparation
- verify that subfloor panels and solid backing are properly fastened to framing members.
- any leveling of the subfloor must be done prior to installing KERDI-SHOWER-T/-TS/-TT/-LT/-LTS/-SR and KERDI-BOARD-SB prefabricated substrates.

Setting and Grouting Materials
- unmodified thin-set mortar – ANSI A118.1
- grout – ANSI A118.3, A118.6, A118.7

Installation Specifications
- tile – ANSI A108.5
- grout – ANSI A108.6, A108.10

Other Considerations
- curbless tiled showers rely on the slope of the floor to effectively contain water in the immediate shower area and direct water to the drain. Given the wide range of potential configurations, it isn't possible to address them all in this Handbook.
- Waterproofing must be installed in all areas subject to water exposure. Install KERDI over mortar beds and Schluter® prefabricated EPS foam substrates. Use the DITRA or DITRA-HEAT uncoupling membrane over plywood/OSB or concrete subfloors. All seams are sealed using KERDI-BAND. Please refer to the Schluter®-DITRA or Schluter®-DITRA-HEAT Installation Handbooks for complete details and warranty criteria.
- If KERDI-LINE is placed at shower entrance, it is recommended that grate assembly A, Pure, or the covering support (D) is chosen and that the drainage openings span the maximum width of the entrance to limit potential overflow; secondary drainage (e.g., KERDI-DRAIN) may be required in the drying area.
- Schluter®-SHOWERPROFILE-WS/-WSK system profiles can be used to form a splashguard at the entrance of curbless showers. See Schluter Illustrated Price List for more information.
- Various building codes and other sources, such as the Americans with Disabilities Act, include specific requirements for disabled access in public buildings and must be consulted when applicable. Areas of interest may include degree of slope, clearance, and supporting structures such as grab bars.
- When KERDI-SHOWER-T/-TS/TT/-LT/-LTS tray dimensions do not match the dimensions of the shower compartment, the tray may be cut or extended with dry pack mortar.
- A water test is strongly recommended before setting tile to verify a successful installation. Wait 24 hours minimum after the membrane installation is complete to allow for final set of thin-set mortar and ensure waterproof performance at seams and connections. Refer to local plumbing codes for any specific requirements in your area. For curbless showers a temporary dam must be provided at the threshold to perform the water test.
- Schluter®-Systems profiles may be used to finish and protect outside corners and eliminate the use of sealant at inside corners; see Schluter Illustrated Price List for more information.
- Schluter®-SHOWERPROFILE-S/-R profiles eliminate the need for cutting wedges of tile by covering the exposed wall area where the floor slopes to KERDI-LINE.
- Walls and ceilings - For complete details and warranty criteria, refer to the Schluter®-Shower System Installation Handbook.

Schluter Systems L.P. • 194 Pleasant Ridge Road, Plattsburgh, NY 12901-5841 • Tel.: 800-472-4588 • Fax: 800-477-9783
Schluter Systems (Canada) Inc. • 21100 chemin Ste-Marie, Ste-Anne-de-Bellevue, QC H9X 3Y8 • Tel.: 800-667-8746 • Fax: 877-667-2410

www.schluter.com