

# Engineered Metal-Roof Snow-Retention Installation JHA

Worked instructional example

## Work and worksite

A roofing crew will install an engineered S-5 ColorGard 2.0 snow-retention assembly on a completed standing-seam roof with an accepted tested standard S-5-U connection. Protected installers complete the scheduled clamps, crossmembers, splices and snow clips under actual roof-load and attachment criteria. This fictional example contains planned controls, without inspection findings or authorization.

- The responsible designer accepts retained snow loads, panel/support load paths, tested clamp/profile compatibility, row layout and component schedule for the actual roof. A calculator output or broadly described universal clamp does not independently release this installation.
- The current ColorGard 2.0 guide and applicable standard S-5-U instructions govern attachment, torque-tool method, crossmember splices and required clips. The completed roof, protected access, material loads and work area are accepted before staging; no live snow or ice is present.
- Standing-seam roofing 238160-09 and metal panels 238160-10 are partial connections: a separately designed retrofit snow-retention assembly only. Panel installation, seaming, snow removal, roof strengthening, personal fall anchorage and design changes are excluded. Snow-retention parts never serve as personal fall anchors.

## Questions before work

- Who accepts the retained snow load and tested connection basis for the actual roof profile, material and supporting structure?
- Which clamp, row, crossmember, splice and snow-clip schedule applies, and how are attachment findings verified safely?
- How will the crew stay protected while handling long components without using the snow-retention assembly as a fall anchor?

# Task Hazard Control

## 1 Accept the roof and engineered retention design

**Hazard:** Retaining snow on an unsuitable roof or using an untested clamp/profile combination can overload panels, release components or damage the roof.

**Control:** Roof lead reviews the issued retention design with the responsible technical person. Match actual panel profile, material, condition and supporting structure to accepted snow-load and tested attachment data. Resolve row layout and complete component schedule before staging. Do not select clamp spacing from appearance or treat product certification as project-specific roof acceptance.

**Verification:** Technical lead records roof, design and tested connection acceptance.

**Reasoning:** The roof must carry the snow being retained.

## 2 Protect roof positions and restrain materials

**Hazard:** Slippery panels, exposed edges or long loose crossmembers can put the crew and people below into a fall, cut or dropped-object path.

**Control:** Confirm released roof access, independent fall protection and rescue arrangements for every installation position. Separate affected areas below and restrain staged parts within accepted roof loads. Keep components and tools clear of access routes and sharp projections. Hold work where weather prevents safe footing or controlled handling; do not connect personal protection to snow-retention clamps.

**Verification:** Lead verifies protection, restrained staging and lower-area separation.

**Reasoning:** Snow-retention components do not protect installers from falls.

## 3 Set standard clamps to the accepted layout

**Hazard:** Wrong seam engagement or uncontrolled screw tightening can weaken the attachment while leaving a clamp that looks properly fitted.

**Control:** Installer identifies standard S-5-U clamps, not Mini substitutes, and follows the actual profile-specific orientation and supplied hardware instructions. Place clamps under the design layout and reference line from protected positions. Use the prescribed calibrated dial-indicating torque verification and tightening/re-tensioning method for the actual seam material; refer unexpected deformation or a profile mismatch instead of increasing force.

**Verification:** Installer records clamp orientation, layout and attachment findings.

**Reasoning:** Test data requires correct engagement with the actual seam.

## Complete the work and hand over

### 4 Position crossmembers and complete their splices

**Hazard:** A sharp crossmember can catch wind, pinch fingers or leave a discontinuous load path if its connections and splices are improvised.

**Control:** Use planned handling to retain each crossmember until the specified clip and bolt arrangement supports it. Follow the ColorGard 2.0 sequence for actual punched or unpunched parts, alignment and final tightening. Install its supplied internal splices and permitted end details without defeating their movement function. Refer trimming or cantilever changes to the accepted component instructions and design.

**Verification:** Lead checks retained connections, splices and end geometry.

**Reasoning:** The complete assembly transfers retained snow loads.

### 5 Complete specified clips and check the assembly

**Hazard:** An unsuitable snow clip, incomplete engagement or unsupported panel contact can allow snow migration and local damage beneath an otherwise finished bar.

**Control:** Fit the prescribed ColorStrip and required SnoClip 2.0 components through the current sequence. Verify clip size, position, full crossmember engagement and supported roof contact against the actual design. Do not place a clip across a splice gap or accept excessive panel deflection. Check all required attachment and layout findings; resolve omissions before completion is accepted.

**Verification:** Lead records clip engagement, supported contact and assembly findings.

**Reasoning:** Migration-control clips need accepted fit and supported contact.

### 6 Transfer retention and roof-access status

**Hazard:** Loose unused pieces, concealed roof damage or a handover that implies fall-anchor approval can expose subsequent workers and occupants.

**Control:** Remove sharp scraps and secure remaining materials. Record installed layout, components, attachment checks, deviations and roof damage, and transfer unresolved issues to the technical reviewer. Preserve independent fall protection and access restrictions. Hand over the accepted snow-retention function with its limits; do not promise avalanche elimination or permit personal tie-off to the completed assembly.

**Verification:** Receiving lead acknowledges roof condition and continuing restrictions.

**Reasoning:** Snow retention releases neither other hazards nor anchor uses.

### Pause and reassess

- Actual roof profile, material, condition, support capacity or tested clamp combination differs from the issued snow-retention design.
- Weather, footing, material restraint, roof loading or independent fall protection prevents controlled installation.
- Clamp engagement, torque verification, crossmember splicing or supported clip contact cannot meet the applicable accepted criteria.

## Improve the controls

**Needs improvement:** The clamp is universal, so its fit proves it is suitable.

**More useful:** Designer accepts the actual tested clamp/profile/material connection and roof load path; installer verifies the prescribed engagement and attachment method.

**Needs improvement:** Tie off to the new snow bar while finishing the row.

**More useful:** Separate accepted fall protection remains in use throughout; snow-retention clamps and bars receive no personal fall-anchor credit.

### Decisions that change the analysis

#### What if the supplied parts differ from the engineered schedule?

Keep the affected installation on hold. Have the responsible designer and manufacturer resolve actual clamp, clip, crossmember or hardware suitability against the roof profile and load basis. A lighter Mini clamp, a reused clamp or a new spacing cannot be substituted because it looks similar. Preserve safe roof access and independently restrain incomplete components while the change is assessed.

#### What must the crew record for actual use?

Record roof/profile/material, engineering and snow/support loads, tested clamp basis, component schedule and instruction editions. Add access/protection, staging, clamp orientation/attachment, crossmember/splice/end and clip-contact findings, damage, deviations and technical disposition. Identify checkers and handover restrictions; this example supplies neither design nor field checks.

### Training needs

- Selected ColorGard 2.0 and standard S-5-U installation instruction, including actual seam orientation, prescribed torque-tool verification, splices and clip engagement without component substitution.
- Roof-team instruction on independent fall protection, roof-loading limits, long-component restraint, sharp-edge and pinch protection, and documenting a roof or attachment mismatch before continuing.

Confirm applicable qualifications and actual training evidence for the people assigned. Related toolbox talks support discussion; they do not establish competence.

### References and adaptation

S-5 ColorGard 2.0 installation instructions, current manufacturer-linked guide, copyright 2026

<https://3482954.fs1.hubspotusercontent-na1.net/hubfs/3482954/Resources/Product%20Documents/Snow%20Retention/ColorGard%202.0/ColorGard-2-0-%20Installation%20013125%20WEB.pdf>

S-5 standard U/S/E/B/V clamp instructions, USEBVI-V1.2-0420; verify actual profile

<https://f.hubspotusercontent00.net/hubfs/3482954/Resources/Product%20Documents/Clamps/s-5-u-s-e-b-v-and-mini-installation.pdf>

S-5-U current product information and profile-specific selection

<https://www.s-5.com/products/s-5-u-clamps/>

OSHA 1926.501, surface acceptance and roofing fall-protection duties

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.501>

References reviewed October 13, 2026. Use actual equipment and product instructions, project design and site requirements. This original draft supplies no fabricated inspection, signature or approval.