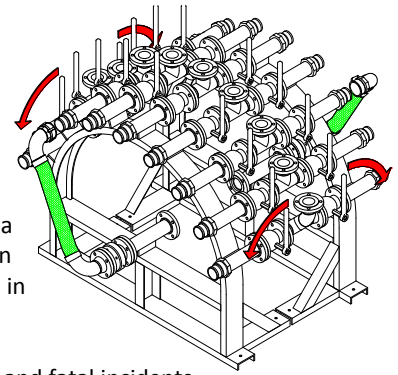


Safety comes at a cost. Cost of health; cost of budget; cost of lost time. Safety is not an isolated solution; it is a collection of products, deeds and actions. Very often the factors that contribute toward an action being unsafe cannot be attributed to the inadequacy of a single piece of equipment. At the same time, products in isolation cannot make an operation safe. The solution lies with products, often from different manufacturers, working in harmony. More of this later.



The incidence of falls from truck and rail car tops continues to be a major cause of lost time and fatal incidents around the world.

It is fair to say that the awareness of site owners and operators has increased dramatically in many countries around the world. However, the “credit crunch” has and will impact the choices made by owners when selecting Fall Prevention measures. Legislation and its enforcement, unlike the credit crunch, will not slow down. Many operators, who invested in equipment that squeezed them through compliance 10 years ago, now face potential reinvestment as enforcement tightens and sites change to accommodate different requirements such as new types of rail cars and trucks.

Folding Stairs (Retractable Gangways) have been in use around the world for many years. Their function has changed very little over time and they have provided a simple temporary bridge between a fixed platform and the variable height and distance of a truck or rail car. Increasingly, they are bought with fixed safety cages and these provide adequate fall prevention measures, but only if the folding stair is positioned correctly on the vehicle and the operator does not need extended access to the vehicle top. Folding Stairs still represent the vast majority of Fall Prevention measures adopted by sites. The Folding Stair unit will continue to serve a long and useful life when applications are simple or limited.

However, life is rarely simple and as sites consolidate their operations, they require that their facilities are used more frequently by a wider range of truck and rail car fleets for loading and unloading. This then creates a wider and more complex set of parameters that, in most cases, the simple Folding Stair will struggle to meet. Site managers must now look at future proofing their investment plans.

As an example Huntsman Corporation recognized the need for greater safety awareness and versatile loading systems. Following on from the success of their system in Llanelli, Wales, Huntsman engaged Carbis Inc. via their EPC contractor – Jacobs Engineering, to develop a tanker loading and access scheme for their new plant on Jurong Island in Singapore.



Carbis Inc developed a design for a loading platform with 10 metre long Carbis **Multi-Modal** access systems over each truck bay. This gave the operators full and unimpeded access to the entire tank truck top, irrespective of truck profile and type. This was coupled with a loading arm for each bay. The arm was designed to provide the operator with a safe and clean method to load all manholes on the truck top without the need to move the vehicle.



To make the bay as versatile and uncluttered as possible, Carbis constructed a dual sided manifold. This allows the operator to select any one of nine different liquids for each loading bay. Huntsman also used the bay to provide Ammonia unloading facilities.

The **Multi-Modal** system is the safest and most versatile truck access system available today. Because of its vertical tracking ability it ensures the centre-line of the bay is constant. Systems that rely on cages moving through an arc, have less operating range and trucks using the facility that are at the highest and lowest limits of the range have to park significantly closer to the fixed platform than average height trucks. That increases the potential for collision or non-optimal use of peripheral equipment such as loading/unloading arms.

The other unique benefit is that, as an option, the **Multi-Modal** system can be fitted with a “Jog” device. This means that the elevating platform can lower at each end by up to 2.5 degrees, allowing it to mirror the profile of tank trucks with a sloping tank. This is useful because the rear of some tank trucks can be as much as 500mm lower than the front of the truck.

That said, cost is not a factor that can be ignored and, in many cases, sensible compromises have to be made. So, what can be done? If the visiting truck height range is limited, the client could consider a **Safety Enclosure**. It utilises the same type of cage which is fully surrounded by a cage system with handrail, mid-rail and toe-board protection. It also has the benefit of a floor with flip-up panels for access to the truck top. The system rotates from its stored position into a working position on the truck top. The cage lengths can generally range from 6 metres wide for companies only accessing ISO containers, through to 11 metres which covers ISO and tank trucks.



In some cases, truck positioning cannot be isolated to a specific bay. It can be that trucks will pull in anywhere along a given road to discharge or load into a tank farm. Obviously, it would be expensive to provide systems described above to cover this scenario. A solution that offers great flexibility of positioning and adequate safe access on to truck tops is the **Track Mounted Gangway**. The track system is bolted to the face of a platform running the length of the bay and the track assembly contains safety swing gates as an integral part of system. The safety swing gates provide complete handrail, mid-rail and toeboard protection. The gangway with a safety cage can then be rolled into the desired position on the platform and operated as a standard unit.



Due to the nature of truck operations, there is often a need to access the truck top for the purpose of inspection or sampling. It may also be impractical to have platforms and fixed position Fall Prevention equipment in that area. However, it remains the responsibility of site managers to assure the safety of operators and provide adequate fall prevention measures. The **Mobile Access Cart** is available in a number of configurations to suit a variety of available spaces and truck configurations. The **TC-6 ISO** meets the needs of most customers because it is designed to facilitate safe access and fall prevention to both ISO units and tank trucks. The safety cage is adequately sized to allow operators to open storm covers and manholes without the risk of falling from the truck top. Its large 16” tires make it easy to move around on the ground by one person.



As mentioned earlier, products in isolation are not the solution. Selection of equipment should be considered against the task that are to be performed and processes that will take place. The need for Loading Arms to move freely, without clashes with the Fall Prevention equipment must be considered carefully. It is vital that the company designing the solution has detailed understanding and knowledge of how both systems work and the ergonomics of the equipment operation. Proving something works on a drawing, does not actually make it a safe and comfortable operation, especially when both Loading Arms and Fall Prevention Systems are designed to move through different paths for different purposes.



Products, deeds and actions can only do so much. The dangers involved have to be understood by all stakeholders. The ways to do that are varied but must begin by removing risk at the places where operators are meant to access truck tops. It has been proved many times that drivers and operators can be resistant to change and any equipment they perceive that slows them down or makes their life difficult, suffers neglect or damage in one way or another. This can

be prevented by providing equipment that is not difficult, cumbersome or restrictive to work with. By making their jobs easier they understand that using correct equipment is more convenient than risking their life. It is also a thought process that develops the collective understanding that this type of risk is neither cost effective or smart. The more sites that design their truck bays with thought for the operator as well as the operation and budget will go a long way to ensuring their investment has a discernable payback. That's not something that can be said about Safety equipment very often.



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