Manufactured Stone Veneer
Installation Guidelines

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Introducing
Masonry Veneer Manufacturers Association

About MVMA
• MVMA represents manufacturers of manufactured stone veneer (MSV) and related suppliers.
• MVMA goal is to help grow the MSV industry through proactive technical and advocacy efforts.
• MVMA members represent majority of MSV industry.

Goals of this presentation
• Present Manufactured Stone Veneer installation guidelines developed by MVMA.
• Address wall preparation; flashing and details of penetrations, joints, transitions, and terminations; and MSV installation.
• Provide update on opportunities.

The Fine Print
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Today's Topics
• Design Considerations
• The Wall
• Water Resistive Barrier
• Flashing
• Lath
• Scratch coat
• MSV Installation
• Finishing & Cleanup
• Maintenance
• Opportunities
Manufactured Stone Veneer

MSV - Description
- Lightweight concrete
- Cast, textured, and tinted to simulate naturally occurring stone
- Offers durability and beauty of natural stone.

Design Considerations

Aesthetics
- Select the
  - Round stones
  - Ledgestones
  - Component stones
  - Irregular shapes
  - Combinations
- Joint options
  - ¼” joint
  - Tight Fit
  - Overgrout

Structural
- Wood framing
- Metal framing
- CMU
- Poured concrete

Water Management
- Terminations
  - Top, bottom, and sides
- Penetrations
  - Fenestration
  - Utilities
- Transitions
  - Vertical & horizontal
- Roof
  - Cladding / roofing interface
  - Run-off / kick-out
- Unintentional water
  - Lawn sprinklers
  - Groundwater

Dead load contribution
- Veneer weighs up to 15 lbs/sq. ft.
Design Considerations

Water Management

- Terminations
  - Top, bottom, and sides
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The Wall

Wood/Metal Framing

- 16 inch on center
- Application methods for sheathed and open stud construction
- Sheathed applications following the APA recommendation for fasteners and gap spacing.

Masonry / Concrete

- CMU
- Poured Walls
- The key is surface prep
  - Clean
  - Rough
  - No form release oil
  - No paint or sealer
Water Resistive Barrier

Two separate layers
- Must provide bond break and drainage between scratch coat and WRB

Meet ICC-ES AC38
- Grade D building paper
- #15 felt (ASTM D226)
- House wrap

Install per manufacturer recommendations
- Vertical and horizontal overlap
- Fastening

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Flashing

Flashing
- Terminations
  - Foundation
- Transitions
- Penetrations
- Roof Interface

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Flashing

- Terminations
- Transitions
  - Vertical transition
- Penetrations
- Roof Interface

Flashing

- Terminations
- Transitions
  - Horizontal transition
- Penetrations
- Roof Interface

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Flashing

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  - Vertical transition
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Flashing

- Terminations
- Transitions
  - Horizontal transition
- Penetrations
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Don’t Do This

Don’t Do This
Flashing

- Transitions
  - Horizontal transition
- Penetrations
  - Windows & doors
    - Sill, jamb, head
- Roof Interface

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Don't Do This

Lath

- Selection
- Installation

Courtesy Owens Corning Masonry Products

Courtesy Sunset Stone

Courtesy BASF

Courtesy Boulder Creek Stone
Lath

- Selection
  - Corrosion resistant
  - Self-furring
  - Selected based on application.
    - 2.5 lb/yd² or 3.4 lb/yd²
      - ASTM C847
      - ICC ES AC191
    - 15 Gauge Woven Wire
      - ASTM C1032
      - ICC ES AC191
    - Alternative lath
      - ICC ES AC275

- Installation
  - Inside corners

- Inside Corner

- Installation
  - Inside corners

- Outside Corner

- Installation
  - Outside corners
Lath

• Installation
  – Outside corners

Scratch Coat

First application of mortar over the metal lath
Nominal 1/2" thick
Encapsulate the lath
Scored (scratched) in horizontal direction
Moist cured

Veneer Installation

Basics of setting stone
• Mortar types and mix
• Moist scratch coat
• Mortar methods
• The key for success

Basics of setting stone
• Mortar types and mix
  – Job site mix
  – Premixed
• Moist scratch coat
• Mortar methods
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Veneer Installation

Basics of setting stone
• Mortar types and mix
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Veneer Installation

Basics of setting stone
• Mortar types and mix
• Moist scratch coat
  – Not dry, not wet
• Mortar methods
  – Mortar buttered on the back of the stone
  – Mortar towel on wall
  – Combination
• The key for success
Veneer Installation

Basics of setting stone
- Mortar types and mix
- Moist scratch coat
- Mortar methods
  - Mortar buttered on the back of the stone
  - Mortar toweled on wall
  - Combination
- The key for success

Grouted Installation
- Moisten back of MSV
- Back butter MSV
- Firmly press and work the stone / mortar onto the scratch coat
- Allow to cure without disturbance
- Corners first
- Top-down or bottom-up
- Clean joints when sufficiently cured that mild bump will not affect bond.
- Grout bag for filling joints.
- Tool joints when thumbprint hard
- Brush for a finished appearance
- Clean the finished project

Tight Fit Installation
- Corners first
- Bottom-up
- Moisten and back-butter MSV
- Firmly press and work stone / mortar onto the scratch coat
- Clean when thumbprint hard
Veneer Installation

Basics of setting stone
- Full scratch coat encapsulating lath
- Full mortar setting bed for MSV

Don’t Do This

Courtesy Owens Corning Masonry Products

Veneer Installation

Basics of setting stone
- Use corner stones

Don’t Do This

Courtesy Lone Star Stone

Hot or Cold Weather Installation

Hot Weather
- Pay special attention to damp scratch coat and damp MSV units
- Provide shade – work in the shade
- Frequently mist the wall
- Consult mortar manufacturer for recommendations on hot weather mix

Cold Weather
- Protect from temps below 40 degrees F
- Do not use anti-freeze
- Do not use calcium chloride
- Do not install MSV units that have visible ice or snow on them.
- Heat and shelter the installation

Maintenance

Cleaning
- No acid or harsh chemicals
- No abusive tools
No salt or de-icing chemicals

Opportunities

- Rain screens, wall drainage systems
- Treatments (details) below clearance to grade
- Insulated concrete forms and SIPs
- Thick foam applications
- 2009 IRC code changes

Questions?

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