

ENVIRONMENTAL PRODUCT DECLARATION

RUBBER WALL BASE

PINNACLE, PINNACLE PLUS, ALPHA BASE, AND ACCESSORIES



There are a large number of applications for rubber wall base. Versatile profile options that lend themselves to classic and contemporary designs make rubber wall base a great choice. Commercial applications include healthcare, education, corporate, retail and hospitality.

Pictured above: Roppe Pinnacle rubber wall base, manufactured in Fostoria, Ohio

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The success of Roppe Corporation over 60 years is based on people: employees, customers, and the local and regional communities in which we manufacture products. We are committed to their sustainable livelihoods and futures. The company is family owned and an integral part of the small Midwestern town of Fostoria, Ohio.

Sustainability requires work and complex decision-making. Over the decades, we have continuously worked with raw material suppliers and with the test laboratory and production lines to improve the formulations for Roppe's products – always preserving durability and improving aesthetics while reducing hazardous components. Materials science is an important issue for the architectural community, and the precautionary principle is becoming an industry standard through our customers' efforts. This EPD reflects that new understanding as well as environmental commitments.

For additional information, visit www.roppe.com.



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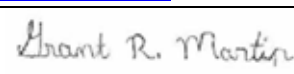

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According to ISO 14025

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.



| | |
|---|--|
| PROGRAM OPERATOR | UL Environment |
| DECLARATION HOLDER | Roppe Corporation |
| DECLARATION NUMBER | 4786388448.103.1 |
| DECLARED PRODUCT | Roppe Rubber Wall Base and Rubber Accessories |
| REFERENCE PCR | Environdec, Product Category Rules for Construction Products and Construction Services, Version 2.1. Stockholm, 2016. |
| DATE OF ISSUE | April 26, 2018 |
| PERIOD OF VALIDITY | 5 Years |
| CONTENTS OF THE DECLARATION | Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications |
| The PCR review was conducted by: | PCR Martin Erlandsson |
| | Swedish Environmental Research Institute |
| | martin.erlandsson@ivl.se |
| This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories <input type="checkbox"/> INTERNAL <input checked="" type="checkbox"/> EXTERNAL |  Grant R. Martin, UL Environment |
| |  Thomas P. Gloria, Industrial Ecology Consultants |
| This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by: | |

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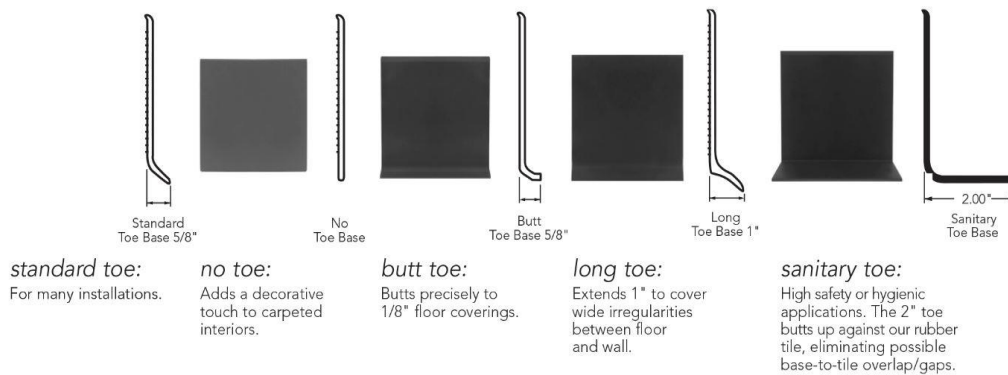
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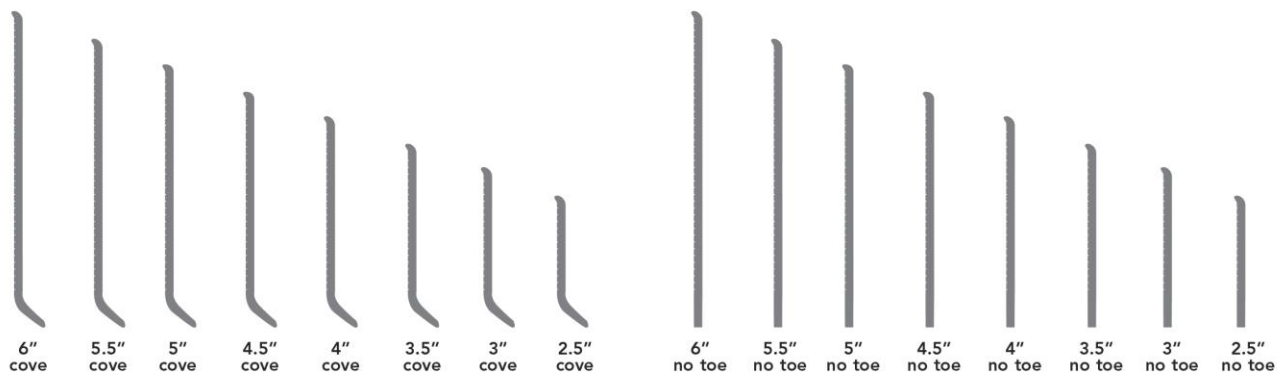
Product Definition

No matter what the project, 100% PVC free Roppe Pinnacle rubber base is ideal for the job. Pinnacle is the professional's choice, because this SBR rubber base is highly durable and extremely flexible, allowing for easy installation around columns, corners and architectural curves. The base is produced in heights of 2-1/2", 3", 3-1/2", 4", 4-1/2", 5", 5-1/2" and 6". Profile options for Pinnacle in standard 4" include cove, no toe, butt toe, long toe (1") and sanitary base (2"). Wall base thicknesses are 1/8" for cove and toe options.

pinnacle rubber base



Pinnacle Wall Base (TS)



corners



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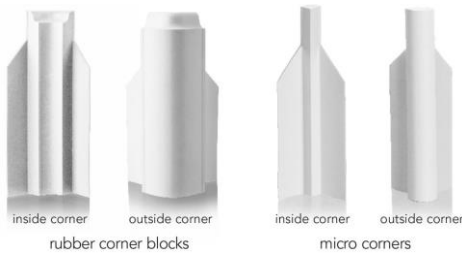
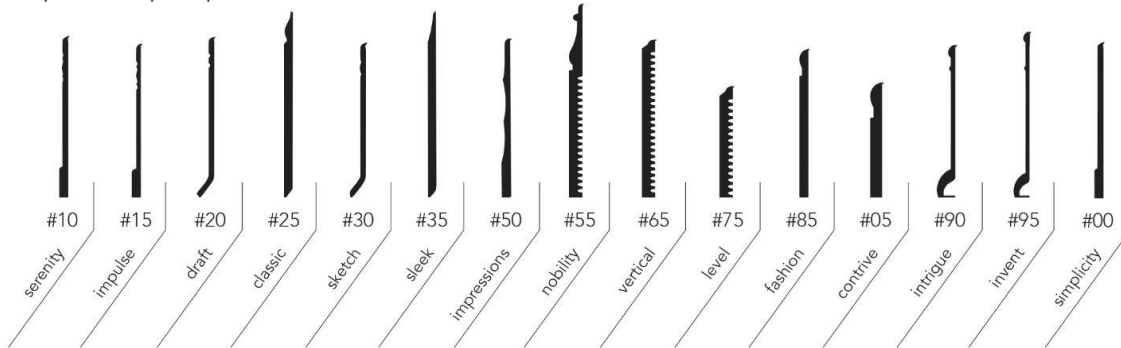
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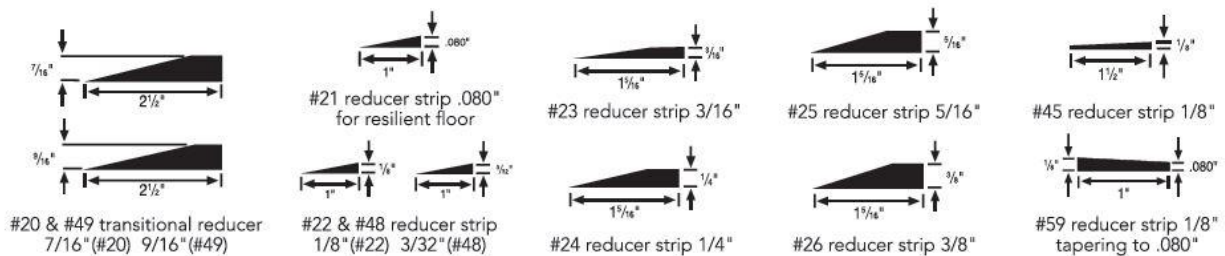
Pinnacle Plus wall base comes in a variety of profiles that are meant to combine the look of specialty wood trims with the flexibility of a rubber wall base. Pinnacle Plus wall base is available in heights, from 2 1/2" to 5 1/2", and a wide range of toes to match a wide variety of flooring installations and application requirements.

pinnacle plus profiles



Roppe offers a complete line of finishing accessories that complement our broad product mix. Rubber accessories include reducers, edge guards, nosings, adaptors, transitions, cove caps, corner guards, landing trim, and rubber thresholds.

reducers



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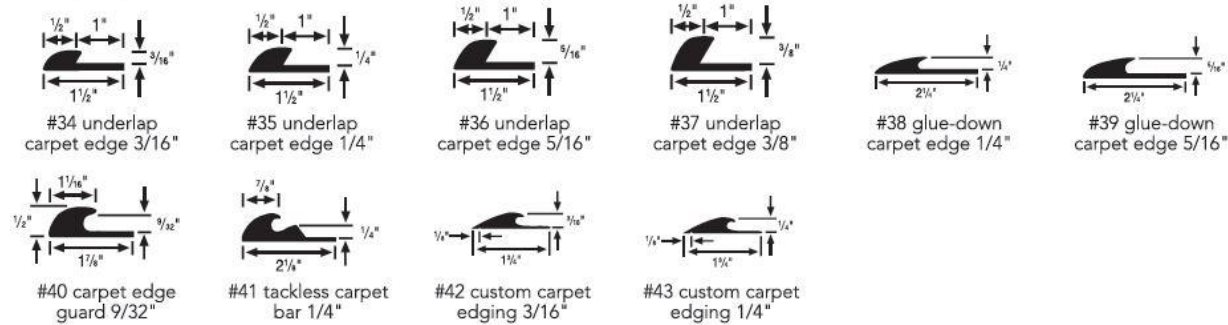
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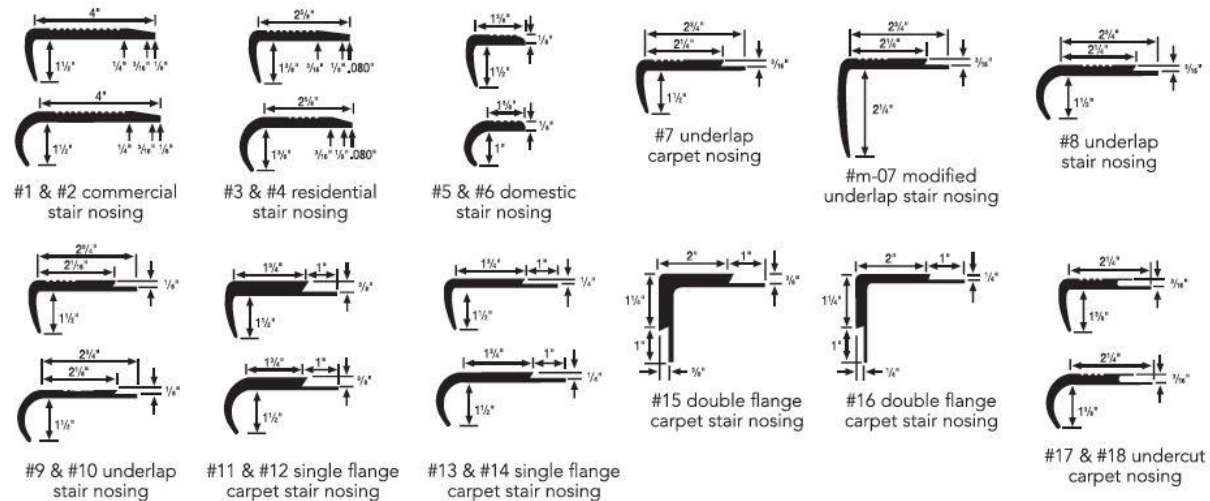
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edge guards



nosings



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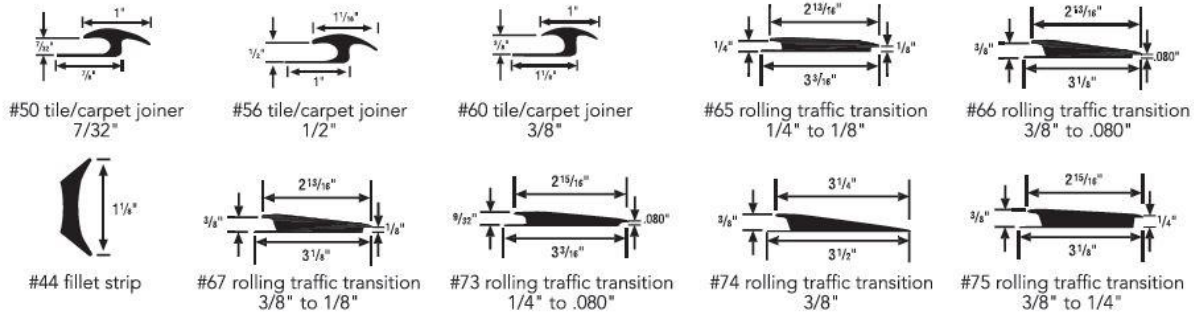
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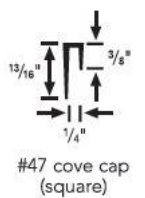
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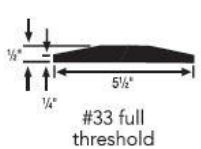
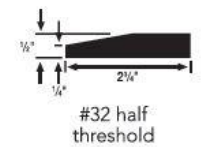
adapter & transitions



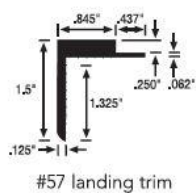
cove caps



thresholds



landing trim



corner guard



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Range of Applications

Pinnacle, Pinnacle Plus and Alpha Base are most often used in commercial buildings. No matter what the project, 100% PVC free rubber base is ideal for the job. Considered the professional's choice, SBR rubber base is highly durable and extremely flexible allowing for easy installation around columns, corners and architectural curves.

Other features include:

Pinnacle Rubber Base and Alpha Base

- PVC free, phthalate free and Red List chemical free.
- Made in the U.S.A. and meets FloorScore[®], NSF 332 Gold and CHPS criteria.
- The widest range of sizes available: 2-1/2", 3", 3-1/2", 4", 4-1/2", 5", 5-1/2" and 6". Profile options in standard 4" include cove, no toe, butt toe, long toe (1") and sanitary base (2").
- Maintains a smooth and attractive appearance. Will not shrink, gap or separate from the wall.
- Roppe Rubber Corner Blocks and Micro Corners are recommended. Inside and outside profiles available.
- All colors inherent throughout and available at a Single Price Point.

Pinnacle Plus

- PVC free, phthalate free and Red List chemical free.
- Made in the U.S.A. and meets FloorScore[®], NSF 332 Gold and CHPS criteria.
- Available in 15 profiles that range in heights from 2-1/2" to 5-1/2".
- Inexpensive upgrade from standard wall base that adds visual appeal to any design.
- Roppe Rubber Corner Blocks and Micro Corners are recommended. Inside and outside profiles available.
- All colors are inherent throughout and available at a Single Price Point.



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Product Characteristics, Standards and Accreditation

Pinnacle and Pinnacle Plus wall base products meet the performance requirements of ASTM for resilient wall base. The products are also certified in the FloorScore® indoor air quality program by SCS Global Services and meet the requirements of California Department of Public Health Standard v1.1, 2010.

Table 1: Product specifications

| Product Specifications | |
|--------------------------------|--|
| Rubber Wall Base | ASTM F 1861- Type TS, Group 1, Styles A, B & C |
| Product Weighted Average | 0.503 kg/m |
| Range of Pinnacle Weights | 0.31 to 0.72 kg/m |
| Range of Pinnacle Plus Weights | 0.180 to 0.656 kg/m |
| Product Thickness | Pinnacle: 3.2 mm (1/8"); Pinnacle Plus: 1/8"- 3/8" |
| Product Height | 2 1/2" (63.5 mm), 3" (76.2 mm), 3-1/2" (88.9 mm), 4" (101.6 mm), 4-1/2" (114.3 mm), 5" (127 mm), 5-1/2" (139.7 mm), & 6" (152.1 mm) |
| Product Roll Length | Pinnacle: 4' sections (1.22 m) & 120' (36.58 m) rolls; 120 linear feet (36.58 m) per carton. Pinnacle Plus: 6-8' sections, 60 feet coil, and 120 feet coil per carton. |

The products considered in the EPD meet or exceed the following technical specifications:

Fire Protection:

- ASTM E 84 (NFPA 255) - Class A
- ASTM E 648 (NFPA 253) - Class 1 > .45 W/cm²
- ASTM E 662 (NFPA 258) – Passes < 450

Compliant with FloorScore® Flooring Products Certification Program for Indoor Air Quality. The FloorScore® test program includes volatile organic compounds, including formaldehyde, acetaldehyde, styrene, and other compounds of concern.

Compliant with California Department of Public Health Standard v1.1, 2010 and certified by FloorScore Flooring Products Certification Program for Indoor Air Quality.

Certified to NSF / ANSI – 332 Sustainability Assessment for Resilient Floor Coverings – Gold Level.

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Material Content of Product

Table 2: Material content

| Component | Material | Mass % | Availability | | | Origin of raw materials |
|-------------------|--------------------------------|--------|--------------|------------------|--------------------|-------------------------|
| | | | Renewable | Non-renewable | Recycled | |
| Filler | Kaolin | 40-70 | | Mineral abundant | | US |
| Additive | Naphthenic oil | 10-15 | | Fossil limited | | US |
| Binder | Synthetic rubbers SBR and EPDM | 15-25 | | Fossil limited | | US |
| Additives | Various | 6-10 | | Various | | US |
| Recycled material | Scrap | 4-6 | | | In-plant recycling | US |

Production of Main Materials

Kaolin: A clay mineral used as inert filler.

Synthetic rubbers: Styrene Butadiene Rubber (SBR) and Ethylene Propylene Diene Monomer (EPDM): Synthetic copolymers used as primary cross-linkable binder in the manufacture of rubber flooring products.

Production of Rubber Wall Base

Raw materials are mixed in the same two initial processes as other rubber products, including mixing and calendaring. Then the material is transferred to the vulcanization area where it is extruded and vulcanized in a heated system. After cooling, cutting and coiling, wall base is packaged for shipment.

Packaging materials include polyethylene film, corrugated cardboard, paper tape, and wooden pallets.

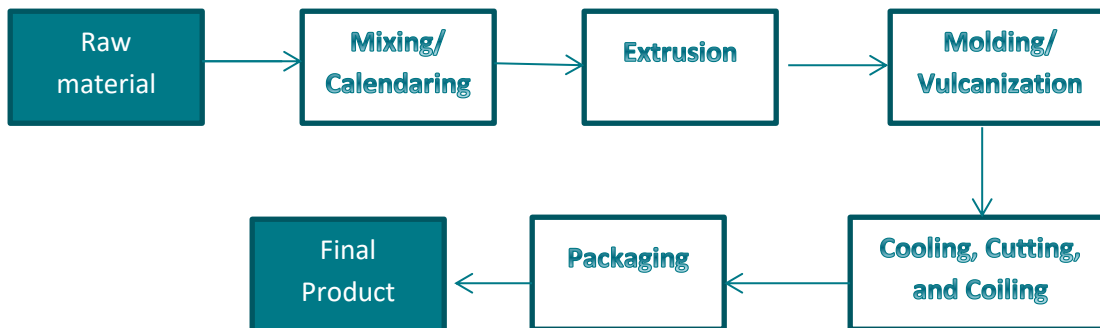


Figure 1: Schematic of production process

Production Waste



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Scrap materials are recycled internally in the manufacturing facility. The majority of vulcanized rubber products that cannot be sold (that do not meet quality control or are returned) are recycled through the Impact program (see below). Landfilled scrap is less than 5 % of the total mass, and this is reflected in the life cycle assessment.

Health and Safety Aspects during Production

Roppe protects health and safety of workers with a rigorous Environmental, Health and Safety (EHS) program. The main elements of the EHS program are container labeling and control, employee information and training, safety data sheets and chemical inventory, and information for visitors. Container labels serve as the initial method for communicating a chemical's identity, basic hazard information and associated protective measures for employees. Original manufacturers' labels, compliant with current Global Harmonizing System (GHS) requirements are placed and supervisors ensure that all containers found within their area are properly labeled and legible. Training is part of the new employee orientation process and retraining as needed. Safety Data Sheets (SDS) are documents supplied by chemical manufacturers to describe the properties of a particular substance; these are collected for all materials brought into the facility. The SDS includes information such as the properties of each chemical; the physical, health, and environmental hazards; protective measures; safety precautions for handling, storing, and transporting the chemical. These documents serve as the primary method for communicating in-depth chemical information to employees, and can be accessed by any employee using in-plant networked computers.

Delivery and Installation

In this study, transport to construction site by truck and flooring installation in the building are included. Adhesive is required for installation; 250 g/m² are used. During installation, approximately 4.5% of the total material is cut off as waste. Though some of this waste could be recycled, this scrap is modeled as being disposed of in a landfill.

Health, Safety, and Environmental Aspects during Installation

Installed product waste and packaging waste are assumed to be sent to a landfill (although packaging material is often recycled in local systems). Landfill emissions from paper, plastic, and wood packaging are allocated to installation. Following installation procedures correctly is critical to meeting the health and safety of workers during installation. Procedures are described on the product Specifications.

Additional Environmental Information (Operations, Raw Materials, Chemicals of Concern)

Additional Information about Recycling: Scrap rubber from the Fostoria, Ohio rubber manufacturing plant is sent to a local manufacturer of rubber truck flaps. More than 500,000 pounds per year (250 tons per year) of rubber scrap have been recycled to this use for the past two years.



In addition, more than 30,100,000 pounds of rubber has been recycled through the IMPACT program in the past seven years. IMPACT accepts demolition and renovation waste from projects around the country, Roppe and other flooring rubber products, to make municipal mulch for use in playgrounds, flower beds, etc.



In 2016 and 2017 combined, more than 6,500,000 pounds of scrap rubber from Roppe's Fostoria manufacturing plant and from construction projects using Roppe products were recycled through the IMPACT

Environment



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program.



Additional Information about Raw Materials: In 2015, RHC Family Companies joined the Sustainable Purchasing Leadership Council (SPLC) and uses SPLC guidance in purchasing decisions. In 2014-15, RHC assisted a key supplier to open a manufacturing plant in Fostoria, Ohio, moving production from South Korea to the U.S. This action won an Outstanding Case Study Award from the SPLC in May 2016 for 'on-shoring' a supplier.

Additional Information about Chemicals of Concern: Roppe Corporation follows the Lowell Center Framework to remove chemicals of concern from all products. For 30 years, Roppe has been a leader in removing hazardous components from building materials including recently switching to a green pigment without heavy metals (traces of Lead, Hexavalent Chromium, Mercury, and Cadmium) in 2011. In 2015, RHC joined the Health Product Declaration Collaborative, and is using HPD 2.0 to prioritize work on chemicals of concern and actively participating in HPDC work groups (during 2016-2018, RHC has participated in the third party certification technical working group).



A balance between product quality, chemical risk, and cost is pursued in evaluating raw materials and the production process. Product quality includes durability, aesthetics, ease of maintenance and cleaning—all the aspects of the product that customers rely upon. Chemical risk includes hazard, exposure, and concentration of chemicals of concern. Members of the engineering, chemistry, technical & installation services, and sustainability groups are continuously searching out and evaluating new possible materials and processes.

Corporate Environmental Sustainability Goals: Corporate environmental sustainability goals for four key metrics have been set for the period 2016-2025. These metrics and their goals are:

| Metric | Goal | Measured as: |
|---------------------|---------------|--|
| Energy Intensity | 20% reduction | kWh/pound of product |
| Greenhouse Gases | 20% reduction | kg CO ₂ -equivalents/pound of product |
| Waste to Landfill | 25% reduction | Pounds waste/pound of product |
| Water Used/Consumed | 20% reduction | Gallons water/pound of product |

During the first two years of this environmental effort, 2016 and 2017, reductions have been measured for all four performance goals. The corporate sustainability goals and progress are documented in the Corporate Sustainability Report. Progress will be updated tri-annually to RHC stakeholders.



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Life Cycle Assessment – Product System and Modeling

A “cradle-to-gate with options” life cycle assessment (LCA) was conducted for this EPD. The analysis was done according to the product category rules (PCR) for construction products by Environdec and followed LCA principles, requirements and guidelines laid out in the ISO 14040/14044 standards. As such, EPDs of construction products may not be comparable if they do not comply with EN 15804 or the same PCR or if they are from different programs. While the intent of the PCR is to increase comparability, there may still be differences among EPDs that comply with the same PCR (e.g., due to differences in system boundaries, background data, etc.).

Declared Unit

The declared unit is 1 m of installed wall base product, consistent with the PCR. The product height is 4” (102 mm). It is sold in units of length at two different thicknesses, with a production-weighted average mass of 0.503 kg/meter.

Life Cycle Stages Assessed

The following life cycle stages are covered in the “cradle-to-gate with options” (A1-A5, C2, C4) system boundaries:

- Extraction and processing of raw materials (A1),
- Inbound transportation (A2),
- Manufacturing (A3)
- Distribution (A4),
- Installation (A5),
- Transport to disposal (C2), and
- Disposal (C4).

Table 3: Complete life cycle stages with relevant modules declared (X), modules not declared (MND)

| PRODUCT STAGE | | | CONSTRUCTION PROCESS | | USE STAGE | | | | | | | END OF LIFE STAGE | | | | BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES |
|---------------------|-----------|---------------|----------------------|-----------------------------------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|---|
| Raw material supply | Transport | Manufacturing | Transport | Construction-installation process | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction Demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| X | X | X | X | X | MND | MND | MND | MND | MND | MND | MND | MND | X | MND | X | MND |



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Transportation Assumptions

Primary data included transportation distances via truck for the transport of the raw materials to the production facilities. Transport of the finished product to installation was estimated as described in Table 4.

Table 4: Transport to the construction site (A4), per declared unit

| Additional technical information | | | |
|----------------------------------|---|---------------------------------|-----------------|
| Scenario title | Parameter | Unit | Value |
| A4 Transport to site | Vehicle type used for transport | n/a | Truck 8b |
| | Vehicle load capacity | kg per vehicle | 20,410 |
| | Fuel type and consumption | Liter of fuel type per distance | 0.0177 (diesel) |
| | Distance to construction site | km (miles) | 1,609 (1,000) |
| | Capacity utilization (including empty returns) | % | 78 |
| | Bulk density of transported products | kg/m ³ | n/a |
| | Volume capacity utilization factor (factor: = 1 or < 1 or ≥ 1 for compressed or nested packaged products) | n/a | ≥1 |

Installation Assumptions

Wall base is installed manually with an estimated scrap rate of 3%. Installation materials and wastes are indicated in Table 5.

Table 5: Installation of the product (A5), per declared unit

| Additional technical information | | | |
|----------------------------------|--|----------------|-------------------------|
| Scenario title | Parameter | Unit | Value |
| A5 Installation of the product | Ancillary material for installation: Adhesive | kg | 0.05 |
| | Water use | m ³ | - |
| | Other resource use | kg | - |
| | Quantitative description of energy type consumption during preparation and installation | MJ | - |
| | Direct emissions to ambient air, soil and water | kg | - |
| | Waste materials on the building site, generated by product's installation, incl. packaging: - Packaging materials, i.e., corrugate, plastic, wood pallet - Wall base scrap | kg kg | 0.026 0.016 |
| | Output materials (specified by type) as result of waste processing at the construction site: - Wall base scrap and plastic packaging to landfill - Paper to landfill - Wood to landfill | kg kg kg | 0.016 0.013 0.012 |

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Cut-off Criteria

No cut-off criteria were applied in this study.

Period under Consideration

Primary data were collected on 2015 wall base production for Roppe's Fostoria, Ohio, manufacturing plant.

Background Data

The LCA model was created using the GaBi ts software system for life cycle engineering, developed by thinkstep. The GaBi 2016 LCI database provided the life cycle inventory data for upstream and downstream processes of the background system. US-specific background data were used whenever possible, with European or global data substituted as proxies as necessary.

Data Quality

Data quality and representativeness are considered to be good to high. Foreground data were collected from Roppe's manufacturing facility, with seasonal variations accounted for by collecting 12 months-worth of data. No data were omitted under cut-off criteria. All primary data were collected with the same level of detail while all background data were sourced from the GaBi databases. Allocation and other methodological choices were made consistently throughout the model.

Allocation

No allocation was applied in this study.

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Life Cycle Assessment – Results and Analysis

Life Cycle Impact Assessment

Table 6 contains life cycle impact assessment results per declared unit. Impact results were calculated using the CML 2001 – Apr. 2013 methodology.

Table 6: Cradle-to-gate with options impact category results (CML 2001 – Jan. 2013), per declared unit

| Metric | Units | A1 | A2 | A3 | A4 | A5 | C2 | C4 |
|--------------------------|-------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| GWP₁₀₀ | kg CO ₂ eq | 0.596 | 0.0501 | 0.661 | 0.0651 | 0.146 | 0.00162 | 0.0225 |
| ODP | kg CFC 11 eq | 2.42E-011 | 4.17E-013 | 3.16E-011 | 5.42E-013 | 9.37E-012 | 1.35E-014 | 3.23E-013 |
| AP | kg SO ₂ eq | 0.00125 | 0.000174 | 0.000641 | 0.000226 | 0.000264 | 5.28E-006 | 0.000306 |
| EP | kg PO ₄ ³⁻ eq | 0.000187 | 4.66E-005 | 9.3E-005 | 6.06E-005 | 7.16E-005 | 1.42E-006 | 0.000137 |
| POCP | kg Ethen eq | 0.000157 | 1.79E-005 | 0.00017 | 2.32E-005 | 4.54E-005 | 5.48E-007 | 0.00014 |
| ADP_e | kg Sb eq | 9.01E-006 | 8.57E-009 | 3E-007 | 1.11E-008 | 3.42E-007 | 2.76E-010 | 9.16E-009 |
| ADP_f | MJ | 17.3 | 0.708 | 0.661 | 0.0651 | 0.146 | 0.00162 | 0.0225 |

GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADP_e = Abiotic depletion potential for non-fossil resources; ADP_f = Abiotic depletion potential for fossil resources

The guiding PCR does not support a cradle-to-grave EPD, barring creation of a new product-specific PCR. However, cradle-to-grave equivalent results can be generated by multiplying all LCA results by a factor 1.5 to reflect the estimated replacement schedule for 1 m of declared product over a 60-year reference service life (RSL) of a building. The product's service life is estimated to be 40 years (60yr / 40yr = 1.5). Beyond the product's replacement, the use phase is not expected to entail any environmental impact potentials, as no cleaning or maintenance are required. Table 7 shows the cradle-to-grave equivalent results as aggregated totals.

Table 7: Cradle-to-grave equivalent impact category results for the declared product (CML 2001 – Jan. 2013)

| Metric | Units | Total |
|--------------------------|-------------------------------------|----------|
| GWP₁₀₀ | kg CO ₂ eq | 2.28 |
| ODP | kg CFC 11 eq | 9.96E-11 |
| AP | kg SO ₂ eq | 0.00384 |
| EP | kg PO ₄ ³⁻ eq | 0.000693 |
| POCP | kg Ethen eq | 0.000831 |
| ADP_e | kg Sb eq | 1.45E-05 |
| ADP_f | MJ | 48.8 |



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Resource Use and Wastes

Tables 8 and 9 show use of resources and other indicators describing waste categories per declared unit, respectively. Energy resource consumption is broken down between renewable and non-renewable resources.

Table 8: Resource use, per declared unit

| Metric | Unit | A1 | A2 | A3 | A4 | A5 | C2 | C4 |
|--------|-------------------|---------|-----------|--------|----------|----------|----------|-----------|
| PERE | [MJ] | 0.445 | 0.0177 | 0.753 | 0.023 | 0.0596 | 0.00057 | 0.0242 |
| PERM | [MJ] | - | - | 0.139 | - | - | - | - |
| PERT | [MJ] | 0.445 | 0.0177 | 0.892 | 0.023 | 0.0596 | 0.00057 | 0.0242 |
| PENRE | [MJ] | 11.4 | 0.712 | 11.2 | 0.924 | 2.8 | 0.023 | 0.353 |
| PENRM | [MJ] | 6.15 | - | - | - | - | - | - |
| PENRT | [MJ] | 17.6 | 0.712 | 11.2 | 0.924 | 2.8 | 0.023 | 0.353 |
| SM | [kg] | - | - | - | - | - | - | - |
| RSF | [MJ] | - | - | - | - | - | - | - |
| NRSF | [MJ] | - | - | - | - | - | - | - |
| FW | [m ³] | 0.00187 | 8.68E-005 | 0.0104 | 0.000113 | 0.000424 | 2.8E-006 | 4.36E-005 |

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

Table 9: Waste category indicators, per declared unit

| Metric | Unit | A1 | A2 | A3 | A4 | A5 | C2 | C4 |
|--------|------|-----------|-----------|----------|-----------|-----------|-----------|-----------|
| HWD | [kg] | 2.46E-007 | 5.82E-009 | 9.6E-009 | 7.55E-009 | 1.24E-009 | 1.88E-010 | 1.26E-009 |
| NHWD | [kg] | 0.00791 | 2.63E-005 | 0.0025 | 3.41E-005 | 0.0357 | 8.48E-007 | 0.501 |
| RWD | [kg] | 0.000119 | 1.56E-006 | 0.000116 | 2.03E-006 | 3.45E-005 | 5.03E-008 | 3.53E-006 |

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed



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Interpretation

As stated previously, the guiding Product Category Rule is based on cradle-to-gate, or manufacturing plant gate, and does not include a cradle-to-grave option for Environmental Product Declarations. Impact category results have been calculated by conducting the EPD cradle-to-gate with options, which in addition to A1-A3, which represent the Cradle to Gate analysis, also includes steps A4 and A5, which represent transport of product to job site (A4) and construction and installation (A5), and steps C2 and C4, which represent final transport (C2) and disposal (C4) at end of life. The wall base systems require no maintenance or cleaning. These process steps, together, represent an equivalent cradle-to-grave declaration, and final results for impact categories are shown in Table 7.

The environmental impacts of the product are primarily influenced by the Raw Material Supply (A1) and Manufacturing (A3) process steps. Reducing the impacts from these process steps is a focus of the operations staff at Roppe Corporation. This is done by pursuing the Corporate Environmental Goals established in 2016 and in the continuous improvement process of raw material selection. Life cycle assessment models and databases, as well as hazard information, are used in considering new materials and processes.

Table 10 below shows the Cradle-to-grave equivalent Environmental Impacts for Pinnacle 4" wall base. These results were calculated based on Environmental Impact values for a weighted average rubber product of wall base and accessories, as shown in Table 7 above. The Environmental Impacts were calculated by multiplying the weighted Environmental Impacts by the Index Number. In this example, the Index Number represents the weight of Pinnacle 4" wall base, 0.447 kg/m, divided by the average rubber product weight of 0.503 kg/m, or 0.888. Similarly, the Resource Uses shown in Table 8 or the Waste Category Indicators shown in Table 9 could be multiplied by the Index Number to determine these values for Pinnacle 4" wall base.

Table 10: Cradle-to-grave equivalent impact category results for Pinnacle 4" wall base (CML 2001 – Jan. 2013)

| Metric | Units | Total |
|--------------------------|-------------------------------------|----------|
| GWP₁₀₀ | kg CO ₂ eq | 2.03 |
| ODP | kg CFC 11 eq | 8.85E-11 |
| AP | kg SO ₂ eq | 0.00341 |
| EP | kg PO ₄ ³⁻ eq | 0.000616 |
| POCP | kg Ethen eq | 0.000738 |
| ADP_e | kg Sb eq | 1.29E-05 |
| ADP_f | MJ | 43.4 |

Tables 11 and 12 show Index Numbers for calculation of Cradle-to-grave equivalent Environmental Impact results for Pinnacle wall base at other heights and profiles, from the average rubber product Environmental Impacts shown in Table 7. To determine Environmental Impact values for other heights and thicknesses of Pinnacle, Pinnacle Plus, and accessories, the Environmental Impacts shown in Table 7 can be multiplied by Index Number shown in these tables. The Index Numbers were determined by dividing the product weight by the weighted average rubber product of 0.503 kg/m.



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Table 11 shows Index Numbers for calculation of Environmental Impacts for Pinnacle wall base at all heights. Table 12 shows Index Numbers for calculation of Environmental Impacts for Pinnacle Plus wall bases. Index Numbers can be multiplied by the Cradle-to-grave equivalent Environmental Impacts in Table 7.

Table 11. Index Numbers for Pinnacle Rubber Wall Base, Type TS

| Height | Thickness | Cove Index No. | Straight Index No. |
|--------|-----------|----------------|--------------------|
| 2.5" | 1/8" | 0.666 | 0.617 |
| 3" | 1/8" | 0.740 | 0.691 |
| 3.5" | 1/8" | 0.839 | 0.765 |
| 4" | 1/8" | 1.036 | 0.888 |
| 4.5" | 1/8" | 1.110 | 0.987 |
| 5" | 1/8" | 1.160 | 1.110 |
| 5.5" | 1/8" | 1.382 | 1.308 |
| 6" | 1/8" | 1.481 | 1.431 |

Table 12. Index Numbers for Pinnacle Plus Rubber Wall Base, Type TS

| Height | Profile Name and Order No. | Thickness | Index No. |
|--------|----------------------------|-----------|-----------|
| 2.5" | #05 Contrive | 1/4" | 0.512 |
| 3" | #75 Level | 3/8" | 0.767 |
| 4" | #00 Simplicity | 1/8" | 0.450 |
| 4" | #10 Serenity | 1/8" | 0.450 |
| 4" | #50 Impressions | 1/8" | 0.512 |
| 4" | #90 Intrigue | 1/8" | 0.450 |
| 4" | #20 Draft | 1/8" | 0.358 |
| 4" | #30 Sketch | 1/8" | 0.368 |
| 4.25" | #85 Fashion | 1/4" | 0.819 |
| 4.563" | #25 Classic | 1/4" | 0.819 |
| 4.563" | #35 Sleek | 1/4" | 0.860 |
| 4.625" | #65 Vertical | 3/8" | 1.254 |
| 5.25" | #15 Impulse | 1/8" | 0.634 |
| 5.5" | #95 Invent | 1/8" | 0.614 |
| 5.5" | #55 Nobility | 3/8" | 1.305 |



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Table 13 shows Index Numbers for calculation for Environmental Impacts of Specialty Toe Wall Bases. Table 14 shows Index Numbers for calculation of Environmental Impacts for Corner Blocks. Index Numbers can be multiplied by the Cradle-to-grave equivalent Environmental Impacts in Table 7.

Table 13. Index Numbers for Pinnacle Specialty Wall Base

| Height | Thickness | Description | Index No. |
|--------|-----------|--------------|-----------|
| 4" | 1/8" | Butt Toe | 1.036 |
| 4" | 1/8" | Long Toe | 1.110 |
| 4" | 1/8" | Sanitary Toe | 1.382 |

Table 14. Index Numbers for Pinnacle Standard Corners and Specialty Outside Corners (per piece)

| Height | Description | Cove Index No. | Straight Index No. |
|--------|--------------|----------------|--------------------|
| 2.5" | IC/OC/NT OC | 0.003 | 0.002 |
| 4" | IC/OC/NT OC | 0.003 | 0.003 |
| 6" | IC/OC | 0.005 | N/A |
| 4" | Long Toe | 0.003 | N/A |
| 4" | Sanitary Toe | 0.002 | N/A |

Table 15 shows Index Numbers for calculation for Environmental Impacts of other accessories including include reducers, edge guards, nosings, adaptors, transitions, cove caps, corner guards, landing trim, and rubber thresholds. Index Numbers can be multiplied by the Cradle-to-grave equivalent Environmental Impacts in Table 7.

Table 15. Index Numbers for Rubber Accessories

| Accessory Name and Order No. – Reducers | Index No. |
|---|-----------|
| #20 Transitional Reducer 7/16" | 1.316 |
| #49 Transitional Reducer 9/16" | 1.382 |
| #21 Reducer Strip .080 for Resilient Floors | 0.165 |
| #22 Reducer Strip 1/8" | 0.247 |
| #48 Reducer Strip 3/32" | 0.165 |
| #23 Reducer Strip 3/16" | 0.411 |
| #24 Reducer Strip 1/4" | 0.535 |
| #25 Reducer Strip 5/16" | 0.576 |
| #26 Reducer Strip 3/8" | 0.679 |
| #45 Reducer Strip 1/8" | 0.411 |
| #59 Reducer Strip 1/8" Tapering to .080" | 0.247 |

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| Accessory Name and Order No. - <u>Nosings</u> | Index No. |
|--|-----------|
| #1 Commercial Stair Nosing SQ | 2.435 |
| #1 Commercial Stair Nosing SQ w/abrasive strip | 2.435 |
| #2 Commercial Stair Nosing RD | 2.139 |
| #3 Residential Stair Nosing SQ | 1.316 |
| #4 Residential Stair Nosing RD | 1.316 |
| #5 Domestic Stair Nosing SQ | 0.954 |
| #6 Domestic Stair Nosing RD | 0.954 |
| #M-07 Modified Underlap Stair Nosing SQ | 1.810 |
| #8 Underlap Stair Nosing RD | 1.481 |
| #9 Underlap Stair Nosing SQ | 1.579 |
| #10 Underlap Stair Nosing RD | 1.579 |
| #11 Single Flange Carpet Stair Nosing SQ | 1.402 |
| #12 Single Flange Carpet Stair Nosing RD | 1.402 |
| #13 Single Flange Carpet Stair Nosing SQ | 2.139 |
| #14 Single Flange Carpet Stair Nosing RD | 2.139 |
| #15 Double Flange Carpet Stair Nosing SQ | 2.994 |
| #16 Double Flange Carpet Stair Nosing SQ | 2.665 |
| #17 Undercut Carpet Nosing SQ | 2.204 |
| #18 Undercut Carpet Nosing RD | 2.139 |
| #44 Fillet Strip | 0.411 |
| #50 Tile/Carpet Joiner 7/32" | .0658 |
| #56 Tile/Carpet Joiner 1/2" | .0658 |
| #60 Tile/Carpet Joiner 3/8" | .0658 |
| #65 Rolling Traffic Transition 1/4" to 1/8" | 1.810 |
| #66 Rolling Traffic Transition 3/8" to .080" | 1.892 |
| #67 Rolling Traffic Transition 3/8" to 1/8" | 2.566 |
| #73 Rolling Traffic Transition 1/4" to .080" | 1.810 |
| #74 Rolling Traffic Transition 3/8" | 1.892 |
| #75 Rolling Traffic Transition 3/8" to 1/4" | 0.329 |



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| Accessory Name and Order No. - <u>Edge Guards</u> | Index No. |
|--|------------------|
| #34 Underlap Carpet Edge 3/16" | 0.494 |
| #35 Underlap Carpet Edge 1/4" | 0.267 |
| #36 Underlap Carpet Edge 5/16" | 0.432 |
| #37 Underlap Carpet Edge 3/8" | 0.576 |
| #38 Glue-Down Carpet Edge 1/4" | 0.855 |
| #39 Glue-Down Carpet Edge 5/16" | 1.020 |
| #40 Carpet Edge Guard 9/32" | 0.691 |
| #41 Tackless Carpet Bar 1/4" | 0.691 |
| #42 Custom Carpet Edging 3/16" | 1.020 |
| #43 Custom Carpet Edging 1/4" | 1.020 |

| Accessory Name and Order No. - <u>Cove Caps</u> | Index No. |
|--|------------------|
| #28 Carpet Cove Cap 3/16" Round | 0.452 |
| #46 Cove Cap 1/8" Square | 0.165 |
| #47 Cove Cap 1/4" Square | 0.206 |
| Accessory Name and Order No. - <u>Corner Guards</u> | |
| #19 Corner Guard | 1.864 |
| #19-XTR Corner Guard | 1.864 |
| Accessory Name and Order No. - <u>Landing Trim</u> | |
| #57 Landing Trim | 0.943 |
| Accessory Name and Order No. - <u>Rubber Thresholds</u> | |
| #32 Half Threshold | 2.221 |
| #33 Full Threshold | 4.087 |

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Contact Information

Study Commissioner



Please call us with any question about Roppe rubber tile products or this Environmental Product Declaration. Thank you for your business, for more than 60 years.

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