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Inclusive Play Spaces

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Inclusive Play Spaces

May, 2021

Carla Munemori da Rosa Borges
Sheridan Material ConneXion Library

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Introduction

This presentation goals to address the importance of accessible and inclusive play spaces for children and the challenge for architects and designers in using the diverse set of mind when designing.

Developing spaces where children of all abilities can engage in and enjoy promotes physical activity that contribute to better cognitive performance, minimizing symptoms of depression, diminishing anxiety and increasing resilience to stress. At the same time children will have the ability to experience the social inclusion, personal satisfaction, and enjoyment.

Considering play spaces, there are inclusive features that encourage children of all abilities to play and practice physical activity. Professionals have studied and developed adaptative toys, environment, playground and it is directed related to the material choice. Texture, sound, light and surface are considerations that the professionals must address in their projects.

Material ConneXion is a material library with a huge selection of innovative materials and technology that enhance the performance, aesthetic, and sustainability of their project. A range of materials presented in this document were selected from Sheridan Material ConneXion Library to illustrate how they are suitable in projects and match the unique needs of children in play spaces.

The importance of inclusivity



- Cities benefit from inclusive, universally designed playgrounds because they're not just for some children, but all children. Inclusivity is about much more than just wheelchair access. It includes the needs of those with an autism spectrum disorder, intellectual disabilities, visual or hearing impairments, sensory developmental delays, or other challenges.
- Playgrounds are vital spaces for introducing physical literacy, where children of all ages and abilities can play, and families can have valuable interactions with one another in community spaces designed to include everyone.
- According to Canada's 2018 Report Card on Physical Activity for Children and published by the national non-profit organization ParticipACTION, physical activity plays a significant role on the improvement of the brain development kids with neurodisabilities.
- 6.3 per cent of children under 14 had an identified disability, that is a total of 202,350 kids across Canada. (The Participation and Activity Limitation Survey -PALS, 2006)
- 38% of Canadian children with a disability almost never get physical exercise after school, compared to 10% of typically developing children (Physical and Health Education Canada, 2013)

The importance of inclusivity



- Children have to be encouraged to participate on physical activities by inclusive facilities, and the barriers have to be removed. Children and parents face a lack of appropriate equipment and the venues - parks, camps, gyms, schools - where socialization and physical activity often take place. It generates not only decrease in their development but also frustration and discouragement.
- The federal Act to ensure barrier-free Canada (June 2019) “was a significant step towards inclusion in Canada and it proposes to identify, remove and prevent accessibility barriers in areas of federal jurisdiction”. (The conversation, August 8, 2018).
- There are many contributions from physical activities: “better cognitive performance, memory, the ability to problem-solve and decision-making. Active children have better executive functioning, including planning, self-regulation and the ability to perform demanding tasks with greater accuracy”. (The conversation, August 8, 2018).
- “Beyond the benefits to body and mind, participation also promotes inclusion. Social communication, activities of daily living and quality of life all improve with exercise – not only for the children but their families as well”.(The conversation, August 8, 2018).

The rights of children to play

Solutions on the ground are vitally important and a well-designed children play spaces are an invitation to belong.

- As of 2011, all public playground facilities need to comply with the guidelines set forth under the 2010 Standards for Accessible Design.
- The guidelines require a playground to have equipment that is accessible to and usable by people of all abilities. Specifically, at least one of each type of ground-level play equipment needs to be accessible. If there are elevated structures, at least half of them must be able to be accessed via a ramp or similar piece of equipment. The playground's surface must provide adequate cushioning for falls and must also be able to accommodate wheelchairs. (Miracle, February 24, 2021).



<https://www.rickhansen.com/sites/default/files/2020-03/sch-35913-guide-creating-accessible-play-spacesen2020web.pdf>



<https://www.rickhansen.com/sites/default/files/2020-03/sch-35913-guide-creating-accessible-play-spacesen2020web.pdf>

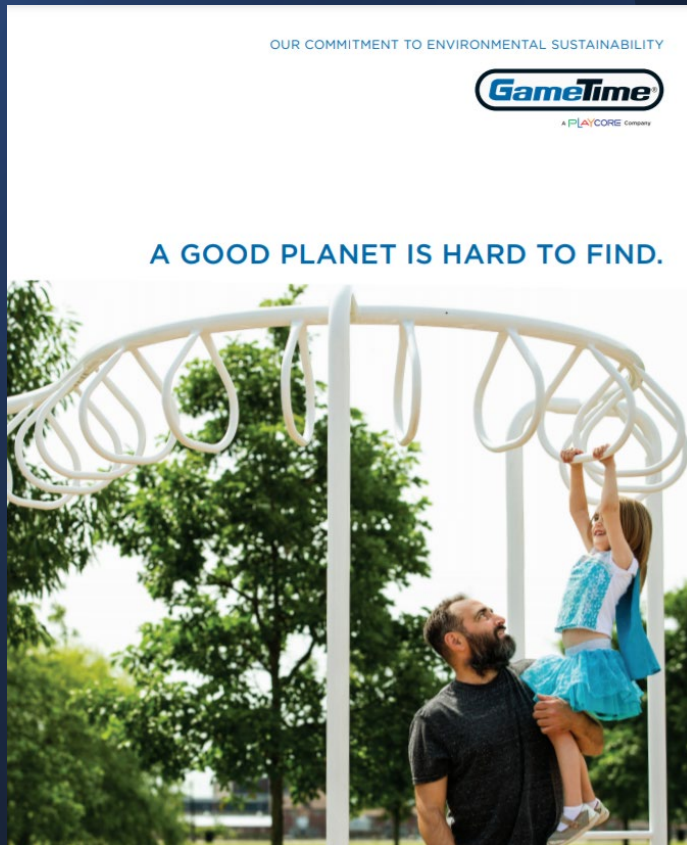


<https://www.rickhansen.com/sites/default/files/2020-03/sch-35913-guide-creating-accessible-play-spacesen2020web.pdf>

<https://www.rickhansen.com/sites/default/files/2020-03/sch-35913-guide-creating-accessible-play-spacesen2020web.pdf>

“Acting as stewards of our planet and its natural resources”

CASE STUDY: GameTime Company



<https://www.gametime.com/resources/green-by-design>

GameTime is a PlayCore company which build advancing play and recreation for communities. It has shown a great commitment and awareness to environmental sustainability while searching sustainable sources and developing sustainable processes.

MISSION

- Creating a fun, active an innovative places for families to gather and play while children learn many valuable life skills on playground.
- Being sustainable responsible and make sure future generations could be benefit.
- Protecting and making efficient use of resources. Conserving water, eliminating waste.
- Responsible source of products.
- Finding opportunities to work with vendors and suppliers in local communities to minimize the carbon output.
- Saving energy, reducing carbon footprint.
- Optimizing recycled content to help keep existing materials in a continuous cycle of use and reuse.

Acting as stewards of our planet and its natural resources

CASE STUDY: GameTime Company

“Our environmental sustainability efforts are intended to help ensure children of today can take their grandchildren to playgrounds in the future. Our approach to stewardship and sustainability encompasses every aspect of our company - from the way we manufacture our products to how we do business.” (Retrieved from: <https://www.gametime.com/resources/green-by-design>)



RECYCLING	ANNUAL
Cardboard	28.55 tons
Paper	12.25 tons
Scrap plastics	37,586 lbs.
Computer equipment	5,526 lbs.
Plastic bottles	23,850
Fluorescent bulbs (4)	428
Ballasts	83 lbs.
Fork lift Batteries	48 lbs.
PVC trimmings	1,681 lbs.
Steel	2,791,275 lbs.
Aluminum	27,965 lbs.
Cartridges	260
Trash can lids	220 lbs.
Polyurea (liquid)	100 gallons

- 1 100% recyclable plastics are manufactured with minimal waste and efficient processes
- 2 Steel tubing is 100% recyclable and contains 50% post-consumer recycled materials
- 3 100% recycled plastic lumber
- 4 Aluminum uprights are 100% recyclable and contain 65% pre-consumer and 10% post-consumer recycled content
- 5 100% recyclable plastics
- 6 100% recycled plastic curbs
- 7 Steel decks and stairs are 100% recyclable and contain 30% pre-consumer and 60% post-consumer recycled content

Solution to common issues

- The design should engage children, parents, and caregivers with a rich variety of activities to stimulate the senses and foster rich and imaginative opportunities for shared play.
- Texture can assist in providing orientation clues about a space for visual impaired people: on the floor, on the wall.
- Sounds can assist in providing orientation clues about a space. The key for the designer is to utilize the Acoustics optimally and considering the reverberation of the sound.
- Blind people rely entirely on other senses, as touch, hear and smell.
- Adequate lighting is the single most important aid to vision.
- Accessible Pedestrian Routes
- Benches and seating areas are important components of a play area. They offer social spaces for students, caregivers, and teachers.
- Amenities: Seating Areas, Drinking Fountains, Trash Cans, and Pathways
- Colour should be carefully choose to accommodate children with autism spectrum.



Accessible play spaces: Materials matter

Surfacing Materials

- The play space surface is one of the most important components in designing safe, accessible play spaces. It has to incorporate a unitary surface on the accessible routes. It could be a poured-in-place surfacing or rubber mats/ tiles. a wheelchair to roll on.



Canadian Tire Jumpstart Charities gifted a universally accessible playground to Earl Bales Park. - jumpstart/image

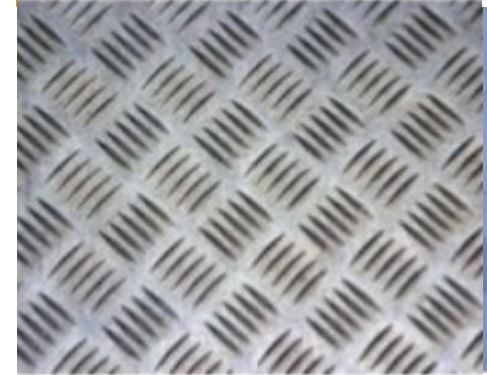
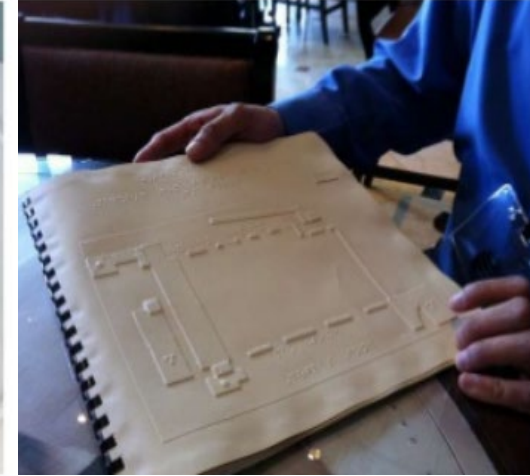


http://commercialartnet.com/en_US/collection-C000096-grant-safct

Accessible play spaces: materials matter

TEXTURE Materials easily identified

Tactile signs



Detectable warning textured surfaces can be felt under foot or detected by a person using a long cane.

Accessible play spaces: Materials matter

TEXTURE
Materials easily
identified

Cork trail-rail

This trail rail wall is clad in cork, which has a warm feel and provides signifiers or tactile cues to assist children with orientation and navigation through the space.

This sensory trail wall weaves throughout the school enables children to practice mobility and orientation skills independently, which lead to increased confidence, sense of mastery, and self-esteem.

Selecting individual elements - Material ConneXion Library

MANUFACTURER: Studio Iwan Pol

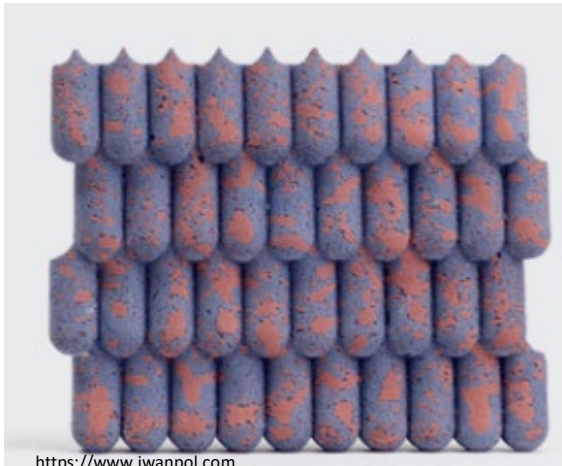
PRODUCT: Happy Concrete | MC 8300-01

New possibilities for the use of traditional concrete and reinvents its appearance. It was transformed into a softer-looking material. Literally, it is possible to give colour to concrete.

DESIGN CONSIDERATION: Sound absorbing, lighting absorbing, bring texture (tactile skin), hardness surface, good impact Resistance, color fastness.

USE: Tactile skin for the exterior of buildings or addition to floor and interior walls.

The appropriate application of Happy Concrete can appeal to the five senses of the end-user. Texture, colour and sound can help users with vision loss access and use equipment and find their way throughout a play space.



<https://www.iwanpol.com>



<https://www.iwanpol.com>



<https://www.iwanpol.com>



<https://www.iwanpol.com>

Selecting individual elements - Material ConneXion Library

MANUFACTURER: RenFuel

PRODUCT: Lignipolymer| MC 1037301

An alternative to plastic made with lignin, a waste product from the pulp and paper industry. It is a patented technology that converts lignin, one of the main components in wood, into different types of materials that completely or partially replace plastic based on fossil oil or, to behave like plastic without the use of fossil fuels. The lignin materials are technically equivalent to the fossil equivalent plastics but reduce the products' carbon footprint.

USE: civil engineering, furniture. The Lignipolymer could be used for built play equipment components.



Bio-based plastic made of lignin is the best option ...

<https://renfuel.se/materials/?lang=en>

Lignin is the second most abundant biomass on earth. Lignin-based materials as an alternative to fossil plastics provide over 90% CO₂ reduction.

Selecting individual elements - Material ConneXion Library

MANUFACTURER: Quabaug Corporation

PRODUCT: Quaboing® | MC 6223-01

Tiles and loose surfacing composed of 100% pre-consumer recycled shoe sole rubber. It is non-toxic recycled rubber surfacing contains no carbon black, sharp shredded steel or other potentially harmful materials.

DESIGN CONSIDERATION: acoustic absorbing, fire-resistant, color-fast, the tiles meet ASTM F1292-04 for impact resistance and comply with ADA ASTM F1951-99 for wheelchair accessibility. The loose surfacing exceeds ASTM F1292-04 (test for maximum fall height) and meets ASTM F963-03 (SCSP for toy safety). Both versions are chemically safe for ingestion.

USE: the loose surfacing finds application in landscaping and in playgrounds; the tiles are used for playgrounds, walkways and flooring.

Quaboing® could be used in accessible paths of travel, multiple access routes into and out of the play space, multiple ways to use and access play equipment. Planning considerations for people using wheeled mobility devices or other mobility aids has to include this provision.



Selecting individual elements - Material ConneXion Library

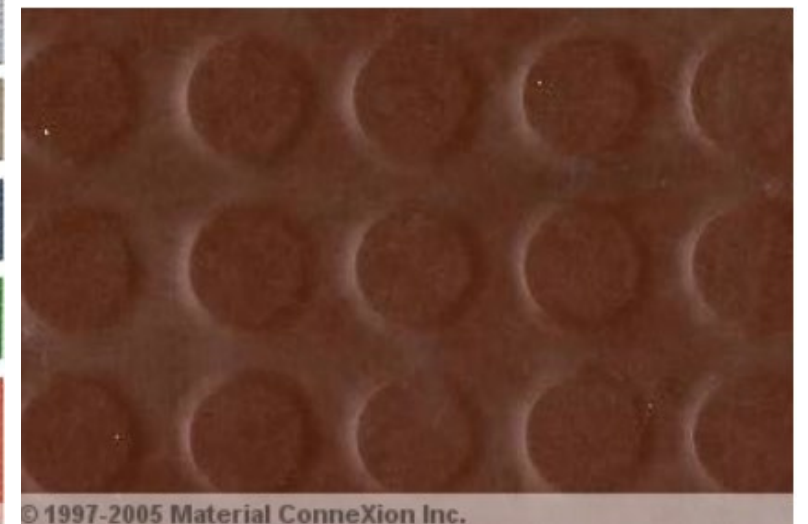
MANUFACTURER: Pirelli Rubber Flooring

PRODUCT: PRF USA | MC 1245-01

Rubber flooring for heavy traffic areas in a variety of surfaces, patterns, and colors.

DESIGN CONSIDERATION: High abrasion resistance, Highly resilient for comfort and anti-fatigue, Permanent resiliency, Slip resistant, Low profile pastilles for easy maintenance, Sound absorbent, Large tiles format, for fewer seams.

USE: Physical therapy rooms
Wheelchair access areas,
schools, day care center.
It could be used in accessible paths of travel, multiple access routes into and out of the play space, multiple ways to use and access play equipment. Planning considerations for people using wheeled mobility devices or other mobility aids has to include this provision.

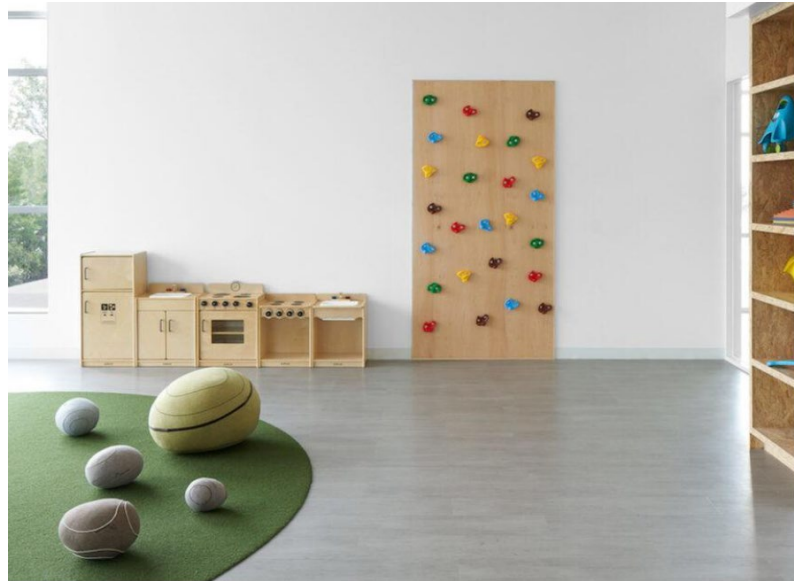


Selecting individual elements - Material ConneXion Library

MANUFACTURER: Limonta Sport SPA

PRODUCT: GeoTurf-Riviera| MC 7157-01

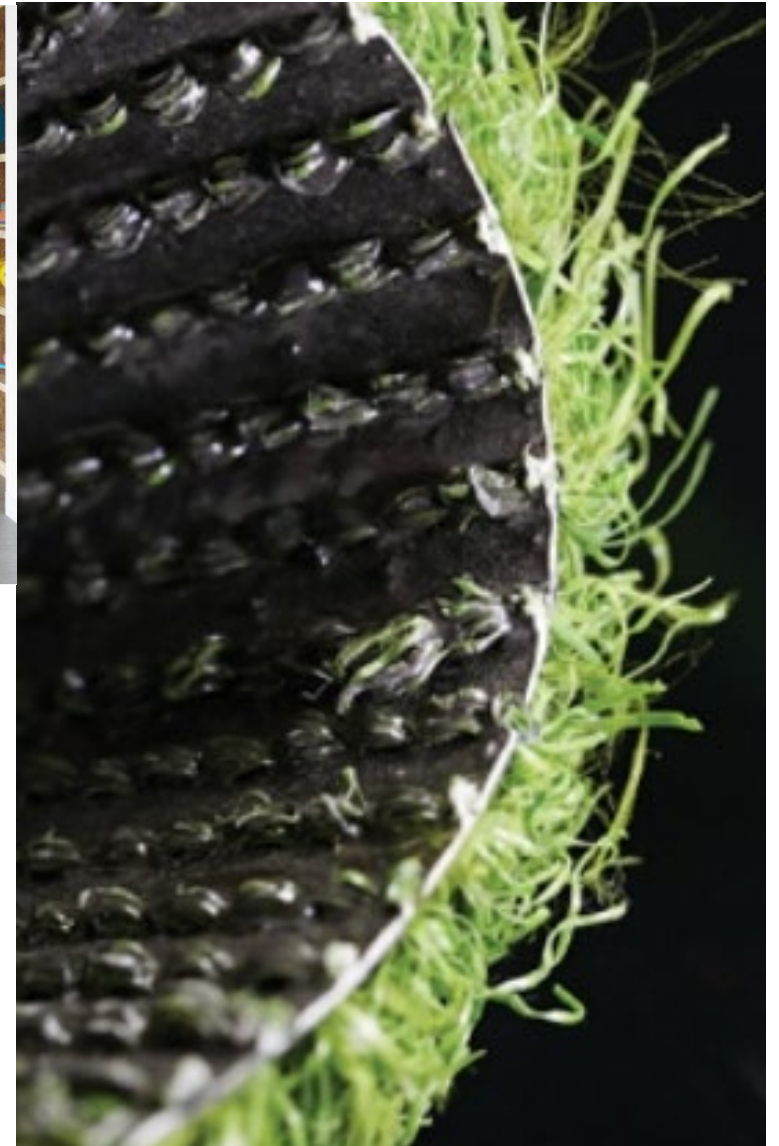
Synthetic turf that has a natural and realistic look and feel. A cork pellet infill is also offered to give a more realistic cushioning feel of soil.



<https://inhabitat.com/biophilic-campus-provides-a-safe-haven-for-children-with-autism/>

DESIGN CONSIDERATION: acoustic sound absorbent, light absorbing, high fire resistance, soft surface hardness.

USE: The turf is used for sports facilities and for landscaping. The practice of Biophilia, provides a safe haven for children with autism. Biophilic design (is a concept used to connect the user with nature) is applied to create a calming yet inspiring atmosphere.



Selecting individual elements - Material ConneXion Library

MANUFACTURER: JPS Cork Group

PRODUCT: Divina Cork Walls| MC 7416-04

Laminated sheet comprised of cork fibers sandwiched between a cork veneer and a non-woven backing.

DESIGN CONSIDERATION: Cork is inherently thermally insulating, impact-, abrasion- and water-resistant, anti-bacterial and is easy to install and maintain. Due to the porous structure of the sheet, the material has sound absorbing properties. With a natural and rustic appearance, this material also feels soft, smooth and refined.

USE: Applications are wall covering for bedrooms, living rooms and for contract interiors.

The Divina Cork Walls could be used to help children with visual impairment since it enables children to practice mobility and orientation skills. For example building a trail rail wall cork (it has a warm feel) provides signifiers or tactile cues to assist children with orientation and navigation through the space.



Selecting individual elements - Material ConneXion Library

MANUFACTURER: Halo Floors

PRODUCT: Silver Tread | MC 5269-02

Durable, easy care flooring that mimics the look of diamond plate metal sheet.

DESIGN CONSIDERATION: they comply with ADA requirements for slip resistance in commercial spaces. Sound Absorbing, light absorbing.

USE: The tiles are used for flooring.

Different texture floors at the crossing gives the necessary guidance and known to the right way for visual impaired people. Also, to alert them of their approach to streets and hazardous drop-offs for example.



Selecting individual elements - Material ConneXion Library

MANUFACTURER: Scuffmaster Architectural Finishes

PRODUCT: Scrubtough (ST)/ ScrubTough Max | MC 4406-04

It is a highly durable water-based polyurethane (TPU) coatings for interior walls that is over 20X more durable than residential grade acrylic latex paint. It contributes to LEED points. Applications are for healthcare, educational, and entertainment facilities.

DESIGN CONSIDERATION: Sound reflecting, light absorbing, high scratch/stain resistance, UV resistance, water/ wear resistance, low toxicity, withstands regular cleaning, it contains Microban® Antimicrobial protection that inhibits the growth of odor and stain causing mold, mildew and bacteria for high traffic area applications.

It is suitable for drywall, concrete/ masonry, wood, and previously painted surfaces.

USE: Ideally used in indoor walls. Because of its washability, scrubbability and stain resistance it is designed to stand up to the wear and tear of a busy space play. The antimicrobial protection is a plus for this usage.



<https://www.scuffmaster.com/scrub-tough-max/>

Selecting individual elements - Material ConneXion Library

MANUFACTURER: Nordgröna

PRODUCT: Nordgröna AB | MC 7578-01

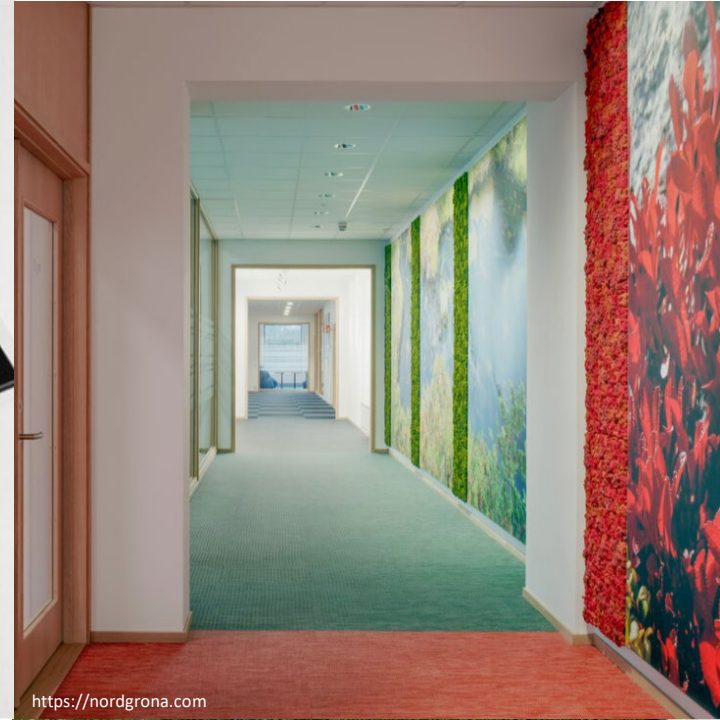
Sound absorbing panels made from natural, hand-picked Scandinavian Reindeer Moss. The porous nature of the surface makes it ideal for the absorption of sound waves from multiple directions.

DESIGN CONSIDERATION: Sound and light absorbing. The moss is available in over 10 colors. Unlike existing moss panels, once installed, the moss requires no maintenance and remains intact in interior environment within normal humidity conditions. Due to its hygroscopic properties, it can “breathe” by attracting, holding and releasing water vapor from the surrounding environment.

USE: Applications include acoustic panels for interior design. The practice of Biophilia, provides a safe haven for children with autism. Biophilic design (is a concept used to connect the user with nature) is applied to create a calming yet inspiring atmosphere.



<https://nordgrona.com>



<https://nordgrona.com>



<https://nordgrona.com>

Selecting individual elements - Material ConneXion Library

MANUFACTURER: Teragren

PRODUCT: Teragren™ Xcora™ Naturals Bamboo Flooring| MC 5171-08

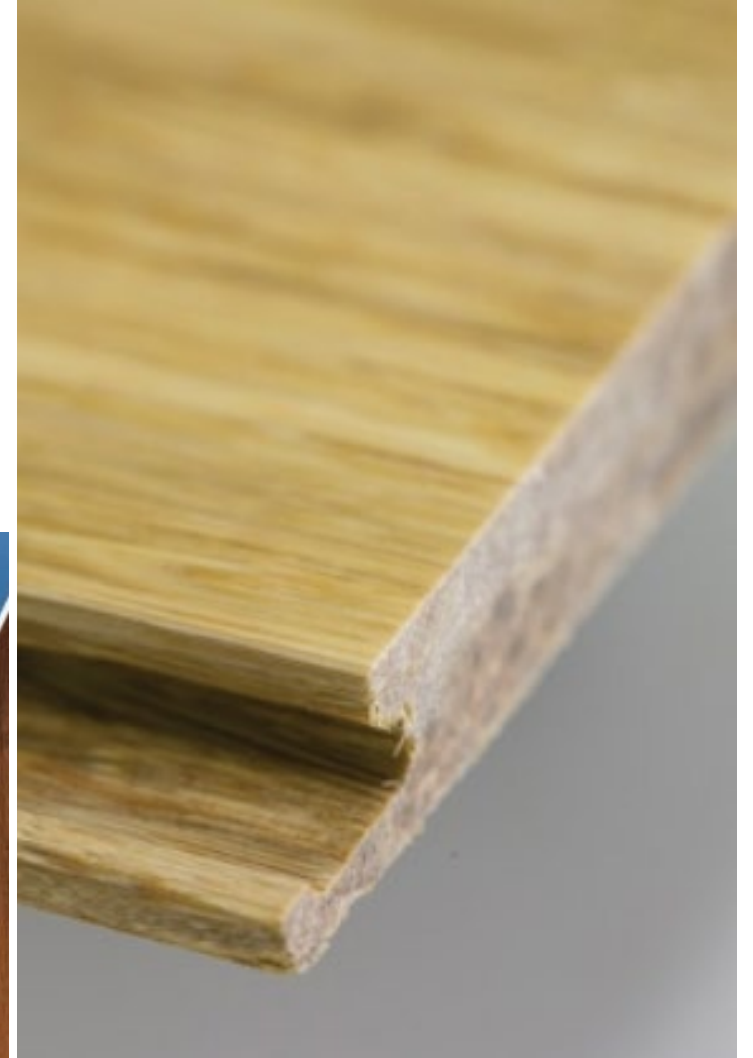
Flooring boards, comprised of the dense fiber from mature bamboo stalks. The boards are comprised of 94-96% bio-based material and qualify for the USDA BioPreferred program. LEED credits for Low Emitting Materials (IEQ 4.3) and Rapidly Renewable Material (MR6) are also available with the use of this material, also Certified Wood (MR7) credits are offered if FSC bamboo is used.

DESIGN CONSIDERATION: Sound Reflecting, high colorfastness, Light Absorbing, Compostable, Low Toxicity and Renewable Content

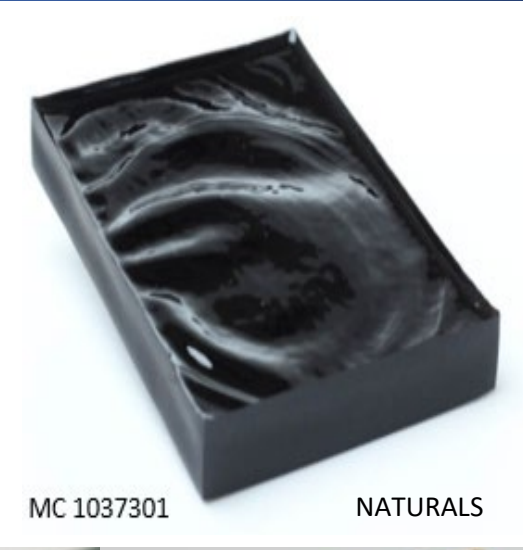
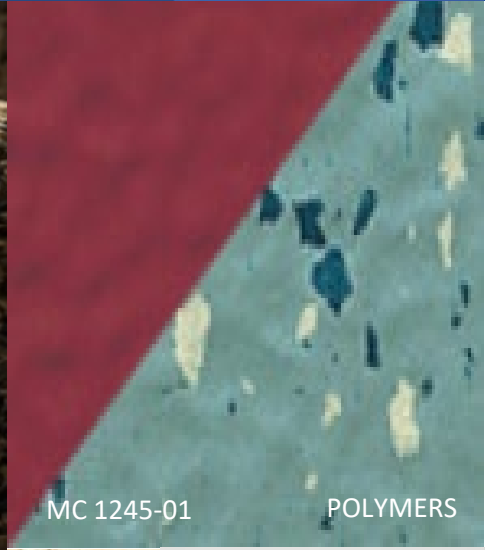
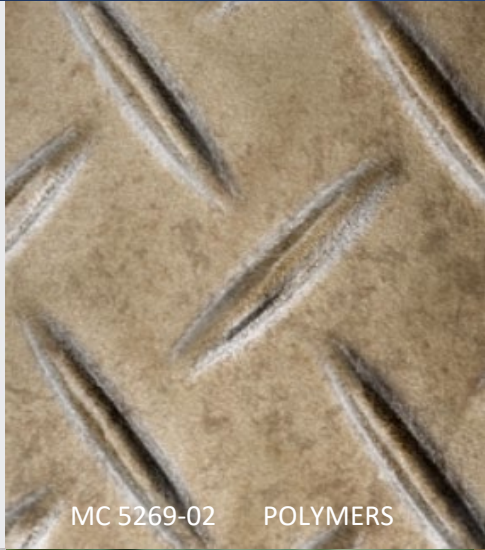
USE: These floors offer hardness, durability and stability that are perfect for high-traffic areas in both residential and commercial settings. This surface allows wheelchairs to roll freely.



<https://teragren.com/teragren-portfolio/>



Material ConneXion Library Selection - Inclusive play spaces



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