

# Kathmandu, Nepal

## DISASTER RELIEF PROJECT

Monthly Report - September and October 2015



### CONTENT

- 02 Earthwork
- 02 Footings
- 03 Steel Frame
- 03 Slab
- 03 Walls
- 04 Painting
- 04 Toilets

Once the construction of the classrooms had been completed at Sunrise School, our work began at Suryodaya School in Lalitpur. The project design allowed the construction of two classroom blocks, which meant 15 new classrooms. Volunteers were able to make good use of the weather following the end of the monsoon period, allowing work to be completed without the interference of wet weather conditions.

## EARTHWORK

---

Before we started the construction of the school blocks the ground level of the school had to be excavated to a specified height, which would allow for swelling and flooding during future monsoon periods. Volunteers worked hard to excavate and fill the clay soil to the required levels in preparation for the construction of the ground floor slabs.

Once the ground levels were excavated to the required level, work could commence for the provision of the footings. The footings required the excavation of trenches to a depth of two feet and a width of two feet. Trenches were dug sixty feet long in one direction and twelve for the other, to provide classrooms with a floor space of 180 square feet.

## FOOTINGS

---

The design of the footing was to provide a structurally sound foundation in the event of future earthquakes or aftershocks, especially since aftershocks still occur.

The footings were created in three layers; the first consisting of eighteen inch brickwork, requiring courses to contain two rows of headers and four rows of stretcher bonds. After three courses of this eighteen inch brickwork, three courses of fourteen inch brickwork were constructed. A final 3 courses of 9 inch brick work was installed to provide sufficient strength to the footings and provide a stable base for the construction of the future classroom walls.

The construction of the footings required all volunteers to mix hundreds of kilograms of concrete and transport many bricks, which was completed with great cooperation and enthusiasm. Finalising the construction of the footings required retained soil to be used to fill existing space within the trenches and then compacted by volunteers.



School building



## STEEL FRAME

---

Upon completion of the footings, a local structural engineering team was able to weld and install a galvanised steel frame and roof for the building. The provision of the roof allowed for much appreciated respite from the sun as volunteers could now complete their work under cover. The steel frame was finalised and concreted in place.

## SLAB

---

Before the slab could be poured, the existing earthwork had to be filled to the required levels, before being tamped and compressed to provide a stable surface. This required volunteers to physically compress the earth using a tampers, bricks and their own feet.

Once the earthwork was sufficiently tamped, a one-inch thick blinding layer of sand was placed so that a layer of brick soiling could be placed. This stage of construction required volunteers to place a layer of tessellating broken bricks that would ensure the concrete slab could be poured and reduce the possibility of future cracking, as well as minimising the impact of the rain and swelling soil during the monsoon period.

Upon installation of the blinding layer and brick soiling, a four-inch thick concrete slab was installed. The slab was poured in two stages – an initial two-inch thick slab was placed and allowed to cure. After sufficient time, a second two-inch concrete slab was poured before a final slurry finish was applied to create a smooth final surface. Even though the mixing, pouring and finishing of the concrete was heavy, dirty work, volunteers rose to the occasion and completed the slabs very quickly in good spirits.



School children in Nepal

## WALLS

---

Once the slab had been given time to set, we began to work on the construction of the classrooms brick walls. These walls were specified to be a height of three feet. This height specification was chosen so that in the event of future earthquakes, harm from falling brickwork would be drastically reduced.

The classrooms perimeter walls were constructed with double brick courses, while a single nine-inch course of brickwork was for partition walls. The volunteers who had quickly become bricklaying experts following the construction of the footings, worked in pairs to complete each classroom within approximately one week.

## PAINTING

---

Once the work on the classrooms was completed, painting commenced. Volunteers painted the internal and external walls of each classroom. An initial base coat was applied to the walls and the steel frame. Once dry, a final a coat of paint was applied to the walls to provide the classrooms with an attractive and colourful finish.

Volunteers also painted the desks and chairs of existing classrooms, which were in much need of a new coat of paint and finish. Upon completion of the painting, local carpenters installed window frames and a lightweight timber and aluminum walling system to finalise the construction of the classroom block.

## TOILETS

---

While the painting work was being completed, this allowed half the volunteer group to shift their focus to the construction of a new toilet block for the school, replacing the existing toilet block. Designed by local architects, this new toilet block provided much needed hand-washing facilities to the school, affording the school's children a hygienic and clean space.

It was hard to leave the Suryodaya School, an incredible school whose children show an unrivalled enthusiasm for life and education even in the aftermath of such traumatic events. The volunteers said an emotional farewell to the children and staff before commencing work on the next building site, the Indreni School.

Construction continues on both the Indreni and Deepmala school sites, as volunteers work tirelessly to provide the students of these schools and surrounding areas with safe, earthquake resistant and mitigating buildings where they can continue their education.