SECTION 05 51 33

METAL LADDERS

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

*Copyright 2025 - 2025 ARCAT, Inc. - All rights reserved*

\*\* NOTE TO SPECIFIER \*\* Kattsafe; safe access and fall protection, and metal ladders.  
This section is based on the products of Kattsafe, which is located at:  
5199 E 500 S, Suite 100  
Whitestown, IN 46075  
Toll Free Tel: 888-637-7872  
Tel: 317-769-7710  
Fax: 317-229 6451  
Email: [request info (sales@kattsafe.com)](https://arcat.com/rfi?action=email&company=Kattsafe&message=RE%253A%2520Spec%2520Question%2520(05510kat)%253A%2520&coid=48709&spec=05510kat&rep=&fax=317-229%25206451)  
Web: <https://www.kattsafe.com>   
 [ [Click Here](https://arcat.com/company/kattsafe-48709) ] for additional information.  
Kattsafe began trading as a family-owned business in 1975 in the United Kingdom. We started an office in the USA in 2008 and have seen rapid and positive growth since.  
Our extensive range of safe access products and fall protection systems are primarily designed for rooftop applications. The roof environment is dangerous, and workers are exposed to multiple fall hazards. The rooftop is often considered as out of sight, out of mind. We aim to reverse this theory through education and simplicity. Our goal is to ensure that any worker subjected to working on roofs has maximum safety with minimum fuss.  
Our Vision: To ensure those working at heights return home safely.  
We back up our comprehensive product range with first class customer service. As a company, we have always gone that extra mile to ensure absolute customer satisfaction. Every member of our technical customer service team has been extensively trained, to ensure that you receive the best possible advice, care and completely up to date product information.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Fixed Ladder Systems:
       1. Angled fixed ladders. (RL20 Series).
       2. Standard fixed ladders. (RL30 Series).
       3. Caged fixed ladders. (RL40 Series).
    2. Ladder Accessories:
       1. Ladder fall arrest system.
       2. Ladder security door.
       3. Cage security gate.
       4. Self-closing gate.
    3. Folding Ladder Systems:
       1. Fold down ladders. (RL60 Series).
       2. Fold down ladders suspension frames and ceiling ladder kits.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 05 12 13 - Architecturally-Exposed Structural Steel Framing.
    2. Section 05 55 00 - Metal Stair Treads and Nosings.
    3. Section 06 10 00 - Rough Carpentry.
    4. Section 07 42 00 - Wall Panels.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section. OSHA 1910.23 is the standard recommended requirement.

* + 1. Occupational Safety and Health Administration of the United States (OSHA):
       1. OSHA 1910.23: Fixed Ladders.
       2. OSHA 1910.29: Fall Protection systems and falling object protection.
    2. American National Standards Institute (ANSI):
       1. ANSI A14.3: Ladders - Fixed - Safety Requirements.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data: Manufacturer's data sheets on each product to be used, including:
        1. Preparation instructions and recommendations.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
     3. Shop Drawings: Provide plan, section, elevation and perspective view drawings as necessary to depict appropriate installation procedures including location, mounting, attachment, and penetration flashing as applicable.
  2. QUALITY ASSURANCE
     1. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.
     2. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
       1. Finish areas designated by Architect.
       2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
       3. Rebuild mock-up area as required to produce acceptable work.
  1. DELIVERY, STORAGE, AND HANDLING
     1. Store products in manufacturer's unopened packaging until ready for installation. Protect all components off the ground, away from standing water on a hard, level surface.
  2. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  3. WARRANTY
     1. Warranty: At project closeout, submit an executed copy of the manufacturer's five year standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Kattsafe, which is located at:  
         5199 E 500 S, Suite 100  
         Whitestown, IN 46075  
         Toll Free Tel: 888-637-7872  
         Tel: 317-769-7710  
         Fax: 317-229 6451  
         Email: [request info (sales@kattsafe.com)](https://arcat.com/rfi?action=email&company=Kattsafe&message=RE%253A%2520Spec%2520Question%2520(05510kat)%253A%2520&coid=48709&spec=05510kat&rep=&fax=317-229%25206451);Web: <https://www.kattsafe.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Retain the next article only if Angled Fixed Ladders are required. Delete models not required.

* 1. RL20 SERIES MINI ACCESS LADDERS
     1. Description: Modular Angled Aluminum Fixed Ladder for safe access between minimal elevation changes.
     2. Model RL21: Angled Fixed Ladder with Grabrails.
        1. Material: High tensile 6106-T6 aluminum, mill finish.
        2. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
        3. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
        4. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
        5. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
     3. Model RL22: Angled fixed ladder with parapet platform.
        1. Material: High tensile 6106-T6 aluminum, mill finish.
        2. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
        3. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
        4. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
        5. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
     4. Model RL23: Angled fixed ladder with 8 ft (2438 mm) walkway.
        1. Material: High tensile 6106-T6 aluminum, mill finish.
        2. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
        3. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
        4. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
        5. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
     5. Model RL25: Angled fixed ladder with 3 ft (914 mm) walkway.
        1. Material: High tensile 6106-T6 aluminum, mill finish.
        2. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
        3. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
        4. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
        5. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.

\*\* NOTE TO SPECIFIER \*\* Retain one of the following. Delete ladder mounting types not required.

* + 1. Ladder Base Mounting and Walkway Mounting Kit:
       1. Ladder Base Mount Option One: Non-penetrating 24 x 12 inches (610 x 305 mm) aluminum base plate for membrane and built-up roof systems.
       2. Ladder Base Mount Option Two: Floor mount bracket set for finished floors.
       3. LDWK.01: Non-penetrating weighted base kit for membrane roof systems for 8 ft (2438 mm) walkway.
       4. LDWK.02: Non-penetrating clamp kit for standing seam roof systems for 8 ft (2438 mm) walkway.
       5. LDWK.03: Fastening kit for metal roof systems for 8 ft (2438 mm) walkway.
       6. LDWK.04: Non-penetrating weighted base kit for membrane roof systems for 3 ft (914 mm) walkway.
       7. LDWK.05: Non-penetrating clamp kit for standing seam roof systems for 3 ft (914 mm) walkway.
       8. LDWK.06: Fastening kit for metal roof systems for 3 ft (914 mm) walkway.

\*\* NOTE TO SPECIFIER \*\* Retain the next article only if Standard Fixed Ladders are required.

* 1. RL30 SERIES STANDARD ACCESS LADDERS
     1. Modular Vertical Aluminum Fixed Ladder for safe access to elevated areas. Ladder fall arrest system required on all heights 24ft (7320 mm) or greater.

\*\* NOTE TO SPECIFIER \*\* Select Ladder Model. Choose one of the following five ladder kits.

* + 1. Model RL31: Standard fixed ladder with grabrails.
       1. Material: High tensile 6106-T6 aluminum, mill finish.
       2. Ladder Height: Fall protection required over 24 ft (7320 mm). See ' Ladder Fall Arrest System' under ' Ladder Accessories.'
       3. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm)
       4. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
       5. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       6. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
    2. Model RL32: Standard fixed ladder with parapet platform.
       1. Material: High tensile 6106-T6 aluminum, mill finish.
       2. Ladder Height: Fall protection required over 24 ft (7320 mm). See ' Ladder Fall Arrest System' under ' Ladder Accessories.'
       3. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
       4. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
       5. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       6. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
    3. Model RL33: Standard fixed ladder with 8 ft (2438 mm) walkway.
       1. Material: High tensile 6106-T6 aluminum, mill finish.
       2. Ladder Height: Fall protection required over 24 ft (7320 mm). See ' Ladder Fall Arrest System' under ' Ladder Accessories.'
       3. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
       4. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
       5. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       6. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
    4. Model RL34: Standard fixed ladder for roof hatch access.
       1. Material: High tensile 6106-T6 aluminum, mill finish.
       2. Ladder Height: Fall protection required over 24 ft (7320 mm). See ' Ladder Fall Arrest System' under ' Ladder Accessories.'
       3. Ladder Width: 23-1/2 inches (597 mm).
       4. Retractable Stile Set: Stiles can be retracted to allow for safe access through the roof hatch.
       5. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
       6. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       7. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
    5. Model RL35: Standard fixed ladder with 3 ft (914 mm) walkway.
       1. Material: High tensile 6106-T6 aluminum, mill finish.
       2. Ladder Height: Fall protection required over 24 ft (7320 mm). See ' Ladder Fall Arrest System' under ' Ladder Accessories.'
       3. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
       4. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
       5. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       6. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.

\*\* NOTE TO SPECIFIER \*\* Retain one of the following. Delete ladder mounting types not required.

* + 1. Ladder Base Mounting and Walkway Mounting Kit:
       1. Ladder Base Mount Option One: Non-penetrating 24 x 12 inches (610 x 305 mm) aluminum base plate for membrane and built-up roof systems.
       2. Ladder Base Mount Option Two: Off-floor mount fixing bracket, heavy duty wall fixing bracket for ladders mounted to the wall only.
       3. Ladder Base Mount Option Three: Floor mount bracket set for finished floors.
       4. LDWK.01: Non-penetrating weighted base kit for membrane roof systems for 8 ft (2438 mm) walkway.
       5. LDWK.02: Non-penetrating clamp kit for standing seam roof systems for 8 ft (2438 mm) walkway.
       6. LDWK.03: Fastening kit for metal roof systems for 8 ft (2438 mm) walkway.
       7. LDWK.04: Non-penetrating weighted base kit for membrane roof systems for 3 ft (914 mm) walkway.
       8. LDWK.05: Non-penetrating clamp kit for standing seam roof systems for 3 ft (914 mm) walkway.
       9. LDWK.06: Fastening kit for metal roof systems for 3 ft (914 mm) walkway.

\*\* NOTE TO SPECIFIER \*\* Retain the next article only if Caged Fixed Ladders are required.

* 1. RL40 SERIES CAGED ACCESS LADDERS:
     1. Modular Caged Aluminum Fixed Ladder for safe access to elevated areas. A Cage is considered a form of fall protection on ladders greater than 24 ft (7320 mm) until November 19th 2018.

\*\* NOTE TO SPECIFIER \*\* Select Ladder Model. Choose one of the following five ladder kits.

* + 1. Model RL41: Caged fixed ladder with grabrails.
       1. Material: High tensile 6106-T6 aluminum, mill finish.
       2. Ladder Height: Fall protection required over 24 ft (7320 mm). See ' Ladder Fall Arrest System' under ' Ladder Accessories.'
       3. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
       4. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
       5. Cage Weight: 18 lbs (8.16 kg) per 40 inch (1016 mm) section.
       6. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       7. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
    2. Model RL42: Caged fixed ladder with parapet platform.
       1. Material: High tensile 6106-T6 aluminum, mill finish.
       2. Ladder Height: Fall protection required over 24 ft (7320 mm). See ' Ladder Fall Arrest System' under ' Ladder Accessories.'
       3. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
       4. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
       5. Cage Weight: 18 lbs (8.16 kg) per 40 inch (1016 mm) section.
       6. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       7. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
    3. Model RL43: Caged fixed ladder with 8 ft (2438 mm) walkway.
       1. Material: High tensile 6106-T6 aluminum, mill finish.
       2. Ladder Height: Fall protection required over 24 ft (7320 mm). See ' Ladder Fall Arrest System' under ' Ladder Accessories.'
       3. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
       4. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
       5. Cage Weight: 18 lbs (8.16 kg) per 40 inch (1016 mm) section.
       6. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       7. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
    4. Model RL44: Caged fixed ladder for roof hatch access.
       1. Material: High tensile 6106-T6 aluminum, mill finish.
       2. Ladder Height: Fall protection required over 24 ft (7320 mm). See ' Ladder Fall Arrest System' under ' Ladder Accessories.'
       3. Ladder Width: 23-1/2 inches (597 mm).
       4. Retractable stile set: Stiles can be retracted to allow for safe access through the roof hatch.
       5. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
       6. Cage Weight: 18 lbs (8.16 kg) per 40 inch (1016 mm) section.
       7. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       8. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
    5. Model RL45: Caged fixed ladder with 3 ft (914 mm) walkway.
       1. Material: High tensile 6106-T6 aluminum, mill finish.
       2. Ladder Height: Fall protection required over 24 ft (7320 mm). See ' Ladder Fall Arrest System' under ' Ladder Accessories.'
       3. Ladder Width: 23-1/2 inches (597 mm). Walk-Through Width: 24 inches (610 mm).
       4. Ladder Weight: 6.4 lbs (2.9 kg) per 40 inch (1016 mm) section.
       5. Cage Weight: 18 lbs (8.16 kg) per 40 inch (1016 mm) section.
       6. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       7. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.

\*\* NOTE TO SPECIFIER \*\* Retain one of the following. Delete ladder mounting types not required.

* + 1. Ladder Base Mounting and Walkway Mounting Kit:
       1. Ladder Base Mount Option One: Non-penetrating 24 x 12 inches (610 x 305 mm)aluminum base plate for membrane and built-up roof systems.
       2. Ladder Base Mount Option Two: Off-floor mount fixing bracket, heavy duty wall fixing bracket for ladders mounted to the wall only.
       3. Ladder Base Mount Option Three: Floor mount bracket set for finished floors.
       4. LDWK.01: Non-penetrating weighted base kit for membrane roof systems for 8 ft (2438 mm) walkway.
       5. LDWK.02: Non-penetrating clamp kit for standing seam roof systems for 8 ft (2438 mm) walkway.
       6. LDWK.03: Fastening kit for metal roof systems for 8 ft (2438 mm) walkway.
       7. LDWK.04: Non-penetrating weighted base kit for membrane roof systems for 3 ft (914 mm) walkway.
       8. LDWK.05: Non-penetrating clamp kit for standing seam roof systems for 3 ft (914 mm) walkway.
       9. LDWK.06: Fastening kit for metal roof systems for 3 ft (914 mm) walkway.

\*\* NOTE TO SPECIFIER \*\* Select Ladder Accessories if required.

* 1. FIXED LADDER ACCESSORIES
     1. Ladder Fall Arrest System:

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - 1. Model RL50SYS: Fall arrest kit includes fall arrest mounting brackets, tensioner, termination device, sign and stainless hardware.
      2. Model SL228.10: Arresta Shuttle locking device with energy absorbing lanyard (1 required per user).
      3. Model SL230F: Stainless steel (316) cable Specify wall height.
      4. Capacity: For single person use; 1400 lbs (635 kg) rated.
      5. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.29 and ANSI A14.3.
    1. Model LD426: Ladder Security Door. Aluminum security door to prevent unauthorized access. 84 x 25-1/2 inches (2134 x 648 mm).
    2. Model LD425: Ladder Cage Gate. Aluminum gate to prevent unauthorized access. 37 x 30-5/8 inches (940 x 778 mm).
    3. Model GW390: Self-Closing Gate. Aluminum gate for mounting at the end of the walkway kits or parapet platforms.

\*\* NOTE TO SPECIFIER \*\* Retain the next article only if Fold Down Access Ladders are required.

* 1. RL60 SERIES FOLD DOWN ACCESS LADDERS AND SUSPENSION KITS

\*\* NOTE TO SPECIFIER \*\* Select Ladder Model. Choose one of the following ladder kits

* + 1. Model RL62: Vista Commercial Fold Down Ladder.
       1. Material: High tensile aluminum, mill finish.
       2. Opening Size: 48 x 31 inches (1219 x 787 mm).
       3. Ladder Height Range: 7 to 10 ft (2134 to 3048 mm).
       4. Ladder Width: 23-1/2 inches (597 mm).
       5. Unit Weight: 88 lbs (40 kg).
       6. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       7. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.
    2. Model RL63: Vista Maxi Fold Down Ladder.
       1. Material: High tensile aluminum, mill finish.
       2. Opening Size: 64 x 31 inches (1626 x 787 mm).
       3. Ladder Height Range: 7 to 14 ft (2134 to 4267 mm).
       4. Unit Weight: 88 lbs (40 kg).
       5. Capacity: Unit shall support a 1000 lbs (453.6 kg) loading without failure, and individual treads shall withstand a 1000 lbs (453.6 kg) loading without failure.
       6. Performance Standard: Units designed and manufactured to meet or exceed OSHA 1910.23.

\*\* NOTE TO SPECIFIER \*\* Select Suspension frame and ceiling ladder kit. Choose one of the following kits and specify height

* + 1. Ladder Suspension Frame and Ceiling Ladder Kit:
       1. Model RL62: Height (in/mm): \_\_\_\_\_\_ between roof structure and suspended ceiling. Suspension kit can be cut to required height in the field.
       2. Model RL63: Height (in/mm): \_\_\_\_\_\_ between roof structure and suspended ceiling. Suspension kit can be cut to required height in the field.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
   4. PROTECTION
      1. Protect installed products until completion of project.
      2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION