

PCS02:
NFRC PROJECT CASE STUDY

NFRC
LEADING ROOFING EXCELLENCE

Loading Out a Portal-Framed Structure

Unit 2, Winvic-Atlantic Park, Dunnings Bridge Road, Bootle, L30 4TH

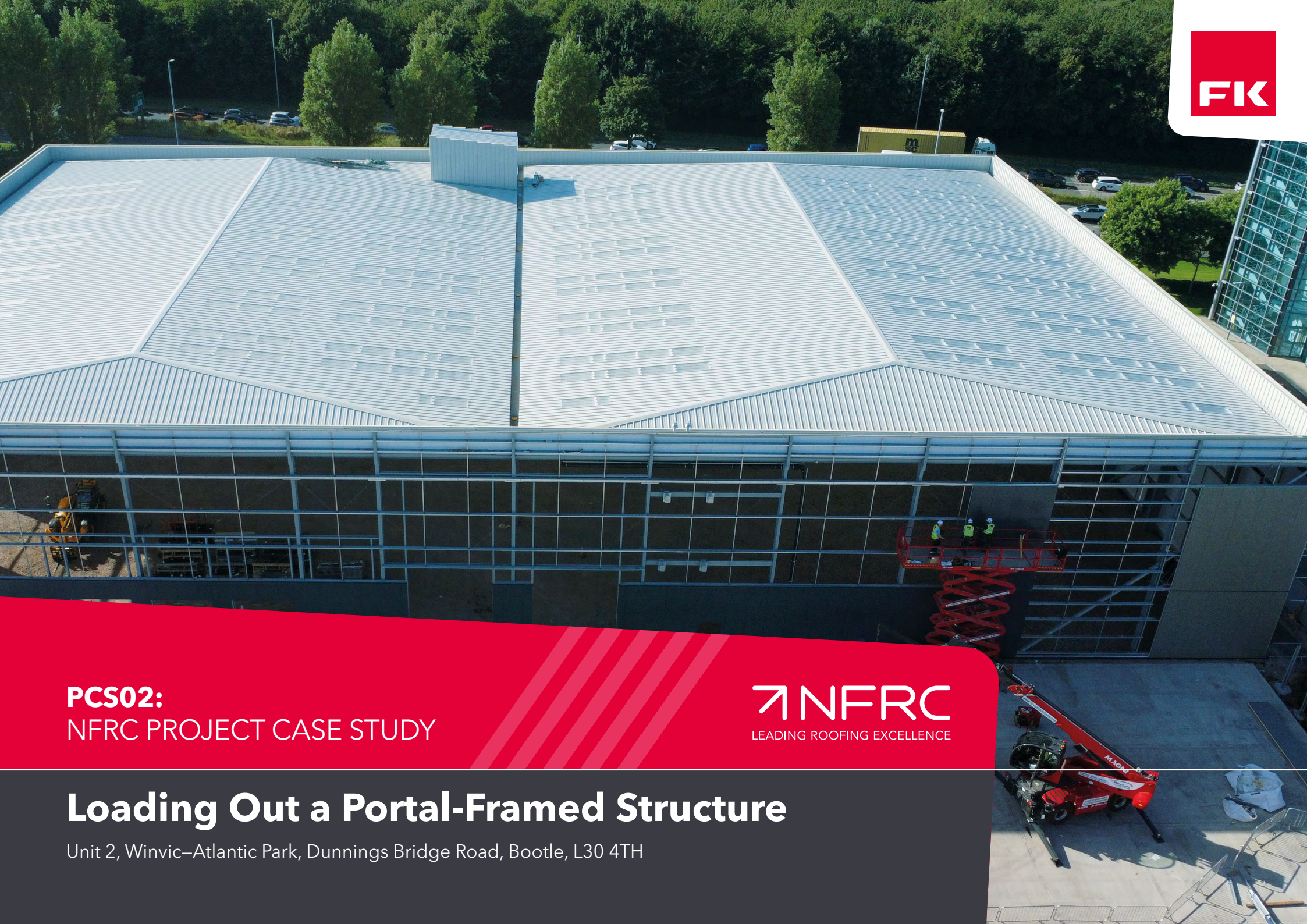




Figure 1: Portal-framed structure

PROJECT SPECIFICATION

4,800 m² (approx.)

QuadCore KS1000RW Roof Panels

KS1000RW polycarbonate Rooflights
(Class B Non-Fragility)

Composite Membrane Lined Gutters



Figure 2: Loading area with demarcation to prevent unauthorised access

Recent accidents during loading out and installing roof sheeting on portal-framed structures, highlighted the need for additional guidance to help roofing contractors when writing method statements to further protect their workers.

NFRC worked with external stakeholders including roofing contractors to provide health and safety guidance on the considerations that should be contemplated by roofing contractors when preparing method statements for loading out portal-framed structures. This guide was published in May 2024 (HSG542) and led to NFRC members FK Group, inviting us to witness a managed lift onto a portal frame.

Figure 1 shows the structure before work commences.

Planning the lift

Loading out a portal-framed roof structure is particularly hazardous and requires a highly-skilled team, including close attention to detail at all stages of the lifting operation. Before any lifting of roof sheets could commence, internal

walkable composite gutters were installed to be utilised as a walkway and a safe place for operatives to manage the lift. Safety netting was fully installed underneath the roof to provide fall protection, with the parapet steelwork used to provide roof edge protection.

The location of the crane was agreed with the Temporary Works Coordinator, a lift plan was agreed and understood by all those involved in the hoisting operation before work started. Rigorous monitoring and supervision was also needed to make sure that the agreed method of work was followed, during the hoisting of materials to the roof.

Figure 2 shows the layout of the material loading area, including the demarcation used to prevent other trades working on-site from entering the lifting zone.

Loading Out

The team taking part in the slinging, signalling, hoisting, and positioning of materials onto the roof, all had the required level of skills, knowledge, experience, and training for the task that they were undertaking. **Figure 3** shows the slinger signaller at roof level, safely landing a pack of panels from the safety of the gutter walkway, adjacent to the parapet steelwork which is providing passive edge protection.



Figure 3: Landing the load at roof level



Figure 4: Rafter back with packs of roof sheets either side

The packs of roof sheets were landed on either side and adjacent to the rafter backs to allow for access for the operative when unslinging the pack. In **figure 4** you can see how the packs of roof sheets provide passive fall prevention into the nets. The pack of sheets is also long enough to span more than three purlins to prevent the pack see-sawing on the purlins. In **figure 5** an operative safely accesses the rafter back to unslung the pack of roof sheets. Note that he remains standing on the rafter back as the operative should not climb onto the pack to unslung the load.



Figure 5: Unslung the load



Figure 6: Signal to the crane driver

In **figure 6** the slinger signaller gives the signal to the crane driver that the slings are free from the load and that it is safe to manoeuvre the crane jib away from the roof. The packs of sheets were securely attached to the purlins to prevent movement.

In **figure 7** the packs of short sheets that could not span a minimum of three purlins were landed onto roof sheets that had been previously placed onto the purlins so that they were fully supported. These shorter sheets were loaded directly over the rafter backs to ensure the additional load is transferred directly to the steel frame, removing the potential risk of overstressing the roof purlins. Those overseeing the lift, meticulously planned for the right materials to be lifted to the correct place, to minimise the amount of manual handling that would be required when installing the sheets.



Figure 7: Loading short roof sheets

FK



Further information

You can download the '*Considerations for method statements when loading out portal-framed structures*' guidance' <https://bit.ly/4hGTJW5>

Conclusion

Loading out any roof can be an extremely hazardous activity and requires close attention to detail at all stages of the operation, with rigorous monitoring and supervision to make sure that the agreed method of work is followed, during the lifting operation. A high degree of communication and co-operation is required between all relevant duty holders to ensure adequate controls are agreed, and in place, before lifting commences.

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