



Mannington®

COMMERCIAL

Burkebase® TS – 4" and 6" Profiles

Programme: The International EPD® System

Programme operator: EPD International AB

EPD registration number: S-P-12024

Publication Date: 05-03-2024

Revision Date: 05-10-2024 (version 1.1)

Valid Until: 05-03-2029

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This EPD was done in accordance with ISO 14025 and ISO 21930.
This EPD does not comply with EN15804+A2.



Programme and Programme Operator	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com as provided by EPD North America
General Program instructions and Version Number¹	General Programme Instructions for the International EPD® System. Version 4.0. 2021-03-29
Manufacturer Name and Address	Mannington Commercial 75 Mannington Mills Road Salem, NJ 08079
Declaration Number	S-P-12024
Declared Product and Functional Unit	Burkebase® TS Wall Base 4" & 6" Profile 1 meter of installed wall base with a building service life of 75 years
Reference PCR and Version Number²	UL Part A: Life Cycle Assessment Calculation Rules and Report Requirements, Version 4.0. UL Part B: Wall and Door Protection, V1.0, September 2019
Product's intended Application and Use	Wall Protection (Multiple Sectors)
Product RSL	15 years for Burkebase® TS
Markets of Applicability	North America
Date of Issue	05-03-2024
Period of Validity	05-03-2029
EPD Type	Product Specific
Range of Dataset Variability	N/A
EPD Scope	Cradle to Grave
Year of reported manufacturer primary data	2022
LCA Software and Version Number	LCA FE 10.7.1.28 (formerly GaBi)
LCI Database and Version Number	MLC Database 2023.1 (formerly GaBi Database)
LCIA Methodology and Version Number	TRACI 2.1 CML 2001-Jan 2016 IPCC AR5
Part A PCR review was conducted by:	Lindita Bushi, PhD, Chair Hugues Imbeault-Tétreault, Eng., M.A.Sc. Jack Geibig
The sub-category PCR review was conducted by:	Dr. Lindita Bushi Lise Lauren Jim Mellentine
Independent third-party verification of the declaration and data, according to ISO 14025:2008.	<input type="checkbox"/> EPD Process Certification <input checked="" type="checkbox"/> EPD Verification <input type="checkbox"/> Pre-Verified Tool
This declaration was independently verified in accordance with ISO 14025: 2006. The UL Environment "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report," v4.0, based on CEN Norm EN 15804 (2012) and ISO 21930:2017, serves as the core PCR, with additional considerations from the USGBC/UL Environment Part A Enhancement (2017) <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External	James Mellentine, Thrive ESG
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	WAP Sustainability Consulting
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	James Mellentine, Thrive ESG
The procedure for follow-up of data during EPD validity, as defined by the GPI, involves third party verifier:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

¹Not all requirements in the GPI are fulfilled, particularly the requirement, for construction products, to follow EN 15804 for certain aspects of the LCA method.

²This EPD is based on a PCR that satisfies procurement rules at the federal, state, and municipal levels which call for EPDs based on the UL Part B PCR. The UL Part B PCR was used to meet regulatory (example: Buy Clean California Act, etc.) and market expectations (example: Building Transparency EC3 comparisons, LEED and existing vendor procurement requirements, product scoring programs, etc.). The EPD should not be used outside of this context.

Limitations:
Environmental declarations from different programs (ISO 14025) may not be comparable.
The declared environmental performance in the EPD shall not be compared with EN 15804-compliant EPDs developed under PCR 2019:14 in the International EPD System.
Comparison of the environmental performance of Wall and door protection products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR.
Full conformance with the PCR for Products allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible*. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.
The EPD owner has the sole ownership, liability, and responsibility of the EPD.

Product Definition and Information

Company Description

Founded in 1915, Mannington continues to pursue its commitment to quality, customer satisfaction and the environment through innovative product design and marketing, state-of-the-art processes, and industry-leading programs. It manufactures and supplies a portfolio of flooring and wall base products including residential and commercial sheet vinyl, luxury vinyl, laminate, hardwood floors, carpet, and rubber.

Product Description

The perfect finishing touch, Burkebase® wall base is available in traditional and modern designs. Available in Type TV, thermoplastic vinyl, Type TP thermoplastic rubber, and Type TS thermoset molded rubber is FloorScore certified and available in a multitude of colors.

Burkebase® TS is within CSI MasterFormat section 09 65 13, UNCPC 54750 and UN CPC 36910.

Application

Mannington Commercial's wall base products can be used in a variety of applications across all sectors. Mannington Commercial's wall base products are used in healthcare, educational, specialty retail, hospitality interiors, and multi-family residential complexes as wall protection.



Figure 1: Product Application

Properties of Declared Product as Delivered

Burkebase® TS is typically packaged in cardboard and plastic wrap and loaded onto a pallet for shipment.

Table 1: Technical Data

	Standard	Value
Flooring Radiant Panel	ASTM E-648	Passes - Class I; ≥ 0.45 watts/cm ²
Smoke Density	ASTM E-662	Passes - < 450
Flammability Test	ASTM D-2859-06	Passes

	Standard	Value
Odor Evaluation	SAE J 1351	Slight but noticeable odor - 2
Flexibility of Resilient Flooring Materials	ASTM F137	Passes
Heat Stability	ASTM F1514	Slight Change/No Change
Light Stability	ASTM F1515	Noticeable change/Slight change
Dimensional Stability	ASTM F1861	0.6% Loss
Staining of Adjacent Surfaces	ASTM F1861	No Change
Wear Layer Thickness	ASTM F 410	N/A (Homogenous)
Hardness	ASTM D 2240	93.7
Static Load Resistance	ASTM F 970	0.004"
Chemical Exposure	ASTM F 925	Passes
Abrasion Resistance	ASTM D 3389	0.7g

Flow Diagram

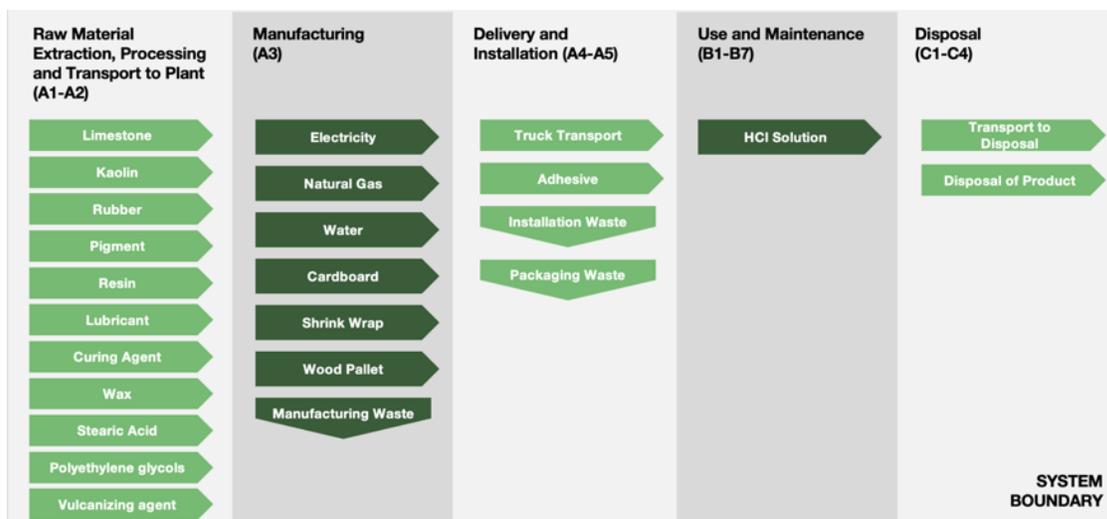


Figure 2: System Boundary

Manufacturing and Packaging

Burkebase® TS is manufactured in Calhoun GA. Raw materials arrive at the facility, where they are mixed, vulcanized, and then molded into the desired shape and profile. Burkebase® TS is then cut to size, packaged in cardboard and plastic wrap, and loaded onto a pallet for transport to customer. Packaging materials are either recycled, landfilled, or incinerated based on waste classification mentioned in Section 2.8.5- and 2.8.6-Part A of the reference PCR. No substances required to be reported as hazardous are associated with the production of this product.

Table 2: Product Composition

Material	Percent
Limestone	42%
Kaolin	35%
E-SBR	14%
Titanium Dioxide Pigment	4%
Additional Pigment	2%
Petroleum Hydrocarbon Resin	2%
Lubricant	1%
Curing Agent	<1%
Wax	<1%
Stearic Acid	<1%
Polyethylene glycols	<1%
Vulcanizing agent	<1%

Table 3: Packaging

Material	4" Profile	6" Profile
Cardboard [kg per m]	1.17E=01	1.59E-01
Wood Pallet [kg per m]	8.24E-02	1.12E-01
Plastic Shrink Wrap [kg per m]	5.80E-04	7.89E-04

Transportation

Raw materials for the product are obtained from China and the United States for Burkebase® TS and other Wall Base products. The materials are delivered to the manufacturing facility via truck. Distances were calculated using the supplier location and the location of manufacturing.

Product Installation

While the installation for wall protection products varies slightly across the product types, installation of Burkebase® TS primarily involves hand tools for measuring and cutting wall base materials. Approximately 4.5% of the total material is assumed to be trimmed and landfilled. Adhesive is applied to the back of the wall base to within ¼" from the top of the wall base. This equates to adhesive covering ~90% of the wall base surface area. Adhesive is applied using a 1/8" V-notched spreader. Wall base should be installed within 20 minutes of adhesive application. Emissions from the adhesive during installation were considered for this assessment. However, no emissions were modeled due to the manufacturer-recommended adhesives having low- to no-VOC content. Further installation information can be found at on Mannington's [website](#).

All waste generated during installation, including packaging waste, is disposed of according to the tables found in Section 2.8.5 of *Part A: Life Cycle Assessment Calculation Rules and Report Requirements* from UL Environment.

Use

The maintenance of rubber wall base depends on where it is installed in terms of level of use. For the purposes of this LCA and EPD for Burkebase® TS, maintenance procedures are based on recommendations in Mannington Commercial's product datasheet found on Mannington's [website](#).

Reference Service Life and Estimated Building Service Life

The reference service life of Burkebase® TS Wall Base is assumed to be 15 years given that the product is installed as per manufacturer guidelines. The RSL is defined by UL Part B for this product. Therefore, after initial installation in a building with an estimated service life (ESL) of 75 years there will be 4 replacements needed.

Reuse, Recycling and Energy Recovery

Mannington's Burkebase® TS Wall Base is assumed to be manually scraped off the wall and disposed to a landfill. Burkebase® TS Wall Base is typically not reused or recycled following removal. Thus, reuse, recycling, and energy recovery are not applicable for this product.

Disposal

The product is considered to be 100% landfilled as specified in Sections 2.8.5 and 2.8.6 of Part A: Life Cycle Assessment Calculation Rules and Report Requirements from UL Environment.

Life Cycle Assessment Background Information

Declaration of Methodological Framework

The LCA follows an attributional approach.

Functional Unit

The functional unit of the Burkebase[®] TS product is one (1) linear meter of wall base. The mass of the Burkebase[®] TS 4" profile per functional unit is 0.580 kg; the mass of the Burkebase[®] TS 6" profile per functional unit is 0.789 kg.

System Boundary

This EPD is a Cradle-to-Grave study.

Table 4: System Boundary and Modules

Module Name	Description	Analysis Period	Summary of Included Elements
A1	Product Stage: Raw Material Supply	2022	Raw Material sourcing and processing as defined by secondary data.
A2	Product Stage: Transport	2022	Shipping from supplier to manufacturing site. Fuel use requirements estimated based on product weights and estimated distance.
A3	Product Stage: Manufacturing	2022	Energy inputs required for manufacturing products from raw materials. Packaging materials and manufacturing waste are included as well.
A4	Construction Process Stage: Transport	2022	Shipping from manufacturing site to project site. Fuel use requirements estimated based on product weights and mapped distance.
A5	Construction Process Stage: Installation	2022	Installation materials, installation waste and packaging material waste.
B1	Use Stage: Use	2022	Use of the product.
B2	Use Stage: Maintenance	2022	Cleaning energy, water, and materials, including refinishing the product.
B3	Use Stage: Repair	2022	Product typically not repaired during use.
B4	Use Stage: Replacement	2022	Total materials and energy required to manufacture a replacement.
B5	Use Stage: Refurbishment	2022	Product typically not refurbished during use.
B6	Operational Energy Use	2022	Operational Energy Use of Building Integrated System During Product Use
B7	Operational Water Use	2022	Operational Water Use of Building Integrated System During Product Use
C1	EOL: Deconstruction	2022	No inputs required for deconstruction.
C2	EOL: Transport	2022	Shipping from project site to waste disposal.
C3	EOL: Waste Processing	2022	Waste processing if incineration as chosen disposal pathway per Part A of the PCR.
C4	EOL: Disposal	2022	Disposal modeled by region as per Part A of the PCR.
D	Benefits beyond system	MND	Credits from energy or material capture.

Estimates and Assumptions

All estimates and assumptions are within the requirements of ISO 14040/44. The majority of the estimations are within the primary data. The primary data was collected as annual totals for electricity usage and production volume. For the LCA, the electricity usage information was divided by the production to find an energy use per square meter. Another assumption is that the installation tools are used enough times that the per square meter impacts are negligible.

Cut-Off Criteria

A cut-off rule of 1% has been applied to this assessment, meaning the included inventory data must account for greater than 99% of the total material and energy inputs into the system. Furthermore, greater than 99% of the environmental impacts from the product system must be accounted for in the assessment. No known material or manufacturing inputs or outputs are deliberately excluded from this EPD. Cumulative excluded inputs within the life cycle account for less than 1% of the total mass inputs, energy inputs, and environmental impacts.

Data Sources

Primary data were used for all manufacturing processes. When primary data did not exist, secondary data for raw material production were obtained from the Sphera Managed LCA Content database.

Data Quality

The geographical scope of the manufacturing portion of the life cycle is the United States for Burkebase® TS. All primary data were collected from the manufacturer. The geographic coverage of primary data is considered excellent. The primary data provided by the manufacturer represent all information for calendar year 2022. Time coverage of this data is considered excellent. Primary data provided by the manufacturer is specific to the technology used in manufacturing their product. It is site-specific and considered of good quality. Data necessary to model cradle-to-gate unit processes was sourced from Sphera Managed LCA Content LCI datasets. Improved life cycle data from suppliers would improve technological coverage.

Period Under Review

The period under review is calendar year 2022.

Allocation

General principles of allocation were based on ISO 14040/44.

To derive a per-unit value for manufacturing electricity, allocation based on total production by mass was adopted. As a default, secondary Sphera Managed LCA Content datasets use a physical basis for allocation.

Of relevance to the defined system boundary is the method in which recycled materials were handled. Throughout the study recycled materials were accounted for via the cut-off method. Under this method, impacts and benefits associated with the previous life of a raw material from recycled stock are excluded from the system boundary. Additionally, impacts and benefits associated with secondary functions of materials at end of life are also excluded (i.e., production into a third life or energy generation from the incineration plant). The study does include the impacts associated with reprocessing and preparation of recycled materials that are part of the bill of materials of the products under study, though Burkebase® TS does not contain any recycled materials.

Comparability and Benchmarking

The user of the EPD should take care when comparing EPDs from different companies. Assumptions, data sources, and assessment tools may all impact the uncertainty of the final results and make comparisons misleading. Without understanding the specific variability, the user is therefore, not encouraged to compare EPDs. Even for similar products, differences in use and end-of-life stage assumptions, and data quality may produce incomparable results. Comparison of the environmental performance of Wall Base Products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR. Full conformance with the PCR for Products allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

Comparison of the environmental performance of construction works and construction products using EPD information shall be based on the product's use and impacts at the construction works level. In general, EPDs may not be used for comparability purposes when not considered in a construction works context. Given this PCR ensures products meet the same functional requirements, comparability is permissible provided the information given for such comparison is transparent and the limitations of comparability explained.

Table 5: Life Cycle Stages Included in the Study

Production			Construction		Use							End of Life				Benefits & Loads Beyond System Boundary
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw Material Supply	Transport	Manufacturing	Transport to Site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction	Transport	Waste Processing	Disposal	Reuse, Recovery, Recycling Potential
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	MND

X = Module Included in LCA Report, MND = Module not Declared

Life Cycle Assessment Scenarios

Table 6: Transportation to Building Site (A4)

	4" Profile	6" Profile
Vehicle Type	Truck - Heavy Heavy-duty Diesel Truck / 53,333 lb payload - 8b	Truck - Heavy Heavy-duty Diesel Truck / 53,333 lb payload - 8b
Fuel Efficiency [L/100km]	42	42
Fuel Type	Diesel	Diesel
Distance [km]	800	800
Capacity Utilization [%]	68%	68%
Capacity Utilization Volume Factor	1	1
Weight of Products Transported [kg]	7.80E-01	1.06E+00

Table 7: Reference Service Life

Name	Value	Unit
RSL [years]	15	years
Declared product properties (at the gate) and finishes, etc.	See Table 1 for technical details	N/A
An assumed quality of work, when installed in accordance with the manufacturer's instructions	Per industry standards	N/A
Maintenance - clean weekly with 10% HCl solution (ex. Any neutral cleaner or glass cleaner)	50	[mL/m/week]

Table 8: Installation at building site (A5)

	4" Profile	6" Profile
Adhesive [kg]*	1.01E-01	1.01E-01
Cardboard Packaging Waste to Incineration [kg]	5.83E-03	7.93E-05
Cardboard Packaging Waste to Landfill [kg]	3.15E-02	4.28E-04
Cardboard Packaging Waste to Recycling [kg]	7.93E-02	1.08E-03
Wood Packaging Waste to Incineration [kg]	4.12E-03	5.60E-03
Wood Packaging Waste to Landfill [kg]	2.23E-02	3.02E-02
Wood Packaging Waste to Recycling [kg]	5.60E-02	7.62E-02
Plastic Packaging Waste to Incineration [kg]	9.87E-05	1.34E-04
Plastic Packaging Waste to Landfill [kg]	4.29E-04	5.84E-04
Plastic Packaging Waste to Recycling [kg]	5.22E-05	7.10E-05
Biogenic Carbon Content of Packaging		
Cardboard [kg CO ₂]	2.36E-01	3.21E-01
Wood [kg CO ₂]	1.24E-01	1.68E-01
VOCs		
VOC Emissions [mg/m ³]	0.5-5	
<i>No freshwater, electricity, or fuels are used in installation.</i>		
<i>*Emissions from the adhesive during installation were considered for this assessment. However, no emissions were modeled due to the manufacturer-recommended adhesives having low- to no-VOC content.</i>		

Table 9: End-of-Life Scenario Details (C1-C4)

	4" Profile	6" Profile
Collected as mixed construction waste [kg]	0.681	0.890
Waste to Landfill [kg]	0.681	0.890
Distance to Landfill [km]	161	161
Waste to Incineration [kg]	0	0
Distance to Incineration [km]	0	0
Waste to Recycling [kg]	0	0
Distance to Recycling [km]	0	0

Life Cycle Assessment Results

All results are given per functional unit, which is 1 linear meter of wall base over an estimated building life of 75 years. Environmental Impacts were calculated using the Sphera LCA for Experts software platform. Impact results have been calculated using IPCC AR5, TRACI 2.1 and CML 2001-Jan 2016 characterization factors. LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. The Impact Category Key table gives definitions of relevant acronyms.

The LCIA impact categories referenced below are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes.

Table 10: Impact Category Key – LCIA Indicators

Abbreviation	Parameter	Unit
IPCC AR5		
GWP	Global warming potential (100 years, includes biogenic CO ₂)	kg CO ₂ eq
CML 2001-Jan 2016		
GWP	Global warming potential (100 years, includes biogenic CO ₂)	kg CO ₂ eq
ODP	Depletion of stratospheric ozone layer	kg CFC 11 eq
AP	Acidification potential of soil and water	kg SO ₂ eq
EP	Eutrophication potential	kg Phosphate eq
POCP	Photochemical ozone creation potential	kg Ethene eq
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb eq
ADPF	Abiotic depletion potential for fossil resources	MJ, net calorific value
TRACI 2.1		
AP	Acidification potential of soil and water	kg SO ₂ eq
EP	Eutrophication potential	kg N eq
GWP	Global warming potential (100 years, includes biogenic CO ₂)	kg CO ₂ eq
ODP	Depletion of stratospheric ozone layer	kg CFC 11 eq
Resources	Depletion of non-renewable fossil fuels	MJ, surplus energy
SFP	Smog formation potential	kg O ₃ eq

Table 11: Impact Category Key – Biogenic Carbon Indicators

Abbreviation	Parameter	Unit
BCRP	Biogenic Carbon Removal from Product	[kg CO ₂]
BCEP	Biogenic Carbon Emission from Product	[kg CO ₂]
BCRK	Biogenic Carbon Removal from Packaging	[kg CO ₂]
BCEK	Biogenic Carbon Emission from Packaging	[kg CO ₂]
BCEW	Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes	[kg CO ₂]
CCE	Calcination Carbon Emissions	[kg CO ₂]
CCR	Carbonation Carbon Removals	[kg CO ₂]
CWNR	Carbon Emissions from Combustion of Waste from Non- Renewable Sources used in Production Processes	[kg CO ₂]

Table 12: Impact Category Key – Resource Use, Waste, and Output Flow Indicators

Abbreviation	Parameter	Unit
Resource Use Parameters		
RPRE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value (LHV)
RPRM	Use of renewable primary energy resources used as raw materials	MJ, net calorific value
RPRT	Total use of renewable primary energy resources	MJ, net calorific value
NRPRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ, net calorific value
NRPRM	Use of non-renewable primary energy resources used as raw materials	MJ, net calorific value
NRPRT	Total use of non-renewable primary energy resources	MJ, net calorific value
SM	Use of secondary materials	kg
RSF	Use of renewable secondary fuels	MJ, net calorific value
NRSF	Use of non-renewable secondary fuels	MJ, net calorific value
RE	Recovered energy	MJ, net calorific value
FW	Net use of fresh water	m ³
Waste Parameters and Output Flows		
HWD	Disposed-of-hazardous waste	kg
NHWD	Disposed-of non-hazardous waste	kg
HLRW	High-level radioactive waste, conditioned, to final repository	kg
ILLRW	Intermediate- and low-level radioactive waste, conditioned, to final repository	kg
CRU	Components for reuse	kg
MR	Materials for recycling	kg
MER	Materials for energy recovery	kg
EEE	Exported electrical energy	MJ
EET	Exported thermal energy	MJ

Life Cycle Assessment Interpretation

Replacement (B4) emerges as the major contributor across all TRACI 2.1 impact categories for the Burkebase[®] TS 4" Profile and 6" Profile. This follows the fact that with an RSL of 15 years, there are 4 replacements that need to occur during the 75 years of building operation, apart from the initial product installation. This includes raw material extraction, manufacturing, distribution, install and end of life (for replaced product) for every replacement. This causes impacts from B4 to overshadow impacts from any other phase in the life cycle.

If the impacts from B4 are set aside to observe impacts from other phases, the product stage (A1-A3) emerges as a major contributor over a 75-year ESL of the building for both wall base profiles. This is primarily due to the electricity and natural gas used in manufacturing and the raw material extraction. Figures shows the dominance analysis to highlight which of the life cycle modules contributes to the majority of the impacts.

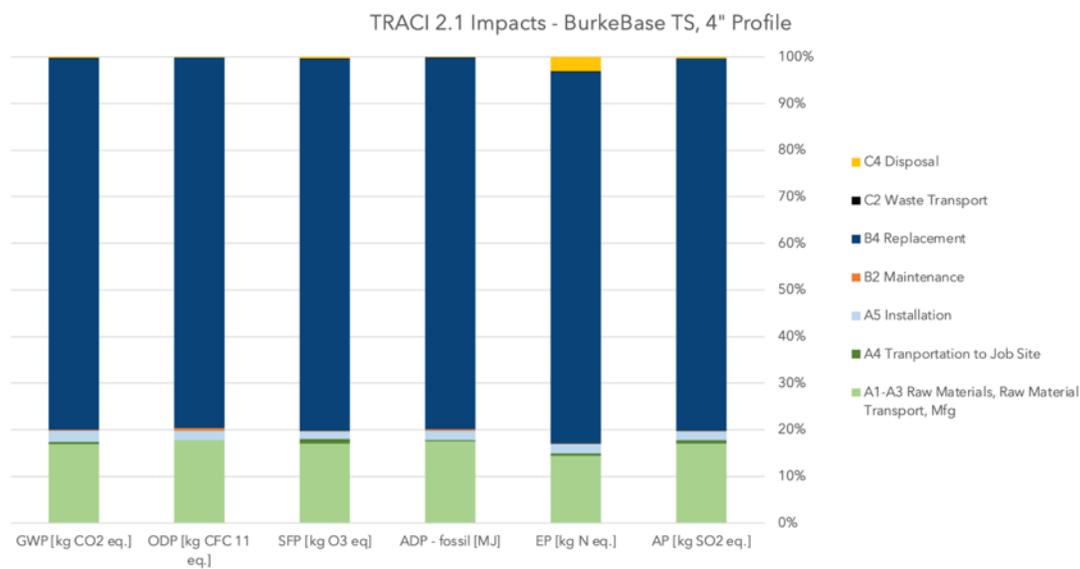


Figure 3: Burkebase[®] TS, 4" Profile TRACI Impact Categories Over Estimated Service Life (75 years)

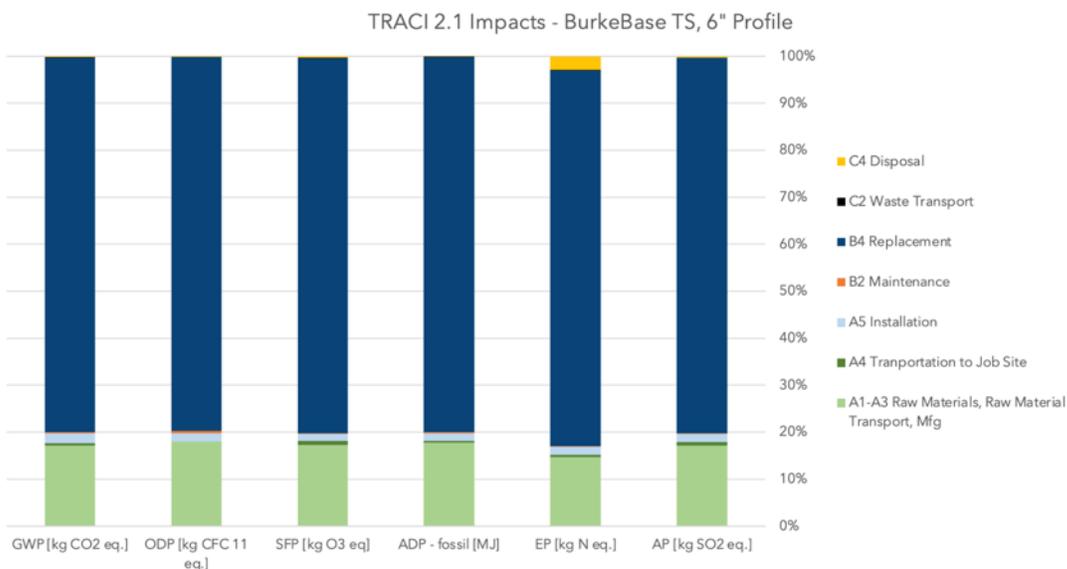


Figure 4: Burkebase[®] TS, 6" Profile TRACI Impact Categories Over Estimated Service Life (75 years)

Additional Environmental Information

Environmental and Health During Manufacturing

Mannington's Burkebase® TS is produced in a facility that is ISO 14001 certified.

Differences Versus Previous Versions

05-03-2023 Version 1

05-10-2023 Version 1.1

Technical change: TRACI GWP results for the 4" Profile was originally calculated excluding biogenic carbon. Updated to include biogenic carbon to align with the methodology listed in Table 10.

Editorial change: The LCA Report citation date was corrected.

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Life Cycle Assessment for Wall Base, Mannington Commercial, WAP Sustainability Consulting. April, 2024

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