Development Services

From Concept to Construction

Phone: 503-823-7300 Email: bds@portlandoregon.gov 1900 SW 4th Ave, Portland, OR 97201 More Contact Info (http://www.portlandoregon.gov//bds/article/519984)

Status: Decision Rendered - Reconsideration of ID 21858	
Appeal ID: 21959	Project Address: 3407 NE Webster St
Hearing Date: 10/2/19	Appellant Name: Jeffrey Stern
Case No.: P-002	Appellant Phone: 5039573172
Appeal Type: Plumbing	Plans Examiner/Inspector: Jack Maynard, Jim Bechtel, McKenzie James, Joe Blanco
Project Type: residential	Stories: 1 Occupancy: R Construction Type: V-B
Building/Business Name:	Fire Sprinklers: No
Appeal Involves: Erection of a new structure, Reconsideration of appeal	LUR or Permit Application No.: 18-271095-RS
Plan Submitted Option: pdf [File 1] [File 2]	Proposed use: Residence / ADU

Appeal item 1

Code Section	OPSC 408.7
Requires	Lining for Showers and Receptors: Shower receptors built on-site shall be watertight and shall be constructed from approved-type dense, nonabsorbent, and noncorrosive materials. Each such receptor shall be adequately reinforced, shall be provided with an approved flanged floor drain designed to make a watertight joint in the floor, and shall have smooth, impervious, and durable surfaces.
Proposed Design	The shower floors are constructed from outside in of compacted gravel, 3" EPS insulation, 10mil vapor barrier with seams taped and sealed to the concrete stemwall, a 4" concrete sub slab, a sloped Wedi waterproof system, and a 3" sloped concrete topping slab.
	After the concrete cures for 28 days minimum, the shower floor will be ground using diamond pads of varying grit, and the floor will then be sealed with 3 coats of Mascoseal Silane 40 Penetrating Sealer following the manufacturer's recommendations. Product information is attached.
	A Silane Penetrating Sealer produces water repellency deep into the capillaries of the concrete, and provides a waterproof and stain resistant floor without altering the appearance or texture. Water completely beads on the surface making it effectively impervious, and there is no surface film to wear over time.
	The shower walls will be constructed conventionally of ceramic tile over 1/2" Wedi panels with Wedi joint sealant over the typical wall construction. At the base of the walls the Wedi panels are caulked to the concrete slab with Wedi sealant, and the concrete tiles are also caulked to the concrete slab floor.





Appeals | The City of Portland, Oregon

"Reconsideration Text"

This was discussed with Jim Bechtel by phone and email. It appears there may have been some confusion about the construction assemblies and drain type proposed. To clarify, see the attached detail and description below for the as built conditions.

The shower floor is a $\sim 1 \ 1/2$ " concrete topping slab placed on top of a waterproof shower pan membrane installed on top of a sloped sand mix (mortar).

The shower floor slopes to a 3-piece clamping drain with weep holes that are protected by a plastic cover as well as pea gravel placed around the drain. A square Ebbe riser to a square grate creates the finished surface.

The shower pan membrane runs up the walls a minimum of 3" and is sealed to the Wedi wall panels. The shower pan assembly was inspected and approved prior to constructing the shower floor.

The structure below is a traditional slab on grade, with a 4" reinforced concrete slab on a 10mil vapor barrier on 3" EPS insulation on compacted gravel base.

The shower floor will be ground with diamond grinding pads, and then will be sealed with 2 coats of Sinak HLQ-125 penetrating concrete sealer. Product information is attached. HLQ-125 is permanently waterproof, stain resistant, and provides algae and fungi control. In addition, 1 coat of Ardex CG Concrete Guard Sealer will be applied for additional protection and as a wear layer. These sealers were previously approved in Appeal ID 20498 on 06/12/2019.

 Reason for alternative
 The approved permit drawings include a section through the shower pan noting the concrete shower floor, and no comments were made at any time. This issue was brought to our attention just 2 days prior to our concrete pour, after the subcontractors and supplier had already been scheduled and confirmed. It would impact the overall construction schedule and be a financial burden on the Owner to cancel the concrete pour at the last minute.

It is our professional opinion that a properly sealed and sloped concrete topping provides a sanitary, durable, and easy to maintain shower floor. We have had showers permitted, installed and inspected using the same system on a number of projects over the past dozen years. These showers have without exception performed better than conventional tile with cement grout shower floors that require more maintenance to keep clean and free from stains and mold.

"Reconsideration Text"

This shower assembly is identical to a traditional shower but uses a monolithic sealed waterproof concrete slab in lieu of traditional tile with grout joints. If desired in the future, the concrete shower floor could be removed and replaced in the same manner as a traditional tile shower floor, without impacting the building structure.

The sealer proposed was previously approved in Appeal ID 20498 on 06/12/2019. Unlike that appeal that used the sealer in lieu of a shower pan liner, we are proposing the concrete sealer in addition to a shower pan liner.

The sealer is UL Listed Safe, is permanently waterproof, and requires no maintenance.

The Owners understand that they are responsible for the care and maintenance of the shower to prevent leakage and development of unsanitary conditions.

APPEAL DECISION

Alternate method of sealing shower receptor: Granted as proposed.

The Administrative Appeal Board finds that the information submitted by the appellant demonstrates that the approved modifications or alternate methods are consistent with the intent of the code; do not lessen health, safety, accessibility, life, fire safety or structural requirements; and that special conditions unique to this project make strict application of those code sections impractical.

Pursuant to City Code Chapter 24.10, you may appeal this decision to the Building Code Board of Appeal within 90 calendar days of the date this decision is published. For information on the appeals process, go to www.portlandoregon.gov/bds/appealsinfo, call (503) 823-7300 or come in to the Development Services Center.

SILANE / SILOXANE SEALERS

Mascoseal Silane 40%

Description: A chemical treatment that helps concrete become repellent to salt, water and other contaminations. Silane 40% is an alkyltrialkoxy silane in mineral spirits. Also available with a fugitive dye.

No.	Size
MS 5GMS40	5 gal. pail, 50 lbs., 36/pallet
MS 55GMS40	55 gal. drum, 550 lbs.

Application: Forms a permanent, chemically bonded layer within the concrete surface. This layer becomes a filter. Salt water and staining substances are repelled while water vapor passes out of the treated surface. This reduces the damaging effects of moisture penetration and the resulting corrosion of reinforcing steel. Reacts within the concrete quickly and exhibits good water repellency in 4 hrs. Sprinkling a few drops of water on the concrete surface is an easy way to check the application. The water drops should "bead" to indicate protection.

Applicable Standards: Testing performance evaluations have proven that Silane 40% is superior to olegomeric siloxanes, methacrylates, stearates, siloconates, silicates, urethanes, butadienes, chlorinated rubbers and many other coating systems for water repellency on concrete structures.

Coverage: Spray application is recommended.

Horizontal: 125 ft²/gal. Vertical: 150 ft²/gal. Rates will vary.

Read manufacturers' data sheets for complete specifications, installation procedures, and MSDS precautions. Warning: Chronic health effect possible—inhalation of silica dust may cause lung injury/disease (Silicosis). Take appropriate measures to avoid breathing dust. See page 172-173 for more information.



Clackamas | Eugene | West Eugene | Hillsboro | Medford | Portland | Salem | Wilsonville | Ridgefield | Seattle | Tacoma | Woodinville

GUIDE

Concrete sealers are being used with increasing frequency in both exterior and interior applications. When designed for use in exterior applications, the primary function of a concrete sealer is to protect concrete from freeze/thaw damage and chloride induced corrosion of the reinforcing steel. For interior use, concrete sealers are applied to floor slabs to prevent dusting and absorption of liquid spills, and to make the surface easier to clean. The sealer products available today may be classified as either film-forming or penetrating.

Film Forming-Sealers

With film-forming sealers, penetration of durable concrete will be slight at best, with most of the product remaining on the surface to form a barrier. The ability of theses products to effectively penetrate concrete is restricted by the relatively large molecular structure of the materials. The use of solvents, therefore, will not appreciably enhance penetration capabilities. In addition to sealing out water, these products also offer some protection against mild chemicals and prevent the absorption of grease, some oils and other liquid spills. Film-forming sealers will substantially reduce dusting under light traffic conditions. Re treatment intervals are highly variable depending on traffic and exposure. Urethanes and epoxies are two of the most commonly used film-forming sealers. In general, urethanes typically demonstrate greater abrasion resistance while epoxy sealers have shown superior chemical resistance.

Penetrating Sealers

The effectiveness of penetrating sealers is a result of their very small molecular size in comparison with urethanes or epoxies. These materials are able to infiltrate and coat the pores and capillary structure of concrete. Penetrating sealers may achieve penetration depths of as much as 1/8 in., depending on the density and finish of the concrete. Unlike film-forming sealers, the effectiveness of penetrants is not dependent upon the continuity of an exposed surface film.

Penetrants produce a durable sealing film embedded within the concrete itself that is reactively unaffected by abrasion or ultraviolet-induced deterioration.

The two most common penetrating sealers, the silanes and the siloxanes, are both derived from the silicone family. When catalyzed by moisture, these silicon materials react with silica available in concrete to form an interstitial, hydrophobic siloxane resin film that repels water without loss of vapor transmission properties.

Despite being very closely related, the two silicone-based materials have significant performance differences. Silane monomers are small molecules which have not yet reacted with other similar molecules to form polymer chains and require a substrate with a high pH. Siloxanes are produced when silane molecules are partially reacted to form a larger structure linking up two or three silane molecules and are not dependent on substrate pH. Because of this, <u>siloxanes are ideal for treating</u> brick, stucco and stone. Because of their very small molecular size, silanes will typically obtain deeper penetration and as a result are less subject to loss of effectiveness caused by abrasion or weathering. A consequence, however, of this very small molecular size is that the molecule is relatively volatile. The solids content in a finished silane product should be high enough to compensate for the loss of reactive material through evaporation during application and cure.

Siloxanes, because they are less volatile, generally offer good hydrophobic performance at lower initial cost than do silanes. However, for concrete surfaces subject to abrasive wear such as pavements and decks, treatment with a silane sealer will provide longer-lasting protection. In regard to surface texture and color, treatment with silane sealers typically cannot be visually detected. Siloxane products may slightly darken the treated surfaces.

Liquid Hardeners

Liquid hardeners contain inorganic compounds that undergo a series of complex chemical reactions with the available lime in mature concrete. They also contain special proprietary ingredients to make treated floors more resistant to chemical attack and wear and to improve the aesthetics of the finished surface. Liquid hardeners are water soluble and comply with today's environmental concerns. Wetting agents are added to a liquid hardener to help the product penetrate the pores of the concrete substrate. The effectiveness of the treatment increase with the depth of penetration, typically from 1/8 to ¼". The surface is protected down to the depth of penetration. The hardeners do not form a surface membrane, so they do not peel, rubber tire burn or require recoating.

As soon as the liquid hardener is applied a chemical reaction take place between the inorganic compounds of the hardener and lime in the pore of the concrete matrix. The reaction of silicate compounds and water produce a calcium silicate hydrate or tobermorite gel, already a primary binding property of hydrated portland cement. Liquid hardeners increase the concentration of tobermorite gel which increases the density, hardness and chemical resistance. The floor finish is enhanced by giving the floor a more polished look. A high sheen results when the treated floor is polished by mechanical means.

Concrete floors should be at least 7 to 14 days old before treatment because the concrete needs sufficient time to hydrate. Hydration increases the amount of lime available to react and form the tobermorite gel. In addition the waiting time allows the pores of dry so the hardener can penetrate deeper. Liquid floor hardeners are recommended for industrial and commercial floors, although they are not a direct replacement for a dry shake floor hardener. Consult Masons Supply for more information on which product should be used for your specific application.

Read manufacturers' data sheets for complete specifications, installation procedures, and MSDS precautions. **Warning:** Chronic health effect possible—inhalation of silica dust may cause lung injury/disease (Silicosis). Take appropriate measures to avoid breathing dust. **See page 172-173 for more information**.



MASONS SUPPLY COMPANY Oregon (800) 537-3407 • Washington (800) 537-6216

Clackamas | Eugene | West Eugene | Hillsboro | Medford | Portland | Salem | Wilsonville | Ridgefield | Seattle | Tacoma | Woodinville

3350
Sealin
g/Hard
ening (
Compo
unds

Questions? Call for Customer Service: Oregon (800) 537-3407 Washington (800) 537-6216

÷

CHA

SEALING / I	HARDENING COMP	OUNDS	3	PF	ROPER	TIES		COVERAG	θE			APPLIC	CATIONS	6					
		SIZE		SOLID	SURF		#	IST	2ND			PENE	CHEM	GRAFITT	BIRD	INITIAL	TRAFFIC	APP	
CODE	PRODUCT	UNIT	BASE	%	FILM	FINISH	APP	SF/GAL	SF/GAL	SEALS	HARDEN	TRATE	RESIST	RESIST	RESIST	CURE	CURE	TEMP	APPR
ACRYLIC EMU	LSION SEALER																		
TAM 55GLS300W	LUSTER SEAL WB 300	5,55 GL	WATER	30	YES	CLEAR	2	300	400	YES	-	-	-	-	-	4 HR	24 HR	45-90F	
ACRYLIC SOLV	/ENT SEALER																		
TAM 5GLS300	LUSTERSEAL 300	5,55 GL	SOLV	30	YES	CLEAR	2	300	300	YES	-	-	-	-	-	2 HR	24 HR	40-90F	
MS 5GAS	MASCO ACRYLIC SEALER	5,55 GL	SOLV	20	YES	CLEAR	2	300	300	YES	-	-	-	-	-	2 HR	24 HR	40-90F	
EPOXY COATIN	NG																		
TAM 2G240LG	DURALKOTE 240	2 GL	EPOXY	100	YES	GRAY	2	75	100	YES	-	-	-	-	-	6 HR	24 HR	50-90F	NSF
TAM 3GDTLG	DURALTEX	3 GL	EPOXY	100	YES	GRAY	2	75	100	YES	-	-	-	-	-	6 HR	48 HR	50-90F	USDA

PENETRATING	HARDENER																		
TAM 55GLITH	TAMMOLITH	5,55 GL	WATER	-	-	CLEAR	2	200	300	YES	YES	YES	NO	-	-	4 HR	24 HR	40-90F	
EU 55GDH	DIAMOND HARD	5,55 GL	WATER	-	1	CLEAR	1	150	-	YES	YES	YES	NO	-	-	4 HR	24 HR	40-90F	USDA
MS 55GMH	MASCOHARD	5,55 GL	WATER	-	-	CLEAR	1	150	-	YES	YES	YES	NO	-	-	4 HR	24 HR	40-90F	
DS 55GJ17	J-17 SURE HARD	5.55 GL	WATER	-	-	CLEAR	1	150	-	YES	YES	YES	NO	-	-	4 HR	24 HR	40-90F	USDA
SILANE / SILO	KANE SEALER							-	_						-				
MS 5GMS40	MASCO SILANE 40%	5,55 GL	SOLVENT	40	-	CLEAR	1	75	-	YES	-	YES	-	-	-	12 HR	12 HR	40-90F	
MS 55GMSE12	MASCO SILOXANE VOC 12%	5,55 GL	WATER	12	-	CLEAR	1	75	-	YES	-	YES	-	-	-	12 HR	12 HR	40-90F	
MS 55GMSE6	MASCO SILOXANE VOC 6%	5,55 GL	WATER	6	-	CLEAR	1	75	-	YES	-	YES	-	-	-	12 HR	12 HR	40-90F	

APPLICATIONS:

SEALING CONCRETE AND MASONRY HARDENING CONCRETE FLOORS CHEMICAL RESISTANCE PROTECTIVE COATINGS THIS CHART SHOULD BE CONSIDERED A GUIDE ONLY CONSULT SPECIFICATIONS SHEETS FOR COMPLETE TECHNICAL, INSTALLATION AND SURFACE PREP PROCEDURES ALL TESTING PERFORMED @ 75 F





OREGON

WASHINGTON

MASCOSEAL SILANE 40 | VOC COMPLIANT SILANE BASED WATER REPELLENT

DESCRIPTION

MASCOSEAL SILANE 40 is a ready-to-use, colorless, nonstaining, non-yellowing, deep penetrating concrete water repellent. MASCOSEAL SILANE 40 has an alkylakoxysilane concentration of greater than 40% and is formulated for use on vertical or horizontal surfaces. The product protects concrete against the damaging effects of water intrusion, deicing chemicals, freeze-thaw exposure and airborne contaminants such as acid rain, smog and industrial fumes. MASCOSEAL SILANE 40 protects without altering the appearance or texture of the treated surface by producing water repellency deep into the capillaries of the treated substance.

USES

MASCOSEAL SILANE 40 is formulated to protect vertical and horizontal above grade concrete including precast, prestressed, poured-in-place, exposed aggregate, and air entrained concrete. Applications include walls, parapets, sidewalks, ramps, parking decks and bridge decks.

Material Properties @ 75° F (25°C)							
Flash point - min Active Solids by Weight VOC, gms/liter Weight per gallon Resistance to UV Abrasion Resistance	>110°F >40% 585 6.88 lbs/gal Excellent Excellent						
ASTM C642 Absorption, 48 hours, % 50 days, %	0.18 0.46						
ASTM C672 Non-air entrained concrete Scaling Rating, 100 cycles	No scaling (0)						
NCHRP 244 SERIES 1 TESTS Minimu Reduction in Water Absorption Water Vapor Transmission Reduction in Chloride Intrusion	m RequirementSILANE 4075%83.8%100%111.4%75%82.7%						
NCHRP 244 SERIES IV TEST Southern Climate Exposure, Chlori Northern Climate Exposure, Chlori	S de Ion Reduction 97.6% de Ion Reduction 97.6%						
ASTM C666 Freeze Thaw Durability	95.3%						

COMPOSITION AND MATERIALS

MASCOSEAL SILANE 40 is a solution of an alkylalkoxysilane in mineral spirits. This formulation results in a stable, easily applied water repellent.

SURFACE PREPARATION

Cure new concrete 28 days before application. Surface must be clean, dry, open capillary, structurally sound, free of curing or form release compounds and other contaminants that will prevent the proper penetration of product. Prior to application, joints and moving cracks must be properly sealed with an elastomeric joint sealant. Non-moving cracks and voids wider than 1/64 inch (0.4 mm) must be filled with a suitable patching material. Do not apply product to a wet surface. Surfaces must dry a minimum of 24 hours following rain or exposure to other sources of moisture. Install caulking before product application. For surfaces that have had prior coatings or treatments, contact MASONS SUPPLY.

MIXING INSTRUCTIONS

Stir MASCOSEAL SILANE 40 slowly and thoroughly using slow speed mixing equipment before each use. Do not aerate with high speed mixers.

APPLICATION TECHNIQUES

Minimum ambient and surface temperatures 40°F and rising at time of application. Low pressure airless spray equipment with a 0.035" tip is the preferred method of application, although brush or roller application is acceptable for smaller areas. Application should be from the bottom up to ensure uniform product distribution. Apply a saturation coat with a 6-8" controlled rundown. One saturation coat of MASCOSEAL SILANE 40 is normally sufficient for dense surfaces. For porous surfaces two or more saturation coats of MASCOSEAL SILANE 40 may be required, using a "wet on wet" technique. Distribute material evenly. Brush out puddles. Apply a test patch to evaluate surface appearance and determine coverage rates.

COVERAGE

Because of variations in surface density, the following coverage rates are approximate and are intended for estimating purposes only. Use test applications on actual surfaces to accurately determine coverage rates. Most surfaces will require only one coat. Extremely porous surfaces may require two coats of MASCOSEAL SILANE 40.

APPROXIMATE COVERAGE

Surface Type	<u>sq. ft. per gal.</u>
Smooth Concrete	120-250
Exposed Aggregate	100-200
Decks/Ramps	100-125

COMPLIANCE

Meets requirements of NCHRP 244.

CAUTIONS

Do not dilute. Temperature of air and surface must be at least 40° F and rising. Application at temperatures above 90°F is not recommended. Do not apply if rain is expected within 12 hours. Water repellency properties will develop 24 hours to 5 days after application. MASCOSEAL SILANE 40 is not intended to seal cracks or withstand hydrostatic pressure. Uneven application may result in a blotchy appearance of the surface. Do not use on lightweight concrete block or non-absorbent surfaces such as glass, metal, glazed brick or tile.

PACKAGING

5 gallon and 55 gallon DOT approved containers. Storage: 40° F to 85° F Protect from Freezing. Shelf Life: 1 year unopened, in protected storage. Freight Class: Class 55 DOT Hazard Class: Combustible Liquid, NA 1993 Packing Group: III Shipping Name: Combustible Liquid, n.o.s.

HAZARDS IDENTIFICATION

Expect to have a low degree of toxicity by inhalation. Excessive inhalation of vapors and/or spray/mist may cause respiratory irritation, dizziness, weakness, nausea, headache, loss of coordination and fatigue. Contact with eyes may cause mild irritation including stinging, watering and redness. Skin irritant; contact may cause redness, burning, drying and cracking of the skin and skin damage. Ingestion is not expected to be a relevant route of exposure. Aspiration hazard; this material can enter the lungs during vomiting or swallowing and cause lung inflammation and damage (pneumonitis and/or pulmonary adema).

FIRST AID

Inhalation: Remove victim from exposure to fresh air. If victim has difficulty breathing, administer oxygen. If breathing has stopped, administer artificial respiration. Seek medical attention.

Eyes: Flush eyes with water, lifting upper and lower lids occasionally for 15 minutes. Seek medical attention.

Skin: Remove contaminated shoes and clothing, flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area thoroughly by washing with mild soap and water. If irritation or redness develops, seek medical attention.

Ingestion: Aspiration hazard; do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Seek medial attention.

CLEANUP INSTRUCTIONS

Clean tools and equipment with alcohol, mineral spirits or similar solvent immediately following use. Clean drips and over spray while still wet. Clean glass and other nonabsorbent materials soon after application.

TECHNICAL SERVICE: For application procedures or surface conditions not specified above, please contact:

MASONS SUPPLY 2637 SE 12th Ave Portland, OR 97202 (503) 234-4321, FAX (503) 234-5606 masco.net

WARRANTIES

Seller warrants that the Products do not infringe upon any copyright, patent, or trademark or trade secret, nor violate the proprietary information rights of any third party. Seller warrants that its Products will conform to and perform in accordance with the Products' specifications.

THE FOREGOING WARRANTIES, ARE IN LIEU OF ALL OTHER WARRANTIES. EXPRESS OR IMPLIED. INCLUDING, BUT NOT LIMITED TO, THOSE CONCERNING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. LIMITATION ON LIABILITIES: Because of the difficulty of ascertaining and measuring damages hereunder, it is agreed that, except for claims for bodily injury, Seller's liability to the Buyer or any third party for any losses or damages, whether direct or otherwise, arising out of the purchase of Product from Seller by Buyer shall not exceed the total amount billed and billable to the Buyer for the Product hereunder. IN NO EVENT WILL SELLER BE LIABLE FOR ANY LOSS OF PROFITS OR OTHER SPECIAL OR CONSEQUENTIAL DAMAGES. EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

06/07

OVER 90 YEARS OF SUPPLYING YOUR CONCRETE AND MASONRY NEEDS.										
Clackamas 503-722-1528	Eugene 541-744-6696	West Eugene 541-683-1408	Hillsboro 503-533-0107	Medford 541-772-6161	Salem 503-585-5504	Wilsonville 503-582-9320				
	Port Orchard 360-876-6372	Ridgefield Form Yard 360-887-4777	Seattle 206-767-4645	Tacoma 253-581-6161	Woodinville 425-487-6161					