

Number:	OH&S 18.14.1
Revision Date:	2014.01.27
Ladders and Scaffolding	

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1. PURPOSE


- 1.1. To define the requirements and responsibilities of working with ladders and scaffolding at Thompson Rivers University (TRU).

2. SCOPE

- 2.1. This procedure applies to all employees, students and contractors working at Thompson Rivers University (TRU), who are required to work on ladders and scaffolding.

3. PRECAUTIONS

POTENTIAL HEALTH & SAFETY HAZARDS

HAZARD		TO PROTECT YOURSELF
Fall from Height		Ensure: <ul style="list-style-type: none"> lanyard is attached to anchor point guardrails are in place ladder has a level footing you have a three-point contact while ascending, working or descending a ladder inspect and document before use

4. ASSOCIATED DOCUMENTATION

<u>Doc. Number</u>	<u>Doc. Title</u>
OH&S 18.15.1	Ladder Inspection Form
OH&S 18.16.1	Scaffold Inspection Form

5. PROCEDURES AND RESPONSIBILITIES

LADDERS

- 5.1. Before use, ladders must be inspected and the inspection documented using the ladder inspection form.

- 5.2. After use all ladders must be returned to designated storage areas.

5.3. Portable Ladders:

- 5.3.1. Must be inspected by a competent worker prior to each use. This inspection

must be documented on the Ladder Inspection Form,

- 5.3.2. must be a Grade 1 or 2 fiberglass or aluminum ladder,
- 5.3.3. Grade 1 shall not exceed 9m (30ft) in length,
- 5.3.4. must be free of broken or loose members,
- 5.3.5. must be located a safe distance from live electrical installations; must have non-slip feet,
- 5.3.6. avoid contact with electrical wiring or devices,
- 5.3.7. do not stand on or above the third rung from the top,
- 5.3.8. must not be placed in the path of mobile cranes, hoists, etc., unless these devices have been locked out, and
- 5.3.9. When used in locations such as doorways or passageways must be protected from being knocked over.

WARNING: Always use ladders safely - use alternative man lifts where possible and practical to do so.

- 5.3.10. The following must be complied with when using portable ladders to access elevations up to 25 feet:
 - a) 3-point contact (two feet, one hand or two hands, one foot) must be maintained prior to connecting the fall arrest system and after the fall arrest system is disconnected,
 - b) ladder tops must rest on a firm structure and be secured,
 - c) ladders must be tied, blocked, or otherwise secured to prevent them from slipping,
 - d) personnel climbing ladders, which are not tied off at the top, must have another person holds the ladder at the bottom until it can be secured. This includes the last trip down after untying the ladder at the top,
 - e) upon reaching the elevation the work is to be performed, the person on the ladder shall properly connect his/her fall protection system before doing anything else,
 - f) next, the ladder must be tied off before work can begin, and
 - g) when the task is complete, the fall arrest system is the final protective device to be removed before descending.

5.4. Stepladders:

- 5.4.1. the legs of a stepladder must be fully spread,
- 5.4.2. the spreader brace must be locked,
- 5.4.3. never use the pail shelf (top step) of a stepladder to support your weight,
- 5.4.4. stand no higher than the second tread from the top of the step ladder,
- 5.4.5. step ladders may not exceed 6 metres (20 feet) in length measured along the side rail,
- 5.4.6. where possible, use a second person to hold (foot) the ladder,
- 5.4.7. Grade 1 stepladders shall not exceed 6m (20ft) in length,
- 5.4.8. avoid contact with electrical wiring or devices, and
- 5.4.9. do not overreach.

5.5. Extension Ladders:

- 5.5.1. Grade 1 extension ladders may not exceed, when measured along the side rail:
 - a) eighteen metres (60 feet) in length for a single section ladder, or
 - b) twenty two metres (72 feet) in length for a two section extension ladder.
- 5.5.2. When not securely fastened, an extension ladder:
 - c) must be erected 1 metre (3.3 feet) out for every 3 or 4 metres (10-13 feet) up, and
 - d) the ladder must extend 90 centimetres (3 feet) above the top surface access.

SCAFFOLDING

- 5.6. Scaffolding must be inspected before use and the inspection documented using the Scaffold inspection checklist. The completed checklist will be filed with Supervisor.
- 5.7. **Scaffold Design:**
 - 5.7.1. A scaffold must be designed by a professional engineer and must be erected in accordance with the design if the scaffold exceeds:
 - a) fifteen meters (50 feet) in height above its base support, or
 - b) ten meters (33 feet) in height above its base support if the scaffold is

constructed of a tube and clamp system.

5.7.2. Every scaffold must be designed and constructed to support or resist:

- a) two times the maximum load or force to which it is likely to be subjected, without exceeding the allowable unit stresses for the materials of which it is made, and
- b) four times the maximum load or force to which it is likely to be subjected without overturning.

5.7.3. A scaffold platform or other work platform:

- a) must be at least 50 centimetres (20 inches) wide,
- b) if it is 2.4 meters (8 feet) or more above a floor, roof or other surface, consist of planks laid tightly side by side for the full width of the scaffold,
- c) if it is 2.4 meters (8 feet) or more above a floor, roof or other surface, consist of planks laid tightly side by side for the full width of the scaffold,
- d) must be provided with a guardrail as required,
- e) must have an adequate means of access,
- f) must not have any unguarded openings, and
- g) must have each component secured against slipping from its supports.

Scaffold Selection:

5.8. It is important to select the proper scaffold for the task to be completed. Selection criteria include:

- 5.8.1.** weight of workers, tools, equipment to be carried on the scaffold,
- 5.8.2.** site conditions,
- 5.8.3.** height required,
- 5.8.4.** type of work to be completed,
- 5.8.5.** duration of work,
- 5.8.6.** experience of workers,
- 5.8.7.** pedestrian traffic,
- 5.8.8.** weather,

- 5.8.9. ladders and access to the platform,
- 5.8.10. obstructions,
- 5.8.11. configuration of building or structure to be worked on,
- 5.8.12. erection and dismantling conditions, and
- 5.8.13. use of equipment to be used in the erection of the scaffold.

Scaffold Location:

- 5.9. The location should be inspected for:
 - 5.9.1. ground/floor conditions,
 - 5.9.2. overhead wires and other overhead hazards,
 - 5.9.3. obstructions,
 - 5.9.4. variation in surface elevation, and
 - 5.9.5. tie in locations.

Erecting Scaffold:

- 5.10. Major components of scaffolds must be used in accordance with technical data provided by the manufacturer, or in writing by a professional engineer.
- 5.11. Scaffolds must show the rated load, erection procedures and compliance with an applicable standard.
- 5.12. All components of the scaffolding will be used each time it is erected, including the following:
 - 5.12.1. base plates,
 - 5.12.2. braces,
 - 5.12.3. proper securing devices,
 - 5.12.4. tie-ins,
 - 5.12.5. advance planning considerations will be followed during the erection process,
 - 5.12.6. each component of the scaffold will be visually inspected before use,
 - 5.12.7. defective or broken pieces/material will not be used,

5.12.8. if wood is being used only approved lumber will be used, and

5.12.9. mudsills must be used if erected on soil.

Pre-inspection of erected scaffolding:

5.13. Only competent workers will conduct the pre-inspection.

5.14. CSA standards for the particular type of scaffolding will be used and followed.

5.15. The following is a pre-use inspection guideline:

5.15.1. severely rusted components should be thoroughly inspected and cleaned before approved for use,

5.15.2. all members or parts of all steel scaffolding components should be straight and free from bends, kinks or dents,

5.15.3. scaffolding equipment should be checked before use for damaged welds,

5.15.4. check locking devices,

5.15.5. check alignment of coupling pins and braces,

5.15.6. check caster brakes (rolling scaffolds),

5.15.7. check for damage to hooks on manufactured platforms,

5.15.8. check for splitting, knots and dry rot in planks,

5.15.9. check for de-lamination of laminated veneer lumber planks,

5.15.10. check for compatibility of components, and

5.15.11. check for presence of all components.

Final inspection of erected scaffolding:

5.16. Only competent workers will conduct the final inspection of erected scaffolding.

5.17. The following final inspection checks must be made and documented where stated:

5.17.1. check for proper support under every leg of every frame,

5.17.2. if outside check for wash out due to rain etc.,

5.17.3. check to ensure all base plates or adjustment screws are in firm contact with supports,

- 5.17.4. ensure that the scaffold is guyed or secured to a building or structure,
- 5.17.5. check serviceability and correctness of all cross braces,
- 5.17.6. check to ensure that all planking and accessories are properly installed,
- 5.17.7. check to ensure that all guardrails are in place,
- 5.17.8. recheck periodically to ensure the scaffolding remains safe,
- 5.17.9. the person inspecting the erection of the scaffold must state in writing that the scaffold is erected in accordance with the design drawings, and
- 5.17.10. the design drawings and the written statement for a scaffold must be easily accessible while the scaffold is erected.

Dismantling of scaffolding:

- 5.18. Only competent workers will supervise the dismantling of scaffolding.
- 5.19. The following is a guideline:
 - 5.19.1. manufacturers dismantling instructions will be followed,
 - 5.19.2. relocation planning considerations will be considered during the dismantling process,
 - 5.19.3. each component will be visually inspected after use,
 - 5.19.4. defective or unserviceable materials will not be stored with serviceable materials, and
 - 5.19.5. avoid dropping or throwing the components as this could result in damage to the equipment.

CLEANING & MAINTENANCE

- 5.20. Hang ladders in a dry place.
- 5.21. Do not paint wooden ladders; treat at frequent intervals with wood preservative or clear coating (wooden ladders only).
- 5.22. Plastic reinforced ladders maybe affected by prolonged sunlight exposure which can cause glass fibre prominence. If this occurs clean the ladder with a suitable solvent or detergent and coat with acrylic lacquer or polyurethane.
- 5.23. Keep metal or aluminum scaffolding lubricated to prevent rust.
- 5.24. Clean regularly to prevent the buildup of dirt and other substances. Do not use a

pressure washer on metal or aluminum scaffold unless you wipe it down afterwards to prevent rust. Pressure washing wooden plank boards can cause rotting.

- 5.25. Repair broken or missing parts promptly. Repair or replace any planks that are soft, bent or broken.
- 5.26. Store properly. Keep under cover when not in use to prolong its life and prevent people from climbing on it.

6. RECORDS/VERIFICATION OF UNDERSTANDING

6.1. Records:

6.1.1. Ladder Inspection Records

6.1.2. Scaffolding Inspection Records

6.2. Verification of Understanding:

6.2.1. A training master log will be maintained by

7. SUMMARY OF CHANGES

Revision #	Date	Change (include section #)	Issued By
1	2011.10	NEW	OHS Manager
2	2014.01.27	Reviewed	OH&S Officer