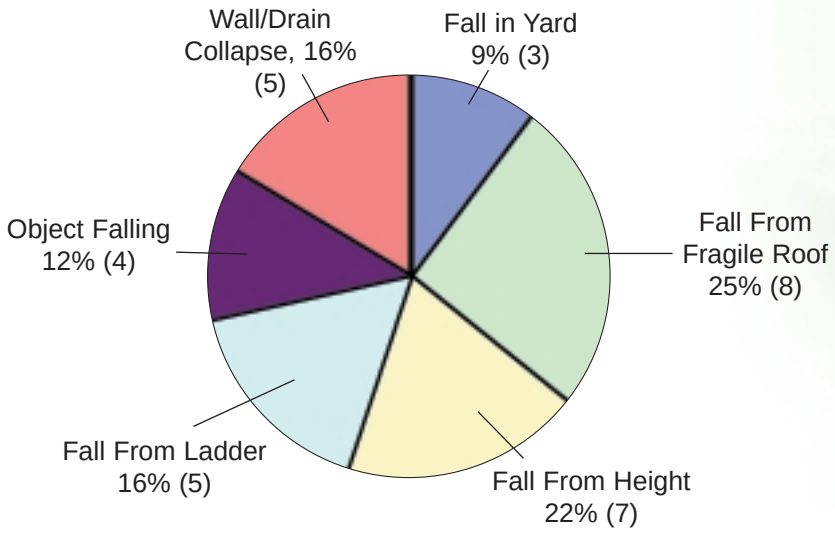
8.0 Farmyards, buildings, maintenance

8.1. Risk assessment: farmyard, buildings and maintenance

- 18% (33) of farm deaths between 1996 and 2005 were due to falls from or collapse of buildings.
- Falls from a height are the major cause of accidents involving farm buildings. Of particular concern is falling through fragile roofs and from ladders.
- Collapsing walls or earthen drains also cause deaths.
- The National Farm Survey of Safety and Health shows that the vast majority of farm injuries (about 71%) take place in or close to farmyards and farm buildings.

Figure 7: Fatal accidents associated with falls and collapses



8.2. Farmyards and buildings

PAY particular attention to preventing accidents in farmyards and buildings because of the level of farm work undertaken in these areas and the high level of risk. Since farmyards and buildings have been developed over long periods and in different ways, depending on requirements and resources available at a particular time, they may not be ideal for current activities. Assessing your farmyard and buildings for hazards, therefore, is vital to reduce the risk of injury. Many safety changes can be made cheaply and can improve the farm as a working environment.

8.3. Farmyard layout

A GOOD farmyard layout, in terms of health and safety, includes measures to control hazards associated with the following: movement within the farmyard; access to heights; farmyard and building design, and safe storage and handling of slurry.

Movement within the farmyard

- Make sure that the farmyard allows orderly movement of people, livestock and machinery. Facilities such as gates and fences should facilitate the orderly and safe movement of livestock between buildings.
- Leave adequate space between buildings to allow easy turning and movement of machinery. Identify blind spots or corners where an accident could occur, and put control measures in place.
- Ensure that passageways between buildings are at least 4.8 metres in width. Provide at least 12 metres of space at the front of silage pits to allow adequate room for turning modern equipment.
- Make sure that areas used for parking vehicles and mobile equipment are level, as rolling vehicles are a major cause of farmyard accidents.
- Ensure a high level of tidiness and provide non-slip surfaces. This is essential to prevent injuries caused by slipping, tripping and falling. Cover manholes and eliminate unnecessary ledges and uneven surfaces, as these could cause a trip or fall
- Provide properly hung gates throughout the farm to ensure easy access. Fitting a wheel to wide or heavy gates greatly reduces the effort and maintenance required. Having gates and styles in place greatly improves access. Avoid sheeted gates where possible as they can be blown by wind. Cattle grids should have an adjacent gate or alternative safe means of access.

A tidy farmyard cuts the risk of trips and falls

Access to heights

The protection of safety, health and welfare at work at height is covered by the Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006) , which are intended to be represented in new Safety, Health and Welfare at Work (General Application) Regulations.

Falls from heights accounted for the majority (63%) of farm deaths at farmyard buildings between 1996 and 2005. Take the following measures to prevent accidents related to falls from heights:

Safe use of ladders

- Much small-scale and short-duration maintenance work involves the use of ladders. Always secure a ladder, even for work that will last only a few minutes.

- The base of the ladder must always be placed on firm, level and secure ground. Ideally, the top of the ladder should be tied to a secure part of the building to stop it from slipping.
- The ladder needs to be 'footed' or tied off while it is being used. A second person can foot it or a heavy object (eg, a sandbag) can securely hold its base.
- Ladders must be in good condition. Makeshift, home-made or damaged ladders are dangerous and should never be used.
- A ladder must be placed against the side of a building at a safe angle - about 75 degrees to the horizontal (one metre out for every four metres in height).
- Never reach out sideways from a ladder as this will destabilise the ladder and possibly turn it over.
- Never carry heavy objects while climbing a ladder. You could fall and turn over the ladder. Loads are best lifted by means of a lifting appliance or pulley rope.

Use ladders with care.

Scaffolds and platforms

- Extensive work at heights may require the use of scaffolds or properly designed work platforms.
- Scaffolds should only be erected by people with appropriate training and experience. Tower scaffolds can be useful but, because they are light and potentially unstable, need to be used with care. A free-standing tower used out of doors should not be higher than three times its base.

Elevated work platforms should be used safely

An elevated work platform must:

- be sufficiently strong, with lockable access points, and fitted with sides or rails and toe boards on all four sides
- be secured to the lifting machine and unable to tip or slip sideways or forwards
- be fitted with a fail-safe lifting device that's designed to prevent collapse
- have controls to enable lifting and lowering from within the platform (where these are not available, use a reliable system of communication between the person in the platform and an alert and experienced operator)

It is also essential that:

- the person being lifted cannot contact dangerous parts of the machine, come close to overhead power lines or be put at risk of crushing against roof or beam structures
- loaders with buckets, pallets or other makeshift equipment are not used as a work platform

Roof work

Fatal and serious accidents often happen when roofs are being quickly repaired.

A total of 25% of all deaths in the agricultural sector are associated with falls or collapses. These deaths are particularly linked to fragile roof sheeting and skylights. Weathered skylights become indistinguishable from other roofing material. Both skylights and glass, when painted over, are not recognisable as such and are highly dangerous.

Take precautions when doing roof work

Take the following precautions to prevent accidents with roof work:

- On a fragile roof, use proper roofing ladders or crawling boards. Use roofing ladders on sloping roofs.
- Erect a suitable barrier to prevent falls while carrying out extensive work on roofs.
- Consider using competent construction contractors for all work at height.

Accessing heights

To ensure safe stairs, working platforms and walkways:

- Stairs should not have an excessive pitch or angle. Each step should have an equal rise in height and width. The height and width should be suitably proportioned. A recognised rule of thumb is that the width plus twice the height is between 550 and 700mm.
- The sides of stairs should be protected by a wall or railing of sufficient strength, to a height of 0.9 to one metre above the pitch line. Where a railing is used, there should be at least two rails, with the lower rail positioned mid-way between the top rail and pitch line.
- To prevent falls, lofts, work platforms and walkways should have a protective barrier at the edge, of sufficient strength. Where rails are used, the top rail should be about one metre in height, with the lower rail located mid-way between the top rail and the platform. Where necessary, edge protection should be provided (a toe plate 0.15 metres high) to prevent items such as tools from falling over the edge.
- Overground slurry tanks and grain or meal bins should have a secure working platform with protective rails and a safe means of access, such as a caged ladder.
- Surfaces of stairs and walkways should be firmly fixed and should not become slippery while in use.
- Sighting rails should be installed on silage-pit walls. The purpose of these is to indicate the location of the walls to the machine operator loading the silage when the silage is above the walls. They are not intended to prevent a machine overturning. In addition, sighting rails provide protection against a person falling.

Bale-stacking at heights

- Falling from stacks or loads of bales is the biggest cause of bale-handling injuries. This can be prevented by building secure stacks and paying particular attention to binding stacks and loads.
- Particular care is needed when removing bales from stacks, as many people, when trying to free jammed bales, fall from stacks or edges.

- Remove big bales from the top first. Never remove bales from the bottom of the stack, as this may leave overhanging bales unsupported.

8.4. Farm building design

WHEN planning the layout and fixtures of any new building, or modifying existing buildings, check the requirements related to safety and health. The Farm Building Specifications (AES - Agriculture, Environment and Structures), issued by the Department of Agriculture and Food, give authoritative guidance on safety and health features of buildings and facilities. These specifications are mandatory for obtaining grant aid.

The Department of Agriculture and Food permits grant-aiding of a wide range of safety- and health-related modifications to buildings and facilities on a farm. Thus, when preparing a grant application, you should consider what other safety- and health-related improvements to farm buildings and facilities could be included in the application.

To maximise safety in relation to buildings:

- Ensure that livestock have adequate floor space. This allows easy movement of stock and the farmer when herding is taking place.
- Make sure that ventilation is adequate. Use sliding or roller doors where doors need to be more than 1.2 metres wide.
- Provide personal-access doors.
- Ensure that gable-end walls are adequately tied into stanchions and have intermediate support. This reduces the risk of collapse if they are struck by a loader or vehicle.
- Provide adequate headroom.

8.5. Fire

FIRE on a farm can threaten life and cause serious injury. You should plan to prevent a fire and prepare an emergency response. Consider the following fire-prevention measures:

- **Isolation:** Hay, straw and other flammable materials should be stored well away from a dwelling house and other stock buildings. A minimum distance of 18 metres is recommended. Keep hay and straw storage in livestock buildings to a minimum. Store fuels and agrochemicals securely away from other combustible materials.
- **Fire Containment:** Materials such as solid concrete, solid concrete blocks, fibre cement sheeting and solid wood all have high fire-resistant qualities. Sub-dividing buildings into compartments can stop the spread of fire. However, the fire resistance of walls and roofs depends on their condition; even a small opening can completely remove the fire protection. Steel, in contrast, buckles and melts at about 500 degrees Centigrade, so keep combustible materials away from structural steel components of buildings.
- **Maintenance:** Good electrical and machinery maintenance reduces the risk of farm fires.

Electrical installations: Faulty electrical and faulty lighting installations are a major cause of farm fires. For instance, contact between dust or fodder and sub-standard electrical components or filament bulbs lead to many farm fires. Ensuring that electrical installations are done to ETCI (Electro Technical Council of Ireland) standards means they are dustproof and waterproof. Make sure that the electrical system is checked regularly by a competent electrician.

Fires on tractors, combines and machinery can be caused by loose electrical connections, sparks from engine exhausts, dust build-up on an engine and atomised spray leaking from an engine. Regular maintenance minimises the risk of fire and makes equipment more efficient. Tractors, combines and machinery should always be stored well away from combustible materials, such as hay or straw, to minimise possible loss and injury.

- **Evacuation:** Examine your farm for potential fire traps. Ensure that there is an adequate means of escape from all work areas. In the event of a fire, once a building has been evacuated, make sure that everyone stays out. Farm fires can produce highly toxic fumes, including hydrogen cyanide.
- **Fire extinguishers:** A fire extinguisher should only be used where there is no danger to the user and a clear escape route is available. While fire extinguishers have limitations, if they are used quickly and efficiently when a fire starts they can prevent a major blaze. Professional advice should be sought on the correct type of extinguisher for a particular use.
- **Emergency services:** When calling the fire service, give clear instructions as to how to get to the fire location. Farm gateways should be at least three metres wide to allow the fire brigade to pass. Typically, a fire brigade has 2,000 litres of water aboard, so a farm supply of water is often necessary to fight a fire.

8.6. Construction Regulations

THE Safety, Health and Welfare at Work Act 2005 and the Construction Regulations 2006, place extensive duties on farmers who commission or procure the carrying out of construction and maintenance of buildings. Every farmer should be informed of their legal duties under these regulations before any construction work is planned. Further information on the regulations can be obtained from the Heath and Safety Authority.

8.7. Building demolition

EXTENSIVE demolition work needs careful planning and preparation. It should be undertaken only by competent contractors.

When buildings are in a poor state of repair, they may need to be made safe with temporary supports before demolition can proceed.

In demolition, the main risks include working at height, collapsing structures and falling debris. Particular care should be taken with block walls, as these often lack structural strength and may collapse when subjected to force.

Specific regulations apply to dealing with any material containing asbestos. Asbestos, or suspected asbestos, should never be handled without expert guidance. Information on the regulations is available from the Health and Safety Authority.