

Wet Areas

An excerpt from the *Dimension Stone Design Manual*,
Version 7.2 (July 2011)



*Setting the Standards in the
Natural Stone Industry*

**Produced and Published by the
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WET AREAS – STONE TOILET PARTITIONS

1.0 INTRODUCTION

1.1 Installation Methods. There are several methods by which stone toilet partitions can be installed. Consideration should be given to the various features of each method in making a selection for a specific installation. See information about installation methods in this section's Data Sheet, Part 3, and illustrations of examples at the close of this section.

2.0 DESIGN CRITERIA

2.1 Oil-based putty and plumbing sealants should never be used in contact with stone.

2.2 Sound Stones. Only sound stones, free of any cracks, defects, geological flaws, and voids should be used.

2.3 Anchors. An alternate system that may be used is nonstaining dowels, pins, and wire anchors in lieu of chrome-plated hardware.

2.4 White portland cement is recommended for light-colored granite and marble. White portland cement with a low alkali content is recommended for limestone.

2.5 The ceiling channel, to which the stile should be attached, shall be furnished and installed by the General Contractor.

2.6 For additional information, refer to Chapter 13, Installation—General Information.

2.7 Geographic Methods. Some installation methods and materials are not recognized and may not be suitable in some geographic areas because of local trade practices, building codes, climatic conditions,

or construction methods. Therefore, while every effort has been made to produce accurate guidelines, they should be used only with the independent approval of technically qualified persons.

DATA SHEET

STONE TOILET PARTITIONS

1.0 PRODUCT DESCRIPTION

1.1 Basic Use. Toilet partitions for all building types.

1.2 Limitations. Only sound stone varieties should be used. Marble Selection is limited to Soundness Classifications “A” and “B”.

1.3 Fabrication. Stone toilet partitions are precut, predrilled, and prefinished to dimensions specified on the shop drawings and delivered to the job site ready to install. However, for certain job conditions, it is preferable to furnish the stone undrilled, and drill at the job site.

1.4 Types. Partitions are available floor-mounted or ceiling-suspended.

1.5 Finishes. Polished finish is most common due to ease of maintenance.

1.6 Colors. Most of the commercially available varieties are suitable.

1.7 Sizes. Custom according to design requirements and size limitations of selected stone.

2.0 TECHNICAL DATA

2.1 Each stone variety used for stone toilet partitions should conform to the applicable ASTM standard specification and the physical

requirements contained therein. The specification for each stone type follows:

2.1.1 Granite: ASTM C615 Standard Specification for Granite Dimension Stone

2.1.2 Limestone: ASTM C568 Standard Specification for Limestone Dimension Stone

2.1.3 Marble: ASTM C503 Standard Specification for Marble Dimension Stone, Soundness Classification "A".

2.1.4 Quartz-based Stone: ASTM C616 Standard Specification for Quartz-based Dimension Stone

2.1.5 Serpentine: ASTM C1526 Standard Specification for Serpentine Dimension Stone

2.1.6 Slate: ASTM C629 Standard Specification for Slate Dimension Stone

2.1.7 Soapstone: No ASTM Standard exists at this time

2.1.8 Travertine: ASTM C1527 Standard Specification for Travertine Dimension Stone

3.0 INSTALLATION

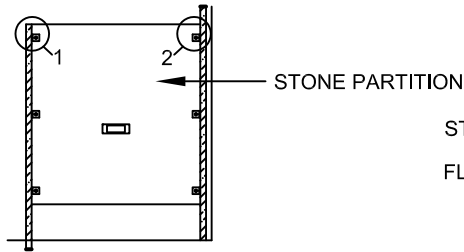
3.1 Preparatory Work. A solid subfloor not more than 2" below finish floor and a masonry toilet wall should be provided for proper installation.

3.2 Methods. Partitions are assembled using chrome plated hardware. Floor-mounted units are set on dowels into finish floor. Ceiling-suspended units are bolted to overhead support. All ceiling-suspended units must have a metal spline. Anchorage methods are to comply with applicable codes.

3.2.1 All joints are sealed with nonstaining sealants.

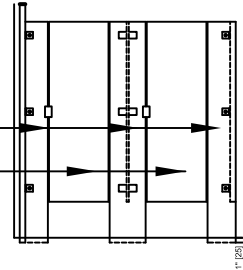
3.3 General Precautions. During construction, the General Contractor shall protect all stone from staining or damage.

3.3.1 Oil-based putty and plumbing sealants should never be used in contact with stone.

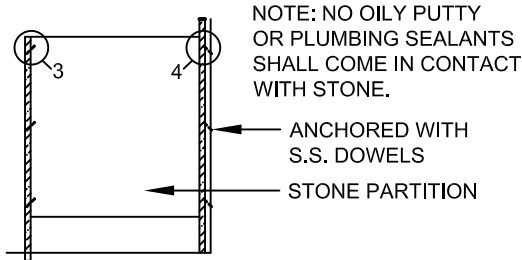


SECTION 3/8"=1'-0"
HARDWARE MOUNTED

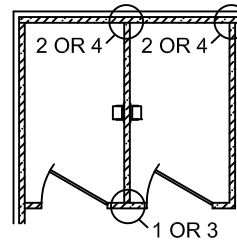
STONE STILES
FLUSH DOORS



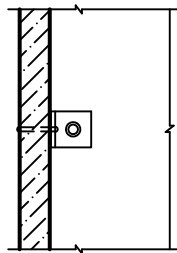
ELEVATION 3/8"=1'-0"
HARDWARE MOUNTED



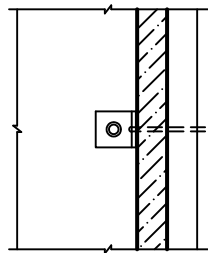
SECTION 3/8"=1'-0"
DOWEL MOUNTED



PLAN 3/8"=1'-0"
TYPICAL LAYOUT

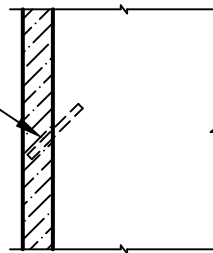


SECTION 1
HARDWARE MOUNTED

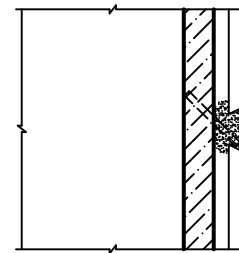


SECTION 2

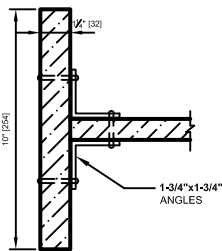
2" LONG S.S. DOWELS, TYP.



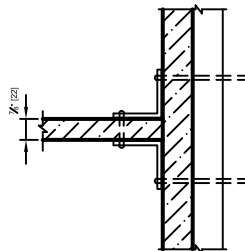
SECTION 3
DOWEL MOUNTED



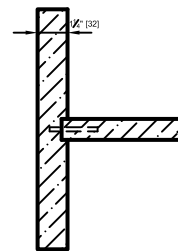
SECTION 4



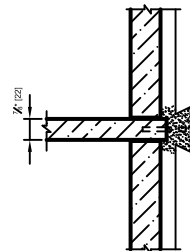
PLAN 1
HARDWARE MOUNTED



PLAN 2



PLAN 3
DOWEL MOUNTED



PLAN 4



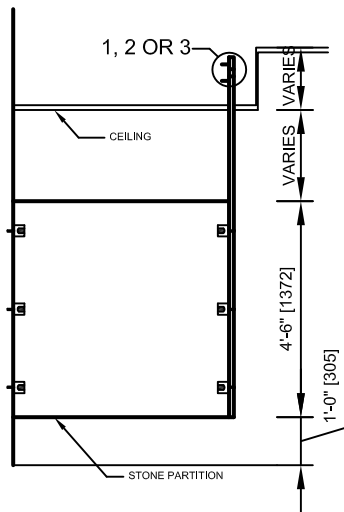
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0	Aug 2006
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STONE TOILET PARTITIONS
FLOOR-MOUNTED PARTITION DETAILS
MIA DIMENSION STONE DESIGN MANUAL VII

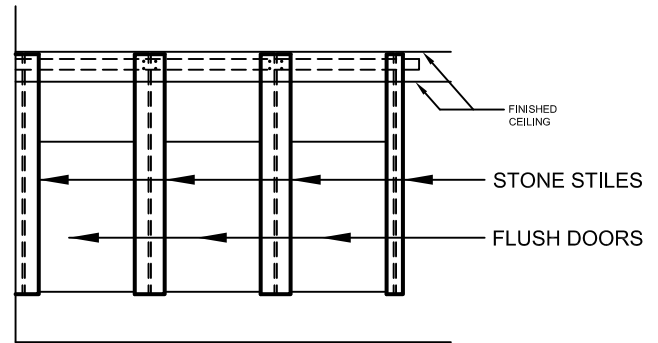
DRWG NO: 16-D-1

SCALE:
As Noted



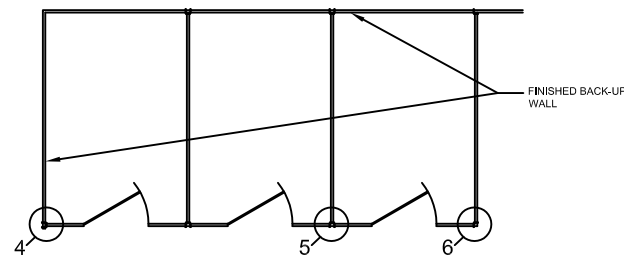
SECTION

1/4"=1'-0"



ELEVATION

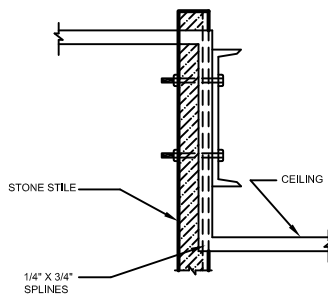
1/4"=1'-0"



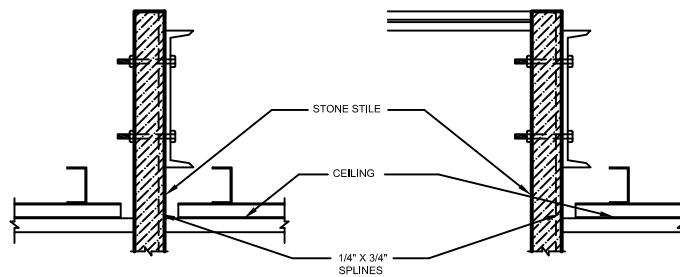
PLAN

1/4"=1'-0"

NOTE: NO OILY PUTTY OR PLUMBING SEALANTS SHALL COME IN CONTACT WITH STONE



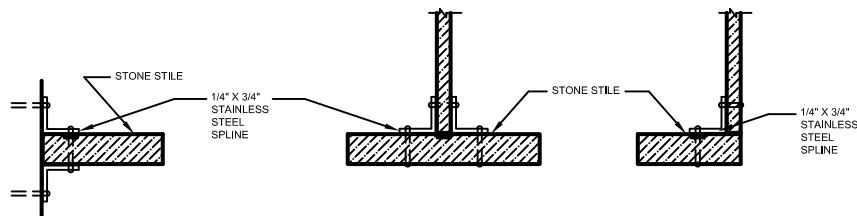
DETAIL 1
SECTIONS



DETAIL 2

DETAIL 3

1-1/2"=1'-0"



DETAIL 4
PLANS

DETAIL 5

DETAIL 6

1-1/2"=1'-0"



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STONE TOILET PARTITIONS
CEILING-HUNG PARTITION DETAILS
MIA DIMENSION STONE DESIGN MANUAL VII

DRWG NO: 16-D-2

SCALE:
As Noted

WET AREAS – STONE URINAL PARTITIONS

1.0 INTRODUCTION

1.1 Installation Methods. There are several methods by which stone urinal partitions can be installed. Consideration should be given to the various features of each method in making a selection for a specific installation. See information about installation methods in this section's Data Sheet, Part 3, and illustrations of examples at the close of this section.

2.0 DESIGN CRITERIA

2.1 Oil-based putty and plumbing sealants should never be used in contact with stone.

2.2 Sound Stones. Only sound stones, free of cracks, defects, geological flaws, or voids should be used. Marble Selection is limited to Soundness Classifications "A" and "B".

2.3 White portland cement is recommended for light-colored granite and marble. White portland cement with a low alkali content is recommended for limestone.

2.4 For additional information, refer to Chapter 13, Installation General Information.

2.5 Geographic Methods. Some installation methods and materials are not recognized and may not be suitable in some geographic areas because of local trade practices, building codes, climatic conditions, or construction methods. Therefore, while every effort has been made to produce accurate guidelines, they should be used only with the independent approval of technically qualified persons.

DATA SHEET

STONE URINAL PARTITIONS

1.0 PRODUCT DESCRIPTION

1.1 Basic Use. Urinal partitions or as junior toilet partitions where doors are not desired, for all building types.

1.2 Limitations. Only sound stone varieties should be used. Marble Selection is limited to Soundness Classifications "A" and "B".

1.3 Fabrication. Stone urinal partitions are precut, predrilled, and prefinished to dimensions specified on the shop drawings and are delivered to the job site ready to install. However, for certain job conditions, it is preferable to furnish the stone undrilled, and drill at the job site.

1.4 Finishes. Polished finish is standard.

1.5 Colors. Most of the commercially available varieties are suitable.

1.6 Sizes. Custom according to design requirements and size limitations of selected stone.

2.0 TECHNICAL DATA

2.1 Each stone variety used for stone urinal partitions should conform to the applicable ASTM standard specification and the physical requirements contained therein. The specification for each stone type follows:

2.1.1 Granite: ASTM C615 Standard Specification for Granite Dimension Stone

2.1.2 Limestone: ASTM C568 Standard Specification for Limestone Dimension Stone

2.1.3 Marble: ASTM C503 Standard Specification for Marble Dimension Stone, Soundness Classifications “A” and “B”.

2.1.4 Quartz-based Stone: ASTM C616 Standard Specification for Quartz-based Dimension Stone

2.1.5 Serpentine: ASTM C1526 Standard Specification for Serpentine Dimension Stone

2.1.6 Slate: ASTM C629 Standard Specification for Slate Dimension Stone

2.1.7 Soapstone: No ASTM Standard exists at this time

2.1.7 Travertine: ASTM C1527 Standard Specification for Travertine Dimension Stone

3.3.1 Oil-based putty and plumbing sealants should never be used in contact with stone.

3.0 INSTALLATION

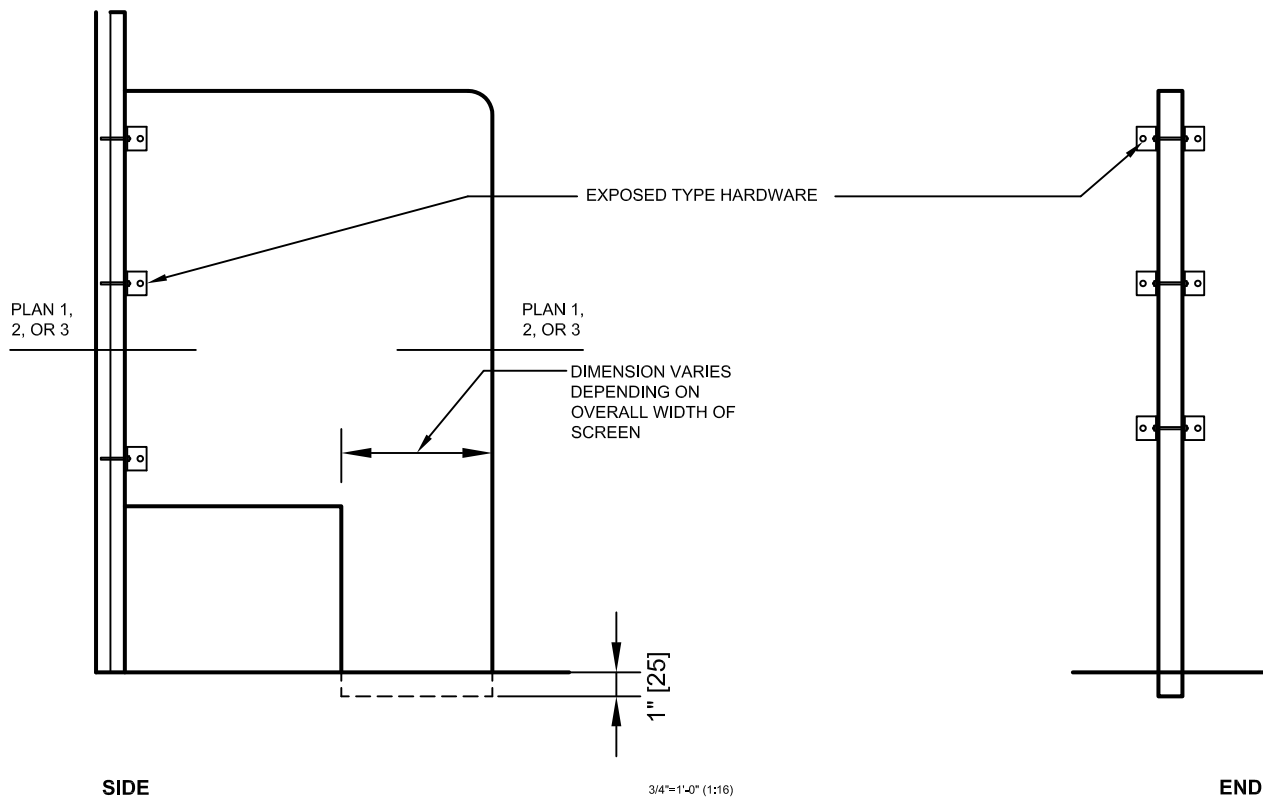
3.1 Preparatory Work. A solid subfloor not more than two inches below finish floor and a masonry wall should be provided for proper installation.

3.2 Methods. Partitions are available floor mounted or ceiling-hung. If ceiling-hung, the General Contractor shall furnish and install the ceiling channel.

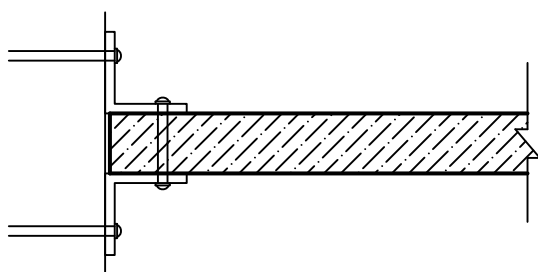
3.2.1 Partitions are assembled using chrome-plated hardware. Floor-mounted units are set on dowels into the finished floor. Ceiling-hung units are bolted to overhead support. All ceiling-hung units must have a metal spline. Wall-mounted urinal partitions must be attached to the wall at a minimum of three locations.

3.2.2 All joints are sealed with nonstaining sealants.

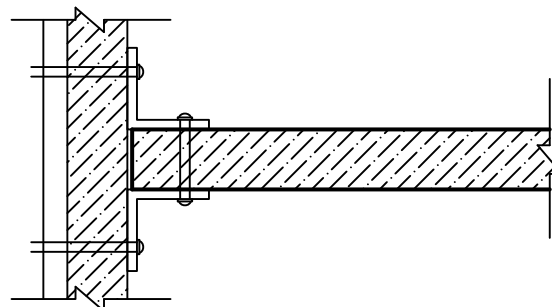
3.3 General Precautions. During construction, the General Contractor shall protect all stone from staining and damage.



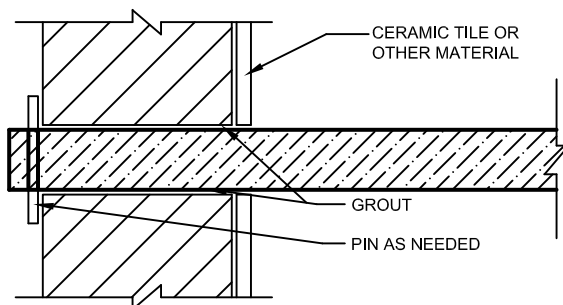
URNIAL SCREEN ELEVATIONS



SECURED TO NON-STONE WALL 3"=1'-0" (1:4)
URNIAL SCREEN PLAN 1



SECURED TO NON-STONE WALL 3"=1'-0" (1:4)
URNIAL SCREEN PLAN 2



SECURED THROUGH MASONRY WALL 3"=1'-0" (1:4)
URNIAL SCREEN PLAN 3

NOTE: NO OIL-BASED PUTTY OR PLUMBING SEALANTS SHALL COME IN CONTACT WITH STONE



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STONE URINAL PARTITIONS TYPICAL DETAILS

MIA DIMENSION STONE DESIGN MANUAL VII

DRWG NO: 16-D-3

SCALE:
As Noted

NOTES:

WET AREAS – STONE SHOWER PARTITIONS

1.0 INTRODUCTION

1.1 Installation Methods. There are several methods by which stone shower partitions can be installed. Consideration should be given to the various features of each method in making a selection for a specific installation. See information about installation methods in this section's Data Sheet, Part 3, and illustrations of examples at the close of this section.

2.0 DESIGN CRITERIA

2.1 Oil-based putty or plumbing sealants should never be used in contact with stone.

2.2 Sound Stones. Only sound stones, free of cracks, defects, geological flaws, and voids should be used. Marble Selection is limited to Soundness Classifications "A" and "B".

2.3 Anchors. An alternate system that may be used is nonstaining dowels, pins, and wire anchors in lieu of chrome plated hardware.

2.4 White portland cement is recommended for light-colored granite and marble. White portland cement with a low alkali content is recommended for limestone.

2.5 For additional information, refer to Chapter 13, Installation General Information.

2.6 Geographic methods. Some installation methods and materials are not recognized and may not be suitable in some geographic areas because of local trade practices, building codes, climatic conditions, or construction methods. Therefore, while every effort has been made to produce

accurate guidelines, they should be used only with the independent approval of technically qualified persons.

DATA SHEET

STONE SHOWER PARTITIONS

1.0 PRODUCT DESCRIPTION

1.1 Basic Use. Shower partitions for all building types.

1.2 Limitations. Only sound stone varieties should be used. Marble Selection is limited to Soundness Classifications "A" and "B".

1.3 Fabrication. Stone shower partitions are precut, predrilled, and prefinished to dimensions specified on the shop drawings and are delivered to the job site ready to install. However, for certain job conditions, it is preferable to furnish the stone undrilled, and drill at the job site.

1.4 Types. Partitions are available as free-standing units with precast terrazzo receptor, or floor-mounted units.

1.5 Finishes. Polished finish is standard.

1.6 Colors. Most of the commercially available varieties are suitable.

1.7 Sizes. Custom according to design requirements and size limitations of selected stone.

2.0 TECHNICAL DATA

2.1 Each stone variety used for stone shower partitions should conform to the applicable ASTM standard specification and the physical requirements contained therein. The specification for each stone type follows:

2.1.1 Granite: ASTM C615 Standard Specification for Granite Dimension Stone

2.1.2 Limestone: ASTM C568 Standard Specification for Limestone Dimension Stone

2.1.3 Marble: ASTM C503 Standard Specification for Marble Dimension Stone, Soundness Classifications "A" and "B".

2.1.4 Quartz-based Stone: ASTM C616 Standard Specification for Quartz-based Dimension Stone

2.1.5 Serpentine: ASTM C1526 Standard Specification for Serpentine Dimension Stone

2.1.6 Slate: ASTM C629 Standard Specification for Slate Dimension Stone

2.1.7 Soapstone: No ASTM Standard exists at this time

2.1.8 Travertine: ASTM C1527 Standard Specification for Travertine Dimension Stone

3.2.1 Free-standing units. Partitions are assembled using chrome plated hardware. All joints are sealed with nonstaining sealants.

3.2.2 Floor-mounted units.

3.3 General Precautions. During construction, the General Contractor shall protect all stone from staining and damage.

3.3.1 Oil-based putty and plumbing sealants should never be used in contact with stone.

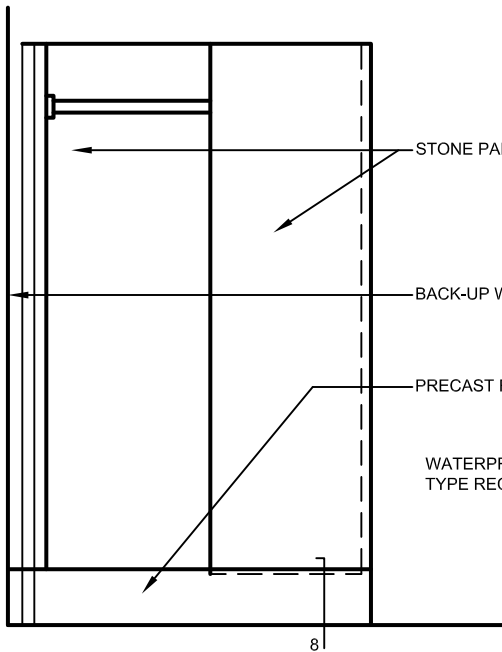
3.0 INSTALLATION

3.1 Preparatory Work. A solid subfloor not more than 2" below finish floor and a masonry shower wall should be provided for proper installation.

3.1.1 Waterproofing is the responsibility of other trades prior to installation of stone, and must be pre-sloped to the shower drain at a minimum pitch of 1/4" per foot.

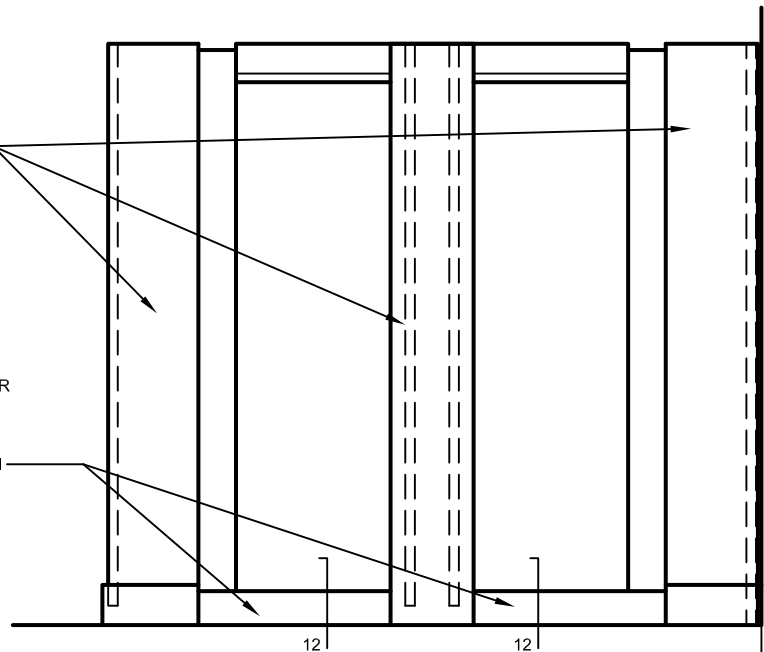
3.1.2 Partitions are assembled using chrome plated hardware. Stiles are set on dowels into finished floor. All joints are sealed with nonstaining sealants.

3.2 Methods. Stone shower partitions can be installed by one of the following two methods:



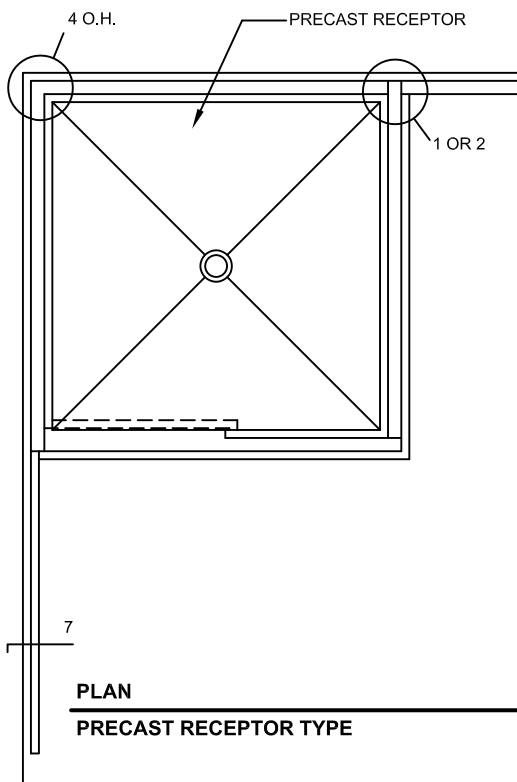
ELEVATION

PRECAST RECEPTOR TYPE



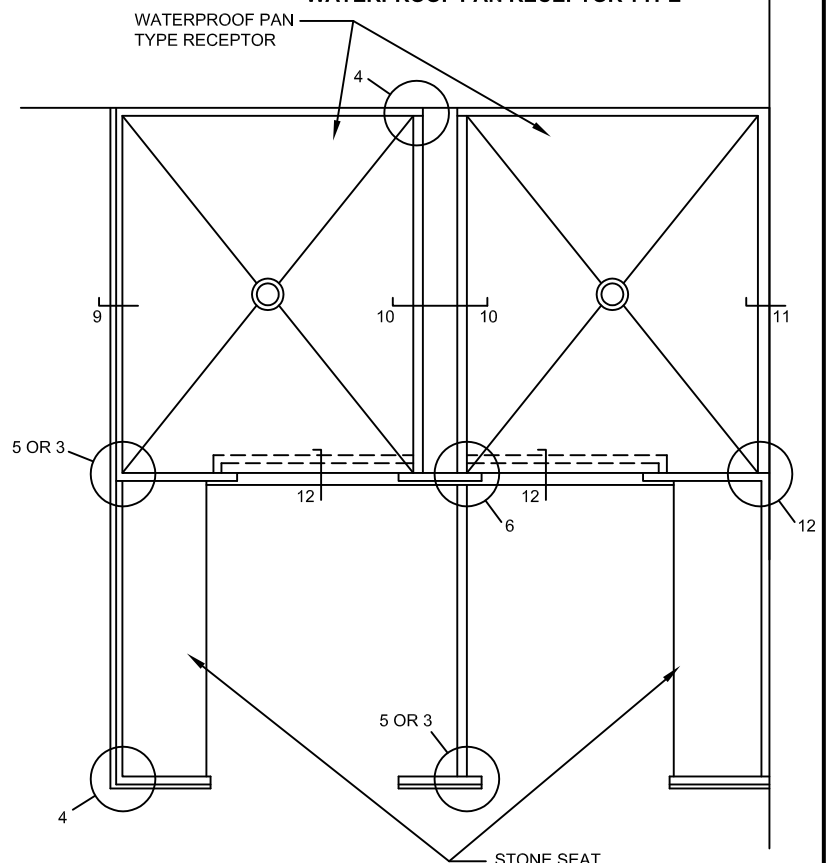
ELEVATION

WATERPROOF PAN RECEPTOR TYPE



PLAN

PRECAST RECEPTOR TYPE



PLAN

WATERPROOF PAN RECEPTOR TYPE

NOTE: 1. NO OILY PUTTY OR PLUMBING SEALANTS SHALL COME IN CONTACT WITH STONE.
2. DETAILS INDICATED ARE ON THE NEXT PAGE.



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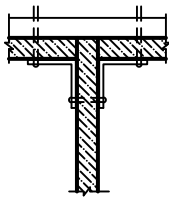
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STONE SHOWER PARTITIONS TYPICAL ELEVATIONS AND PLANS

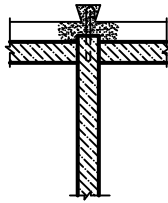
MIA DIMENSION STONE DESIGN MANUAL VII

DRWG NO: 16-D-4

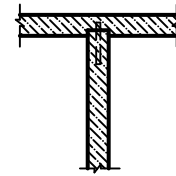
SCALE:
 $\frac{3}{8}" = 1'-0"$



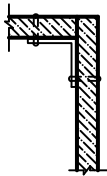
1 DETAIL



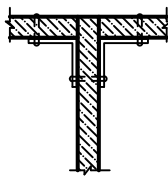
2 DETAIL



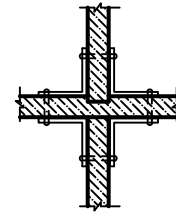
3 DETAIL



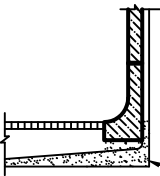
4 DETAIL



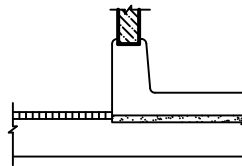
5 DETAIL



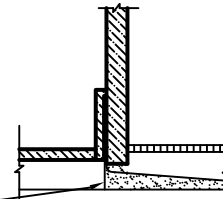
6 DETAIL



7 DETAIL

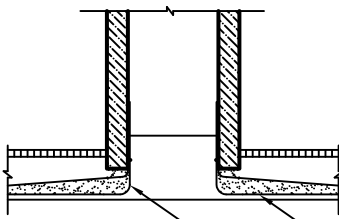


8 DETAIL

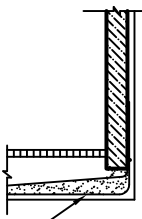


9 DETAIL

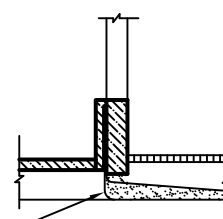
WATERPROOF MEMBRANE
OR PAN BY OTHERS



10 DETAIL



11 DETAIL



12 DETAIL

WATERPROOF MEMBRANE
OR PAN BY OTHERS



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STONE SHOWER PARTITIONS TYPICAL DETAILS MIA DIMENSION STONE DESIGN MANUAL VII

DRWG NO: 16-D-5

SCALE:
1½" = 1'-0"

WET AREAS – STONE SLAB RESIDENTIAL SHOWERS, STEAM ROOMS, AND STEAM SHOWERS

1.0 INTRODUCTION

1.1 Installation Methods. There are several methods by which stone shower stalls, steam rooms, and steam showers can be installed. Consideration should be given to the various features of each method in making a selection for a specific installation. See information about installation methods in this section's Data Sheet, Parts 3 and 4, and illustrations of examples at the close of this section.

2.0 DESIGN CRITERIA

2.1 Exposed stone edges must be gauged to the precise thickness specified. Gauging tolerance cannot be over $\pm 1/32$ ".

2.2 Sealing. Stone residential shower stalls may be sealed or unsealed.

2.2.1 If sealed, follow Manufacturer's written recommendations for cleaning, stripping, and resealing. The chemicals used should contain no acids or harshly alkaline ingredients. Both types destroy the polished finishes on stone.

2.2.2 Sealing does not eliminate the need for frequent cleaning of the wall or floor surfaces. A neutral detergent (pH of 7) is the recommended cleaning agent.

2.3 Oil-based putty and plumbing sealants should never be used in contact with stone.

2.4 Sound Stones. Only sound stones, free from geological flaws, faults, cracks, and defects, should be used. Soundness Classifications C and D marbles used in steam showers and around whirlpool tubs have a

tendency to lose their fillings due to the moisture, heat, and vibration. Stone panels with fiberglass reinforced netting adhered to the back side are not to be used in shower applications.

2.5 Stone Ceilings. For details and information regarding stone ceilings in residential showers, refer to the "Stone Soffits" section of this Manual in Chapter 15, Vertical Surfaces.

2.6 For additional information, refer to Chapter 13, Installation General Information.

2.7 Geographic Methods. Some installation methods and materials are not recognized and may not be suitable in some geographic areas because of local trade practices, building codes, climatic conditions, or construction methods. Therefore, while every effort has been made to produce accurate guidelines, they should be used only with the independent approval of technically qualified persons.

DATA SHEET

STONE SLAB RESIDENTIAL SHOWERS, STEAM ROOMS, AND STEAM SHOWERS

1.0 PRODUCT DESCRIPTION

1.1 Basic Use. Shower stalls, steam rooms, and steam showers for residential use.

1.2 Fabrication. Parts are precut and prefinished to dimensions specified on the shop drawings and are delivered to the job site ready to install. However, for certain job conditions, it is preferable to furnish the stone undrilled, and drill at the job site.

1.3 Limitations. Only sound stone varieties should be used. Marble Selection is

limited to Soundness Classifications "A" and "B".

1.4 Finishes. Polished finish is standard.

1.5 Colors. Most of the commercially available varieties are suitable.

1.6 Sizes. Custom according to design requirements and size limitations of selected stone.

2.0 TECHNICAL DATA

2.1 Each stone variety used for stone slab residential showers, steam rooms, and steam showers should conform to the applicable ASTM standard specification and the physical requirements contained therein. The specifications for each stone type follows:

2.1.1 Granite: ASTM C615 Standard Specification for Granite Dimension Stone

2.1.2 Limestone: ASTM C568 Standard Specification for Limestone Dimension Stone

2.1.3 Marble: ASTM C503 Standard Specification for Marble Dimension Stone, Soundness Classifications "A" and "B".

2.1.4 Quartz-based Stone: ASTM C616 Standard Specification for Quartz-based Dimension Stone

2.1.5 Serpentine: ASTM C1526 Standard Specification for Serpentine Dimension Stone

2.1.6 Slate: ASTM C629 Standard Specification for Slate Dimension Stone

2.1.7 Soapstone: No ASTM Standard exists at this time

2.1.8 Travertine: ASTM C1527 Standard Specification for Travertine Dimension Stone

3.0 INSTALLATION – SHOWER STALLS

3.1 Preparatory Work. Shower pan or waterproof membrane must be installed to turn up vertical wall surface at least 3" above the finished surface of the shower curb.

3.1.1 Shower pan or waterproofing must be sloped to a minimum pitch of ¼" per foot to the weepholes of the shower drain.

3.2 Method. Shower stall floor should be installed in a dry-pack mortar bed consisting of one part portland cement to four to five parts sand, with a polymer additive compliant with UPC Codes. 100% coverage of mortar bed material between floor and subslab is recommended. Moisture must be able to freely migrate laterally through the mortar bed and discharge via the weepholes in the shower drain assembly.

3.3 Stone wall panels are set firmly against masonry walls or waterproofed surfaces.

3.4 Joint width can be maintained by using plastic shims. Joints should be at least 1/16" wide and pointed with white cement, grout, or nonstaining sealant. Joint width must be specified.

3.5 Anchors that contact the stone should be corrosion-resistant metal (stainless steel, copper, bronze, brass, aluminum, and should be securely attached to the structure and the stone.

3.6 General Precautions. During construction, the General Contractor shall protect all stone from staining and damage.

3.6.1 Oil-based putty and plumbing sealants should never be used in contact with stone.

4.0 INSTALLATION - STEAM ROOMS AND STEAM SHOWERS

4.1 Preparatory Work. A waterproofing membrane must extend a minimum of 3" above the top of the finished surface of the curb. All backup surfaces must be waterproofed with a membrane authorized by the Manufacturer for steam room applications. All horizontal surfaces shall be sloped to a minimum pitch of ¼" per foot toward the shower drain assembly. Avoid liquefied waterproofing membranes.

4.2 Methods. Stone may be installed by using any of the approved methods. Exterior methods must be used in the shower. Avoid use of gypsum board in shower areas.

4.3 Ceilings are to be sloped to bring moisture to the face of the wall opposite the shower head, or the principal wall(s) of the room. Large, one-piece shower ceilings should rest on the shower walls. An additional anchor should be installed at the cutout for the fan or fan/light combination.

4.4 Shower floors must be sloped toward the shower drain assembly at a minimum pitch of ¼" per linear foot and a maximum pitch of ½" per linear foot.

4.5 Grout is to be full stone depth. Use of soft, "designer" grouts is not recommended, as they tend to be more absorbent than traditional grouts. Cured grout should not be easily penetrated with a pocket knife blade.

4.6 Installation materials must be authorized by the Manufacturer for steam room applications. Water must be free of metals and should be "soft." Stone tiles may be used.

4.7 Stone may be installed using any of the following methods:

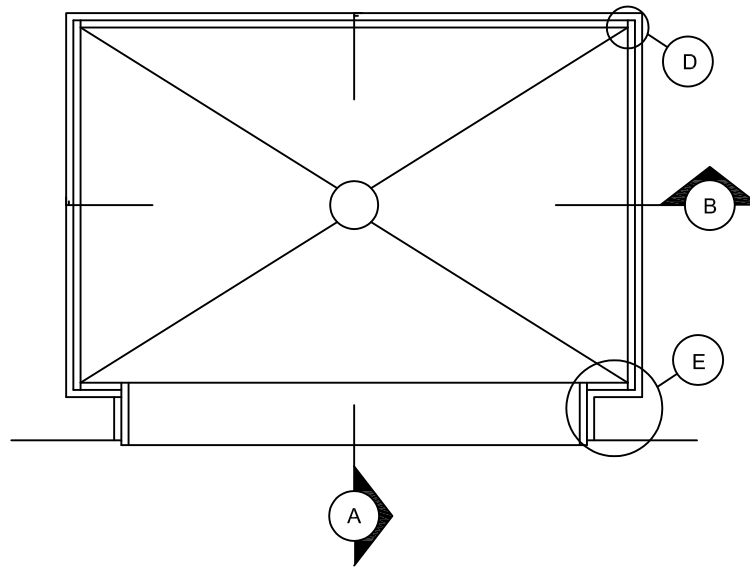
4.7.1 Mastic or a thin-set method on a mortar bed or cementitious backer board.

4.7.2 In a full mortar bed.

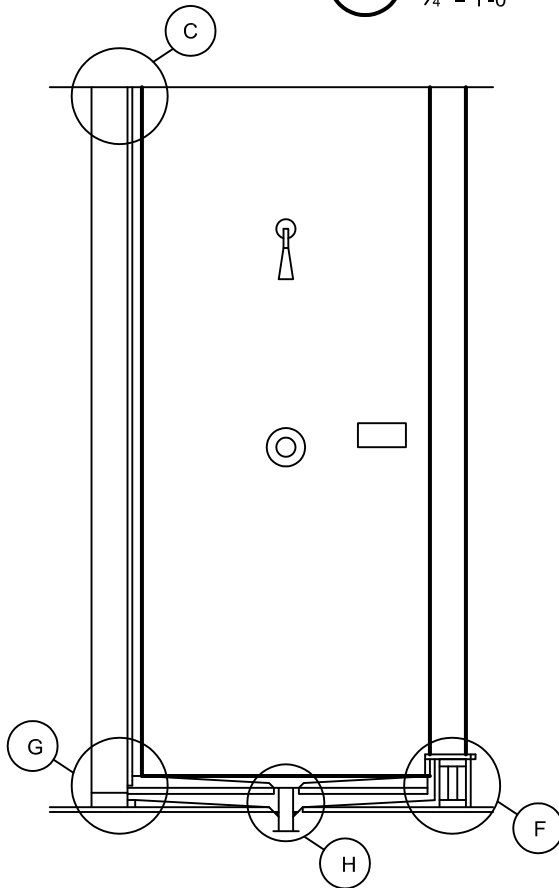
4.7.3 Spot & Wire-Tie anchors over scratch coat.

4.8 Effects of Steam on Stone. Steam is a catalyst. Many stones contain elements and metallic compounds that will react with steam and form other elements not common to the stone's variety. Color change in background and veining could result, and the stone's structural integrity may be compromised, especially in limestone, partially metamorphosed limestone, marble, and architectural granites.

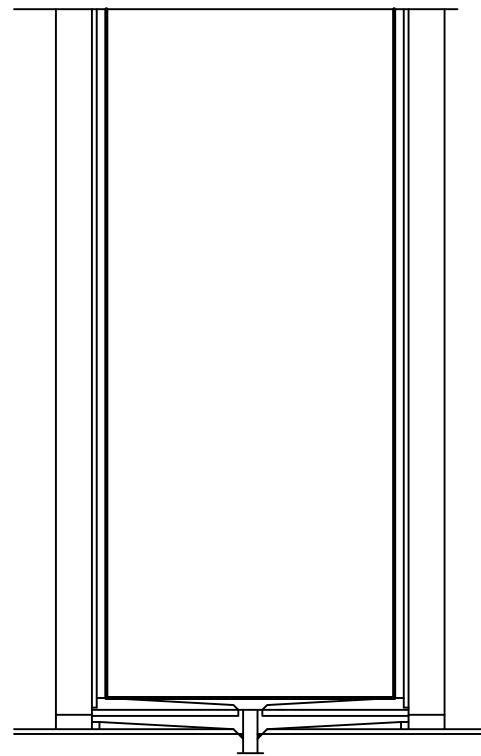
4.9 Moistureproofing. Stone should be solid-set to avoid moisture at the back face, or weep holes should be provided to vent the air space between the back face of the stone and the substrate.



1 PLAN
 $\frac{3}{4}" = 1'-0"$



A SECTION
 $\frac{1}{2}" = 1'-0"$



B SECTION
 $\frac{1}{2}" = 1'-0"$



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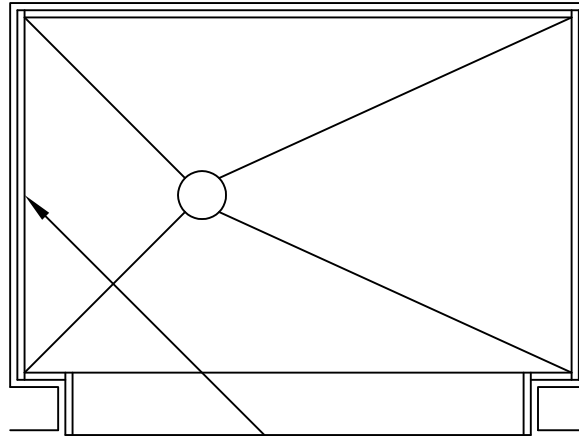
REV	DATE
0	Aug 2006
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STONE SLAB RESIDENTIAL SHOWERS
 STEAM ROOMS/STEAM SHOWERS
 TYPICAL ELEVATION AND PLAN
 MIA DIMENSION STONE DESIGN MANUAL VII

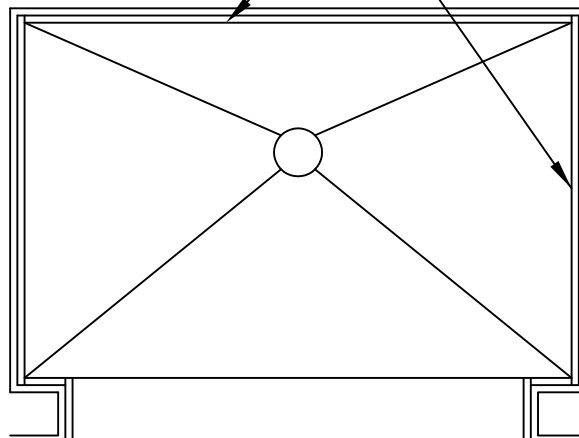
DRWG NO: 16-D-6

SCALE:
 As Noted

The drawing on page 251 shows the floor drain in the center of shower. The drawings which follow show that the drain can be located anywhere.



OUTSIDE PERIMETER OF
SHOWER FLOOR TO REMAIN
LEVEL WHEN DRAIN IS NOT
CENTERED ON ROOM.



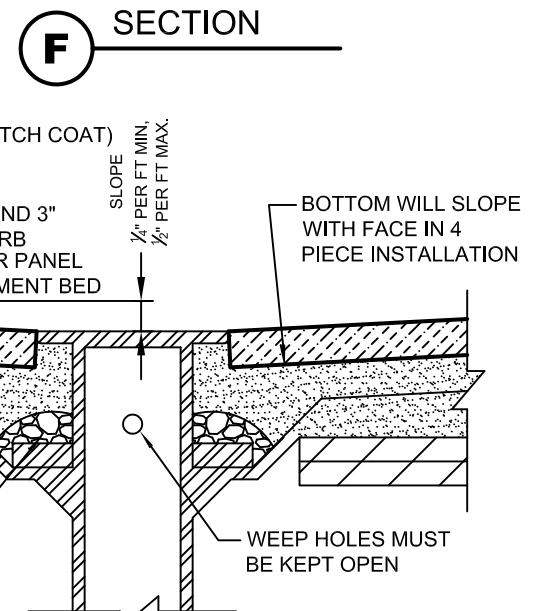
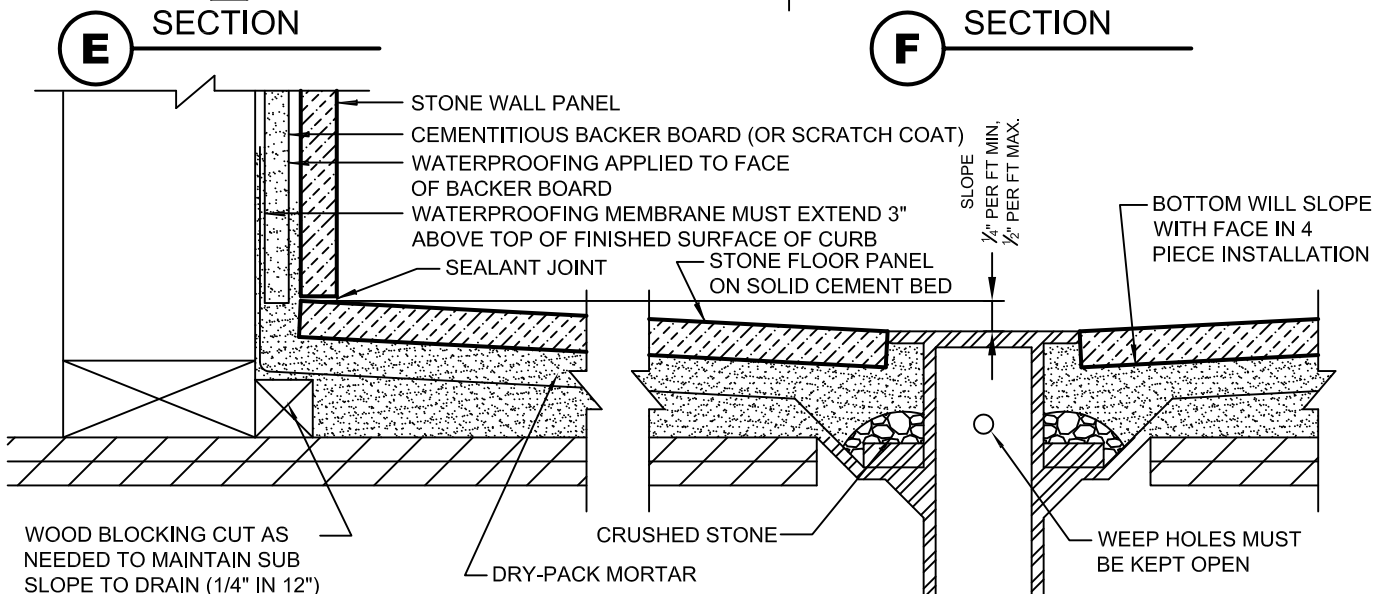
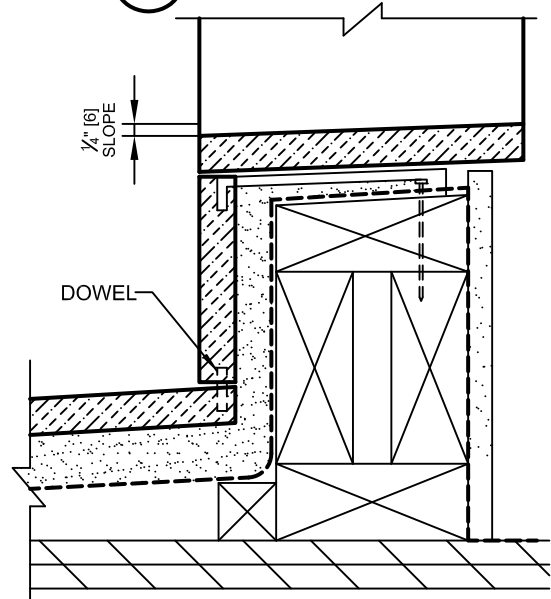
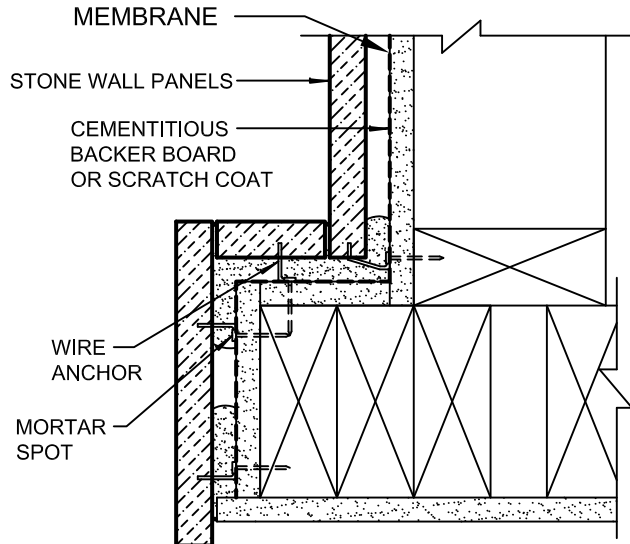
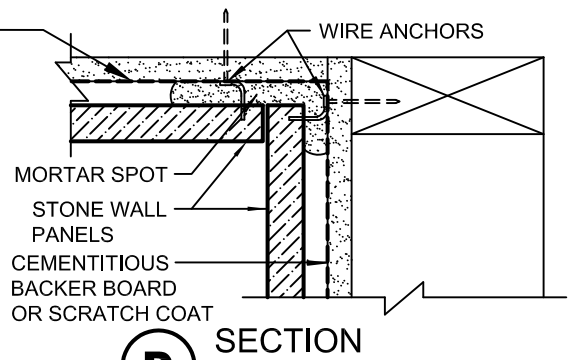
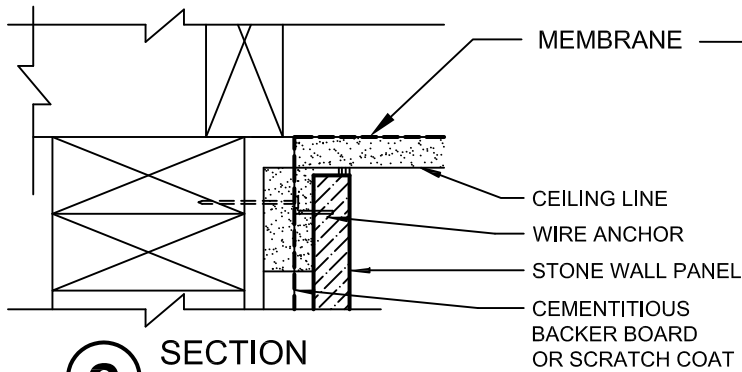
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STONE SLAB RESIDENTIAL SHOWERS
STEAM ROOMS/STEAMSHOWERS
TYPICAL ELEVATION AND PLAN
MIA DIMENSION STONE DESIGN MANUAL VII

DRWG NO: 16-D-7

SCALE:
 $\frac{3}{4}" = 1'-0"$



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STONE SLAB RESIDENTIAL SHOWERS STEAM ROOMS/STEAM SHOWERS TYPICAL DETAILS

MIA DIMENSION STONE DESIGN MANUAL VII

DRWG NO: 16-D-8

SCALE:
3" = 1'-0"

WET AREAS – STONE TILE RESIDENTIAL SHOWERS, STEAM ROOMS, AND STEAM SHOWERS

1.0 INTRODUCTION

1.1 Installation Methods. There are several methods by which stone tile shower stalls, steam rooms, and steam showers can be installed. Consideration should be given to the various features of each method in making a selection for a specific installation. See information about installation methods in this section's Data Sheet, Parts 3 and 4, and illustrations of examples at the close of this section.

2.0 DESIGN CRITERIA

2.1 Exposed stone edges must be gauged to the precise thickness specified. Gauging tolerance cannot be over $\pm 1/32"$.

2.2 Sealing. Stone tiles installed in residential showers may be sealed or unsealed, according to the Owner's preference.

2.2.1 If sealed, follow Manufacturer's written recommendations for cleaning, stripping, and resealing. The chemicals used should contain no acids or harshly alkaline ingredients. Both types destroy the polished finishes on stone.

2.2.2 Sealing does not eliminate the need for frequent cleaning of the wall or floor surfaces. A neutral detergent (pH of 7) is the recommended cleaning agent.

2.3 Oil-based putty and plumbing sealants should never be used in contact with stone.

2.4 Sound Stones. Only sound stones, free from geological flaws, faults, cracks, or defects, should be used. Marble Selection is limited to Soundness Classifications "A" and "B". Soundness Classifications C and D

marbles used in steam showers and around whirlpool tubs have a tendency to lose their fillings due to moisture, heat, and vibration. Stone tile with adhered fiberglass netting reinforcement on their back surfaces are not to be used for shower applications.

2.5 For additional information, refer to Chapter 13, Installation General Information.

2.6 Geographic Methods. Some installation methods and materials are not recognized and may not be suitable in some geographic areas because of local trade practices, building codes, climatic conditions, or construction methods. Therefore, while every effort has been made to produce accurate guidelines, they should be used only with the independent approval of technically qualified persons.

DATA SHEET

STONE TILE RESIDENTIAL SHOWERS, STEAM ROOMS, AND STEAM SHOWERS

1.0 PRODUCT DESCRIPTION

1.1 Basic Use. Shower stalls, steam rooms, and steam showers for residential use.

1.2 Fabrication. Parts are precut and pre-finished to dimensions specified on the shop drawings and are delivered to the job site ready to install.

1.3 Limitations. Only sound stone varieties, including Soundness Classification Groups A and B marbles, should be used. Stone tile with adhered fiberglass netting reinforcement on their back surfaces are not to be used for shower applications. Due to the nature of stone tile production, it can be expected that wide ranges in color and veining will occur. It is unreasonable to expect the Installer to produce specific matching

patterns or strict adherence to a specific range of colors from tiles pulled one by one out of a carton unless specific instructions are given and agreed to before the installation is begun.

1.4 Finishes. Polished finish is standard.

1.5 Colors. Most of the commercially available varieties are suitable.

1.6 Sizes. Generally 12" x 12" x 3/8", 12" x 18" x 3/8", or 24" x 24" x 3/8". Inquire about availability of other dimensions.

2.0 TECHNICAL DATA

2.1 Each stone variety used for stone tile residential showers, steam rooms, and steam showers should conform to the applicable ASTM standard specification and the physical requirements contained therein. The specification for each stone type follows:

2.1.1 Granite: ASTM C615 Standard Specification for Granite Dimension Stone

2.1.2 Limestone: ASTM C568 Standard Specification for Limestone Dimension Stone

2.1.3 Marble: ASTM C503 Standard Specification for Marble Dimension Stone, Soundness Classifications "A" and "B".

2.1.4 Quartz-based Stone: ASTM C616 Standard Specification for Quartz-based Dimension Stone

2.1.5 Serpentine: ASTM C1526 Standard Specification for Serpentine Dimension Stone

2.1.6 Slate: ASTM C629 Standard Specification for Slate Dimension Stone

2.1.7 Soapstone: No ASTM Standard exists at this time

2.1.8 Travertine: ASTM C1527 Standard Specification for Travertine Dimension Stone

3.0 INSTALLATION - SHOWER STALLS

3.1 Preparatory Work. Shower pan or waterproof membrane must be installed to turn up vertical wall surface at least 3" above the finished surface of the shower curb.

3.2 Method. Shower stall floor should be installed in a dry-packed mortar bed consisting of one part portland cement to four to five parts sand. 100% coverage of mortar bed material between floor and subslab is recommended.

3.2.1 Subfloor must be sloped toward the shower drain assembly at a minimum pitch of of 1/4" per linear foot. Finished floor must be sloped toward the shower drain assembly at a minimum pitch of of 1/4" per linear foot and a maximum pitch of 1/2" per linear foot.

3.2.2 A plumb, waterproofed backup wall with a maximum variation of 1/8" in 8' must be provided. Thinset adhesive is spread over the backup with a notched trowel, and the stone tile is put into place with a slight twisting motion.

3.3 Joint width can be maintained by using plastic shims. Joints should be at least 3/32" wide and pointed with white cement, grout, or nonstaining sealant. Joint width must be specified.

3.4 General Precautions. During construction, the General Contractor shall protect all stone from staining and damage.

3.4.1 Oil-based putty and plumbing sealants should never be used in contact with stone.

4.0 INSTALLATION - STEAM ROOMS AND STEAM SHOWERS

4.1 Installation materials must be authorized by the Manufacturer for steam

room applications. Water must be free of metals and should be “soft.”

4.2 Stone tile may be installed using any of the following methods:

4.2.1 Thin-set method on a mortar bed or cementitious backer board.

4.2.2 In a full mortar bed.

4.2.3 Tiles as thin as 3/8" may be used. Reference current edition of TCNA handbook for Ceramic Tile Installation for additional details.

4.3 Effects of Steam on Stone. Steam is a catalyst. Many stones contain elements and metallic compounds that will react with steam and form other elements not common to the stone's variety. Color change in background and veining could result, especially in limestone, partially metamorphosed limestone, marble, and architectural granites.

4.4 Moistureproofing. Stone should be solid-set to avoid creating a moisture collection cavity at the back face.

4.5 Ceilings are to be sloped to bring moisture to the face of the wall opposite the steam shower head or the principal wall(s) of the room.

4.6 Grout is to be full stone depth. Use of “designer” grouts is not recommended, as they tend to be softer and more absorbent than traditional grouts.

5.0 MOLD AND MILDEW

5.1 Mold and mildew are different, but they constitute the same problem. The spores of mold and mildew are in the air all the time. They require a damp, moist environment and previously living organic material to grow into a visible plant, causing unsightly growth, destruction of structural materials, and health surfaces.

5.2 Impact on stone-faced showers.

Showers that are left wet and bathing areas that do not employ a fan to ventilate moist air out of the building envelope are vulnerable to mold/mildew growth problems. Moisture will slowly seep through the corner joints, cracks, and grout joints in improperly designed/built shower assemblies until being absorbed into the substrate materials. Any voids between the substrate and the stone allow the moisture to migrate and expand into that space as well as any spaces between the setting material and the back face of the stone. This moisture accumulates and migrates into the structure, where no evacuation path to the shower drain exists. Moisture levels are then increased in the substrate materials. Mold spores already existing in this area need only the moisture to allow them to start to grow. They will grow unseen in this area for a period of time. Eventually the mold will become visible at the grout joints, corners, and adjacent building structure surfaces. The mold will digest the paper and glue in the wallboard and any wood, wood-fiber based products, or other previously living organic material it comes in contact with, using them as a food source. This type of damage normally leads to a minimum of time-consuming and expensive repair work, and frequently and more seriously contributes to health problems for the building occupants.

5.3 Techniques to retard mold and mildew growth. These construction techniques include:

5.3.1 Use cement backer board instead of water-resistant drywall board (green board). Drywall will degrade and the paper on it will become a food source for mold and mildew when subjected to moisture. Do not use “green board” or any gypsum-based product unless a waterproof membrane completely protects the surface from moisture infiltration.

5.3.2 Use venting fans to exhaust moisture.

5.3.3 Remove surface mildew by scrubbing the area with a neutral soap. Rinse thoroughly, and buff stone dry.

5.3.4 Repair leaks and grout damage promptly to prevent seepage. Mold cannot grow without moisture.

5.3.5 Use a hard grout in properly prepared joints at least 3/32" wide. Grout full depth of stone. Avoid "designer" (soft) grouts. Caulk all wall joints to floors with appropriate sealant. Caulk all joints from one wall to another with appropriate sealant. Ensure that the soffit is pitched to the wall opposite the shower head. Slope finished surfaces of shower curbs at a minimum pitch of 1/4" per foot so that water will run back into the shower. Ensure that shower floors are sloped toward the shower drain assembly at a minimum pitch of 1/4" per linear foot and a maximum pitch of 1/2" per linear foot.

5.3.6 Set stone tile so that the bonding surface is as close as possible to 100%.

5.3.7 Avoid use of stones that are flawed. Moisture can travel through the flaw to the back face of the stone. Do not use Marble Soundness Classifications "C" or "D" stones, or stones that have adhered fiberglass netting reinforcement.

5.4 Connection Between ASTM Test C97 and Mold/Mildew. Some apply the ASTM C97 Test (Absorption and Bulk Specific Gravity of Dimension Stone) to determine susceptibility of a shower unit to damage from mold and mildew. However, the installation materials and methods used play a much larger role in potential damage. C97 has little to do with it, and here is why:

5.4.1 ASTM C97 has two functions:

5.4.1.1 To determine suitability for use as a dimension stone. All dimension stone types (marble, granite, limestone, quartz-based, and slate) have maximum ASTM values that they

may contain. If the stone's value is in excess of the standard, it is not considered to be a dimension stone as defined by ASTM C119 (C121). Values for absorption are listed as a percentage of dry weight.

5.4.1.2 To compare the value of one stone to another. For example, if you are comparing two stones in ASTM C503 Standard Specification for Marble Dimension Stone (Exterior), and one stone has a C97 value of 0.10, while another has a value of 0.15, the stone with the lower value will absorb less moisture as a percentage of its total weight than the other.

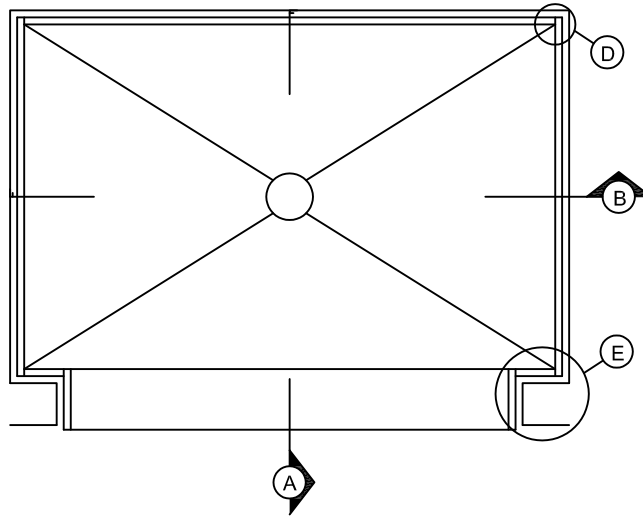
5.4.2 This information is useful in flooring and exterior applications. It is not important in a stone shower installation unless the shower is leaking because the standard does not permit abnormally high values to begin with. On a normal marble dimension stone, a variation of 0.5% in the C97 category is an insignificant difference.

5.4.3 The construction of the stone (the elements that constitute the stone) are very important in wet areas. Elements of iron and other minerals in stone can be unstable when exposed to moisture. This can cause surface staining and stone degradation.

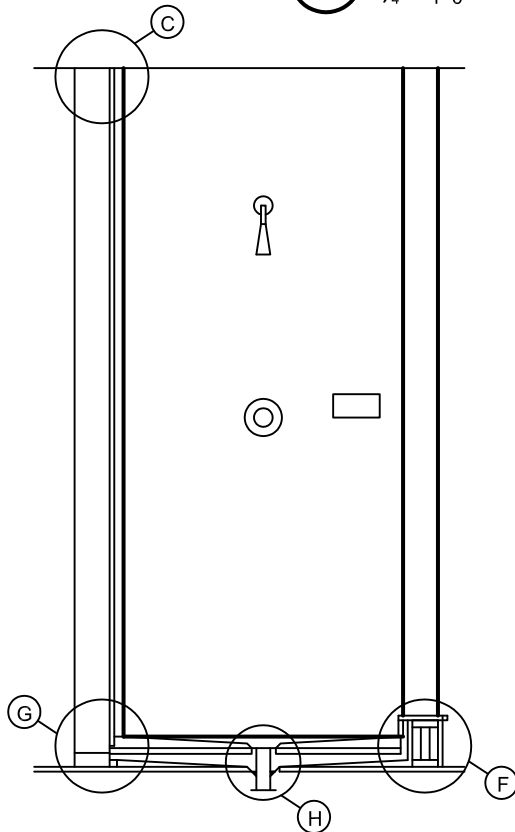
5.4.4 Thus, determining usability in wet areas is not a function of ASTM C97. The installation materials and methods employed will determine the susceptibility of the shower unit to damage from mold and mildew. The C97 absorbency value of the stone, or its porosity, have little to do with the suitability of the stone for use in a shower environment.

5.4.5 Stones commonly used in showers and the allowable absorption by weight:

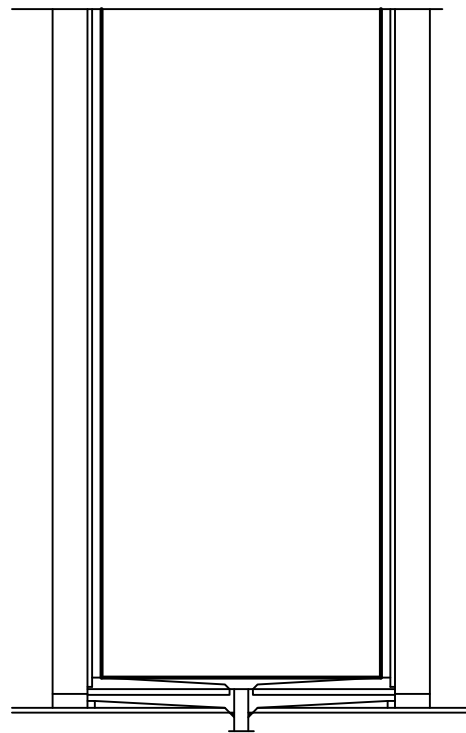
Marble	0.20% max
Limestone (Group 3 only)	3.00% max
Granite	0.40% max
Quartz-Based (Sandstone)	3.00% max
Quartz-Based Stone (Quartzite)	1.00% max
Slate 2	0.25% max



1 PLAN
 $\frac{3}{4}" = 1'-0"$



A SECTION
 $\frac{1}{2}" = 1'-0"$



B SECTION
 $\frac{1}{2}" = 1'-0"$



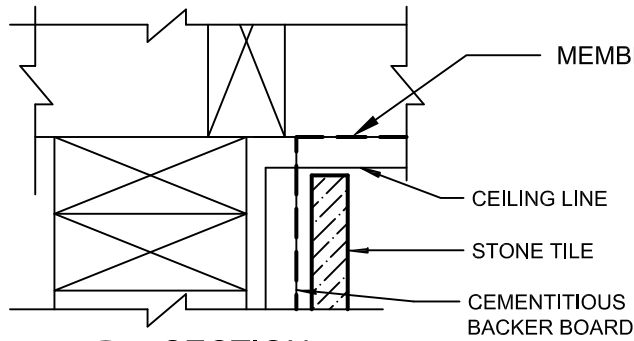
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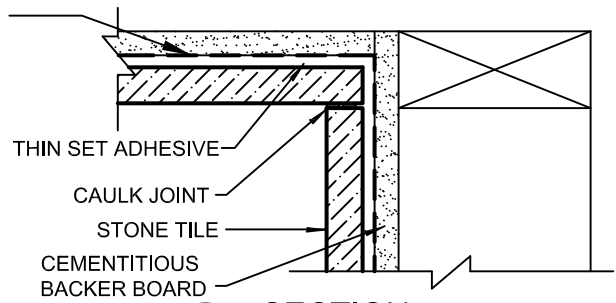
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 TYPICAL ELEVATIONS AND PLAN
 MIA DIMENSION STONE DESIGN MANUAL VII

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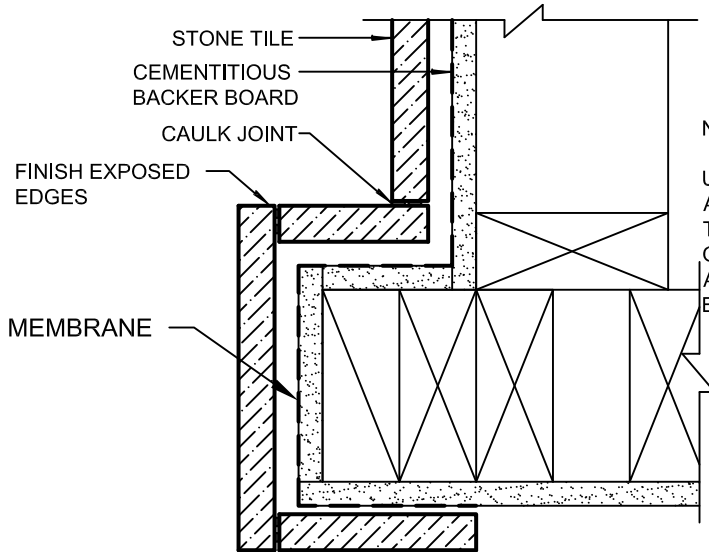
SCALE:
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C SECTION



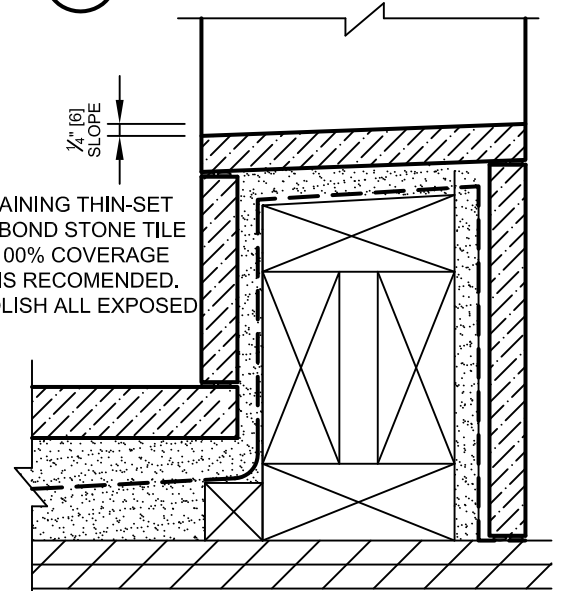
D SECTION



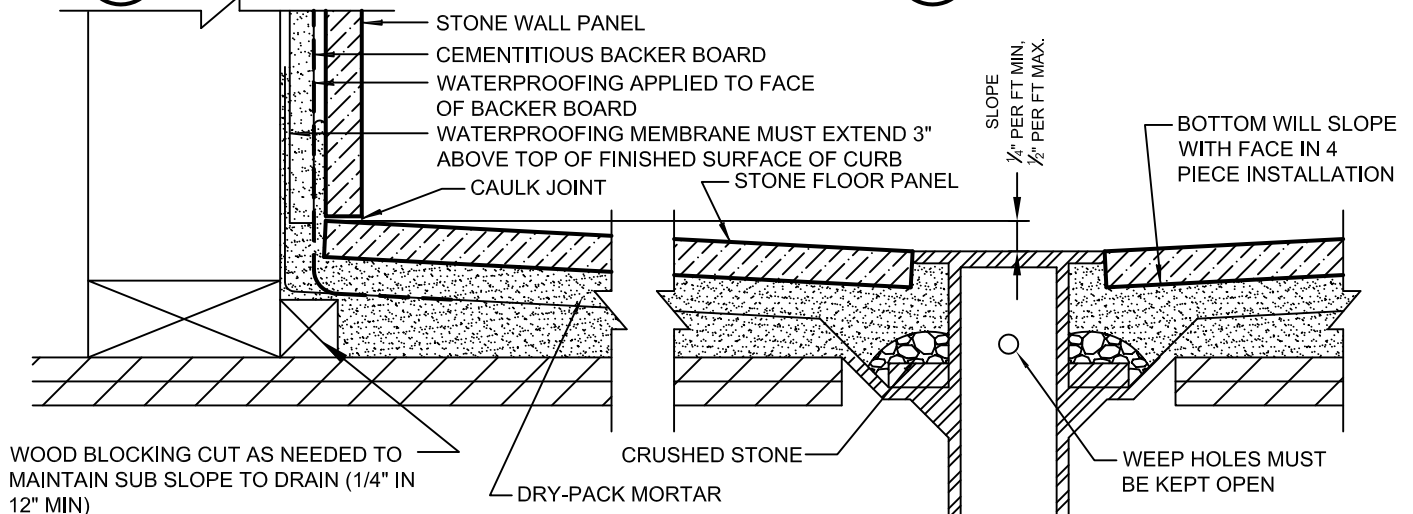
E SECTION

NOTE:

USE A NON-STAINING THIN-SET ADHESIVE TO BOND STONE TILE TO BACKING. 100% COVERAGE OF ADHESIVE IS RECOMMENDED. ARRIS AND POLISH ALL EXPOSED EDGES.



F SECTION



G SECTION

H SECTION



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STONE TILE RESIDENTIAL SHOWERS TYPICAL DETAILS

MIA DIMENSION STONE DESIGN MANUAL VII

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SCALE:
3" = 1'-0"