Inspection Checklist for Photovoltaic (PV) Arrays on Commercial Roofs

IBHS research has shown that ballasted PV systems may be subjected to sliding or localized lifting at wind speeds well below design levels. When a PV array is first installed, a baseline inspection should be conducted and the location of key elements should be clearly identified. Be sure to discuss liability, maintenance, and repair responsibilities with your PV installer and insurance company.

Following a strong wind event—with windspeeds of about 70 mph or higher—steps should be taken to identify and address any change or damage that may have occurred.

Initial Inspection

After installation, create a baseline of the PV system and roof cover:

- Document locations of PV array, panels and ballast.
- Record distance between PV system and other roof-mounted equipment.
- Inspect and photograph PV system and roof cover.
Post-Event Inspection and Repairs

After a strong wind event, inspect and address the following:

- Damage to roof cover including tears and abrasion.
- Loose or disconnected conduit, wiring or electrical connections.
- Damage to PV arrays including panels, connectors and ballast.
- Overly tight cables and any signs of fraying or damage to cables or conduit, which could result in an electrical short or broken connection.
- Movement of PV system and components, particularly changes in proximity to other roof-mounted equipment to determine if collision has or could occur.
- Other components that can shift after severe weather include the electrical tray, conduit, and mounting block with roof cover sheet carrying the power line, which is shown shifted away from the PV system. This may cause tightening or disconnection of the cable, which can be a fire hazard.

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IBHS is a non-profit applied research and communications organization dedicated to reducing property losses due to natural and man-made disasters by building stronger, more resilient communities.

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