



Figure 1: Decking installation on raked bays and around obstructions.

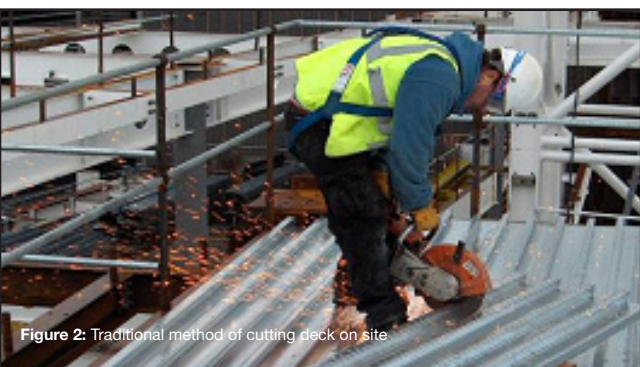


Figure 2: Traditional method of cutting deck on site

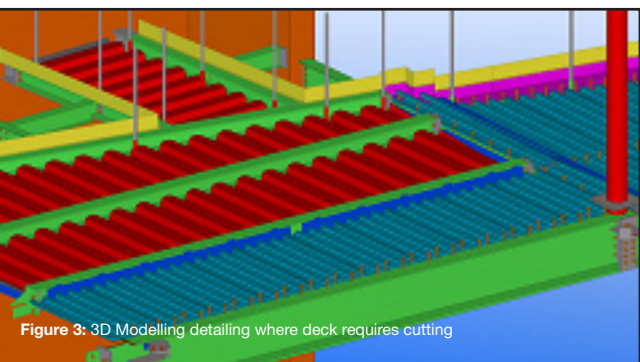


Figure 3: 3D Modelling detailing where deck requires cutting

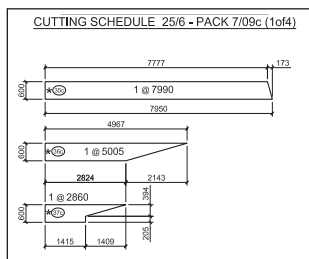


Figure 4: Example of manufacturing schedule for an off-site cut bundle of decking.

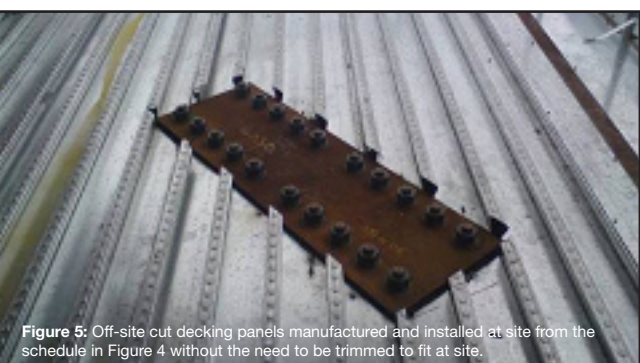


Figure 5: Off-site cut decking panels manufactured and installed at site from the schedule in Figure 4 without the need to be trimmed to fit at site.

### ■ Cutting materials off site benefits

Decking sheets are detailed to fit into place without the need for cutting at site where the panels fit squarely together. However there are occasions on most projects where decking requires site cutting in order to fit into place. Examples are raked bays, around columns, handrail sockets and other obstructions (figures 1 & 5).

Traditionally the most efficient way of achieving this is to cut the decking using petrol driven disc cutters (figure 2). Cutting at site however has its drawbacks as it creates a risk to operators from additional manual handling, noise, vibration and hot works. There is also an environmental impact to the site and the surrounding area.

Recent advances in computer 3D-modelling of the steelwork structures have improved the capability of the decking contractor to investigate the structure off-site. They are now able to accurately predict and measure where decking sheets require cutting to fit the structure (figure 3). This allows manufacturing schedules to be prepared detailing the location on every sheet where cutting and trimming is necessary to fit at site without the need for further work.

The cutting and trimming can then be carried out off-site in a controlled environment. Therefore when it arrives at site it can be installed without the need to be marked, measured and cut prior to its final installation.

Off-site cutting can significantly reduce the level of risk and environmental impacts on the site and to the decking installers, as it:

- Reduces manual handling.
- Reduces hot work.
- Reduces the possibility of damaging safety nets during hot works.
- Reduces waste on site and off cuts can be recycled at source.
- Reduces number of waste skips required.
- Requires less manual handling of sharp off-cuts into skips.
- Reduces lifting and movement of skips on site and from the site.
- Reduces time working at height during installation.
- Allows work to continue in noise abatement areas.

Off-site cutting must be planned from an early stage in the construction process as the off-site work is significant compared to the traditional design and manufacturing process. It requires each decking panel to be detailed by the decking supplier rather than simply overlaying steelwork GA's (figures 3 & 4).

Additional time is also required in the production process to allow for the materials to be cut to the required shape prior to delivery to site. This can be achieved using either factory based CNC or petrol cut off saws.

Off-site cutting is particularly suited to congested city centre sites and areas controlled by noise abatement notices. It allows decking installation to continue without disruption, enabling earlier completion of upper level "crash decks" for steel erectors to work from when erecting the next steelwork lift. Its use on any project will significantly reduce the manual handling and ergonomic risks associated with undertaking these works on site.