



Product Category Rule (PCR) Guidance for Building-Related Products and Services

Part B: Cement-based Grout, Adhesive Mortar and Self-Leveling Underlayment EPD Requirements

www.ul.com

PCR for Construction Product-Related Products and Services Part B: Cement-based Grout, Adhesive Mortar and Self-Leveling Underlayment EPD Requirements, UL 10010-39

First Edition, Dated July 1, 2022

Summary of Topics

Edition 1.1 of the PCR for Construction Product-Related Products and Services Part B: Cement-based Grout, Adhesive Mortar and Self-Leveling Underlayment EPD Requirements, UL 10010-39 has been issued.

Subject to these terms and conditions and those in any other agreements between you and UL Environment, Underwriters Laboratories Inc. (UL) and/or their representatives, you are hereby granted a limited, non-exclusive, non-transferable license to use the Product Category Rules (PCR) solely for your internal, non-commercial business purposes. The PCR is not being sold, and other than the limited license

granted herein UL retains all rights, title and interest (including exclusive ownership) in the PCR and all copyright therein. UL reserves the right to regain possession of the PCR from you at any time. When no longer needed, you agree to destroy the PCR (if in hardcopy form) or delete and purge the PCR from your

files (if in electronic form). No part of the PCR may be reproduced, modified, stored in a retrieval system, or transmitted in any form by any means, whether electronic, mechanical photocopying, recording, or otherwise without prior written permission of UL or UL Environment. You further agree not to create any derivative works from the PCR or remove or alter any copyright or other proprietary notices in the PCR. The limited license to use the standard shall automatically terminate upon your breach of any of the terms and conditions herein or any other agreement between you and UL, UL Environment and/or their representatives.

UL Environment provides this PCR "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL Environment, UL or any of their affiliates be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this PCR, even if UL Environment or UL or their authorized representative has been advised of the possibility of such damage. In no event shall UL Environment's or UL's liability for any damage ever exceed the price paid for the license to use this PCR, regardless of the form of the claim.

Users of the electronic versions of UL Environment's Product Category Rules agree to defend, indemnify, and hold UL Environment, ULI, their affiliates and each of their respective trustees, officers, employees, agents and representatives harmless from and against any loss, expense, liability, damage, claim, or judgment (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic PCR on the purchaser's computer system.



Publisher: UL Environment

Tracking of versions

Version	Comments	History
1.0	Version by UL Environment with input from external committee and accepted by an external review panel	07/08/2022
1.1	Corrections to Table 2	07/20/2022

© UL Environment

This PCR is valid for a period of five (5) years, set to expire in July, 2026.

I. Background Information and Acknowledgements

These Product Category Rules (PCR) were developed to address the product specific rules for the creation of Environmental Product Declarations (EPDs) for select cement-based grout, mortar, and leveling products and all manufacturer supplied materials required to install glass tile, ceramic tile, and stone tile. Specific examples of included versus excluded components are listed in Section II. Cement-based grout, adhesive mortar, and self-leveling underlayment products are referred to throughout this document as "grout, mortar, and leveling products." At the discretion of the Program Operator, this PCR may be applicable to grout and mortar products not specifically described herein. When used to self-reference this document, "PCR" refers to "sub-category PCR" as defined in UL's Part A PCR.

Other documents considered in the development of this PCR include:

- Product Category Rule for Portland, Blended, Masonry, Mortar, and Plastic (Stucco) Cements. NSF. 2020.
- PCR Guidance Text for Building Related Products and Services, Part B: Requirements on the EPD for Mineral factory-made mortar. Institut Bauen und Umwelt e.V. 2017.
- Part A: Life Cycle Assessment Calculation Rules and Report Requirements. UL Environment. March 2022, version 4.0.
- LCA Background Report for Mortar and Grout, v1.9. Thinkstep. August 10, 2016.
- Mortar, Grout and Self-Leveling Underlayment LCA Background Report. Thinkstep on behalf of LATICRETE International. April 25, 2016.
- ISO 21930:2017 - Sustainability in building construction -- Environmental declaration of building products
- EN 15804:2012+A2:2019 - Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction product.

This PCR assumes a minimum 75-year building service life (ASHRAE 189.1 2017, section 9.5.1.2.b) and International Green Construction Code 2018 section 901.5.1.2.

Interested Parties

This Part B has been prepared with input from the following stakeholders, each of which have completed a conflict of interest form:

- Ardex Americas, Steven Newbrough
- Bostik, Chad Bulen
- CementPro, Luis Leon
- Crest, Arturo Duarte
- Custom Building Products, Will White, Tim Kennedy
- H.B. Fuller, Greg Schad



- Laticrete International, Inc., Mitch Hawkins
- MAPEI, James Whitfield, Brittany Storm
- Nicholson Consulting, Anna Lasso
- Schluter, Dale Kempster
- Sika, Randy Cambell
- Tile Council of North America, Bill Griese
- WAP Sustainability, Manasa Rao

Governance

There are a number of representatives of grout and mortar manufacturers and other stakeholders participating in the creation of this Product Category Rule (“PCR”) for grout and mortar product systems, including those listed in the previous section. The very purpose and function of a trade association is to inform its members of important industry developments and to represent their interests in projects such as the update of a PCR affecting their products. In the development of this document, Part B, participants are responsible for ensuring alignment with Part A and conformance with the scoped standards: ISO 21930, EN 15804, and ISO 14025.

Involvement of Interested Parties

UL Environment shall be responsible for producing the PCR document by establishing an open consultation process that includes the involvement of interested parties (ISO 21930 Section 5.2 and 6.2.1). Reasonable efforts were made to achieve a consensus throughout the process (ISO 14020:2000, 4.9.1, Principle 8 and cited in both ISO 14025 and ISO 21930), demonstrated by a vote of participating interested parties.

UL posted an open call for participation in this PCR update in April 2021 via its standards website, social media outlets, and outreach to original committee stakeholders.

Update Process

The PCR is valid for a duration of five (5) years from the publication date, at which time it may be revised at the request of industry stakeholders. The PCR may be revised before the five year date if the following occurs in the industry:

- The industry desires an update
- Core governing standards ISO 14040, 14044, 14025, 14027, 21930, or EN 15804 are updated with substantial material changes

Note: When the PCR is updated, the Program Operator shall communicate with the original committee and any new EPD participants, and initiate a new public call for interested parties.

Public Consultation

Public consultation was utilized during the PCR review process. The public consultation of the completed draft PCR included a minimum 30-calendar-day period for comments to be submitted to UL Environment. After public comments were submitted, the PCR committee reviewed and developed responses for all comments. All comments from the review panel and public consultation were addressed and satisfactorily resolved by the PCR committee prior to the publication of this PCR.

Review

The review process of this Part B PCR included a review through public consultation from March 4, 2022 – April 4, 2022 and a panel review, comprised of the following individuals:

James Mellentine
Thrive ESG
jim@thriveesg.com

Jack Geibig
President, Ecoform, LLC
jgeibig@ecoform.com

Thomas Gloria, Ph.D.
Founder/Chief Sustainability
Engineer, Industrial Ecology
Consultants LLC
t.gloria@industrial-ecology.com



II. Scope

This document contains the Product Category Rule (PCR) requirements for Cement-based Grout, Mortar, and Leveling Products Environmental Product Declarations (EPDs) published in coordination with the ISO 21930 and EN 15804 standards. The requirements for the background Life Cycle Assessment (LCA) project report used to inform the EPD are contained in UL Environment's Part A: Life Cycle Assessment Calculation Rules and Report Requirements. This Part B document, coupled with the UL Part A, provides a pathway of conformance to either ISO 21930 or EN 15804 and ISO 14025 sustainability standards for EPD reporting in addition to the US Green Building Council PCR Guidance.

Note: Requirements of EN 15804:2012+A2:2019 are detailed in ULE Part A, Annex A.

This PCR has been updated to align with international standards with the intent of allowing manufacturers to create EPDs that are global in scope.

General Guidance

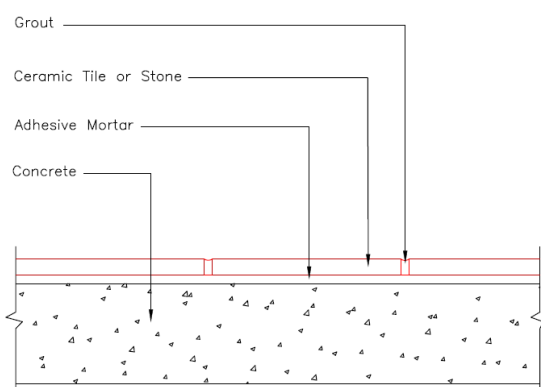
The scope of this PCR applies to the product group “grout, mortar, and leveling products” and includes all cement-based fortified mortar, grout, and leveling products designed to maximize the bonding of all types of porcelain, ceramic and natural stone tiles, interior and exterior, over most substrates in both residential and commercial applications.

Grout is used as a product for filling crevices such as the spaces and joints between wall or floor tiles and often serves as a design element during tile installation. Grouts included in this PCR may be sanded or unsanded. Mortar consists of materials such as lime, cement, sand, and water mixed together to provide an adhesive to bind two surfaces together. Secondary roles can include, but are not limited to, sound and thermal insulation, structural performance, and fire resistance. Leveling products, also called flowable hydraulic cement underlayments or self-leveling underlayment mortars, are intended for use in flattening horizontal substrates of minor irregularities in preparation for installation of various types of tiles and stone.

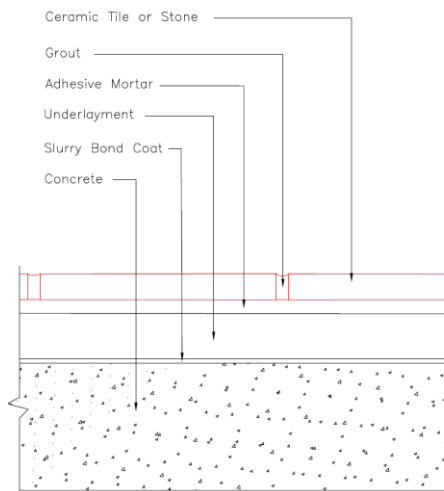
Products within the scope of this PCR are covered under one or more of the following standards:

- ANSI A118.1 American National Standard Specifications for Dry-Set Cement Mortar
- ANSI A118.4 American National Standard Specifications for Modified Dry-Set Cement Mortar
- ANSI A118.6 American National Standard Specifications for Standard Cement Grouts for Tile Installation
- ANSI A118.7 American National Standard Specifications for High Performance Cement Grouts for Tile Installation
- ANSI A118.11 American National Standard Specifications for EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar
- ANSI A118.15 American National Standard Specifications for Improved Modified Dry-Set Cement Mortar
- A118.16 American National Standard Specifications for Flowable Hydraulic Cement Underlayment / Self-Leveling Underlayment
- ISO 13007-1 Ceramic Tiles-Grouts and Adhesives-Part 1: Terms, Definitions and Specifications for Adhesives
- ISO 13007-3 Ceramic Tiles-Grouts and Adhesives-Part 3: Terms, Definitions and Specifications for Grouts

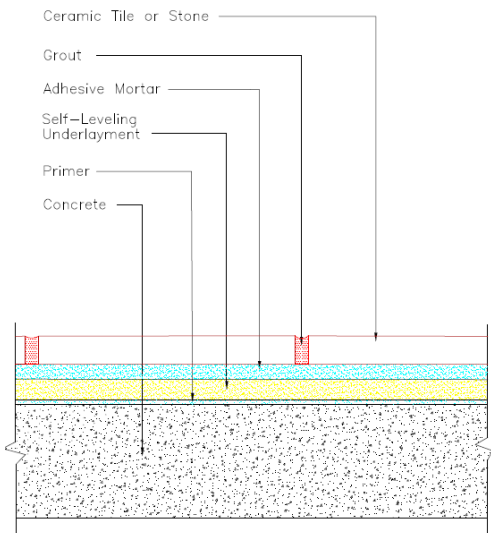
Figure 1. Grout, Mortar, and Leveler Product Scope Schematics (Residential and Commercial Flooring)



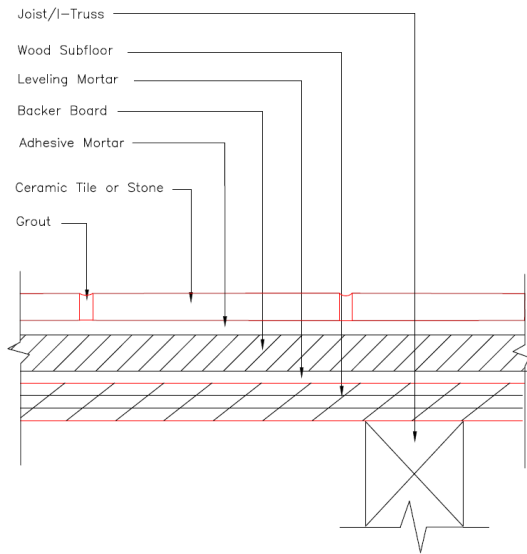
Example Concrete Flooring Direct Bond Schematic



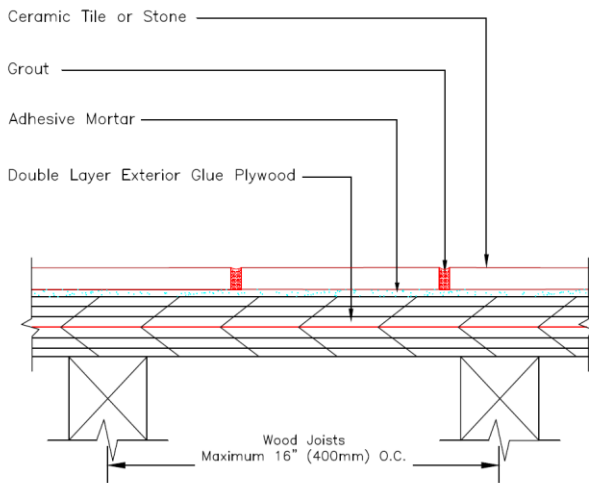
Example Concrete Flooring Bonded Mortar Bed Schematic



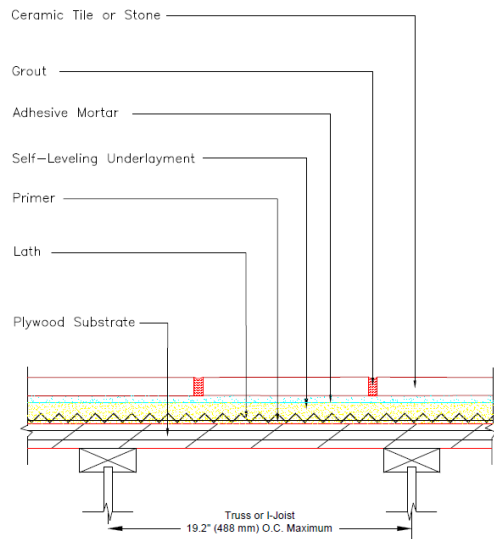
Example Concrete Flooring Flowable Hydraulic Cement/Self Leveling Underlayment Schematic



Example Wood Frame Flooring Backer Board Schematic

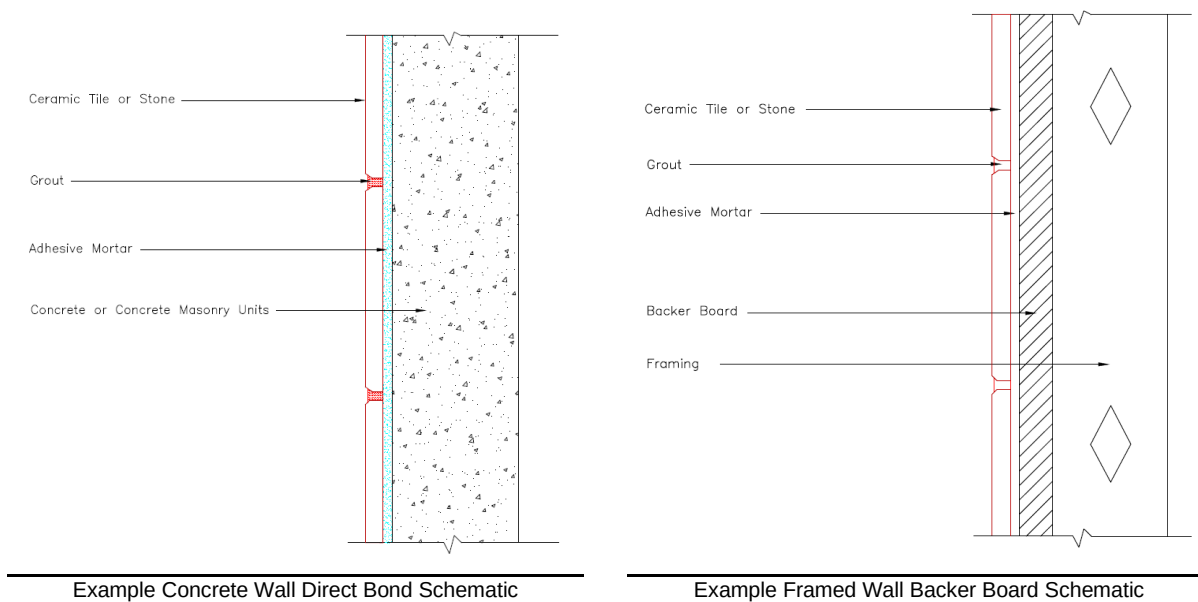


Example Wood Frame Flooring Exterior Glue Plywood Schematic



Example Self-leveling Underlayment over Wood Floor Construction

Figure 2. Grout and Mortar Product Scope Schematics (Residential and Commercial Walls)



Applicable Products

Table 1 describes the grout and mortar product systems covered within the scope of this Part B, along with their relevant Construction Specification Institute (CSI) MasterFormat codes. This list is non-exhaustive, and the CSI numbers provided reflect common applications, which can include multiple uses; other applications may exist.

TABLE 1. GROUT, MORTAR, AND LEVELING PRODUCTS AND MASTERFORMAT (CSI) NUMBERS

Grout, Mortar, and Leveling Products	CSI number(s)	CSI title
ADHESIVE MORTAR & GROUT	09 31 00	Thin-Set Tiling
	09 31 13	Thin-Set Ceramic Tiling
	09 31 16	Thin-Set Quarry Tiling
	09 31 19	Thin-Set Paver Tiling
	09 31 23	Thin-Set Glass Mosaic Tiling
	09 31 33	Thin-Set Stone Tiling
CHEMICAL-RESISTANT TILING	09 35 00	Chemical-Resistant Tiling
	09 35 13	Chemical-Resistant Ceramic Tiling
	09 35 16	Chemical-Resistant Quarry Tiling
	09 35 19	Chemical-Resistant Paver Tiling
	09 35 23	Chemical-Resistant Glass Mosaic Tiling