CHAPTER-3
SOLUTION

To overcome the major problem as discussed in the previous chapter, faced by the people living in enclosed buildings in rural areas, an user friendly, maintenance free, durable, economical and self functioning construction technique is recommended.

A continuous narrow opening of 0.3m width in the roof is provided all along the periphery of the building as shown in figure 3.101. Above this opening, dual parapet walls are constructed along the periphery of building, one above the external common boundary wall & the other above inner face of the opening on the beam provided at roof level. The heights of external parapet wall and internal parapet wall are purposely kept variable to maintain the level difference of about 0.30m between the dual parapet walls. The opening is roofed by white transparent or frosted FRP Plain or Corrugated Sheets fixed on M.S Angle frame with the inward slope to drain off rain water on the terrace. The terrace is treated with china mosaic water proofing treatment maintaining proper slope. The rain water harvesting is thus achieved intentionally, which Govt has made mandatory almost everywhere. The rain water harvested is thus either collected in the storage tank kept in the kitchen or discharged in the tube well or open well thus reducing the dependency on village water supply scheme. Taking in to consideration frequent famine due to uncertainty of the rainy season since last decade rainwater harvesting achieved in this technique is really the boon for the habitants of NVEB. The F.R.P Plain or Corrugated Sheets play most important role in this technique, permitting uniformly distributed Daylight in the building from 6a.m to 6p.m. throughout the year. Thus maintaining indoor hygienic comfortable conditions and overall thermal comfort. Another important component of this technique is the louvered glazed ventilators of size 1.2mx0.6m provided in the inner parapet wall approximately at the spacing of about 1.2m to 1.5m centre to centre. Depending on the length of the common wall the number of ventilators may increase. The transparent glass louvers are movable along the horizontal axis. The glass louvers can be moved in vertical plane with the help of string attached to the lever to which all the louvers in one ventilator are connected. Thus just by pulling the string one can easily operate the glass louvers. Especially in winter season the glass
louvers are kept in the closed position so that the indoor air is restricted from escaping outdoor of the building. Whereas in summer and rainy season the louvers are kept in open inclined position so that the dry and hot indoor summer air and humid air in rainy season escapes easily, increasing the rate of indoor air change resulting cooling the inner space. The ventilators play significant role in air circulation. During summer season the dry hot air inside the building moves up towards the roof and one experiences the feeling of indoor coolness.

The combined effect of white colored frosted FRP sheet covered opening and movable glazed louvered ventilator is that electricity consumption in NVEB is drastically reduced since neither the fans nor the Daylight lights are required during the day time i.e from 6a.m to 6p.m. throughout the year. Hence saving the electricity to the large extent, which itself is a great achievement. Because it is said that “Electricity saved is Electricity generated”. One can say that this is a step towards the Green Building Concept in which much stress is given on Energy Conservation in one form or the other form. The building remains cool in summer and warm in winter season the reason being that the entire terrace is protected from direct exposure to sunrays by china mosaic treatment. The sunrays are reflected back due to white broken pieces of glazed tiles thus maintaining inside and outside temperature difference of about 3° to 4° Celsius in summer season.

The opening in the roof is secured from entry of thieves and burglars by fitting M.S Grill at soffit of the roof level beams. The hygienic condition inside the building definitely improves resulting in to healthier life style of the habitants. Almost all the drawbacks of traditional opening called as Zarokha are eliminated in this building ventilation technique. This technique is very simple to implement and execute. The local labor can easily execute this technique. The most significant plus point of this technique is that once implemented it is self operating, no energy is required in any form for its operation. It is maintenance free technique.

Only drawback of this technique is that the FRP Plain or Corrugated Sheets and louvered glass panes need frequent cleaning since dust particles easily accumulate on FRP sheet due to its rough surface texture. This drawback can simply be overcome by spraying water on FRP Plain or Corrugated Sheets and louvered glass panes.
Figure 3.101  Cross Section at Roof Level of NVEB.