SOP.04

Ladder Safety

Cork Scaffolding CSC Ltd	SOP.04	SAFECERT

Purpose

The purpose of this document is to give some guidance on the safe use of ladders on site.

The company predominately provides straight ladders with scaffold structures and as such these are inspected as a part of the entire scaffold and the inspection is then recorded in a GA3 form. The ladder provided as part of the scaffold forms part of the overall access required by the client and remains in place for the period of hire with the entire scaffold.

Access to scaffolds

A safe means of access and egress to all working platforms must be provided.

Scaffold access ladders should meet the following standards:

- If enough room allows, ladder access towers should be fixed to the outside of the scaffold, where practicable with single lift ladders and self- closing gates to separate the access tower from the working platform.
- the top of the ladder should be securely fixed to the scaffold by lashings or similar to prevent movement. A square lash is the recommended means of tying ladders with rope. (See Below)
- the ladder should be set at an angle of 1:4 and allow enough room for workers access and egress through the ladder access opening.
- each stile should be equally supported on a firm and level footing.
- the ladder should extend 1 meter above the landing point unless a suitable alternative handhold is provided.
- maximum vertical distances between landings allowable is 9 meters.
- where the ladder is internal guard rails or other protective measures should be in place around the opening to prevent someone stepping into the ladder access opening accidently.

- the clear dimensions of the ladder access opening shall be at least 450mm wide and 600mm long.

Hierarchy of Control

In order of preference, access should be considered as follows with staircase access as the first preference.

Hierarchy of Control:

1	Staircases
2	Ladder Access Bays with Single Lift Ladders
3	Ladder Access Bays with Multiple Lift Ladders
4	Internal Ladder Accesses with Protection i.e. ladder trap hatch / handrails etc
5	External Ladder Accesses Using a Safety Gate / Swing Arm System
6	Other

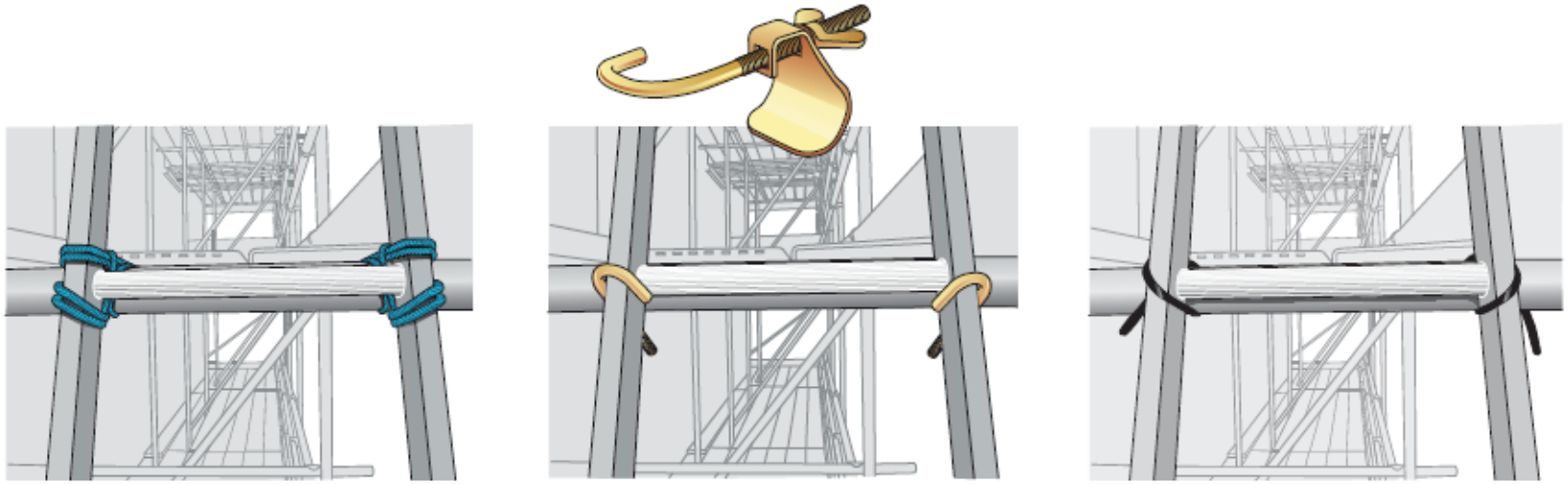

Figure 7
Typical methods of securing a Ladder

Regulation 114: Ladders

114. An employer shall ensure that—

(a) a ladder is used for work at height only if the risk assessment has demonstrated that the use of more suitable work equipment is not justified because—

(i) the level of risk is low, and

(ii) the duration of use is short, or

(iii) existing features at the place of work cannot be altered,

(b) any surface upon which a ladder rests is stable, firm, of sufficient strength and of suitable composition to support safely the ladder, so that the ladder's rungs or steps and any loading intended to be placed on it remain horizontal,

(c) a ladder is so positioned as to ensure its stability during use,

(d) a suspended ladder is attached in a secure manner so that, with the exception of a flexible ladder, it cannot be displaced and swinging is prevented,

(e) a portable ladder is prevented from slipping during use by—

(i) securing the stiles at or near their upper or lower ends,

(ii) effective anti-slip or other effective stability devices, or

(iii) any other arrangement of equivalent effectiveness,

(f) a ladder used for access is long enough to protrude sufficiently above the place of landing to which it provides access, unless other measures have been taken to ensure a firm handhold,

(g) no interlocking or extension ladder is used unless its sections are prevented from moving relative to each other while in use,

(h) a mobile ladder is prevented from moving before it is used,

(i) where a ladder, or run of ladders, rises a vertical distance of 9 m or more above its base, sufficient safe landing areas or rest platforms are provided at suitable intervals, where reasonably practicable, and

(j) a ladder is used in such a way that—

(i) a secure handhold and secure support are always available to the employee, and

(ii) the employee can maintain a safe handhold when carrying a load unless, in the case of a stepladder, the maintenance of a handhold is not practicable when a load is carried, and the risk assessment has demonstrated that the use of a stepladder is justified because—

(I) the level of risk is low, and

(II) the duration of use is short.

There are many types and sizes of ladders including portable, suspended, step, interlocking, extension, mobile and fixed ladders. They all, regardless of their use, need to meet the requirements of the work at height Regulations. This would include, for example, a portable ladder that is tied in place for many months for access to an office on a building site. They should be strong enough to take the loads placed upon them. New ladders are marked in accordance with their conditions and class of use. Anyone using a ladder or stepladder for industrial work should ensure that it is marked in accordance with Irish, European or other appropriate standards, such as:

- EN 131 -1 and EN 131-2 Ladders;
- Timber BS 1129: 1990 Kite-marked Class 1 Industrial;
- Aluminium BS 2037: 1994 Kite-marked Class 1 Industrial; and
- Glass Fibre BS EN 131: 1993 Kite-marked Industrial.

All duty-holders considering using a ladder to perform work at height, or as a means of access or egress, should carry out a risk assessment. The assessment should be proportionate to the risks involved. For example, a generic assessment may be quite suitable for simple, routine or repetitive tasks, but more complex work will need specific planning. Doing a written assessment will ensure that the risks are recorded. A risk assessment should cover factors such as the height to be negotiated, the site conditions (including weather), the duration and extent of the work and the frequency of access etc. It is important to remember that:

- ladders should only be used as a place to work when other, potentially safer, means such as tower scaffolds are not reasonably practicable; and
- ladders should only be used for access when putting in a staircase is not reasonably practicable.

In addition to the above, when considering whether it could be appropriate to use a ladder or stepladder it is also important to establish that:

- the work is of short duration; and
- the work is low risk, e.g. light work – ladders are not suitable for strenuous or heavy work.

Many falls from ladders occur because the ladder moves unexpectedly during use. This is very often caused by the user over-stretching or the feet of the ladder slipping due to inadequate grip.

Maintenance issues such as ensuring that it is free from mud or paint and that the feet are still providing effective grip are vitally important. Research has indicated that the feet of a ladder are particularly susceptible to damage that can significantly reduce the grip, make them more vulnerable to movement and, as a result, increase the potential for falls.

Portable ladders (not stepladders) should always be placed at the correct angle, which is around 75 degrees or roughly one metre out for every four metres up.

Portable ladders should be prevented from slipping during use, for example by:

- tying the stiles effectively to an existing structure – securing them at the top is the best method; securing at the bottom or middle is not very effective to prevent sideways slip, unless it is done properly with equipment designed for the purpose;
- using an appropriate ladder stabiliser or anti-slip devices; and
- having another worker "foot" the ladder (this is where someone stands on the bottom rung, and is only suitable when it is not practicable to secure the ladder in another way, as it is not very effective).

As well as being properly maintained, regular visual checks should be made for damage such as cracked or bent stiles or rungs, corrosion and defective or missing fittings. The surface on or against which a ladder is placed must be strong enough to support any loads placed upon it. Plastic gutters and glass, for example, are unlikely to be able to support the weight of a ladder and worker. The surfaces onto which ladders are leant must be flat unless special provision is made, such as the use of a levelling device. Weather and other factors will affect the surface, e.g. ice, rain and wet leaves will reduce the friction of the surface. Where a worker needs to gain access to a platform, the stiles of the ladder should protrude sufficiently to enable a safe handhold and, if necessary, have a handhold when working at the higher level. Even a stepladder should not be positioned where there is access to a doorway or where passing traffic is likely to strike it.

As well as the physical strength of the ladder, certain environments require additional thought. Ladders should not be used within six horizontal metres of overhead power lines unless they have been made dead or protected by insulation. Where it is essential that work be performed, workers in the vicinity of electrical circuitry should be using nonconductive access equipment, e.g. made of glass fibre. However, if the electricity is isolated, workers on an aluminium tower scaffold will get far greater protection from falling than from being on a ladder. In “sterile” industries such as the manufacture of food, computer circuit boards or health products, glass fibre is the preferred material for access equipment. In the chemical and oil industries, 100% glass fibre ladders are suitable where the access equipment needs to be “spark free” as well as non-conductive.

Other factors that can improve the safe use of ladders include facing the ladder at all times when climbing or dismounting and maintaining contact with both feet and at least one hand.
"A secure handhold should be available" means that the user can grasp an upper rung or handrail on the ladder or stepladder (if, as recommended, the user is not working from the topmost two or three rungs or steps this should be possible). It does not mean that the user is expected to be holding the rung or handrail at all times as this would clearly make it impossible to carry out many tasks for which two hands are needed. Where two hands are needed to perform work on a ladder, other protective measures, such as fall arrest or restraint systems, should be used to prevent or arrest a fall. In the case of a stepladder, provision is made for the carrying of a load, which makes it impracticable to maintain a handhold, provided that:

- a proper risk assessment has been carried out; and
- the risk assessment demonstrates that the use of other potentially safer equipment is not practicable because of the low level of risk and the short duration of use.

Also in the case of a stepladder, consideration should be given to, for example, its suitability for the site conditions and the task (e.g. is it of short duration and light duty?). Other factors to consider would be the height of the task, whether the user can balance properly, whether the stepladder can be positioned close to the task to avoid over-reaching, whether the task does not involve side loading that could cause the stepladder to fall over, and if it is sited on firm, level ground.

Over-reaching while working from a ladder is a major cause of falls. Always go down and move the ladder rather than be tempted to over-reach. Stepladders can be used sideways, but not for any work that puts a side loading on them of any significance. When it becomes significant depends on the height and the floor type. As a rule of thumb, cable pulling, drilling and sawing should not be undertaken sideways, but inspection work, painting and operating switches may be done with the stepladder sideways. There should never be more than one person on a stepladder and he or she should never try to stand or rest a foot on the top handrails to gain extra height.

When the job is done, a portable wooden ladder needs to be protected from the weather in a covered, ventilated area. A ladder should not be hung by one of its rungs, as this could weaken it.

Fixed ladders should not be provided in circumstances where it would be practical to install a staircase.

Cork Scaffolding C S C Ltd	SOP.04	SAFE CERT

Project / Location	Cork Scaffolding Yard and Construction Sites			Project No:	
Assessment Date:	March 2020	Assessed By	Seamus Cummins	HAZARD – RISK ASSESSMENT	

Brief Description of Activity/Package:	USE OF LADDERS

Cork Scaffolding CSC Ltd	SOP.04	SAFECERT

Ranking Risks

Likelihood	Definition	Rating
Very Unlikely	Less than 1% chance per individual working lifetime/ extreme situations only	1
Unlikely	Once per individual working lifetime/ no evidence of occurring	2
Likely	Once every five years per individual / possibly may occur; may be due to staff or equipment failure	3
Very Likely	Once every year per individual/ intermittent in normal conditions	4
Extremely Likely	Once every six months per individual/ constantly in normal conditions	5
Note: *When applying the likelihood rating, the following aspects should be considered:* *Previous occurrence, Number of persons potentially affected*		

Severity	Definition	Rating
Slight Injury	Slight injury: no treatment required; no time lost	1
Minor Injury	Minor injury or disease; treatment required; up to three days lost	2
Serious Injury	Reportable injury or disease; treatment required; > 3 days lost	3
Major Injury	Major injury with long term absence / effects	4
Fatality	Almost certain death	5

Severity ⇒	**5**	**4**	**3**	**2**	**1**
⇓ Likelihood	**Risk Rating**				
5	25	20	15	10	5
4	20	16	12	8	4
3	15	12	9	6	3
2	10	8	6	4	2
1	5	4	3	2	1

Risk Rating (RR) Matrix

Risk Rating	Risk Category	Acceptability	Action
1-5	Very Low	Acceptable	Controls can be implemented to further minimise the risk
6-10	Low	Tolerable	Effective control measures to minimise the risks should be implemented
11-15	Medium		
16-20	High	Unacceptable	Must be reduced as far as reasonably practicable through appropriate, effective control measures
21-25	Very High		

Cork Scaffolding CSC Ltd	SOP.04	SAFECERT

REF	Activity	Hazards	Persons at Risk	S	L	Pre-Controls RR = (SxL)	Existing and additional Risk Control Measures	S	L	Post-Controls RR = (SxL)
01	**Use of Ladders**	Falls of Persons from ladders causing injury or death.	**CSC Personnel** **Others**	**5**	**4**	**20**	**LADDERS WILL ONLY BE USED WHEN OTHER MEANS OF ACCESS TO HEIGHT IS NOT REASONABLY PRACTICABLE.** Ladders should always be secured to prevent falls by lashing the stiles to a scaffold tube with rope or clips. A scaffold tag should be placed near the access point of a scaffold and updated as necessary. If the scaffold is not in use the ladder should be removed or a board can be placed against the rungs and lashed and the tag insert card removed. Ladders will be checked to ensure correct length, type and condition before use. Only ladders suitable for electrical work may be used. 3 points of contact should be maintained at all times while ascending or descending ladders. Footwear of people using ladders should be checked so that any contaminants that could cause a person to slip is not present eg. mud, oil, paint etc.	**5**	**1**	**5**

02	**Use of Ladders**	Using Damaged ladders	**CSC Personnel Others**	**5**	**3**	**15**	Scaffolders must check ladders before use to ensure they are not defective. Damaged ladders will be isolated or removed from the workplace immediately. Use made of ladders will be monitored regularly to ensure that operatives are not over-reaching or using two hands to work. Painted ladders will not be accepted for use. Management to ensure that inspections are carried out and GA3 forms completed weekly.	**5**	**1**	**5**
03	**Use of Ladders**	Use by Untrained and unauthorised personnel	**CSC Personnel Others**	**5**	**3**	**15**	All operatives must be trained in the safe use of ladders and the associated hazards of working at height. Users of scaffolds should ascertain that employees are fit and able to use ladders in a safe manner. Once scaffold has been handed over it is the user's responsibility to correctly use all of the parts of a scaffold (including the ladders) correctly. Unauthorised access to scaffolds and ladders should be prevented. Requestors of scaffolds and ladders should only put to work people that are competent to Use the equipment.	**5**	**1**	**5**
04	**Use of Ladders**	Injury from Falling Materials	**CSC Personnel others**	**5**	**3**	**15**	Materials should be not be hoisted or lowered by means of ladders. Items should not be stacked or stored near the top of a ladder.	**5**	**1**	**5**

05	**Use of Ladders**	Ladder Slipping	**CSC Personnel** **Others**	**5**	**3**	**15**	The ground base for ladder use must be firm and level. The ladder must be of sufficient length to extend 1.0m above the step - off point when used as access to a scaffold. The correct angle of rest for a ladder is 75 degrees or a base to height ratio 1: 4. Ladders must be secured against slipping by tying at the top or at the bottom. Ladders should be robust, defect free and fit for purpose. Never over-reach from a ladder, move the ladder. Never place tools on the rungs. No more than one person is allowed on a ladder at any one time.	**5**	**1**	**5**