



1 Sep 2015

Professional Engineers and other interested parties

CIRCULAR ON COLLAPSE OF REINFORCEMENT CAGE FOR THICK CONCRETE SLAB

On 29 Dec 2014, a reinforcement cage for a thick concrete slab collapsed at a worksite for the construction of the stadium's foundation at Tsinghua High School, Beijing, China. The accident happened during fixing of reinforcement bars for a 1.5m thick raft structure. 10 workers were killed and 4 were injured.

2. This reminds us of a similar accident in Singapore that had happened 10 years prior to the above accident. On 29 April 2004, the reinforcement cage for a 5m thick raft for a basement foundation collapsed during fixing of reinforcement bars at the Fusionopolis' worksite where 2 workers were killed and 29 workers injured.

3. There are recent observations where structures such as bar chairs and props were not designed for their use to support the construction of thick rafts or slabs. This has raised concerns as past accidents show that the failure of such supports or foundations would result in catastrophic consequences. Legal requirements impose duties on professional engineers who designed the permanent structure to ensure that the designs for such supporting structures are adequate. We have observed cases of which professional engineers have neglected to perform this duty, giving rise to concerns on the safety and integrity of such structures.

4. **As high risks are associated with such cast-in supporting structures or foundations, efforts must be taken to ensure that the designs of such structures are adequate, particularly where persons are required to work under or within these structures.**

Requirements under WSH (Construction) Regulations

5. We wish to remind all PEs of the legal requirement under the Workplace Safety and Health (WSH) (Construction) Regulations Part IV, General Provisions, Structures and Supports Reg. 20(4) which requires, where a supporting structure in a worksite or its foundation will eventually form an integral part of the permanent structure designed by a professional engineer, that the PE shall:

- a) take reasonably practicable measures to ensure that the design of the supporting structure or its foundation is adequate and safe for its intended use; and
- b) endorse the design of the supporting structure or its foundation as safe for its intended use.

6. We wish to remind all PEs of the above requirement and that legal action will be taken against any PE who fails to perform his/her duties under the Act.

7. Should you need further information, please contact MOM at mom_oshd@mom.gov.sg or 6438 5122 for information on workplace safety and health.



CHAN YEW KWONG
for Commissioner for Workplace Safety and Health
Occupational Safety and Health Division
Ministry of Manpower

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1 Sep 2015	Supporting structures	OSHD / OSHI/CS/01-2015

Occupational Safety and Health Division
18 Havelock Rd,
Singapore 059764
Tel : (65) 64385122
Facsimile : (65) 63171261
Website : <http://www.mom.gov.sg/oshd/>
Email : mom_oshd@mom.gov.sg

