

# earthen MATERIALS

## Stone



The information on this module is mainly taken from <http://earth.sustainabilityresources.com>

-The term “**cultured stone**” or “**manufactured stone**” refers to “**stone**” that is made in a factory. Typically, it is molded into many different shapes using concrete. The concrete shapes are then stained with various hues to achieve the most natural look possible.-  
*A little design help.*

As with natural stone, check for sustainable characteristics when selecting a “culture stone” product.

-**Stone should be sealed.** Our basis of design product (PROSOCO Stand Off® Stone, Tile & Masonry Protector) will seal stone against penetration of liquids **without** altering the aspect of it (according to the manufacturer it does not change the look of the stone, but always specify a test to make sure it works). This product needs to

## OBJECTIVE | SUSTAINABILITY

The objective of exploring sustainable materials is to expand our knowledge of design strategies, materials, assemblies, and construction methods that we can apply into our practice. Green buildings require careful product and material selection criteria. Earthen materials are materials manufactured near the project with materials that do not need major transportation and have lower embodied energy required in their production and their use than other materials. We use two earthen materials in our projects: Stone and brick. What design strategies, materials, assemblies, and construction methods we can apply into our practice.

## DEFINITION OF “EARTHEN MATERIALS”

**Earthen materials** are materials composed of the earth’s crust: sand, gravel, rock, aggregate, and soil, and that are **found in, or near, the building’s site**. Soil in these materials can be combined with other materials, compressed, and/or baked to add strength. These materials have **very low** environmental impact during fabrication, and during construction, and after construction. The earthen construction materials that we would use in our projects are natural stone and brick, both sourced relatively near to the construction site.

## NATURAL STONE

Stone is a highly durable, low maintenance building material with high thermal mass, available in many shapes, sizes, colors and textures. Stone can easily be recycled for other building purposes than the initial use, for example, you can specify recycled stone for veneers and floors.

Check the following to when researching if a natural stone type is “sustainable”:

- The stone is found on the site, or near the site, or reclaimed from nearby demolished buildings, or sourced from a local stone quarry (you can use recycled stone for non-structural purposes, like veneers and floors).
- It is not a synthetic imitation.

In our projects, stone is never used as a structural element; we have only used as a finish material for walls, partitions, and flooring. Check the CBC requirements before detailing these.

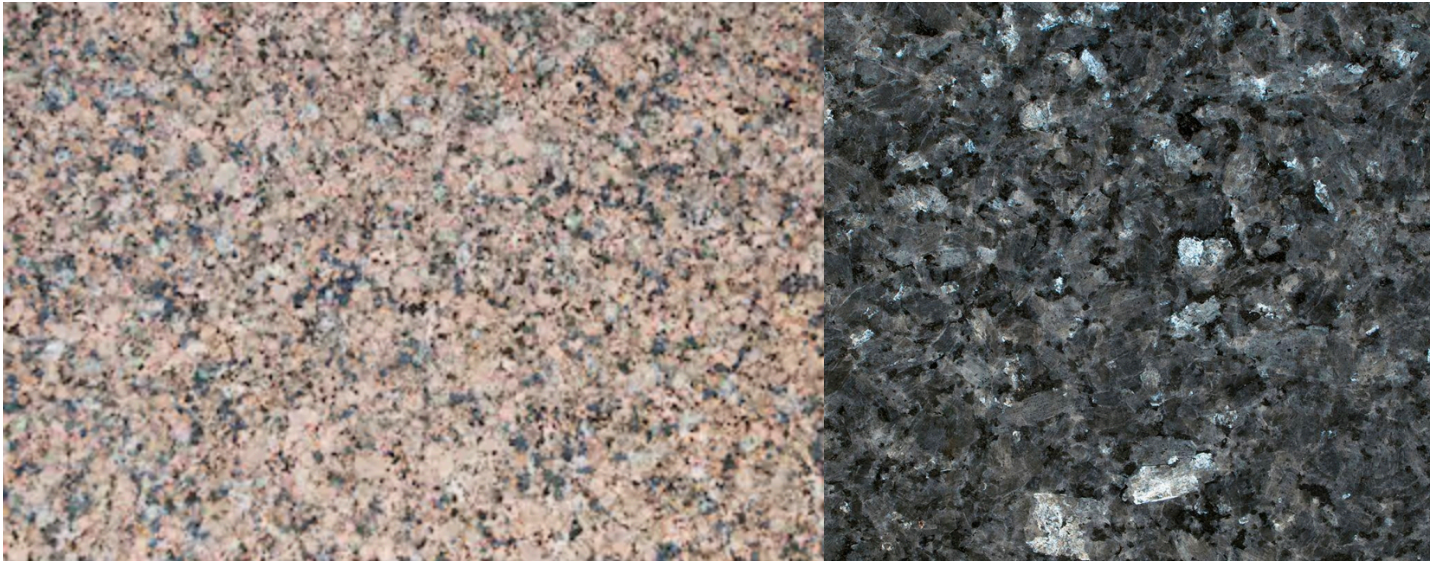
## STONE TYPES

**Natural stone** classification:

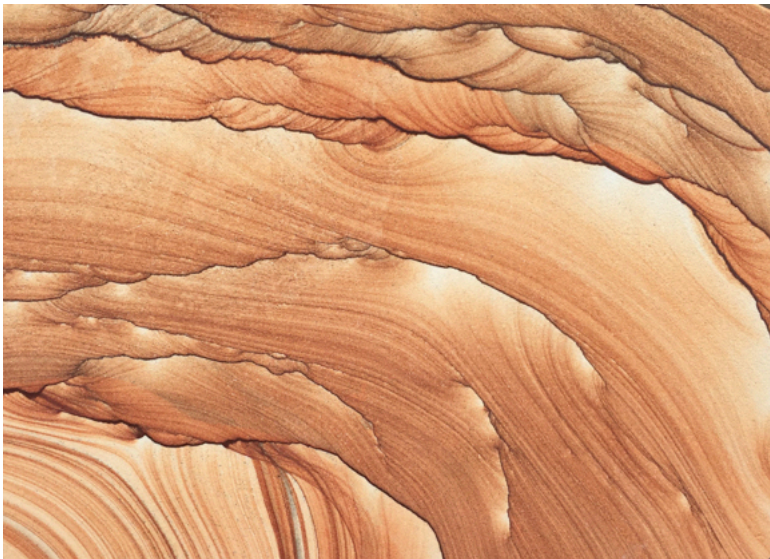
- **Limestone:** Formed chiefly by the accumulation of organic remains (shells or coral), consisting mainly of calcium carbonate.
- **Marble:** Crystallized limestone, ranges from granular to compact in texture.
- **Granite:** A very hard igneous rock formation of visibly crystalline texture mostly formed of quartz and orthoclase or microcline.
- **Sandstone:** A sedimentary rock consisting usually of quartz sand combined with some binding elements such as silica or calcium carbonate.
- **Flagstone:** A hard, evenly stratified stone that splits into flat pieces suitable for paving.
- **Fieldstone:** Stone in natural shape as taken from the topsoil or subsoil.

flagstone

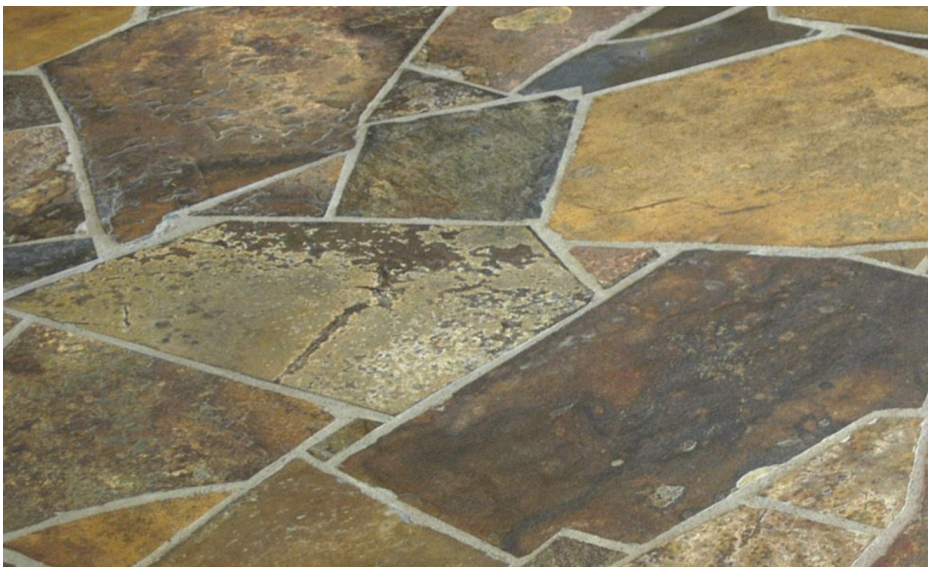




granite



sandstone



fieldstone

flagstone