



Systemic Safety Alert **Truss-out Bamboo Scaffold Safety**

Major systemic safety problems

Truss-out bamboo scaffolds (TOSs) are widely used in building repair and maintenance works. Many fatal/ serious fall-of-person accidents, however, occurred in the course of the erection, alteration, use and dismantling of TOSs due to the attribution of one or a combination of the following major systemic safety problems:

- failure to conduct task-specific risk assessments and to formulate appropriate method statements for the “erection/ alteration/ use/ dismantling of TOSs”;
- lack of design drawings, specifications of supporting brackets/ anchor bolts/ construction materials, and method statements for “erection/ alteration/ use/ dismantling of TOSs”;
- lack of control and monitoring to ensure conformity with the TOSs design drawings/ specifications and method statements;
- failure to provide suitable fall arresting systems/ personal protective equipment and ensure the proper use of such;
- absence of suitable and safe working platforms/ means of supports on TOS; and
- failure to provide adequate safety information, instruction, training and supervision.

Accident prevention measures¹

Registered Safety Officers (RSOs) should advise their employers/ clients to:

- appoint a competent person to conduct task-specific risk assessments to identify any foreseeable hazards associated with the work;
- draw up the specifications of TOSs, and formulate method statements with proper sequence of work as well as appropriate safety precautions to be taken in detail to eliminate or mitigate the hazards identified. Factors to be considered include but not limited to the following:

¹ For details of fall prevention measures, please refer to the “Overview of Work-at-Height Safety” issued by the Labour Department.



- TOSs should be designed to cope with their self-weights, loads to be imposed and extra loads resulting from wind forces;
- structural characteristics of external walls should be duly considered prior to the erection of TOSs so as to ensure that they can support the loads;
- safe means of access and egress for erection/ alteration/ use/ dismantling of TOSs shall be provided and properly maintained;
- TOSs should be adequately supported on construction materials such as structural walls, and prohibited from resting on decorative structures of a building;
- each bracket must be fitted by three or more anchor bolts with particular attention to the following aspects:
 - appropriate anchor bolts should be selected according to the strength of construction materials;
 - anchor bolts should be installed in accordance with the installation procedures specified by the manufacturers;
 - diameter and depth of boreholes as well as tightening torque of anchor bolts must meet the installation requirements set out by the manufacturer;
 - depth of the boreholes must be adequate and should fully penetrate into construction materials (e.g. concrete walls). Plastering on the external walls should not be relied on for load bearing purpose; and
 - anchor bolts should be fixed at appropriate distances from the edges of construction materials which is at least 3 times the embedment depth. Fixing of a metal bracket to the bottom edge of the tie beam should be avoided; and
- all components of TOSs are of sound materials, good construction, adequate strength and free from patent defects.
- provide all personnel involved with necessary safety information, instruction and training to ensure that they are familiar with method statements, safety measures and have fully understood their roles and responsibilities;
- ensure TOSs are erected/ altered/ dismantled by trained workmen with adequate experience and under the immediate supervision of a competent person who is appointed by the contractor for this purpose. The competent person should not actively engaged in TOS work and should be free to look to the safe condition of scaffold and the safety of the workmen without being distracted by having to mind



one's own safety;

- provide every workman engaged in “erecting/ altering/ using/ dismantling of TOSs” with a suitable full body harness that is attached continuously to a suitable and secure anchorage or an independent lifeline with a suitable fall arrester, and ensure the proper use of them;
- not attach the safety harness to an object which is not designed for securing safety harness, such as window frames, water pipes or scaffolding members, etc.;
- regularly maintain TOSs, and inspect as well as certify safe working order of TOSs in accordance with the design drawings by a competent person; and
- exercise adequate monitoring and effective supervision to ensure that the above safety measures are strictly implemented, followed and maintained.

Registered Safety Auditors (RSAs) should take into account these systemic safety problems and accident prevention measures in executing safety audit functions.

DISCLAIMER

This Systemic Safety Alert is issued to draw the attention of interested parties to the relevant systemic safety problems and accident prevention measures necessary to protect people engaging in similar works activities. The material contained in this Alert constitutes general guidance only. It does not reduce, limit, or replace, any legal obligations upon any person to comply with any statutory duties under relevant legislation. Users such as Managers and Supervisors should make their own evaluation of the information contained in this Alert to determine if it can be applied to their own situations and practices. The Labour Department does NOT accept any responsibilities for any loss or damage resulting from the use of or failure to use the information contained herein.