





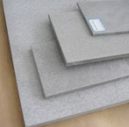





U.S.- India Joint Center for Building Energy Research and Development (CBERD)  
and  
Ministry of New and Renewable Energy (MNRE)

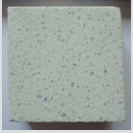



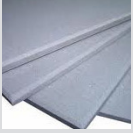



**Thermo-Physical-Optical Property  
Database of  
Construction Materials**



















# **Thermo-Physical Properties of Construction Materials**










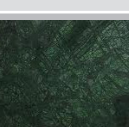
Name	Form	Density kg/m <sup>3</sup>	Thermal Conductivity W/(mK)	Specific Heat MJ/m <sup>3</sup> K	Image	Description
Acrylic Sheet	Board	1145	0.2174	1.5839		Acrylic sheet has unique physical characteristics. It is much clear, more impact resistant and weighs half as compared to finest optical glass. It doesn't turn yellow after a while, has 92 % light transmittance and is an excellent insulator. It is available in number of translucent as well as transparent colours.
Armor	Insulation	270	0.0678	0.1578		Armor is a class – A building product made up of very high quality natural cotton fibres. It is eco-friendly and carries high resistance values in case of smoke, fungi, fire and corrosiveness.
Asbestos Cement Board	Board	1404	0.4709	0.7218		Asbestos cement board contains high proportion of asbestos sheet which are bonded together with Portland cement. It is a dense rigid board which is resistant to flame, weathering and fire and doesn't allow easy heat flow. It is mostly used in board form in buildings.
Asbestos Sheet -Sera	Board	1377	0.5128	1.2043		Asbestos sheet is made up of very high quality of asbestos fibres. It is very durable, fire resistant and very efficient insulating material. It is used in form of sheet. Asbestos cause's health risks therefore the use of it nowadays has gone minimal.
Autoclaved Aerated Concrete Block (AAC)	Block	642	0.1839	0.7940		AAC is a porous, lightweight, resource efficient concrete used as precast building material providing structure, insulation, and fire and mould resistance. Its improved thermal efficiency helps in reducing building heating and cooling load. AAC is manufactured by mixing a silica rich material such as fine ground sand or fly ash, cement, a sulphate source such as gypsum, quicklime, a rising agent and water. Workability allows accurate cutting and easy installation thus minimizing generation of solid waste. AAC products include blocks, wall panels, floor and roof panels, and lintels.
Bamboo	Wood	913	0.1959	0.6351		Bamboo is type of plant with hard hollow stem. It is woody in nature and has an extremely hard surface. Before application it needs to be chemically treated. It is considered as one of the best renewable resources available on earth. Apart from its other structural non-structural uses it is also used as reinforcement these days.
Brass	Metal	8500	106.4800	11.1164		Brass has muted yellow colour and higher malleability in comparison to bronze and zinc. The relatively low melting point of brass and its flow characteristics makes it a relatively easy material to cast. Its cost effectiveness, low manufacturing, corrosion resistance and machinability allow manufacturers to produce vast range of products. It is mostly used in Commercial plumbing and OEM applications also its antibacterial properties make it useful for doorknobs especially in hospitals.
Calcium Silicate Board	Board	1016	0.2810	0.8637		Calcium silicate board is considered much safer and better option than asbestos cement board for providing insulation. It is used in construction industry as insulation and can also be used for equipment insulation.

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Composite Marble	Stone	3146	2.4400	2.1398		Cement marble crust is composed of natural marble chips and powder with highly specialised polyester resin. It is generally formed in blocks of various sizes and can be cut and polished like natural marble. It has greater compactness; greater elasticity; is more durable and delivers greater colour uniformity as compared to natural marble. It is used for internal flooring, vanity and laundry tops etc.
Cement Board	Board	1340	0.4384	0.8113		A cement board is made up of cement and reinforcing fibres which are then formed into various sizes of board. It is mainly used as a backing board which adds strength and impact resistance to wall and is better in comparison to gypsum boards. Thin cement board sheets allows bending in case of curved surfaces.
Cement Bonded Particle Board	Board	1251	0.3275	1.1948		Cement Bonded Particle Board (CBPB) is dimensionally stable having superior structural integrity and does not delaminate in water. CBPB can be sanded, routed, drilled, sawn, planed, nailed and screwed with standard carpentry tools. The board is easy to maintain as it is highly scratch resistant and resistive towards pest. Available in various sizes and is applicable for False Ceiling, Wall Cladding, kitchen cabinets, Cupboards, Cabins, Partitions and Door panels.
Ceramic Fiber Blanket	Insulation	128	0.0491	0.1093		Ceramic fibre blanket is manufactured from high strength spun ceramic fibres. It is lightweight, thermally efficient, have excellent thermal stability, low shrinkage at elevated temperature, low heat storage, good cold strength, excellent hot strength, thermal shock resistance and excellent resistance to most chemicals. It is used as insulation in construction industry.
Cement Fiber Board	Board	1276	0.3880	0.8973		Cement fibre Board Panel is made up of cement, sand and recycled wood waste available at economic pricing. Fibre cement board is more durable and less toxic than vinyl and have less maintenance than wood. It is resistant to fire, insects, rot and general decay. Waterproof, fire resistant polymer texture coating is applied on exterior panels. It is used for roof panels, wall panels, false ceiling, door, window etc.
Cement Plaster		278	1.2080	0.9719		Cement plaster is mixture of suitable sand, portland cement and water which is normally applied to masonry interiors and exteriors to achieve a smooth surface.
Cement Powder	Powder	1070	0.1137	0.7943		Cement powder is made by heating limestone and then grinding it to form fine powder. This powder when mixed with stone, sand and aggregate forms concrete. It is widely used in construction.
Ceramic Blue Tile	Tile	2707	1.3720	1.2082		Ceramic tile is made up of materials like porcelain and earthenware. It is extremely durable, has great strength. Cooling and heating systems can be installed underneath it. This particular tile is blue in colour and is available in many colours and sizes. It can be used in wide range of application like flooring, shower area, roofing, countertops and walls.

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Ceramic Frit Glass	Glass	2520	0.6882	0.7859		Ceramic frit glass when combined with tinted, reflective or low e glass controls light transmittance, solar heat gain is reduced and performance of the space is enhanced. It is available in different colours and can be specified for exterior as well as interior but the surface needs to be protected from direct contact with environment.
Ceramic Tile - Bathroom	Tile	2549	0.8018	1.6168		Ceramic bathroom tile has great strength, is extremely durable and easy to maintain and is preferred for use at places where hygiene is a prime concern like bathroom. It is also anti-water absorption and easy to clean.
Ceramic Tile	Tile	2700	1.5996	1.1438		Ceramic tile is made up of materials like porcelain and earthenware. It is extremely durable, has great strength. Cooling and heating systems can be installed underneath it. It can be used in wide range of application like flooring, shower area, roofing, countertops and walls.
Chile Wood	Wood	362	0.1422	0.4102		Chile is a white or pale yellow soft wood mostly found in northern hemisphere. It is light in weight and straight grained. It is resistant to shrinking and swelling and is mostly used in packing materials.
Chitodio	Stone	3209	3.7512	2.1223		Chitodio stone is available in different design and colours and is mainly used as flooring of super market, shopping mall, warehouse flooring, etc.
Clay Tile	Tile	2531	0.6323	1.4253		Clay tile is made of rich earth which is known for its plasticity. It is used for number of application like roofing, flooring, wall cladding etc. and adds pleasing natural look to the place.
Float Glass/ Clear Glass	Glass	2477	1.0522	1.9654		Float glass is manufactured from common glass making raw materials where some additional refining agents are added to it to improve its properties. It can be tempered, bent, laminated and can also be decorated.
Concrete Block 25/50	Block	2427	1.3957	0.4751		Concrete Block 25/50 also called concrete masonry unit (CMU) is a precast concrete block. Most concrete block have one or more hollow cavities, and their sides may be cast smooth or with a design. It is widely used in construction industry for making walls.



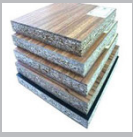

Name	Form	Density kg/m <sup>3</sup>	Thermal Conductivity W/(mK)	Specific Heat MJ/m <sup>3</sup> K	Image	Description
Concrete Block 30/60	Block	2349	1.4107	0.7013		Concrete Block 30/60 is better in terms of thermal properties than Concrete Block 25/50. It is also known as concrete masonry unit (CMU). Most concrete block have one or more hollow cavities, and their sides may be cast smooth or with a design. It is widely used in construction industry for making walls.
Corian	Board	1750	1.0120	2.0921		Corian is a solid, homogeneous, non-porous surfacing material composed of natural minerals and acrylic resin. It can be thermoformed by heating, allowing unique shapes to be created. It is very durable, hygienic, repairable, non-toxic, translucent, colourful, creates inconspicuous joints and is workable like hardwood. Corian solid surfaces deliver high performance and outstanding aesthetics. It can be used for wall cladding, kitchen countertops and bathroom vanity tops.
Crystal White Tile	Tile	2390	1.5094	1.9427		Crystal white tile is a man-made material having crystal, sparkly finish known for its strength and durability. Crystal tile is available in wide variety of colours, finished and sizes. Workability is easy but has to be laid with great precision. It can be customised as per client's requirement and adds different dimension to space when teamed with mosaics, border tiles, wood furnishing etc. It is widely used for bathrooms, kitchens, hallways flooring.
Dholpuri Stone	Stone	2262	3.0840	1.5830		Dholpur stone is a type of sandstone having good mechanical strength, low water absorption, saline water resistance, weather resistance and superior performance. It is available in various colours and sizes. It is used for interior as well as exterior application such as landscaping, stonewalls, roofing, flooring, cladding, pillars etc.
Distilled Water	Water	1000	0.6134	3.8165		Distilled water is composition of hydrogen and oxygen molecules and is widely used in construction projects.
Engineered Wood Floor Tiles	Tile	571	0.2527	1.4230		Engineered wood floor is composed of multiple layers of wood in form of plank that are cross layered, glues and pressed together. It is more resistant to higher moisture levels as compared to solid wood flooring thus are widely used in regions having higher relative humidity levels. Engineered wood is much more stable making it a universal product that can be installed over all types of subfloors.
Extruded Polystyrene XPS	Insulation	30	0.0321	0.0374		Extruded polystyrene (XPS) foam plastic insulation has a closed cell structure and lacks voids which make XPS very strong and durable material. It has low thermal conductivity and diffusivity. Its closed cell structure helps resist moisture penetration without even using a facer. It is available in variable compressive strength and is used for insulation in wall, roof, ceiling and building foundation.
Fiber Reinforced Plastic (FRP)	Board	1183	0.2252	1.6930		Fibre reinforced plastic is made by reinforcing fibres like carbon fibre, glass fibre etc. It is light weight, is resistant to corrosion and has good mechanical properties thus offering environmental benefits.





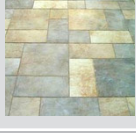

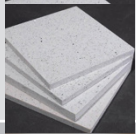





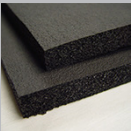
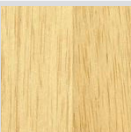


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Fire Brick	Brick	2049	1.2729	1.2887		A firebrick is a rectangular block of clay which is modelled, baked and then treated to be heat resistant. Its properties can be adjusted by adding or adjusting the amount of refractory materials. It is widely used in construction industry for the purpose of making walls.
Floor Board	Board	954	0.2654	1.1423		Engineered wood flooring is made up of number of wood layers. It possesses great strength and stability which is achieved by running each layer of wood at a 90° angle to the layer above. It is widely used across the globe and can be installed over all types of subfloors.
Foam Cement Block	Block	581	0.1588	0.5359		Form cement block is a light weight block which is used in construction of non-structural walls in order to reduce the amount of structural concrete and steelwork. Its use leads to significant cost saving and also provides thermal insulation.
Ghana Teak Wood	Wood	529	0.2062	0.5769		Ghana teak wood has high strength, excellent durability and can withstand extreme weather conditions. It is also known for its aesthetic appearance. It is mostly used in flooring, furniture, wall cladding, window & door frames.
* Glasswool	Insulation	49	0.046	0.0339		Glass wool or fibre glass insulation is made up of fibre glasses which are arranged into a texture similar to wool. It is thermal and acoustical efficient and is available in form of sheets and rolls. It is inorganic in nature and is non-corrosive, non-combustible and doesn't absorb moisture.
Black Fine Granite	Stone	3535	2.4351	2.2511		Granite is a type of igneous rock consisting of mica, quartz and feldspar. It is granular and crystalline in texture. It has been used as flooring for decades now. It can be pink to grey in colour.
Black Coarse Granite	Stone	3473	2.5433	2.1996		Granite is a type of igneous rock consisting of mica, quartz and feldspar. It is granular and crystalline in texture. It has been used as flooring for decades now. Black Coarse granite as the name defines is coarse in nature.
Green Marble	Stone	2650	2.3720	2.5275		Marble is a metamorphic rock composed of recrystallized carbonate minerals mostly calcite. It has been in use for more than 450 years now.



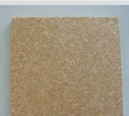

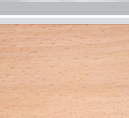
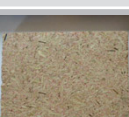
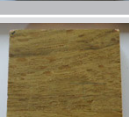

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Gypsum Board	Board	623	0.2527	0.6033		Gypsum board is also known as wallboard or drywall. It is made of plaster of paris and componenet of cement. It is used as sheathing for interior walls and ceiling and provides a smooth surface finish. The board is available in different thickness like 6mm, 12mm and 18mm.
Gypsum Powder	Powder	588	0.2020	1.1918		Gypsum powder is formed form gypsum stone by heating the stone. The powder is known for adding strength and viscosity to the material. It is used for plaster, paint and drywall.
Gypsum Powder from Board	Powder	542	0.1033	0.6260		Gypsum powder from board is formed form gypsum board. The powder is known for adding strength and viscosity to the material. It is used for plaster, paint and drywall.
Italian Black Granite	Stone	2911	2.3636	2.2349		Granite is a type of igneous rock consisting of mica, quartz and feldspar. It is granular and crystalline in texture. It has been used as flooring for decades now. It is used in bathrooms, kitchens etc.
Italian Marble	Stone	2630	2.7752	2.1869		Marble is a metamorphic rock composed of recrystallized carbonate minerals mostly calcite. It has been in use for more than 450 years now. It is mainly used as flooring and wall cladding in construction industry.
Jaisalmer Yellow Stone	Stone	3006	2.7447	2.0954		Jaisalmer Yellow is a type of limestone and is very fine grained as compared to other limestone. It has been used in monumental buildings and is used as flooring and cladding nowadays.
Jalore	Stone	2982	3.4412	1.9617		Granite is a type if igneous rock consisting of mica, quartz and feldspar. It is granular and crystalline in texture. It has been used as flooring for decades now. It is used in bathrooms, kitchens etc.









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Kota Stone	Stone	3102	3.0229	2.0732		Kota Stone is a fine-grained variety of limestone which is quarried at Kota district, Rajasthan, India. It is available in greenish-blue and brown colour. Its strength and durability makes it an excellent stone and has been widely used for exterior as well as interior purpose.
Laminated Particle Board	Board	656	0.1841	1.2621		Particle board is made up of saw dust and other wood waste. It is an inexpensive material used in place of wood panelling or boards. It is used only for interior projects and is not much durable. It can be machined as per the customer need.
Lime Powder	Powder	607	0.1286	0.7078		Lime powder is an inorganic compound also called slaked lime. It is either white or colourless crystal. It is extensively used in construction industry.
Mangalore Roof Tile	Tile - Roof	2531	0.6051	1.2809		Mangalore tiles are red coloured tiles prepared from laterite clay. It is eco-friendly, cheap, durable and is available in different size and shapes as per users need. Due to vast availability of sizes and shapes they are easy to handle and install but precaution is needed as these are delicate and are vulnerable to breakage. These tiles can be used in many creative ways but their maintenance is an issue.
Ambaji Marble	Stone	3128	2.8108	2.1943		Marble is a metamorphic rock composed of recrystallized carbonate minerals mostly calcite. It has been in use for more than 450 years now. It is mainly used as flooring and wall cladding in construction industry.
Medium Density Fiberboard (MDF)	Board	133	0.2045	0.9610		Medium density fibreboard is a type of hardwood made from wood fibres forming panels by applying high pressure and temperature. It is stronger and denser than plywood, is flat and has no knots. Workability includes easy cutting, drilling, machining and filing without damaging the surface. It can also be painted to produce smooth surface. It is used for making wall panels, display cabinets and storage units.
Melamine Fiberboard	Board	807	0.2459	0.6509		Melamine Fibre board is used in the auto industry to create free-form shapes such as dashboards, rear parcel shelves, and inner door shells.
Mild Steel (MS)	Metal	7823	44.1170	4.1896		Mild Steel is one of the least expensive steel and most common metal used and is found in almost every product created from metal. It is relatively hard, very durable and can be easily welded and annealed. It has poor resistance to corrosion and has to be protected. Its structural strength doesn't allow MS to be used for beams and girders.

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Mineral Fiber - Ceiling	Board	364	0.0710	0.3222		Mineral fibre ceiling board is fire proof, mould proof, ensures better sound absorption and is a thermal insulator. It is eco-friendly and is used in indoor ceiling.
Mineral Fiber - Plain	Board	773	0.2739	0.6427		Mineral fibre plain board is fire proof, mould proof, ensures better sound absorption and is a thermal insulator. It is eco-friendly and is ideally suited for places where high privacy levels are required.
Oak Laminated Floor Tiles	Tile	949	0.2652	1.3389		Oak laminated floor tile is extremely durable, is resistant to damage and easier to keep clean. It is very easy to install and is much more affordable than wood flooring.
Concrete Paver Tiles	Tile	2210	1.7248	1.3413		Concrete paver tile is precast concrete form used widely as a tile. It is known for its strength, durability and ease of application. Workability includes laying of interlocking tiles without using grout, instead sand particles are spread over the pavers and tamped down thus they can be easily removed and reinstalled in case some service needs to be provided. They are available in various textures and colours and are mostly used in exterior pavement applications.
Paver Tile	Tile	2612	1.4763	1.2737		Paver tile looks like brick but just half as thick as brick. It is durable and frost-proof and come in all the colours that a brick comes into. They are used for flooring.
Plain & Prelaminated Particle Board	Board	902	0.2710	0.9740		Plain & pre laminated particle board is manufactured using plantation species of timber known for superior finish, high durability, excellent machinability and resistance to termite, water and moisture. It is eco-friendly wood based panel board which is cost effective and extremely versatile. It is used for making panel doors, flush doors, flooring, partitioning, false ceiling, wall panelling etc.
Plaster of Paris (POP) Powder	Powder	1000	0.1353	0.9526		Plaster of Paris is made by heating gypsum. It can be moulded in various shapes and sizes after adding water to the powder. Its setting time is very less and is used in art, architecture, fireproofing, and medical applications.
Plywood	Board	697	0.2210	0.7258		Plywood is flexible, workable and re-usable. It is also resistant to cracking, splitting, shrinkage and twisting and has good strength. It is widely used in building and furniture industry.

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* Polyisocyanurate (PIR)	Insulation	40	0.029	0.0685		The PIR “thermal blanket” insulates the framing materials thus reducing moisture possibility and improving overall R value of the building envelope. It is not ignitable and is suitable for building roof, wall insulation and for equipment insulation.
Polymer (Anisotropic)	Plastic	1743	0.5027	1.6968		A polymer is created through the process called polymerisation. It is used as wall panels, sealing, coating, roofing material and for piping system.
* Polyurethane Foam (PUF)	Insulation	40	0.028	0.0704		Flexible polyurethane foam is used for thermal insulation and is most often used in bedding and upholstery. Flexible polyurethane can be cut into various shapes. In construction rigid polyurethane is commonly used.
POP Board	Board	1080	0.4994	1.2167		POP is made by heating gypsum powder. POP board is a layer of plaster sandwiched between two sheets of card board. Plaster board puts very little pressure on the environment. The product is non-toxic and unwanted by-products from the process are minimal.
Porcelain Tile	Tile	2827	1.5331	1.6259		Porcelain tile is ceramic tile. It has very less water absorption rate and can be glazed or kept unglazed. It is used for flooring as well as wall cladding.
Pumice Square - Bronze Tile	Tile	2327	0.9907	0.4382		Bronze tiles is made of ceramic and various metal mixtures. It is engineered in a way that it look like bronze surface. It can be painted but surface needs to be conditioned before applying paint.
Quartz	Stone	2359	3.7603	1.8277		Natural Quartz is the hardest non- precious crystal stone mined directly from the earth. Quartz surfaces are created from pure natural Quartz. Its good looks and everlasting finish can be easily maintained by simple and routine care and can be used in areas prone to footfalls and weathering. It is mostly used as flooring material for commercial and residential projects.
Rajnagar Marble	Stone	3332	5.6405	2.7770		Marble is a metamorphic rock composed of recrystallized carbonate minerals mostly calcite. It has been in use for more than 450 years now. It is mainly used as flooring and wall cladding in construction industry.

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*Rigid Polyurethane (40 Kg/m <sup>3</sup> )	Insulation	40	0.027	0.0766		Rigid polyurethane foam is a very versatile material having great combination of physical strength and mechanical properties. It can be used at places where insulation needs to be combined with load bearing. It is impact resistant, known for its longevity, space saving and has low maintenance.
* Rockwool	Insulation	64	0.038	0.0904		Rockwool insulation is made of actual rocks and minerals. It is also called stone wool insulation or mineral wool insulation. It is known for its thermal resistance and sound absorptivity. It is commonly used in building construction, industrial plants, and in automotive applications.
Rubber - Foam	Insulation	89	0.0561	0.1486		Foam rubber is manufactured by forming gas bubbles in a plastic mixture with the help of blowing agent. Foam rubber contains roughly 85 percent air and 15 percent rubber. Workability allows easy cutting and fixing. It is used as insulation, expansion joint filler in masonry and concrete work and filler support sealant in traffic bearing joints.
Rubber Wood	Wood	472	0.1679	0.5034		Rubberwood has a dense grain character with little tendency to warp or crack. It is eco friendly as it is only harvested when it can no longer be used for its latex producing sap. Rubberwood has very less shrinkage and is one of the more stable construction materials. It is extensively used in furniture industry and for making kitchen accessories. Outdoor usage of the products is not recommended. Rubberwood latex is also used for rubber based products.
Saag Wood	Wood	959	0.2886	1.0258		Saag (Teak) is a yellowish brown timber having high oil content, high tensile strength and tight grain making it a suitable option for outdoor furniture applications. Easy workability but presence of silica in the wood causes severe blunting on edged tools. It is resistant to termite attacks and over time matures to silvery grey finish. Used for manufacturing of articles where weather resistance is required and also for indoor furnishing such as flooring, countertops, furniture, doors and window frames.
Sand	Powder	1600	0.3075	1.1343		Sand is composed of rock and mineral particles and is a granular material. Its composition highly depends on type of rock and mineral availability. It is widely used in building construction and landscaping.
Sandstone	Stone	2530	3.0097	1.5957		Sandstone is a sedimentary rock available in various colours. It is a valuable aquifer as it allows percolation of water and stores large quantities. It is also helpful to filter out pollutants from the surface and is a commonly used building material.

Name	Form	Density kg/m <sup>3</sup>	Thermal Conductivity W/(mK)	Specific Heat MJ/m <sup>3</sup> K	Image	Description
Serpentine Green Granite	Stone	3068	2.1363	2.4484		Serpentine Green Granite and can be identified by its marks, which look like the skin of a serpent. It is a type of igneous rock consisting of mica, quartz and feldspar. It is granular and crystalline in texture. It has been used as flooring for decades now. It is used in bathrooms, kitchens etc.
Soft Board	Board	274	0.0943	0.2753		Soft Board is a light coloured sheet made up of bagasse. It is soft and resilient and is known for its sound absorbing properties. It is available in variable thickness. It is used in wall and ceiling lining as acoustic boards.
Soft Board-High Density	Board	353	0.0983	0.2621		Soft Board is a light coloured sheet made up of bagasse. It is soft and resilient and is known for its sound absorbing properties. It is available in variable thickness. It is used in wall and ceiling lining as acoustic boards.
Stainless Steel (SS)	Metal	7950	13.5633	3.6351		Stainless steel is an ideal material as it requires low maintenance, is resistant to corrosion. It differs from the carbon steel by the amount of chromium present. The carbon steel rusts easily when exposed to moisture whereas stainless steel doesn't corrode, rust or stain but it is not fully stain proof. It is used in buildings for practical as well as aesthetic reasons.
Steam Beech Wood	Wood	241	0.2331	0.5512		Beech is pale coloured, medium to heavy weight, hard and tough wood having good strength and high abrasion resistance. Workability is easy despite of its hardness. It can be cut, drilled, planed and milled. Surface finishing of Beech is very straight forward as it can be stained, painted and polished. Beech can shrink considerable and is subject to movement as compared to other woods. It is used for furniture, interior furnishing, household equipment and plywood.
Straw Board	Board	760	0.2237	0.7098		Strawboard is made of 100% straw and is strong, lightweight and impact resistant. It can be used as an alternative to plasterboard. Workability includes easy cutting, machining, shaping and fixing. Strawboard when incorporated into partitions can achieve half an hour fire and impact resistance. It is recyclable and biodegradable and useful for preparing high quality building interior.
Teak Wood	Wood	665	0.2369	0.8412		Teak is a yellowish brown timber having high oil content, high tensile strength and tight grain making it a suitable option for outdoor furniture applications. Easy workability but presence of silica in the wood causes severe blunting on edged tools. It is resistant to termite attacks and over time matures to silvery grey finish. Used for manufacturing of articles where weather resistance is required and also for indoor furnishing such as flooring, countertops, furniture, doors and window frames.
Tempered Glass	Glass	2500	1.0493	1.9227		Tempered or toughened glass is one of the safety glass used at places where strength, safety and thermal resistance are important considerations. It is stronger, harder and brittle than standard glass and shatters into oval pebbles when broken. It is used in buildings for frameless assemblies, structurally loaded applications and any other application that would become dangerous in the event of human impact.

Name	Form	Density kg/m <sup>3</sup>	Thermal Conductivity W/(mK)	Specific Heat MJ/m <sup>3</sup> K	Image	Description
Tinted Glass	Glass	2500	1.0428	1.8904		Tinted glass is produced after treating the surface of a normal glass with film or coating thus reducing the light transmission through it. It can be coated with different type of coatings which can block as well as reflect the light.
Udaipur Brown Marble	Stone	3197	2.9210	2.2184		Marble is a metamorphic rock composed of recrystallized carbonate minerals mostly calcite. It has been in use for more than 450 years now.
V-Board	Board	1191	0.2977	0.8245		V-Board is a particle board considered as an inexpensive alternative to solid wood boards. It is produced by combining saw dust and other waste wood, provides a good insulation and has low thermal conductivity. It can be easily cut into sheets with the help of customised saws. V-Board is highly effective in maintaining a balanced temperature in air-conditioned spaces thus saving energy.
Veneered Particle Board	Board	788	0.2363	0.7075		Natural wood veneer is denser and very smooth. It is generally applied to particle board to provide high degree of finish. It is regarded as premium decorative finish and is widely used in office furniture, wall lining, false ceiling etc.
Vitrified Tile	Tile	2719	1.4786	1.8049		Vitrified tile has a low porosity and water absorption which makes it very strong and stain resistant. It has better mechanical strength, is scratch and stain resistant and is not affected by acids, alkalis and chemicals in comparison to marble and granites. It is mainly used for flooring purpose.
Resource Efficient Bricks (REB)	Brick	1520	0.6314	0.9951		Resource Efficient Brick is a hollow brick with low water absorptivity, better finish, improved crushing strength. It helps in resource saving due to its design and manufacturing. It helps in cutting down cost of the construction.
Wood	Wood	802	0.2652	0.8715		Wood is a hard, fibrous tissue found around the world. It is an organic material, a natural composite of cellulose fibres (which are strong in tension) embedded in a matrix of lignin which resists compression. It has been used for thousands of years for as a construction material.
Wood Pattern Chitodio	Stone	3126	3.4258	2.2852		Chitodio stones are available in different design and colours and is mainly used as flooring of super market, shopping mall, warehouse flooring, etc.



# **Optical Properties of Glazing**



Product Name	Thick-ness (mm)	Solar Radiation						Visible Light							
		Transm-ittance	Transm-ittance	Reflec-tance	Reflec-tance	Absorp-tance	Absorp-tance	Transm-ittance	Transm-ittance	Reflec-tance	Reflec-tance	Reflec-tance	Reflec-tance	Emissi-ivity	Emissi-ivity
	Th	Tsol	Tsol2	Rsol1	Rsol2	Asol1	Asol2	Tvis	Tvis2	Rvis1	Rvis2	Avis1	Avis2	emis1	emis2
AIS-Clear_6	5.77	0.751	0.751	0.073	0.073	0.176	0.175	0.875	0.875	0.080	0.080	0.045	0.045	0.840	0.840
AIS-Green_6	5.75	0.420	0.420	0.048	0.049	0.532	0.049	0.735	0.735	0.066	0.067	0.199	0.198	0.840	0.840
AIS-Blue_6	5.82	0.431	0.431	0.049	0.047	0.521	0.047	0.588	0.588	0.057	0.055	0.356	0.357	0.840	0.840
AIS-Dark Bronze_6	5.83	0.516	0.516	0.050	0.052	0.434	0.052	0.480	0.480	0.049	0.051	0.471	0.470	0.840	0.840
AIS-Ecosense Enhance Coral_6	5.74	0.267	0.267	0.180	0.094	0.553	0.094	0.418	0.418	0.194	0.172	0.387	0.409	0.839	0.840
AIS-Ecosense Enhance Glacier_6	5.86	0.190	0.190	0.180	0.077	0.630	0.077	0.221	0.221	0.065	0.123	0.714	0.656	0.817	0.840
AIS-Ecosense Enhance Maple_6	5.84	0.418	0.418	0.174	0.080	0.409	0.080	0.352	0.352	0.220	0.087	0.428	0.561	0.839	0.840
AIS-Ecosense Enhance Cove_6	5.88	0.160	0.160	0.303	0.080	0.537	0.080	0.193	0.193	0.329	0.116	0.478	0.691	0.842	0.840
AIS-Ecosense Enhance Oak_6	5.76	0.215	0.215	0.306	0.094	0.480	0.094	0.161	0.161	0.328	0.093	0.511	0.746	0.840	0.840
AIS-Ecosense Enhance Mist_5	4.72	0.199	0.199	0.304	0.093	0.497	0.093	0.192	0.192	0.323	0.117	0.485	0.691	0.841	0.840
AIS-Ecosense Enhance Reef_5	4.73	0.219	0.219	0.189	0.104	0.592	0.104	0.313	0.313	0.057	0.222	0.630	0.465	0.819	0.840
AIS-Ecosense Enhance Marine_6	5.86	0.313	0.313	0.166	0.075	0.521	0.075	0.421	0.421	0.220	0.109	0.360	0.470	0.841	0.840
AIS-Ecosense Enhance Spring_6	5.96	0.597	0.597	0.171	0.129	0.232	0.129	0.666	0.666	0.219	0.190	0.115	0.144	0.841	0.840
AIS-Ecosense Enhance Vapour_6	5.98	0.326	0.326	0.162	0.069	0.512	0.069	0.373	0.373	0.217	0.092	0.410	0.535	0.842	0.840
AIS-Ecosense Enhance Meadow_6	5.70	0.372	0.372	0.175	0.092	0.453	0.092	0.547	0.547	0.233	0.160	0.220	0.293	0.840	0.840
AIS-Ecosense Enhance Aura_5	4.83	0.498	0.498	0.205	0.175	0.297	0.175	0.511	0.511	0.219	0.245	0.270	0.243	0.841	0.840
AIS-Ecosense Enhance Pebble_5	4.97	0.308	0.308	0.194	0.093	0.498	0.093	0.324	0.324	0.209	0.124	0.468	0.553	0.840	0.840
AIS-Ecosense Enhance Iris_5	4.97	0.301	0.301	0.192	0.098	0.507	0.098	0.365	0.365	0.210	0.147	0.425	0.488	0.840	0.840
AIS-Ecosense Enhance Ice_5	4.86	0.553	0.553	0.178	0.141	0.269	0.141	0.568	0.568	0.212	0.200	0.220	0.233	0.842	0.840
AIS-Ecosense Enhance Clover_5	4.74	0.347	0.347	0.175	0.096	0.478	0.096	0.493	0.493	0.216	0.171	0.291	0.335	0.842	0.840
AIS-Ecosense Enhance Cinder_5	4.89	0.341	0.341	0.172	0.081	0.487	0.081	0.357	0.357	0.204	0.109	0.439	0.535	0.842	0.840
AIS-Ecosense Enhance Bay_5	4.93	0.305	0.305	0.170	0.085	0.525	0.085	0.390	0.390	0.197	0.126	0.413	0.484	0.841	0.840
AIS-Ecosense Enhance Orchid Blue_6	6.03	0.129	0.129	0.325	0.086	0.546	0.086	0.153	0.153	0.341	0.127	0.506	0.720	0.842	0.840
AIS-Ecosense Enhance Jade_6	5.79	0.157	0.157	0.325	0.107	0.518	0.107	0.207	0.207	0.342	0.192	0.451	0.601	0.841	0.840
AIS-Ecosense Enhance Snow_6	5.93	0.245	0.245	0.328	0.180	0.427	0.180	0.238	0.238	0.339	0.254	0.423	0.508	0.841	0.840
AIS-Opal Royal Blue_5	4.68	0.352	0.352	0.268	0.107	0.380	0.107	0.239	0.239	0.366	0.098	0.395	0.663	0.831	0.840

Product Name	Thick-ness (mm)	Solar Radiation						Visible Light							
		Transm-ittance	Transm-ittance	Reflec-tance	Reflec-tance	Absorp-tance	Absorp-tance	Transm-ittance	Transm-ittance	Reflec-tance	Reflec-tance	Reflec-tance	Reflec-tance	Emissi-ivity	Emissi-ivity
	Th	Tsol	Tsol2	Rsol1	Rsol2	Asol1	Asol2	Tvis	Tvis2	Rvis1	Rvis2	Avis1	Avis2	emis1	emis2
AIS-Opal Cool Green_5	4.71	0.358	0.358	0.268	0.116	0.375	0.116	0.442	0.442	0.374	0.224	0.184	0.334	0.831	0.840
AIS-Super Silver - Dark Grey_5	4.77	0.324	0.324	0.248	0.086	0.428	0.086	0.148	0.148	0.337	0.059	0.515	0.793	0.833	0.840
AIS-Super Silver - Clear_6	5.80	0.605	0.605	0.201	0.244	0.194	0.244	0.629	0.629	0.313	0.336	0.058	0.035	0.834	0.840
AIS-Super Silver Blue_5	4.78	0.392	0.392	0.228	0.119	0.380	0.119	0.437	0.437	0.320	0.173	0.242	0.389	0.835	0.840
AIS-Super Silver - Green_5	4.74	0.394	0.394	0.248	0.143	0.358	0.143	0.546	0.546	0.355	0.275	0.100	0.179	0.833	0.840
AIS-Opal Golden Bronze_5	4.76	0.444	0.444	0.272	0.134	0.284	0.134	0.356	0.356	0.369	0.155	0.275	0.489	0.831	0.840
AIS-SunShield Supreme Green_6	5.76	0.315	0.315	0.253	0.203	0.432	0.203	0.312	0.312	0.134	0.328	0.554	0.360	0.818	0.840
AIS-SunShield Supreme Blue_6	5.70	0.311	0.311	0.310	0.164	0.378	0.164	0.350	0.350	0.218	0.163	0.432	0.487	0.827	0.840
AIS-SunShield Leaf Green_6	5.87	0.174	0.174	0.314	0.241	0.512	0.241	0.170	0.170	0.134	0.362	0.696	0.468	0.808	0.840
AIS-SunShield Oceanic Blue_5	5.01	0.257	0.257	0.363	0.187	0.380	0.187	0.274	0.274	0.280	0.196	0.446	0.531	0.826	0.840
AIS-SunShield Radiant Amber_5	5.15	0.170	0.170	0.334	0.223	0.495	0.223	0.181	0.181	0.137	0.189	0.682	0.630	0.817	0.840
AIS-Dark Grey Tinted_6	5.84	0.315	0.315	0.044	0.046	0.641	0.046	0.157	0.157	0.040	0.042	0.802	0.801	0.840	0.840
AIS-French Bronze Tinted_5	4.80	0.580	0.580	0.061	0.062	0.360	0.062	0.559	0.559	0.055	0.056	0.386	0.385	0.840	0.840
AIS-French Bronze_6	5.84	0.530	0.530	0.051	0.052	0.419	0.052	0.508	0.508	0.050	0.052	0.442	0.441	0.840	0.840
AIS-Dark Blue Tinted_6	5.77	0.445	0.445	0.049	0.051	0.506	0.051	0.570	0.570	0.055	0.057	0.375	0.374	0.840	0.840
AIS-Royal Blue_5	4.86	0.455	0.455	0.052	0.049	0.494	0.049	0.352	0.352	0.048	0.044	0.600	0.604	0.840	0.840
AIS-Cool Green_5	4.78	0.473	0.473	0.048	0.050	0.478	0.050	0.657	0.657	0.060	0.061	0.283	0.281	0.840	0.840
AIS-Dark Grey Tinted_5	4.69	0.412	0.412	0.051	0.054	0.537	0.054	0.220	0.220	0.040	0.044	0.740	0.736	0.840	0.840
AIS-Clear Taloja_6	5.81	0.728	0.728	0.066	0.067	0.206	0.067	0.869	0.869	0.079	0.079	0.052	0.052	0.840	0.840
AIS-Blue_5	4.93	0.445	0.445	0.050	0.052	0.505	0.052	0.620	0.620	0.058	0.060	0.322	0.320	0.840	0.840
AIS-Green Tinted_5	4.84	0.477	0.477	0.053	0.054	0.470	0.054	0.764	0.764	0.070	0.070	0.166	0.165	0.840	0.840
AIS-Bronze Tinted_5	4.76	0.559	0.559	0.061	0.059	0.380	0.059	0.528	0.528	0.055	0.053	0.417	0.419	0.840	0.840
AIS-Clear_5	4.79	0.808	0.808	0.080	0.080	0.112	0.080	0.885	0.885	0.080	0.080	0.035	0.035	0.840	0.840
AIS-Blue Grey_5	4.90	0.479	0.479	0.052	0.054	0.469	0.054	0.563	0.563	0.055	0.056	0.382	0.381	0.840	0.840
AIS-Blue Grey_6	6.06	0.407	0.407	0.046	0.047	0.547	0.047	0.494	0.494	0.050	0.052	0.456	0.455	0.840	0.840
SG-Graphite_6	5.89	0.309	0.309	0.225	0.164	0.466	0.164	0.363	0.363	0.185	0.215	0.452	0.422	0.757	0.840

Product Name	Thick- ness (mm)	Solar Radiation						Visible Light							
		Transm- ittance	Transm- ittance	Reflec- tance	Reflec- tance	Absorp- tance	Absorp- tance	Transm- ittance	Transm- ittance	Reflec- tance	Reflec- tance	Reflec- tance	Reflec- tance	Emissi- vity	Emissi- vity
	Th	Tsol	Tsol2	Rsol1	Rsol2	Asol1	Asol2	Tvis	Tvis2	Rvis1	Rvis2	Avis1	Avis2	emis1	emis2
SG-Dew Drop_6	5.88	0.453	0.453	0.173	0.123	0.374	0.123	0.504	0.504	0.166	0.168	0.330	0.328	0.811	0.840
SG-Titanium Blue_6	5.90	0.180	0.180	0.386	0.179	0.434	0.179	0.216	0.216	0.281	0.208	0.503	0.576	0.655	0.840
SG-Emerald Glaze_8	7.99	0.295	0.295	0.139	0.074	0.566	0.074	0.506	0.506	0.180	0.129	0.314	0.365	0.837	0.840
SG-Sparkling Ice_12	11.90	0.556	0.556	0.147	0.112	0.297	0.112	0.643	0.643	0.187	0.173	0.170	0.183	0.838	0.840
SG-Royal Blue_5	4.88	0.264	0.264	0.170	0.076	0.566	0.076	0.349	0.349	0.166	0.108	0.485	0.543	0.812	0.840
SG-Royal Blue_8	8.01	0.186	0.186	0.168	0.060	0.647	0.060	0.276	0.276	0.163	0.082	0.561	0.642	0.812	0.840
SG-Turquoise_6	5.92	0.185	0.185	0.220	0.095	0.596	0.095	0.303	0.303	0.178	0.164	0.518	0.532	0.755	0.840
SG-Graphite_5	4.87	0.316	0.316	0.229	0.172	0.456	0.172	0.364	0.364	0.188	0.220	0.448	0.416	0.757	0.840
SG-Dew Drop_12	12.10	0.396	0.396	0.177	0.111	0.427	0.111	0.482	0.482	0.177	0.167	0.341	0.352	0.816	0.840
SG-Evolite Green_6	5.88	0.225	0.225	0.192	0.072	0.583	0.072	0.406	0.406	0.101	0.101	0.492	0.493	0.541	0.840
SG-Reflectasol Light Gold_3.5	3.44	0.507	0.507	0.361	0.310	0.132	0.310	0.330	0.330	0.521	0.465	0.149	0.206	0.852	0.840
SG-Reflectasol Sapphire Blue_6	5.88	0.227	0.227	0.332	0.121	0.441	0.121	0.216	0.216	0.495	0.207	0.289	0.577	0.851	0.840
SG-Reflectasol Sapphire Blue_5	4.90	0.253	0.253	0.363	0.147	0.384	0.147	0.213	0.213	0.534	0.253	0.253	0.533	0.852	0.840
SG-Reflectasol Sapphire Blue_4	3.89	0.312	0.312	0.333	0.159	0.356	0.159	0.261	0.261	0.496	0.269	0.243	0.470	0.851	0.840
SG-Reflectasol Green_3.5	3.57	0.333	0.333	0.346	0.197	0.321	0.197	0.295	0.295	0.511	0.370	0.194	0.335	0.852	0.840
SG-Reflectasol Green_4	3.85	0.324	0.324	0.325	0.176	0.351	0.176	0.307	0.307	0.491	0.342	0.202	0.351	0.851	0.840
SG-Reflectasol Bronze_4	3.90	0.365	0.365	0.365	0.176	0.269	0.176	0.213	0.213	0.532	0.236	0.255	0.551	0.837	0.840
SG-Reflectasol Dark Grey_5	4.90	0.222	0.222	0.287	0.072	0.491	0.072	0.080	0.080	0.415	0.054	0.504	0.866	0.783	0.840
SG-Reflectasol Dark Grey_4	3.85	0.279	0.279	0.289	0.088	0.432	0.088	0.116	0.116	0.429	0.070	0.455	0.814	0.850	0.840
SG-Reflectasol Dark Blue_3.5	3.51	0.293	0.293	0.343	0.137	0.364	0.137	0.168	0.168	0.502	0.150	0.330	0.682	0.851	0.840
SG-Reflectasol Dark Blue_4	3.89	0.256	0.256	0.373	0.134	0.371	0.134	0.143	0.143	0.536	0.147	0.321	0.710	0.852	0.840
SG-Evolite Clear_12	12.02	0.337	0.337	0.180	0.105	0.483	0.105	0.482	0.482	0.086	0.129	0.432	0.389	0.499	0.840
SG-Evolite Clear_6	5.96	0.374	0.374	0.183	0.118	0.442	0.118	0.495	0.495	0.092	0.135	0.413	0.370	0.497	0.840
SG-Dew Drop_5	4.87	0.457	0.457	0.176	0.131	0.367	0.131	0.499	0.499	0.171	0.180	0.330	0.321	0.820	0.840
SG-Sterling Silver_12	12.12	0.140	0.140	0.327	0.191	0.532	0.191	0.200	0.200	0.248	0.291	0.552	0.509	0.646	0.840
SG-Royale Blue_6	5.92	0.236	0.236	0.165	0.071	0.599	0.071	0.320	0.320	0.153	0.098	0.527	0.581	0.805	0.840

Product Name	Thick-ness (mm)	Solar Radiation						Visible Light							
		Transm-ittance	Transm-ittance	Reflec-tance	Reflec-tance	Absorp-tance	Absorp-tance	Transm-ittance	Transm-ittance	Reflec-tance	Reflec-tance	Reflec-tance	Reflec-tance	Emissi-ivity	Emissi-ivity
	Th	Tsol	Tsol2	Rsol1	Rsol2	Asol1	Asol2	Tvis	Tvis2	Rvis1	Rvis2	Avis1	Avis2	emis1	emis2
SG-Evolite Blue_6	5.91	0.205	0.205	0.179	0.068	0.616	0.068	0.318	0.318	0.085	0.083	0.597	0.599	0.510	0.840
SG-Evolite Green_8	7.95	0.189	0.189	0.181	0.066	0.630	0.066	0.371	0.371	0.090	0.099	0.540	0.530	0.533	0.840
SG-Evolite Clear_4	3.86	0.393	0.393	0.185	0.128	0.422	0.128	0.499	0.499	0.093	0.138	0.408	0.362	0.502	0.840
SG-Evolite Clear_5	4.91	0.380	0.380	0.186	0.124	0.435	0.124	0.493	0.493	0.095	0.139	0.412	0.368	0.525	0.840
SG-Evolite Clear_8	7.84	0.359	0.359	0.187	0.110	0.454	0.110	0.485	0.485	0.100	0.127	0.416	0.389	0.498	0.840
SG-Evolite Green_4	3.87	0.273	0.273	0.183	0.089	0.544	0.089	0.433	0.433	0.094	0.120	0.473	0.447	0.527	0.840
SG-Evolite Green_5	4.93	0.249	0.249	0.176	0.079	0.576	0.079	0.422	0.422	0.085	0.113	0.494	0.465	0.496	0.840
SG-Evolite Blue_5	4.95	0.226	0.226	0.179	0.074	0.594	0.074	0.342	0.342	0.087	0.090	0.571	0.568	0.524	0.840
SG-Evolite Blue_8	8.01	0.159	0.159	0.174	0.058	0.667	0.058	0.275	0.275	0.079	0.071	0.646	0.653	0.508	0.840
SG-Evolite Blue_4	3.95	0.253	0.253	0.183	0.081	0.564	0.081	0.369	0.369	0.093	0.098	0.538	0.533	0.536	0.840
SG-Blue Ray_8	7.92	0.251	0.251	0.134	0.062	0.615	0.062	0.372	0.372	0.171	0.087	0.457	0.540	0.838	0.840
SG-Parsol Bronze_4	3.90	0.602	0.602	0.056	0.058	0.342	0.058	0.607	0.607	0.057	0.058	0.336	0.335	0.840	0.840
SG-Parsol Dark Grey_4	3.91	0.408	0.408	0.048	0.049	0.544	0.049	0.263	0.263	0.041	0.042	0.696	0.694	0.840	0.840
SG-Parsol Dark Grey_5	4.93	0.338	0.338	0.045	0.045	0.616	0.045	0.195	0.195	0.040	0.041	0.765	0.765	0.840	0.840
SG-Parsol Dark Blue_3.5	3.44	0.495	0.495	0.053	0.056	0.452	0.056	0.470	0.470	0.049	0.051	0.481	0.479	0.840	0.840
SG-Parsol Dark Blue_4	3.87	0.456	0.456	0.048	0.053	0.496	0.053	0.429	0.429	0.043	0.050	0.528	0.521	0.840	0.840
SG-Parsol Hgreen_3.5	3.47	0.601	0.601	0.064	0.066	0.335	0.066	0.803	0.803	0.074	0.075	0.123	0.122	0.840	0.840
SG-Parsol Hgreen_4	3.91	0.571	0.571	0.061	0.063	0.368	0.063	0.791	0.791	0.073	0.073	0.136	0.135	0.840	0.840
SG-Parsol Hgreen_5	4.95	0.509	0.509	0.056	0.055	0.435	0.055	0.757	0.757	0.069	0.068	0.173	0.174	0.840	0.840
SG-Parsol Hgreen_6	5.91	0.471	0.471	0.052	0.053	0.477	0.053	0.735	0.735	0.067	0.068	0.197	0.196	0.840	0.840
SG-Parsol Hgreen_8	7.95	0.386	0.386	0.047	0.049	0.567	0.049	0.678	0.678	0.062	0.064	0.260	0.258	0.840	0.840
SG-Planilux_3.5	3.48	0.847	0.847	0.077	0.078	0.076	0.078	0.899	0.899	0.081	0.081	0.021	0.020	0.840	0.840
SG-Planilux_4	3.96	0.837	0.837	0.077	0.078	0.086	0.078	0.895	0.895	0.081	0.081	0.024	0.024	0.840	0.840
SG-Planilux_5	4.93	0.820	0.820	0.075	0.074	0.105	0.074	0.891	0.891	0.080	0.081	0.029	0.028	0.840	0.840
SG-Planilux_6	5.95	0.806	0.806	0.072	0.071	0.122	0.071	0.887	0.887	0.080	0.080	0.034	0.034	0.840	0.840
SG-Planilux_8	7.91	0.772	0.772	0.069	0.068	0.160	0.068	0.878	0.878	0.078	0.078	0.044	0.044	0.840	0.840

Product Name	Thick-ness (mm)	Solar Radiation						Visible Light							
		Transm-ittance	Transm-ittance	Reflec-tance	Reflec-tance	Absorp-tance	Absorp-tance	Transm-ittance	Transm-ittance	Reflec-tance	Reflec-tance	Reflec-tance	Reflec-tance	Emissi-ivity	Emissi-ivity
	Th	Tsol	Tsol2	Rsol1	Rsol2	Asol1	Asol2	Tvis	Tvis2	Rvis1	Rvis2	Avis1	Avis2	emis1	emis2
SG-Planilux_10	9.92	0.742	0.742	0.067	0.066	0.192	0.066	0.868	0.868	0.078	0.077	0.054	0.055	0.840	0.840
SG-Planilux_12	11.89	0.707	0.707	0.063	0.064	0.230	0.064	0.858	0.858	0.076	0.076	0.066	0.066	0.840	0.840
SG-Parsol Sapphire blue_4	3.93	0.544	0.544	0.055	0.054	0.401	0.054	0.672	0.672	0.064	0.062	0.264	0.266	0.840	0.840
SG-Parsol Sapphire blue_5	4.88	0.481	0.481	0.050	0.051	0.469	0.051	0.623	0.623	0.058	0.060	0.319	0.318	0.840	0.840
SG-Parsol Sapphire blue_6	5.89	0.426	0.426	0.049	0.047	0.525	0.047	0.577	0.577	0.057	0.055	0.366	0.368	0.840	0.840
SG-Parsol Sapphire blue_8	8.04	0.338	0.338	0.044	0.045	0.618	0.045	0.491	0.491	0.051	0.052	0.459	0.457	0.840	0.840





# **Solar Reflectance Index of Materials**



Sr. No.	Product Name	Solar Direct Reflectance	Emissivity	Solar Reflectance Index (SRI)		
				Low wind	Medium wind	High wind
1	KULROOF® Coated Clay Tile	0.8302	0.888	104	104	104
2	Matt Vitrified Tile (SVL-DESERT LUX)-Simpolo	0.4974	0.928	57	59	60
3	Polished Glazed Vitrified Tile (SVL-PGVT)-Simpolo	0.6907	0.849	82	83	84
4	Polished Vitrified Tile (SVL-P)-Simpolo	0.5331	0.825	57	60	63
5	Thermatek Paramsudha Tile	0.8450	0.857	106	106	106
6	BW/WCP, WCP-33 - Birla White	0.8693	0.936	112	110	110
7	BW/WC, WC-11 - Birla White	0.8432	0.939	108	107	106
8	PPGL 0.5 x 1195 mm SMP 550 MPA Sury Mirt, TC1A3B0666	0.6970	0.888	84	85	86
9	Anonymous Sample 1 - SRI Paint - Orient Bell	0.7468	0.931	93	93	93
10	Anonymous Sample 2 - Ceramic Tile - SKD	0.8171	0.842	101	101	102
11	Permacool	0.8920	0.937	115	114	113
12	Plain White China Mosaic Tile	0.7955	0.838	98	98	99
13	MP 980 Colour coated Galvalume Trapezoidal profile sheet (Brick Red)	0.3136	0.862	29	32	34
14	Cool shield	0.7220	0.939	89	90	90
15	Blanco Nieve Kajaria Ceramic Tile	0.7266	0.841	87	88	89
16	Cool Top Si Super	0.9207	0.885	119	117	116
17	Cool Top Hodou	0.7664	0.939	96	96	96
18	Glossy White Ceramic Tile	0.8173	0.841	101	102	102
19	Glazed Tile	0.8040	0.842	99	100	100
20	Therma Shield	0.8114	0.932	102	102	102
21	Roof Plate	0.6806	0.882	81	83	84
22	Scudo - Eurocon	0.7047	0.992	88	88	88
23	Cico Thermoseal - XL	0.7561	0.939	94	95	95
24	Ferrari PVC Fabric	0.7795	0.910	97	97	97
25	Roofing Sheet	0.6668	0.873	79	81	82
26	Siolla Clima cool	0.8612	0.935	110	109	109
27	Tata Bluescope-Colobond Suffimist Roof Sheet	0.6906	0.881	83	84	85

Sr. No.	Product Name	Solar Direct Reflectance	Emissivity	Solar Reflectance Index (SRI)		
				Low wind	Medium wind	High wind
28	Anonymous Sample 3 Cool Tile- OBL - HSK- 2	0.8138	0.899	102	102	102
29	Anonymous Sample 4 Cool Tile- OBL - HSK- 1	0.8239	0.875	103	103	103
30	Thermatek Heat Reflective Paint	0.8973	0.932	116	114	114
31	Anonymous Sample 5 - Floor Tile	0.7667	0.843	93	94	95
32	Tata Bluescope-Colobond Suffimist Roof Sheet	0.6229	0.888	73	75	76
33	Cool Paint AK- 103, Aroma Paints	0.7324	0.939	91	91	91
34	Victory 12x12 White, 16x16 White	0.6774	0.867	80	82	83
35	SMY, Paint 25lite Ceramic tile of size 300 x 300 mm	0.7376	0.868	90	91	91
36	HRJ, Paint 25lite Ceramic tile of size 300 x 300 mm	0.7458	0.854	90	91	92
37	KAJ, Paint 25lite Ceramic tile of size 300 x 300 mm	0.7765	0.850	95	96	96
38	Galvalium Roof Sheet	0.6560	0.623	66	72	76
39	Thermatek Heat Reflective Paint - Pink	0.7714	0.933	96	97	97
40	Thermatek Heat Reflective Paint - Yellow	0.7900	0.934	99	99	99
41	Thermatek Heat Reflective Paint - Blue	0.6578	0.934	80	81	81
42	Thermatek Heat Reflective Paint - Coffee	0.7349	0.935	91	91	92
43	Snowcem exterior roof paint with Energy shield 70 micron additive	0.8875	0.938	114	113	112
44	Snowcem exterior roof paint with Energy shield 25 micron additive (Ultra)	0.8832	0.936	114	112	112
45	Colorbond ® XRW Steel-Pure White	0.6952	0.878	83	85	85
46	Thermaltek ICT Eggshell	0.7952	0.934	100	100	100
47	Thermaltek ICT White	0.8414	0.932	107	106	106
48	ABC Weather Proof SRI Tile	0.6852	0.852	81	83	84
49	Nerolac Excel Total White All In One Exterior Emulsion	0.8647	0.917	110	109	109
50	Ceramic Tile (White) Blanco Nieve	0.8608	0.840	108	108	108
51	Johnson 300x300 White 9351260385 IVRCL	0.7475	0.854	91	92	92
52	Excel White Anti-Peel formula Acrylic Exterior	0.8558	0.902	109	108	108
53	Sika Raingard	0.8401	0.936	107	106	106
54	Igloo Tile	0.7885	0.935	99	99	99

Sr. No.	Product Name	Solar Direct Reflectance	Emissivity	Solar Reflectance Index (SRI)		
				Low wind	Medium wind	High wind
55	Insulla -SR	0.7660	0.924	95	96	96
56	Brush Bond TI Flexicoat	0.7924	0.939	100	100	99
57	Plain White Ceramic floor tile	0.7058	0.869	85	86	87
58	Ultra Square (color code - 12)	0.2028	0.915	19	20	21
59	Heat Insulation coating (Heatseal)	0.8255	0.878	103	103	103
60	Sun Cool - LHP Coating	0.9097	0.938	118	116	115
61	Plain White Ceramic floor tile	0.6520	0.865	76	78	79
62	Anonymous Sample 6 - GRC Sample	0.1707	0.937	17	17	17
63	Anonymous Sample 7 - GRC Sample	0.4253	0.938	48	50	50
64	Anonymous Sample 8 - GRC Sample	0.6135	0.937	74	75	75
65	Galvalume, ID- JSW/GL/03	0.6813	0.609	70	76	79
66	Galvalume, ID- JSW/GL/02	0.7124	0.399	64	74	80
67	Galvalume, ID- JSW/GL/01	0.6892	0.469	64	73	78
68	Granite Stone, ID - 003	0.4431	0.845	46	49	51
69	Reflective Paint applied on stone ID - 004	0.6873	0.937	84	85	85
70	Marble Stone, ID- 001	0.8190	0.844	102	102	102
71	Excel Cool Coat® ID - E22	0.8740	0.939	112	111	110
72	Anonymous Sample 9 - White Ceramic tile	0.7413	0.863	90	91	92
73	Anonymous Sample 10 - White Ceramic tile	0.6399	0.842	74	76	77
74	PVDF Topcoat Surfemist	0.6630	0.868	78	80	81
75	M & B Roofing Sheet	0.1856	0.881	15	16	17
76	White Ceramic Glazed Tile, Blanco Neive	0.7579	0.886	93	94	94
77	PPGL Arctic White, A3-150	0.6023	0.863	69	71	73
78	SMP Topcoat Surfemist	0.6589	0.882	78	80	81
79	PVDF Topcoat Surfemist	0.6424	0.862	75	77	78
80	Johnson White Matt	0.7057	0.853	84	86	87
81	Johnson Ultra White Glossy	0.8186	0.836	101	102	102

Sr. No.	Product Name	Solar Direct Reflectance	Emissivity	Solar Reflectance Index (SRI)		
				Low wind	Medium wind	High wind
82	Marbonite Ultra White	0.6760	0.843	79	81	82
83	Marbonite White Stain Free	0.5263	0.832	57	60	62
84	Terraflex SR	0.8906	0.880	114	113	112
85	Maxima White, Ceramic Floor Tile	0.8065	0.852		100	
86	Plane White 300x300 mm Size Ceramic Floor Tile, ID - HE1001	0.7518	0.863		92	
87	Duranar Spray SPF Grey Silver Smith, ID - 10957	0.5451	0.895		64	
88	Duranar Spray SPF Grey Silver Smith, ID - 10958	0.4714	0.892		54	
89	Fusion Kool Koal	0.8300	0.922		105	
90	Shirasu Balloon Paint-Heat Resistance Coat SBP	0.8025	0.922		101	
91	Shell Plain - Blanco, Full Body vitrified tile	0.4864	0.905		57	
92	S Roof Precoated sheet, S1	0.6629	0.582		72	
93	British Sun Reflect, ID - RD/WB/EML/2011-02	0.8758	0.878		111	
94	British Heat Shield, ID - RD/WB/EML/2011-01	0.8603	0.924		109	
95	EXPA Max, ID -PC/16001	0.8631	0.891		109	
96	EXPA Cool, ID -PC/13219	0.8497	0.910		107	
97	Kool Coat, High Albedo Roof Coating	0.8289	0.921		104	
98	ABC Weather Proof SRI Tile	0.7674	0.906		95	
99	Kool Coat, High Albedo Roof Coating	0.6821	0.997		86	
100	Cool A- Thermal Heat Reflective Paint	0.8110	0.992		103	
101	Apex Exterior Paint 2 coats with insuladd additive	0.8391	0.986		107	
102	Apex Exterior Paint 2 coats without insuladd additive	0.8415	0.985		107	
103	Road Marking Paint 2 coats with insuladd additive	0.8006	0.990		102	
104	Road Marking Paint 2 coats without insuladd additive	0.8166	0.992		104	
105	Blue Star - Roofing Sheet	0.5728	0.927		69	
106	Metal Coated Sheet - Cummins	0.5307	0.934		64	
107	Dolphin Floats Sample Seal N Cool coated on aluminum plate and coated on plywood	0.7900	0.982		100	

**Disclaimer:**

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**Note: \* Revised Values.**