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POINTING OF JOINTS FOR INDIANA LIMESTONE

Prepared for Contractors, Restoration Architects, and Engineers

INTRODUCTION

Pointing is a critical element in ensuring the durability, structural integrity, and aesthetic quality of Indiana Limestone installations. Proper pointing addresses shrinkage and stress issues inherent in mortar joints, providing a seal against moisture infiltration while accommodating minor movements in the masonry assembly. When executed correctly, pointing enhances the longevity and visual harmony of the installation. However, improper use can lead to adverse effects, necessitating careful consideration of materials, techniques, and conditions.

WHY POINTING IS IMPORTANT

Mortar joints serve as the interface between Indiana Limestone units. Their durability directly impacts the performance of the entire installation. Without proper pointing, shrinkage, thermal expansion, and environmental factors can lead to several critical issues:

Shrinkage Cracks and Moisture Infiltration

- As mortar cures, it shrinks slightly, which may result in cracks along joint edges.
- These cracks allow moisture infiltration, leading to internal damage such as efflorescence, freeze-thaw deterioration, and mold growth.

Edge Spalling

- Uneven curing or improper mortar composition can concentrate stresses at the edges of limestone units.
- Localized stress causes spalling, where small flakes or chips break off the stone's edges, reducing durability and aesthetic appeal.

Accommodation of Thermal Stress

- Indiana Limestone expands and contracts with temperature changes, requiring mortar joints that can accommodate movement.
- Pointing mortar is typically softer than the stone, allowing it to absorb thermal stresses without transferring them to the limestone itself.

Aesthetic Consistency and Long-Term Durability

- Pointing maintains a consistent appearance by sealing shrinkage cracks that could stain or discolor the limestone.
- Proper pointing ensures joints retain their intended profile and finish, contributing to the overall visual appeal.

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RECOMMENDED POINTING MORTAR MIX

Composition

- 1 part Portland cement (ASTM C150)
- 1 part hydrated lime (ASTM C207)
- 6 parts masonry sand (ASTM C144)

This mix provides sufficient compressive strength while maintaining flexibility and weather resistance.

Pigmentation Guidelines

- Use pigments that meet ASTM C979 standards to resist fading, lime leaching, and alkali reactions
- Limit pigmentation to 10% of the cement weight to maintain mortar integrity.

WHEN POINTING SHOULD NOT BE USED

1. **Incompatible Mortar Types:**
   - Mortar stronger or less permeable than the original mortar can lead to stress concentrations, causing cracking or spalling.
2. **Historic or Aged Structures:**
   - Historic masonry often relies on softer, lime-based mortars for flexibility and moisture management. Introducing new pointing mortar without proper analysis may disrupt these systems, accelerating deterioration.
3. **Presence of Efflorescence or Moisture Issues:**
   - Pointing over joints affected by efflorescence or moisture traps salts and water within the masonry, worsening damage.
4. **Structural Instability:**
   - Significant cracks, bulging, or displacement in the masonry require structural repairs before any pointing can be performed.

APPLICATION GUIDELINES

Preparation

- Rake joints to a uniform depth of at least ¾ inch to ensure proper adhesion.
- Remove debris and clean joint surfaces to create a sound base for the pointing mortar.

Application Process

- **Timing:** Avoid pointing in direct sunlight or excessively hot conditions, as these accelerate curing and increase shrinkage.
- **Placement:** Use proper tools to compress mortar against the edges of the limestone, minimizing air pockets. A concave joint profile is preferred for durability and water resistance.
- **Protection:** Tape adjacent limestone surfaces to prevent staining, and sponge away excess mortar immediately after application.

Mockup Walls

- Construct a mockup wall to test and approve mortar colors, textures, and joint profiles. Clean the mockup to account for any color changes during washing or curing.

CORINTHIAN NATURAL STONE SUPPORT

Corinthian Natural Stone adheres to ASTM C568 standards for limestone and provides expert support to ensure successful masonry installations. Our technical services team can assist with project-specific needs, including pointing techniques, material compatibility, and joint design.

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.**

REFERENCES

This bulletin is informed by the following standards and resources:

- ASTM C568 – Standard Specification for Limestone Dimension Stone
- ASTM C150 – Portland Cement
- ASTM C207 – Hydrated Lime
- ASTM C144 – Masonry Sand
- ASTM C979 – Pigments for Integrally Colored Mortar
- Indiana Limestone Handbook
- Indiana Limestone Institute Technotes

CONCLUSION

Pointing plays a vital role in the structural and aesthetic success of Indiana Limestone installations. By addressing shrinkage, edge spalling, and moisture resistance, pointing enhances the longevity and performance of masonry assemblies. When pointing is unsuitable, alternative methods should be evaluated to protect the limestone effectively.

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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