

CITY OF MASSILLON
MUNICIPAL GOVERNMENT ANNEX
CITY ADMINISTRATION BUILDING
MASSILLON, OHIO 44646
Phone: 330-830-1722 Fax: 330-830-1786

TRANSMITTAL

To: Wenger Excavating, Inc./ Jeff Gaul/Gjorgi Kondev Date: 10/10/13

From: Gregory A. McCue

Re: 2013 Levee Infrastructure Improvement Project Date Submitted: 10/3/13

WE ARE SENDING YOU:

☒ ATTACHED ☐ DRAWINGS ☒ SHOP DRAWINGS/ SUBMITTAL ☐ CONTRACTS ☐ CHANGE ORDER

Notes: Lindsay Pre-Cast Structure. -, **APPROVED**

Submittals have been reviewed with the following exceptions:

SUBMITTAL/ SHOP DRAWING REVIEW

CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THIS CHECK IS ONLY FOR REVIEW OF THE GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. NOTHING HERE IN AUTHORIZES ADDITIONAL COST. THE CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING: CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS; PERFORMANCE; SELECTING FABRICATION PROCESS AND TECHNIQUES OF CONSTRUCTION; COORDINATING HIS OR HER WORK WITH THAT OF ALL OTHER TRADES, AND PERFORMING ALL WORK IN A SAFE AND SATISFACTORY MANNER.

CITY OF MASSILLON
151 LINCOLN WAY EAST
MASSILLON, OHIO 44646

BY Jim C
DATE 10/14/13

☒ APPROVED ☐ NOT APPROVED
☐ APPROVED AS NOTED ☐ REVISE/RESUBMIT

CC: File, RPR

SIGNED: FW



6845 ERIE AVE. N.W. BOX 578 • CANAL FULTON, OHIO 44614 • (330) 854-4511
WWW.LINDSAYCONCRETE.COM

Proposal For:

Lindsay Concrete Products, Inc.
P.O. Box 578
Canal Fulton, Ohio 44614
(330) 854-4511

Job:

Levee Outlet Chamber – Massillon, OH

Project Engineer:

City of Massillon Engineering Department

Contractor:

Wenger Excavating, Inc.
(330) 837-4767

Components:

10'x20'x10.50 Outlet Chamber with 6' x 10' Riser & Cone Extension
(2) Sets of Design Calcs
Precast Cone & Grade Ring sheet
Casting, Hatch, Z-loks, and Steps
Joint Seal, Conwrap, & Primer

Office Point of Contact:

Tony Hamric
(330) 854-4511

SUBMITTAL SHOPDRAWING REVIEW

CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THE REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THIS CHECK IS ONLY FOR REVIEW OF THE GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS, NOTHING HERE IN AUTHORIZES ADDITIONAL COST. THE CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING: CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS; PERFORMANCE; SELECTING FABRICATION PROCESS AND TECHNIQUES OF CONSTRUCTION; COORDINATING HIS OR HER WORK WITH THAT OF ALL OTHER TRADES, AND PERFORMING ALL WORK IN A SAFE AND SATISFACTORY MANNER.

CITY OF MASSILLON
151 LINCOLN WAY EAST
MASSILLON, OHIO 44646

BY Tony Hamric
DATE 10/01/13

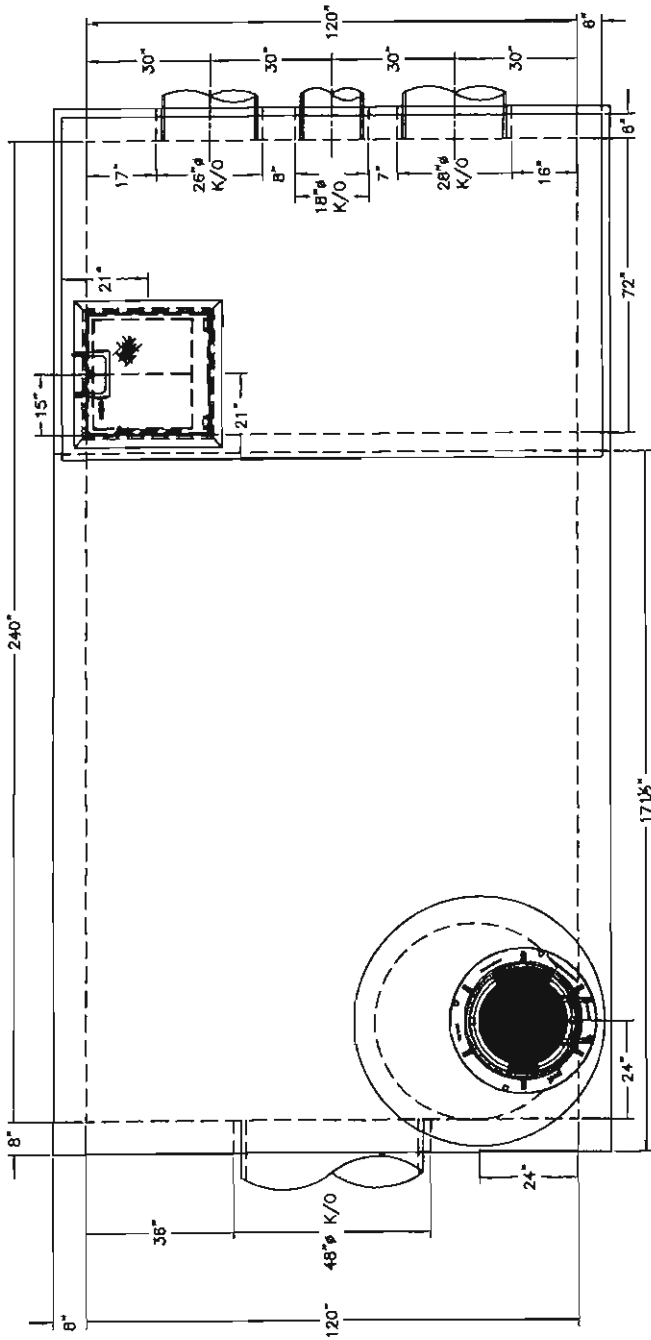
☒ APPROVED
APPROVED AS NOTED

☐ NOT APPROVED
REVISE/RESUBMIT

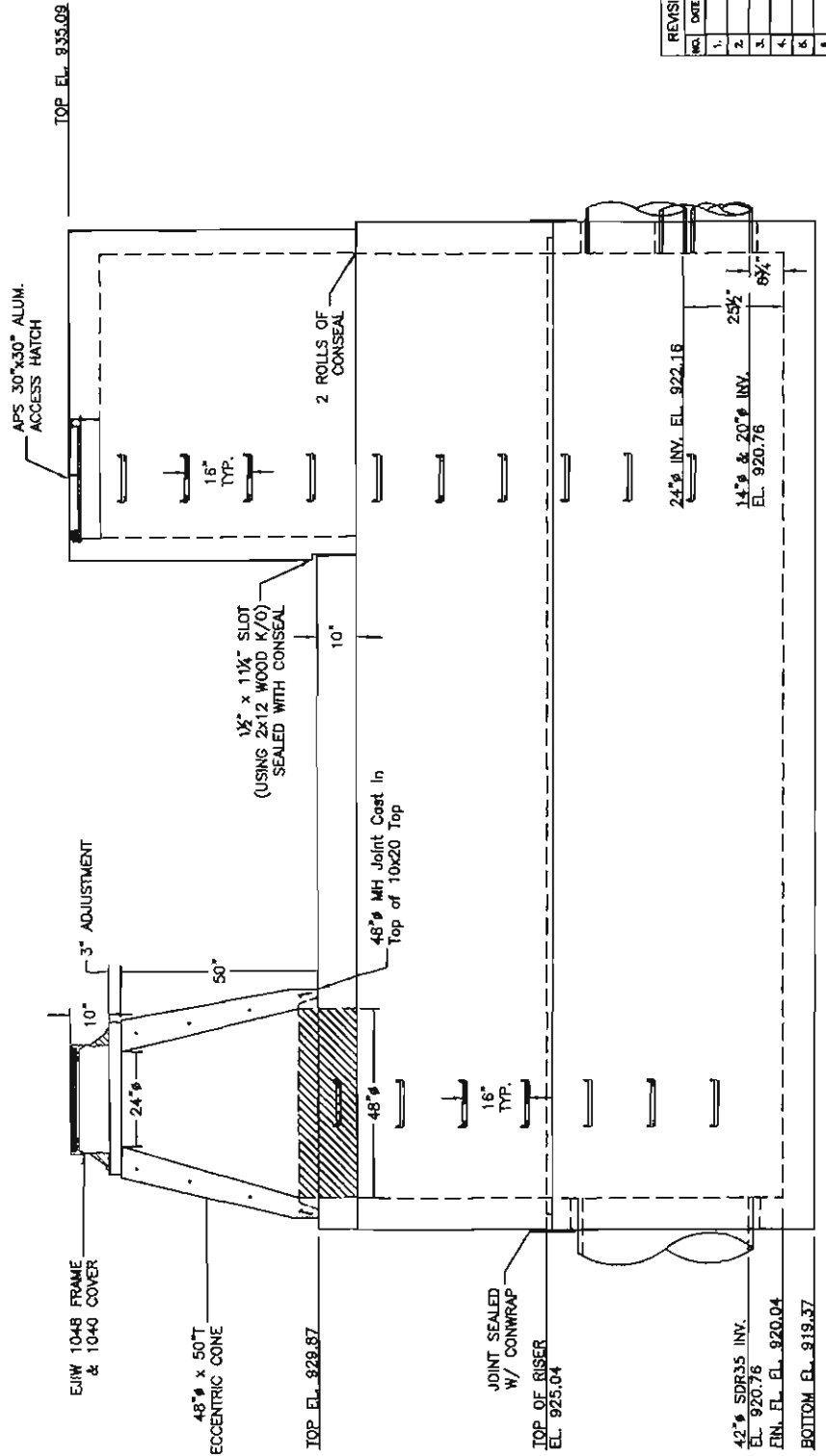
Date of Submittal:

10/01/13





- NOTES:
1. CONCRETE TO BE A MIN. OF 5,000 PSI AT 28 DAYS.
 2. VAULT WALLS TO BE DESIGNED FOR HS-20 LOADING.
 3. REINFORCING STEEL TO BE ASTM A615-A617 60,000 PSI YIELD STRENGTH.
 4. ALL JOINTS TO BE SEALED WITH CS-102 JOINT SEALANT, PRIMER, & CONWRAP.
 5. WEIGHTS:
 BASE=27.89 TONS
 RISER=12.60 TONS
 LID=10.12 TONS
 6x10=10.78 TONS



REV.	DATE	BY
1.		
2.		
3.		
4.		
5.		
6.		

UP **Lindsay** PRECAST

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CUSTOMER: **WENGER EXCAVATING**

DATE: **10/06/04**

PROJECT: **MASSILLON LEVEE OUTLET CHAMBER**

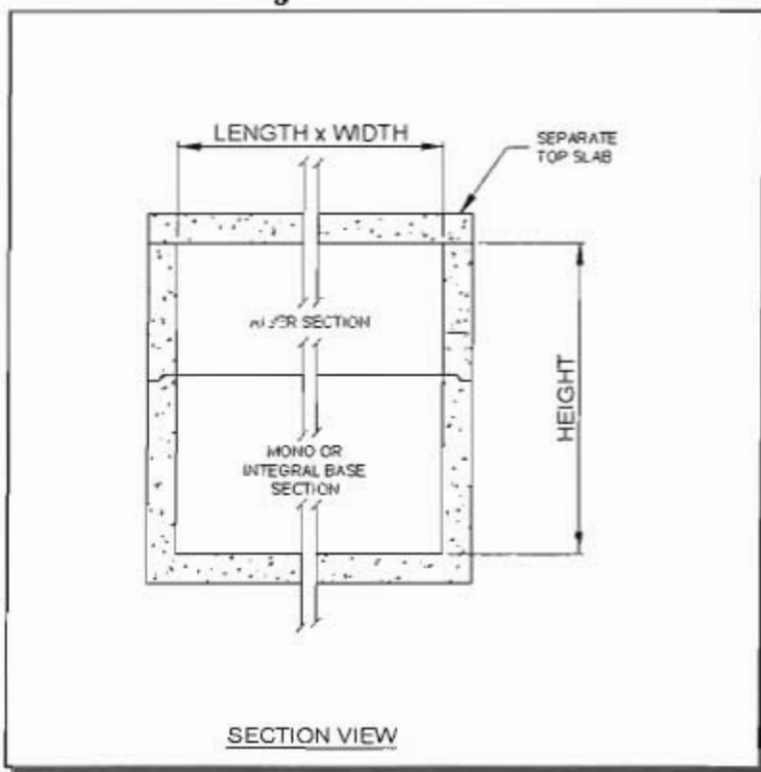


DPVault 2.0

Preliminary Design & Materials Estimating Program

Project ID# 2,398
Structure ID Outlet Chamber
Created By: Tony
Date: Aug 19, 2013

Project Overview



Project Details:

Project Name: Massillon Levee
Project Status: New
Overall Status: Passed

Customer Information:

Customer: Wenger
Customer Ref#:
Bid#:
Due Date:
Description:

Disclaimer:

Results from this application are intended for preliminary use and materials estimating only. Designs must be reviewed by a qualified engineer to assure compliance with applicable codes, specifications and sound engineering judgment. Any implied or expressed warranties covering the software program, including warranties of merchantability or fitness for a particular purpose are expressly excluded. Delta Engineers shall not be liable for special, incidental, consequential, indirect or other similar damages arising from breach of contract or any other legal theory even if such parties have been advised of such damages.

Comments:

Project Constants

Unit Weight of Soil (pcf):	120	Z Max (kips/in):	130.00	Max Surcharge Depth (ft):	8.00
Unit Weight of Concrete (pcf):	150	EP Dry (pcf):	0.045	Min Steel Area (sq in/ft):	0.125
Yield Strength (psi):	60,000	EP Saturated (pcf):	0.085	Sanitary Coefficient:	1.00
Concrete Strength (psi):	6,000	N:	7.20	Pedestrian Live Load (psf):	0
Bar Waste (%):	5.00	Rho Max:	0.025		



DPVault 2.0

Preliminary Design & Materials Estimating Program

Project ID# 2,398
 Structure ID Outlet Chamber
 Created By: Tony
 Date: Aug 19, 2013

Project Name:	Massillon Levee		
Project Status:	New		
Overall Status:	Passed	Ft Above Grade (ft):	0.00
Length (ft):	20.00	Cover Slab Thickness (in):	12.00
Width (ft):	10.00	Earth Fill (ft):	5.25
Height (ft):	10.00	Wall Thickness (in):	8.00
		Design Load:	HS-20
		Base Slab Thickness (in):	8.00
		Water Table Depth (ft):	9.00

	Bar Size	Spacing (in)	Bar Cover (in)	Bar Qty (lbs)
Separate Top Slab				
Slab Thickness (in):	12.00	Loc #1	6	6.00
Volume (cuft):	241.78	Loc #2	4	8.00
Concrete Qty (yds):	8.95	Loc #17	4	12.00
Weight (tons):	18.13	Loc #18	4	12.00

Component Not Selected

Middle Riser(s)				
Riser Height (ft):	5.00	Loc #7	6	6.00
Total Riser Height (ft):	5.00	Loc #8	5	12.00
Volume (cuft):	208.89	Loc #13	6	6.00
Concrete Qty (yds):	7.74	Loc #14	5	12.00
Weight (tons):	15.67			

Monolithic Base				
Slab Thickness (in):	8.00	Loc #3	6	6.00
Volume (cuft):	370.07	Loc #4	5	6.00
Concrete Qty (yds):	13.71	Loc #19	Single Layer	
Weight (tons):	27.76	Loc #20	Reinforcing Selected	
Riser Portion		Loc #5	6	6.00
Verticals to Outside:	Yes	Loc #6	5	6.00
Base Riser Height (ft):	5.00	Loc #11	4	12.00
		Loc #12	4	12.00

Estimated Bar Quantities by Size

Bar Size	#3	#4	#5	#6	#7	#8	#9	#10	#11	Total Bar
Estimated lbs of bar*	0	1019	2243	4754	0	0	0	0	0	8015.68

*Bar estimates based on: 5.00 % waste.

Total concrete quantity (yds): 30.40

Buoyancy

Safety Factor Req:	1.10	Base Extension - Long Side (in):	0.00	Buoyancy Check:	Passed
Other Dead Load (lbs):	0	Base Extension - Short Side (in):	0.00		

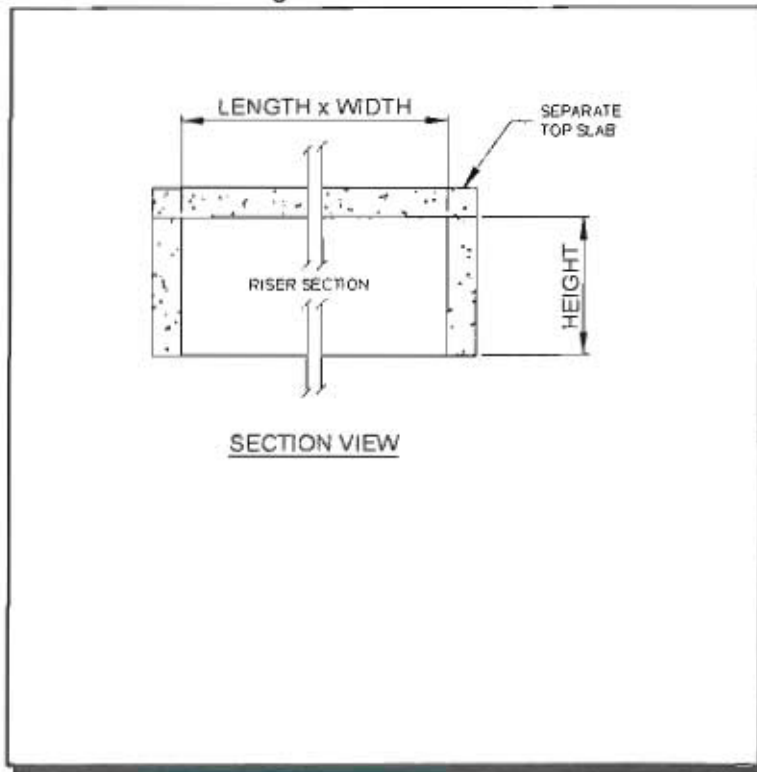


DPVault 2.0

Preliminary Design & Materials Estimating Program

Project ID# 2,424
Structure ID Outlet chamber riser
Created By: Tony
Date: Sep 17, 2013

Project Overview



Project Details:

Project Name: Massillon Levee
Project Status: New
Overall Status: Failed

Customer Information:

Customer:
Customer Ref#:
Bid#:
Due Date:
Description:

Disclaimer:

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Comments:

Project Constants			
Unit Weight of Soil (pcf):	120	Z Max (kips/in):	130.00
Unit Weight of Concrete (pcf):	150	EP Dry (pcf):	0.045
Yield Strength (psi):	60,000	EP Saturated (pcf):	0.085
Concrete Strength (psi):	5,000	N:	7.20
Bar Waste (%):	5.00	Rho Max:	0.025
		Max Surcharge Depth (ft):	8.00
		Min Steel Area (sq in/ft):	0.125
		Sanitary Coefficient:	1.00
		Pedestrian Live Load (psf):	0



DPVault 2.0

Preliminary Design & Materials Estimating Program

Project ID# 2,424
 Structure ID Outlet chamber riser
 Created By: Tony
 Date: Sep 17, 2013

Project Name:	Massillon Levee		
Project Status:	New		
Overall Status:	Failed	Ft Above Grade (ft):	0.50
Length (ft):	10.00	Cover Slab Thickness (in):	10.00
Width (ft):	6.00	Earth Fill (ft):	0.00
Height (ft):	4.42	Wall Thickness (in):	8.00
		Design Load:	HS-20
		Base Slab Thickness (in):	
		Water Table Depth (ft):	9.00

		Bar Size	Spacing (in)	Bar Cover (in)	Bar Qty (lbs)
<u>Separate Top Slab</u>					
Slab Thickness (in):	10.00	Loc #1	6	8.00	197
Volume (cuft):	69.26	Loc #2	5	14.00	76
Concrete Qty (yds):	2.57	Loc #17	4	12.00	58
Weight (tons):	5.19	Loc #18	4	12.00	58

Riser Portion

Component Not Selected

Middle Riser(s)

Riser Height (ft):	4.42	Loc #7	4	6.00	1.50	269
Total Riser Height (ft):	4.42	Loc #8	4	12.00		116
Volume (cuft):	102.15	Loc #13	4	12.00	1.50	105
Concrete Qty (yds):	3.78	Loc #14	4	18.00		66
Weight (tons):	7.66					

No Base

Component Not Selected

Riser Portion

Component Not Selected

Estimated Bar Quantities by Size

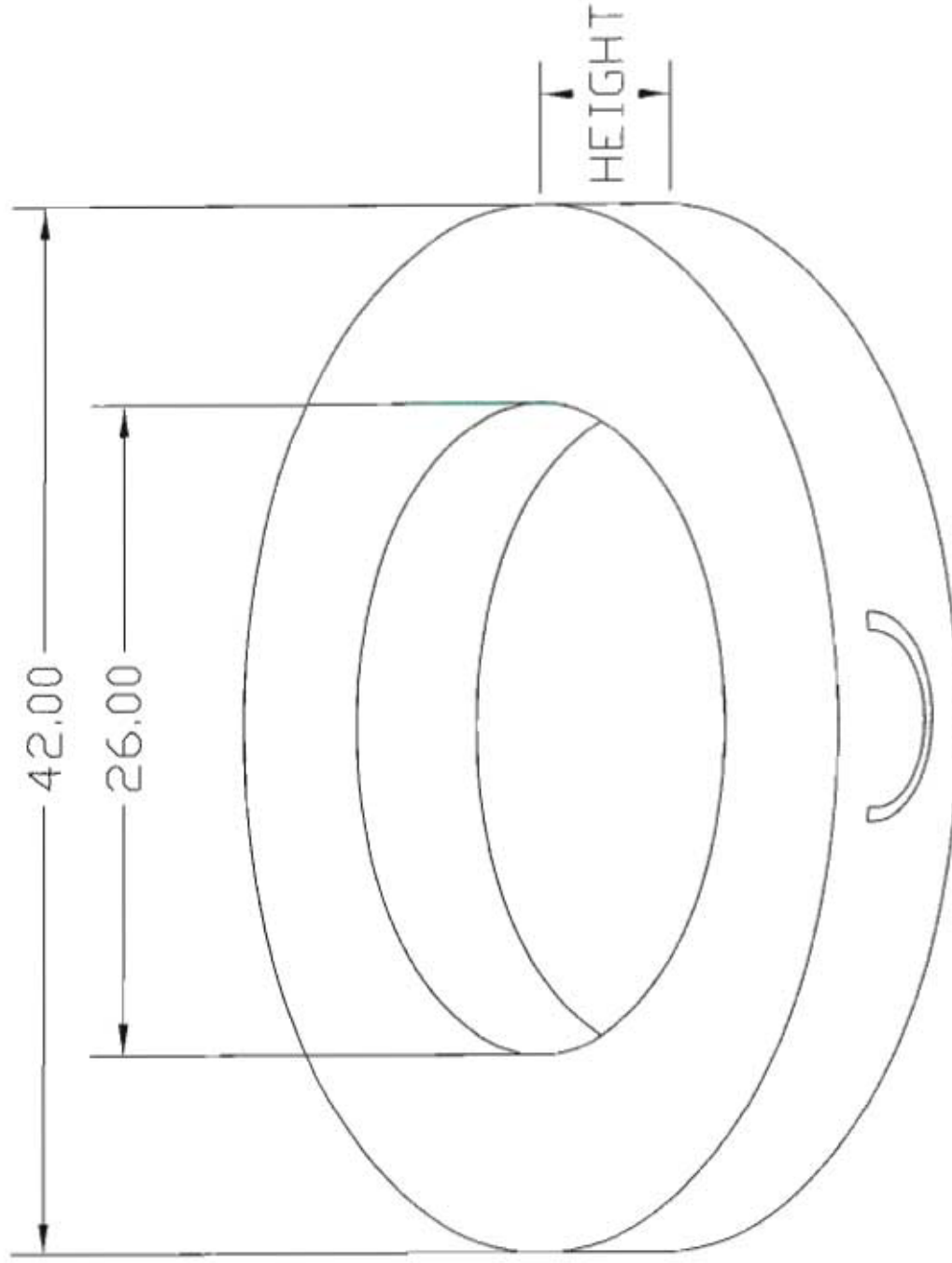
Bar Size	#3	#4	#5	#6	#7	#8	#9	#10	#11	Total Bar
Estimated lbs of bar*	0	672	76	197	0	0	0	0	0	944.92

*Bar estimates based on: 5.00 % waste.

Total concrete quantity (yds): 6.35

Buoyancy

Safety Factor Req:	1.00	Base Extension - Long Side (in):	0.00
Other Dead Load (lbs):	0	Base Extension - Short Side (in):	0.00



HEIGHT	WEIGHT
3"	225 LB
4"	300 LB
6"	450 LB

L LINDSAY CONCRETE
PRODUCTS CO., INC.



NOTES:

- 1) CONCRETE MIN. 5,000 PSI @ 28 DAYS

GRADE RING

DRAWN BY:
AY

REVISION:

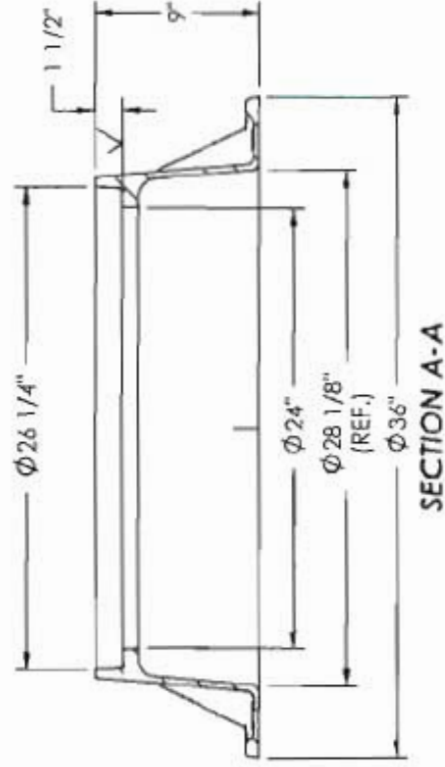
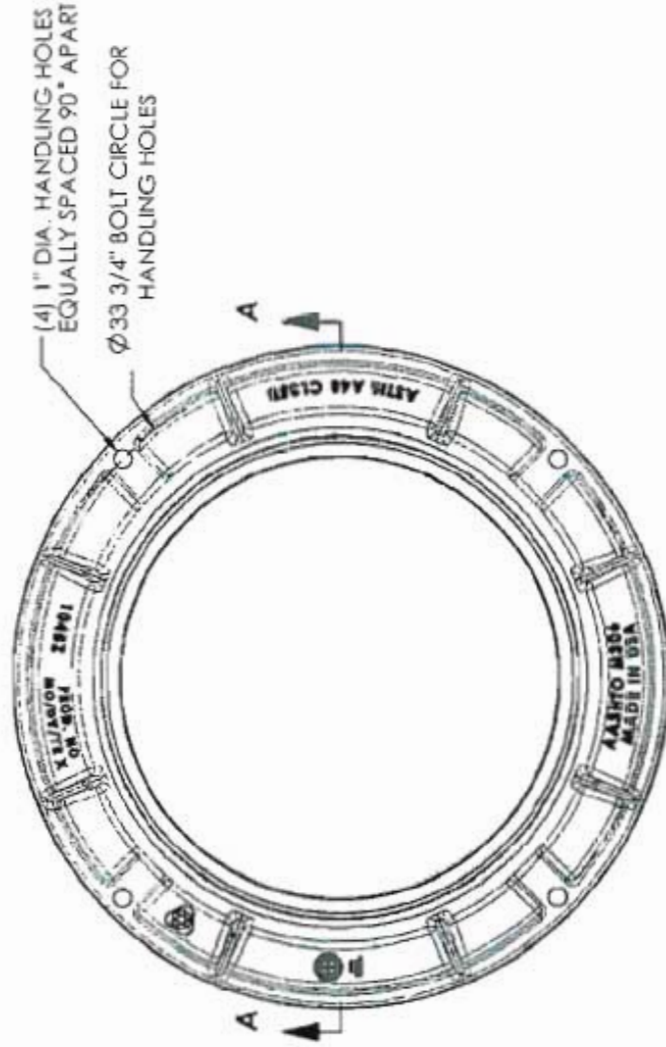
DATE:

01-01-09

CAT. NO.

LCGR004A

1048 Frame



Product Number
00104810

Design Features

- Materials
Gray Iron (CL35)
- Design Load
Heavy Duty
- Open Area
n/a
- Coating
Dipped
- ✓ Designated Machined Surface

Certification

- ASTM A48
- AASHTO M301
- Country of Origin: USA

Drawing Revision

- 2/23/2011 Designer JJ
- 3/13/2012 Revised By: SDC

Disclaimer

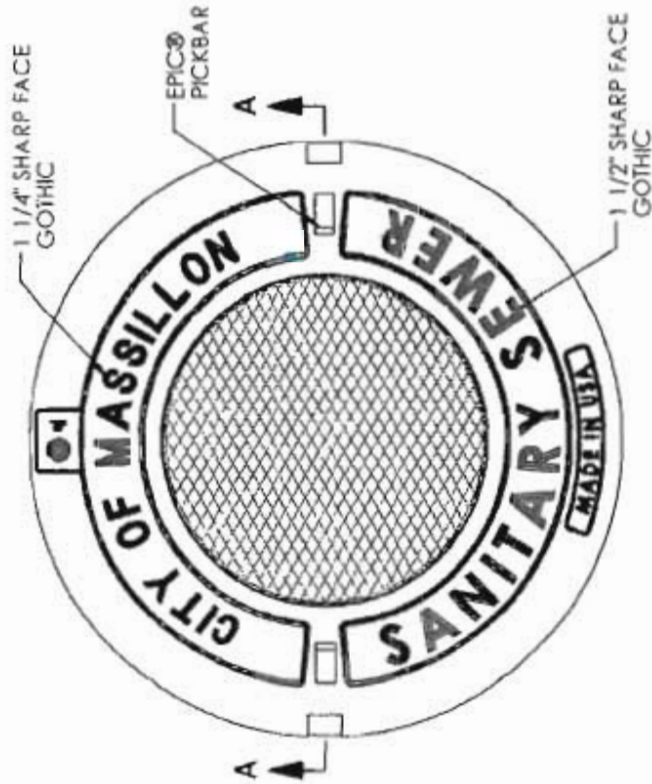
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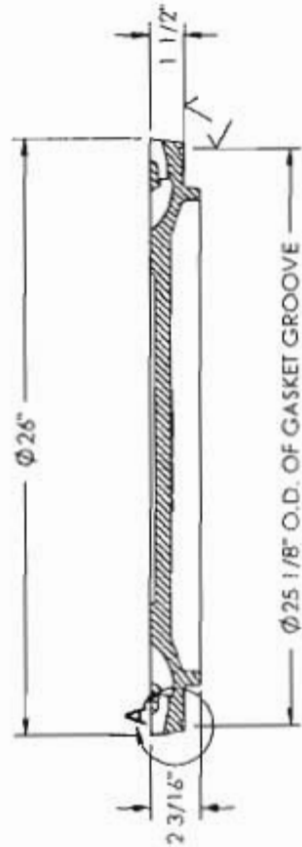
Contact

800 626-4653
info@ejm.com

1040AGS Cover



BOTTOM VIEW



SECTION A-A

Drawing Revision
3/5/2013 Designer DJH
9/23/2013 Revised By DEF

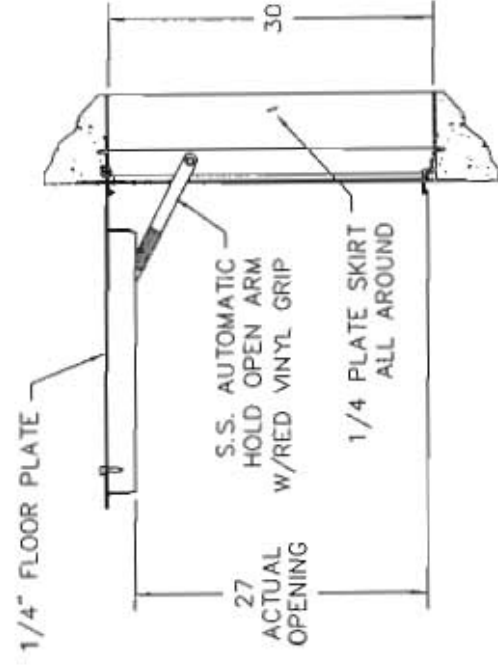
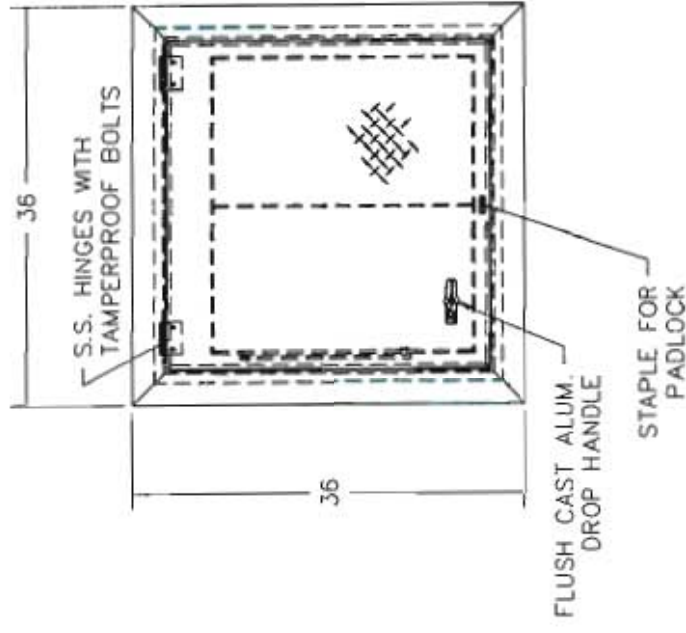
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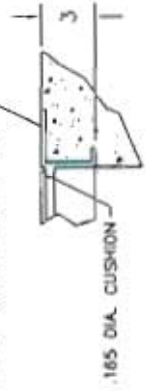
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ejco.com

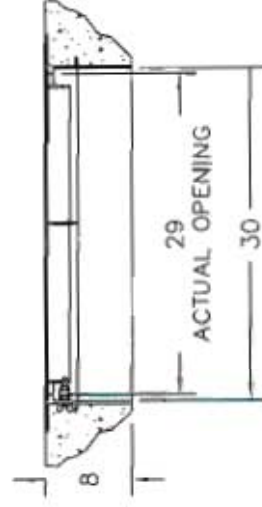


- NOTES:
- 1- MATERIAL: ALUMINUM
 - 2- LOADING: 300 LBS. PER SQ. FT.
 - 3- 316 STAINLESS STEEL BOLTS & NUTS
 - 4- APPROXIMATE WEIGHT: 72 LBS.
 - 5- AREA OF FRAME IN CONTACT WITH CONCRETE TO BE PAINTED WITH BITUMINOUS COATING.

1/4" EXTRUDED ANGLE SECTION W/INTEGRAL SEAT & CONT. ANCHOR FLANGE
MAT'L: ALUM. 6063-T5



FRAME DETAIL



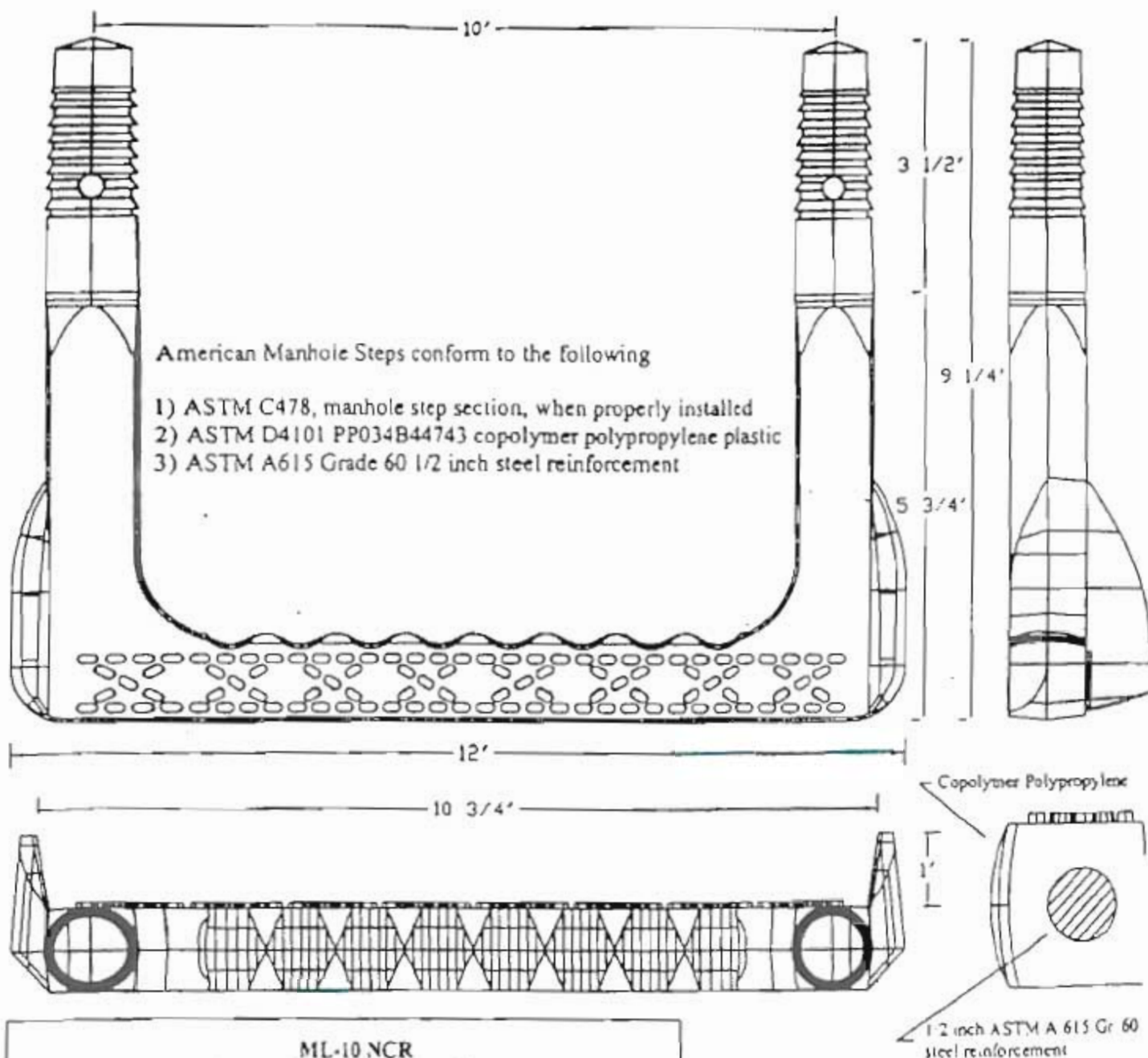
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HIALEAH, FLORIDA

HATCH APS 300 - 30 X 30 ALUMINUM
WITH SKIT, CUSHION & BIT. PAINT

DATE: 5/6/11	SHEET: 1 OF 1
SCALE: 1=12	QUANTITY: 98383
CHK BY: ICF	DWG # 67319

ML-10 NCR



ML-10 NCR

Mechanical Lock Installation Methods:
Minimum Concrete Strength Shall Be 3000 PSI

Pre formed Holes:

Two pre formed holes on 10" centers
Holes must be parallel
Diameter of holes are 1.1" tapering to 7/8" in 3 1/2" of depth

Drilled Holes:

Drill two 1" holes on 10" centers with a minimum depth of 3 3/4"
Use 1" masonry bit for drilling
Holes must be parallel

Drive step with sledge hammer until both legs are completely seated.

This step meets or exceeds ASTM C 478 and OSHA Standards

AMERICAN

STEP COMPANY, INC.

1-800-934-STEP or 770-467-9344 770-467-3011

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ConSeal™ CS-102

Butyl Rubber Sealant



Butyl Rubber Sealant for All Precast Concrete Structures - Meets ASTM C-990



Applications

For concrete joints in: Manholes, Concrete Pipe, Vaults, Box Culverts, Septic Tanks, and Vertical Panel Structures. **Not intended for use in expansion joints or joints that move.**

Sealing Properties

- Provides permanently flexible watertight joints.
- Low to high temperature workability: 30°F to 120°F (-1°C to +48°C)
- Rugged service temperature: -30°F to +200°F (-34°C to +93°C)
- Excellent chemical and mechanical adhesion to clean dry surfaces.
- Greater cohesive and adhesive strengths.
- Sealed joints will not shrink, harden or oxidize upon aging.
- Controlled flow resistance for application ease.
- No priming normally necessary. When confronted with difficult installation conditions, such as wet concrete or temperatures below 40°F (4°C), priming the concrete will improve the bonding action. Consult Concrete Sealants for the proper primer to meet your application.

Hydrostatic Strength

ConSeal CS-102 meets the hydrostatic performance requirement as set forth in ASTM C-990 section 10.1 (Performance requirement: 10psi for 10 minutes in straight alignment – in plant, quality control test for joint materials.)

Specifications

ConSeal CS-102 meets or exceeds all of the requirements of Federal Specification SS-S-210 (210-A), AASHTO M-198B, and ASTM C-990-91.

Physical Properties

Description	Spec	Required	CS-102
Color			Black
Specific Gravity, 77°F	ASTM D71	1.15-1.50	1.25
Ductility, 77°F	ASTM D113	5.0 min.	10
Penetration, cone 77°F (25°C), 150 gm, 5 sec.	ASTM D217	50-100 mm	55-60 mm
Penetration, cone 32°F (0°C), 150 gm, 5 sec.	ASTM D217	40 mm min.	40-65 mm
Flash Point, C.O.C., °F	ASTM D92	350°F min.	450°F
Fire Point, C.O.C., °F	ASTM D92	375°F min.	475°F

Don't Just Seal It. ConSeal It!

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P. 937.645.8776 F. 937.645.3587 Toll Free 800.332.7325 • www.conseal.com



ConSeal™ CS-102

Butyl Rubber Sealant



Butyl Rubber Sealant for All Precast
Concrete Structures - Meets ASTM C-990



Chemical Composition

Description

	Spec	Required	CS-102
Hydrocarbon plastic content % by weight	ASTM D4 (mod.)	50% min.	51%
Inert mineral filler % by weight	AASHTO T111	30% min.	35%
Volatile Mater % by weight	ASTM D6	2% max.	1.2%
Recycled Content, % by weight			
Post Consumer:			8.41%
Post Industrial:			10.85%

Immersion Testing

30-Day Immersion Testing: No visible deterioration when tested in 5% Caustic Potash, 5% Hydrochloric Acid, 5% Sulfuric Acid, and 5% saturated Hydrogen Sulfide.

One Year Immersion Testing: No visible deterioration when tested in 5% Formaldehyde, 5% Formic Acid, 5% Sulfuric Acid, 5% Hydrochloric Acid, 5% Sodium Hydroxide, 5% Hydrogen Sulfide, and 5% Potassium Hydroxide.

Limited Warranty

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ConSeal™ CS-300

High Performance Surface Primer



Surface Preparation Coating and Installation Aid for Concrete and Metal Surfaces

Applications

Installation aid for bonding preformed sealants in wet conditions or frozen concrete structures.

Sealing Properties

CS-300 surface primer has the ability to create a bond on wet concrete surfaces. CS-300 is ideal when working in extreme weather conditions such as freezing temperatures or heavy rain.

Physical Properties

Description

Color:	Clear
% Solids:	15.5% ± 1%
Solvent Type:	Hexane
Flash Point:	-25°F
Weight / Gallon:	5.87 Pounds
Dry Time @ 77°F (25°C):	15 minutes or less
Dry Time @ 40°F (4°C):	15 minutes
Clean Up:	Mineral Spirits
Coverage Per Gallon:	Approx. 300 sq ft on wet cast concrete.
Min. Storage Temperature:	32°F
Min. Application Temperature:	0°F
Surface When Dry:	Tacky

Limited Warranty

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ConSeal™ CS-212

Polyolefin Backed Exterior Joint Wrap



Membrane Waterproofing and Exterior Joint Wrap for Precast Concrete Joints

Applications

For joints in: Box Culverts, Underground Concrete Vaults, Segmented Bridge Structures, Wastewater Structures and Arched Bridge Structures, Manholes. **Not intended for use in expansion joints or joints that move.**

Sealing Properties

- Excellent resistance to puncture, tear and abrasions.
- Aggressively bonds to concrete and metal structures.
- Provides a permanent flexible water and soil barrier.
- Will not shrink, harden or oxide upon aging.
- Available in numerous standard sizes.
 - Standard thicknesses: 0.065" and 0.100"
 - Standard widths: 4", 6", 8", 12", 24", 36" and 48"
- Custom widths and lengths available upon request.
- No priming normally necessary. When confronted with difficult installation conditions, such as wet concrete or temperatures below 40°F (4°C), priming the concrete will improve the bonding action. Consult Concrete Sealants for the proper primer to meet your application.

Specifications

ConSeal CS-212 meets ASTM E-1745, C-877, C-990 Specifications, and AASHTO M198 Type B.

Technical Data

ASTM E-1745: Standard specification for plastic water vapor retarders used in contact with soil or granular fill under concrete slabs.

Class C. Specification	Test Method	E-1745 Requirement	CS-212
Water Vapor Permeance	ASTM F-1249	0.30 perms, max.	0.045 perms, max.
Tensile Strength	ASTM E-154	13.6 lbs./ inch, min.	21.0 lbs./ inch, min.
Puncture Resistance	ASTM D-1709	475 grams, min.	864 grams, min.

ASTM C-877: Standard specification for external sealing bands for non-circular concrete sewer, storm drain and culvert pipe.

Type III, Specification	E-1745 Requirement	CS-212
Backing Bond Element	4 Mil, min. thickness	4 Mil
Butyl Rubber Adhesive	0.03 inch, min. thickness	0.065, min.

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ConSeal™ CS-212

Polyolefin Backed Exterior Joint Wrap



Membrane Waterproofing and Exterior Joint Wrap for Precast Concrete Joints

Technical Data Continued

ASTM C-990: Standard specification for joints for concrete pipe, manholes and precast box sections using preformed flexible joint sealants.

Section 6, Specification	Test Method	C-990 Requirements	CS-212
Hydrocarbon blend content % by weight	ASTM D-4	50-70%	52, min.
Inert mineral filler % by weight	ASTM C-990	30% min.	45, min.
Volatile Matter % by weight	ASTM C-990	2.0 max.	1.20
Specific Gravity	ASTM C-990	1.15-1.50	1.20-1.25
Ductility, 7°F	ASTM D-113	5.0, min.	12, min.
Penetration, cone 77°F, 150 gm. 5 sec.	ASTM D-217	50-120 mm	70-80 mm
Softening point, °F	ASTM D-36	320°F, min.	335°F, min.

Limited Warranty

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Don't Just Seal It. ConSeal It!

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