

Achieving UL 2218/2218A Class 4 Impact Rating and Applying UL Certification Labels to Metal Panels Manufactured by a Roofer Contractor on a Portable Rollformer

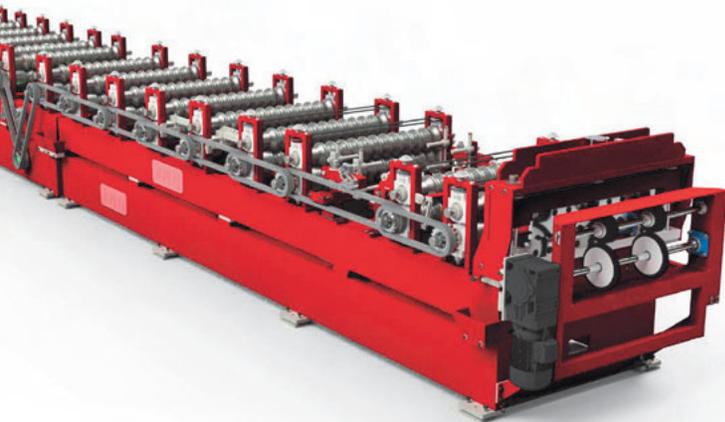


White paper for an independent metal roofing contractor who owns and operates a portable rollformer

Executive summary

UL 2218 / UL 2218A Class 4 is an impact resistance rating for roofing products. In many cases, Class 4 rated roofs may qualify homeowners for insurance discounts. The insurance companies usually require the manufacturer of the panel to be Certified or Classified by UL Solutions Inc.

UL Solutions offers three program options for portable rollformers: 1) metal panels that are produced at a manufacturing location, 2) metal panels that are produced in the field, and 3) metal panels that are produced both at a manufacturing location and produced in the field. Only metal panels produced at a manufacturing location are eligible to be marked with UL labels on the package of metal roof panels.



For the UL Solutions program for field produced products, the roofing contractor who owns and operates the portable rollformer will take the following approach:

1. Procure a portable rollformer from a manufacturer, where the rollformer has demonstrated the ability to produce panels that are listed and certified / classified for UL 790 Class A, B or C fire testing and UL 2218 / 2218A Class 4 impact.
2. Contact UL Solutions to start the process of achieving UL certification on desired panels.
3. Submit metal panel profile drawings and material specifications to UL Solutions for evaluation and certification.
4. Once passed and certified you will enter UL's Follow-Up Services (FUS) program, which allows the roofing contractor to place UL 2218 / 2218A Class 4 Certification Marks to their panels and UL 790 Class A, B or C Certification.
5. The follow up service will also require continuing audits in order to maintain that certification. The roofing contractor will need documented quality control and traceability procedures so UL Solutions can audit the production procedures. These audits are usually twice per year.

This white paper describes the process on how to obtain and maintain UL 2218 / 2218A Class 4 and UL 790 Class A, B or C Certification.

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1. UL 2218 / 2218 A Class 4

- › UL 2218 is a test method which describes how to test roofing materials with free-falling steel balls from 1-1/2 inches up to 2 inches in diameter. The purpose of this test is to simulate impact from varying degrees of hail damage.
- › Class 4 is a rating that is obtained when the panel shows no signs of rupture, cracking, or tearing after multiple 2-inch steel ball impacts.
- › Passing Class 4 is recognized by insurance companies as the standard for “impact resistant” roofing.

2. Why Certification?

- › Insurance companies often require the product to carry the UL Certification Mark or UL’s Product iQ™ database for the Certifications published online in order to issue the discounts.
- › It also gives the roofer/rollformer the authorization to apply UL Certification labels to each panel for those panels produced at an authorized manufacturing location. Metal panels produced in the field are produced under the Certificate Program and do not have a UL Certification Label. These programs provide confidence to the homeowner and insurer that the manufactured product is Class 4 Certified.

3. Design parameters that may affect passing UL 2218



Material & gauge

- › Thicker material resist rupture better than thinner material.
- › Steel is better than other softer alloys like copper and aluminum.
- › Aluminum or other specialty alloys may also pass if thickness and strength of the material is sufficient.



Profile design

Deeper and wider ribs and field-formed seams help distribute impact forces, and therefore reduce the stress concentration and facilitate passing the UL 2218 test.



Manufacturing consistency

The manufacturer must have processes in place in order to produce the panel consistently within tolerances every time.

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4. Obtaining Certification by a Roofing Contractor that manufactures their own metal roof panels.

1. Consult with UL Solutions

Provide panel profile, coil specs, and intended installation method. UL will provide costs and procedures to move forward. They will also determine if testing is required or if you may proceed under an engineering study. Please inform UL Solutions if the metal panels will be produced in the field (Certificate Program), produced at a manufacturing plant, or will be produced both in the field and at a manufacturing location.

2. Prototype production

If testing is required, manufacture panels and send to UL for testing.

3. UL 2218 Class 4 testing

If testing is required, UL will conduct the impact testing on panels. Passing results are required before certification can proceed.

4. Grant of UL Certification and labeling authorization

Once approved, UL will issue the right to the roofer/manufacturer to apply the UL Certification Mark to each panel. UL must approve the labels and they must be applied at an authorized manufacturing location. If labels are not applied the panels are not certified. For metal panels produced in the field, the roll-forming machine would be accompanied with a valid UL Certificate that would demonstrate that metal panels produced by that machine are certified / classified under UL's program. The UL Certificates are only valid for 6 months and must be renewed under witness by UL Solutions.

5. Follow-Up Services (FUS) and Ongoing compliance

- Once certification is obtained, UL will audit the manufacturer's facility or portable rollforming at manufacturer's office. They verify quality control, traceability, labeling controls, and equipment setup. Audits are typically conducted twice per year on portable rollformers.
- The roofer/manufacturer must maintain documented information on material, QC and labeling.
- Continued authorization depends on compliance.

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5. Documentation

With UL certification in place, the roofer/manufacturer can provide:

- › UL-certified labeled panels — each panel carrying the UL Mark confirming UL 2218 / 2218A Class 4 rating.
- › UL Certification documentation — the listing in UL's online directory, UL Product iQ.

This will generally satisfy the insurance company requirements and facilitate discount approval.

6. Costs & timeline

- › **UL Solutions testing & certification:** Varies depending on number of profiles and or material combinations, and whether testing or an engineering study is required.
- › **UL Follow-Up Services audits:** UL requires annual fees plus the on-site audit costs.
- › **Timeline:** Usually 3–6 months

Conclusion

For a roofing contractor acting also as the manufacturer operating a portable rollformer, achieving UL 2218 / 2218A Class 4 with the authorization to apply UL labels typically meets the insurance requirements of supplying a product that meets the UL 2218 Class 4 requirement. This requires not only the product to pass the impact test, but also the roofing contractor to commit to UL's certification and audit program.