

# INVISION

J+J FLOORING GROUP

Environmental Product Declaration

## Nexus<sup>®</sup> Modular Backing



As a smaller, highly integrated, privately-owned manufacturer, J+J Flooring Group has the flexibility to easily monitor and modify our footprint while pursuing innovative sustainable practices. As a company we believe that products should be evaluated holistically using a multi-attribute approach, rather than focusing on single product attributes or certifications. With conservation as the core of our sustainability initiatives, we've developed aggressive goals on energy and emissions reduction, water conservation, recycled content and waste minimization.



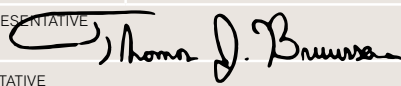

INVISION

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### ENVIRONMENTAL PRODUCT DECLARATION VERIFICATION

#### EPD INFORMATION

|  |  |  |                                       |
|--|--|--|---------------------------------------|
| PROGRAM OPERATOR <b>NSF International</b>  |  |  |                                       |
| DECLARATION HOLDER <b>J+J Flooring Group</b> 818 J&J Drive, Dalton GA 30722 PO Box 1287                      |  |  |                                       |
| PRODUCT<br><b>Nexus<sup>®</sup> Modular Backing</b>  | DATE OF ISSUE<br><b>April 21, 2014</b>       | PERIOD OF VALIDITY<br><b>5 years</b>   | DECLARATION NUMBER<br><b>EPD10026</b> |
| This EPD was independently verified by NSF International in accordance with ISO 14025:                       |  | SIGNATURE OF REPRESENTATIVE<br>  |                                       |
| <input type="checkbox"/> Internal  | <input checked="" type="checkbox"/> External | NAME OF REPRESENTATIVE<br><b>Thomas J. Bruursema</b>   |                                       |
|  |  | CONTACT INFORMATION FOR REPRESENTATIVE<br><b>bruursema@nsf.org</b>   |                                       |
| This life cycle assessment was independently verified by in accordance with ISO 14044 and the reference PCR: |  | SIGNATURE OF REPRESENTATIVE<br> |                                       |
|  |  | NAME OF REPRESENTATIVE<br><b>Jack Geibig</b>   |                                       |
|  |  | CONTACT INFORMATION FOR REPRESENTATIVE<br><b>jgeibig@ecoform.com</b>   |                                       |

#### LCA INFORMATION

|   |   |
|---|---|
| Basis LCA   | TITLE OF LCA<br><b>J&amp;J Industries Inc. LCA Report: Fiscal year 2012</b> |
|   | DATE OF ISSUE<br><b>April 21, 2014</b>                                      |
| LCA Preparer  | NAME OF PREPARER<br><b>Brad McAllister</b>                                  |
|   | ORGANIZATION OF PREPARER<br><b>WAP Sustainability Consulting</b>            |
|   | CONTACT INFORMATION FOR PREPARER<br><b>brad@wapsustainability.com</b>       |
| This life cycle assessment was critically reviewed in accordance with ISO 14044 by: | NAME OF CRITICAL REVIEWER<br><b>Jack Geibig</b>                             |
|   | ORGANIZATION OF REVIEWER<br><b>Ecoform</b>                                  |
|   | CONTACT INFORMATION FOR REVIEWER<br><b>jgeibig@ecoform.com</b>              |

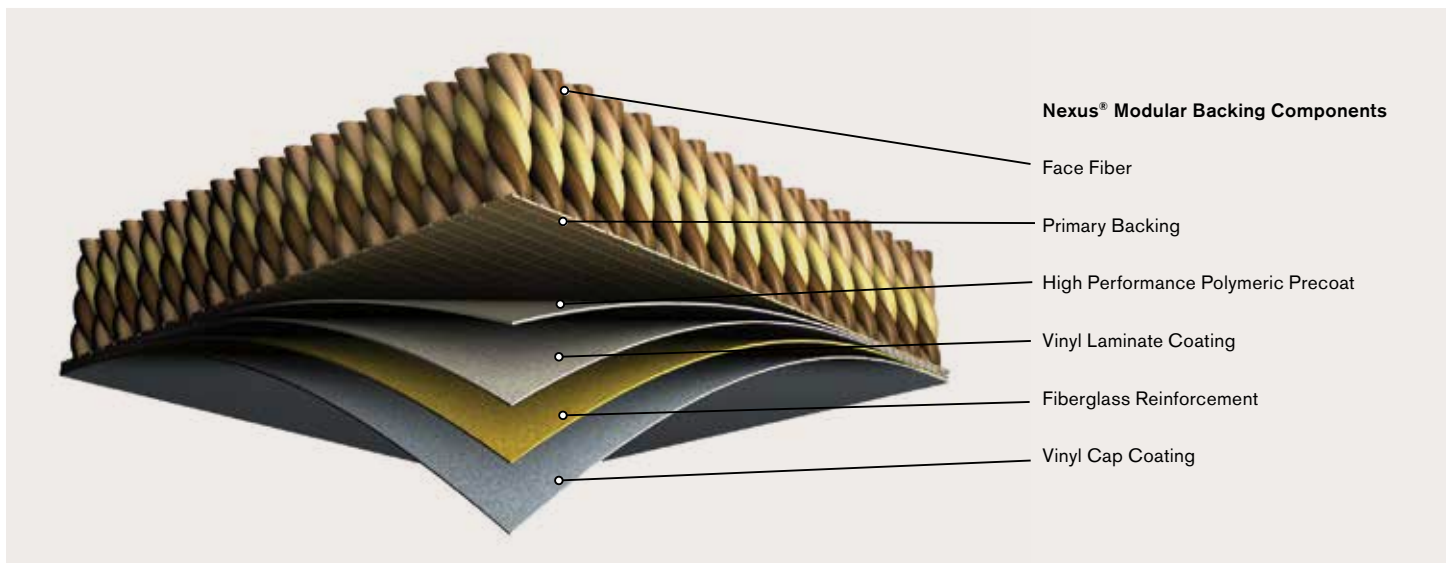
#### PCR INFORMATION

|                              |  |
|------------------------------|--|
| PROGRAM OPERATOR             | <b>NSF International</b>   |
| REFERENCE PCR                | <b>Flooring: Carpet, Resilient, Laminate, Ceramic, Wood</b>      |
| DATE OF ISSUE                | <b>April 21, 2014</b>  |
| PCR review was conducted by: | NAME OF CHAIR<br><b>Dr. Michael Overcash</b>                     |
|                              | ORGANIZATION OF CHAIR<br><b>Environmental Clarity</b>            |
|                              | CONTACT INFORMATION FOR CHAIR<br><b>mrovercash@earthlink.net</b> |

## Nexus<sup>®</sup>

### PRODUCT DESCRIPTION

Carpet tile with PVC based backing chemistry. Carpet face composition may include either Nylon 6,6 or Nylon 6 fibers that have been dyed using beck dyeing, space dyeing and/or solution dyeing techniques. Product contains pre-consumer recycled content. Product is manufactured at plants in Dalton and Calhoun, Georgia.



### Applicability

Product is intended for use as a soft floor covering in medium-to-high traffic commercial applications.

## PRODUCT CHARACTERISTICS

| Type of manufacture                         | Modular Carpet                                    |  |
|---|---|--|
| Yarn type                                   | Nylon (either 6 or 6.6), 15-37 oz/yd <sup>2</sup> |  |
| Additional characteristics per NSF/ANSI 140 | Available reclamation Program                     |  |
| Sustainable certifications                  | Certified Gold to NSF/ANSI140                     |  |
| VOC emissions test method                   | Green Label Plus (GLP)                            |  |
| CRI- TARR rating                            | ≤ 3.5   |  |
| CHARACTERISTICS                             | NOMINAL VALUE                                     | UNIT                                   |
| Total thickness                             | 8.37 – 13.3 (.251 – .400)                         | mm (inch)                              |
| Product weight                              | 3491 - 4692 (125 –168)                            | g/m <sup>2</sup> (oz/yd <sup>2</sup> ) |
| Surface pile thickness                      | 2.41 – 5.22 (0.095 – 0.206)                       | mm (inch)                              |
| Number of tufts or loops /dm <sup>2</sup>   | 6.45 – 9.74 (100 – 151)                           | dm <sup>2</sup> (in <sup>2</sup> )     |
| Surface pile weight                         | 419 - 1034 (15 – 37)                              | g/m <sup>2</sup> (oz/yd <sup>2</sup> ) |
| Pile fiber composition                      | 100% N6 or 100% N6.6                              | %                                      |
| Secondary backing                           | Nexus <sup>®</sup> (PVC)                          | Thermoplastic                          |

## List of Product Standards

| TEST   | RESULT   |
|--|--|
| <b>AATCC2 Test Method 134-2011</b><br>Electrostatic Propensity of Carpets (Normative value ≤ 3.5 KV)   | ≤ .7 KV  |
| <b>AATCC2 Test Method 16-2004</b><br>Colorfastness to Light (minimum grade 4 at 40 AFU)  | Minimum grade = 5  |
| <b>ASTM6 E648</b><br>Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source               | Class 1, > 0.45  |
| <b>ASTM6 E662</b><br>Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials                                   | < 450  |
| <b>ASTM6 D5252</b><br>Standard Practice for the Operation of the Hexapod Tumble Drum Tester  | 3.5  |
| <b>ASTM6 D7330</b><br>Standard Test Method for Assessment of Surface Appearance Change in Pile Floor Coverings Using Standard Reference Scales | 3  |
| <b>ISO14 2551/ ASTM6 Dimensional Stability</b><br>(Modular Tiles Only)   | -.037 % (Machine Directional),<br>.036 % (cross Directional) |

## MATERIAL CONTENT

| COMPONENT         | MATERIAL          | MASS % | AVAILABILITY |                              |                                | ORIGIN OF RAW MATERIALS |
|-------------------|-------------------|--------|--------------|------------------------------|--------------------------------|-------------------------|
|                   |                   |        | RENEWABLE    | NON-RENEWABLE                | RECYCLED                       |                         |
| Pile Material     | Nylon 6           | 11%    |              | 80% Fossil resource, limited | 20% Recycled content           | US                      |
|                   | Nylon 6,6         | 5%     |              | Fossil resource, limited     |                                | US                      |
| Primary Backing   | Polypropylene     | 2.34%  |              | Fossil resource, limited     |                                | US                      |
| Secondary Backing | ATH               | 13.71% |              | Fossil resource, limited     |                                | US                      |
|                   | Calcium Carbonate | 4.98%  |              | Mineral, abundant            |                                | US                      |
|                   | Phthalate         | 15.93% |              | Fossil resource, limited     |                                | US                      |
|                   | Fiberglass        | 1.24%  |              | Fossil resource, limited     |                                | US                      |
|                   | Coal Fly Ash      | 27.39% |              |                              | Industrial byproduct, abundant | US                      |
|                   | PVC               | 17%    |              | Fossil resource, limited     |                                | US                      |

### Production of main materials

**Nylon 6,6:** A synthetic fossil based polymer synthesised by polycondensation of hexamethylenediamine and adipic acid.

**Nylon 6:** A synthetic fossil based polymer synthesized by ring opening polymerization of caprolactam.

**Polypropylene:** A synthetic fossil based polymer produced from the polymerization of propylene.

**Aluminum hydroxide (ATH):** Inorganic mineral substance manufactured by dissolving bauxite in sodium hydroxide at temperatures up to 270°C.

**Calcium Carbonate:** A common substance found in rocks in all parts of the world, primarily extracted through mining or quarrying.

**Coal Fly Ash:** A by-product generated in combustion, specifically in the generation of energy from coal.

**Fiberglass:** Glass fibers in sheet form. Produced primarily from the mining and processing of silica.

**Phthalate:** Plasticizer produced chemically from the esterification of phthalic acid.

**Polyvinyl Chloride (PVC):** Thermoplastic polymer of vinyl chloride.

## LIFE CYCLE ASSESSMENT STAGES AND REPORTED EPD INFORMATION

### Sourcing/Extraction (Raw Material Acquisition) Stage

The exact route will vary based on each individual raw material's specific supply chain. In general, a material begins via extraction from the Earth or from pre- or post-consumer recycled feedstock and moves through a series of processing steps prior to being received at a manufacturing facility. Processing may include the addition or removal of supplemental materials and/or by-products. A series of transportation steps are required to move intermediate goods between facilities. Transportation modes may include truck, rail, sea freight and/or air.



### Manufacturing Stage

The manufacturing process involves first extruding nylon raw material into fiber (1), and then processing the fiber into yarn (2). Once the yarn is manufactured, the next steps in the manufacturing process include tufting the yarn onto the primary backing (3), followed by dyeing as needed (4). After the intermediate goods are colored as specified, then they are finished (5), cut into modular tiles (6) and finally packaged for final shipment (7).



### HEALTH, SAFETY, AND ENVIRONMENTAL ASPECTS DURING PRODUCTION

- ISO14001 Environmental Management System
- Compliance with local, state and federal regulations relating to the environment and workplace safety
- Part of corporate Design for Environment program of J+J Flooring Group
- Meets requirements within the Public Health and Environment section of NSF140
- Corporate workplace safety program
- Utilization of LEAN manufacturing principles for the reduction of waste during production

### PRODUCTION WASTE

J+J Flooring Group strives to reduce all production waste through increased efficiency and utilization of raw materials. Any remaining waste that is generated is reclaimed and reused in the manufacturing process or sent to recycling partners. J+J Flooring Group has a strategic goal to be landfill free by 2020.

## Delivery and installation stage

### DELIVERY

J+J Flooring Group is provided to both the domestic and international marketplace. Domestic shipments are typically completed by truck, whereas international shipments utilize ocean freight and truck. The delivery distance to each job site is project specific and J+J Flooring Group requests that customers contact their sales representative for details regarding delivery options.

### INSTALLATION

It is recommended that the installation of carpet be accomplished through the use Commercialon<sup>®</sup> Premium Modular Carpet Adhesive. Full instructions regarding installation of carpet are provided in the J+J Flooring Group's Carpet Installation handbook located at:

<http://www.jj-invision.com/pages/technical-carpet-installation-maintenance>

### HEALTH, SAFETY AND ENVIRONMENTAL ASPECTS DURING INSTALLATION

Adhesives used during installation meet the requirements of California South Coast Air Quality Management District Rule #1168 or are in accordance with the emissions requirements in California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1, February 2010 (also known as CA 01350 or may be referenced as Floor-Score or Green Label Plus approved).

The MSDS's for installation adhesives can be viewed at:

<http://www.jj-invision.com/pages/premium-carpet-adhesive>

### INSTALLATION WASTE

Packaging waste generated during the installation phase can be recycled with local recycling options. For more details regarding J+J Flooring Group's Carpet Reclamation program, please call **1.800.241.4586** or visit:

<http://www.jj-invision.com/pages/Carpet-Reclamation/>

### PACKAGING

Prior to shipping, carpet tiles are packaged in cardboard boxes that contain recycled content. Boxes are stacked and shipped on wooden pallets. The boxes are secured to the pallet with thin film plastic wrap (LLDPE). All materials are recyclable through local recycling options.

## Use Stage

### USE OF THE FLOOR COVERING

The reference service life of J+J Flooring Group carpet is 15 years, although J&J's carpet may be replaced sooner due to changes in fashion. We are proud to offer to the market a limited lifetime warranty on most of our products.

### CLEANING AND MAINTENANCE

The LCA was modeled with the following cleaning and maintenance assumptions::

| LEVEL OF USE | CLEANING PROCESS           | CLEANING FREQUENCY (TIMES / YEAR) | CONSUMPTION OF ENERGY AND RESOURCES       |
|--------------|----------------------------|-----------------------------------|---|
| Commercial   | Vacuum Cleaning            | 4 times / week                    | Electrical Energy                         |
|              | Rinse Cleaning             | 2 times / year                    | Electrical Energy, Water                  |
|              | Deep Cleaning (extraction) | 2 times / year                    | Electrical Energy, Water, cleaning agent. |

**STRUCTURAL DAMAGE**

Carpet should not be installed until all structural damage has been adequately repaired and determined to be code compliant.

**End of Life Stage****RECYCLE, REUSE, OR REPURPOSE**

It is recommended that customers utilize J+J Flooring Group's carpet reclamation program for the recycling of J+J Flooring Group carpet. To initiate the carpet reclamation process, please call **1.800.241.4586** or visit:

<http://www.jj-invision.com/pages/Carpet-Reclamation/>

**DISPOSAL**

Recycling of J+J Flooring Group's carpet is recommended. However, carpet can be disposed of in municipal landfills or sent to waste-to-energy facilities (subject to local regulations). To maintain a conservative LCA approach, end of life options included landfill disposal, waste-to-energy, and reclamation/recycling. Rates of each option were based on research and public reporting of the Carpet America Recovery Effort (CARE).

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**LIFE CYCLE ASSESSMENT (LCA)****General**

A cradle-to-grave life cycle assessment (LCA) was conducted in accordance to the ISO14040/14044 series of standards. Additionally, external third parties critically reviewed the LCA study. The LCA assessed the Sourcing/Extraction, Manufacturing Delivery and Installation, Use, and End-of-life stages of the product's life cycle.

**Description of the functional unit**

The functional unit is 1 square meter of carpet. The service life of the carpet is 15 years.

**Cut-off criteria**

Excluded materials met the following criteria:

- Less than 1% of the total mass of the final product.
- Less than 1% of the total energy flows.
- Total excluded materials did not exceed 5% of final product.
- Were identified as not having disproportionately high environmental impact.

**Allocation**

Background data used in the LCA model may contain some allocation. Primary data for J+J Flooring Group production was not allocated.



## Background data

The LCA was modeled using the GaBi 6 software platform. Background data was typically sourced from PE International datasets, although some data from PlasticsEurope and the USLCI database were utilized when appropriate PE datasets were not available.

## Data quality

**Time Related Coverage:** All gate-to-gate manufacturing data was sourced from J+J Flooring Group's records for 2012. The time coverage of background data is adopted from the specific datasets utilized in the model. Priority was given to the most up-to-date dataset available at the time the model was created. No background data is more than 10 years old.

**Geographical Coverage:** All gate-to-gate manufacturing data are specific to J+J Flooring Group's locations and have been verified through third-party certification programs. The Geographical Coverage background data is adopted through the use of the specific datasets utilized in the model. In general, domestic data were preferred, however the absence of US specific data required some international data to be utilized.

**Technology coverage:** Data utilized in the model represent the most current technology.

## System boundaries

The LCA of 1 M<sup>2</sup> of J+J Flooring Group's carpet includes:

- Sourcing/Extraction Stage
- Manufacturing Stage
- Delivery and Installation Stage
- Use Stage
- End of Life Stage



## Notes on use stage

Carpet manufactured by J+J Flooring Group carries a limited lifetime warranty. While the actual lifetime of the carpet is contingent on several factors, including changing style preference and building traffic, J+J Flooring Group has assumed a 15 year service life in the LCA model. Results are presented for a single year of use, as well as for a 60-year reference service life of a building.

## Results of Assessment

### LIFE CYCLE INVENTORY ANALYSIS

| Face Fiber Weight                          | 15 OZ / SY    | 23 OZ / SY    | 37 OZ / SY    |
|--|---------------|---------------|---------------|
| <b>Primary Energy - Non-Renewable (MJ)</b> | <b>239.04</b> | <b>284.82</b> | <b>364.62</b> |
| Lignite (%)                                | 0.83%         | 0.82%         | 0.80%         |
| Mineral Coal (%)                           | 12.43%        | 12.10%        | 11.73%        |
| Natural Gas (%)                            | 39.06%        | 38.15%        | 37.09%        |
| Oil (%)                                    | 41.41%        | 42.82%        | 44.48%        |
| Nuclear (%)                                | 6.27%         | 6.12%         | 5.90%         |
| <b>Primary Energy - Renewable (MJ)</b>     | <b>29.02</b>  | <b>39.40</b>  | <b>57.70</b>  |
| Hydropower (%)                             | 6.02%         | 5.05%         | 4.19%         |
| Windpower (%)                              | 86.73%        | 88.89%        | 90.58%        |
| Solar Energy (Solar Power, Biomass) (%)    | 6.60%         | 5.47%         | 4.46%         |
| Geothermics (%)                            | 0.66%         | 0.57%         | 0.50%         |
| <b>Secondary Fuels (MJ)</b>                | <b>0</b>      | <b>0</b>      | <b>0</b>      |
| <b>Non-Renewable Material Sources (kg)</b> | <b>8.38</b>   | <b>9.83</b>   | <b>12.36</b>  |
| <b>Output Flows</b>                        |               |               |               |
| Non-Hazardous Waste (kg)                   | 6.35          | 8.27          | 10.76         |
| Hazardous Waste (kg)                       | 0             | 0             | 0             |

## LIFE CYCLE IMPACT ASSESSMENT

### CML2001 - NOV. 2010 RESULTS

Table A

The Flooring: Carpet, Resilient, Laminate, Ceramic, Wood PCR is currently under expert review. It is expected that this review will conclude that *Table A: Life Cycle Impacts for a One Year Use Stage* will no longer be necessary in future EPDs. The absence of Table A in this EPD is recognized by NSF as an appropriate deviation from the PCR.

Table B

Life Cycle Stage Impacts for a Building Life of 60 Years

| Face Fiber Weight: 23 oz / SY | Units                                | TOTAL         | SOURCING     | MANUFACTURE  | DELIVERY & INSTALLATION | USE         | END OF LIFE  |
|-------------------------------|--------------------------------------|---------------|--------------|--------------|-------------------------|-------------|--------------|
| <b>CML IMPACT CATEGORIES</b>  |                                      |               |              |              |                         |             |              |
| Global Warming (GWP)          | kg CO <sub>2</sub> eq.               | 94.8 100%     | 50.1 53%     | 8.5 9%       | 2.0 2%                  | 30.8 33%    | 3.4 4%       |
| Acidification (AP)            | kg SO <sub>2</sub> eq.               | 0.300 100%    | 0.139 46%    | 0.043 14%    | 0.007 2%                | 0.111 37%   | 0.0002 0%    |
| Ozone Depletion (ODP)         | kg CFC-11 eq.                        | 7.82E-07 100% | 5.11E-08 7%  | 7.18E-07 92% | 1.30E-10 0%             | 1.23E-08 2% | 5.35E-10 0%  |
| Smog (POCP)                   | kg C <sub>2</sub> H <sub>4</sub> eq. | 0.0300 100%   | 0.212 71%    | 0.0024 8%    | -0.0014 -5%             | 0.0073 24%  | 0.0004 1%    |
| Eutrophication (NP)           | kg PO <sub>4</sub> eq.               | 0.0275 100%   | 0.0154 56%   | 0.0022 8%    | 0.0016 6%               | 0.0055 20%  | 0.0028 10%   |
| Abiotic Depletion (ADP)       | kg SB eq.                            | 1.07E-04 100% | 9.53E-05 89% | 9.10E-06 8%  | 5.78E-07 1%             | 2.29E-06 2% | -2.27E-08 0% |

Breakdown of Use Stage Impacts

|                   | TOTAL % | ANNUAL ACTIVITIES | INTERMITTENT ACTIVITIES |
|-------------------|---------|-------------------|-------------------------|
| Global Warming    | 100%    | 100%              | 0%                      |
| Acidification     | 100%    | 100%              | 0%                      |
| Ozone Depletion   | 100%    | 100%              | 0%                      |
| Smog              | 100%    | 100%              | 0%                      |
| Eutrophication    | 100%    | 100%              | 0%                      |
| Abiotic Depletion | 100%    | 100%              | 0%                      |

Results for Low, Medium, and High Face Weight

| Units  | 15 OZ / SY | 23 OZ / SY | 37 OZ / SY |
|--|------------|------------|------------|
| <b>CML IMPACT CATEGORIES</b>                     |            |            |            |
| Global Warming (GWP) kg CO <sub>2</sub> eq.      | 82.9       | 94.8       | 115.7      |
| Acidification (AP) kg SO <sub>2</sub> eq.        | 0.270      | 0.300      | 0.353      |
| Ozone Depletion (ODP) kg CFC-11 eq.              | 6.48E-07   | 7.82E-07   | 1.01E-06   |
| Smog (POCP) kg C <sub>2</sub> H <sub>4</sub> eq. | 0.0268     | 0.0300     | 0.0356     |
| Eutrophication (NP) kg PO <sub>4</sub> eq.       | 0.0234     | 0.0275     | 0.0346     |
| Abiotic Depletion (ADP) kg SB eq.                | 1.00E-04   | 1.07E-04   | 1.20E-04   |

## TRACI RESULTS

Table A

The Flooring: Carpet, Resilient, Laminate, Ceramic, Wood PCR is currently under expert review. It is expected that this review will conclude that *Table A: Life Cycle Impacts for a One Year Use Stage* will no longer be necessary in future EPDs. The absence of Table A in this EPD is recognized by NSF as an appropriate deviation from the PCR.

Table B

Life Cycle Stage Impacts for a Building Life of 60 Years

| Face Fiber Weight: 23 oz / SY  | Units                                | TOTAL         | SOURCING    | MANUFACTURE  | DELIVERY & INSTALLATION | USE         | END OF LIFE |
|--------------------------------|--------------------------------------|---------------|-------------|--------------|-------------------------|-------------|-------------|
| <b>TRACI IMPACT CATEGORIES</b> |                                      |               |             |              |                         |             |             |
| Global Warming (GWP)           | kg CO <sub>2</sub> eq.               | 93.4 100%     | 50.0 54%    | 8.7 9%       | 1.9 2%                  | 30.9 33%    | 2.0 2%      |
| Acidification (AP)             | kg SO <sub>2</sub> eq.               | 0.292 100%    | 0.140 48%   | 0.040 17%    | 0.009 3%                | 0.103 35%   | 0.001 0%    |
| Ozone Depletion (ODP)          | kg CFC-11 eq.                        | 8.52E-07 100% | 5.64E-08 7% | 7.82E-07 92% | 1.38E-10 0%             | 1.30E-08 2% | 5.84E-10 0% |
| Smog (POCP)                    | kg C <sub>2</sub> H <sub>4</sub> eq. | 3.342 100%    | 1.906 57%   | 0.381 11%    | 0.183 5%                | 0.840 25%   | 0.032 1%    |
| Eutrophication (NP)            | kg PO <sub>4</sub> eq.               | 0.051 100%    | 0.044 85%   | 0.001 3%     | 0.001 1%                | 0.004 8%    | 0.001 2%    |

Breakdown of Use Stage Impacts

|                 | TOTAL % | ANNUAL ACTIVITIES | INTERMITTENT ACTIVITIES |
|-----------------|---------|-------------------|-------------------------|
| Global Warming  | 100%    | 100%              | 0%                      |
| Acidification   | 100%    | 100%              | 0%                      |
| Ozone Depletion | 100%    | 100%              | 0%                      |
| Smog            | 100%    | 100%              | 0%                      |
| Eutrophication  | 100%    | 100%              | 0%                      |

Results for Low, Medium, and High Face Weight

|                                | Units                                | 15 OZ / SY | 23 OZ / SY | 37 OZ / SY |
|--------------------------------|--------------------------------------|------------|------------|------------|
| <b>TRACI IMPACT CATEGORIES</b> |                                      |            |            |            |
| Global Warming (GWP)           | kg CO <sub>2</sub> eq.               | 81.6       | 93.4       | 114.1      |
| Acidification (AP)             | kg SO <sub>2</sub> eq.               | 0.262      | 0.292      | 0.346      |
| Ozone Depletion (ODP)          | kg CFC-11 eq.                        | 7.07E-07   | 8.52E-07   | 1.11E-06   |
| Smog (POCP)                    | kg C <sub>2</sub> H <sub>4</sub> eq. | 2.862      | 3.342      | 4.180      |
| Eutrophication (NP)            | kg PO <sub>4</sub> eq.               | 0.038      | 0.051      | 0.074      |

## ADDITIONAL ENVIRONMENTAL INFORMATION

- NSF 140 Gold Certification
- CRI Green Label Plus Certification
- Available post-consumer reclamation options.
- J+J Flooring Group operates under an all inclusive Environmental Action (EnAct<sup>®</sup>) Program whereby all associate and corporate environmental activities are measure and improved.
- J+J Flooring Group offers sample returns under its R4 Program, a subset of J&J's EnAct efforts.
- J+J Flooring Group proudly offers to the market an annual, transparent Sustainable Progress Report. Please see the following website for more details: <http://www.jj-invision.com/pages/sustainability-report>

### Nexus Back Modular Tile, Life Cycle Impacts for a Building Life of 60 Years Across Available Face Weights

| CML IMPACT CATEGORIES          |                                      | oz / SY | 15       | 16       | 17       | 18       | 19       | 20       | 21       | 22       | 23       | 24       | 25       | 26       |
|--------------------------------|--------------------------------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Global Warming (GWP)           | kg CO <sub>2</sub> eq.               |         | 82.9     | 84.4     | 85.9     | 87.4     | 88.9     | 89.1     | 91.8     | 93.3     | 94.8     | 96.3     | 97.8     | 99.3     |
| Acidification (AP)             | kg SO <sub>2</sub> eq.               |         | 0.270    | 0.274    | 0.277    | 0.281    | 0.285    | 0.289    | 0.293    | 0.296    | .300     | 0.304    | 0.308    | 0.311    |
| Ozone Depletion (ODP)          | kg CFC-11 eq.                        |         | 6.48E-07 | 6.65E-07 | 6.82E-07 | 6.98E-07 | 7.15E-07 | 7.32E-07 | 7.48E-07 | 7.65E-07 | 7.82E-07 | 7.98E-07 | 8.15E-07 | 8.32E-07 |
| Smog (POCP)                    | kg C <sub>2</sub> H <sub>4</sub> eq. |         | 0.0268   | 0.0272   | 0.0276   | 0.0280   | 0.0284   | 0.0288   | 0.0292   | 0.0296   | 0.0300   | 0.0304   | 0.0308   | 0.0312   |
| Eutrophication (NP)            | kg PO <sub>4</sub> eq.               |         | 0.0234   | 0.0239   | 0.0244   | 0.0249   | 0.0254   | 0.0260   | 0.0265   | 0.0270   | 0.0275   | 0.0280   | 0.0285   | 0.0290   |
| Abiotic Depletion (ADP)        | kg SB eq.                            |         | 1.00E-04 | 1.01E-04 | 1.02E-04 | 1.03E-04 | 1.04E-04 | 1.05E-04 | 1.05E-04 | 1.06E-04 | 1.07E-04 | 1.08E-4  | 1.09E-04 | 1.10E-04 |
| Primary Energy - Non-Renewable | MJ                                   |         | 239.04   | 244.75   | 250.46   | 256.16   | 261.87   | 268.00   | 273.29   | 279.00   | 284.70   | 290.41   | 296.12   | 301.83   |
| Primary Energy - Renewable     | MJ                                   |         | 29.17    | 30.47    | 31.76    | 33.06    | 34.36    | 35.50    | 36.95    | 38.25    | 39.54    | 40.84    | 42.14    | 43.43    |
| Secondary Fuels                | MJ                                   |         | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        |
| Non-Renewable Material Sources | KG                                   |         | 8.38     | 8.56     | 8.75     | 8.93     | 9.11     | 9.29     | 9.47     | 9.65     | 9.83     | 10.01    | 10.19    | 10.37    |
| Non-Hazardous Waste            | KG                                   |         | 6.85     | 7.02     | 7.20     | 7.38     | 7.56     | 7.74     | 7.91     | 8.09     | 8.27     | 8.45     | 8.62     | 8.80     |
| Hazardous Waste                | KG                                   |         | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        |

| CML IMPACT CATEGORIES          |                                      | oz / SY | 27       | 28       | 29       | 30       | 31       | 32       | 33       | 34       | 35       | 36       | 37       |
|--------------------------------|--------------------------------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Global Warming (GWP)           | kg CO <sub>2</sub> eq.               |         | 100.8    | 102.3    | 103.8    | 105.3    | 106.7    | 108.2    | 109.7    | 111.2    | 112.7    | 114.2    | 115.7    |
| Acidification (AP)             | kg SO <sub>2</sub> eq.               |         | 0.315    | .0319    | 0.323    | 0.327    | 0.330    | 0.334    | 0.338    | 0.342    | 0.345    | 0.349    | 0.353    |
| Ozone Depletion (ODP)          | kg CFC-11 eq.                        |         | 8.48E-07 | 8.65E-07 | 8.82E-07 | 8.98E-07 | 9.15E-07 | 9.32E-07 | 9.48E-07 | 9.65E-07 | 9.82E-07 | 9.98E-07 | 1.01E-06 |
| Smog (POCP)                    | kg C <sub>2</sub> H <sub>4</sub> eq. |         | 0.0316   | 0.0320   | 0.0324   | 0.0328   | 0.0332   | 0.0336   | 0.0340   | 0.0344   | 0.0348   | 0.0352   | 0.0356   |
| Eutrophication (NP)            | kg PO <sub>4</sub> eq.               |         | 0.0295   | 0.0300   | 0.0305   | 0.0310   | 0.0315   | 0.0320   | 0.0325   | 0.0330   | 0.0335   | 0.0341   | 0.0346   |
| Abiotic Depletion (ADP)        | kg SB eq.                            |         | 1.11E-04 | 1.12E-04 | 1.13E-04 | 1.14E-04 | 1.14E-04 | 1.15E-04 | 1.16E-04 | 1.17E-04 | 1.18E-04 | 1.19E-04 | 1.20E-04 |
| Primary Energy - Non-Renewable | MJ                                   |         | 307.54   | 313.25   | 318.95   | 324.66   | 330.37   | 336.08   | 341.79   | 347.49   | 353.20   | 358.91   | 364.62   |
| Primary Energy - Renewable     | MJ                                   |         | 44.73    | 46.03    | 47.32    | 48.62    | 49.92    | 51.21    | 52.51    | 53.81    | 55.10    | 56.40    | 57.70    |
| Secondary Fuels                | MJ                                   |         | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        |
| Non-Renewable Material Sources | KG                                   |         | 10.55    | 10.73    | 10.91    | 11.09    | 11.28    | 11.46    | 11.64    | 11.82    | 12.00    | 12.18    | 12.36    |
| Non-Hazardous Waste            | KG                                   |         | 8.98     | 9.16     | 9.34     | 9.51     | 9.69     | 9.87     | 10.05    | 10.23    | 10.04    | 10.58    | 10.76    |
| Hazardous Waste                | KG                                   |         | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        |