

2013_2014 NEW COLLECTION OF LS FLOORING SYSTEMS



01. LS FLOCKED CARPET

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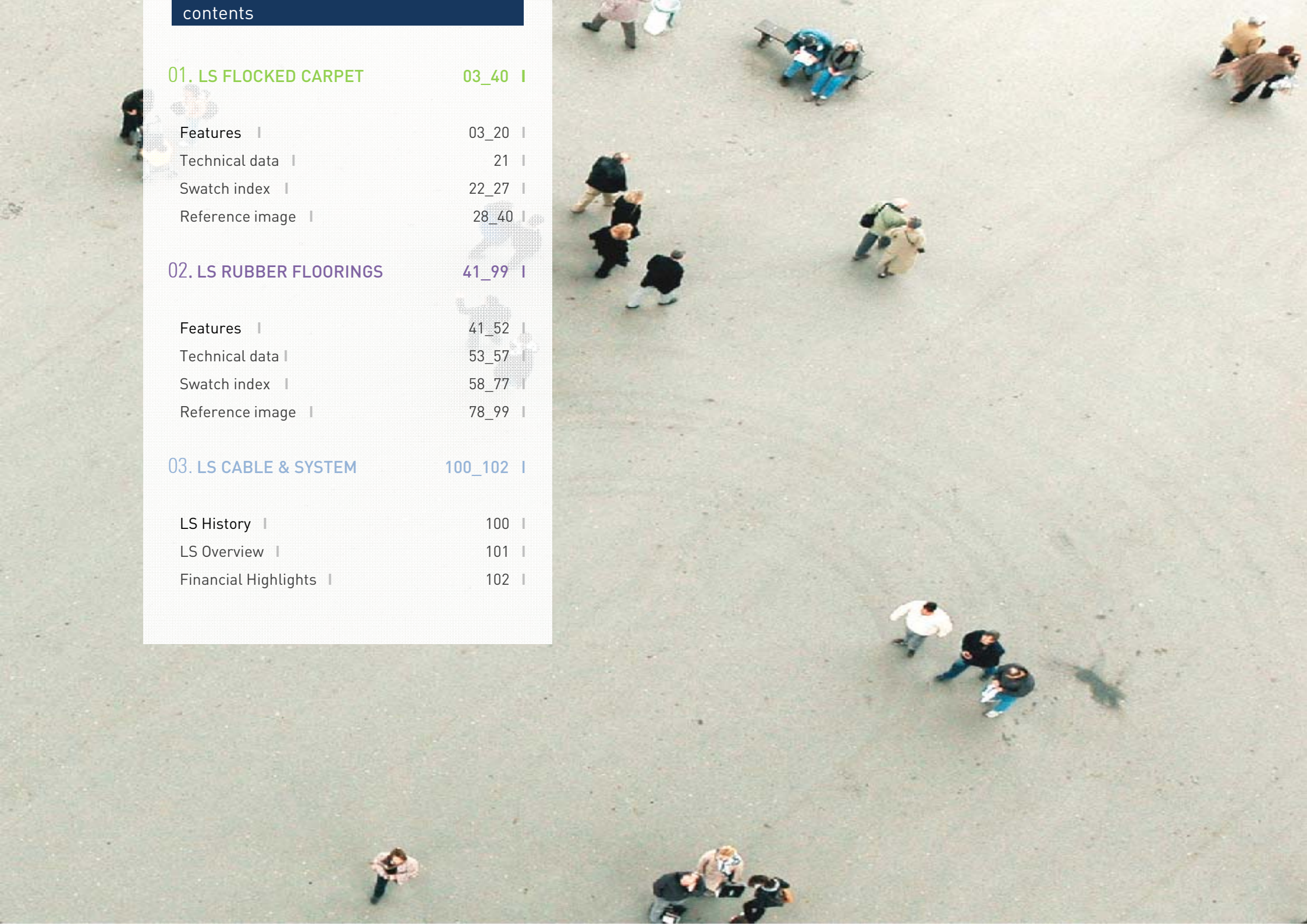
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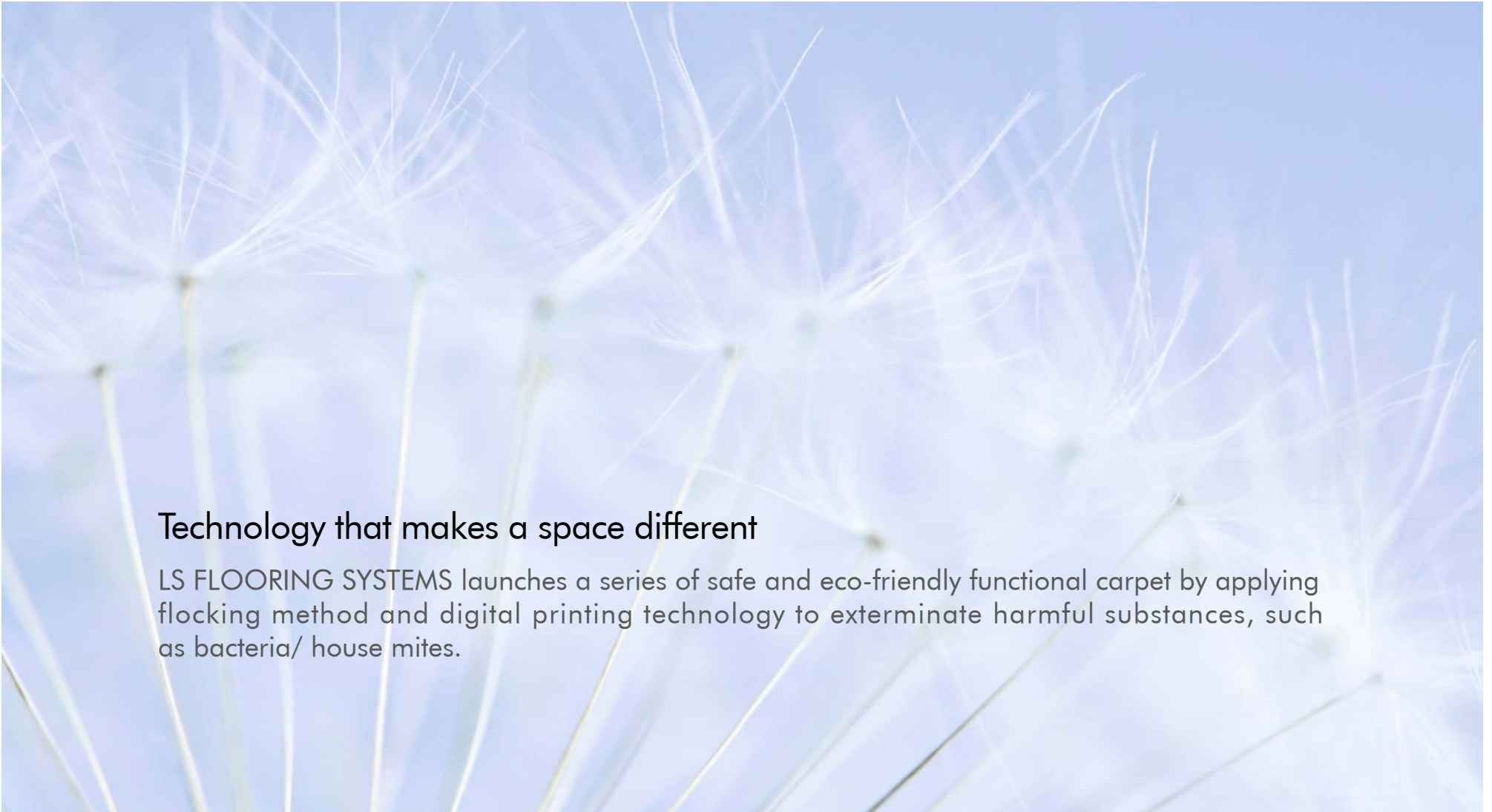


LS FLOCKED CARPET

PURGOTEX

Technology that makes a space different

LS FLOORING SYSTEMS launches a series of safe and eco-friendly functional carpet by applying flocking method and digital printing technology to exterminate harmful substances, such as bacteria/ house mites.



LS FLOCKED CARPET

PURGOTEX Product Descriptions

The dense surface allows easy removal of contaminants, dusts and stains with a powered brush vacuum machine or solution of mild detergent.

Product Features



Acquired Environment-friendly Certification for construction materials



Easy to clean due to high density vertical pile structure



Excellent abrasion resistance



Stain resistance, Antibiosis



Various patterns and colors expression available with digital Printing method(Customizable)

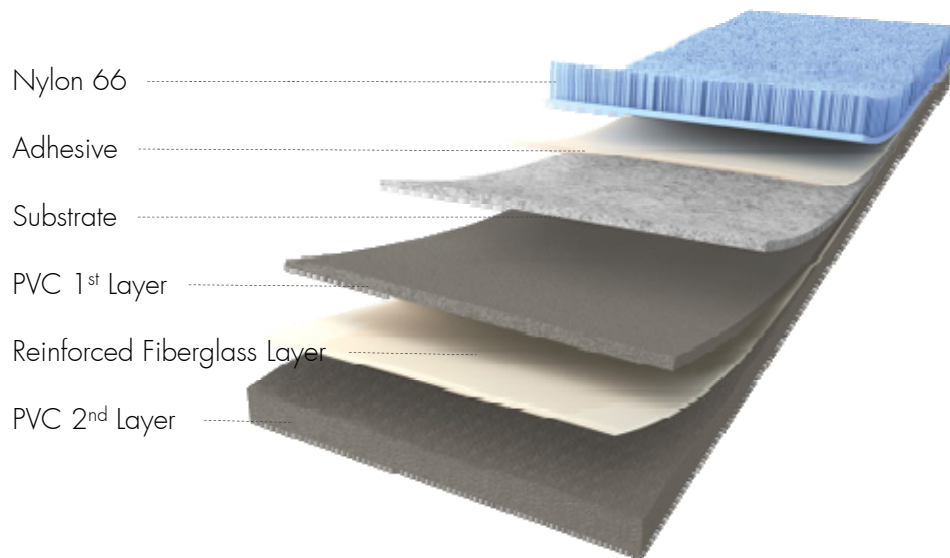


Excellent footfall sound absorption

LS FLOCKED CARPET

PURGOTEX Specification

Structure Map_Tile products

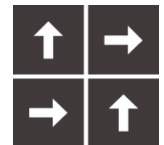


Product size



Installation

Checkerboard



Flock Density

80,000,000
Fibers/m²



Weight

6.0 kg/m²

Certification mark



Space Type



Business
Room



Health
care



Accommodations



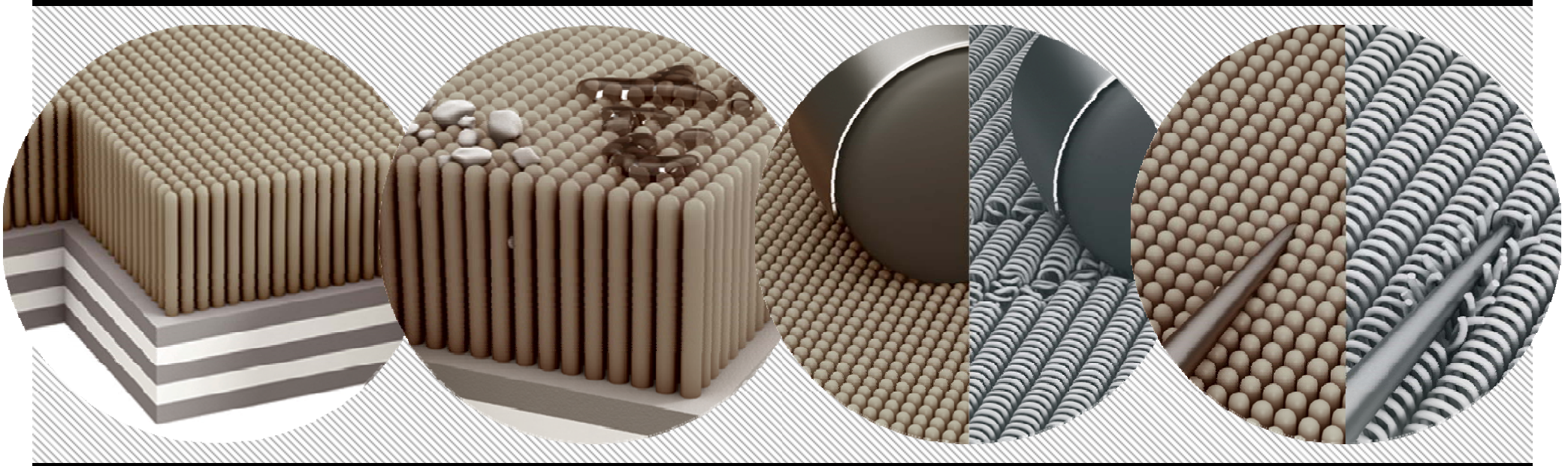
Educational
Facilities



Sales
Facilities

LS FLOCKED CARPET

PURGOTEX Product Descriptions



The Flocking System

It is featured for its 80,000,000 fiber/m² dense file surface which is 10 times denser than the traditional carpet. Flocked carpet outstands in its excellent durability and resilience and its dense structure prevents pollutants from permeating into carpet and helps maintaining the perfect environmental cleanliness.

Harmlessness

Flocked carpet's water-proof feature, not only blocks bacteria breeding and pollution caused by humid, but also prevents smell, dust and foreign substances. Due to all these advantages, flocked carpet is usually applied in the environment which requires high level of cleanliness such as hospitals, kindergartens and nursing homes.

Restoration Ability

Flocked carpet's 80,000,000 Fibers/m² high density surface provides 99% indentation-resilience, making almost no indentation marks by heavy load furniture pressures.

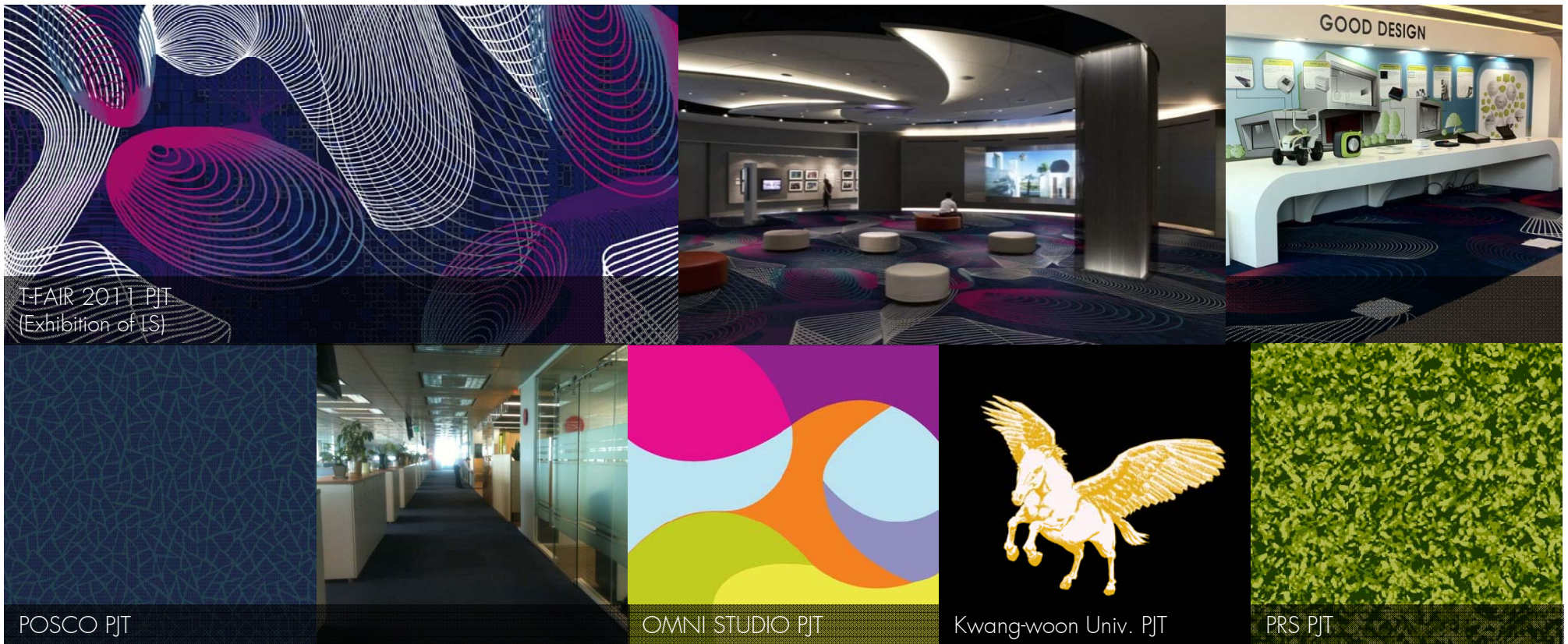
Outstanding Durability

Distinguished from tufting carpet, flocked carpet even if stabbed by sharp objects, there is nearly no damage to the carpet surface.

LS FLOCKED CARPET

PURGOTEX Product Descriptions

Multi-patterns and multicolors beyond the limits of normal carpet design with digital printing method
(Customizable)



LS FLOCKED CARPET

PURGOTEX Features_Environment-friendly



Green Certificate !

Acquired environment-friendly certification for indoor air quality process

TVOCs and Formaldehyde Emission Test Results

Test	Unit	Results	Standard (7days after)
TVOCs	mg/m ² .hr	0.146	< 0.4mg/m2h
Toluene	mg/m ² .hr	0.009	< 0.08mg/m2h
Formaldehyde	mg/m ² .hr	0.001	< 0.120mg/m2h

[* Notified Body: Korea Environmental Industry & Technology Institute]

LS FLOCKED CARPET

PURGOTEX Features_Environment-friendly



Green label plus Certificate !

Acquired environment-friendly certificate of U.S.A Indoor Air Quality Process for carpet

TVOCs Emission Test Results

TVOCs and Analytes	Standard	Measured Value
TVOCs	500 $\mu\text{g}/\text{m}^2\text{hr}$	150 $\mu\text{g}/\text{m}^2\text{hr}$

[* Laboratory: Air Quality Sciences/ Notified Body: CRI (Carpet Rug Institute)

LS FLOCKED CARPET

PURGOTEX Features_Environment-friendly



CE Certificate !

Comply with European Standard EN14041 for consumer's safety, health, and environmental protection Fire-Safety and slip-resistance performance retention

Test Results

Characteristic	Direction of the production	Test Results					
		Obtained data value					Arithmetic mean
Dynamic coefficient of friction	longitudinally	0.51	0.53	0.51	0.50	0.51	0.51
	transversally	0.46	0.49	0.47	0.49	0.49	0.48

[* Notified Body : TZUS Praha]

LS FLOCKED CARPET

PURGOTEX Features_Environment-friendly



VOCs Emission Test !

Acquired the highest A+ standard of Europe ISO 16000-3 for Eco-friendliness

Test Results

	Measured conc after 3 days	Measured conc after 28 days	Limit conc for A+ Classification(µg/m³)
Formaldehyde	2	0	< 10
TVOC	555.7	24.6	< 1000

[* Notified Body : C.R.E.T]

LS FLOCKED CARPET

PURGOTEX Features_Antibiosis



Certificate of Sanitary Finish Assurance !

Exterminating 99% of Colon bacillus, staphylococcus, Klebsiella pneumoniae after cultivating with antibiosis. (Applying with AATCC 174)

Staphylococcus aureus

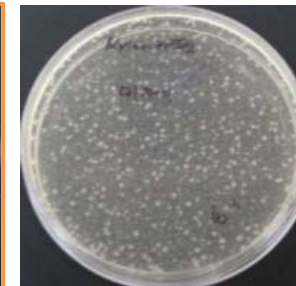


[Others]
Antibiotic untreated (No extermination)

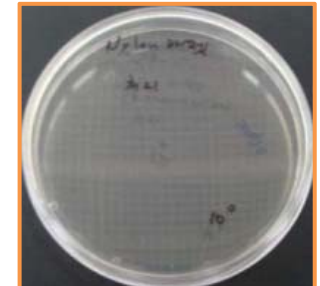


[PURGOTEX]
Antibiotic treated 99% exterminated

Bacillus



[Others]
Antibiotic untreated (No extermination)



[PURGOTEX]
Antibiotic treated 99% exterminated

[* Notified Body : FITI]

Harm of House Mites !



How to Exterminate 'House Mite' ? - The Main Culprit of Allergic Diseases

 **SBS** TV News | Report Inputting 2011-05-03 21:29

It is reported that one of every two middle high school students suffers from allergic diseases. The research conducted by Korea Centers for Disease Control and Prevention shows that among the diseases, allergic rhinitis accounts for more than 40% is, atopic dermatitis respectively accounts for 20% and 12% .

The main reason of allergic diseases precisely is 'House Mite'. 32% of First-year students in Primary school, 42% in junior middle school are suffering from house mite allergy. Finally it is important to exterminate the main culprit, house mite..

~~ Omitting...

v Source: http://news.sbs.co.kr/section_news/news_read.jsp?news_id=N1000907590

Q. My Son is suffering from allergic nasal inflammation for a long time.
How should I take care of my son?



A. There are so many allergic substances around us. When some allergic substances enter our body, the body makes antibodies to protect ours and the process of making antibodies, it occurs some side effects like sneeze, rash, etc. And the typical type of allergic substances are dust and dust mite.
such as Jang Gwang-Chun and Pediatrician

“Dandruff and Dead skin cell is one of the best food for dust mite. They usually live in blankets, pillows as well as traditional carpets and cause many kinds of allergic to peoples.”

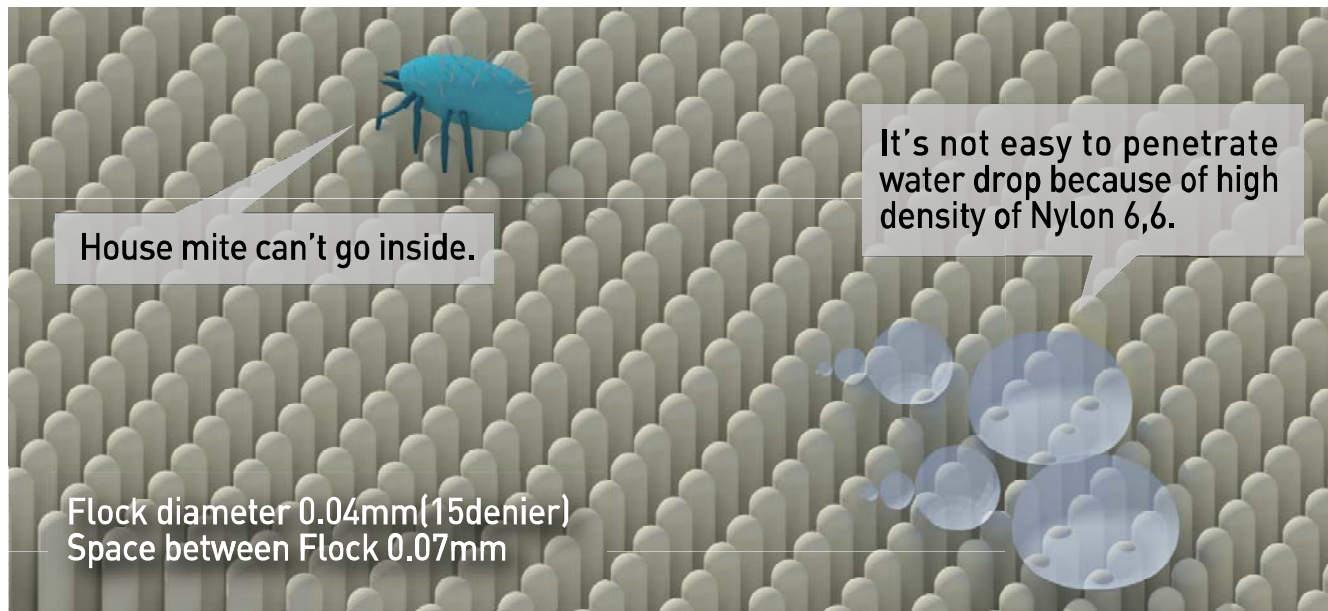
LS FLOCKED CARPET

PURGOTEX Features_Antibiosis

Inhabitation Suppression of Dust mites !

PURGOTEX (Flocked Carpet)

Not Supplying adaptive environment for Mite habitation
(temperature, humid)



Common Textile Carpets

Mites in Carpets



** Flocked Carpet with 80,000,000/m² adhesive flocks

LS FLOCKED CARPET

PURGOTEX Features_Comply with International standards



△ ISO 14001
Environmental Management System



△ ISO 9001
Acquired Quality Management



△ OHSAS 18001
Health and Safety Management System

LS FLOCKED CARPET

PURGOTEX Features_Wear resistance



Castor Chair !

Acquired top-class(class 33) in heavy a traffic commercial use for EN1307 standard

ASSESSMENT OF THE WEAR BEHAVIOUR

- Median appearance retention after 5000 cycles: 4
- Median appearance retention after 25000 cycles: 3.5

Index $r=3.9$

※ Note.

EN 1307 standard "Classification of pile carpets" for suitability for Intensive use (A)

[* Notified Body : C.R.E.T]

LS FLOCKED CARPET

PURGOTEX Features_Durability



Light Fastness !

Acquired level 6 in NF EN ISO 105-B02

*Light Fastness: The degree of color change under the influence of light

Test Results

Colour fastness to light index 1 to 8	
Ref Societe: PURGOTEX tile Ref.Lab: A2240	> 6

[* Notified Body : Laboratoire Textile Du Cambresis]

LS FLOCKED CARPET

PURGOTEX Features_ Flame resistance



Flame resistance !

'Bfls 1' Grade (More than 8 kW/m²) by EN13501-1

- * Satisfied with Korean Fire Prevention Law (less than 400ds)
- Acquired flame retention certificate

Flammability & Smoke density Test Results

SPECIMEN	Length #1	Length #2	Length #3	Mean
Critical Radiant Flux (kW/m²)	9.2	9.2	8.3	8.9
Smoke Development Rate (% min)	197	193	217	202

- * Mean critical radiant flux 8.9kW/m²

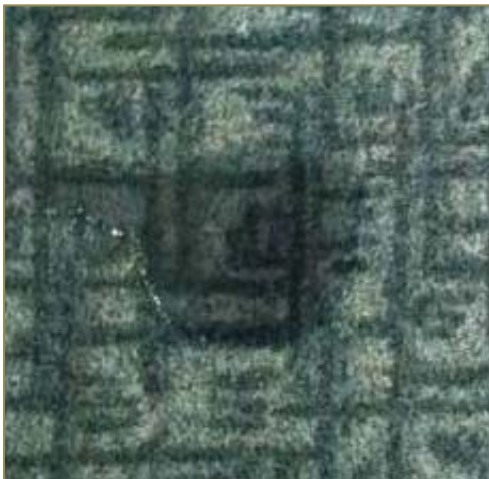
[* Laboratory : APL Australia Pty Ltd]

LS FLOCKED CARPET

PURGOTEX Features_ Water & Oil repellent

Test for waterproof !

[* After 1 min]



[A Company]
Absorbed immediately



[B Company]
Absorbed after 1 minutes



[LS PURGOTEX]
Not absorbed after 1 minutes

- Outstanding water-proof function compare to other brands (refer to test results).
 - Maintains a good level of cleanliness by reducing pollution and bacteria caused by humid.
-

PURGOTEX get recognition of eco-friendly !

Flocked Carpet of LS C&S get eco-friendly product certification

 연합뉴스 | Report Inputting 2012-05-31 09:07



▲ PURGOTEX
(Offer of picture: LS Cable & System)

LS C&S reported the Flocked carpet tile 'PURGOTEX' get approval of Green Certificate from KEITI and Certificate of Sanitary Finish Assurance from FITI. PURGOTEX is featured for 10 times denser than the general carpets due to its dense fiber surface which makes the fiber vertically standing on substrate by static electricity and LS was first developed it in 2009. Also, PURGOTEX has excellent sanitation caused by its dense fiber structure and therefore it blocks pollutant, mites and bacteria breeding. Certificate of Sanitary Finish Assurance(SF Mark) from FITI verify the body safety, nontoxic and hygiene of product. And KEITI grant a green certificate to product which generate less pollution in the process of production and consumption. In case of the flooring is examined for carcinogen emission such as lead, cadmium, mercurial, toluene, formaldehyde etc.

LS C&S chose flooring as a highlight business and have been attacking in market from 2011. Also, They have a marketing plan to increase global market share through product presentation in foreign stronghold etc.

(Seoul=AP) Tae-jong, Kim reporter)

LS FLOCKED CARPET

PURGOTEX Technical data

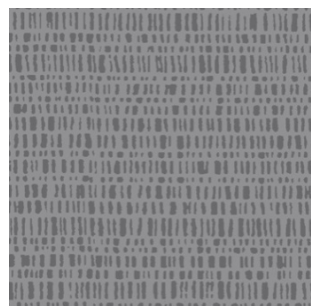
No.	Item	Standard	Requirement	LS PURGOTEX Test Results
1	Commercial heavy	EN 685	Class 33	Satisfied
2	Dimensional stability	EN 986	< 0.2%	
3	Staightness/ Squareness of Edge	EN 994	< 0.15%	
4	Curling/ Doming	EN 986	≤ 2mm	
5	Abrasion resistance (Lisson test)	EN 1963	Mv < 35g/m² (ltr≥3)	
6	Castor chair/ Continuous use (A test)	EN 985	r > 2.4	
7	Vetterman (short/ long)	ISO 10361-test A	short ≥ 4 long ≥ 3.5	
8	Light Fastness	EN ISO 105 B02	6	
9	Electrical resistance	ISO 10965	>10 ⁹ Ω	
10	Reaction to fire	EN 13501-1 (EN ISO 9239-1)	Bfls1 (> 8.0kW/m²)	
11	Smoke density	ASTM E 662	< 400ds	
12	Body voltage	ISO 6356	< 2kV	
13	Thermal resistance	ISO 8302	< 0.17m²KW	
14	Walk sonority	NF S31-074	< 65dB	
15	Acoustic	ISO 140-8 EN ISO 717-2	16dB	
16	Static Loading Test	BS 4939	97% Recover after 24hr	

LS FLOCKED CARPET

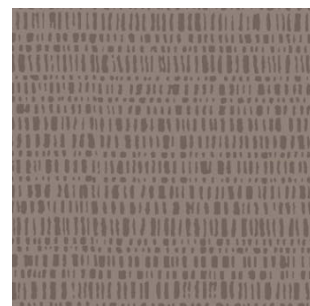
PURGOTEX Products Index 2013

Jungle

Jungle is designed with sharp and precise geometric shapes that embrace gentle diagonal lines, forming a rich image.



Jungle 102-G



Jungle 501-G



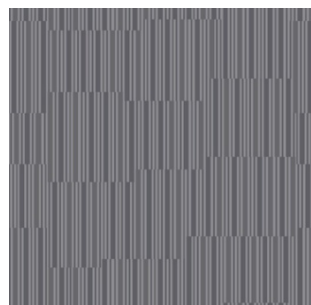
Jungle 101-G



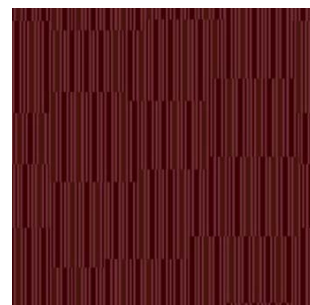
Jungle 104-G

Modern Bamboo

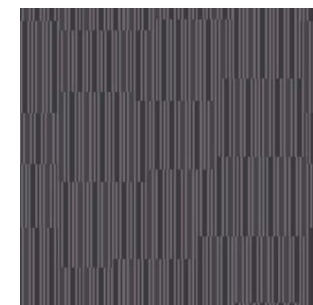
Modern Bamboo is created with a rhythmic arrangement of linear motifs evoking a sense of composure and sophistication fit for an urban lifestyle.



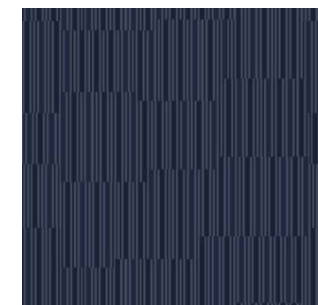
M Bamboo 101



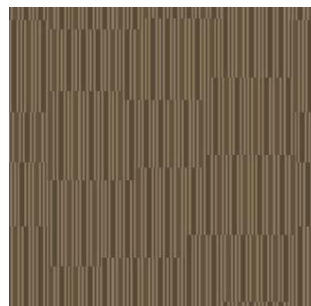
M Bamboo 601



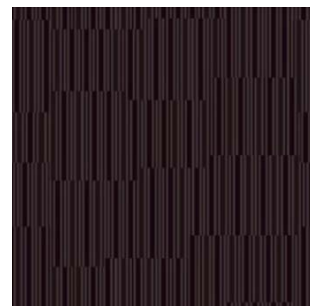
M Bamboo 102



M Bamboo 801



M Bamboo 501

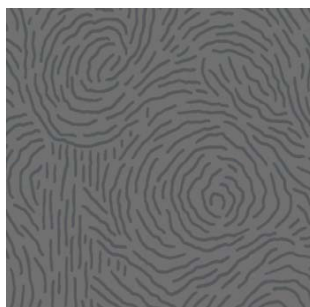


M Bamboo 502

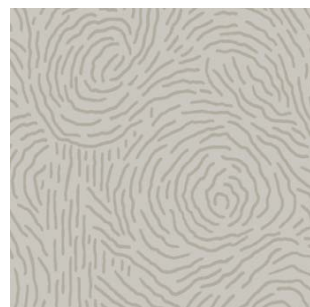
LS FLOCKED CARPET

PURGOTEX Products Index 2013

Glam



Glam 102-G



Glam 401-G



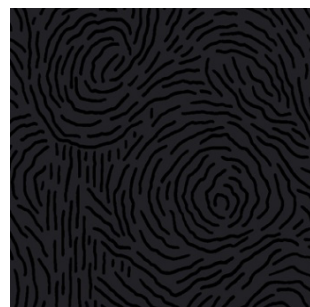
Glam 501-G



Glam 101-G



Glam 801-G

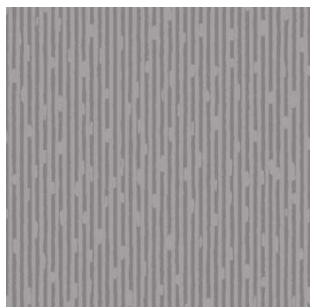


Glam 103-G

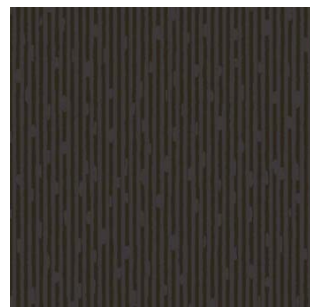
Glam is designed with irregularly arranged elegant curves forming provocative and captivating shapes.

Panda

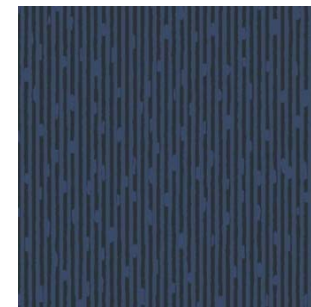
Panda is a contemporary design with maximized simplicity to pursue a new expression of the most basic lines.



Panda 401-G



Panda 101-G

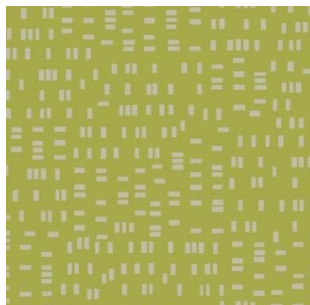


Panda 801-G

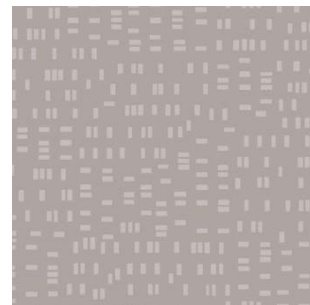
LS FLOCKED CARPET

PURGOTEX Products Index 2013

City



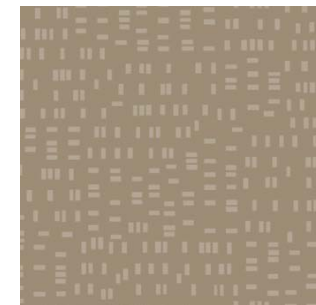
City 301-G



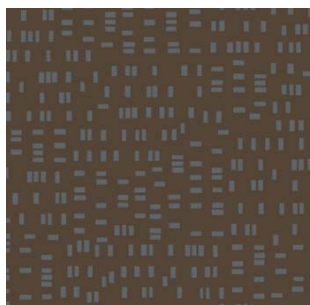
City 101-G



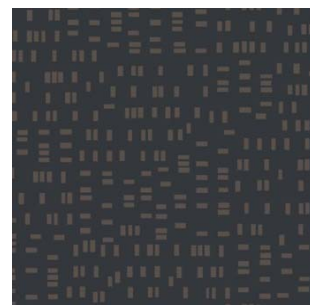
City 801-G



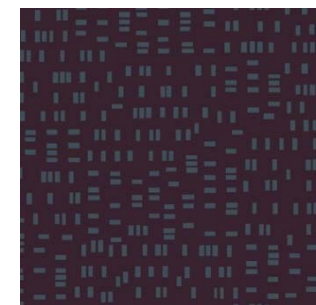
City 502-G



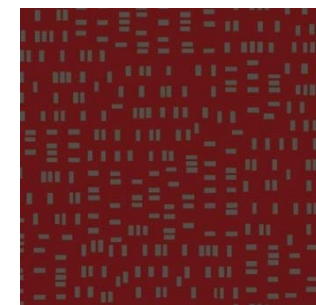
City 501-G



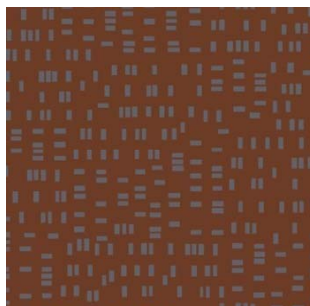
City 103-G



City 701-G



City 601-G



City 602-G

City is designed with light rectangular motifs arranged in irregular forms. The bold red and purple hues together with yellowish green add to the relaxed casualness of this design, creating a more powerfully emotional energy.

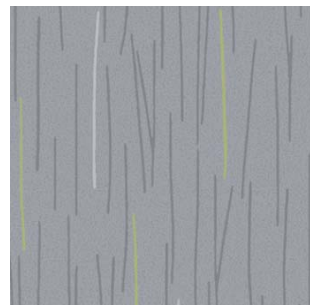
LS FLOCKED CARPET

PURGOTEX Products Index 2013

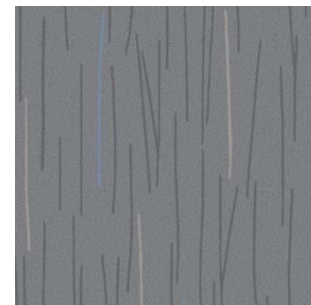
Rainbow



Rainbow 101-G



Rainbow 106-G



Rainbow 102-G



Rainbow 105-G



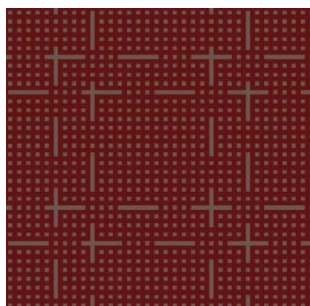
Rainbow 104-G

Rainbow expresses dreamlike and poetic nature with a rhythmic layout of flexible and lineal motifs.

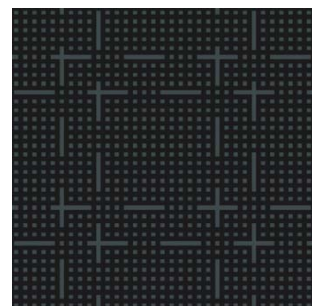
LS FLOCKED CARPET

PURGOTEX Products Index 2013

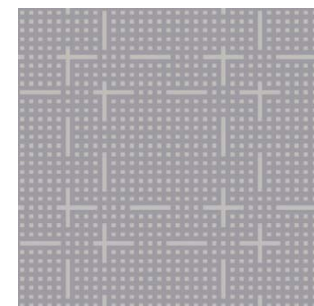
Pacman



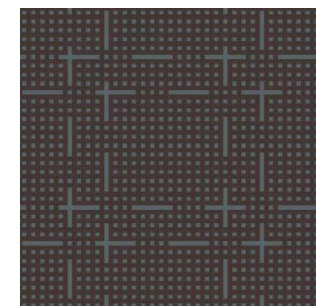
Pacman 601-G



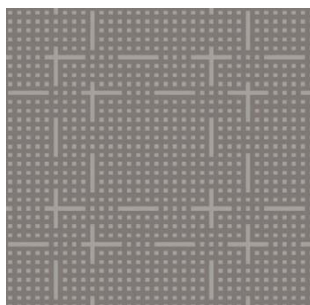
Pacman 801-G



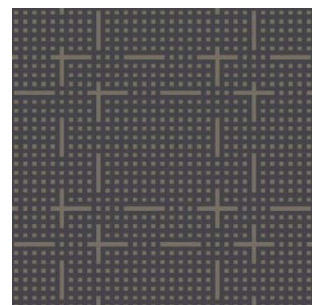
Pacman 105-G



Pacman 104-G



Pacman 101-G



Pacman 102-G

Pacman, a design to physically express a decidedly "digital" feel through simple, yet intricate grids, is ideal for any urban lifestyle.

LS FLOCKED CARPET

PURGOTEX Products Index 2013

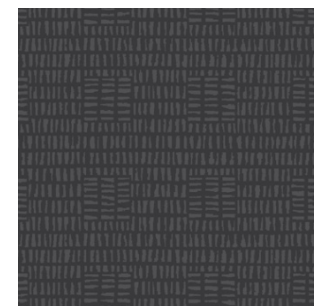
Zen



Zen 801-G



Zen 102-G



Zen 101-G



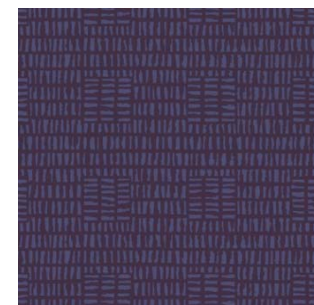
Zen 103-G



Zen 401-G



Zen 601-G



Zen 701-G

Zen depicts the beauty expressed through a coexistence of eternal Asian sentiments and contemporary aesthetics with an understated modernity.

An aerial photograph of a large, open public square with a light-colored, textured ground. Several groups of people are scattered across the square, engaged in various activities. In the upper left, a group of four people is gathered around a small cart. In the upper right, two people are sitting on a bench. In the center, a group of about eight people is walking together. In the lower right, a group of three people is walking. In the bottom left, two people are walking. In the bottom center, a single person is walking. In the bottom right, a group of four people is walking. The text "Application with LS PURGOTEX" is overlaid in the center of the image.

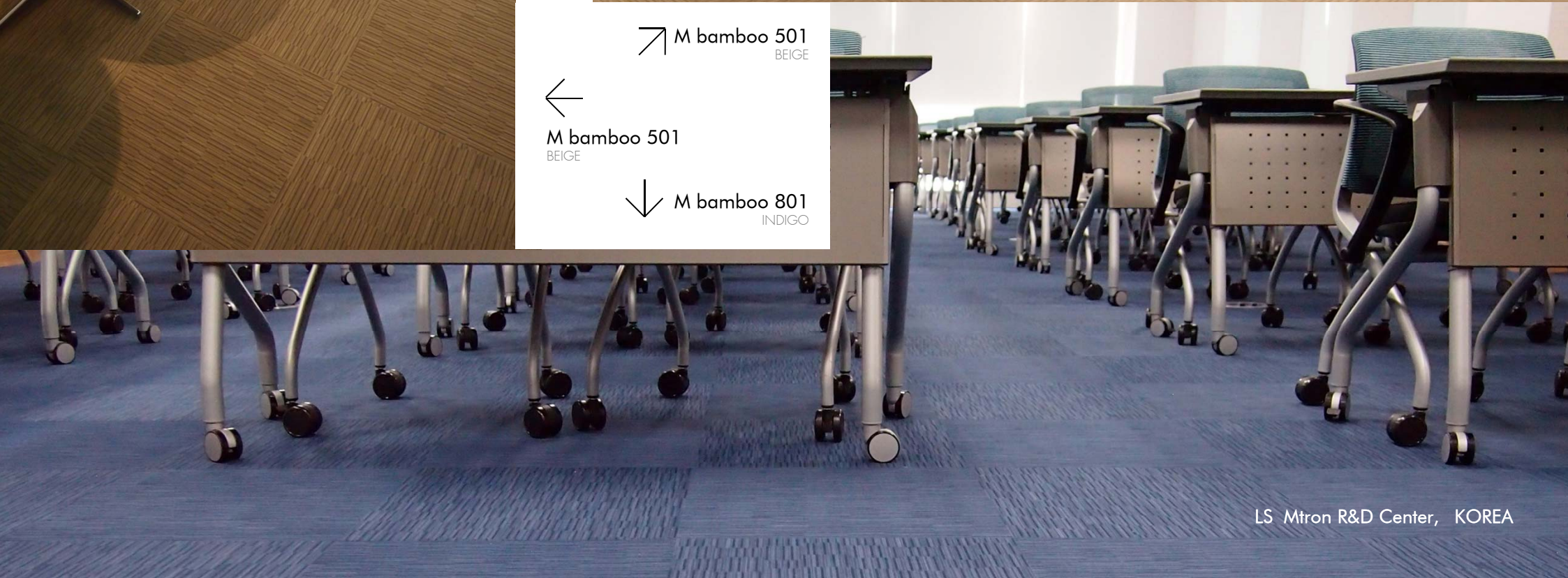
Application with LS PURGOTEX



PURGOTEX I new carpet with new concept



- ↗ M bamboo 501
BEIGE
- ← M bamboo 501
BEIGE
- ↓ M bamboo 801
INDIGO



↗ M bamboo 501
BEIGE

PURGOTEX I
new carpet with new concept

M bamboo 102
CHARCOAL

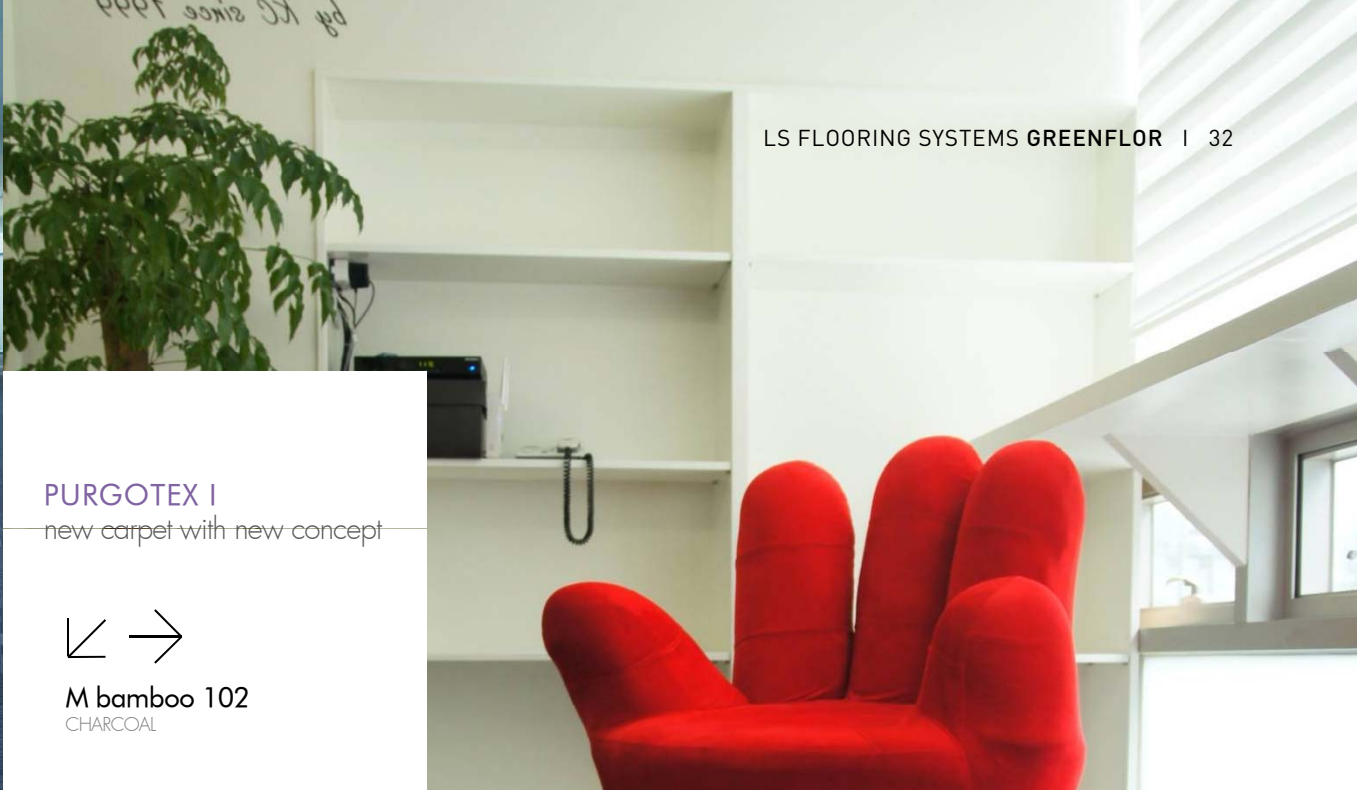


↖ M bamboo 102
CHARCOAL

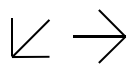
PURGOTEX I
new carpet with new concept



Mbamboo 501 | 101 | 801
BEIGE | LIGHT GARY | CHARCOAL



PURGOTEX I
new carpet with new concept



M bamboo 102
CHARCOAL





↑ M bamboo 501
CHARCOAL



LSCW_VIP room, CHINA

M bamboo 501
CHARCOAL

PURGOTEX I
new carpet with new concept

↖ M bamboo 501
CHARCOAL

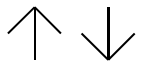


Toyota Seoul Branch, KOREA



PURGOTEX I
new carpet with new concept

M bamboo 501
BEIGE



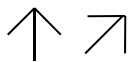
LS Tower Meeting Room, KOREA



PURGOTEX I

new carpet with new concept

M bamboo 501
BEIGE



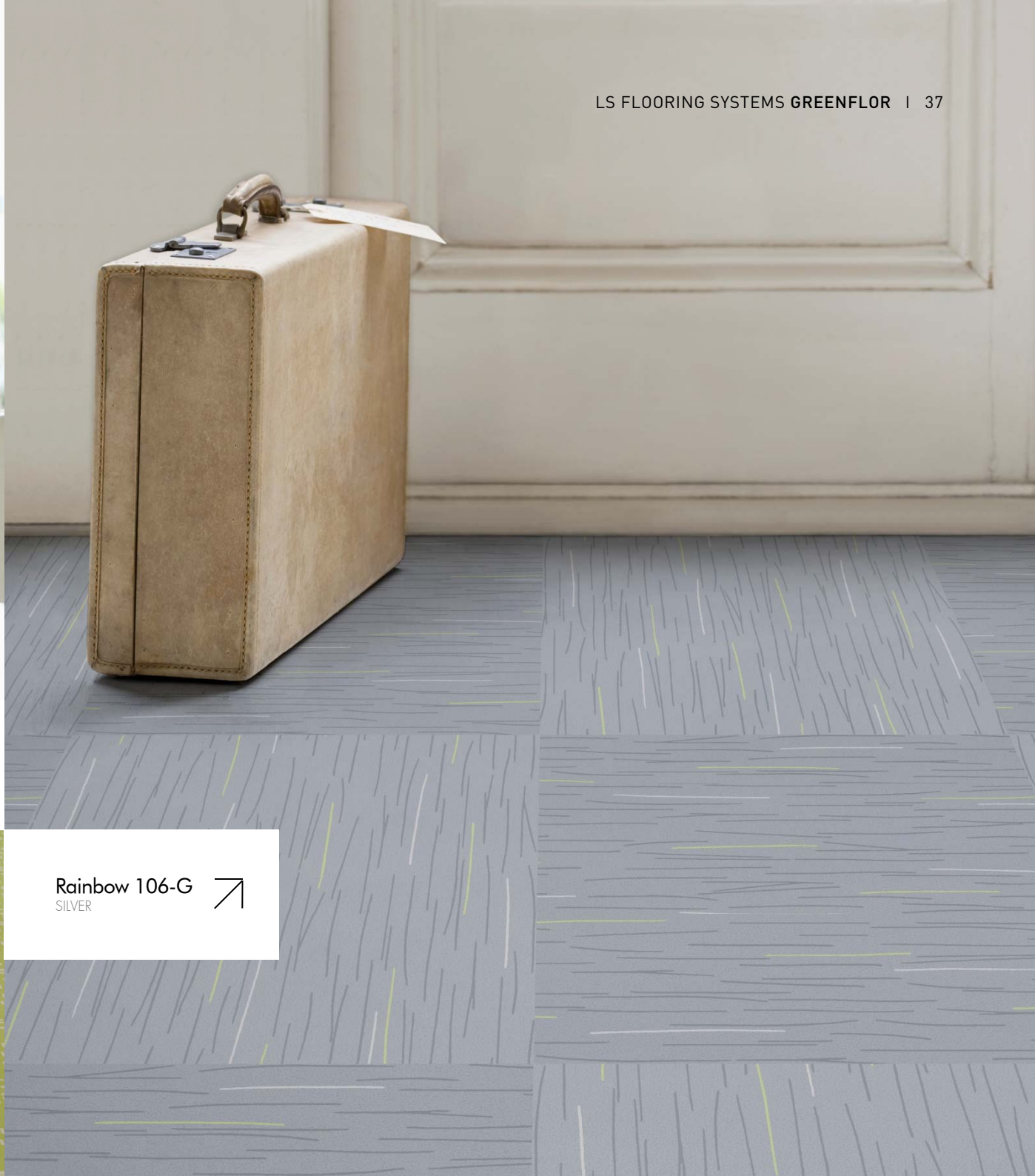
Incheon International Airport Boarding Bridge, KOREA

PURGOTEX I
new carpet with new concept

↙ M bamboo 501 ↘
BEIGE

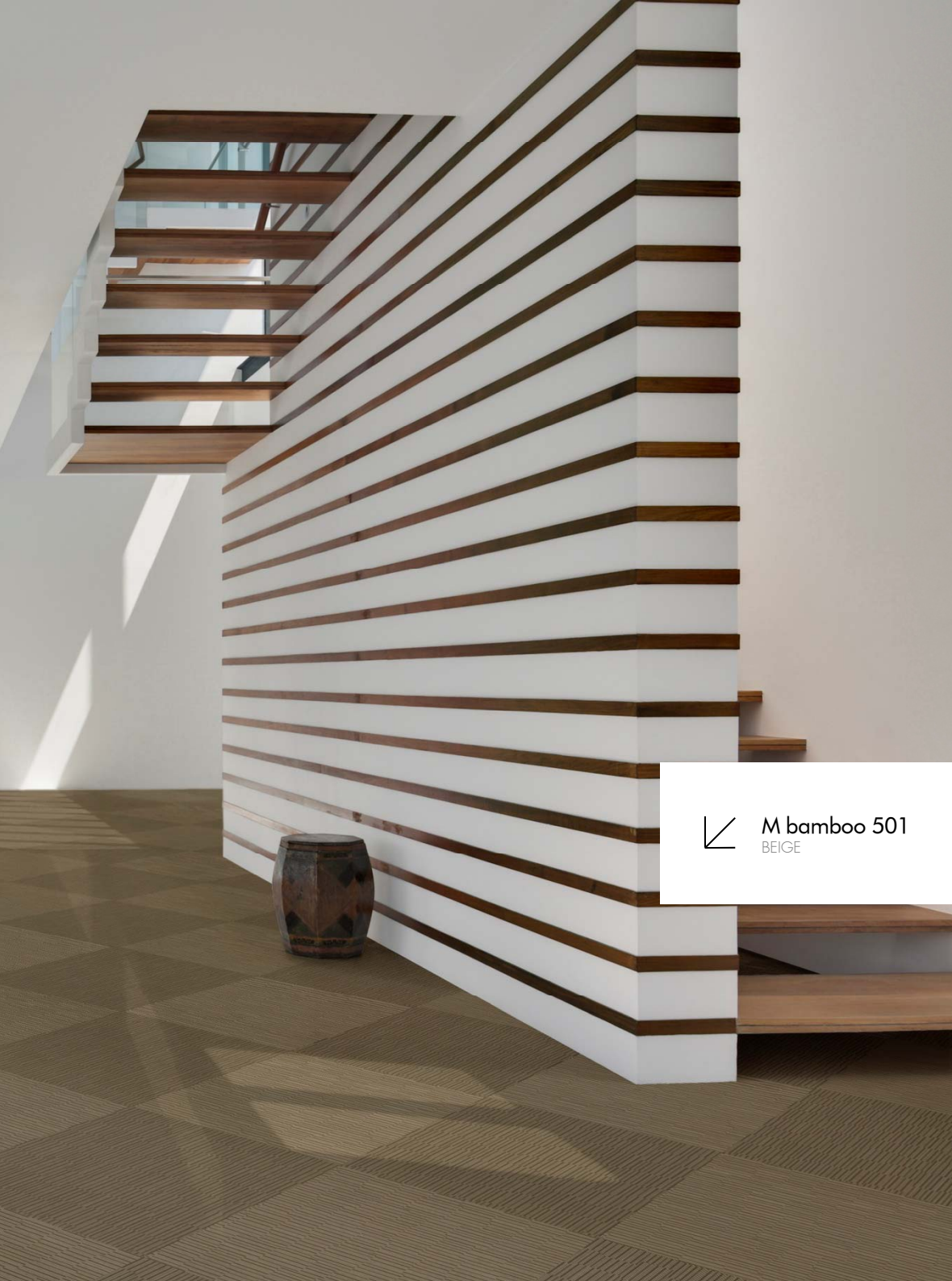


City 301-G
LIME



Rainbow 106-G
SILVER





↙ M bamboo 501
BEIGE



Pacman ↗
104-G | 102-G
CHESTNUT | PEPPER



Glam 401-G
OPAL



Jungle 102-G
STONE





Panda 401-G
LATTE



Zen 801-G
SAPPHIRE





Technology that embraces the world is also close to the heart

LS FLOORING SYSTEMS which has rubber compounding technology needed for various cable insulations, has been working in rubber flooring project business since 1994.

As a representative product of GREENFLOR, with its outstanding durability, safety and unique design not only is practical, but also creates a sophisticated ambience.

Product Features



Environment-friendly (Non-toxic materials)



Noise reduction



Good slip-resistance (R9)



Unique design



Excellent fire performance



Excellent wear-resistance(long life time), Homogeneous materials

LS RUBBER FLOORINGS

Product Descriptions

Customized Rubber flooring design available (Concept & Color)





Floor Score Certificate !

Acquired environment-friendly certificate of Floor Score

TVOCs Emission Test Results

CREL VOC'S	EF ($\mu\text{g}/\text{m}^2\cdot\text{h}$) at 96-hrs	Private Office Results	School Classroom Results
Carbon disulfide	51.7	Pass	Pass
Isopropanol	4.3	Pass	Pass
Styrene	329.1	Pass	Pass

[* Notified Body: SCS global services]

LS RUBBER FLOORINGS

Features_Environment-friendly



CE Certificate !

Comply with European Standard EN14041 for consumer's safety, health, and environmental protection Fire-Safety and slip-resistance performance retention

Test Results

Characteristic	Direction of the production	Test Results					
		Obtained data value					Arithmetic mean
Dynamic coefficient of friction	Direction A	0.46	0.49	0.50	0.50	0.49	0.49
	Direction B	0.43	0.46	0.42	0.46	0.44	0.44

[* Notified Body : TZUS Praha]

LS RUBBER FLOORINGS

Features_Environment-friendly

KOTITI
Global Business Partner 138-7, Sangboreon-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do, 462-897, Korea TEL: (822)3451-7000 FAX: (822)3451-7111 www.kotiti.re.kr

TEST REPORT

KOTITI NO. : 1211002897
APPLICANT : LS CABLE & SYSTEM
DATE IN : February 16, 2012
DATE OUT : February 22, 2012

OVERALL RATING
PASS V
FAIL

Sample Description	THREE (3) SAMPLES
Item	LS RUBBER FLOORING
Buyer	N/S
Style Number	(A) SAFE-MARINE, (B) SOFTTRONG, (C) SAFEPLAN
P.O. Number	N/S
Color(s) Submitted	N/S
Submitted Fiber Composition	N/S
Submitted Care Instruction	N/S
Test Result	For further details, please refer to the following page(s).

CPSIA (H.R.4040)	Result	Comment
Test Property	N/A	
-16 CFR 1303 (CPSIA section.101) - Lead in Surface Coating	N/A	
-Lead in Substrates (CPSIA section. 101)	Pass	
-Phthalates Content (CPSIA section.108)		
DEHP, DBP and BBP	Pass	
DINP, DIDP and DnOP	Pass	

* N/R : Not Requested, N/A : Not Applicable, N/S : Not Submitted

PREPARED and CHECKED by: Sang Rag Lee
DR. SANG RAG LEE
DIRECTOR - KOTITI

AUTHORIZED by: Young R. Kim
DR. YOUNG RYUL KIM
DIRECTOR GENERAL - KOTITI

REMARK: SEE ENCLOSED WORKSHEET(S) RESULT

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CPSIA Report !

Satisfied with lead, phthalate content standard in U.S,A Consumer Product Safety Law

Customer Product Safety Improvement Act (H.R.4040)

Test Property	Results
16 CFR 1303 (CPSIA section.101) - Lead in Surface Coating	N/A
Lead in Substrates (CPSIA section.101)	Pass
Phthalates Content (CPSIA section.108)	
- DEHP, DBP and BBP	Pass
- DINP, DIDP and DnOP	Pass

※ N/R: Not Requested, N/A:Not Applicable, N/S: Not Submitted

[* Notified Body: KOTITI (Korea Textile Inspection & Testing Institute)]

LS RUBBER FLOORINGS

Features_Flame resistance



Flame resistance !

'Bfl s1' Grade (More than 8 kW/m²) by EN13501-1

* Satisfied with Korean Fire Prevention Law (less than 400ds)
Acquired flame retention certificate

Flammability & Smoke density Test Results

Sample	Specimen	Length #1	Length #2	Length #3	Mean
SOFTRON G 4mm	Critical Radiant Flux (kW/m ²)	9.8	9.6	9.6	9.7
	Smoke Development Rate (% min)	131	155	165	150

* Mean critical radiant flux 9.8kW/m²

[* Laboratory : APL Australia Pty Ltd]



Testing of Thermal insulating materials !

Achieved a thermal resistance of $0.010155 \text{ m}^2\text{K/W}$ for a single tile
(apply with DIN 52612 Part 1/ ISO 8302 standard)

Test Results

Sample	Mean specimen temperature (°C)	Thermal resistance ($\text{m}^2\text{K/W}$)	Test Density (Kg/m^3)	Individual Thickness (m)
SOFTONG 3mm	10	0.010155	1675.76	3.18

[* Laboratory : SATRA technology centre]



Determination of resistance to stubbed and burning cigarettes !

Satisfied the requirements as specified in BS EN 1817:1998
 Showed no visible change, when viewed according to the test method

Cigarette Resistance - Average results

Test method	Sample	Property	Requirements	Results
BS EN 1399: 1998	SOFTTRONG	Stubbed Cigarette	Method A \geq rating 4	5
		Burning Cigarette	Method B \geq rating 3	3
	SAFEPLAN	Stubbed Cigarette	Method A \geq rating 4	4
		Burning Cigarette	Method B \geq rating 3	3

[* Laboratory : SATRA technology centre]



*Abrasion resistance
using a rotating cylindrical drum device !*

Satisfied the requirements as specified in BS EN 1817:1998

Abrasion Resistance - Average results

Test method	Sample	Property	Requirements	Average result
ISO 4649: 1985	SAFEPLAN	Abrasion resistance Method A, Vertical load (5±0.1) N	≤ 250 mm³	159.85mm³

[* Laboratory : SATRA technology centre]



Resistance to staining !

Demonstrated no visible changes in appearance and not affected by the stated contaminants when cleaned according to the manufacturers instructions

Stain Resistance – Individual results

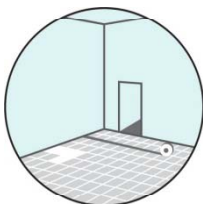
Property	Effect of sample after cleaning	Rating
<i>Resistance to marking by liquids:</i>		
Orange Juice/ Coffee/ Cola/ Tea etc	Not affected	0
<i>Resistance to oils and fats:</i>		
Vegetable oil	Not affected	0

[* Laboratory : SATRA technology centre]

LS RUBBER FLOORINGS

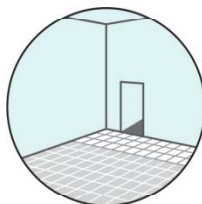
Installation Guide

Tile type



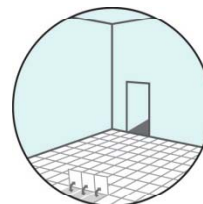
STEP 1

Draw a center line on the floor before installation.
Lay out product along the line.



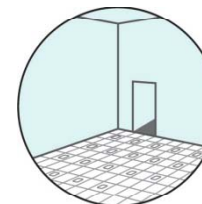
STEP 2

Apply adhesives to the bottom of the product laid out and attach product to the floor surface.



STEP 3

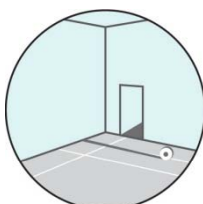
Make sure the bottom surface of the product is completely attached to the floor.



STEP 4

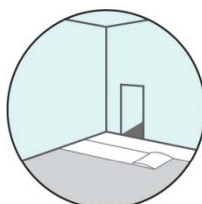
Settle the product in position by placing heavy objects, such as sand bags, on top of the product.

Roll type



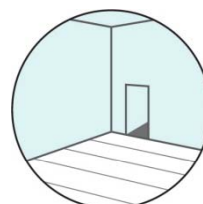
STEP 1

Draw a center line on the floor before installation.



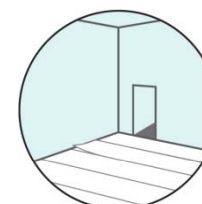
STEP 2

Lay out two products along the line so that the products overlap each other (by 2cm).



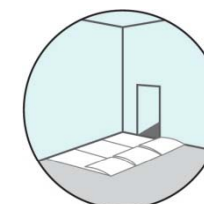
STEP 3

Lay out products in the installation site until flattened (for at least 48 hours).



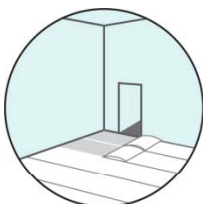
STEP 4

Double-cut the overlapped part so that the joint does not have any gap.



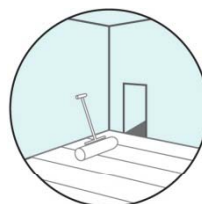
STEP 5

Flip the half of the product over and apply adhesives to the floor.



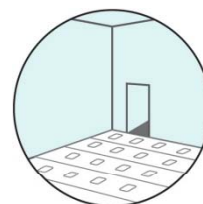
STEP 6

Flip the other half of the product over and apply adhesives to the floor. (Pay attention to moving air when attaching the product to the floor.)



STEP 7

Using a roller of 50Kg or higher, remove air from between product and the floor.



STEP 8

Settle the product in position by placing heavy objects, such as sand bags, on the top of the product (for more than 24 hours).

	Properties	Requirements	Results	Method
General	Dimensional stability	Tolerance allowed: $\pm 0.4\%$	-0.02%	BS EN 434:1994
	Cigarette-burn resistance	Stubbed Cigarette \geq rating 4 Burning Cigarette \geq rating 3	Fulfilled	BS EN 1399:1998
	Flexibility	No cracking at 20mm	Fulfilled	BS EN 435:1994
	Hardness	≥ 75 Shore A	85	ISO 7619:1986
	Residual Indentation	Nominal thickness $< 2.5\text{mm}$ Average value $\leq 0.2\text{mm}$	Fulfilled	BS EN 433:1994
	Abrasion resistance	$\leq 250\text{mm}^3$	155mm ³	ISO 4649:1985
	Color fastness to artificial light	6 minimum on blue wool scale ≥ 3 on grey scale	Fulfilled	BS EN ISO 105 B02 :1992
	Chemical resistance	-	Fulfilled	BS EN 423
	Slip resistance	-	R9	DIN 51130:1992
	Smoke Density	$\leq D_s 450$	Fulfilled	ASTM E662
Fire & Smoke Behavior	Surface Flammability	$\geq 0.45\text{W}/\text{cm}^2$	Fulfilled	ASTM E648

LS RUBBER FLOORINGS

SAFEPLAN Technical data 

	Properties	Requirements	Results	Method
General	Dimensional stability	Tolerance allowed: $\pm 0.4\%$	-0.02%	BS EN 434:1994
	Cigarette-burn resistance	Stubbed Cigarette \geq rating 4 Burning Cigarette \geq rating 3	Fulfilled	BS EN 1399:1998
	Flexibility	No cracking at 20mm	Fulfilled	BS EN 435:1994
	Hardness	≥ 75 Shore A	87	ISO 7619:1986
	Residual Indentation	Nominal thickness $< 2.5\text{mm}$ Average value $\leq 0.2\text{mm}$	Fulfilled	BS EN 433:1994
	Abrasion resistance	$\leq 250\text{mm}^3$	160mm ³	ISO 4649:1985
	Color fastness to artificial light	6 minimum on blue wool scale ≥ 3 on grey scale	Fulfilled	BS EN ISO 105 B02 :1992
	Chemical resistance	-	Fulfilled	BS EN 423
	Slip resistance	-	R9	DIN 51130:1992
	Smoke Density	$\leq D_s 450$	Fulfilled	ASTM E662
Fire & Smoke Behavior	Surface Flammability	$\geq 0.45\text{W}/\text{cm}^2$	Fulfilled	ASTM E648

	Properties	Requirements	Results	Method
General	Dimensional stability	Tolerance allowed: $\pm 0.4\%$	-0.02%	BS EN 434:1994
	Cigarette-burn resistance	Stubbed Cigarette \geq rating 4 Burning Cigarette \geq rating 3	Fulfilled	BS EN 1399:1998
	Flexibility	No cracking at 20mm	Fulfilled	BS EN 435:1994
	Hardness	≥ 75 Shore A	85	ISO 7619:1986
	Residual Indentation	Nominal thickness $< 2.5\text{mm}$ Average value $\leq 0.2\text{mm}$	Fulfilled	BS EN 433:1994
	Abrasion resistance	$\leq 250\text{mm}^3$	155mm^3	ISO 4649:1985
	Color fastness to artificial light	6 minimum on blue wool scale ≥ 3 on grey scale	Fulfilled	BS EN ISO 105 B02:1992
	Chemical resistance	-	Fulfilled	BS EN 423
	Slip resistance	-	R9	DIN 51130:1992
	Smoke Density	$\leq D_s 450$	Fulfilled	ASTM E662
Fire & Smoke Behavior	Surface Flammability	$\geq 0.45\text{W}/\text{cm}^2$	Fulfilled	ASTM E648

LS RUBBER FLOORINGS

SAFE MARINE Technical data 

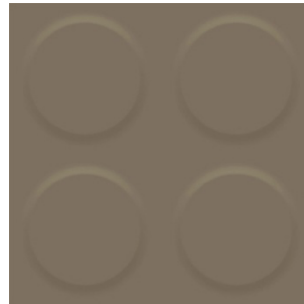
	Properties	Requirements	Results	Method
General	Dimensional stability	Tolerance allowed: $\pm 0.4\%$	-0.02%	BS EN 434:1994
	Cigarette-burn resistance	Stubbed Cigarette \geq rating 4 Burning Cigarette \geq rating 3	Fulfilled	BS EN 1399:1998
	Flexibility	No cracking at 20mm	Fulfilled	BS EN 435:1994
	Hardness	≥ 75 Shore A	85	ISO 7619:1986
	Residual Indentation	Nominal thickness $< 2.5\text{mm}$ Average value $\leq 0.2\text{mm}$	Fulfilled	BS EN 433:1994
	Abrasion resistance	$\leq 250\text{mm}^3$	155mm ³	ISO 4649:1985
	Color fastness to artificial light	6 minimum on blue wool scale ≥ 3 on grey scale	Fulfilled	BS EN ISO 105 B02:1992
	Chemical resistance	-	Fulfilled	BS EN 423
	Slip resistance	-	R9	DIN 51130:1992
Fire & Smoke Behavior	Smoke Density	IMO RES, MSC 61(67)	Fulfilled	IMO Resolution MSC61(67): Anne x1, Part 5
	Smoke Density & Toxicity			IMO Resolution MSC61(67): Anne x1, Part 2

LS RUBBER FLOORINGS

SAFE GUARD Technical data

	Properties	Requirements	Results	Method
General	Color fastness to artificial light	6 minimum on blue wool scale ≥ 3 on grey scale	Fulfilled	BS EN ISO 105 B02:1992
	Residual Indentation	Nominal thickness < 2.5mm Average value ≤ 0.2mm	Fulfilled	BS EN 433:1994
	Flexibility Diameter of mandrel 20mm	No cracking at 20mm	Fulfilled	BS EN 435:1994
	Stubbed Cigarette	Method A ≥ rating 4	Fulfilled	BS EN 1399: 1998
	Burning Cigarette	Method B ≥ rating 3		
	Abrasion resistance	≤ 250mm ³	180mm ³	ISO 4649:1985
	Hardness	≥ 75 Shore A	89	ISO 7619:1986
	Dimensional stability	Tolerance allowed: ±0.4%	-0.2%	BS EN 434:1994
Other Properties	Chemical resistance	-	Fulfilled	BS EN 423
	Slip resistance	-	R9	DIN 51130:1992
Flame Resistance	Oxygen Index	KORAIL safety standards for trains	Fulfilled	ISO 4589-2
	Index of Toxicity			BS 6853 Annex B.2
	Smoke density			ASTM E662
	Surface Flammability			ASTM E648

Solid Round 3T/ 4T



CMR421



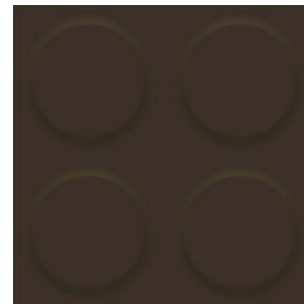
CMR42/ CTR42



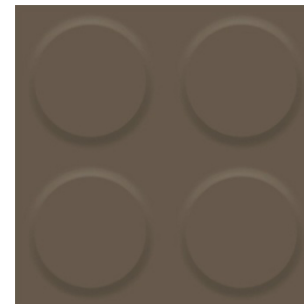
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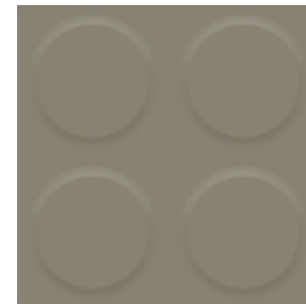
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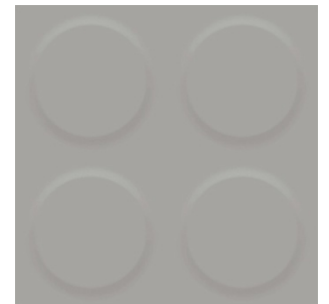
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CMR404



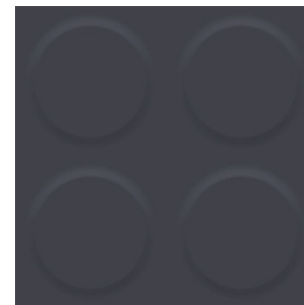
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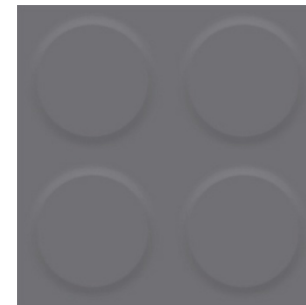
CMR10



CMR20



CMR97/ CTR97



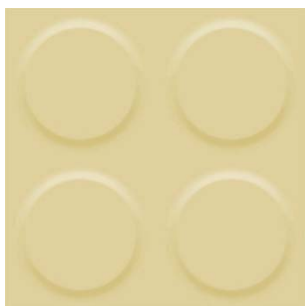
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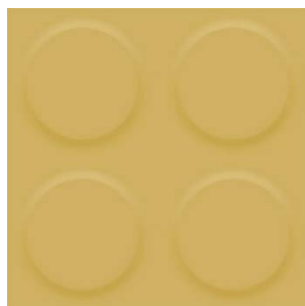
Tile type rubber flooring with multifunction

LS RUBBER FLOORINGS

SOFTTRONG Products Index 2013 



CMR47



CMR48



CMR54



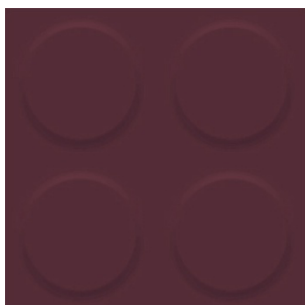
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CMR402



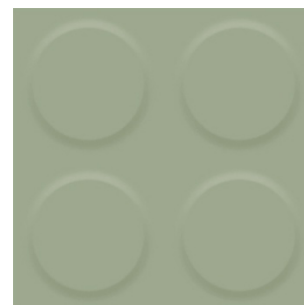
CMR12



CMR9 22



CMR52



CMR83



CMR86/ CTR86



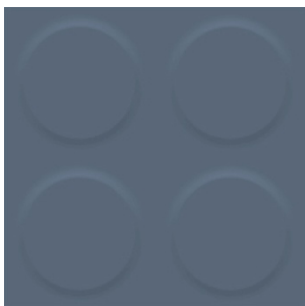
CMR806



CMR82



CMR92



CMR93/ CTR93



CMR91



CMR972

Solid
Hammered
3T



CMH47



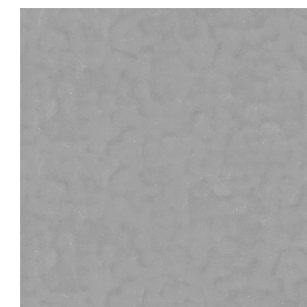
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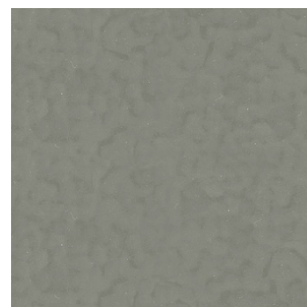
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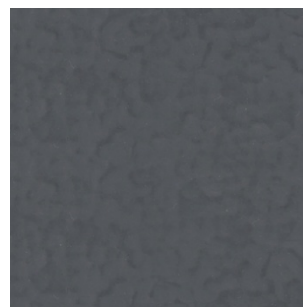
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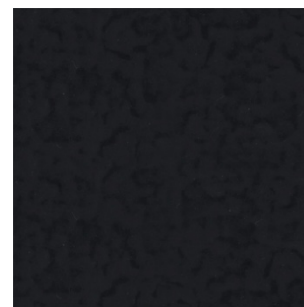
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CMH31



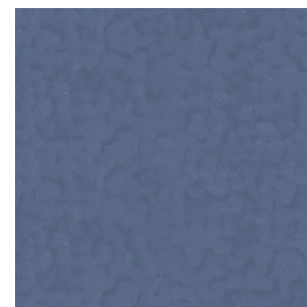
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CMH20



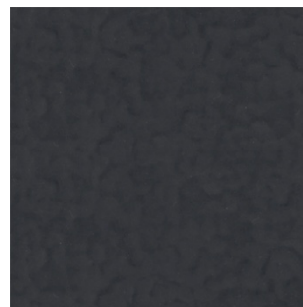
CMH86



CMH93



CMH921



CMH972



Tile type rubber flooring
with multifunction

02

LS RUBBER FLOORINGS

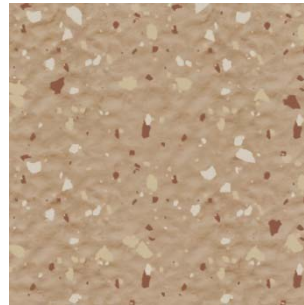
SOFTTRONG Products Index 2013 

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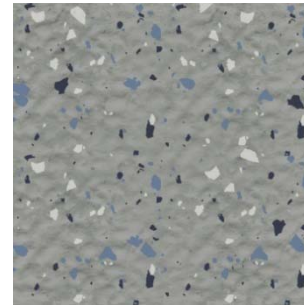
Chip
Hammered
3T/3.5T



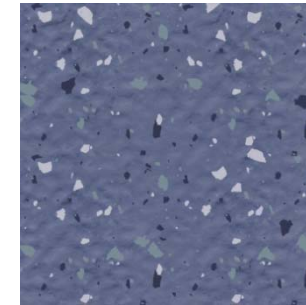
NMH43



NMH44



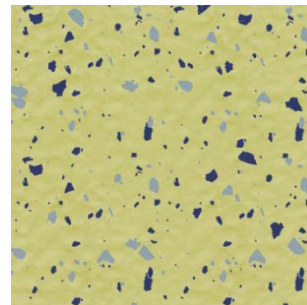
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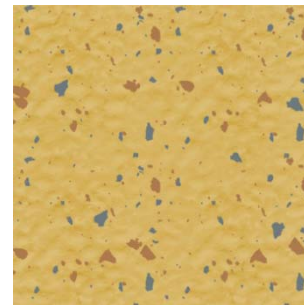
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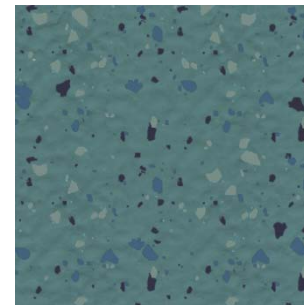
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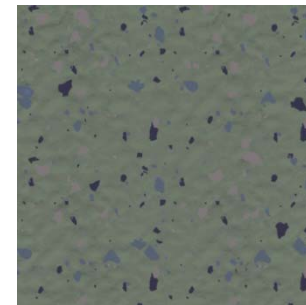
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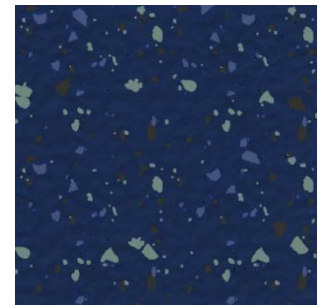
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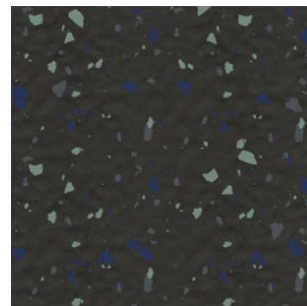
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NMH853



NMH99

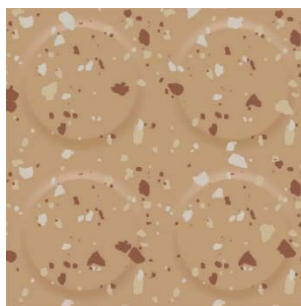


NMH210

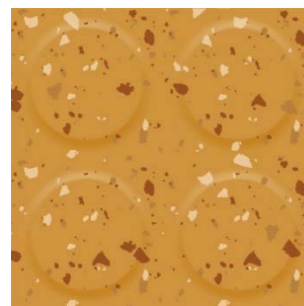


Tile type rubber flooring
with multifunction

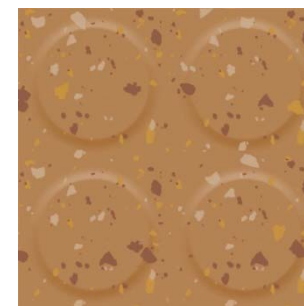
Chip Round 3T/ 4T



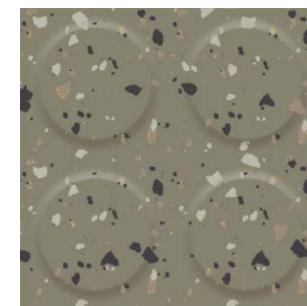
NTR44/ NMR44



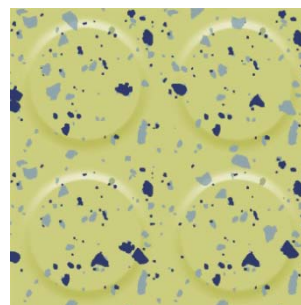
NTR45/ NMR45



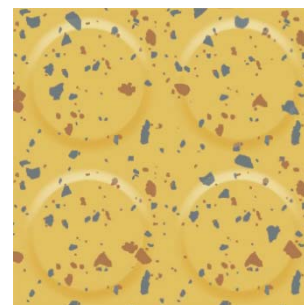
NTR46/ NMR46



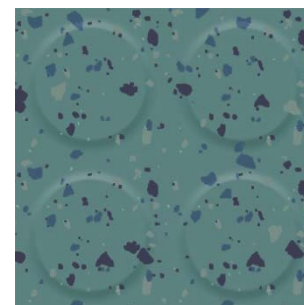
NTR31/ NMR31



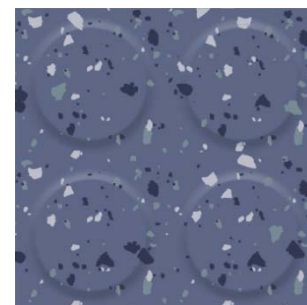
NTR81/ NMR81



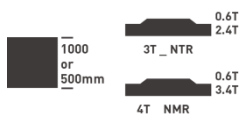
NTR48/ NMR48



NTR88/ NMR88

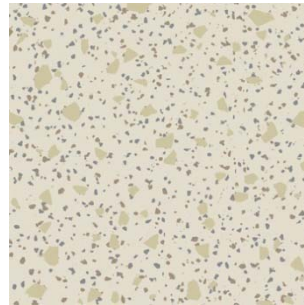


NTR93/ NMR93

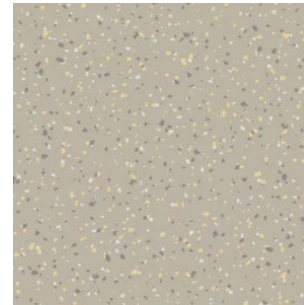


Tile type rubber flooring with multifunction

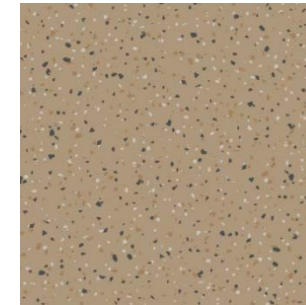
Chip Stone 3.5T



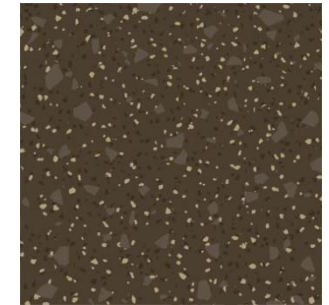
MCI143



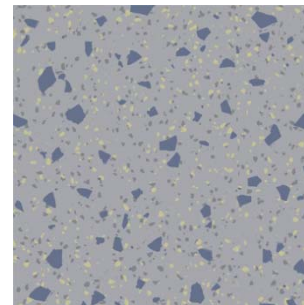
MCI139



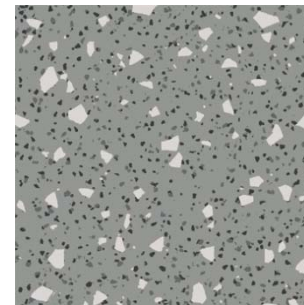
MCI441



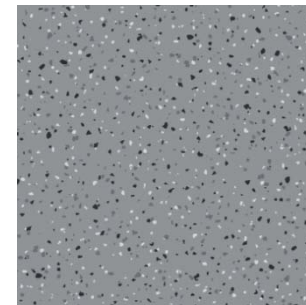
MCI431



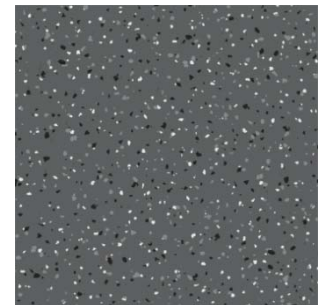
MCI174



MCI192



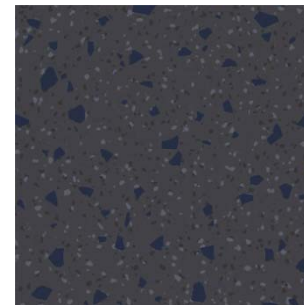
MCI132



MCI634



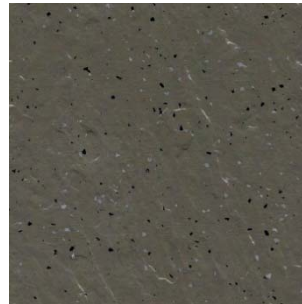
MCI439



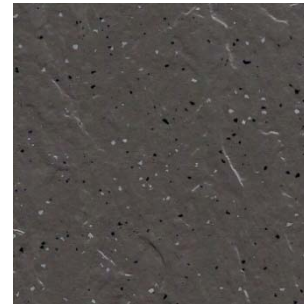
MCI975



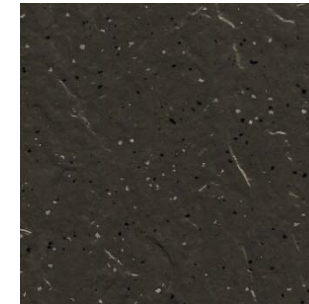
Chip Slate 3.5T



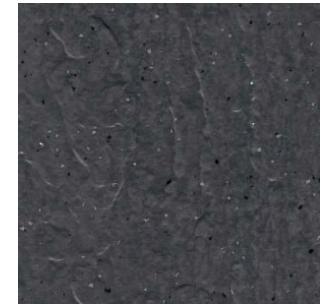
MCN425



MCN623



MCN412



MCN323



MCN233



MCN223



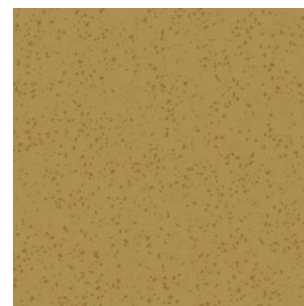
Chip Cork 3T



Tile type rubber flooring
with multifunction



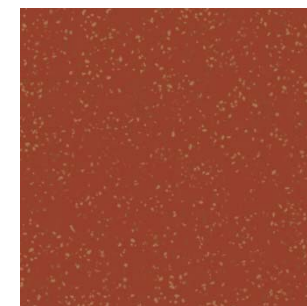
CTC40



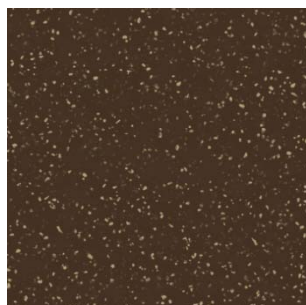
CTC42



CTC41



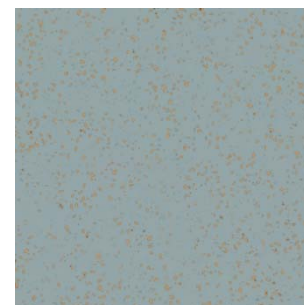
CTC51



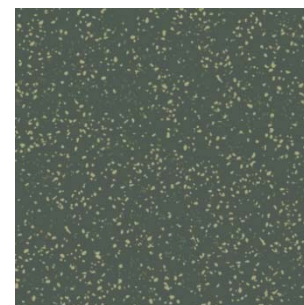
CTC44



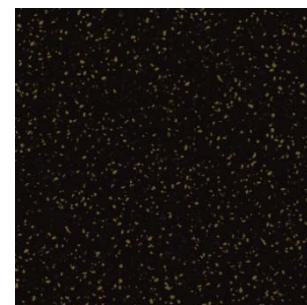
CTC30



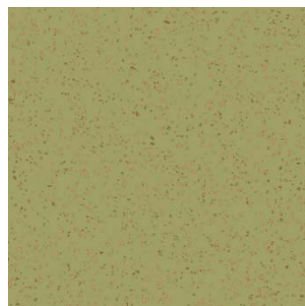
CTC90



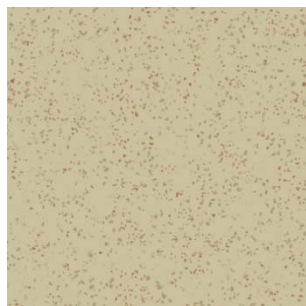
CTC32



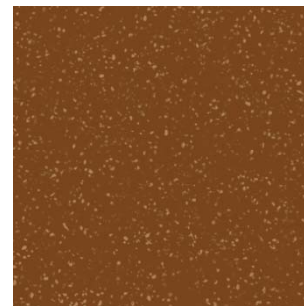
CTC20



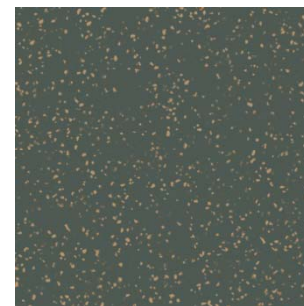
CTC80



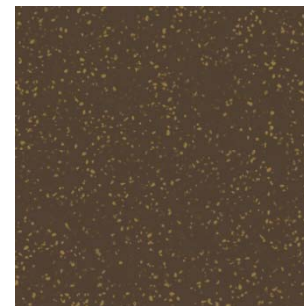
CTC10



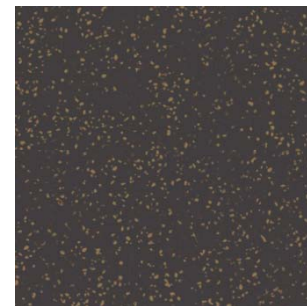
CTC50



CTC31

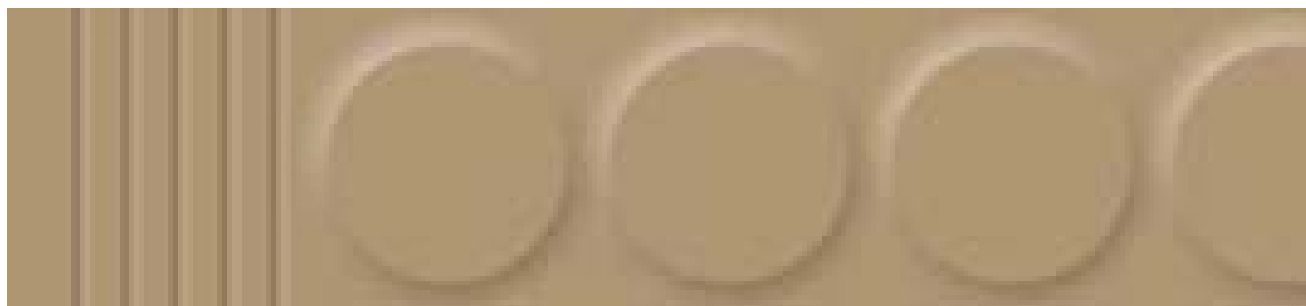


CTC43

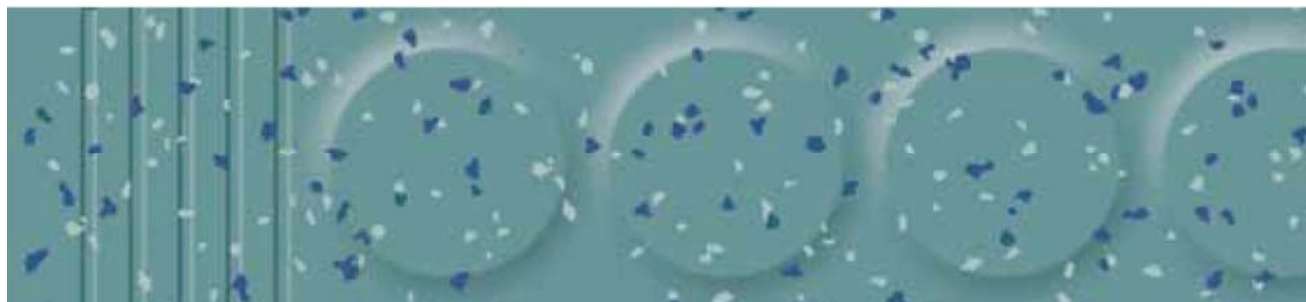


CTC33

Stair 3T/ 5T



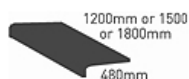
Solid Stair 3T/5T | SOCR42



Chip Stair 3T/5T | SNOCR88



Chip Hammered 3T | SNHCR31



Tile type rubber flooring with multifunction

Roll Solid 2T/ 3T



RM5000



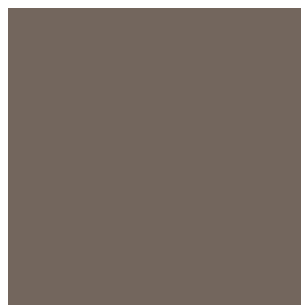
RM4300



RM1000



RM3700



RM4200



RM8000



RM4100



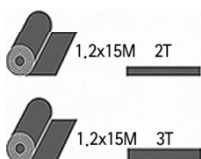
RM9000



RM32000



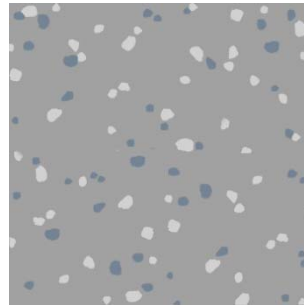
RM3000



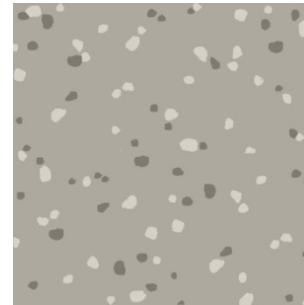
Roll type rubber flooring suitable for health care



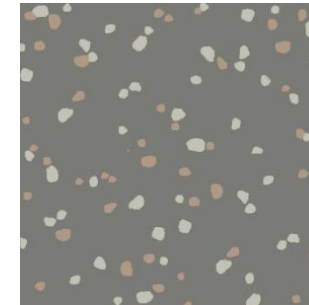
Roll Neo Chip 2T/ 3T



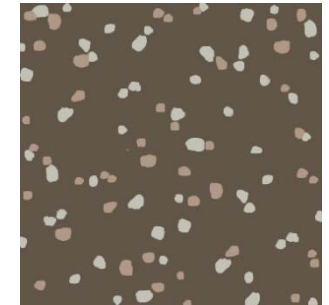
RU9419



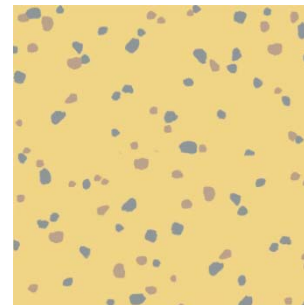
RU3713



RU1174



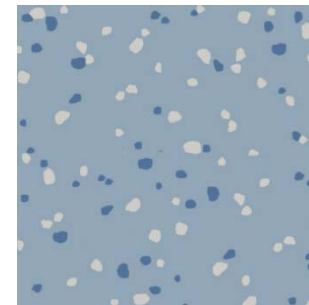
RU4219



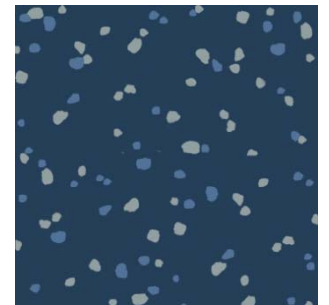
RM4238



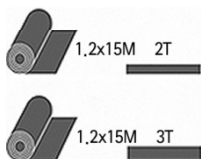
RU4147



RU9518



RU9989

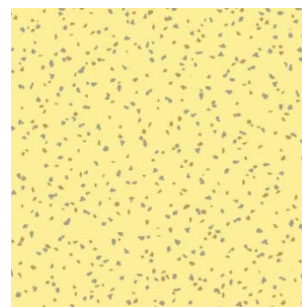


Roll type rubber flooring suitable for health care

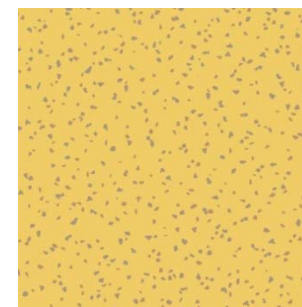
Roll Chip 2T/ 3T



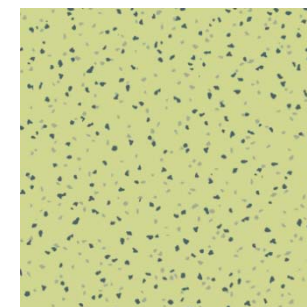
RC5043



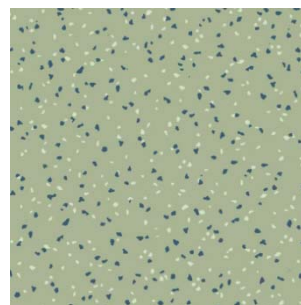
RC4043



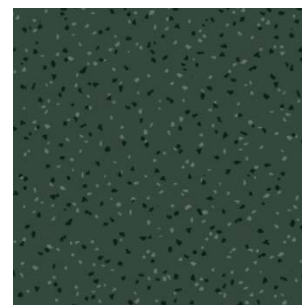
RC4143



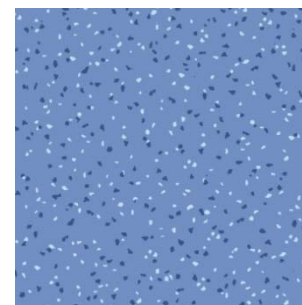
RC8098



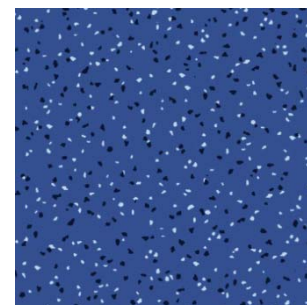
RC8191



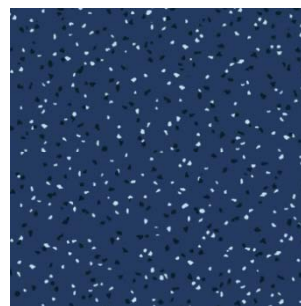
RC8228



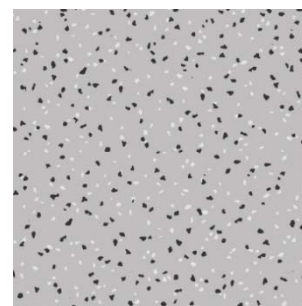
RC9091



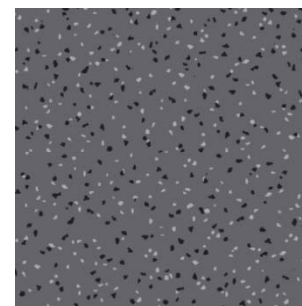
RC9121



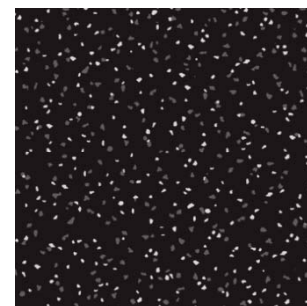
RC9221



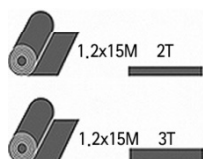
RC1021



RC3021



RC2031



Roll type rubber flooring suitable for health care

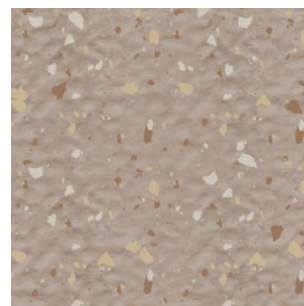
Chip Hammered 9.5T



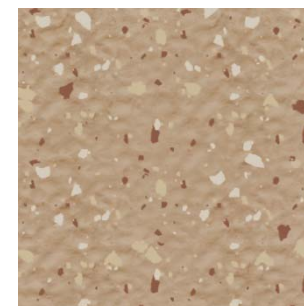
Rubber flooring for a wide range of sports facilities



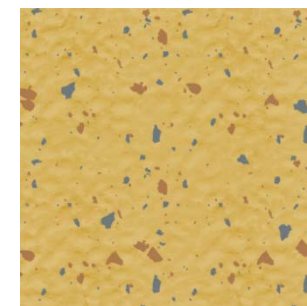
NTH31



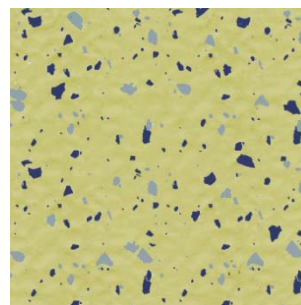
NTH43



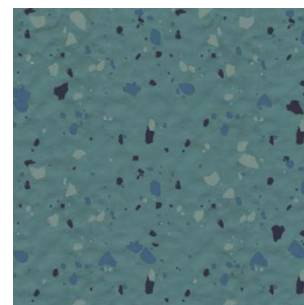
NTH44



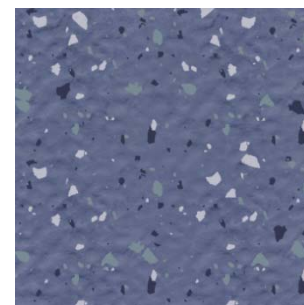
NTH48



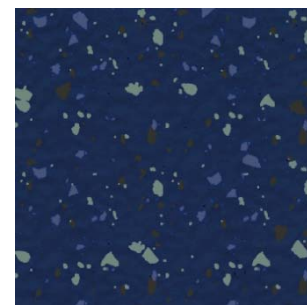
NTH81



NTH88



NTH93



NTH99

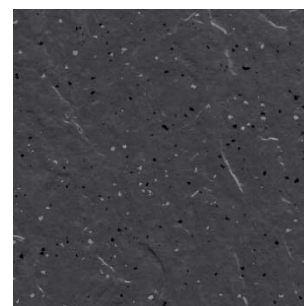
Chip Slate, 6T



Rubber flooring for a wide range of sports facilities



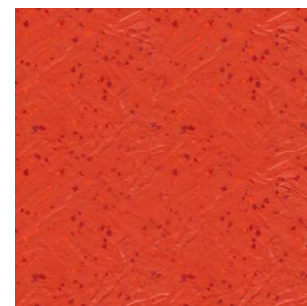
NML203



NML323

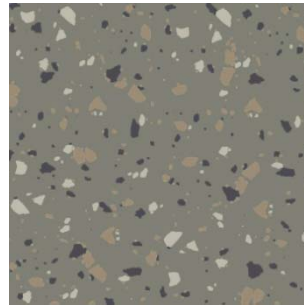


NML401

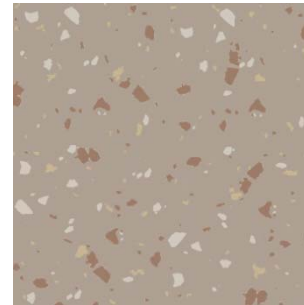


NML501

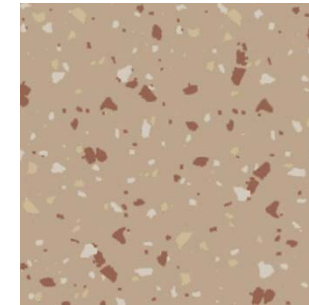
Chip Simple 9.5T



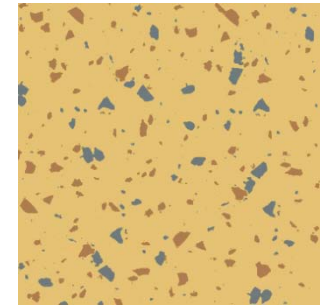
NTS31



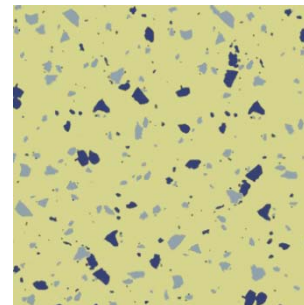
NTS43



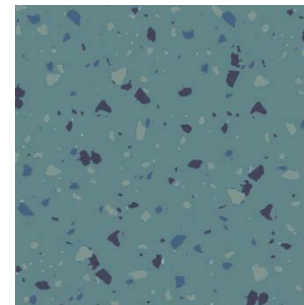
NTS44



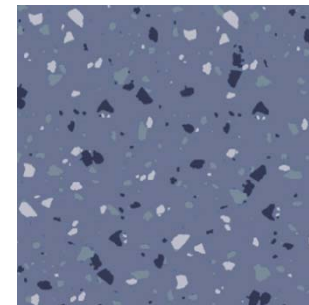
NTS48



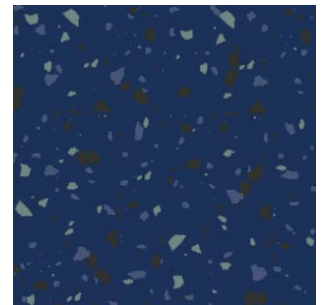
NTS81



NTS88



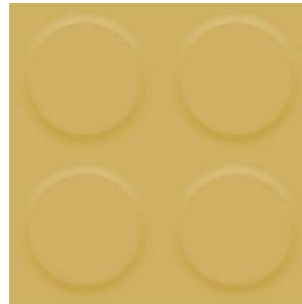
NTS93



NTS99



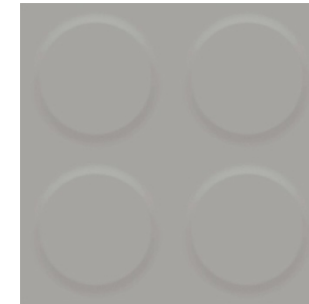
Solid Round 4T



MCMR48



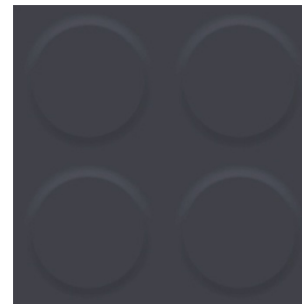
MCMR42



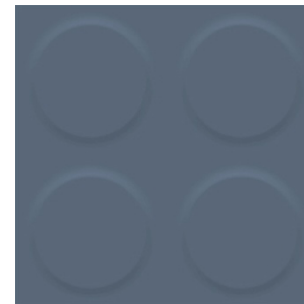
MCMR10



MCMR33



MCMR97



MCMR93



MCMR87



MCMR91

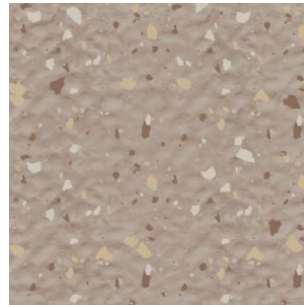


MCMR82

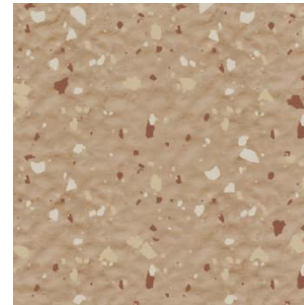


Conformity to strict requirements of seagoing vessels

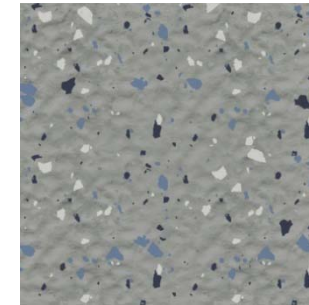
Chip Hammered 3T



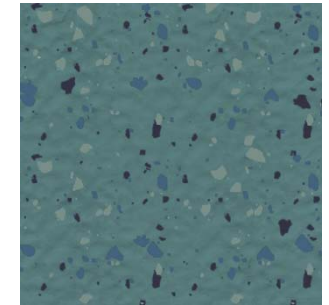
MNMH43



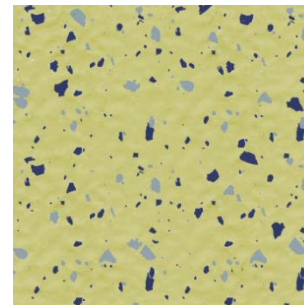
MNMH44



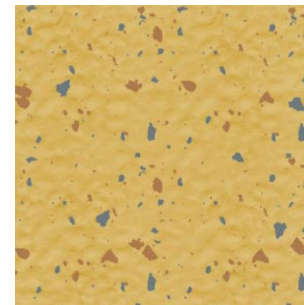
MNMH31



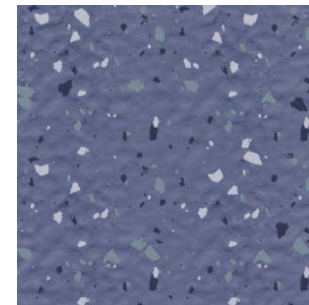
MNMH88



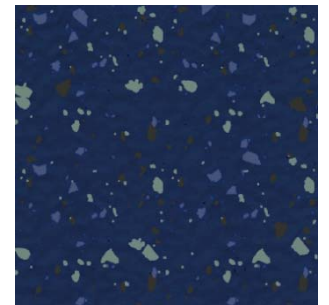
MNMH81



MNMH48



MNMH93



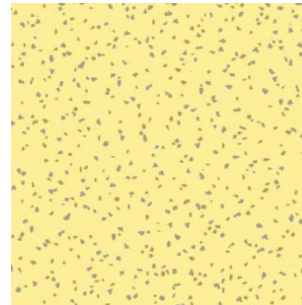
MNMH99



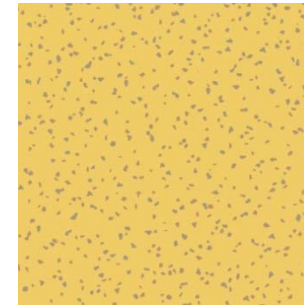
Roll Chip 2T



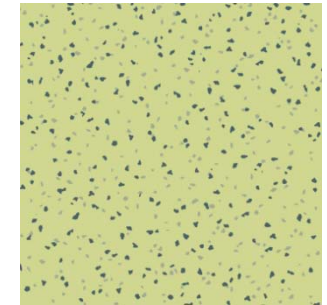
CHIP5043



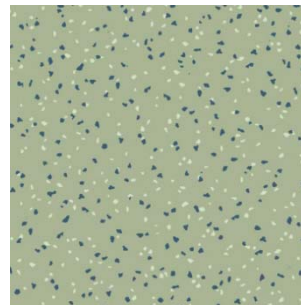
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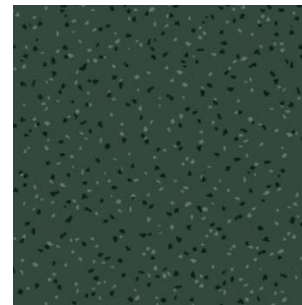
CHIP4143



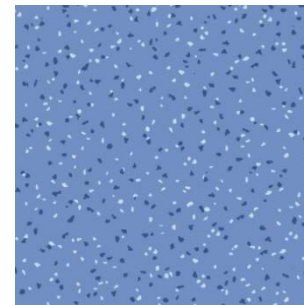
CHIP8098



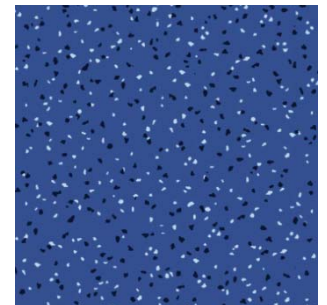
CHIP8191



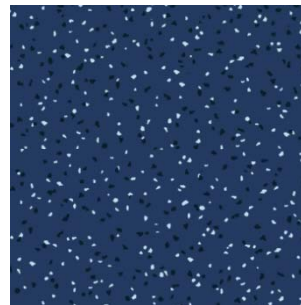
CHIP8228



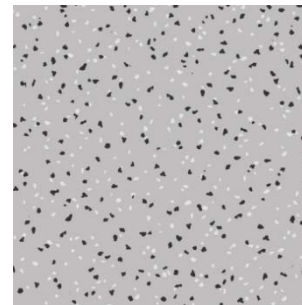
CHIP9091



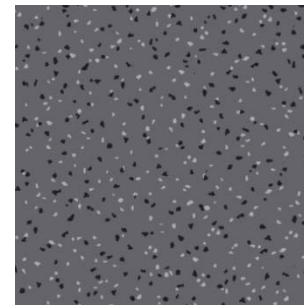
CHIP9121



CHIP9221



CHIP1021



CHIP3021



CHIP2031



Conformity to strict requirements of seagoing vessels

Chip Round 3T

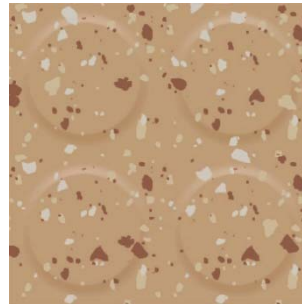


Conformity to strict requirements of seagoing vessels

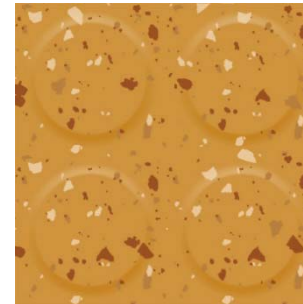
Chip Stair, 3T



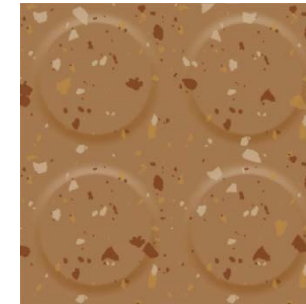
Conformity to strict requirements of seagoing vessels



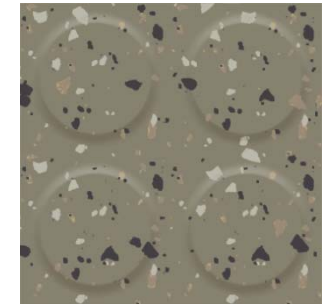
MNTR44



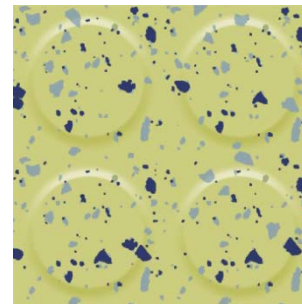
MNTR45



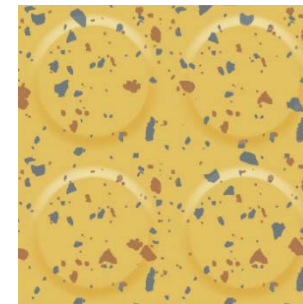
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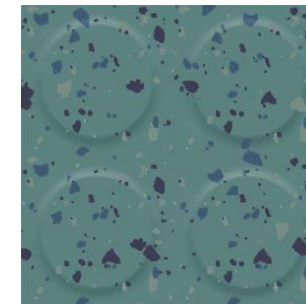
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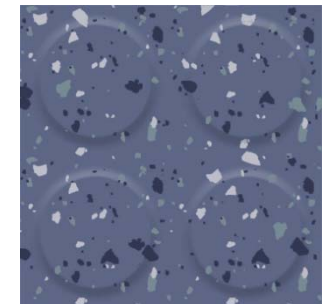
MNTR81



MNTR48



MNTR88



MNTR93



MNOCT93

Roll Neo Chip 2T/3T

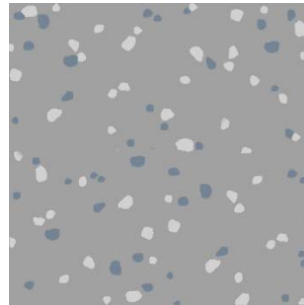


Non-flammable rubber-flooring

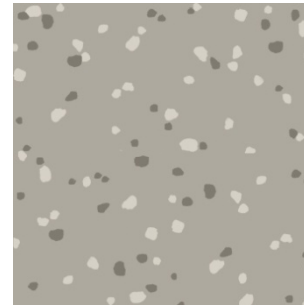
Customized Design 3T



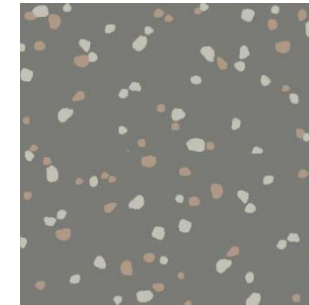
Non-flammable rubber-flooring



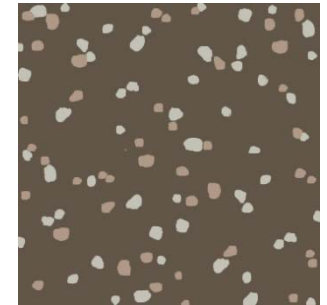
RU9419



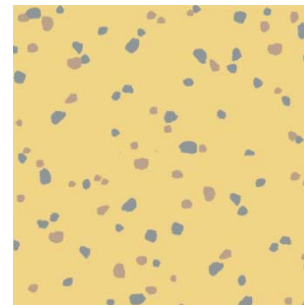
RU3713



RU1174



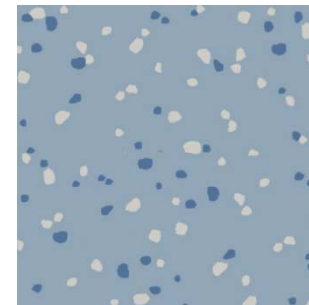
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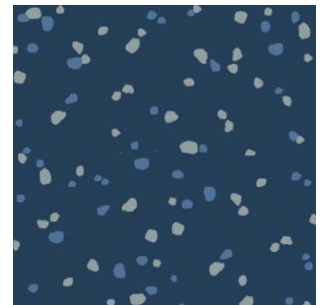
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RU4147



RU9518



RU9989

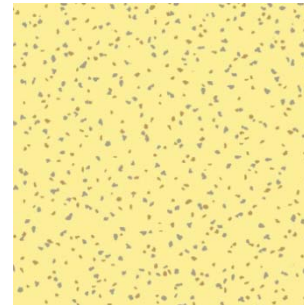


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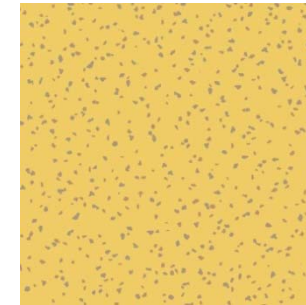
Roll Chip 2T/ 3T



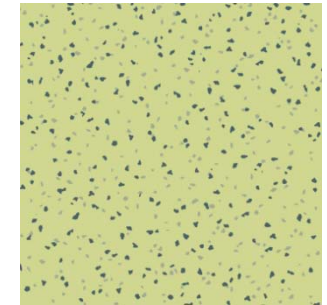
RC5043



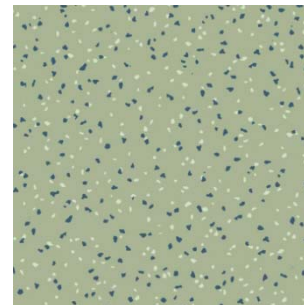
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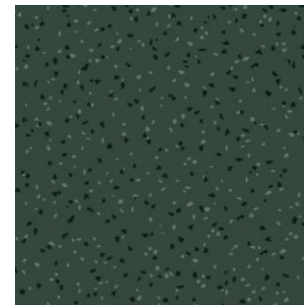
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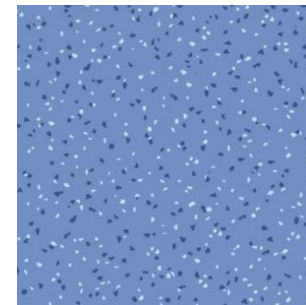
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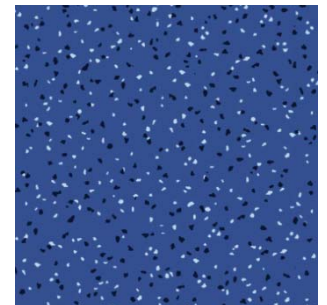
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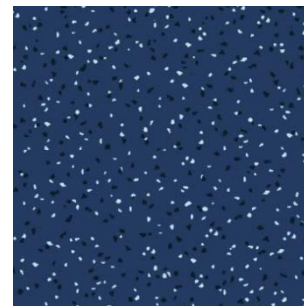
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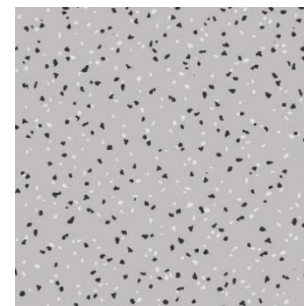
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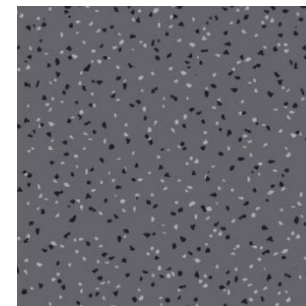
RC9121



RC9221



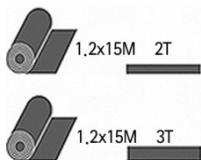
RC1021



RC3021



RC2031



Non-flammable rubber-flooring



Application with LS Rubber Floorings



Shanghai Pudong Library, CHINA

SOFTTRONG | Safe and Comfort



LS FLOORING SYSTEMS GREENFLOR | 79

Chung-Ang University Library, KOREA



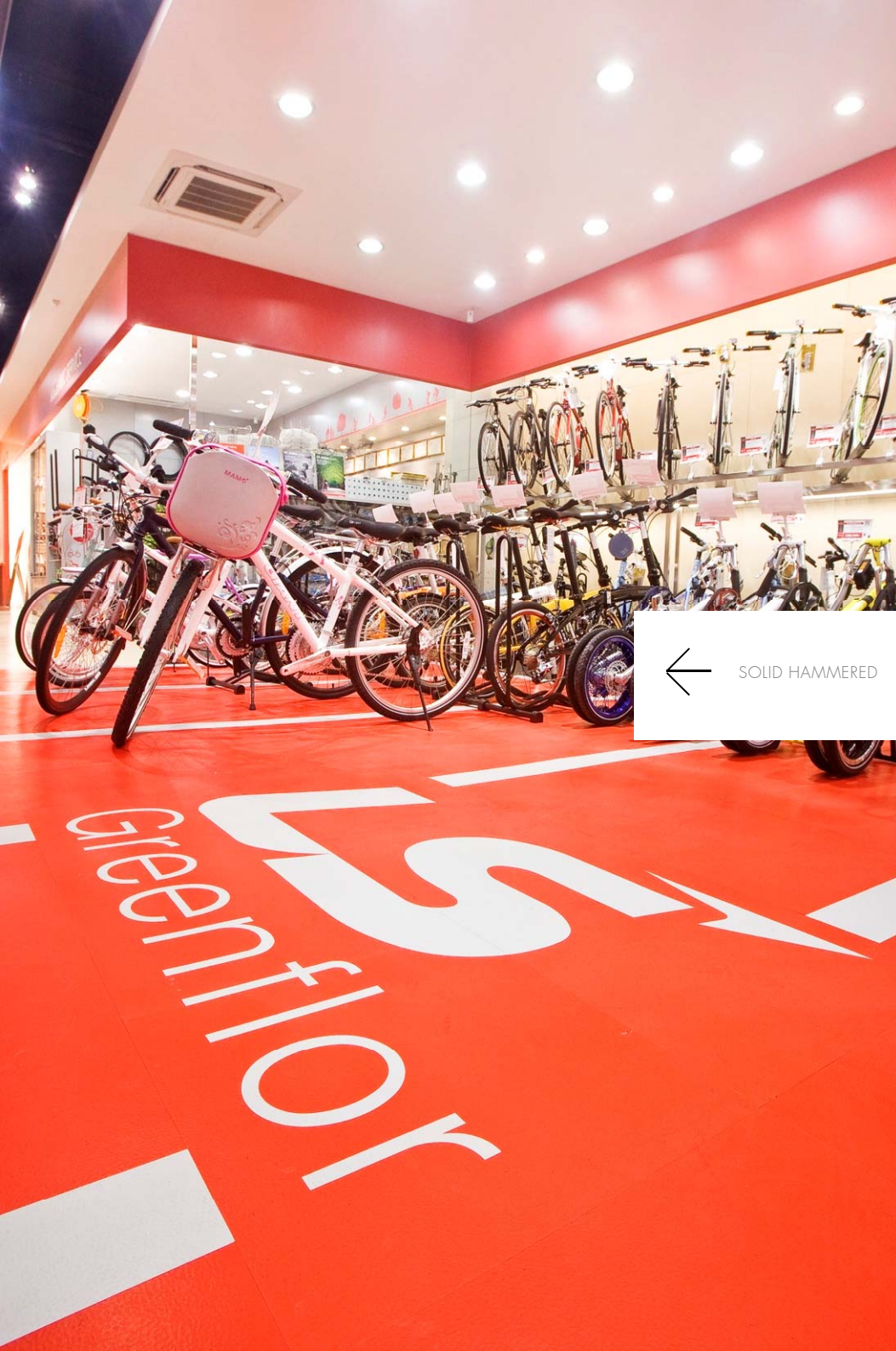
CMH31
SOLID HAMMERD



NMH441
CHIP HAMMERED



Shanghai Pudong Library, CHINA



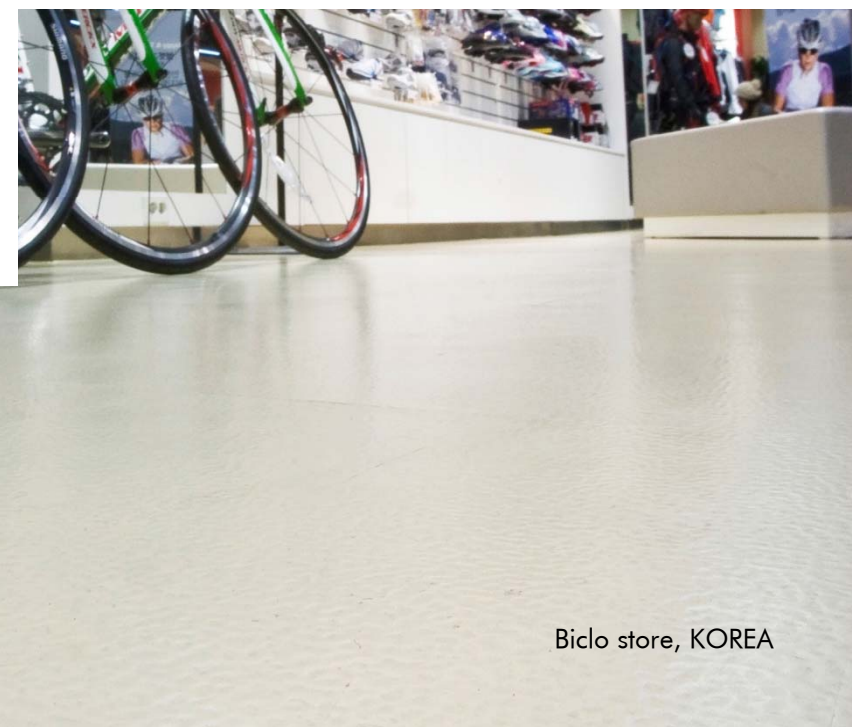
SOLID HAMMERED



CML 20
SOLID SLATE

SOFTTRONG | Safe and Comfort

CMH 10
SOLID HAMMERED





SOFTRONG | Safe and Comfort



CMH31 | 48 | 12 | 52
SOLID HAMMERED



CMH31 | 48 | 12 | 52
SOLID HAMMERED



LS FLOORING SYSTEMS GREENFLOR | 81



Melbourne Dockland ANZ Bank, AUSTRALIA



←
SOCR 42
SOLID STAIR

SOFTTRONG | Safe and Comfort



City Air Terminal, KOREA



Daesung High School , KOREA

SOCT 97
SOLID STAIR ↓



Irion Pet Animal Hospital, KOREA



SOFTRONG | Safe and Comfort



LS FLOORING SYSTEMS GREENFLOR | 83

↗ CMR 43 | 92
SOLID ROUND

← CMR 43 | 10
SOLID ROUND

↘ CMR 43 | 10
SOLID ROUND



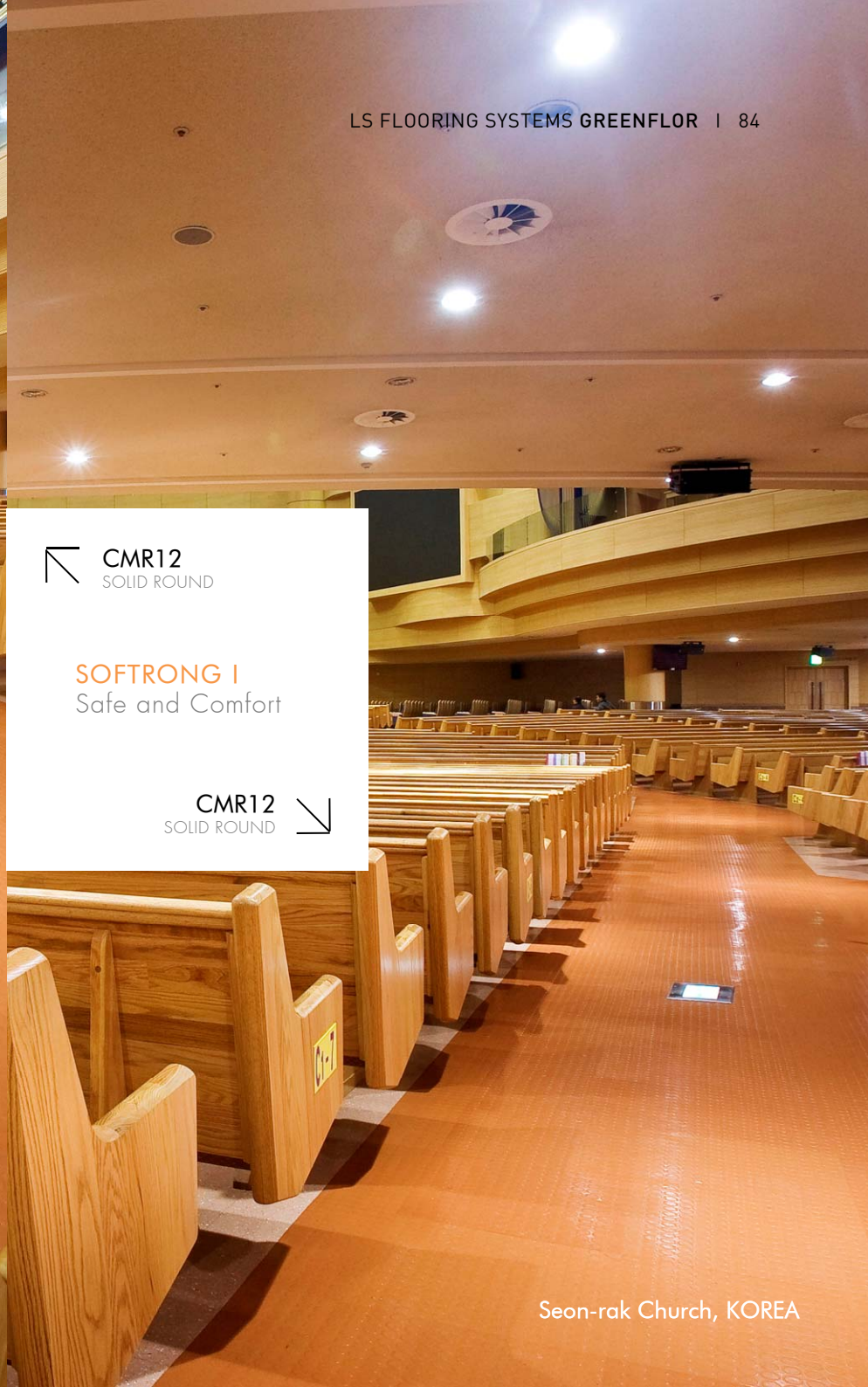
Gwang-jin Elementary School , KOREA



CMR12
SOLID ROUND

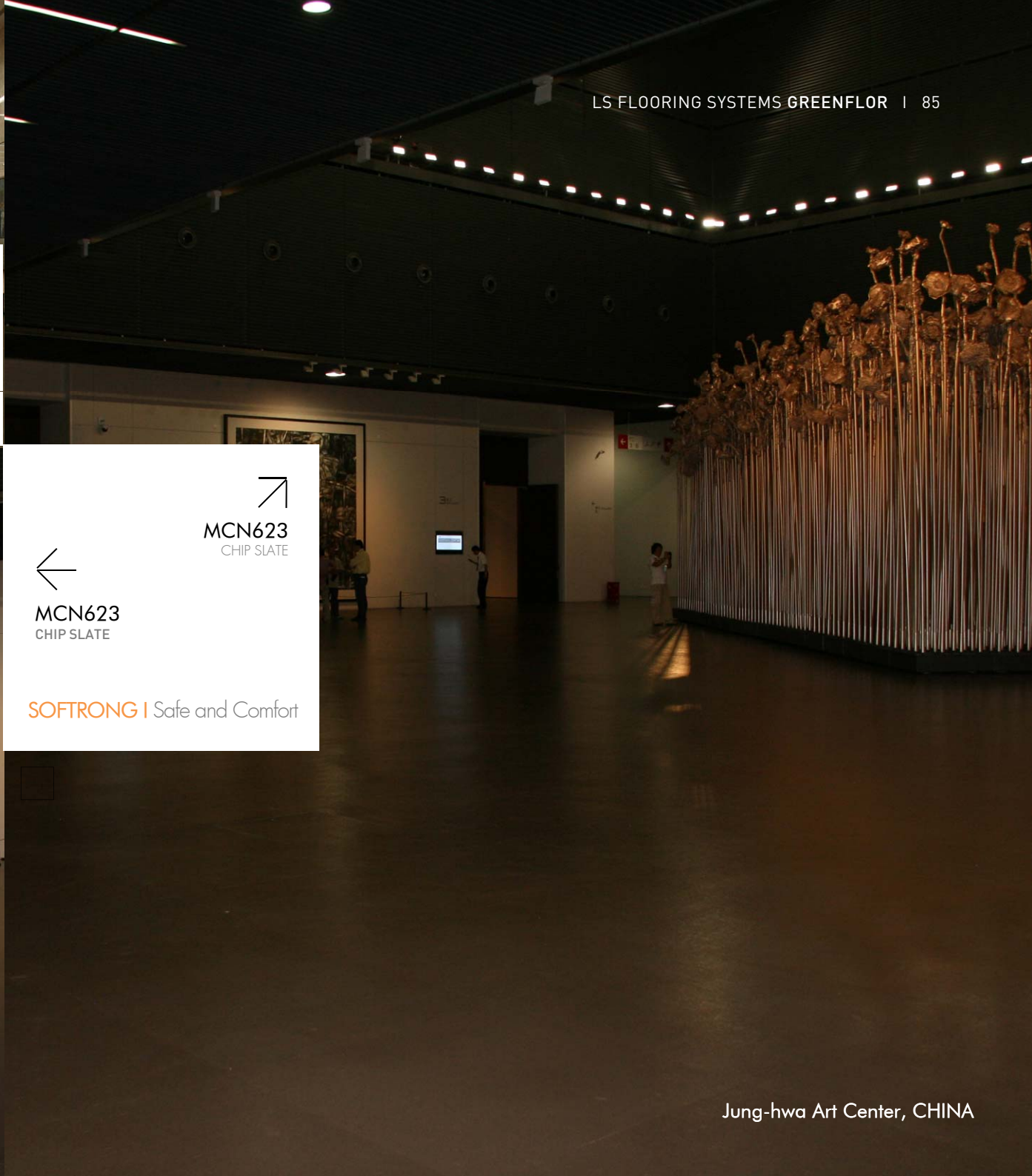
SOFTTRONG I
Safe and Comfort

CMR12
SOLID ROUND





MCN623
CHIP SLATE



LS FLOORING SYSTEMS GREENFLOR | 85



MCN623
CHIP SLATE

MCN623
CHIP SLATE

SOFTTRONG | Safe and Comfort



SAFEPLAN | Clean and Hygienic



LS FLOORING SYSTEMS GREENFLOR | 86

↗ RC1021 | 3021
ROLL CHIP

← RC3021
ROLL CHIP

↘ RC1021 | 3021
ROLL CHIP



Hong-hoe Hospital, CHINA



RC 4043
ROLL CHIP

Clean and Hygienic
SAFEPLAN I



LS FLOORING SYSTEMS GREENFLOR | 87



RC 8191
ROLL CHIP

RC 8098
ROLL CHIP



Seoul Police Hospital, KOREA

SAFEPLAN | Clean and Hygienic

RU 3713
ROLL NEO CHIP



Ningmei Control Center, CHINA



SAFEPLAN | Clean and Hygienic



RC4043 | 8191
ROLL CHIP

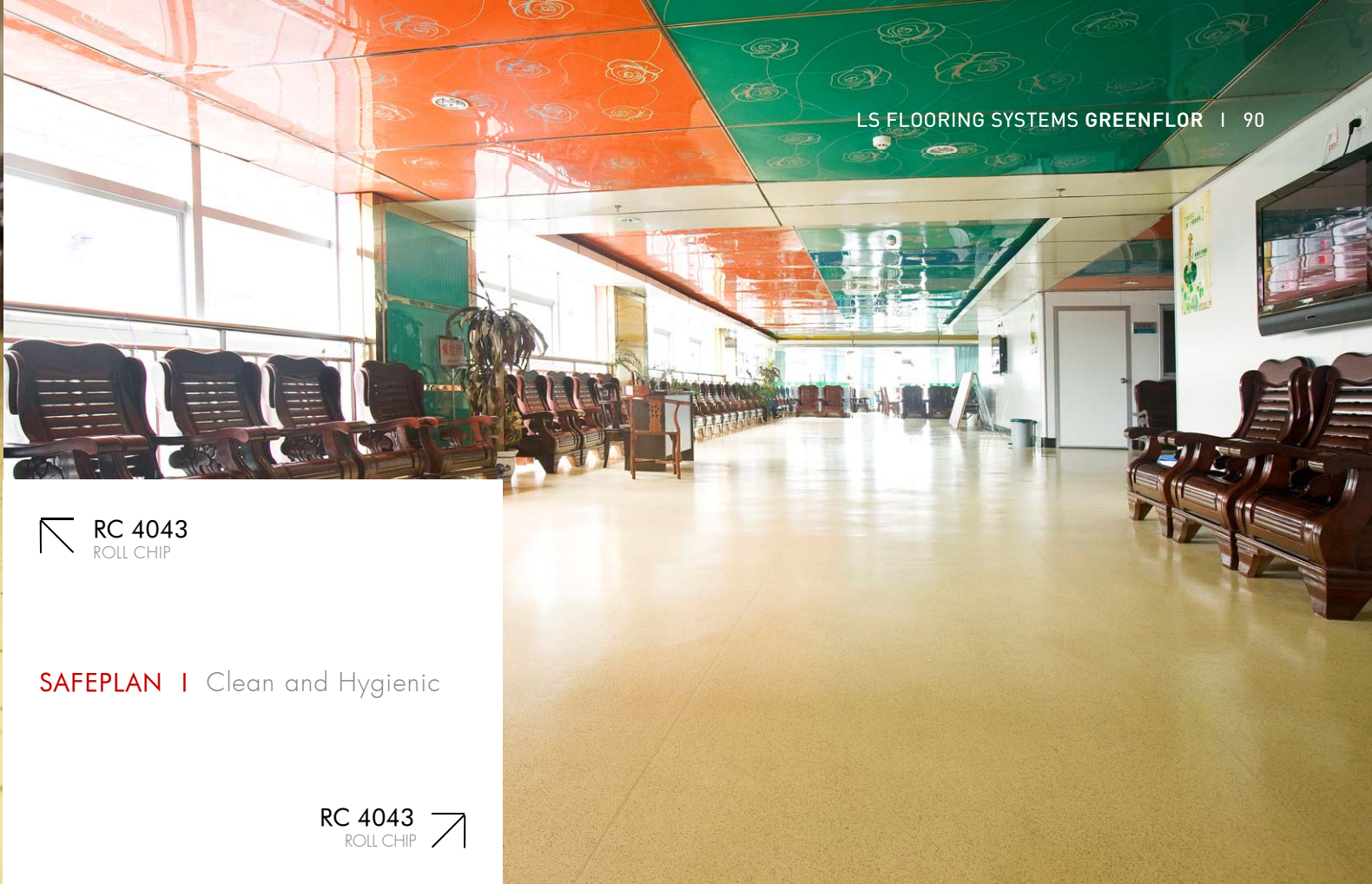
RC4043
ROLL CHIP

RC4043 | 8191
ROLL CHIP



LS FLOORING SYSTEMS GREENFLOR | 89

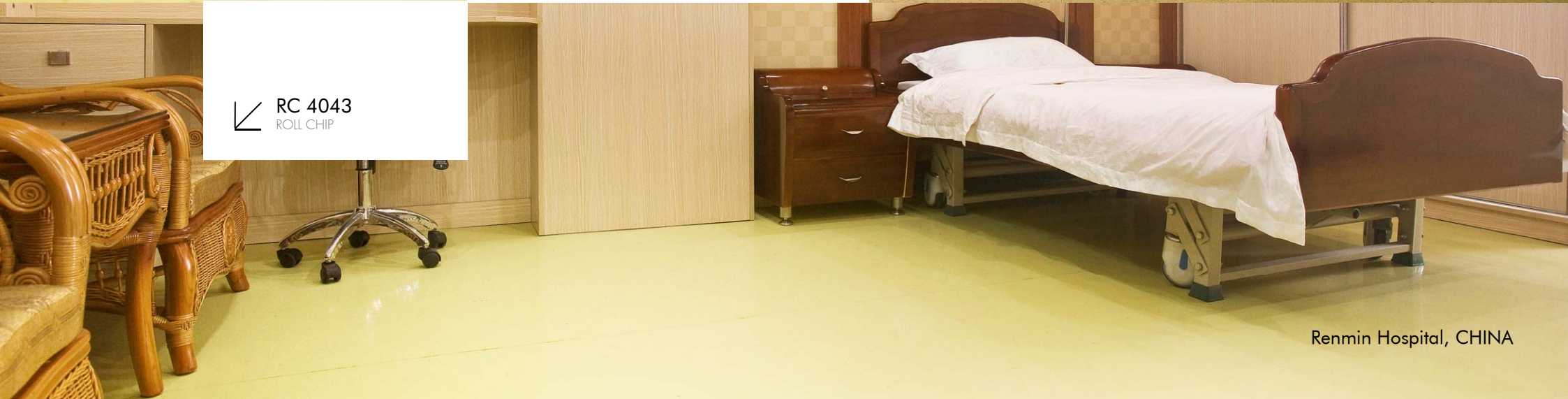
Dongjiang Hospital, CHINA



RC 4043
ROLL CHIP

SAFEPLAN | Clean and Hygienic

RC 4043
ROLL CHIP



RC 4043
ROLL CHIP



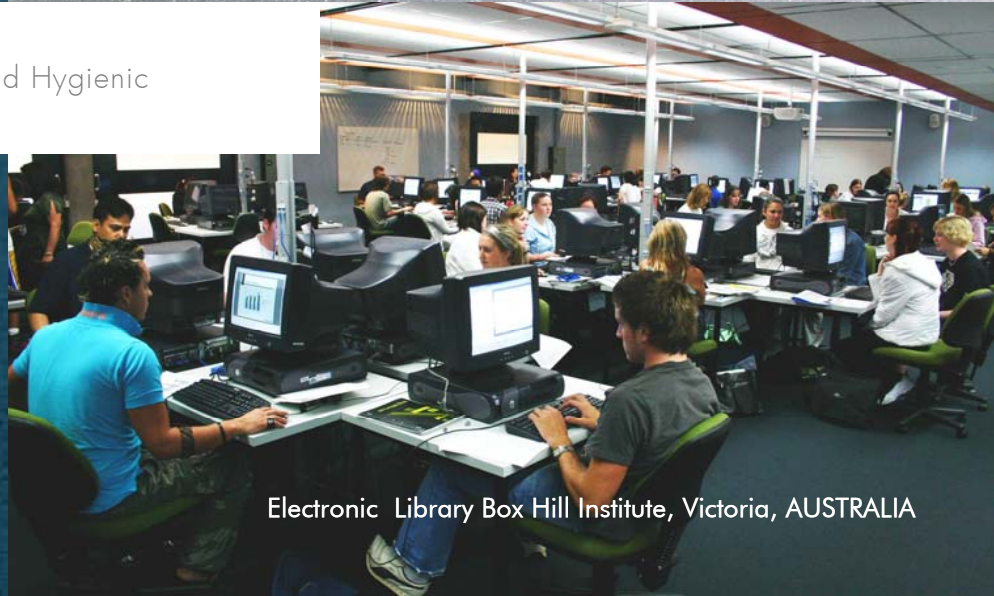
SAFEPLAN I
Clean and Hygienic





Chemical Laboratory Box Hill Institute, Victoria, AUSTRALIA

SAFEPLAN | Clean and Hygienic



Electronic Library Box Hill Institute, Victoria, AUSTRALIA

L.A State Library, USA



NC Department Store, Cocomong Kids Land in Songdo Garden Five, KOREA



ROLL SOLID



RC 4143
ROLL CHIP

SAFEPLAN | Clean and Hygienic

ROLL CHIP



Beiging 1st Kindergarten, CHINA



Beiging 1st Kindergarten, CHINA



↑ NTH 88 | 48 | 31
CHIP HAMMERED

SPO-FLEX | rubber flooring for
a wide range of sports facilities

NTH 88 | 48 | 31
CHIP HAMMERED

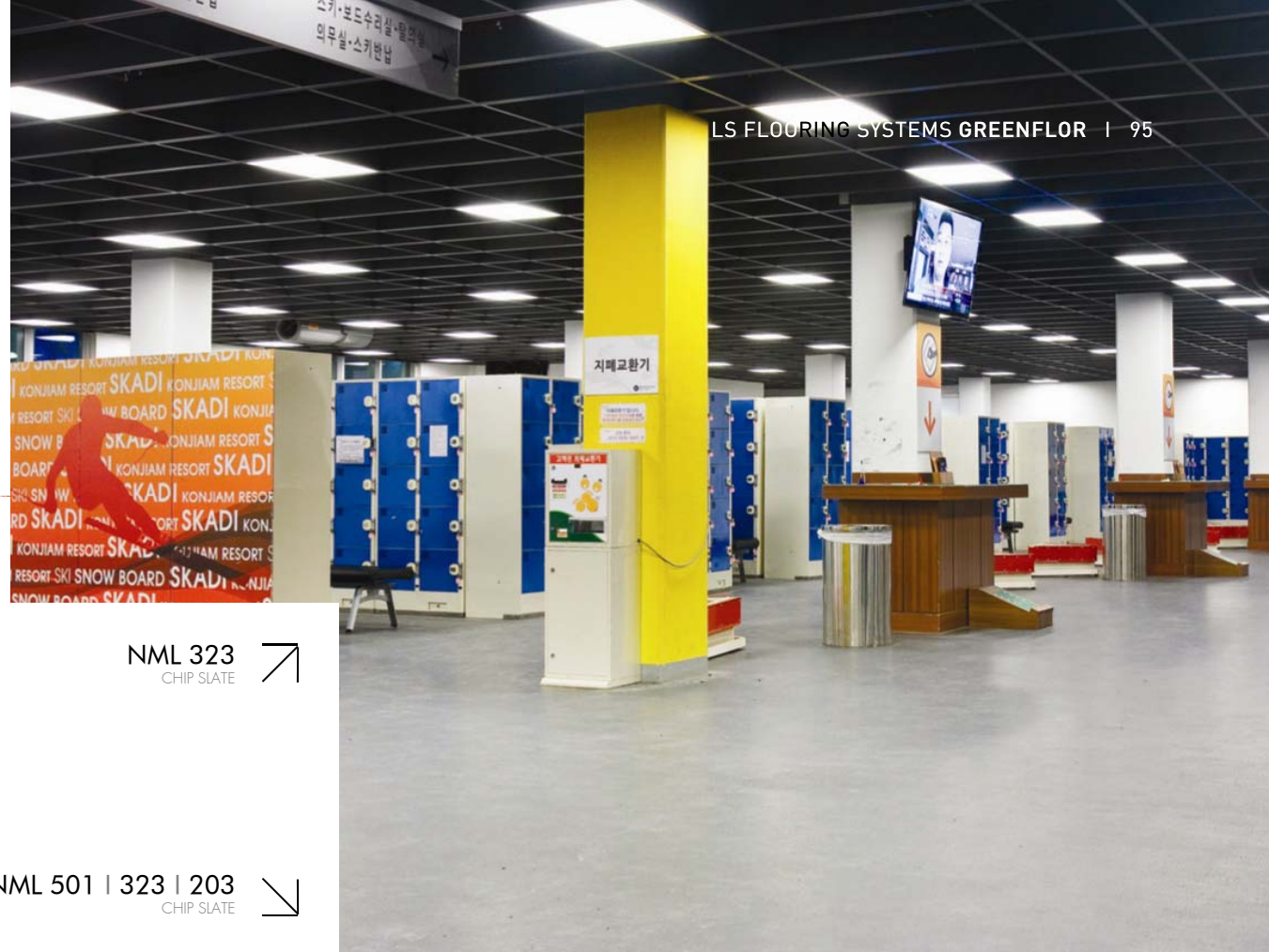


↙ NTH88
CHIP HAMMERED

Busan Shinsegae Centumcity Ice-rink, KOREA



SPO-FLEX | rubber flooring for
a wide range of sports facilities



LS FLOORING SYSTEMS GREENFLOR | 95

NML 323
CHIP SLATE ↗



CHIP SLATE

NML 501 | 323 | 203
CHIP SLATE ↘



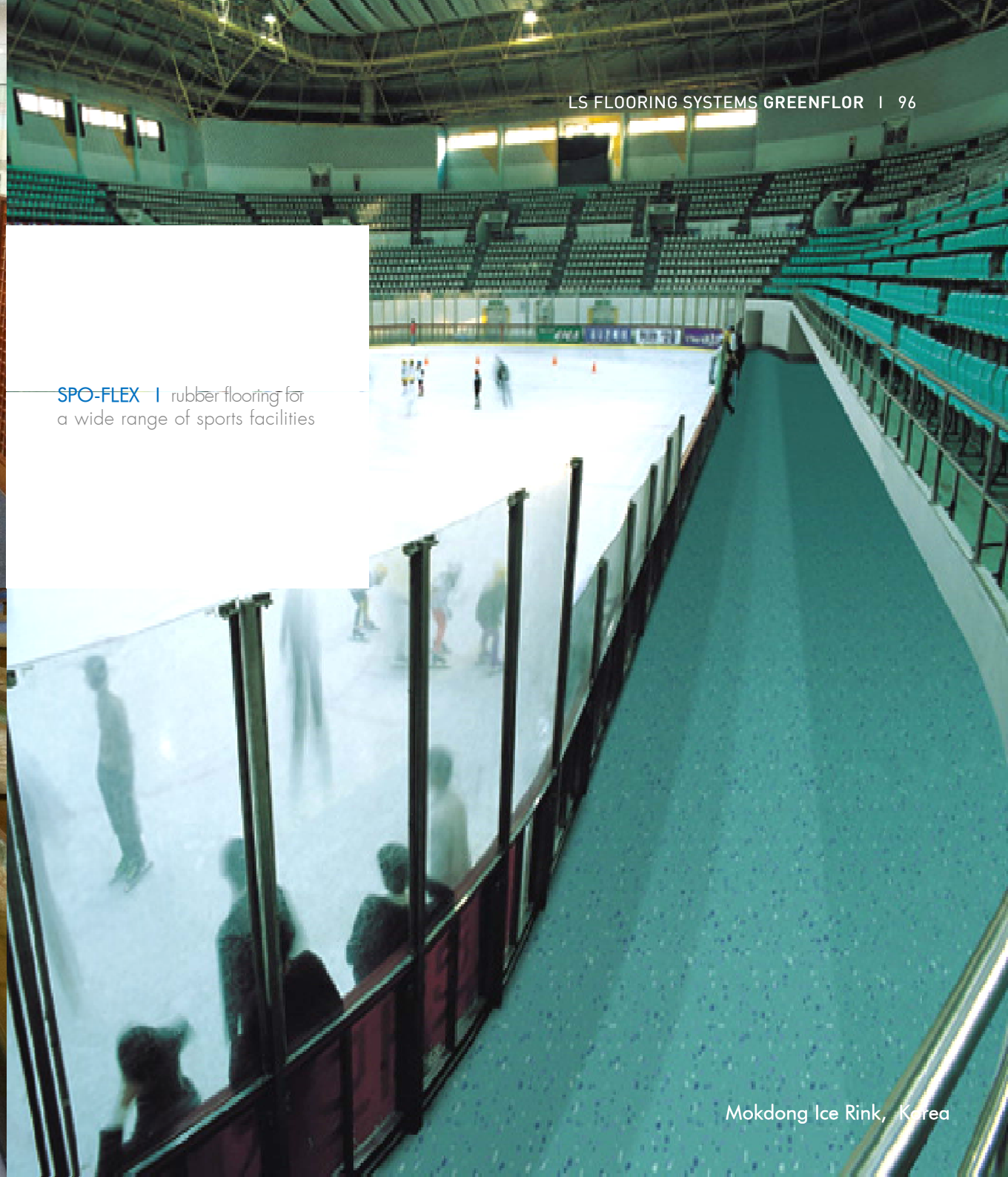
Konjiam Resort, KOREA



Korea University Ice-rink, Korea

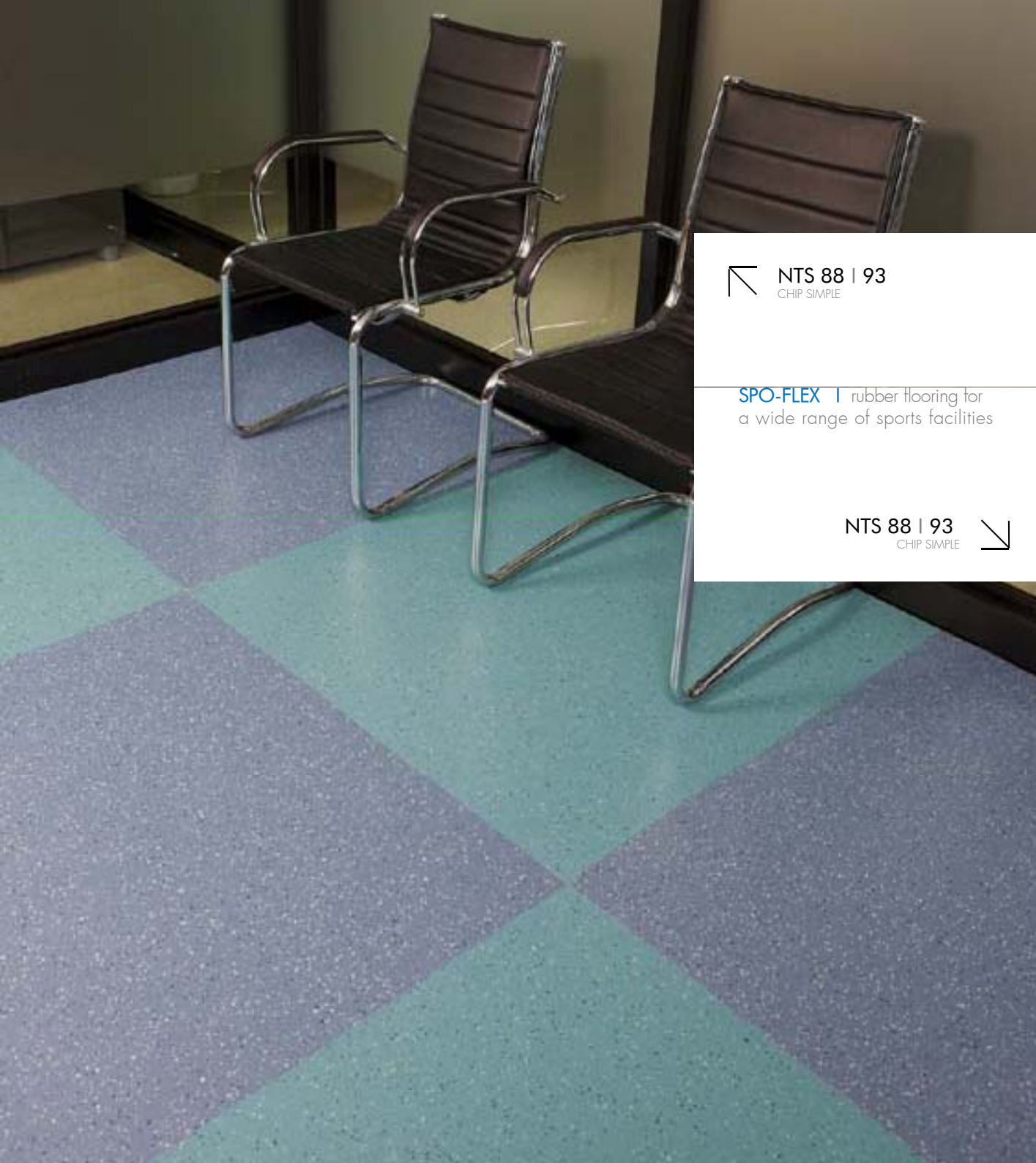


Korea University Ice-rink, Korea



SPO-FLEX | rubber flooring for
a wide range of sports facilities

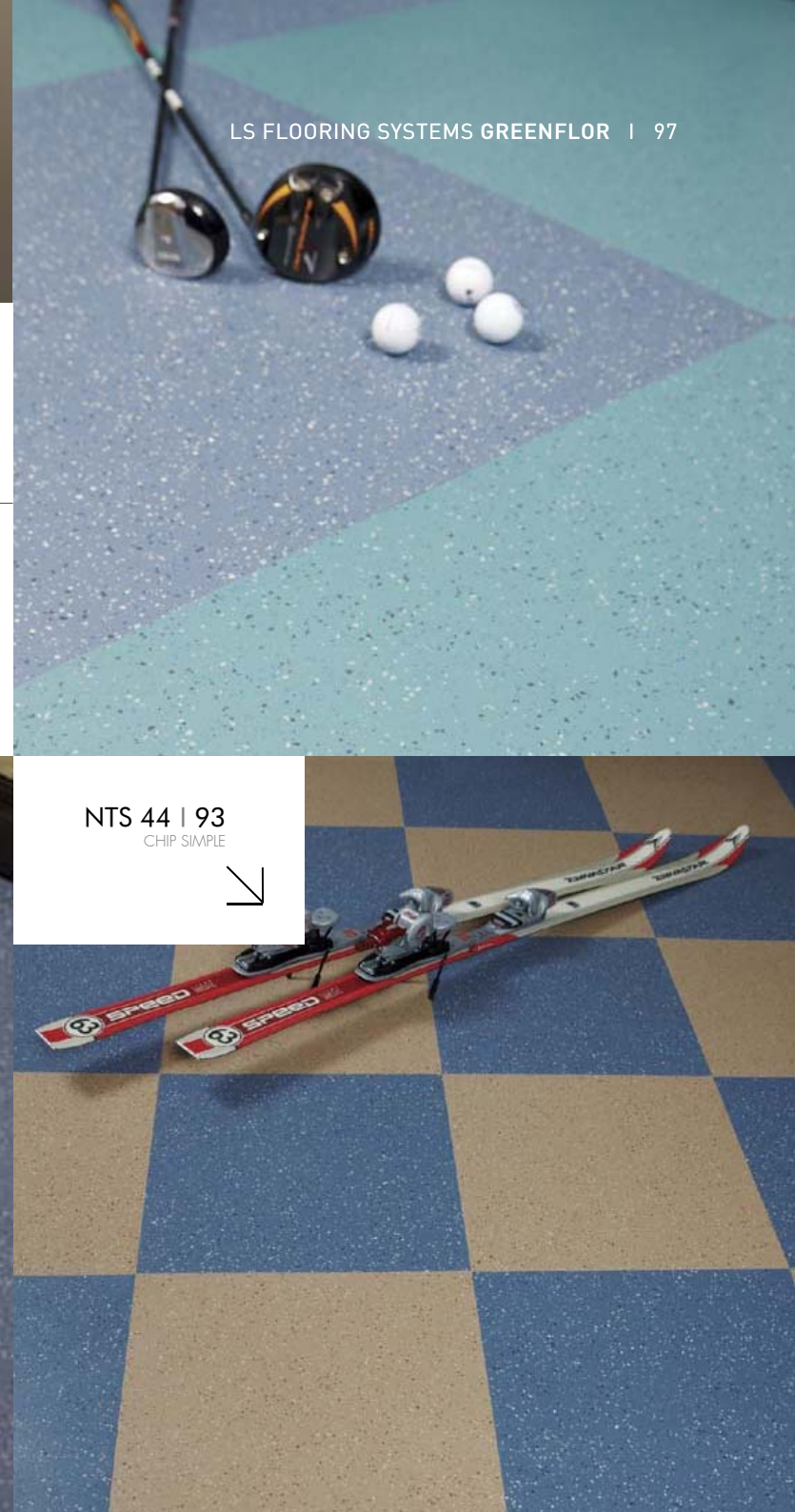
Mokdong Ice Rink, Korea



NTS 88 | 93
CHIP SIMPLE

SPO-FLEX | rubber flooring for
a wide range of sports facilities

NTS 88 | 93
CHIP SIMPLE



LS FLOORING SYSTEMS GREENFLOR | 97

NTS 44 | 93
CHIP SIMPLE





MCMR87
SOLID ROUND

MCMR87
SOLID ROUND





ROLL NEO CHIP
FLOWER PATTERN



SOLID SQUARE

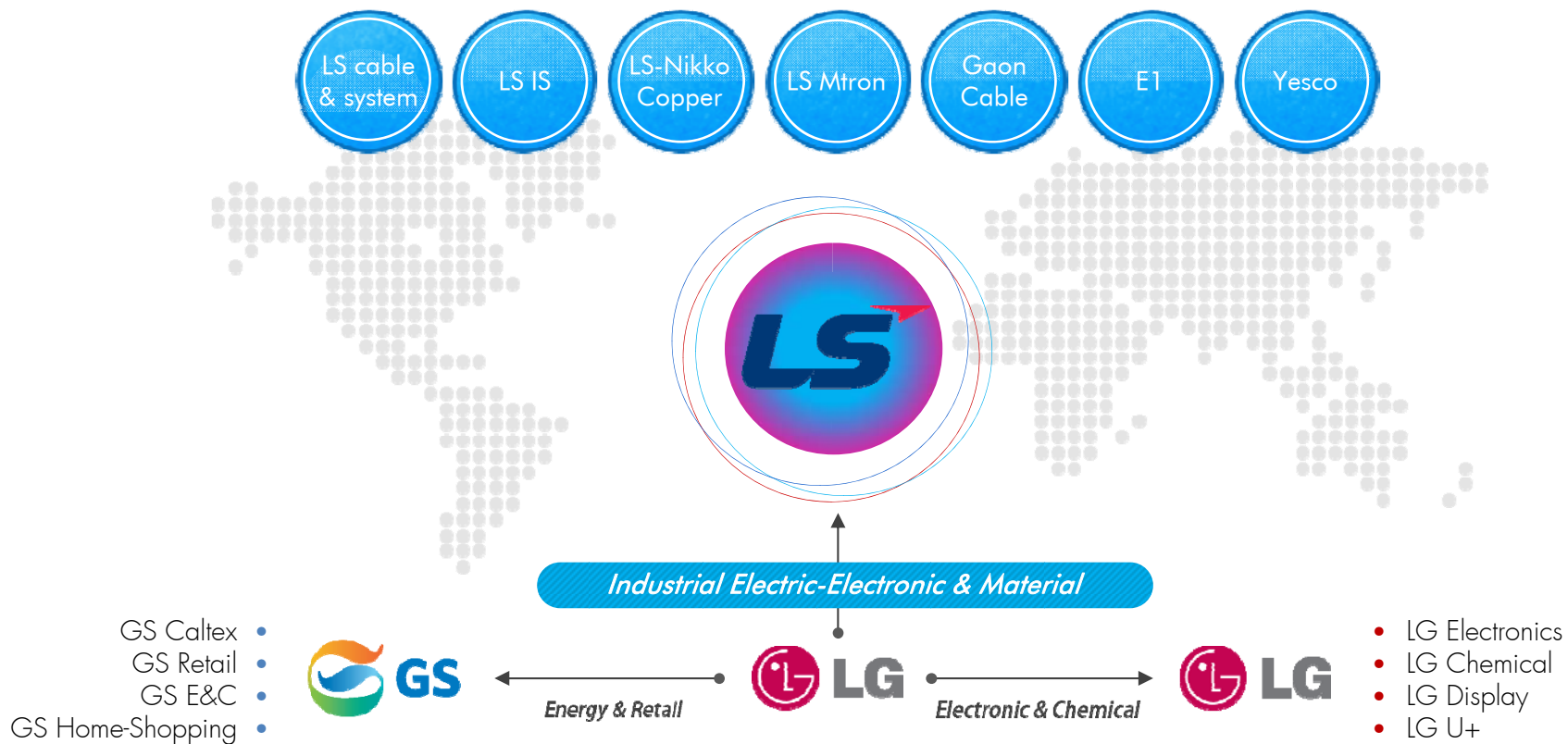


ROLL CHIP

SAFE GUARD I fulfills outstanding fire-protection properties



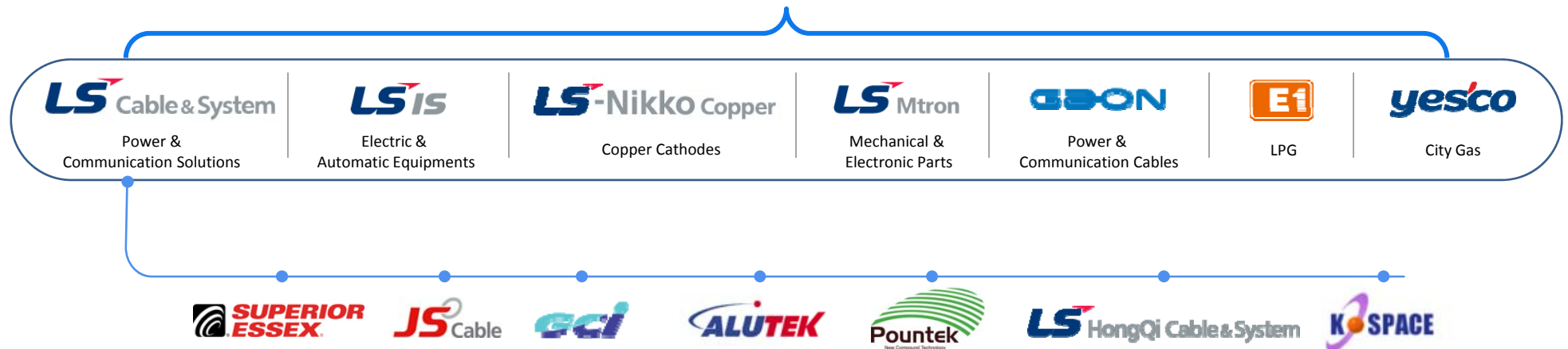
LS spun off from LG in 2003 as a group,
specializing in the electrics, electronics, energy and materials.



LS consists of about 40 affiliates including LS Cable & System, LS IS, LS-Nikko Copper, LS Mtron, Gaon Cable, E1 and Yesco



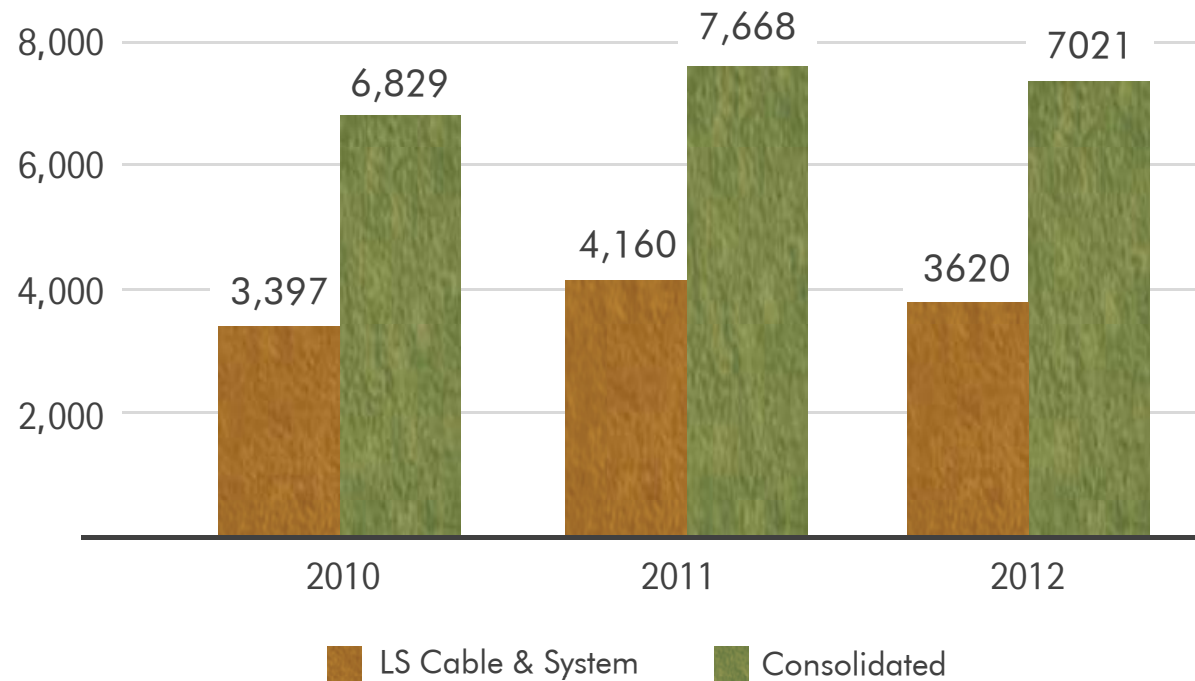
\$ Total Sales		26,000 million USD
\$ Operating Income		701 million USD
\$ Total Asset		17,805 million USD
(2012.12.31)		



Achieved steady growth through
business model innovation and globalization

Sales

(Unit: USD Million)





SOFTTRONG

SAFEPLAN

SPOFLEX

SAFE MARINE

SAFE GUARD

PURGOTEX

2013/2014 NEW COLLECTION

LS FLOORING SYSTEMS



14F, LS Tower, 127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea | www.lsgreenflor.co.kr
TEL: KOREA_+82.2.6925.7183 | GLOBAL_+82.2.2189.8816 | CHINA_+82.2189.8885 | FAX_+82.2.2189.9119