SAFETY ALERT **JKKP/DOSH**

THE COLLAPSE OF STEEL FRAME STRUCTURES UNDER CONSTRUCTION

Accidents involving steel frame structures that have collapsed while under construction have occurred recently. Before the incident, all main structures such as column and trusses structure completely installed. The joining of structural members is using bolt and nut. The purlin was stack on the truss structures before it was arranged according to the correct position. The purlins pile has been place on the truss structures before it is arranged according to the actual location. There is no lifting operation on the day of the incident. The structures have loss stability and collapse on to the workers that caused one (1) worker fatal and seriously injuring four (4) workers.

Hence, these steps should be followed to avoid the same occurrence:

i) Steel frame structures erection method of statement

The contractor with the consultant shall prepare a method of statement on steel frame structures erection according to the recognition standards the make sure the stability of the structure before it is fully rigid.

ii) Temporary restrains until permanent features are built

The Contractor shall design and provide the temporary bracing or restraints and ensure stability at all times and indicate positions on the structure where temporary bracing or restraints are necessary until walls, floors or other non-steel structures are built. He shall also provide details of the forces and moments in these elements.

iii) Connection joints

All connection joints must be completed bolt tightened to ensure the stable place for the next structures connections.

iv) Erection loads

The Contractor shall ensure that no part of the structure is permanently distorted by stacking of materials or temporary erection loads during the erection process.

v) Lining and lavelling

Each part of the structure shall be aligned as soon as practicable after it has been erected. Permanent connections shall not be made between members until the structure has been aligned, levelled, plumbed and temporarily connected to ensure that members will not be displaced during subsequent erection or alignment of the remainder of the structure.

vi) Monitoring of structures

Continuous supervision shall be made on the condition of the steel frame structure that has been erected so that any deformation / condition can be identified**.**

vii) Risk assessment

The Contractor shall conduct HIRARC to identify all potential hazards that may arise from the operation of the work to be carried out and take the necessary control measures to prevent any unintended event.

Further informations :

- Part IV, Factories and Machinery (Building Operations and Works of Engineering Construction) (Safety) Regulations 1986;
- *Steel Building (Publication No 35/03), The British Constructional Steelwork Association Ltd.*;
- *Jabatan Kerja Raya Malaysia, Specification for Structural Steelworks, JKR 20601-0191-12*;
- Guidelines on Hazard Identification, Risk Assessment and Risk Control (HIRARC) 2008