ACCESS SAFETY

SINTERED PAVIMENT FOR SUSTAINABLE CITIES

CORPORATE DOSSIER

ACCESS SAFETY® is a company linked to an industrial group of multinational implantation, specialized in the production of technical flooring since 1975.

After the crisis of 2008 and seeing the existing urban pavements, we considered creating, designing and producing an exclusive pavement thinking about the improvement of public space. We decided to contribute our technology to create what the city should never have ceased to be, that is, a meeting place and transit to inhabit it without limits, so that actions and projects finally come to find a balance between the different activities of urban life.

We want to work with technicians and citizens with the commitment to build a quality public space transformed into an accessible and of course safe environment. That is, accessible and safe, two terms applied to our own name: ACCESS SAFETY.®

Urban design must be adequate to meet the expectations and needs of all citizens, without anyone feeling discriminated against by not being able to use a space on equal terms . Therefore, mobility on the one hand and accessibility on the other, are crucial aspects for the most fragile citizens. That is our mission and undoubtedly our contribution so that together we make cities more "accessible to all, without exception", ensuring the autonomy of any person in any circumstance, time and condition.

Therefore, we propose to remember the definitionof URBAN SPACE: Place where they exist, relate and transit, citizens, to enjoy. That is, a daily scenario whose purpose is to satisfy collective urban needs and that transcend the limits of individual interests.

After 4 years of intense work and research and development we are proud of our proposal that undoubtedly benefits all citizens without exclusion. What is certain is that we have been faithful to our thinking and objective: Sintered Natural Stone and Sintered Concrete are a reality and open a new scenario in the world of technical urban pavement.

Stone20SNS®
PIEDRA NATURAL SINTERIZADA

ACCESS SAFETY

®

Sintering consists of analyzing the components of natural stone, formulating the mixture of minerals, amalgamating them homogeneously, and subjecting them to high pressure and quasifusion temperatures.

In this way it is possible to emulate the appearance of any natural stone, but guaranteeing its homogeneity, improving its physicochemical qualities and, therefore, its mechanical behavior: hardness, resistance to breakage, stains and extreme temperatures, low porosity and expansion.

Thanks to its formulation and its particular manufacturing technique, Stone20SNS® has exceptional properties:

ENVIRONMENTAL

- It prevents erosion and waste that quarries produce in the natural environment.
- They achieve a waste "0" in the production process.
- It integrates recycled materials and quarry waste as part of its components.
- It reduces the pollution produced by its transport since, with the same energy consumption, it is possible to transport up to 5 times more square meters than other materials.
- It contributes to the environmental efficiency of urban space and buildings due to its long life cycle (more than 50 years) and its 100% recyclability.

ECONOMIC

- Reduces placement time.
- It is cheaper than natural stone.
- It drastically reduces maintenance and cleaning costs.
- It increases its resistance to cold and heat ensuring its durability in any climate.

SOCIAL

- Prevents accidental falls of pedestrians, cyclists and motorcyclists.
- Prevents accidents, traffic accidents and, in factories, occupational accidents.
- Reduces noise pollution.
- Eliminates the presence of bacteria, stains and odors on urban pavement.
- Reduces placement efforts for operators.
- It improves the aesthetic aspects of public space and buildings.
- It facilitates and improves the accessibility and safety of the most fragile and vulnerable pedestrians.

Stone20SNS®
PIEDRA NATURAL SINTERIZADA

ACCESS SAFETY

®

TECHNIQUES

TEST	NORM
 Surface characteristics	UNE-EN-ISO 10545-2
FEEDBACK All parts of the Stone20SNS® range are perfectly calibrated at the factory to ensure a minimum tolerance in their dimensions.	**RESULT** Compliant - Minimum tolerances
 Water absorption	STANDARD TEST UNE-EN-ISO 10545-3
FEEDBACK Unlike other materials used in urban paving, the Stone20SNS® range has a minimum water absorption (≤0.02%). Thanks to this, the material has a high resistance to stains, a minimum coefficient of expansion by humidity and excellent resistance to ice. In addition, the piece will have a superior resistance as well as a very low possibility of the appearance of efflorescences. Some water absorption values of other materials: • Class 2 concrete pavers, < 6% • Natural stone (Granites and Marbles), between 0.2-1% • Natural stone (limestone), between 1-2% • Natural stone (Travertine and Sandstone), >2%	**RESULT** ≤0.02%
TEST  Ice resistance	NORM UNE-EN-ISO 10545-12
FEEDBACK Thanks to the very low porosity of the parts of the Stone20SNS® range and their internal composition, the material has optimal ice resistance, which provides great durability.	**RESULT** Flawless
TEST  Chemical resistance	NORM UNE-EN-ISO 10545-13
FEEDBACK The Stone20SNS® range has achieved the best results in chemical resistance tests of all types of acids or chemicals.	**RESULT** Low concentration acids and alkalines: GLA High concentration acids and alkalines : GHA Household products and pool salts : GA

Resistance to deep abrasion	STANDARD TEST UNE-EN-ISO 10545-6
FEEDBACK Thanks to the high degree of internal cohesion of the material of the Stone20SNS® range, the test results reveal a very good resistance to deep abrasion.	RESULT ≤145mm3
Coefficient of linear thermal expansion	STANDARD TEST UNE-EN-ISO 10545-8
FEEDBACK Together with the expansion by humidity, this coefficient will help us decide the placement and size of the movement joints . Due to their low water absorption and low thermal expansion, expansion joints can be minimal.	RESULT ±6.5x10-6 °C-1
Stain resistance UNE-EN-ISO	STANDARD TEST 10545-14
FEEDBACK Thanks to the low porosity, the Stone20SNS® range is at the top of the stain resistance range according to regulations. Thus, the pieces will have a greater ease at the time of cleaning and a very low embedded surface dirt. Other materials used in urban paving such as concrete pavers, natural stones or asphalt, having a much higher porosity, their resistance to stains is much lower, making it difficult or impossible to clean.	RESULT Class 5
Slip resistance	STANDARD TEST DIN 511130:2010
FEEDBACK According to the test method of the German standard DIN 511130, the slip resistance of the Stone20SNS® range is ideal for use in any outdoor space including pedestrian ramps.	RESULT R11 - A+B+C

Slippery	STANDARD TEST UNE-ENV 12633:2003
FEEDBACK According to the test method of the European standard UNE-ENV 12633 and the Technical Building Code, made with a pendulum, the Stone20SNS® range is at the highest in the classification (class 3 with RD > to 45) and the material can be used in any dry or wet outdoor space.	RD55 RESULT Class 3
Bending strength - Breaking module UNE-EN-ISO	STANDARD TEST 10545-4
FEEDBACK The calculation of the flexural strength of the part depends on its thickness and is calculated by dividing the breaking force by the square of the minimum thickness in the breaking section. In our case and having a thickness of 20 mm, the Stone20SNS® range has a very high flexural strength, which allows intense urban use.	RESULT 54 N/mm2
Bending strength	STANDARD TEST UNE-EN 1339
FEEDBACK The calculation of the flexural strength according to the UNE-EN 1339 standard referring to concrete tiles , allows us to compare the breaking force of the Stone20SNS® range with other concrete materials.	RESULT 42 N/mm2
Breaking force	STANDARD TEST UNE-EN-ISO 10545-4
FEEDBACK The breaking force is calculated by multiplying the breaking load (load needed to cause the part to break) by the ratio between the separation of the support rollers of the piece.	RESULT 14.152 N
Breaking force	STANDARD TEST UNE-EN 1339
FEEDBACK The calculation of the breaking force according to the UNE-EN 1339 standard referring to concrete tiles , allows us to compare the breaking force of the Stone20SNS® range with other concrete materials.	RESULT 111

ACCESS SAFETY

Stone20SNS®

PIEDRA NATURAL SINTERIZADA

Formatos estándar: 30x30cm | 30x60cm | 60x60cm | 60x120cm – Thickness 20

Egypt Limestone

Rushmore Granite

Pamukkale Limestone

Svartifoss Basalt

Lop Antracita

Sandstone Montjuïc

Porfido Cotto (only in 20x20 cm and 20x30 cm)

Porfido Grigio (only in 20x20 cm and 20x30 cm)

Silent 12S ®

Silent12SC® by ACCESS SAFETY® was born with the aim of providing urban planning and architecture, solutions to the current demands in technical paving. We propose a new generation of products based on concrete sintering processes. The procedure consists of analyzing the components that make up the concrete, formulating the mixture of minerals, amalgamating them homogeneously, and subjecting them to high pressure and quasifusion temperatures.

Thanks to its formulation and its particular manufacturing techniques, Silent12SC® has exceptional properties :

ENVIRONMENTAL

- Drastic reduction of noise pollution, one of the biggest concerns in urban areas, has grown disproportionately in recent years. At least 9 million people in Spain endure average levels of 65 dB. The WHO considers that from 42 dB, sleep disorders occur and from 50 dB discomfort, stress, hearing loss , hypertension and other cardio-vascular conditions.
- They achieve a waste "0" in the production process .
- It integrates recycled materials and quarry waste as part of its components.
- It reduces the pollution produced by its transport since, with the same energy consumption, it is possible to transport up to 5 times more square meters than other materials.
- It contributes to the environmental efficiency of urban space and buildings due to its long life cycle (more than 50 years) and its 100% recyclability.

ECONOMIC

- Reduces placement time.
- It is cheaper than other traditional urban pavements, such as stone and granite.
- It drastically reduces maintenance and cleaning costs.
- It increases its resistance to cold and heat ensuring its durability in any climate.

SOCIAL

- Prevents accidental falls of pedestrians, cyclists and motorcyclists.
- Eliminates the presence of bacteria, stains and odors on urban pavement.
- Reduces operator placement efforts.
- It improves the aesthetic aspects of public space.
- It facilitates and improves the accessibility and safety of the most fragile and vulnerable pedestrians.

Silent 12S ®

TECHNIQUES

TEST	NORM
Surface characteristics	UNE-EN-ISO 10545-2

FEEDBACK	RESULT
All parts of the Silent12SC® range are perfectly calibrated at the factory to ensure a minimum tolerance in their dimensions.	Compliant - Minimum tolerances

	STANDARD TEST
Water absorption	UNE-EN-ISO 10545-3

FEEDBACK	RESULT
Unlike other materials used in urban paving, the Silent12SC® range has a minimum water absorption (≤0.05%). Thanks to this, the material has a high resistance to stains, a minimum coefficient of expansion by humidity and excellent resistance to ice. In addition, the piece will have a superior resistance as well as a very low possibility of the appearance of efflorescences. Some water absorption values of other materials: • Class 2 concrete pavers, < 6% • Natural stone (Granites and Marbles), between 0.2-1% • Natural stone (limestone), between 1-2% • Natural stone (Travertine and Sandstone), >2%	≤0.05%

TEST	NORM
Ice resistance	UNE-EN-ISO 10545-12

FEEDBACK	RESULT
Thanks to the very low porosity of the parts of the Silent12SC® range and their internal composition, the material has optimal ice resistance , which provides great durability.	Flawless

TEST	NORM
Chemical resistance	UNE-EN-ISO 10545-13

FEEDBACK	RESULT
The Silent12SC® range has achieved the best results in chemical resistance tests of all types of acids or chemicals.	Low concentration acids and alkalines : GLA High concentration acids and alkalines : GHA Household products and pool salts : GA

Silent 12S ®

Resistance to deep abrasion	STANDARD TEST UNE-EN-ISO 10545-6
FEEDBACK Thanks to the high degree of internal cohesion of the material of the Silent12SC® range, the test results reveal a very good resistance to deep abrasion.	RESULT ≤145mm3

Coefficient of linear thermal expansion	STANDARD TEST UNE-EN-ISO 10545-8
FEEDBACK Together with the expansion by humidity, this coefficient will help us decide the placement and size of the movement joints . Due to their low water absorption and low thermal expansion, expansion joints can be minimal.	RESULT ±6.5x10-6 °C-1

Stain resistance UNE-EN-ISO	STANDARD TEST 10545-14
FEEDBACK Thanks to the low porosity, the Silent12SC® range is at the top of the stain resistance range according to regulations. Thus, the pieces will have a greater ease at the time of cleaning and a very low embedded surface dirt. Other materials used in urban paving such as concrete pavers, natural stones or asphalt, having a much higher porosity, their resistance to stains is much lower, making it difficult or impossible to clean.	RESULT Class 5

Slip resistance	STANDARD TEST DIN 511130:2010
FEEDBACK According to the test method of the German standard DIN 511130, the slip resistance of the Silent12SC® range is ideal for use in any outdoor space including pedestrian ramps.	RESULT R11 - A+B+C

Silent 12S®

 Slippery	STANDARD TEST UNE-ENV 12633:2003
FEEDBACK According to the test method of the European standard UNE-ENV 12633 and the Technical Building Code, made with pendulum, the Silent12SC® range is at the top of the classification (class 3 with RD >to 45) and the material can be used in any dry or wet outdoor space.	RD55 RESULT Class 3
 Bending strength - Breaking module UNE-EN-ISO	STANDARD TEST 10545-4
FEEDBACK The calculation of the flexural strength of the part depends on its thickness and is calculated by dividing the breaking force by the square of the minimum thickness in the breaking section. In our case and having a thickness of 12 mm, the Silent12SC® range has a very high flexural strength, which allows intense urban use.	RESULT 50 N/mm2
 Bending strength	STANDARD TEST UNE-EN 1339
FEEDBACK The calculation of the flexural strength according to the UNE-EN 1339 standard referring to concrete tiles, allows us to compare the breaking force of the Silent12SC® range with other concrete materials.	RESULT 42 N/mm2
 Breaking force	STANDARD TEST UNE-EN-ISO 10545-4
FEEDBACK The breaking force is calculated by multiplying the breaking load (load needed to cause the part to break) by the ratio between the separation of the support rollers of the part.	RESULT 5.020 N
 Breaking force	STANDARD TEST UNE-EN 1339
FEEDBACK The calculation of the breaking force according to the UNE-EN 1339 standard referring to concrete tiles , allows us to compare the breaking force of the Silent12SC® range with other concrete materials.	RESULT 5.020 N

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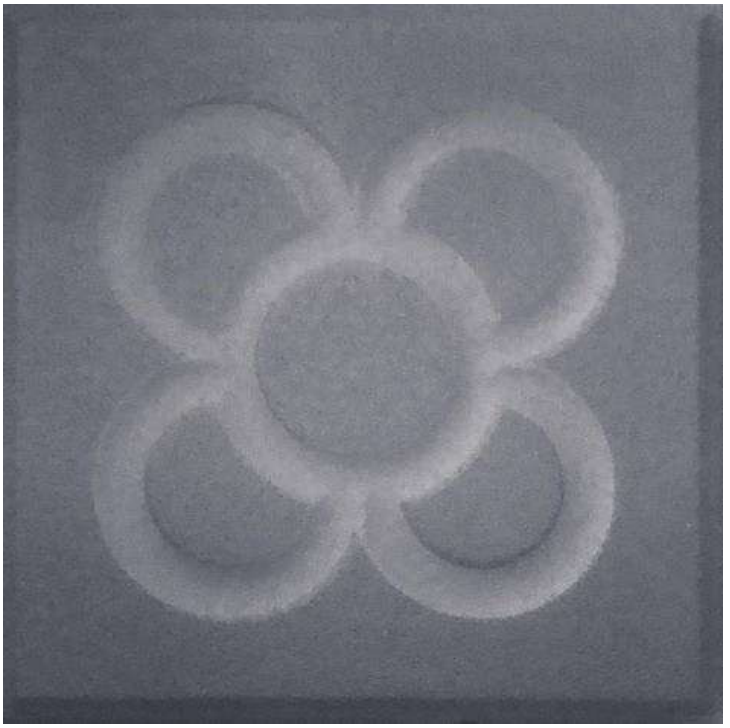
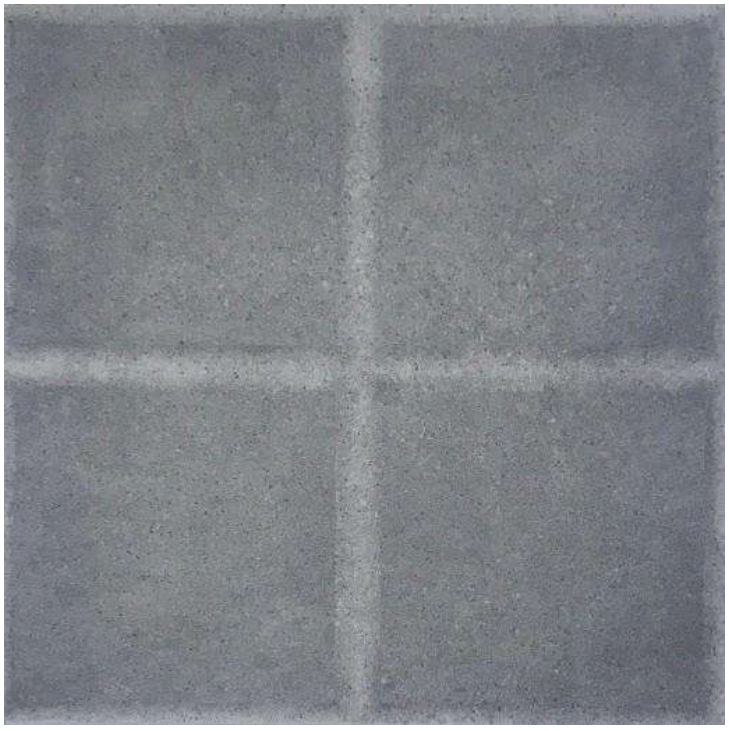
Silent 12SC®

Standard **formats:** 20x20cm - Thickness: 12mm

Smooth



Flower



4 pills

9 pills

	Tile of Pressed concrete	Slate	Granite	Cal za	EcoGranic	Paving stone Ceramic Clinker	Sintered Concrete	Sintered Natural Stone	Feedback
Mechanical strength	30x30x45 8kN	30x60x40 7.9kN	30x60x40 5,5kN	30x60x40 4.7kN	30x40x8 8.8kN	10x20x5 9kN	20x20x1.2 >5kN	30x60x2 12.8 kN	>5kN are suitable for pedestrian traffic >10kN are suitable for frequent passage of heavy vehicles.
Hardness Mohs scale	4	3	5.5>7	3	4	9	9	9	A value less than 6 makes the material scratchable by steel.
Abrasion wear	4	4	5	3>4	5	4	5	5	Class 4 Pedestrian traffic . Class 5 Heavy foot traffic .
Slip resistance	65	40>60	40>60	40>60	>65*	≥55	>70 dry and wet	>70 dry and wet	*Does not indicate whether the value corresponds to dry or wet resistance.
Water absorption	<6%	0.4%>1.8%	<1.6%	2%>6%	<6%	<3%	<0.05%	<0.02%	Water absorption determines resistance against temperature changes and stains. Any material with >1% absorption is stained with oil and other materials.
Stain resistance	1>4	2>4	CLASS 1>5 according to type of stain	1>4	THEY DON'T INDICAT E IT	THEY DON'T INDICAT E IT	CLASS 5	CLASS 5	Class 5 corresponds to cleaning with water of any type of stain.
Rubber adhesion chew	ADHERE	ADHERE	ADHERE	ADHERE	ADHERE	ADHERE	DOES NOT adhere	DOES NOT adhere	
Coefficient of expansion	± 11x10-6 °C-1	± 11x10-6 °C-1	± 10x10-6 °C-1	± 12x10-6 °C-1	THEY DON'T INDICATE IT	THEY DON'T INDICATE IT	± 6.5x10-6 °C-1	± 6.5x10-6 °C-1	In the case of Stone20 for a piece of 60 cm of length subjected to temperatures between -20 °C and 40 °C, its length varies by 0.234 mm.
Density	2,4g/cm3	2.4>2.9g/cm 3	1.7>2.4g/cm 3	1.9>2.7g/cm 3	2.1 g/cm3	2.1 g/cm3	2 g/cm3	2 g/cm3	Sintered materials have a density less than the sum of their components.
	Tile of Pressed concrete	Slate	Granite	Limes tone	EcoGranic	Paving stone Ceramic Clinker	>50	>50	Feedback
	>15	>15	>15	>15	>15	>15			Both concrete tiles and natural stone are progressively losing their non-slip qualities and extending their useful life means endangering pedestrians.
High breaking strength	+	-	+	±	+	+			To achieve the same breaking strength as the 20mm Stone requires a concrete thickness of 255mm.
High scratch resistance	-	-	+	-	-	++			
Maintenance of the Appearance over the years	+	+	+	±	+	+			
Resistance to slipping over the years	+	-	+	-	+	+			
Frost resistance	±	±	±	±	±	+			
Resistance to bacteria	-	-	-	-	-	-			
Low ecological impact	±*	±*	±*	±*	+	±*			*Depends on the distance to the quarry. Sintered parts have less impact due to their reduced weight, ease of cleaning and life.
Medium low erosion natural	+	-	-	-	+	+			
Stain resistance	±	±	+	±	±	±			
Resistance to chewing gum adhesion	-	-	-	-	-	-			
Shelf Life (years maintaining anti-slip characteristics and appearance)									
Resistance to bacteria	No	No	No	No	No	No	Bacteristatic	Bacteristatic	The pores of a few microns present in the Sintered materials prevent the proliferation of

COMPARISON TABLES

TECHNICAL CHARACTERISTICS OF URBAN PAVEMENTS

PERFORMANCE OF URBAN PAVEMENTS

EXPLANATORY LEGEND

	Loseta de Hormigón prensado	Pizarra	Granito	Caliza	EcoGranic	Adoquín Cerámico Clínker	Hormigón Sinterizado	Piedra Natural Sinterizada	Comentarios
Alta resistencia a la rotura	+	-	+	+	+	+	++	++	
Alta resistencia al rayado	-	-	+	-	-	++	++	++	
Mantenimiento del aspecto a lo largo de los años	+	+	+	+	+	+	++	++	
Resistencia al resbalamiento a lo largo de los años	+	-	+	-	+	+	++	++	
Resistencia a las heladas	+	+	+	+	+	+	++	++	
Resistencia a las bacterias	-	-	-	-	-	-	+	+	
Bajo impacto ecológico	+*	+*	+*	+*	+	+*	++	++	
Baja erosión medio natural	+	-	-	-	+	+	++	++	
Resistencia a manchas	+	+	+	+	+	+	++	++	
Resistencia a la adherencia de goma de mascar	-	-	-	-	-	-	+	+	

Malo	-
Normal	+
Bien	+
Muy bien	++

ACCESS SAFETY

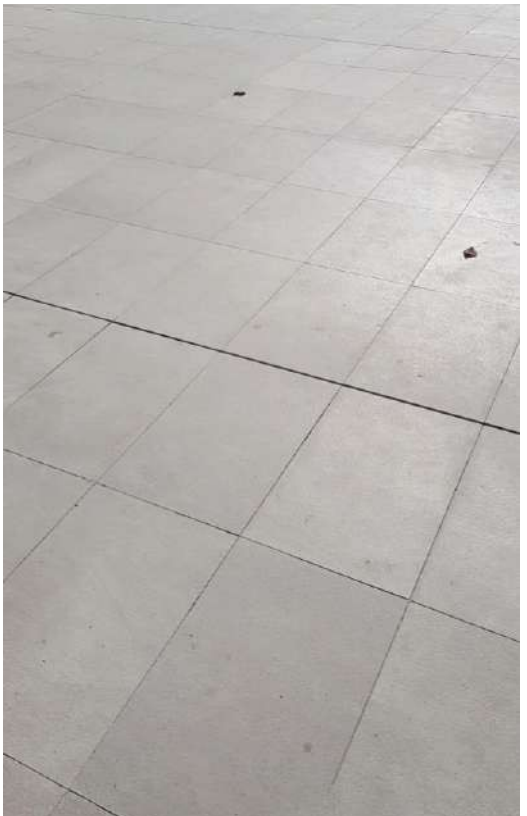
PROJECTS

ARCO DE ANIMAS STREET AND LEGION VII STREET - LEÓN

PLAZA DE BARCELONA - PUIGCERDÀ

ACCESS SAFETY

TOWN HALL SQUARE - MOLLERUSA



VALL D'UIXÓ - CASTELLÓN

CALLE JOSEP TARRADELLAS- BARCELONA

CROSS-BORDER HOSPITAL - PUIGCERDÀ

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