



**ROOF STRUCTURES OF
VELODROM COLLAPSED IN NILAI,
NEGERI SEMBILAN**



An incident involving the collapse of a roof truss structure which is in the process of installation in a velodrome has occurred at approximately 3:00 pm, June 18, 2016 in Nilai, N.Sembilan. Two skylift machinery under the roof structure has been crushed by the collapsed roof structure. The skylift machinery was used to lift workers to do the connection work on roof structure. This incident also caused a worker injured and no casualties occurred.

The root cause of the collapse of the roof trusses structure may be caused by several factors such as the following;

1. The failure of the design and installation of the roof structure, the support columns and girder structure.
2. The construction and installation of roof structures, column and girder structure is not in accordance with design specifications that have been made by the consultant and do not comply with the safe installation methods.
3. The construction materials used are substandard and not in accordance with design specifications.
4. The roof structure has suffered over-load , caused all columns or girders structure fail and collapse.
5. There was a failure on the girder structure which supports the roof truss structure.
6. There was a failure in the connection component of roof truss structures involved.
7. The truss roof structure was not supported by sufficient and strong support structures.
8. There is no effective communication between the parties involved such as designers, engineers, consultants, contractors and sub-contractors during the construction and installation of the roof structure.

Control Measures:

1. The structure of the roof trusses built and installed must be stable, strong and serviceability.
2. The design of the roof truss structures must comply with the prescribed standards and codes. If there are any changes to the design, it must be referred to the designer for approval before installation is made.
3. The installation of roof truss structure must fully comply with the specifications and requirements of the approved design , and must also comply with safe operating procedure of structure installation. The installation of the structures shall be done by competent person.

4. Ensure that the material used for the installation of roof truss structure meets the prescribed specifications and standards.
5. Use and mounting of anchors bolt and its chemical for the connection of roof truss structure and girder to concrete column must comply to manufacturer instruction and design specification. These instructions include the size and depth of holes drilled, installation procedures and timelines durable.
6. Temporary support and bracing with adequate strength and stability shall be provided on roof truss structure.
7. Inspection and supervision on a regular basis from time to time should be done by a competent person during the installation of roof trusses structure ,it is to ensure that the installation work is done properly and completely and in accordance with the construction procedures that have been set. In addition it also to ensure that the structure is safe , stable and strong.
8. Enforcement use of checklists relating to the relevant authorities such as the request for inspection (RFI) is important to ensure that any subsequent job is safe to run.
9. HIRARC must be done before the installation of the roof structure.
10. Duty holders should monitor the structures under their management and control for adequate stability to ensure employees and members of the public are not put at risk from structural collapse.

References:

1. Guidelines For Public Safety and Health at Construction Sites, JKKP Malaysia.
2. Safework SA , Government of South Australia.
3. Safety Alert , WorkSafe Victoria