Segmental vault, 10.35 m span, 2.25 m rise

Earth

Since the desire was to work with a sustainable design and building process, earth was chosen for the main structural elements. Compressed earth blocks are a traditional material and are typically composed of clay, silt, and organic matter. This material is abundant, and its use can help reduce the environmental impact of building projects. In addition, the use of local earth reduces the need for long-distance transportation of materials, which is a significant concern in sustainable construction.

Earth is also a building material that has a long history and tradition in many cultures. It has been used for centuries in various forms, including adobe, rammed earth, and cob. These traditional techniques are still used today in many parts of the world, and they continue to be popular for their aesthetic qualities and thermal comfort.

Earth blocks are made from a mixture of clay, silt, and organic matter, which are mixed and compacted to form a uniform material. The blocks are then fired in a kiln to create a durable and water-resistant material. This process can also help to stabilize the local soil, which can be a valuable advantage from an environmental perspective because of the elimination of long-transport burdens.

In the context of the project, earth blocks were used to build the walls of the house. The method chosen is called CSEB, which stands for “Compressed Earth Soil Blocks.” This method is particularly appropriate for local earth construction because it minimizes the need for long-distance transportation of materials.

Earth blocks have several advantages, including:
- Low embodied energy compared to traditional building materials
- High thermal mass, which helps to maintain a comfortable indoor temperature
- Good sound insulation properties
- Low cost, especially when using local earth

Earth blocks are typically manufactured in a variety of shapes and sizes, allowing for a high degree of flexibility in design and construction. They can be used for both load-bearing and non-load-bearing walls, and they can be used in combination with other materials, such as wood or metal, to create a variety of architectural expressions.

Earth blocks are also easy to install. They can be laid in courses, and their lightweight nature makes them easy to handle. In addition, the blocks can be cut and trimmed to achieve precise fit, which is particularly important in load-bearing applications.

Earth blocks have been used in many different cultural contexts and have a long history of successful use in a variety of climates. In the context of the project, the use of earth blocks is not only a sustainable choice but also an appropriate one for the local environment.

In conclusion, the use of earth blocks in the house is a sustainable and appropriate choice. The CSEB method provides a way to utilize local earth in a manner that minimizes the environmental impact of the building project. The use of earth blocks also helps to reduce the need for long-distance transportation of materials, which is a significant advantage from an environmental perspective.
1. Solar panels for electricity
2. Rainwater harvesting, for use in the production only.
3. Local sewage system for waste water treatment
4. Air channels for extra ventilation of the workshops