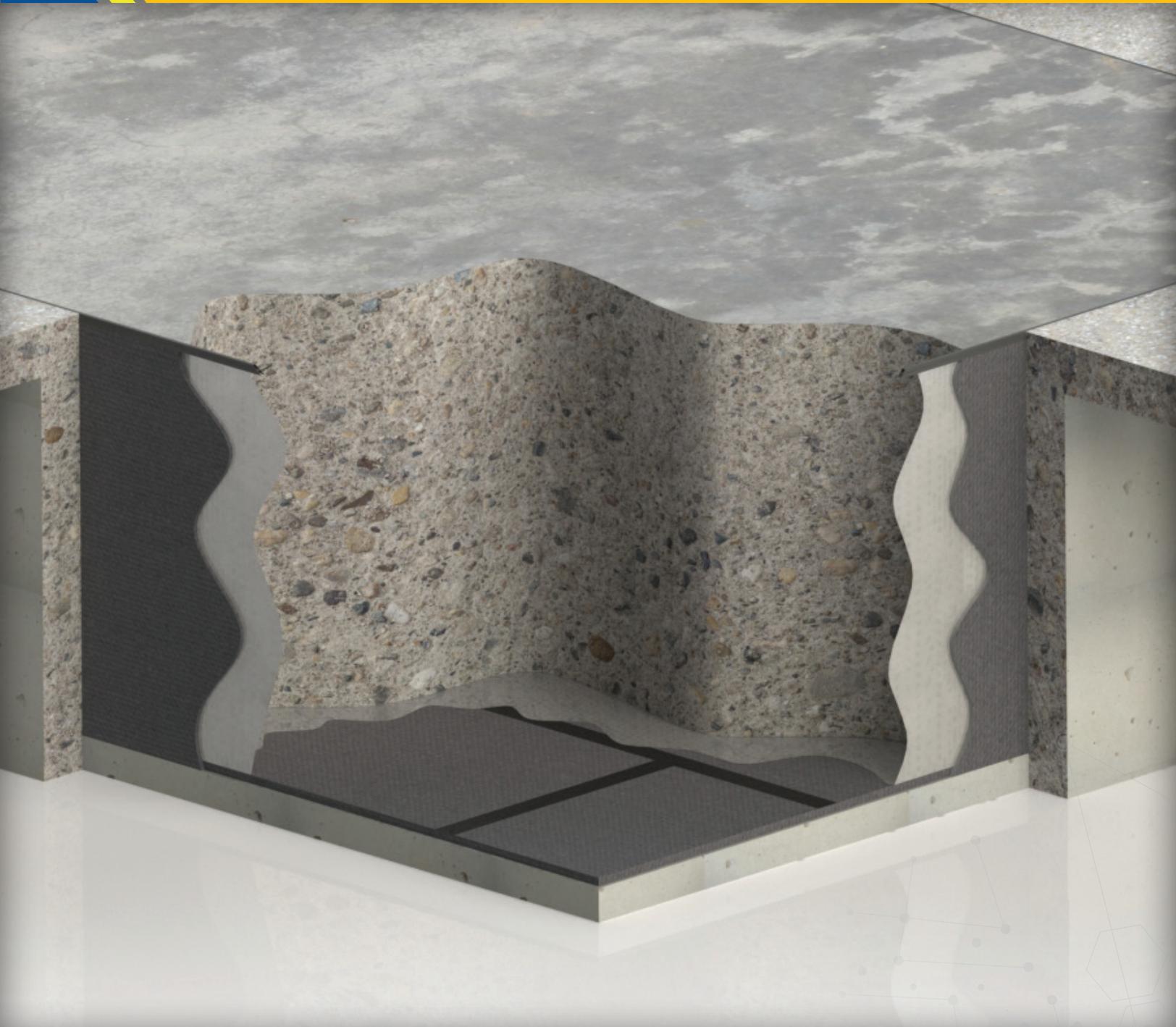




# UNISORB IB-500™

Foundation Isolation System



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- 3 Design Considerations
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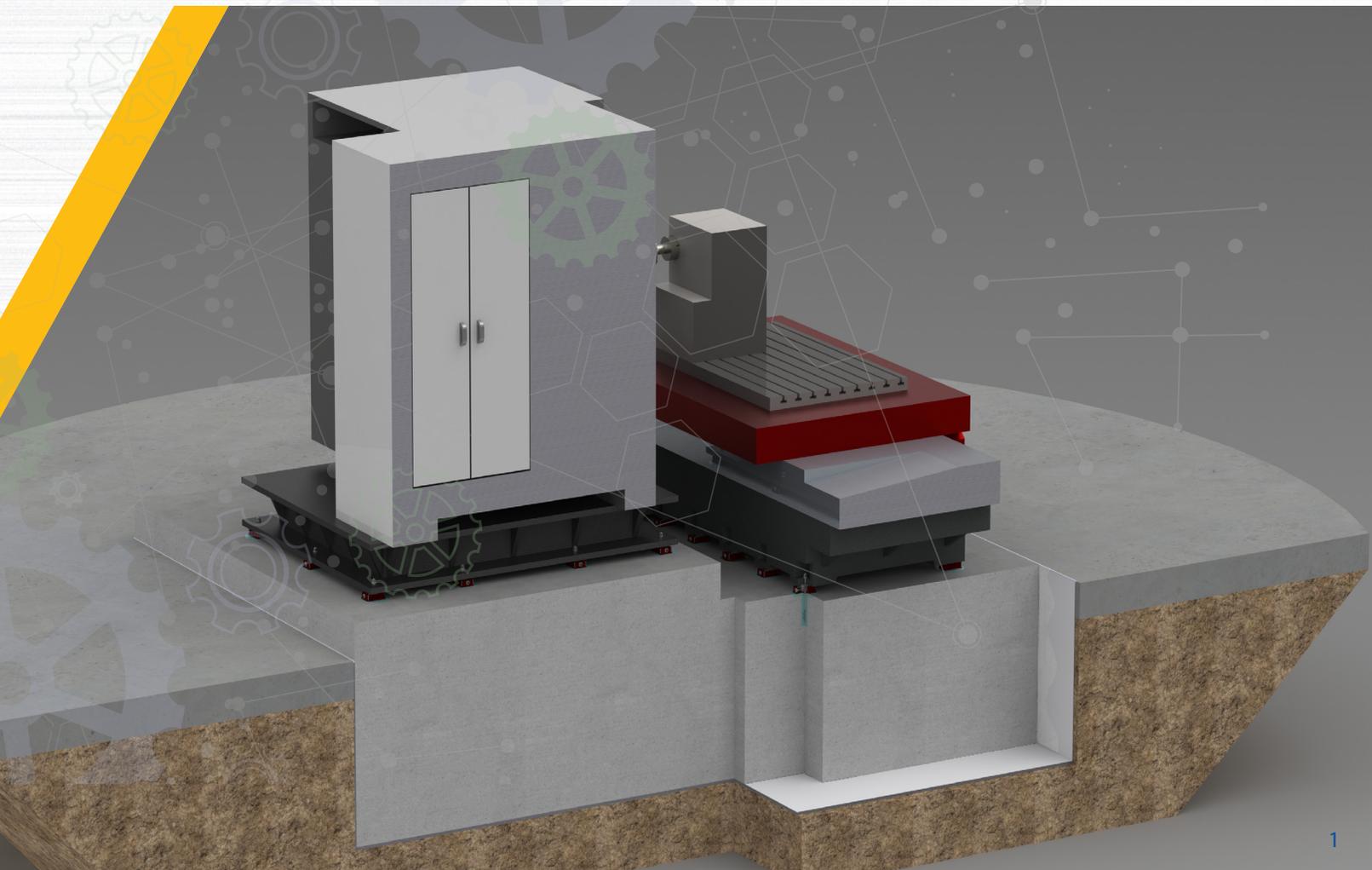
# UNISORB IB-500™ Foundation Isolation System

## IB-500, Explained

The UNISORB Installation Technologies IB-500 Foundation Isolation System is a foundation based vibration isolation solution designed to separate dynamic machine forces from the surrounding structure. By isolating equipment at the base, the system helps maintain performance standards, protect facility infrastructure, and support long term operational consistency.

Key Advantages of UNISORB IB-500:

- Isolates machinery from the building foundation to reduce vibration transfer
- Controls both low and high frequency dynamic forces
- Maintains equipment alignment and geometric stability under load
- Protects adjacent machines and sensitive processes from interference





**Technical Specifications for IB-500™ Isolation Materials**

**General Information**

**Composition**

Pad	<ul style="list-style-type: none"> <li>• Proprietary blend of multiple diameter &amp; length</li> <li>• 100% synthetic polyester permanently interlocked by the Lowderbach process to form a uniform pad with predictable mechanical properties.</li> <li>• No biodegradable components</li> <li>• Mildew inhibitor—none required</li> <li>• Environmentally safe</li> </ul>
Covering	High count, 70 denier, high tensile nylon fabric
Coating	Synthetic polymer film forming watertight coating
Pre-conditioning	At manufacture, IB-500 materials are placed under a compressed load which is a minimum of ten times the maximum rated load to eliminate any possibility of dimensional changes occurring as operational loads are applied.
Place of Manufacture	United States of America

**Specific Information**

**IB-500-S2 Sidewall Material**

Thickness	1/2" (typical installation requires one layer on sidewalls)
Rated Load	0-12 psi Recommended
Load	2-10 psi (for maximum cost/benefit ratio)

**IB-500-B1 Base Isolation Material**

Thickness	1" (typical installation requires two layers on base, making 1" total base isolation thickness)
Rated Load	0-20 psi
Recommended Load	2-15 psi (for maximum cost/benefit ratio)

**IB-500-B5 Base Isolation Material**

Thickness	1" (typical installation requires two layers on base, making 1" total base isolation thickness)
Rated Load	0-32 psi
Recommended Load	15-28 psi (for maximum cost/benefit ratio)

# IB-500™ Isolated Foundation Design Considerations

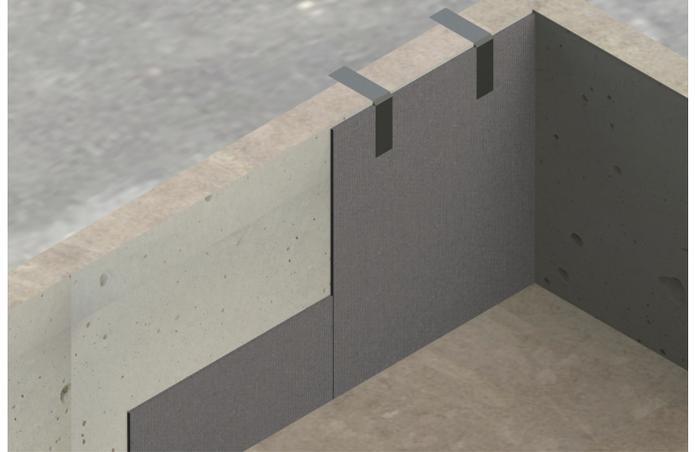
## Typical Isolated Foundation

- 1 For support critical machinery design from allowable deflection – not allowable load. In many applications, the foundation becomes part of the machine's structure.
- 2 For optimum cost/benefit relationship, in most cases, a mass ratio (foundation to machine) of approximately 1.5:1 is desirable.
- 3 Foundation should not serve as a support for any structure other than the machine to be isolated.
- 4 Combined center of gravity of the machine and foundation should be below the top of the foundation. The center of gravity of the machine and foundation should pass through the center of the soil pressure diagram within 5% or so of any horizontal dimension.
- 5 Allowable soil loadings should be verified for the installation with a reduction of 50% being applied when a “source” machine which imparts a significant dynamic loading is being installed. Ideally, a full soils survey should be run at the installation site to permit accurate modeling of the system.
- 6 When “sensitive” machines are being installed, an ambient site survey (vibration spectrum analysis) should be run under conditions duplicating, as closely as possible, actual operating conditions.
- 7 Allowable concrete and steel loads should be in compliance with applicable building codes, with appropriate fatigue factors taken into account when high amplitudes are present.
- 8 Anchor bolt locations should be no closer than 12” to foundation perimeter, or a distance equal to the embedment depth, unless special reinforcement for the vertical wall is provided.
- 9 Prior to finalizing design, contact Unisorb Engineering for no charge computer modeling of the system's performance.

# Instructions for Installing Unisorb IB-500™ Materials

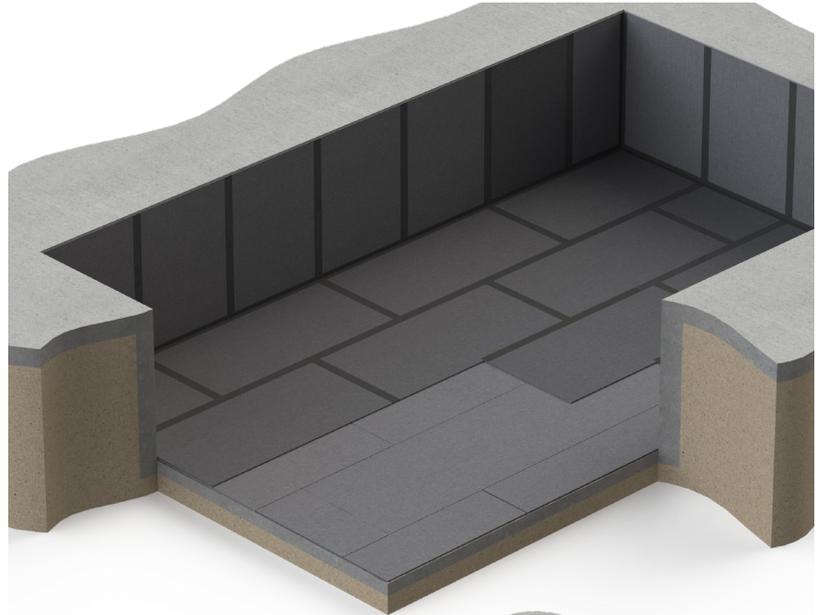
(Typical Full Coverage Isolation)

- 1 After the concrete lined pit is prepared for the foundation, place IB-500-S2 sidewall materials along the walls of the pit, following the Unisorb Layout drawings (when provided for the project). Be sure to place the bottom edges of the sidewall material all the way down to the bottom of the pit. Unisorb IB-500 materials may be cut with a sharp utility knife, using a straight edge. The IB-500-S2 may be fastened to the walls with good brand of construction adhesive. Tape all seams and corners with Premium Grade IB-500 Seam Tape. Approximately ½" (12mm) of space should be left at the top edge of the sidewall to allow for the use of V-100 Epoxy Grout Joint Filler. Install the Void Cap in this space. (See Void Cap detail on Unisorb Dwg. No. 409940-16 or -17)



**DO NOT ATTACH IB-500-S2 WITH NAILS OR OTHER OBJECTS THAT WOULD PUNCTURE THE MATERIAL OR OTHERWISE CAUSE A "SHORT CIRCUIT" IN THE ISOLATION SYSTEM.**

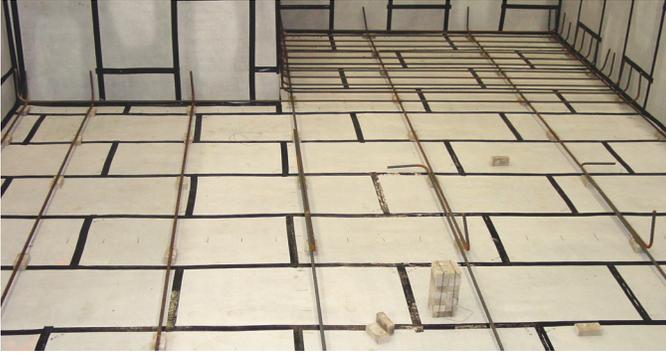
- 2 Lay the IB-500-BI base material on the floor of the pit. Partial sheets should be cut using a sharp utility knife and a straight edge. Place the top layer so that the seams of the top layer do not fall on the seams of the bottom layer. After installing the final layer, tape all seams with Premium Grade IB-500 Seam Tape.



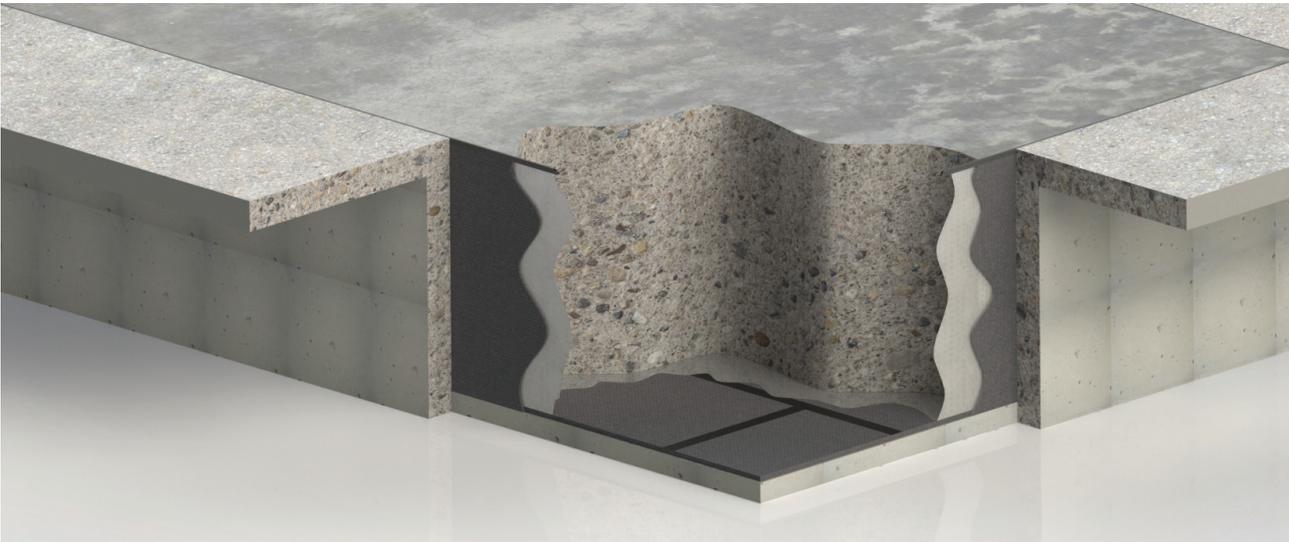
- 3 Line entire pit with Poly Pit Liner after the sidewall and base materials are in place and all seams are taped. This will prevent concrete from creeping through any gaps and making contact with the concrete, thus "short-circuiting" the isolated foundation.



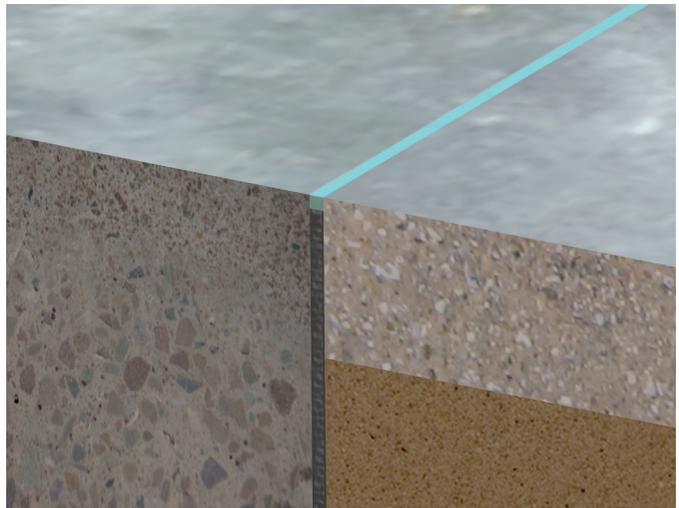
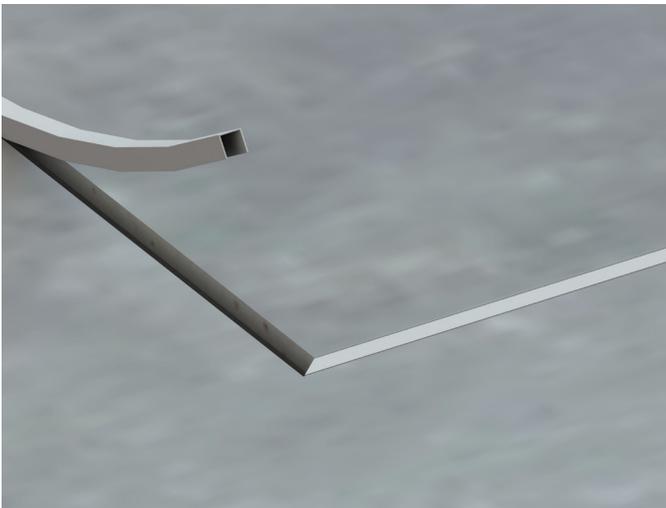
- 4** To prevent rebar from puncturing the IB-500-B1 base isolation material, and to spread the vertical load, use scrap wood, steel, or cement blocks directly under the rebar.



- 5** Pour the foundation utilizing proper concrete techniques. Be careful that the concrete flow does not push the rebar cage up tight against any of the IB-500-S2 sidewall materials.



- 6** After the concrete is set, remove the Void Cap from the perimeter of the foundation. Fill any visible cracks with a soft caulk, such as silicone, to prevent leakage of the V-100 Joint Filler. Fill the void with the V-100 Joint Filler material. Instructions for properly mixing and installing the V-100 Joint Filler are included with the product.



# Instructions for Installing Unisorb IB-500™ Materials

## (Typical Partial Coverage Base Isolation)

- 1 After the concrete lined pit is prepared for the foundation, place IB-500-S2 sidewall materials along the walls of the pit, following the Unisorb Layout drawings (when provided for the project). Be sure to place the bottom edges of the sidewall material all the way down to the bottom of the pit. Unisorb IB-500 materials may be cut with a sharp utility knife, using a straight edge. The IB-500-S2 may be fastened to the walls with good brand of construction adhesive. Tape all seams and corners with Premium Grade IB-500 Seam Tape. Approximately ½" (12mm) of space should be left at the top edge of the sidewall to allow for the use of V-100 Epoxy Grout Joint Filler. Install the Void Cap in this space. (See Void Cap detail on Unisorb Dwg. No. 409940-16 or -17)

**DO NOT ATTACH IB-500-S2 WITH NAILS OR OTHER OBJECTS THAT WOULD PUNCTURE THE MATERIAL OR OTHERWISE CAUSE A "SHORT CIRCUIT" IN THE ISOLATION SYSTEM.**



- 2 Lay the IB-500-BI base material on the floor of the pit. Partial sheets should be cut using a sharp utility knife and a straight edge. Place the top layer so that the seams of the top layer do not fall on the seams of the bottom layer. After installing the final layer, tape all seams with Premium Grade IB-500 Seam Tape.



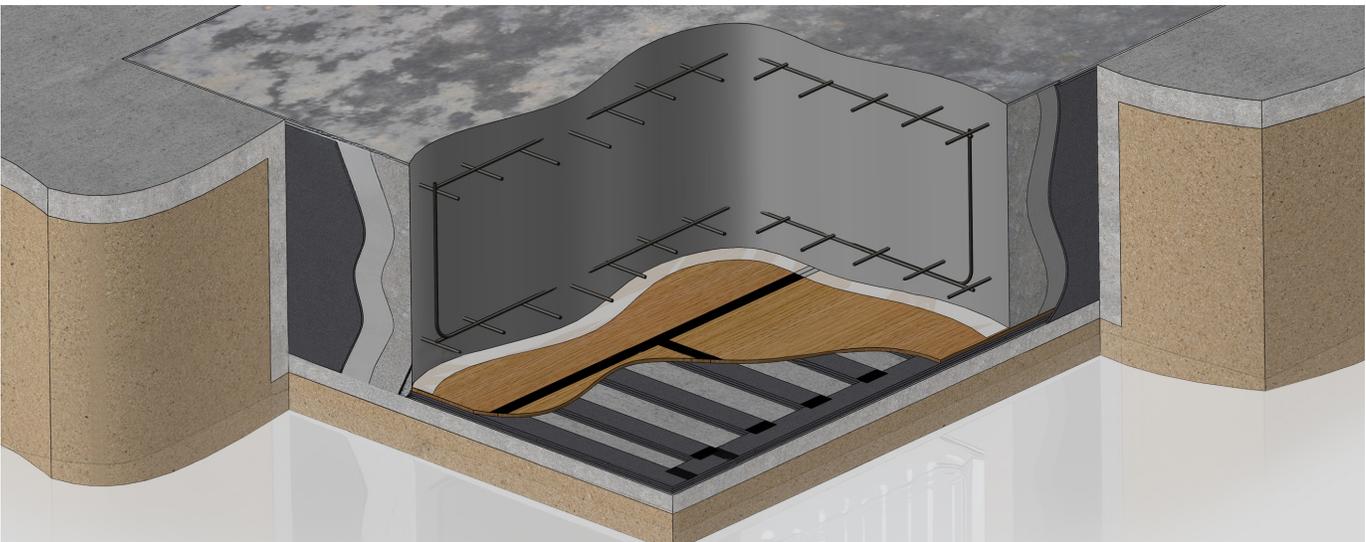
- 3 Line entire pit with Poly Pit Liner after the sidewall and base materials are in place and all seams are taped. This will prevent concrete from creeping through any gaps and making contact with the concrete, thus "short-circuiting" the isolated foundation.



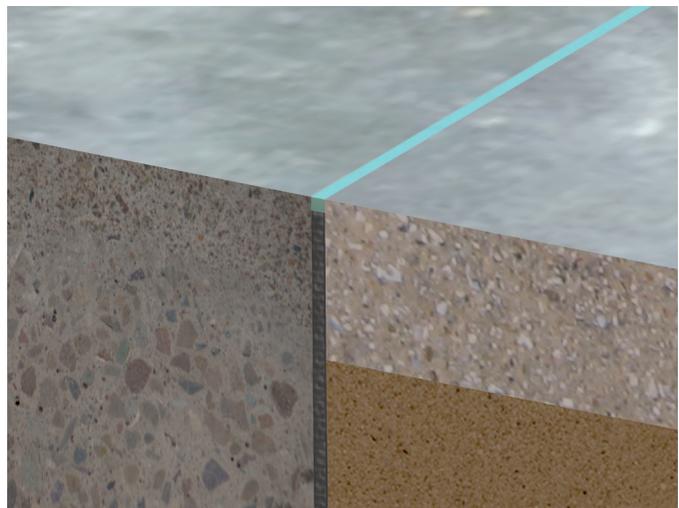
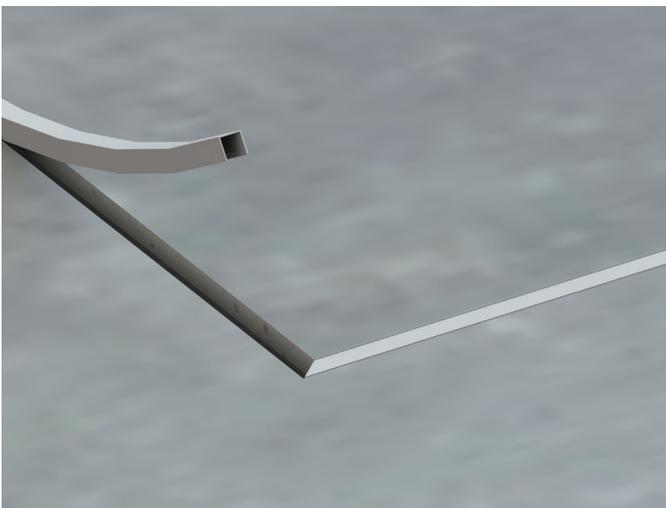
- 4** To prevent rebar from puncturing the IB-500-B1 base isolation material, and to spread the vertical load, use scrap wood, steel, or cement blocks directly under the rebar.



- 5** Pour the foundation utilizing proper concrete techniques. Be careful that the concrete flow does not push the rebar cage up tight against any of the IB-500-S2 sidewall materials.



- 6** After the concrete is set, remove the Void Cap from the perimeter of the foundation. Fill any visible cracks with a soft caulk, such as silicone, to prevent leakage of the V-100 Joint Filler. Fill the void with the V-100 Joint Filler material. Instructions for properly mixing and installing the V-100 Joint Filler are included with the product.



# Accessory Products



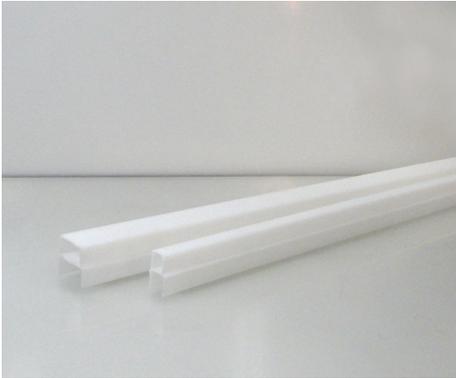
## Premium Grade IB-500™ Seam Tape

Tape all seams in IB-500 Inertia Block isolation materials. This prevents intrusion of fluid concrete into the material. Available in 3" wide x 60 yard long rolls.



## Poly Pit Liner

Lines the inside of pits eliminating fluid concrete from leaking into the isolation materials. Available in rolls of 20' x 100' or by the linear foot x 20' widths.



## Void Cap Strips

Temporarily fill the joint at the top of Inertia Blocks. The tops are removed prior to installing Unisorb Joint Filler V-100. Available in either 1/2" or 1" widths x 5' long.

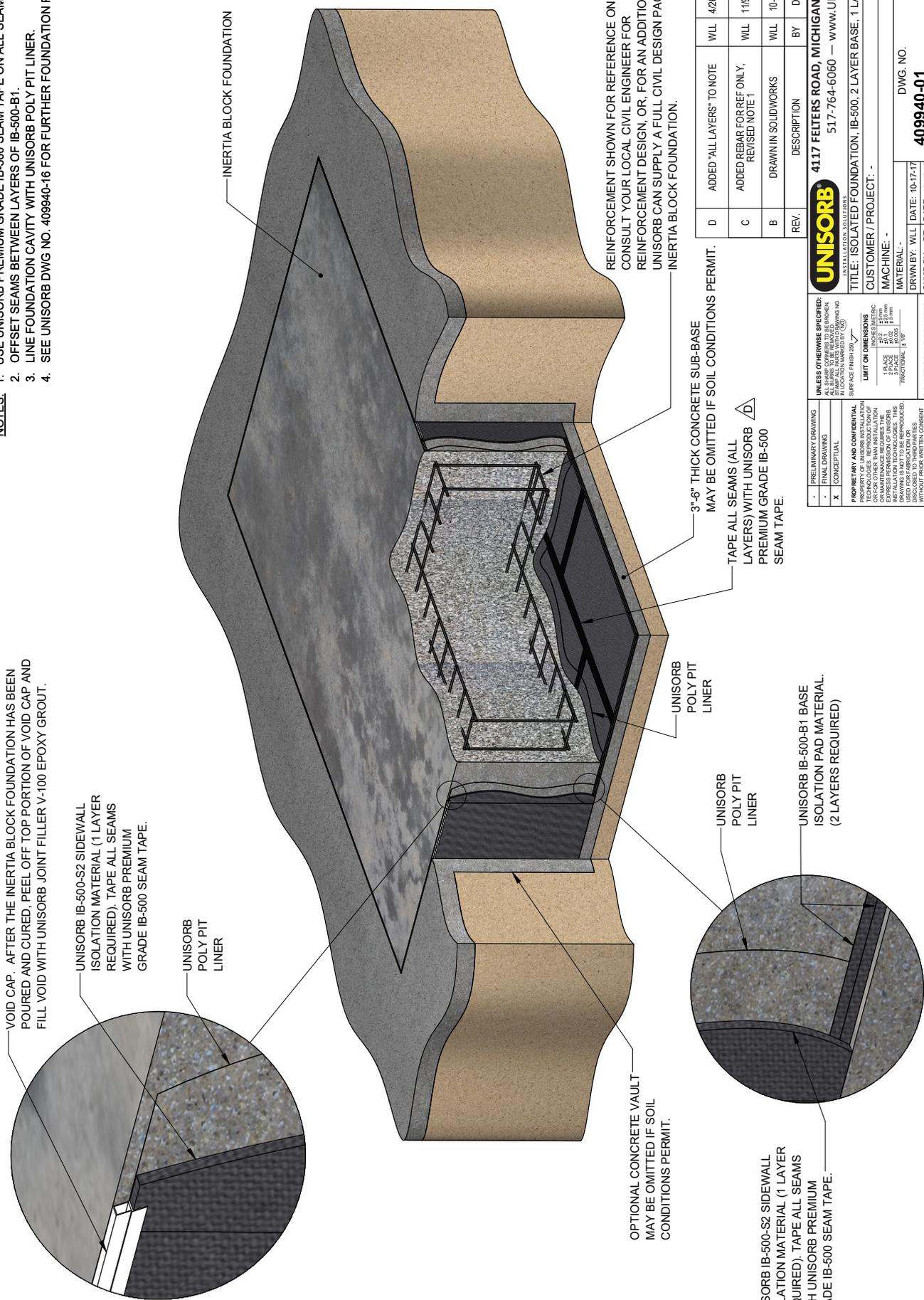


## Joint Filler V-100® Epoxy Grout

Consists of (1) epoxy resin pail, (1) epoxy grout hardener pail. Traditional epoxy mixing paddle is sold separately.



- NOTES:**
1. USE UNISORB PREMIUM GRADE IB-500 SEAM TAPE ON ALL SEAMS.
  2. OFFSET SEAMS BETWEEN LAYERS OF IB-500-B1.
  3. LINE FOUNDATION CAVITY WITH UNISORB POLY PIT LINER.
  4. SEE UNISORB DWG NO. 409940-16 FOR FURTHER FOUNDATION PRODUCT DETAILS.



REV.	DESCRIPTION	BY	DATE	CHKD	DATE
D	ADDED "ALL LAYERS" TO NOTE	WLL	4/26/2022	DLS	4/26/2022
C	ADDED REBAR FOR REF ONLY, REVISED NOTE 1	WLL	1/19/2018	DLS	1/19/2018
B	DRAWN IN SOLIDWORKS	WLL	10-17-17	DT	10-17-17

**UNISORB**  
INSULATION SOLUTIONS

**4117 FELTERS ROAD, MICHIGAN CENTER, MI 49254**  
517-764-6060 — www.unisorb.com

CUSTOMER / PROJECT: -  
MACHINE: -  
MATERIAL: -

DRWN BY: WLL | DATE: 10-17-17  
CHKD BY: DT | DATE: 10-17-17

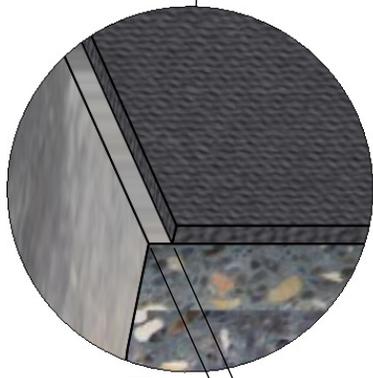
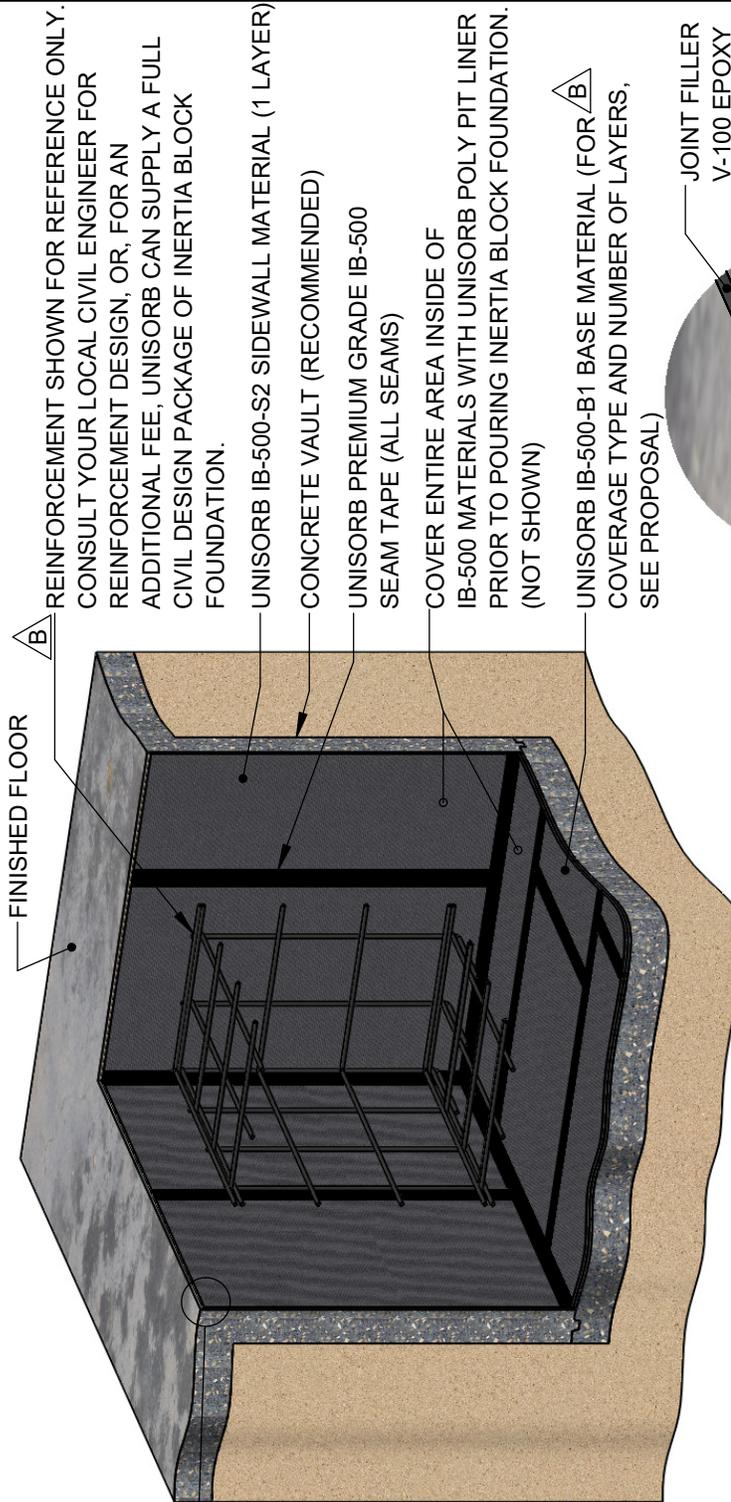
DWG. NO. **409940-01**  
SHT REV **D**  
1/1

DO NOT SCALE DRAWING  
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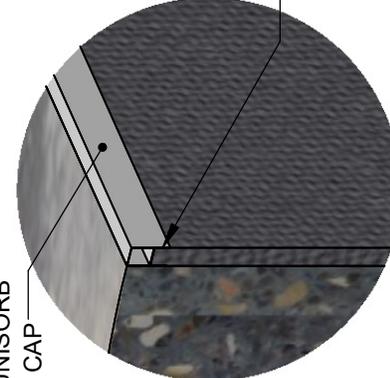
UNLESS OTHERWISE SPECIFIED:  
ALL DIMENSIONS TO BE REPRODUCED UNLESS NOTED OTHERWISE IN LOCATION MARKED BY (S)  
SURFACE FINISH (20)

LIMIT ON DIMENSIONS  
INCHES METRIC  
1 PLACE 1/16" 1.5mm  
2 PLACE 1/32" 0.75mm  
3 PLACE 1/64" 0.375mm  
FRACTIONS: 1/16"

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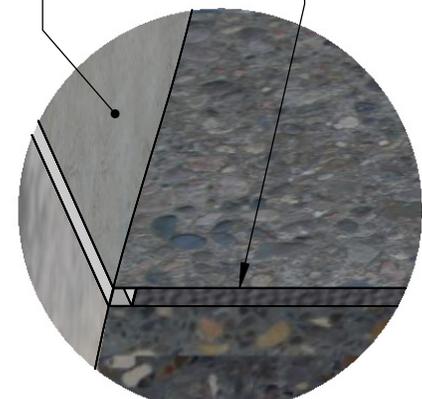
1. ALLOW 1/2" SPACE ABOVE IB-500-S2 SIDEWALL MATERIAL FOR JOINT FILLER.



1/2" UNISORB VOID CAP

INSERT SIDEWALL MATERIAL INSIDE VOID CAP AS SHOWN.

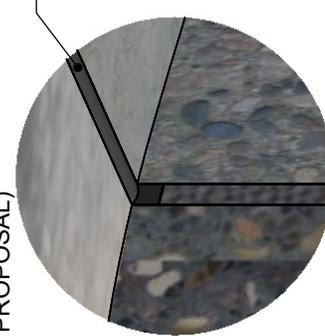
2. FILL SPACE WITH 1/2" UNISORB VOID CAP.



INERTIA BLOCK FOUNDATION

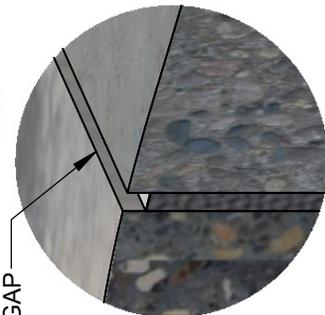
SIDEWALL MATERIAL/POLY PIT LINER

3. COVER ENTIRE PIT WITH UNISORB POLY PIT LINER AND POUR INERTIA BLOCK FOUNDATION.



JOINT FILLER V-100 EPOXY GROUT

5. PREPARE GAP AND POUR JOINT FILLER V-100 EPOXY GROUT.



1/2" GAP

4. REMOVE TOP PORTION OF UNISORB VOID CAP, LEAVING A 1/2" GAP.

B	ADDED REBAR FOR REF ONLY, CHANGED NOTE BASE	WLL	11/12/2018	DLS	11/12/2018
A	REDRAWN IN SW	WLL	5-4-18	DLC	5-4-18
REV.	DESCRIPTION	BY	DATE	CHK'D	DATE



41117 FELTERS ROAD, MICHIGAN CENTER, MI 49254  
517-764-6060 — www.UNISORB.com

TITLE: TYPICAL IB INSTALL DETAIL, (1) LAYER OF SIDEWALL

CUSTOMER / PROJECT: -

MACHINE: -

MATERIAL: -

DRWN BY: WLL DATE: 5-4-18

CHKD BY: DT DATE: 5-4-18

DWG. NO.

409940-16

SHT REV

1 / 1 B

DOCUMENT IS ELECTRONICALLY CONTROLLED. VERIFY REV PRIOR TO USE.

UNLESS OTHERWISE SPECIFIED:  
ALL SHARP CORNERS TO BE BROKEN.  
ALL BURRS TO BE REMOVED.  
STAMP ALL PARTS WITH DRAWING NO.  
IN LOCATION IMBARR BY [13]

LIMIT ON DIMENSIONS	
1 PLACE	± 1.5 mm
2 PLACE	± 0.02
FRACTIONAL	± .08"

DO NOT SCALE DRAWING

SCALE: NONE

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- FINAL DRAWING  
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