MAITREE NGEAN : LOAD DISTRIBUTION ON SHORING IN MULTI-STORY FLAT PLATE CONSTRUCTION. THESIS ADVISOR : PROF.EKASIT LIMSUWAN, Ph.D. 81 pp.

Flat slab has been one of the most popular floor systems for high-rise construction. It is a common practice that a freshly placed slab must be supported by hardened slabs below by means of shoring system. However, the accumulative load transmission in the floor slab may become a problem during its construction especially when the design live load is relatively small.

The objective of this thesis is to determine actual forces transfer to the slabs and shoring system during the construction by modeling the structure as a rigid frame considering the slabs and shoring system as an equivalent frame. The analysis has been performed by conventional frame analysis using the following variables such as number of supported slabs, rate of contruction, types of cement, shore spacing, slab thickness, shore stiffness and concrete strength.

The results indicate that loads contributed by freshly placed slab will distribute through the shoring into the slabs. The highest floor has shared more loads than the lower ones and the distribution has shown to be relatively small when more than 3 consecutive floors supports have been used. The forces transfer to the last third floor have shown to be less than 10% of distributed loads. On the other hand when shoring systems on the lowest floor are removed, the loads have tansmitted from the shores to the upper slabs ; the lowest floor has picked up the higher load than the upper ones with gradually decrease. During releasing the shores, the lowest floor has taken more than 63% of the loads while the rest has been carried by the upper floors. The maximum accumulative loads carried by slabs during construction sequence have shown to be about 1.6 times of newly cast slab weight. The accumulative loads carried by the floor slab depend on rate of construction, types of cement, shore stiffness and shore spacing. Rate of the construction must be related to the concrete strength development. It is indicated that if concrete strength development is more than 70% at the rate of the construction, then the rate of construction seems to be less influenced to accumulative load transmission. The shore stiffness and the shore spacing will affect the transmitted loads in the floor or shoring in the magnitude of 9% and 8%, respectively. The slab thickness, concrete strength and the number of supported slabs show very slightly effect on the accumulative load on the floor slabs.