Renovation issues and solutions:

When storage tanks are renovated or upgraded, the original designs are often used again, due to a lack of best practice knowledge.

A renovation is the one chance to make a series of changes for the best results and to make sure that current issues identified do not occur again.

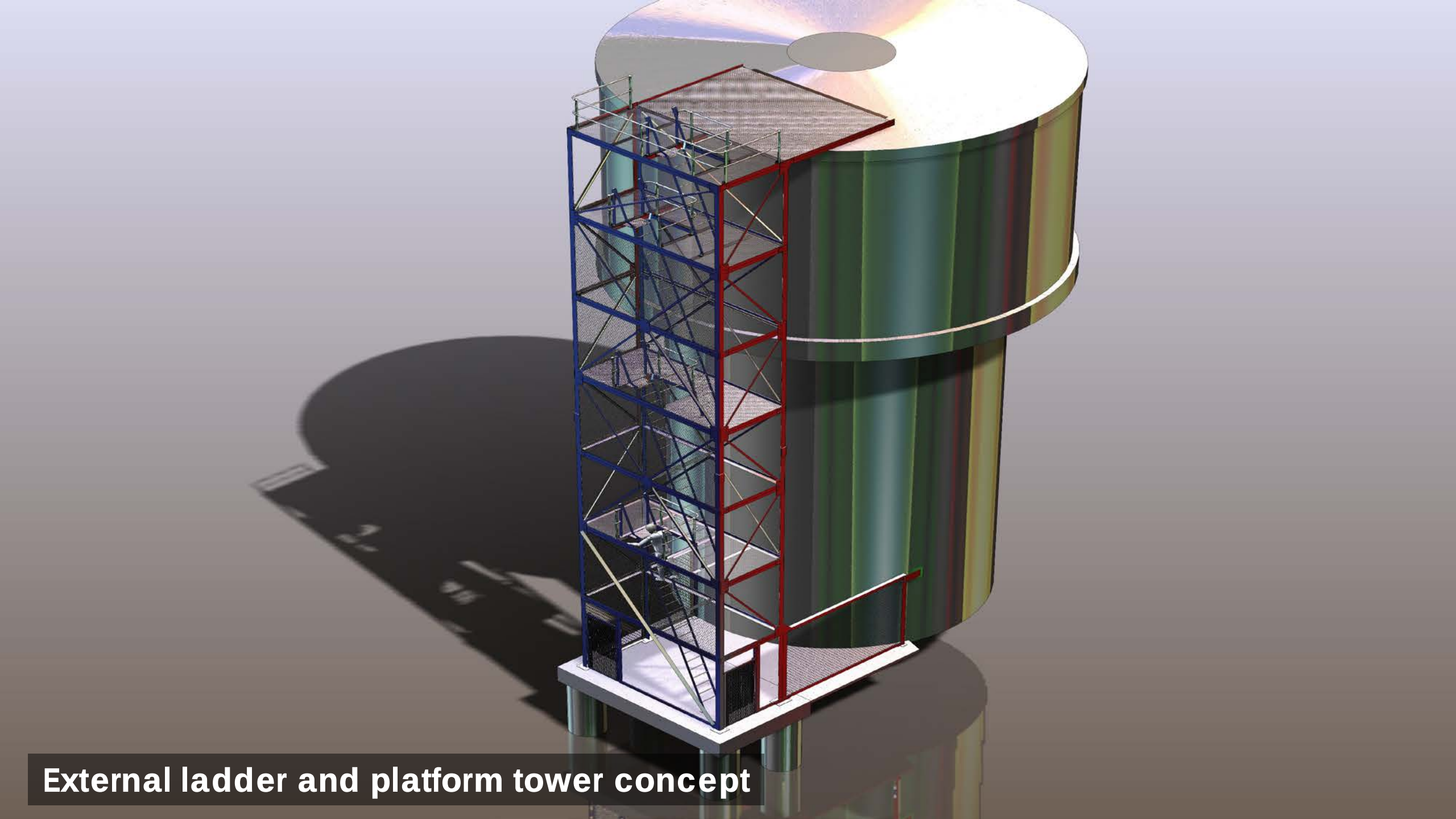
This presentation is showing examples of things that not only work, but which are usually simpler, cheaper and safer than the original designs, based on inspecting over 7500 storage tanks across Australia. It is only when you physically work on the tanks on a daily basis, climbing ladders, walking around the roof areas, accessing the internal zones by either confined space or diving practices, that ‘fit for purpose’ knowledge is gained.

‘Fit for purpose’ must be the abiding rule in any asset design or safety situation and having the ability to recognize and listen to good advice as opposed to a salesman's pitch is paramount.

Rescue training on tanks is also an important part of identifying systems that are practical and safe as opposed to systems that actually make the workplace less safe, due to poor installations or unnecessary additions to already safe areas.

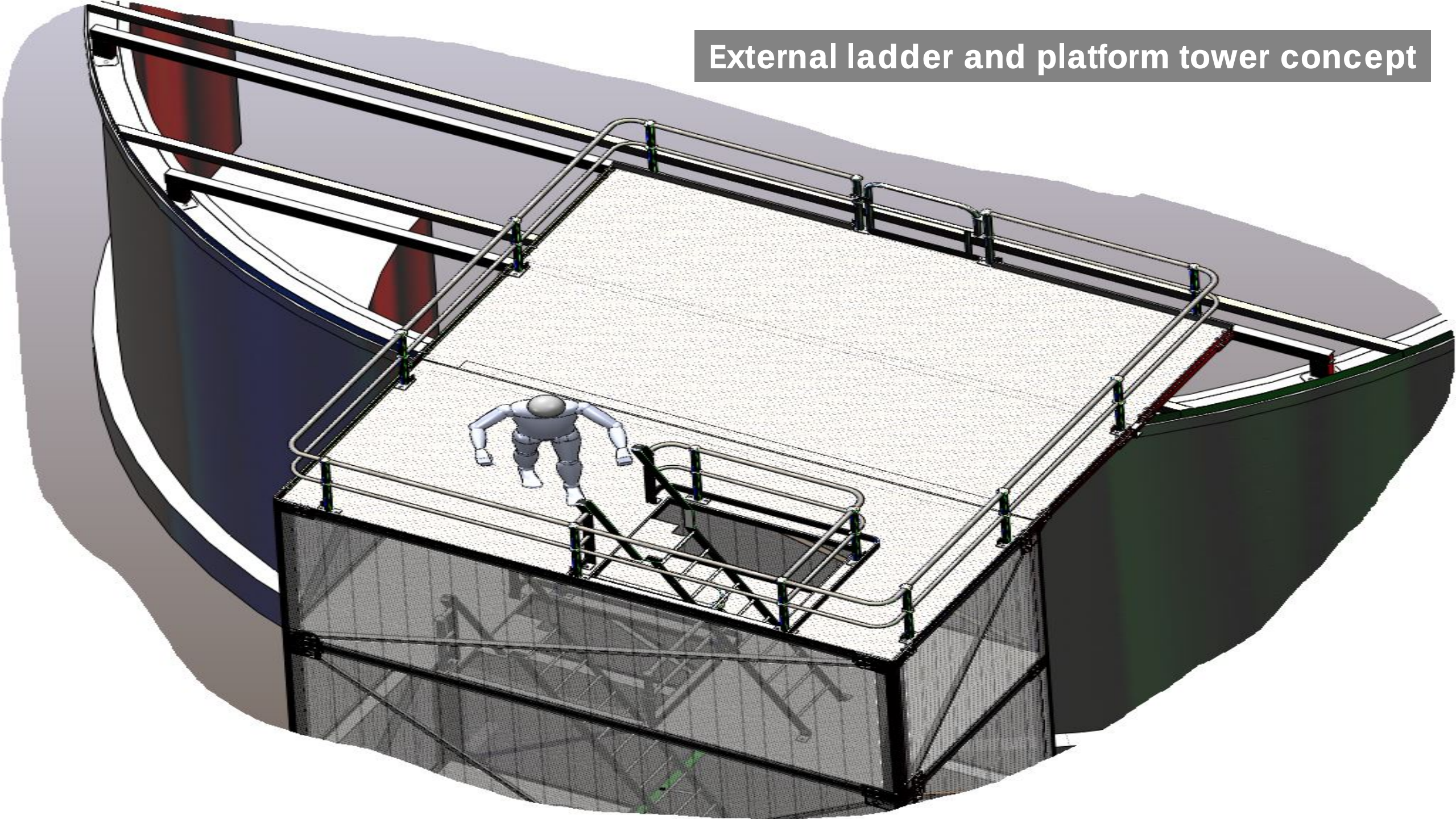
The following images represent good outcomes identified from our inspections to date.

The aluminum truss roof requires no support posts and has good corrosion resistance



External ladder and platform tower concept

External ladder and platform tower concept



External ladder and platform tower

External ladder and platform tower

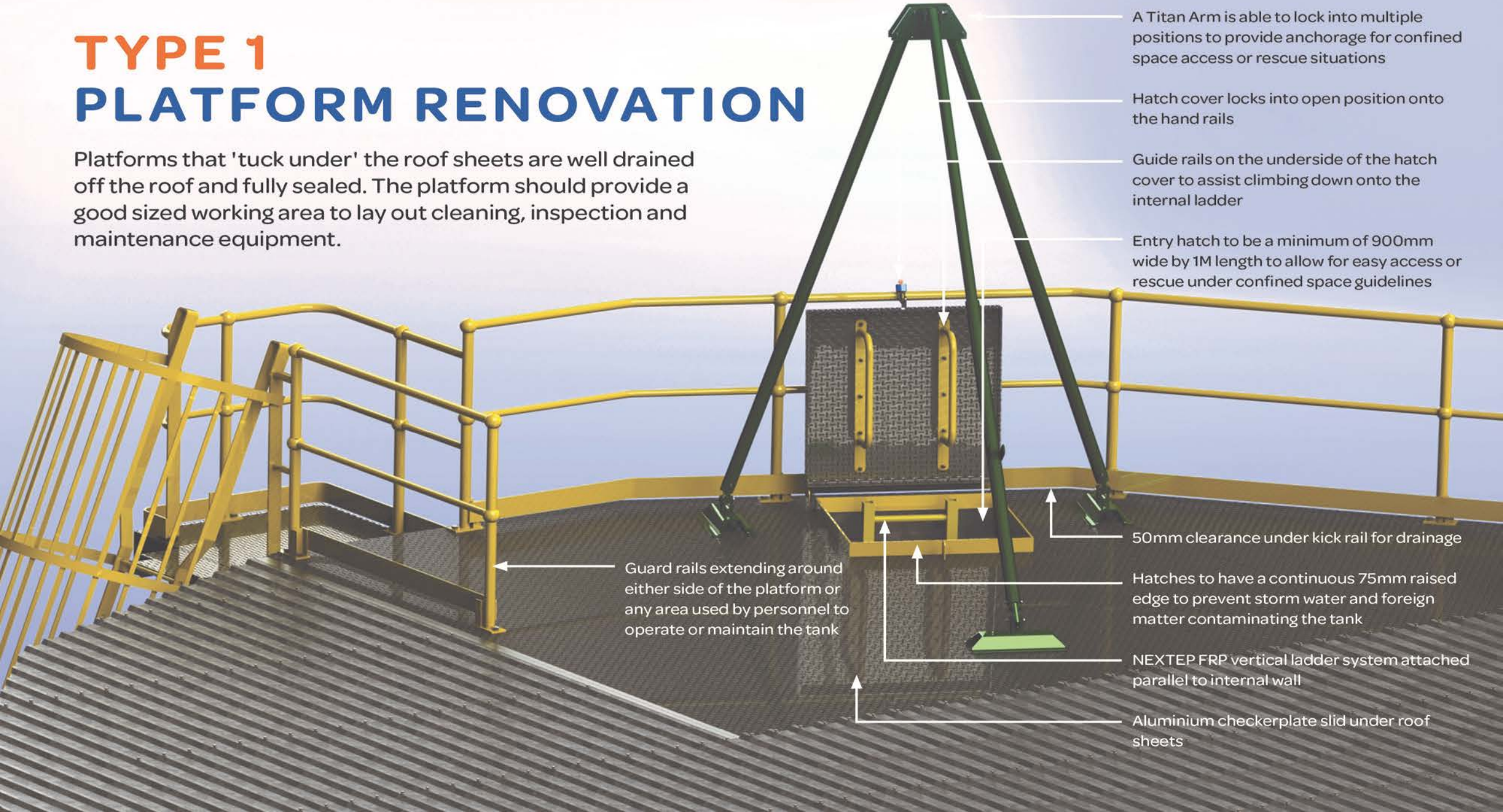
External ladder and platform tower

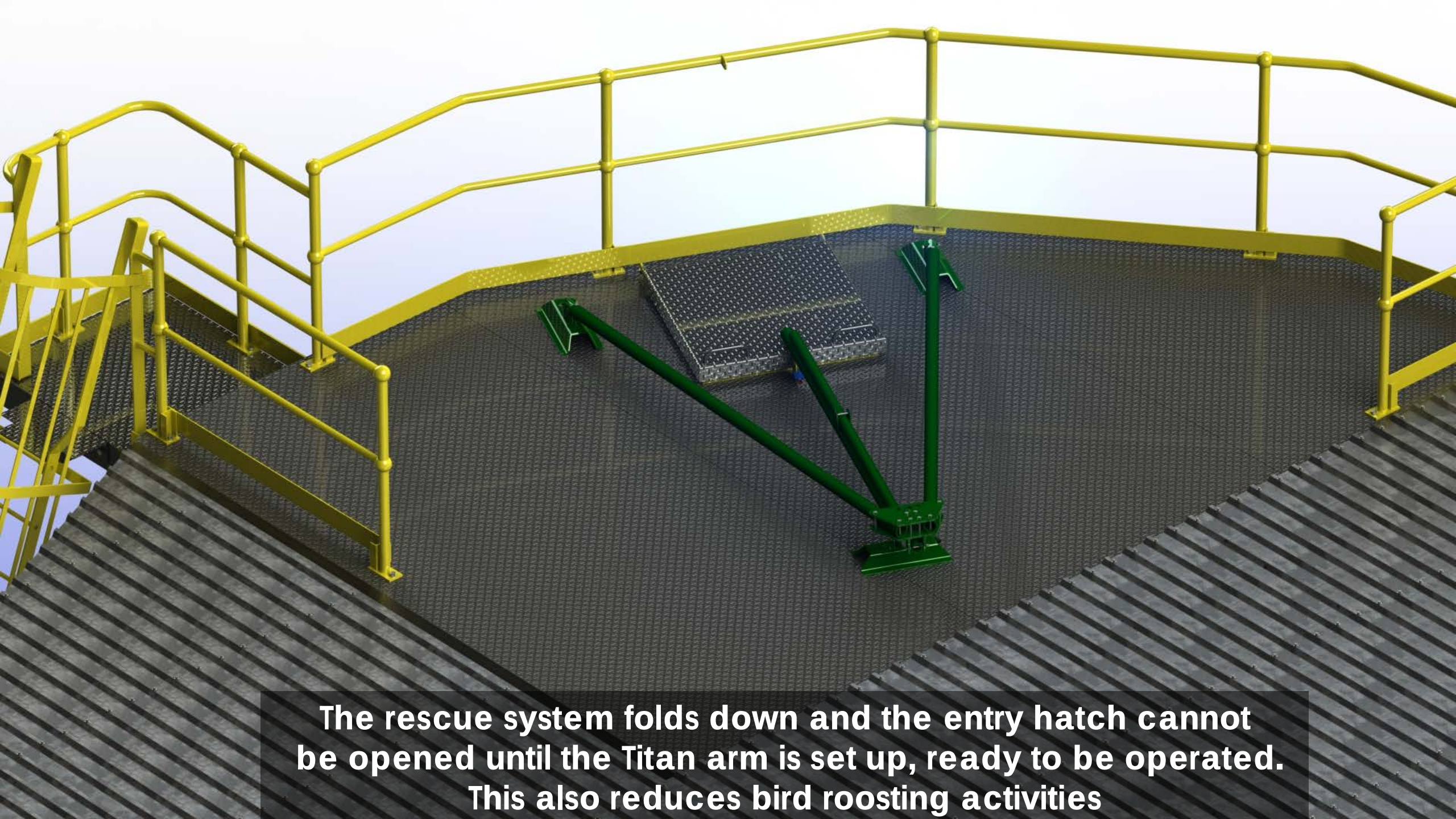
A Type 1 platform system for flat roof areas

A Type 1 platform system for flat roof areas

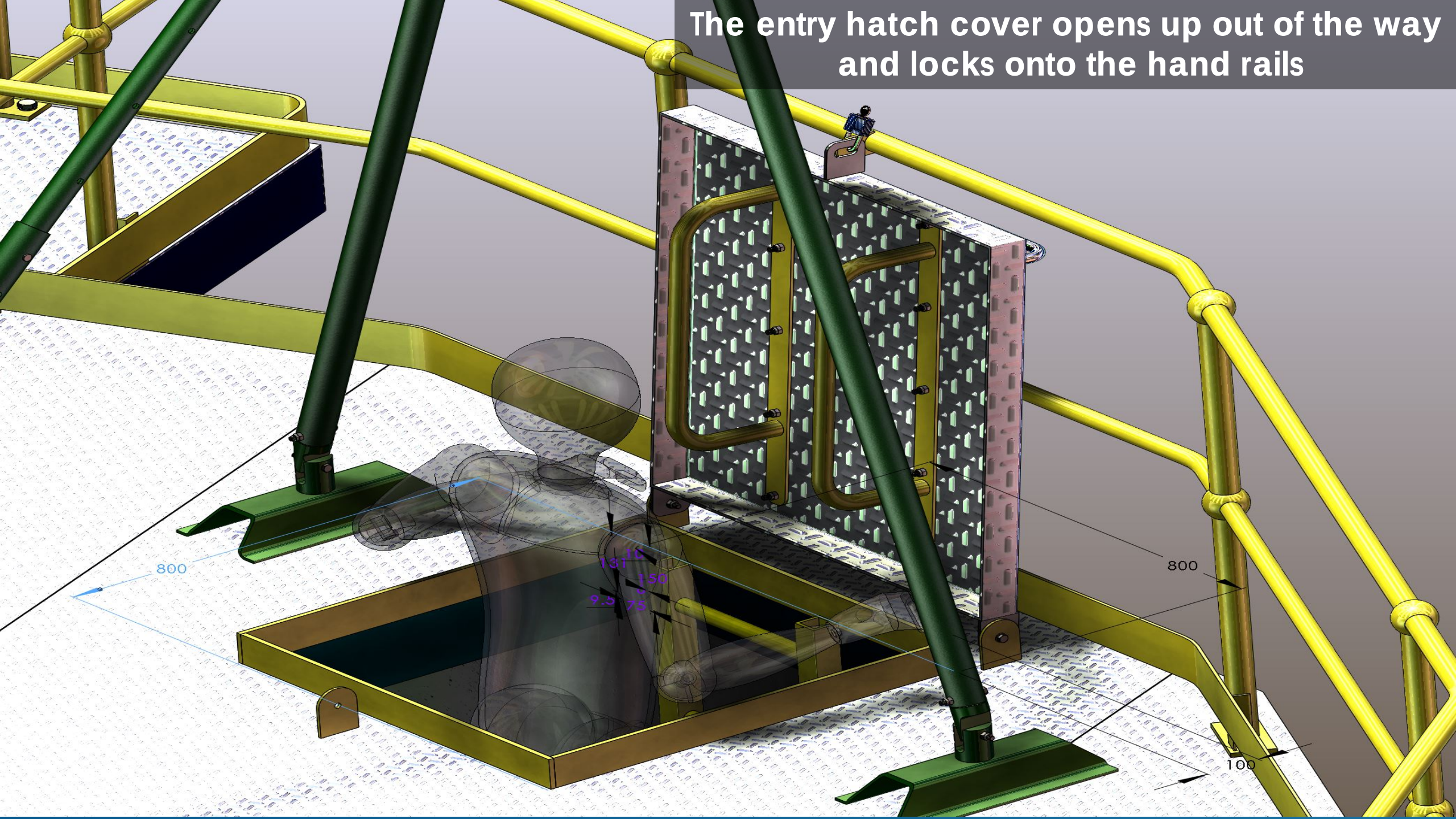
TYPE 1
PLATFORM RENOVATION

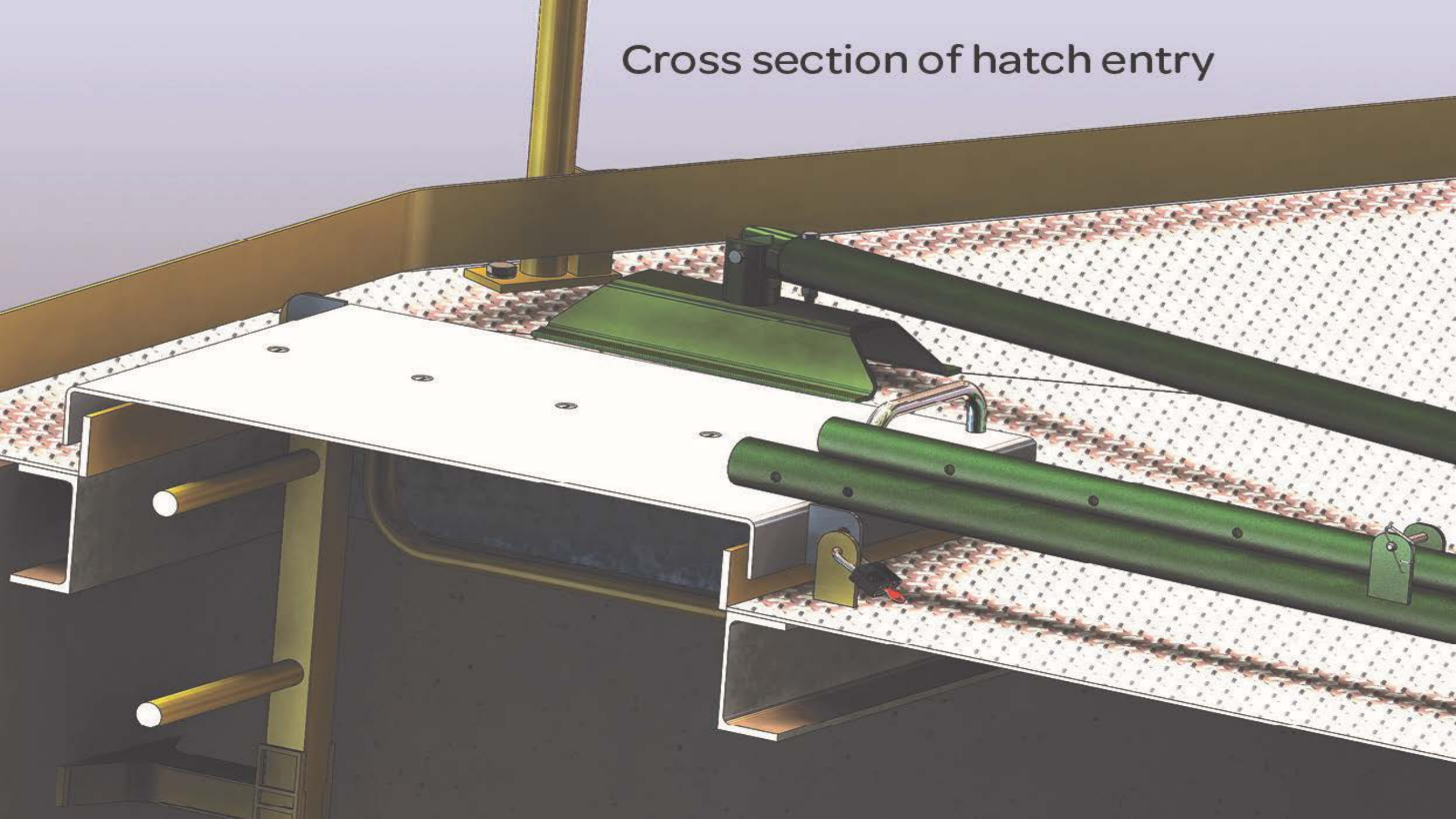
Platforms that 'tuck under' the roof sheets are well drained off the roof and fully sealed. The platform should provide a good sized working area to lay out cleaning, inspection and maintenance equipment.





The rescue system folds down and the entry hatch cannot be opened until the Titan arm is set up, ready to be operated. This also reduces bird roosting activities

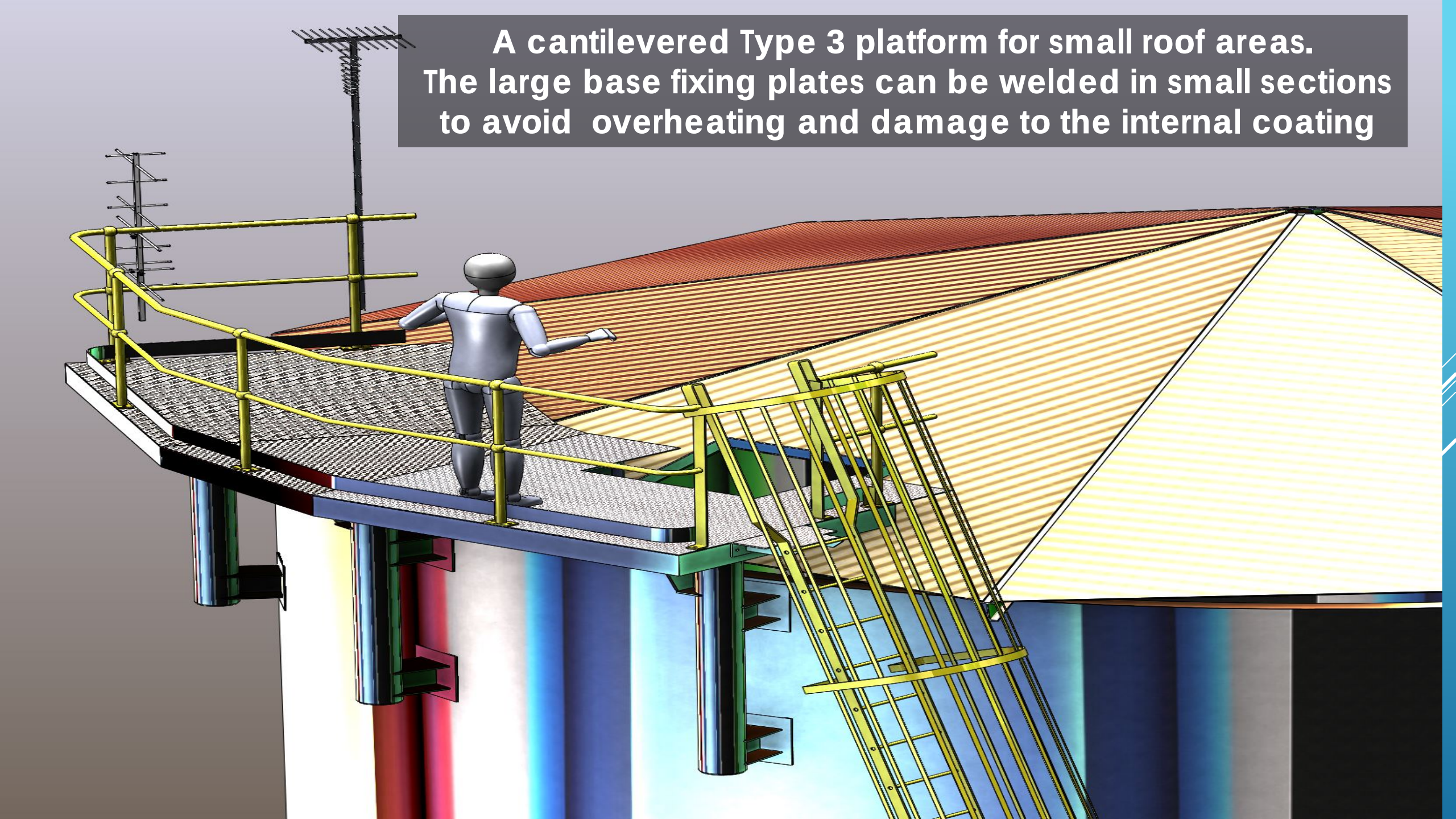

The entry hatch cover opens up out of the way and locks onto the hand rails
800
800
131
10
150
9.5
75
100

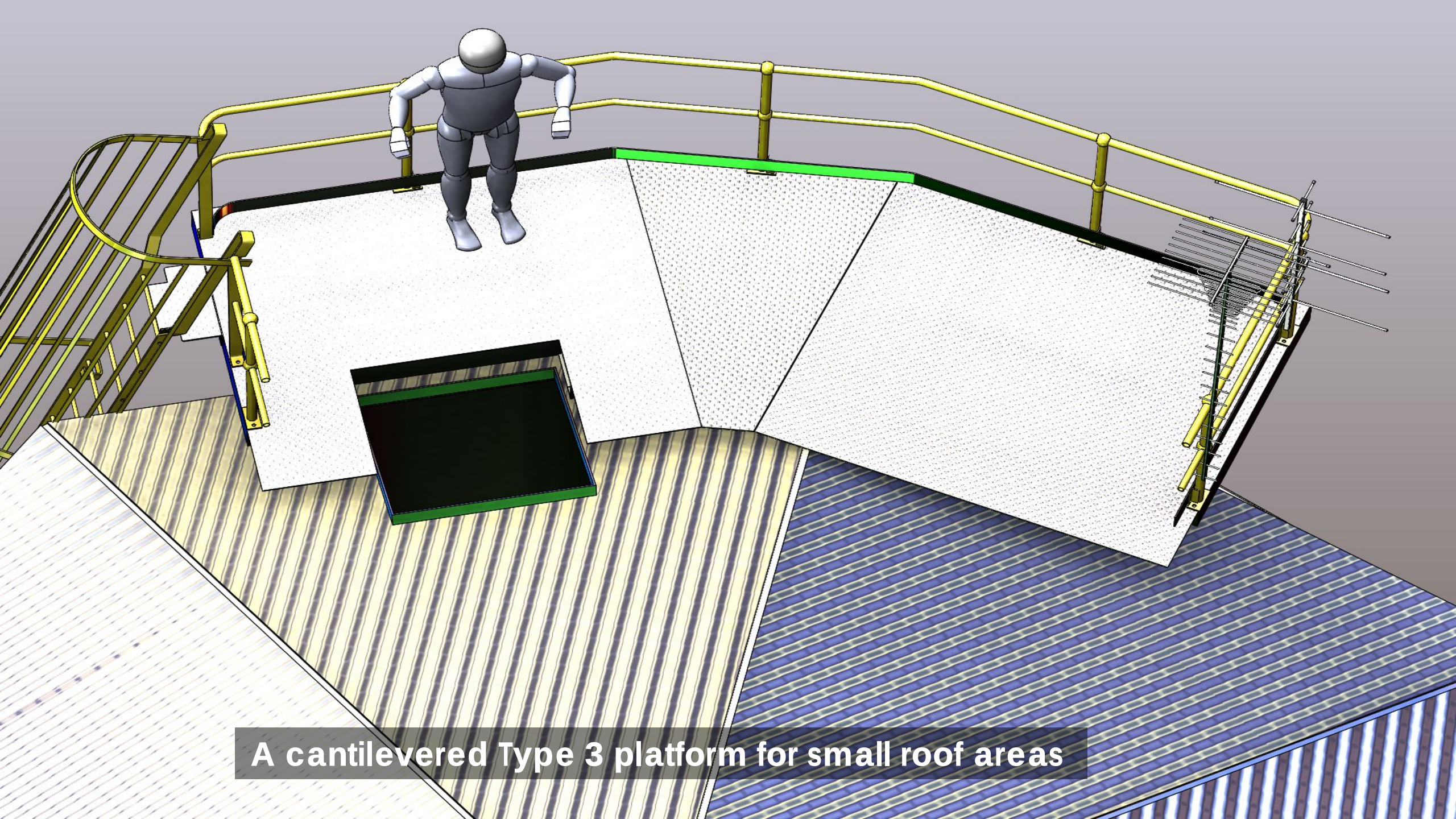

Cross section of hatch entry

A Type 1 platform system for flat roof areas.
Note the guard rail ends are set away from the roof edges

Entry hatch cover locked open with vertical hand grips in place

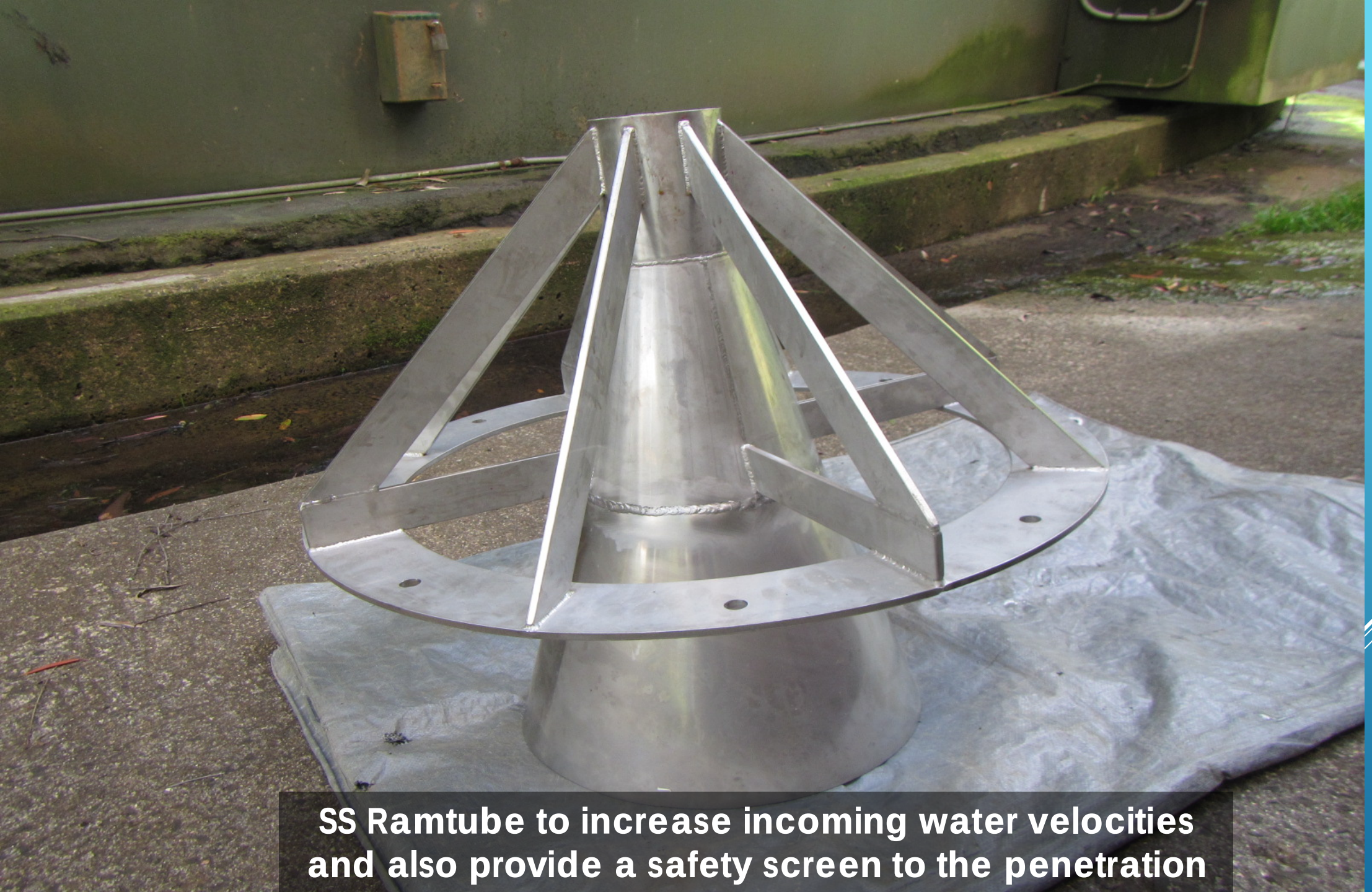
A Type 2 platform area for steeper sloping roofs


A cantilevered Type 3 platform for small roof areas.
The large base fixing plates can be welded in small sections
to avoid overheating and damage to the internal coating



A cantilevered Type 3 platform for small roof areas

HDPE 2 way directional nozzles,
designed to fit over existing base spigots and risers



SS Ramtube to increase incoming water velocities and also provide a safety screen to the penetration

An HDPE spigot system to fit directional nozzles
to steel tank penetrations without welding on flanges

A 2 way directional nozzle fitted to a common inlet outlet

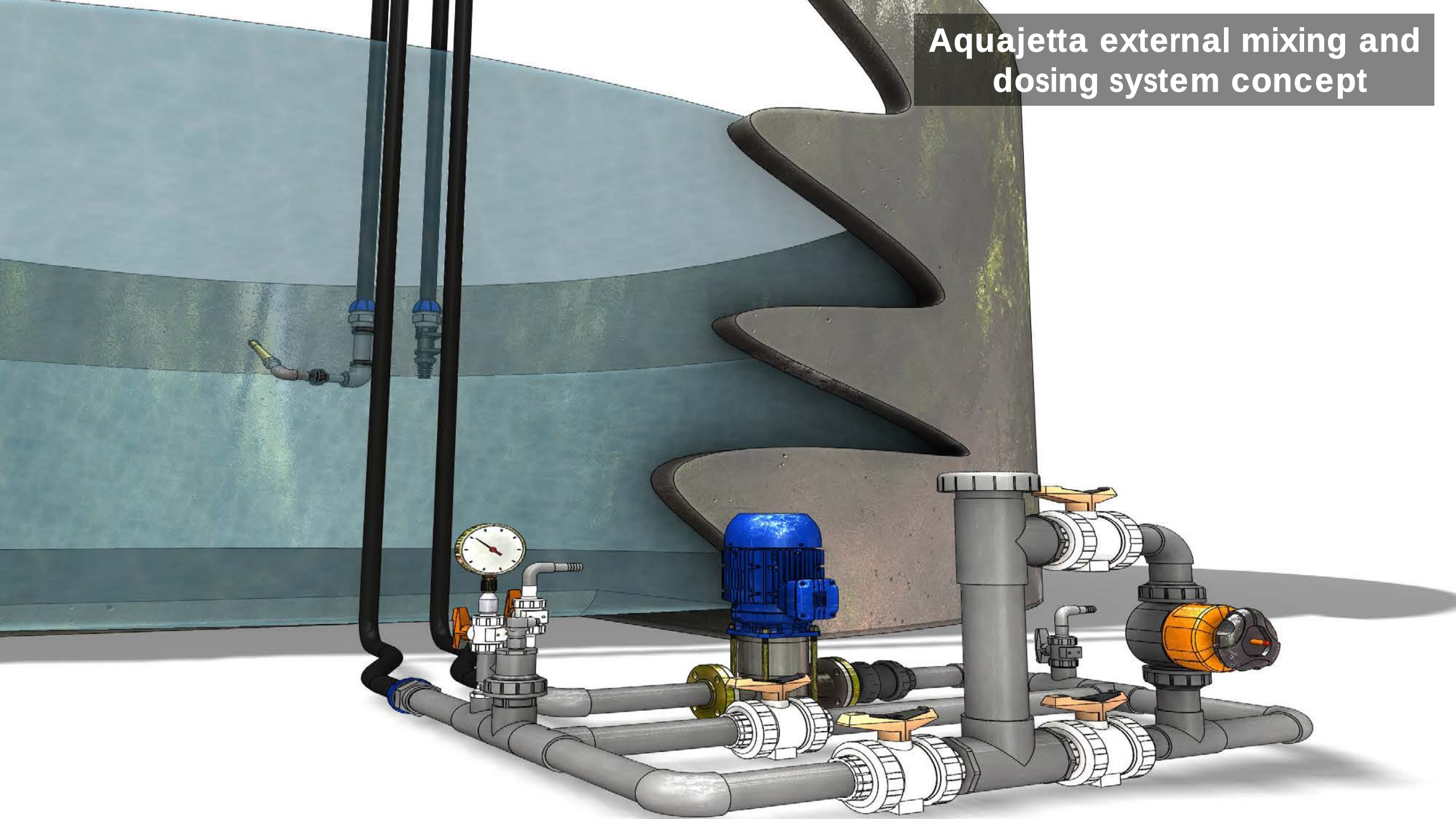
A directional inlet nozzle bolted to an HDPE spigot, which is fitted to the flush wall penetration

A smaller SS 2 way directional nozzle

An HDPE outlet screen

An HDPE outlet screen

Aquajetta external mixing and dosing system concept



Aquajetta with twin tablet dosing system

Electrical control cabinet with timer

Aquajetta fitted to a steel tank.
Hot tap penetrations were fitted through the wall hatch

Aquajetta fitted to a steel tank

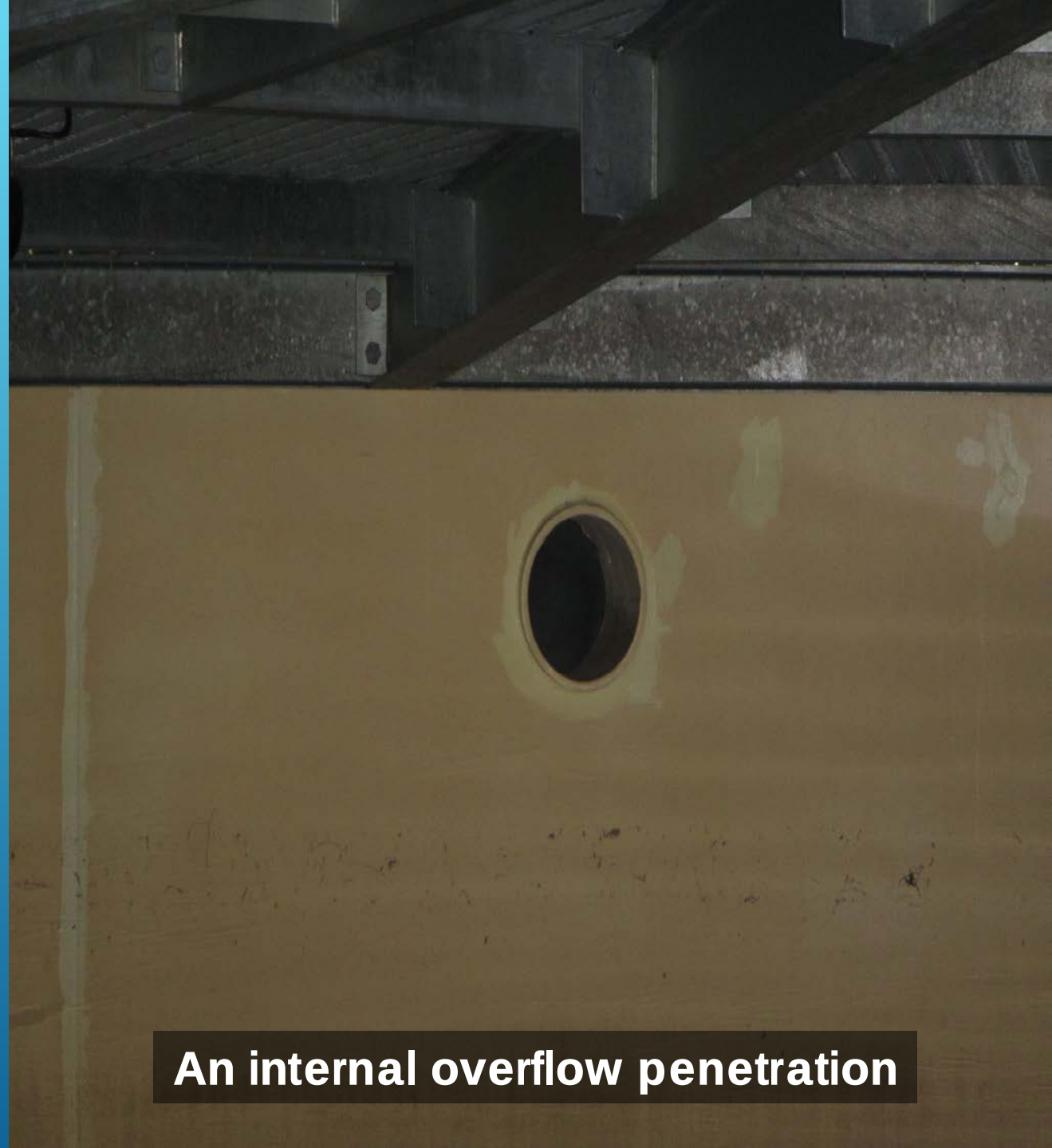
Aquajetta fitted to a steel tank.
Hot tap penetrations were fitted through the wall hatch

Aquajetta inlet supply and nozzle fitted inside a steel tank

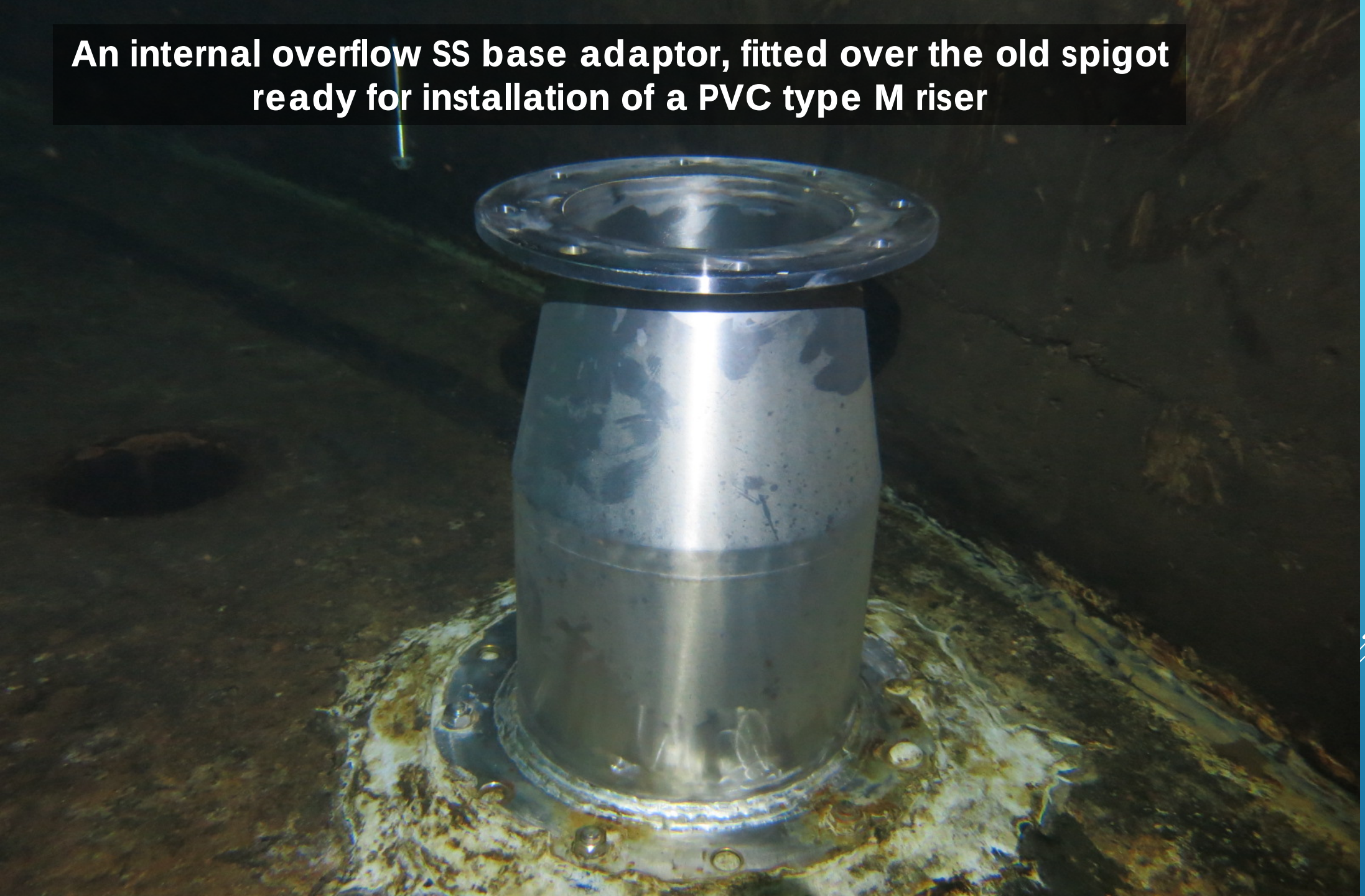
Aquajetta external pipework fitted to concrete tanks

Aquajetta nozzle fitted inside a concrete tank

An external overflow riser

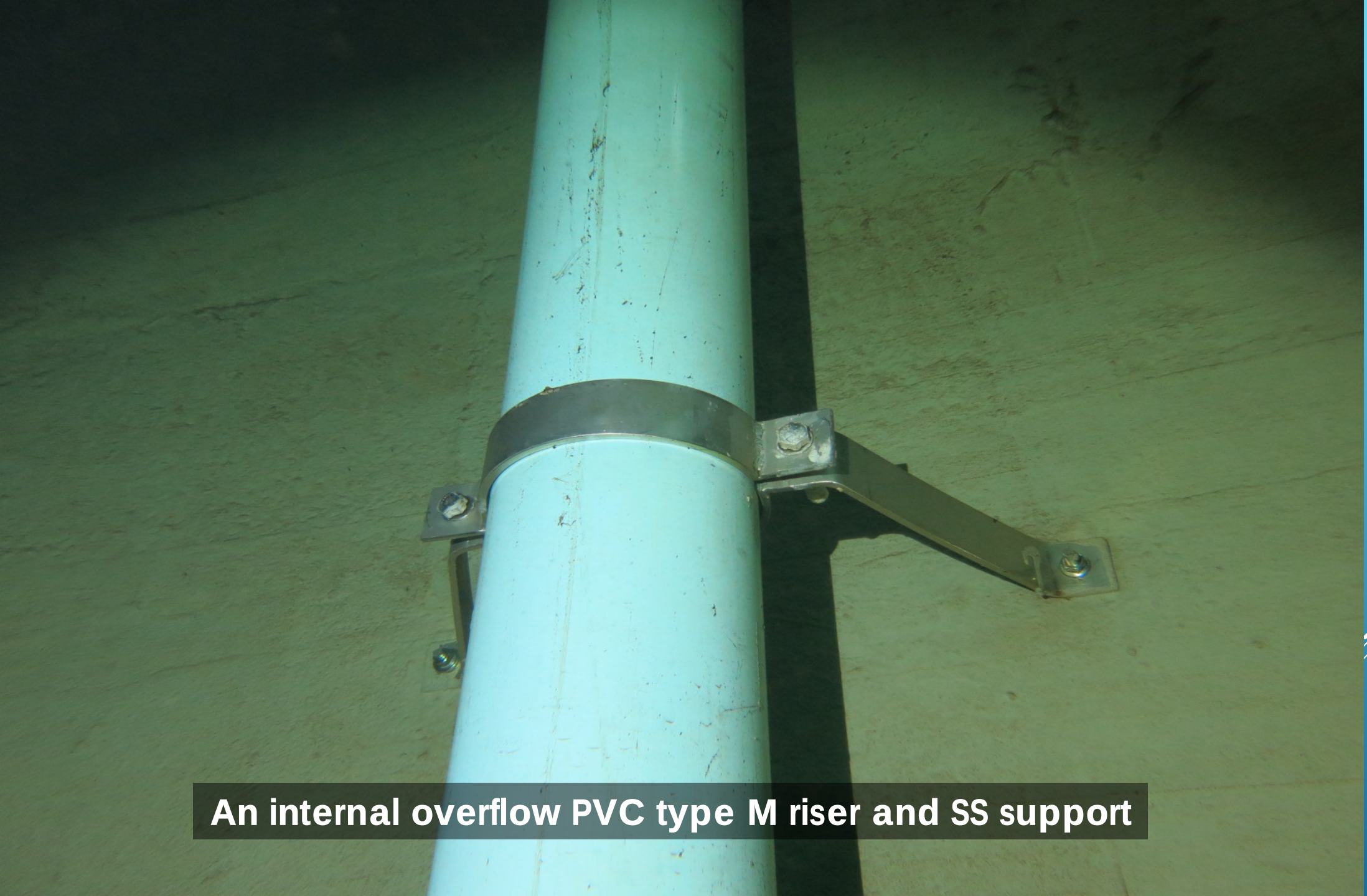


An internal overflow penetration

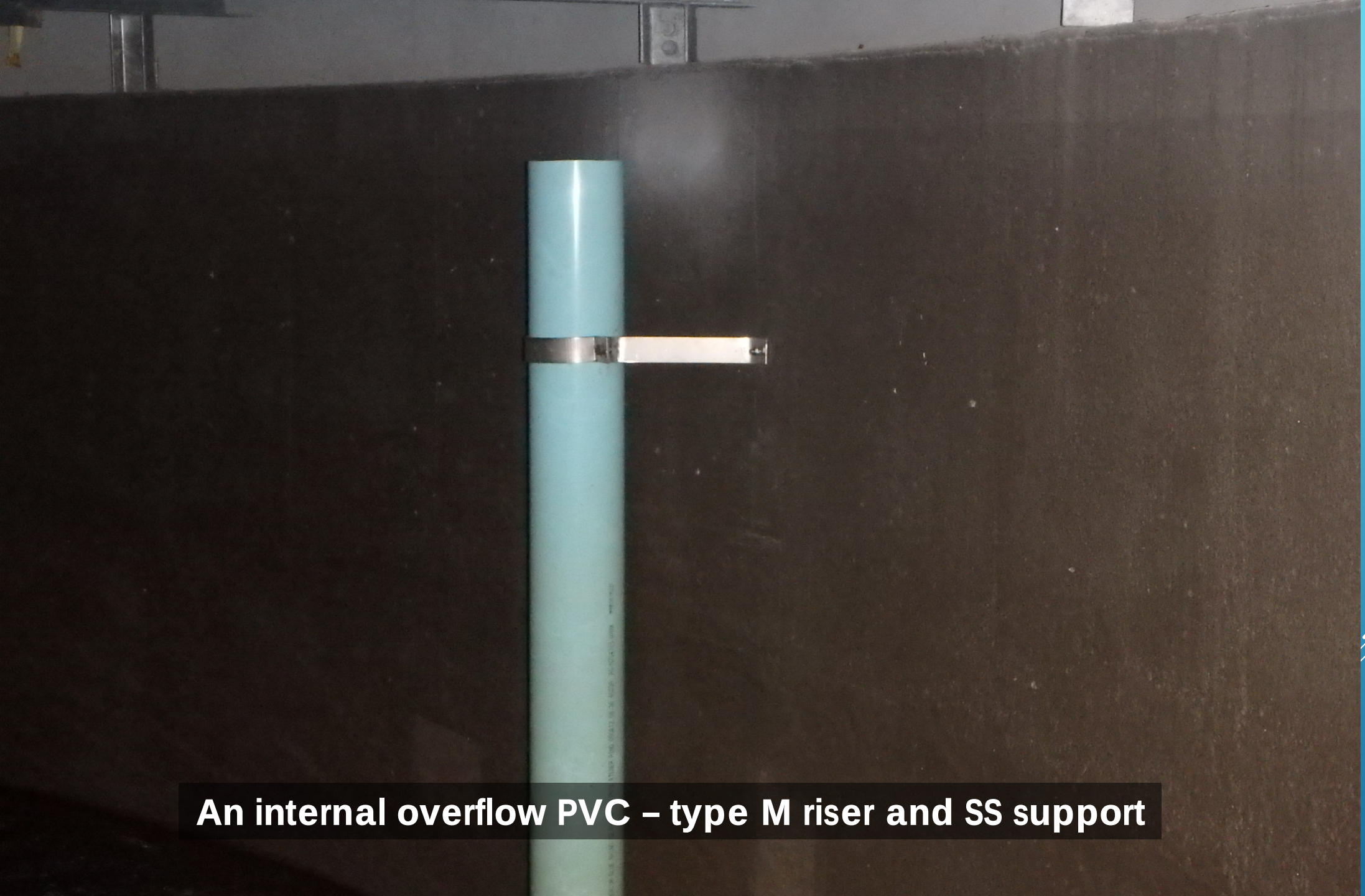


An internal overflow SS base adaptor, fitted over the old spigot ready for installation of a PVC type M riser

An internal overflow HDPE base adaptor, fitted over the old spigot

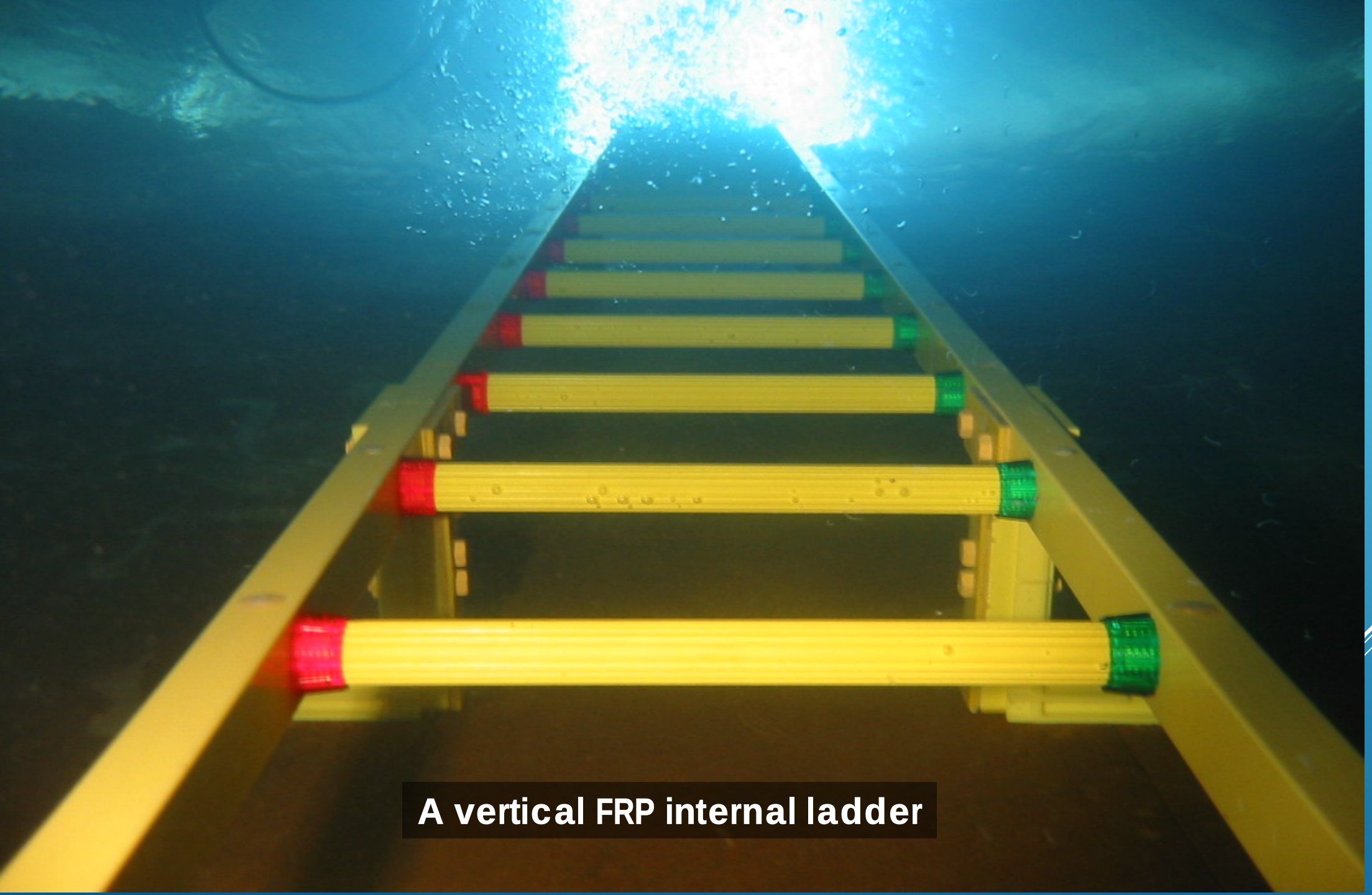


An internal overflow PVC type M riser and SS support

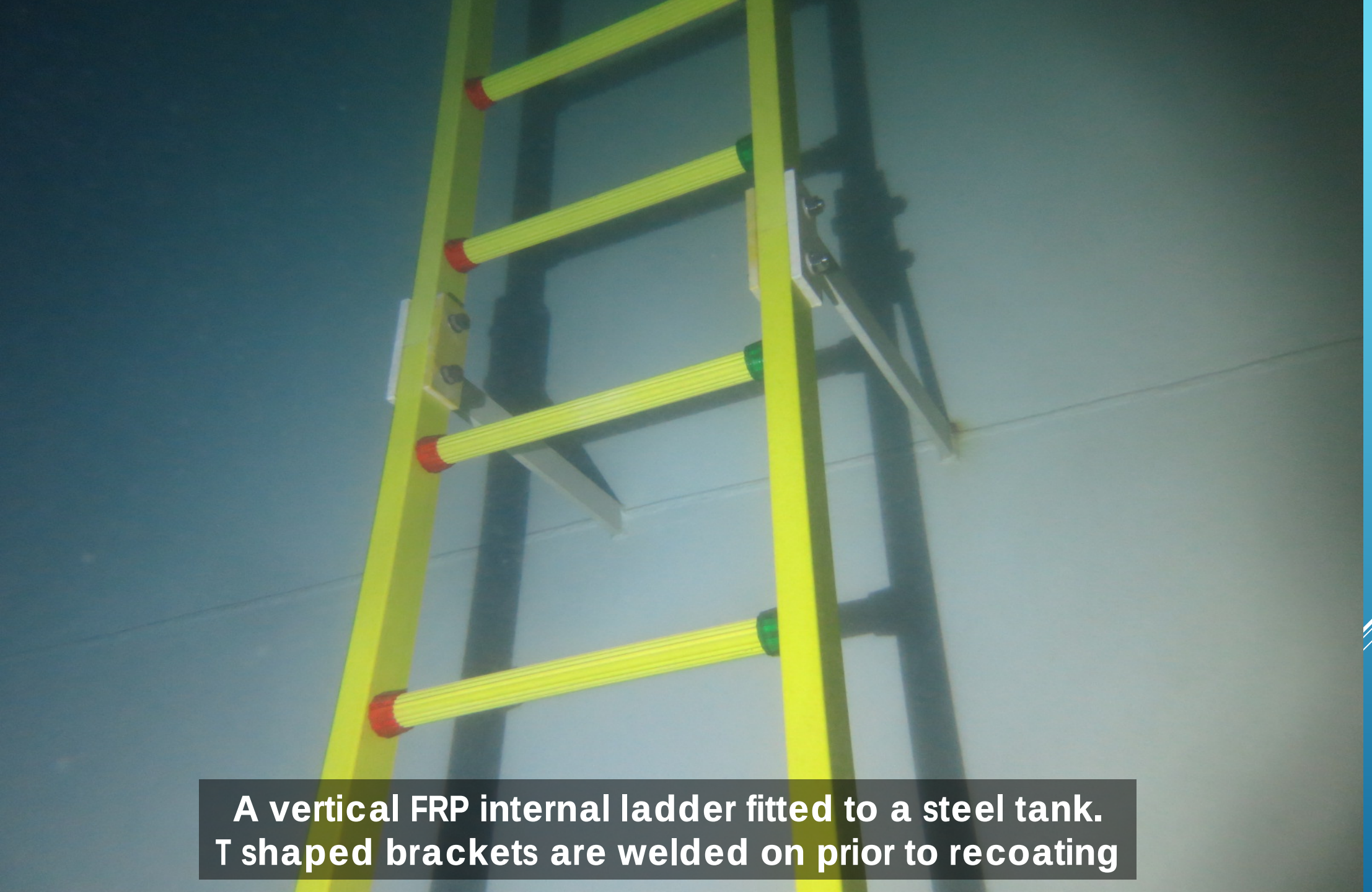


An internal overflow PVC – type M riser and SS support

A vertical FRP internal ladder

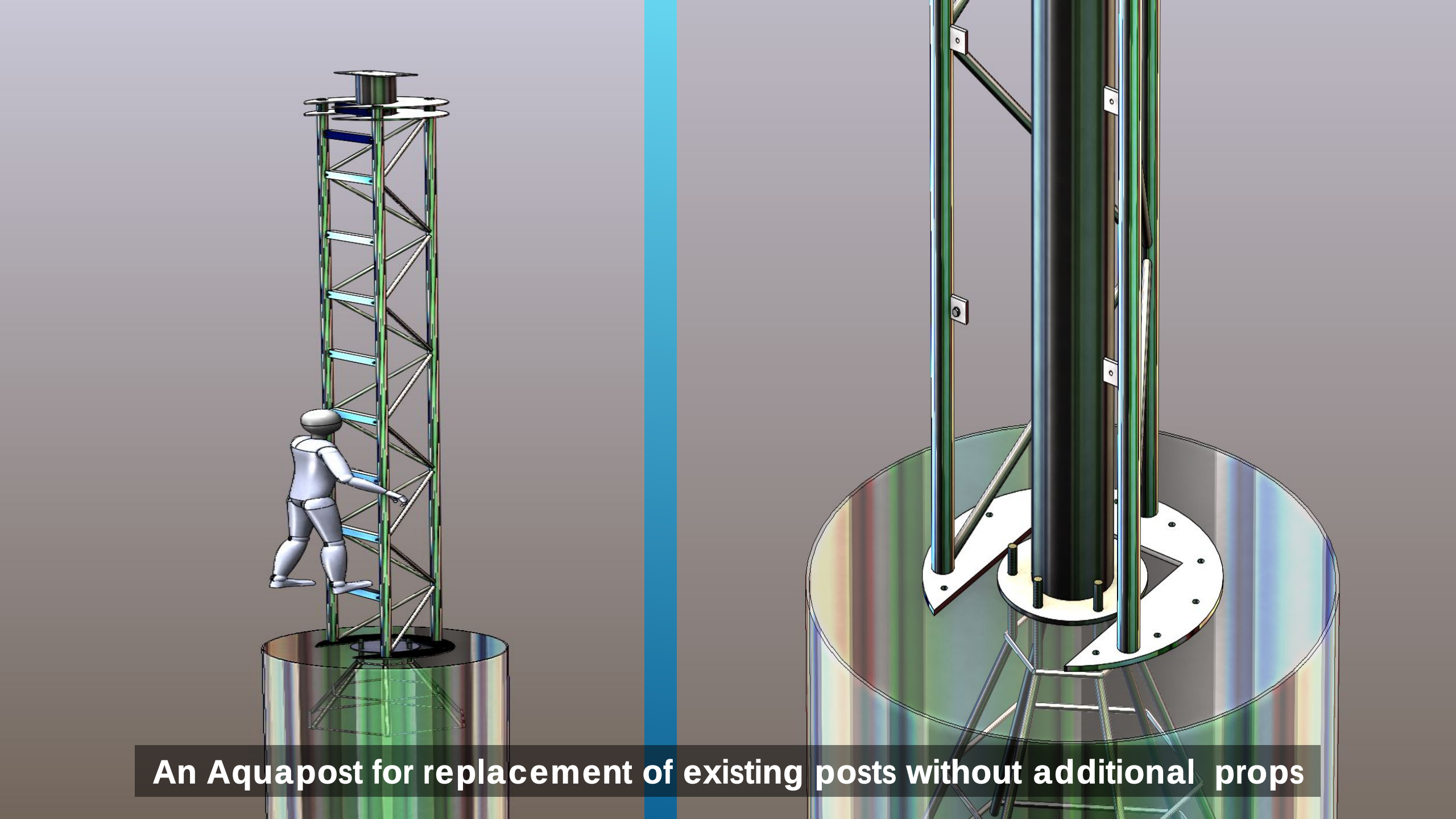


A vertical FRP internal ladder

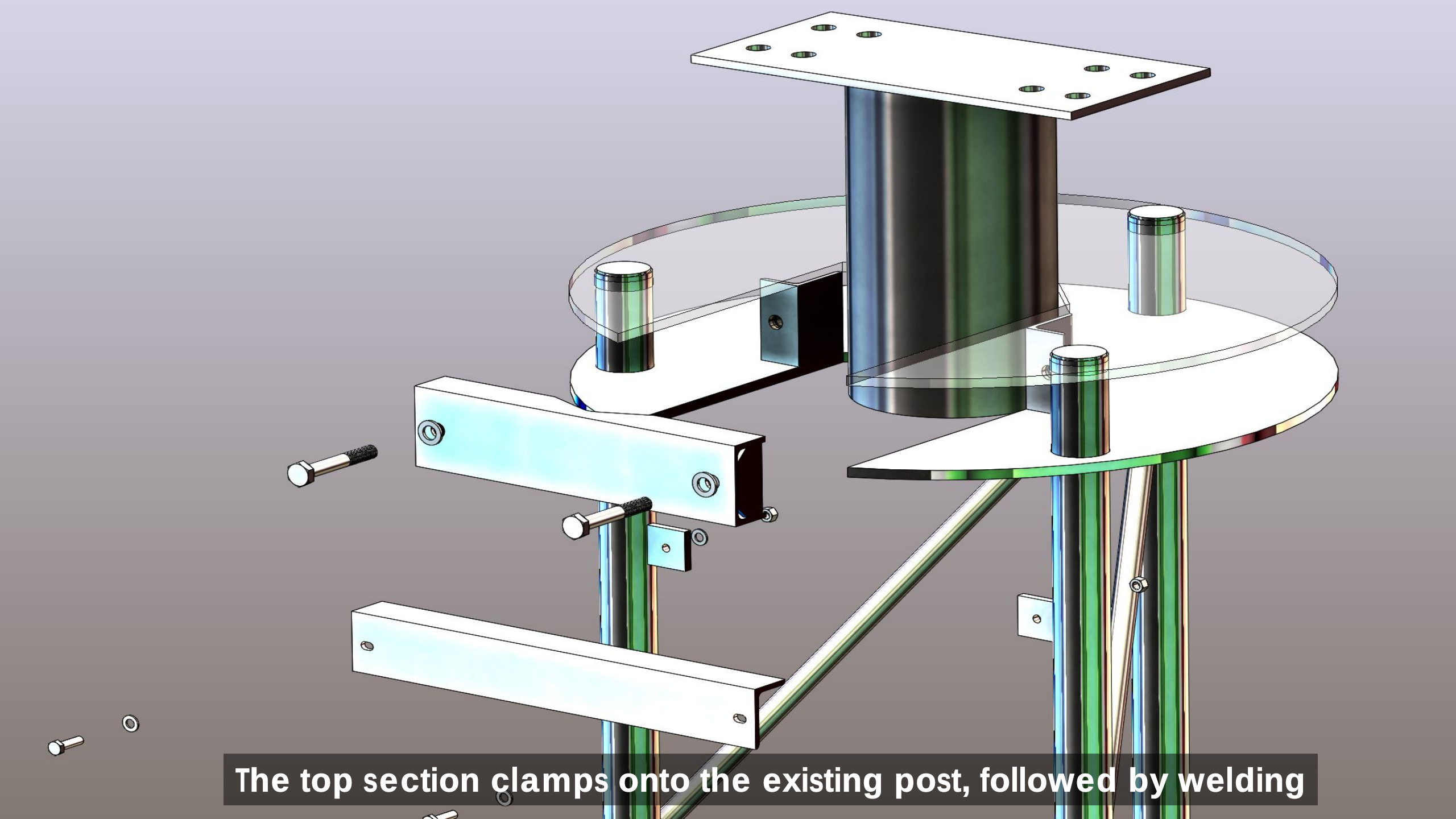


A vertical FRP internal ladder fitted to a steel tank.
T shaped brackets are welded on prior to recoating

A vertical FRP internal ladder clamping system. The clamps attach to the welded T brackets



An Aquapost for replacement of existing posts without additional props

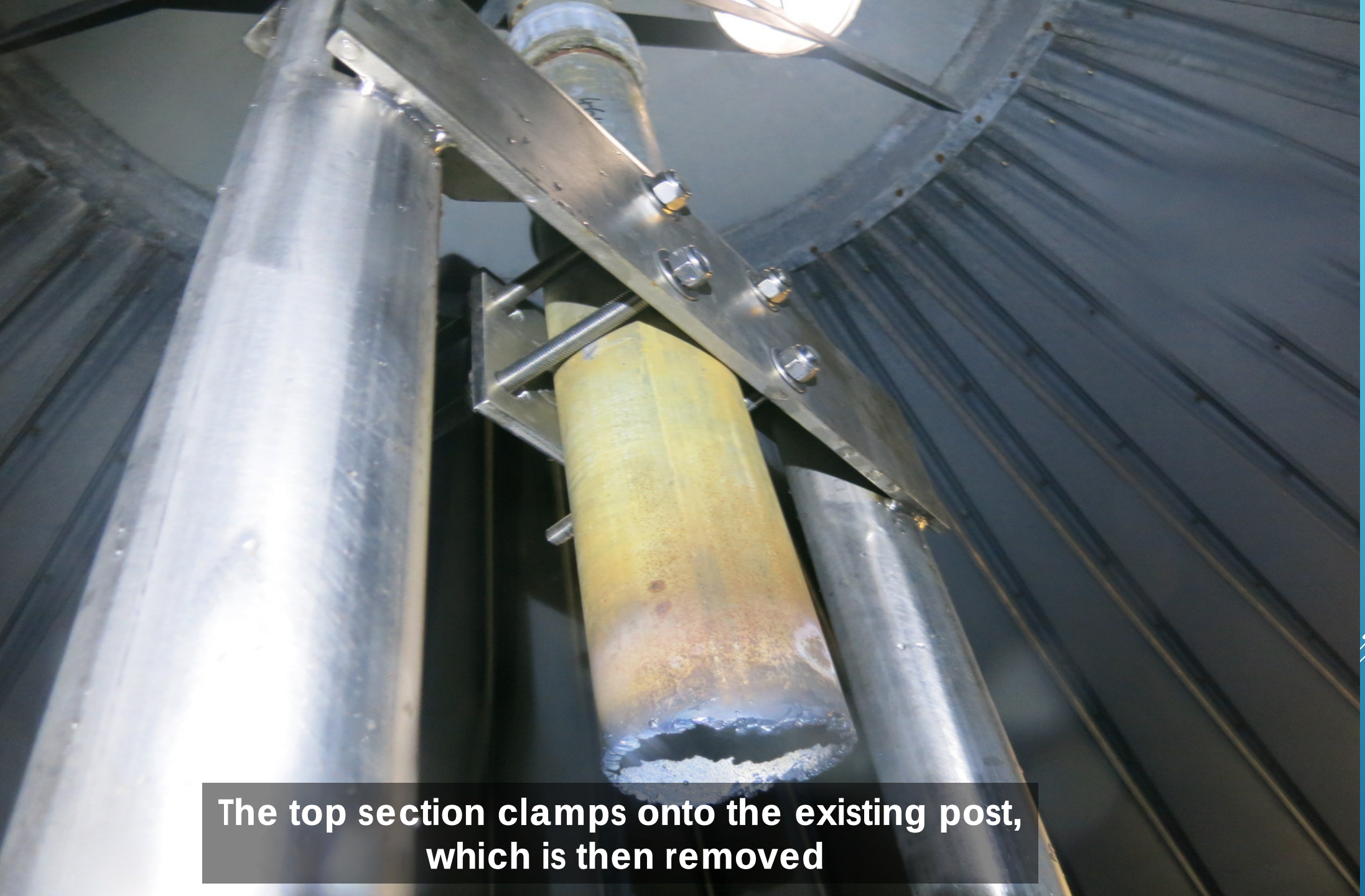

The top section clamps onto the existing post, followed by welding

The top section clamps around the existing post which is then removed

The base section fits around the existing concrete plinth

The side cleats are installed after the old post is removed

The top section clamps onto the existing post, which is then removed



The top section clamps onto the existing post, which is then removed

The base section fits around the existing post, which is then removed

For further information on the inspection details and images, log into:

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