The Building Envelope Authority

Guidance Documents

AUGUST 2015

GD 22 INSTALLING RENEWABLES ON METAL ROOFS: A CHECKLIST

INTRODUCTION

The large areas involved with metal roofing make them an inviting and excellent place to install renewable energy systems such as photovoltaic panels (PVs) and changes to Building Regulations will result in more and more renewables and PVs being installed on both new and refurbishment projects.

With any type of roof there is more to placing renewable energy technology systems on the roof than meets the eye. Positioning photovoltaic panels to gain best power generation is one thing, keeping a fully functional roof is another matter.

Example of a renewable technology system

This edition GD 22 published 01/08/15

CHECKLIST

The checklist in this document sets out many of the factors that should be considered by the building owner or person responsible for the renewables installation. This list is probably not exhaustive, but a good start. While the checklist mainly considers retrofit applications, many items are relevant to new build as well.

The MCRMA strongly recommends that for retrofit applications on an ageing roof, a specialist consultant is employed to survey the roof and address the following questions:

1 Safety

- It is not recommended that renewables such as PVs should be installed on a fragile roof; advice should be sought at the outset from an MCRMA independent roofing and cladding consultant.

- Non-roofing people will need to go on the roof for installation and maintenance. Is there safe access to the roof? Are fall arrest/restraint systems available? Is a safe method of work/work permit available?

- A risk assessment and method statement (RAMS) for the work is needed. This must be prepared by a suitably experienced and competent person or company.

- The building owner may need advice on the Construction (Design and Management) Regulations 2015 (CDM 2015) and a Principal Designer may need to be appointed. Detailed information on CDM 2015 can be found on the MCRMA web site at http://www.mcrma.co.uk/CDM/

- If in doubt, employ a specialist health and safety company. The building owner is ultimately responsible.

- Is the roof non-fragile and walkable? Is an old roof sound? Are there rooflights? (they may be weathered and not obvious). Rooflights should **NEVER** be walked on. Will foot traffic on the roof cause indentations or damage? Has the PV array been designed to allow free walking area around the rooflights?

- Anyone accessing a roof for maintenance of the PVs or to maintain the roof covering once PVs are installed must be appropriately trained in terms of the risks of working at height and in the use of safety equipment. RAMS must be prepared for every instance of roof access.

- If a safety line system is to be installed onto an old roof, has it been certified on that roof assembly? Is the roof system integrity sufficient for a clamp-on safety line system?

A typical cable system and walkway

2 Structural

- Additional dead load of the renewables installation and uplift wind loads. These loads are transferred to the external skin of the roof via special brackets and fixings. Can the roof construction take these loads? A structural engineer **should** be consulted.

- There are many bespoke fittings for attaching PVs to a roof, some provided by the roof manufacturer. Are they compatible, strong enough and tested? Do they impact on the functional performance of the roof? The same question applies to walkway systems.

- Has the roofing system manufacturer and/or installer been consulted regarding the connection detail?

Collective fall protection of guardrail and walkway with accompanying cable system providing access to restricted areas

3 Roof integrity

- Will a photovoltaic cell affect the roof covering below – micro climate, debris build up, poultice corrosion etc.?

- Is the roof material guaranteed? Will the presence of PVs (and the work of installing them) negate a guarantee or inhibit inspections that may be required? The installation of PVs on a guaranteed roof system should be registered with the manufacturer and any new maintenance requirements noted.

- Has the roofing system manufacturer and/or installer been consulted regarding the connection detail?

- Has compatibility of materials, sealants etc. been considered?

- Will penetrations through the roof be needed for wiring or pipes? These need to be cut and sealed, internally and externally – a specialist operation.
  Note: A roofer is seldom an electrician and an electrician is seldom a roofer!

- Once PVs are installed, should a leak or other mishap occur, who would put it right? The PV installer, the roofer, or most likely, the building owner due to split responsibilities?

- And finally, no work should be undertaken without the permission of the building owner.

Metal roofing systems, in conjunction with renewable energy technology systems, provide a sustainable and environmentally sensible solution which, with due consideration, can provide an economic and trouble-free installation.

MCRMA members offer a range of solutions but any proposed scheme should be evaluated at the early stages by any of the MCRMA independent roofing and cladding consultants featured on the MCRMA web site.

An example of a renewable technology system

Examples of renewable technology systems

REFERENCES

Best practice for the use of horizontal safety lines in roof work, Advisory Committee for Roofwork ACR [CP] 007:2008 (Part 1)

Fall protection anchorage standards, EN 795 2012 & CE marking, MCRMA guidance document GD 09

Solar Panel Installation, CITB-ConstructionSkills and the Health and Safety Executive

Test for non-fragility of profiled sheeted roofing assemblies, Advisory Committee for Roofwork ACR (M) 001:2014 [fifth edition]

Testing of roof anchors on roof systems, Advisory Committee for Roofwork ACR [M] 002:2009 (Part 2)

The Construction (Design and Management) Regulations 2015

Working at Heights – a fall prevention and safety checklist, MCRMA guidance document GD 10

Working at Height Regulations (WAHR) 2005 (including 2007 updates)

NOTE:

For comprehensive guidance on all aspects of working on roofs please visit the roof safety section at www.mcrma.co.uk/roof-safety.htm

This document was first published as Technical Bulletin No 15, September 2012. Document revised July 2015

©2019 MCRMA - 106 Ruskin Avenue, Rogerstone, Newport, South Wales NP10 0BD
Tel: 01633 895633 info@mcrma.co.uk www.mcrma.co.uk

This edition GD 22 published 01/08/15