

SS versus FRP Ladders 101

Stainless Steel (SS) ladders:

1. The quality control on a Stainless Steel (SS) ladder is difficult to maintain - different grades of SS are easy to confuse and a lot of corrosion issues develop. I.e. Grade 304 rungs welded onto 316 flat bar styles, using whatever grade of welding wire available. A lot of SS ladders and other manufactured items are not properly 'passivated' after manufacture and corrosion develops quickly - this is more noticeable when placed underwater. The main advantage of SS is its ability to maintain a passive film, which prevents corrosion - any time SS is heated, drilled or bent, surface contaminants come into play. The passive film is interrupted by the contaminants, so a 'pickling paste (acid)' should be used to clean the surfaces after manufacturing so that the passive film can re-form. Not everyone knows (or cares about this), especially when working to a budget or low tender price!
2. SS is a 'Noble' metal on the galvanic scale and when you attach it to a concrete wall, if any of the fixing bolts contacts (or nearly contacts) the mild steel re-enforcing steel in the concrete, then you have set up a very strong corrosion cell and the SS ladder will cause damage to the mild steel in the walls.
3. Most SS ladders use plain round bars for the rungs, so they are slippery when damp (or dry) and this makes it difficult to grip onto for safe climbing. The rungs are also quite thin (by comparison to FRP) and hand gripping functionality is not as ergonomic (or safe)
5. SS needs oxygen to maintain the 'passive', protective film mentioned earlier - while this is not an issue in potable water, it is a VERY big issue when SS is used in waste water, sewage or chemical applications - no available oxygen means significant corrosion issues developing.

Fiberglass Reinforced Plastic (FRP) on the other hand:

1. Is light weight, requiring no crane to install.
2. Is chemically and electrically inert, so no corrosion issues as with SS.
3. The rungs are thicker, have grips embedded and are more ergonomic to climb safely.
4. Nextep ladders have gained WSAA approval, so that makes quality issues easier to justify.

The only area where FRP falls down, is in external security - it would be easy to vandalize and damage when compared to steel, so it is best used internally or in secure areas such as Water Treatment Plant facilities.