

## 8. Construction of CM Buildings

### *8.1 Background*

Since CM involves both masonry and RC construction, the importance of good practices related to the field execution of these two construction technologies cannot be overemphasized. It is expected that the readers are familiar with good practices related to masonry and RC construction, which are not covered in this book.

Key recommendations related to the construction of CM buildings are outlined next. Model construction specifications for CM buildings, similar to the ones used for construction of CM buildings at the IITGN campus in Gandhinagar, India (Jain et al. 2015) are provided as a reference in Appendix A.

### *8.2 Building Materials and Construction Practice*

Like for any other type of building construction, it is essential to ensure good workmanship and the use of quality building materials when constructing a CM building. Earthquake performance of a CM building will strongly depend on the quality of building materials, namely bricks or blocks, mortar, concrete, and reinforcing steel. This book does not prescribe minimum strength requirements for any building material. It is assumed that the minimum material quality requirements prescribed by pertinent IS standards related to RC and masonry construction are met.

The strength of masonry units (bricks and blocks) is very important. It significantly influences the masonry compressive strength and the  $Wl$  requirements for a specific building (as discussed in Chapter 7). The minimum compressive strength for bricks used for CM buildings in 1- and 2-storey buildings should be 3.5 MPa (as prescribed by IS 1905), and minimum 7 MPa for buildings taller than 2 storeys. For concrete blocks the minimum compressive strength should be 7.0 MPa. Note that the compressive strength is determined based on the net area.

Mortar for CM construction should comply with the requirements of IS:2250-1981. It is important to use stronger mortar mix compositions, such as Type M1, M2, H1 and H2 mortars per IS 1905.

### *8.3 Foundation and Plinth*

- A continuous strip footing should be constructed in the same manner as in traditional masonry wall construction. Either brick masonry or an RC strip footing should be constructed (Figure 8-1).
- An RC plinth band should be constructed on top of the foundation. In CM construction, the plinth band enhances seismic safety and is also essential for reducing foundation settlement in soft soil areas.