

Rubble Homes

Our permanent recycled rubble homes are designed to be earthquake resistant through the use of an innovative new construction technique. This method of construction provides a home that is culturally relevant in Haiti because it looks and feels just like another dwelling in Haiti. It also prevents rubble from winding up in the ocean or being placed on agriculture land and rendering it useless for generations.

We start with a compacted rubble foundation. The foundation is needed to give the walls a bearing area and to spread the weight of the walls over a larger area of the soil to prevent settling. No concrete is used in the building of the foundation.

Once the foundation is complete, we erect a reusable wooden frame around the perimeter of the building. Welded wire mesh is then bent to the shape of the house and installed against the frame to form a wall exoskeleton. Strips of welded wire mesh are placed inside the exoskeleton every 12 inches to tie both sides together and prevent the wall from bulging.



Window openings are created in the wire exoskeleton and rebar is placed in the middle of the walls to fasten the top plate to the foundation and counter the uplift forces created by high tropical winds. Both doors are installed and debris is then placed inside the wall exoskeleton until it is full.



After the debris, a single plane wooden roof structure is placed on top of the walls. A short knee wall on one side of the house provides for the proper pitch of the roof and provides ventilation for the home. On some homes this knee wall is omitted. This open ventilation around the top of the walls also aids in preventing uplift from removing the roof as it allows wind and atmospheric pressure to pass through the top of the dwelling without pressuring the roof.

The roofing material, currently corrugated metal sheets, is then applied to the roof and the concrete coating is applied to the walls on the interior of the home. The existing concrete floor is either repaired or replaced and the family can actually inhabit the home while the concrete is applied to the exterior of the home.

From the start of the foundation to occupation is currently seven days, with another two days to finish the exterior of the home and any punch work bringing total production time to nine days. In some cases the family may occupy the home after five days.

By encasing the exterior of the walls in concrete we are providing structural rigidity to the home while allowing the individual pieces of rubble on the interior of the wall to move independently of each other. As the ground starts shaking, the rubble in the wall will start to compact, making the base of the structure heavier than the top.

This creates a bottom heavy wall that will resist toppling. Any cracks that do appear can easily be fixed by chiseling them out a bit wider and patching with concrete. In many ways the debris acts like the crumple zone in modern cars. It absorbs the energy of the quake while maintaining the integrity of the structure and keeping the residents safe.

