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Corinthian Cast Stone Inc. Technical Bulletin
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HOT WEATHER SETTING PRACTICES FOR INDIANA LIMESTONE

Prepared for Contractors, Restoration Architects, and Engineers

INTRODUCTION

Hot weather conditions—typically defined as temperatures exceeding 90°F (32°C)—pose challenges to the proper handling, installation, and setting of Indiana Limestone. These conditions can accelerate curing, increase material stress, and negatively affect critical installation components like anchors, shims, and epoxy. This technical bulletin provides detailed guidance on mitigating the effects of hot weather during installation, ensuring structural integrity, and preserving the aesthetic quality of limestone installations.

HOT WEATHER CHALLENGES FOR ANCHORS, SHIMS, AND EPOXY

Anchors

- **Thermal Expansion:**
  High temperatures can cause metal anchors to expand, creating stress within the limestone anchor slots. This stress can lead to cracking if not properly accommodated.
- **Reduced Bond Strength:**
  Heat can reduce the effectiveness of adhesives or coatings applied to anchors, compromising their ability to bond securely with the limestone.

Shims

- **Deformation:**
  Plastic shims can deform or soften under prolonged heat exposure, leading to uneven bearing and potential instability.
- **Material Compatibility:**
  Shims must maintain their structural integrity under varying temperatures while remaining non-reactive with limestone.

Epoxy

- **Accelerated Curing:**
  Elevated temperatures significantly reduce epoxy curing time, increasing the risk of improper application and reduced adhesion.
- **Strength Reduction:**
  Excessive heat during curing can weaken the epoxy, compromising its ability to secure anchors effectively.

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BEST PRACTICES FOR ANCHORS, SHIMS, AND EPOXY IN HOT WEATHER

Anchors

1. **Anchor Placement:**
   - Ensure anchor slots are properly sized and aligned to prevent undue stress on the limestone during thermal expansion.
   - Allow for slight movement of the anchor within the slot to accommodate thermal changes.
2. **Material Selection:**
   - Use only stainless steel anchors (ASTM A240 or A276) for their thermal stability, strength, and corrosion resistance.
3. **Installation Tips:**
   - Keep anchors cool before installation by storing them in shaded or temperature-controlled areas.
   - Avoid direct exposure to sunlight during installation to minimize thermal expansion.

Shims

1. **Shim Materials:**
   - Use non-reactive materials like high-density polyethylene (HDPE) or lead for their thermal stability and load-bearing capabilities.
   - Ensure shims are non-staining and compatible with Indiana Limestone.
2. **Placement:**
   - Position shims to evenly distribute loads and prevent point-loading stress on the limestone.
   - Avoid over-tightening fasteners, as this can compress and deform plastic shims in high temperatures.
3. **Protection:**
   - Store shims in shaded areas to avoid softening or deformation caused by prolonged heat exposure.

Epoxy

1. **Epoxy Selection:**
   - Use epoxy products rated for high-temperature applications and specifically designed for use with natural stone. Check the manufacturer's technical data sheet for recommended temperature ranges.
   - Avoid fast-setting epoxies in hot weather, as their curing time may be too short for proper application.
2. **Application Guidelines:**
   - Mix epoxy in smaller batches to prevent premature curing during application.
   - Cool the mixing container and components to extend working time.
   - Pre-condition the limestone and anchor surfaces to moderate temperatures (between 60°F and 80°F) before applying epoxy.
3. **Curing Considerations:**
   - Protect the epoxy from direct sunlight and wind during curing to prevent uneven hardening.
   - If temperatures exceed the epoxy's recommended range, provide shading or other environmental controls to maintain a stable curing environment.

GENERAL HOT WEATHER MITIGATION STRATEGIES

1. **Timing of Work:**
   - Schedule anchor and epoxy installations during cooler parts of the day, such as early morning or late evening.
2. **Environmental Controls:**
   - Use portable shading systems to shield work areas from direct sunlight.
   - Apply cooling measures, such as misting or evaporative cooling, to lower ambient temperatures around the installation site.
3. **Inspection and Maintenance:**
   - Regularly inspect installed anchors, shims, and epoxy applications for signs of stress or failure, especially during prolonged periods of high temperatures.

CORINTHIAN NATURAL STONE SUPPORT

Corinthian Natural Stone adheres to ASTM C568 standards for limestone dimension stone and provides expert support tailored to meet IBC Chapter 21 Masonry requirements. Our team can assist with project-specific needs, including anchor system design, epoxy selection, and installation practices.

For additional assistance with product specification, installation practices, or maintenance strategies, contact our technical services department at **631-920-2340 or info@corinthian-usa.com.**

This Technical Bulletin addresses generally accepted practices for Indiana Limestone and is intended as a guide only. Specific project requirements should be determined by design professionals based on actual conditions and intended use.
For further information, visit www.corinthian-usa.com.

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