

Date: May 6, 2016

**ADDENDUM NO. 3
to the
Iowa Department of Transportation
Proposal No. 16355
For Construction of Brine Buildings at Corning and Avoca Maintenance Facilities
Letting Date: 05/11/2016**

Notice To Bidders:

This Addendum is issued to incorporate the following additions, deletions, corrections, and/or clarifications to the terms or specifications and shall hereby be considered a part of the final contract documents. This Addendum shall supersede, modify and/or change all statements to the contrary in the bid proposal and shall take precedence over previous terms or specifications.

Changes to Drawing Sheets for Corning Brine Building : (see modified sheet)

Sheet 1, SP-1 GENERAL NOTES; Added "9. REMOVAL OF ASPHALT DUE TO TRENCHING THE UNDERGROUND UTILITIES MAY BE REPLACED WITH CONCRETE" " 10. CONSTRUCT NEW BRINE BUILDING AND CONTAINMENT AT THE SAME ELEVATION AS EXISTING HOOP BUILDING."

Changes to Specifications for Corning Brine Building: (see modified specs)

06 1000 Rough Carpentry, 2.06 A. Fasteners and Anchors; Changed to "all hot dipped galvanized".

07 2500 Weather Barrier, 2.03 A.; Changed to "6 mil polyethylene film, clear".

32 1313 Concrete Paving, 2.05; Removed Curing and Sealer Compound by Sonneborn, or approved equal."

Clarifications for Corning Brine Building:

1. All nails installed as part of the structure to be hot-dipped galvanized.
2. There is single phase power only available on this site.
3. New construction of brine buildings at all Iowa DOT locations are on state owned property. The design is reviewed and the projects inspected by the State Fire Marshal's office. Iowa DOT is responsible for paying all fees associated with this permitting and inspection.
4. 1 inch gas pipe is required to feed the brine building. (per sheet BMP-1 MECHANICAL PLAN) Tie into existing Natural Gas line at the EXISTING 1-1/2" NG in EXISTING MAINTENANCE GARAGE.
5. Routing of utilities to brine building can go North or South of existing storage building. The utilities need to come into the brine building at locations shown on mechanical and electrical plans.
6. Contractor is responsible for providing concrete testing with an independent agency per spec section 03 3000 at Corning location.
7. Floor drain inside brine building drains to sump which recycles water into brine maker. There is no additional utility connection required here.

Changes to Drawing Sheets for Avoca Brine Building: (see modified sheet)

Sheet 1, SP-1 GENERAL NOTES; Added "9. REMOVAL OF ASPHALT DUE TO TRENCHING THE UNDERGROUND UTILITIES MAY BE REPLACED WITH CONCRETE"

Sheet 1, SP-1 SITE PLAN; Changed:

- Location of Tie in to EXISTING GAS back to 2" line
- Location of Tie in to EXISTING 4" WATER PIPING to existing pipe coming to EXISTING BRINE BUILDING closer to required location (off hydrant to existing brine building)

Sheet 1, SP-1 SITE PLAN; Added:

-"ADD COMPACTED GRANULAR FILL TO RAISE BUILDING TO SAME ELEVATION AS EXISTING HOOP BUILDING"

Changes to Specifications for Avoca Brine Building: (see modified specs)

06 1000 Rough Carpentry, 2.06 A. Fasteners and Anchors; Changed to ".all hot dipped galvanized".

07 2500 Weather Barrier, 2.03 A.; Changed to "6 mil polyethylene film, clear."

32 1313 Concrete Paving, 2.05; Removed Curing and Sealer Compound by Sonneborn, or approved equal."

Clarifications for Avoca Brine Building:

1. All nails installed as part of the structure to be hot-dipped galvanized.
2. There is single phase power only available on this site.
3. New construction of brine buildings at all Iowa DOT locations are on state owned property. The design is reviewed and the projects inspected by the State Fire Marshal's office. Iowa DOT is responsible for paying all fees associated with this permitting and inspection.
4. 1 inch gas pipe is required to feed the brine building. (per sheet BMP-1 MECHANICAL PLAN) Tie into existing Natural Gas line at the EXISTING 2" NG in EXISTING MAINTENANCE GARAGE.
5. Routing of utilities to brine building can go North or South of existing storage buildings. The utilities need to come into the brine building at locations shown on mechanical and electrical plans.
6. Contractor is responsible for providing concrete testing with an independent agency per spec section 03 3000 at Avoca location.
7. Floor drain inside brine building drains to sump which recycles water into brine maker. There is no additional utility connection required here.
8. Add \$3,000 allowance to cover additional backfill required to raise building and containment to elevation consistent with the EXISTING HOOP BUILDING.

Addition: CHEM-CRETE Pavix CCC100 is an approve equal for both Corning and Avoca locations see attached. SikaFlex 1A is an approved equal for both locations see attached. SpecFilm RTU is and approved equal.

All Bidders must sign and return this Addendum for the bid opportunity referenced above. Failure to do so may subject the Bidder to disqualification. If a bid response has already been submitted, this Addendum shall be signed and emailed or faxed to the Purchasing Section prior to the scheduled Letting Date.

Company Name (please print)

Date

Signature

Sincerely,

Jody McNaughton, Purchasing Agent (title)
Phone No. 515-239-1298 Fax No. 515-239-1538
Jody.mcnaughton@dot.iowa.gov

**Purchasing Section
800 Lincoln Way, Ames, Iowa 50010**

**P: 515-239-1310 F: 515-239-1538
DOT.purchasing@dot.iowa.gov**

SECTION 06 1000
ROUGH CARPENTRY - ADDENDUM 3

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural dimension lumber framing.
- B. Rough opening framing for doors and roof openings.
- C. Sheathing.
- D. Underlayment.
- E. Roofing nailers.
- F. Preservative treated wood materials.
- G. Miscellaneous framing and sheathing.
- H. Concealed wood blocking, nailers, and supports.
- I. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS

- A. Section 06 1753 - Shop-Fabricated Wood Trusses.
- B. Section 07 6200 - Sheet Metal Flashing and Trim: Sill flashings and roof/wall flashings.

1.03 REFERENCE STANDARDS

- A. ANSI A208.1 - American National Standard for Particleboard; 2009.
- B. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; American Forest and Paper Association; 2012.
- C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.
- E. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood Protection Association; 2003.
- F. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2010.
- G. ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers; ICC Evaluation Service, Inc; 2013.
- H. PS 1 - Structural Plywood; 2009.
- I. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; National Institute of Standards and Technology, U.S. Department of Commerce; 2010.
- J. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology, Department of Commerce; 2010.
- K. SPIB (GR) - Grading Rules; Southern Pine Inspection Bureau, Inc.; 2014.
- L. WWPA G-5 - Western Lumber Grading Rules; Western Wood Products Association; 2011.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide technical data on insulated sheathing, wood preservative materials, and application instructions.
- C. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

- D. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Iowa Department of Transportation's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with the following:
 - 1. Lumber Grading Agency: Certified by NIST PS 20.
 - 2. Wood Structural Panel Grading Agency: Certified by EWA - The Engineered Wood Association.
- B. Design structural shop-fabricated trusses under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Iowa.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. Species: Douglas Fir-Larch No. 1, unless otherwise indicated.
 - 2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
- B. Lumber fabricated from old growth timber is not permitted.
- C. Provide sustainably harvested wood; see Section 01 6000 for requirements.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Stud Framing (2 by 2 through 2 by 6):
 - 1. Species: Douglas Fir-Larch.
 - 2. Grade: No. 2.
- D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.03 EXPOSED DIMENSION LUMBER

- A. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).
- B. Sizes: Nominal sizes as indicated on drawings.
- C. Surfacing: S4S.
- D. Moisture Content: S-dry or MC19.
- E. Columns Framing (2 by 6 through 4 by 16):
 - 1. Species: Douglas Fir.
 - 2. Grade: No. 1.

2.04 TIMBERS

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry (23 percent maximum).
- C. Posts 5 inches and over in thickness:
 - 1. Species: Douglas Fir-Larch.
 - 2. Grade: Select Structural.

2.05 CONSTRUCTION PANELS

- A. Roof Sheathing: Any PS 2 type, rated Structural I Plywood Sheathing.
 - 1. Bond Classification: Exterior.
 - 2. Nominal Thickness: Not less than 1/2".
- B. Wall Sheathing: Plywood, PS 1 type, rated Structural I, Grade C-C, Exterior Exposure.
 - 1. Nominal Thickness: not less than 1/2"
- C. Panel Fasteners:
 - 1. 10d at 6" O.C. at edges
 - 2. 10d at 12" O.C. at interior supports

2.06 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for all locations.
 - 2. Anchors: Toggle bolt type for anchorage to hollow masonry.
 - 3. Nails, Brads, and Staples: ASTM F 1667.
 - 4. Power-Driven Fasteners: NES NER-272.
 - 5. Wood Screws: ASME B18.6.1.
- B. Die-Stamped Connectors: Hot dipped galvanized steel, sized to suit framing conditions.
- C. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.
- D. Sill Flashing: As specified in Section 07 6200.
- E. Water-Resistive Barrier: Plastic sheet complying with ICC-ES AC38.

2.07 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 - 1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- B. Preservative Treatment:
 - 1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.

PART 3 EXECUTION

3.01 PREPARATION

- A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.
- B. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.
- C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.
- F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- C. Provide the following specific non-structural framing and blocking:
 - 1. Wall brackets.
 - 2. Wall paneling and trim.
 - 3. Joints of rigid wall coverings that occur between studs.
 - 4. Equipment suspended from ceiling.
 - 5. All plywood sheathing panel edges.

3.05 ROOF-RELATED CARPENTRY

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.06 INSTALLATION OF CONSTRUCTION PANELS

- A. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing .
 - 1. At long edges use sheathing clips where joints occur between roof framing members.
 - 2. Nail panels to framing; staples are not permitted.
- B. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.
 - 1. Place water-resistive barrier horizontally over wall sheathing, weather lapping edges and ends.

3.07 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
- B. Allow preservative to dry prior to erecting members.

3.08 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.09 CLEANING

- A. Waste Disposal: Comply with the requirements of Section 01 7419.
 - 1. Comply with applicable regulations.

2. Do not burn scrap on project site.
 3. Do not burn scraps that have been pressure treated.
 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

3.10 SCHEDULES

Application:		Type:
	Wall Sheathing (Exterior)	1/2 inch Treated Plywood
A.	Wall Sheathing (Interior)	1/2 inch Plywood
	Roof Sheathing	1/2 inch Plywood
	Door Opening Blocking	Treated
	Door Jambs	S/P/F species, 19 percent maximum moisture content, treated
	Door Thresholds	S/P/F species, 19 percent maximum moisture content, treated
	Roof Blocking	S/P/F species, 19 percent maximum moisture content, treated
	Door	S/P/F species, 19 percent maximum moisture content, treated
	Brine Building Addition Framing	S/P/F species, 19 percent maximum moisture content, treated

END OF SECTION

SECTION 07 2500
WEATHER BARRIERS - ADDENDUM 3

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Vapor Barrier (Retarder): Materials to make exterior walls, joints between exterior walls and roof, joints around frames of openings in exterior walls, and at ceiling water vapor resistant and air tight.
- B. Air Barriers: Materials that form a system to stop passage of air through exterior walls.

1.02 DEFINITIONS

- A. Air Barrier: Air tight barrier made of material that is relatively air impermeable but water vapor permeable, both to the degree specified, with sealed seams and with sealed joints to adjacent surfaces. Note: For the purposes of this specification, vapor impermeable air barriers are classified as vapor retarders.
- B. Vapor Barrier: Air tight barrier made of material that is relatively water vapor impermeable, to the degree specified, with sealed seams and with sealed joints to adjacent surfaces.
 - 1. Water Vapor Permeance: For purposes of conversion, $57.2 \text{ ng}/(\text{Pa s sq m}) = 1 \text{ perm}$.

1.03 REFERENCE STANDARDS

- A. ASTM D4397 - Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications; 2010.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.
- C. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.
- D. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; 2013.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on material characteristics and performance criteria.
- C. Manufacturer's Installation Instructions: Indicate preparation, installation methods, and storage and handling criteria.

1.05 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

- A. Air Barrier:
 - 1. On outside surface of sheathing of exterior walls use air barrier sheet, mechanically fastened type.
- B. Interior Vapor Barrier:
 - 1. On inside face of studs of exterior walls, under cladding, use mechanically fastened vapor barrier sheet.
 - 2. On bottom face of rafters, under cladding, use mechanically fastened vapor barrier sheet.

2.02 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

- A. Air Barrier Sheet, Mechanically Fastened:
 - 1. Air Permeance: 0.001 cubic feet per minute per square foot, maximum, when tested in accordance with ASTM E2178.
 - 2. Water Vapor Permeance: 20 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure A (desiccant method).

3. Ultraviolet and Weathering Resistance: Approved in writing by manufacturer for minimum of 6 months weather exposure.
4. Surface Burning Characteristics: Flame spread index of 25 or less, and smoke developed index of 50 or less, when tested in accordance with ASTM E84.
5. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches wide, compatible with sheet material; unless otherwise specified.
6. Products:
 - a. DuPont Building Innovations; Tyvek Commercial Wrap with Tyvek Fluid Applied Flashing - Brush Formulation, Tyvek Fluid Applied Flashing and Joint Compound, FlexWrap NF, StraightFlash, StraightFlash VF, Tyvek Wrap Caps, and Tyvek Tape: www.dupont.com.

2.03 VAPOR RETARDER MATERIALS (AIR BARRIER AND WATER-RESISTIVE)

- A. Vapor Barrier (Retarder) Sheet : ASTM D4397 polyethylene film , clear.
 1. Thickness: 6 mil.
 2. Water Vapor Permeance: As required by referenced standard for thickness specified.
 3. Seam and Perimeter Tape: Polyethylene self adhering type, 2 inches wide, compatible with sheet material.

2.04 ACCESSORIES

- A. Sealants, Tapes, and Accessories for Sealing Weather Barrier and Sealing Weather Barrier to Adjacent Substrates: As specified or as recommended by weather barrier manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

- A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.
- B. Clean and prime substrate surfaces to receive adhesives in accordance with manufacturer's instructions.

3.03 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- C. Vapor Barriers (Retarders): Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- D. Apply sealants and adhesives within recommended application temperature ranges. Consult manufacturer if temperature is out of this range.
- E. Mechanically Fastened Sheets - On Exterior:
 1. Install sheets shingle-fashion to shed water, with seams generally horizontal.
 2. Overlap seams as recommended by manufacturer but at least 6 inches.
 3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches.
 4. For applications specified to be air tight, seal seams, laps, penetrations, tears, and cuts with self-adhesive tape; use only large-headed, gasketed fasteners recommended by the manufacturer.
 5. Install air barrier and vapor retarder UNDER jamb flashings.
 6. Install head flashings under weather barrier.
 7. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.
- F. Mechanically Fastened Sheets - Vapor Barrier (Retarder) On Interior:

1. When insulation is to be installed in assembly, install vapor retarder over insulation.
 2. Anchor to wood framing using large-headed nails or staples at 12 to 18 inches on center along each framing member covered; cover fasteners with seam tape.
 3. Anchor to metal framing using seam tape, adhering at least one-half of tape width to substrate.
 4. Seal seams, laps, perimeter edges, penetrations, tears, and cuts with self-adhesive tape, making air tight seal.
 5. Locate laps at a framing member; at laps fasten one sheet to framing member then tape overlapping sheet to first sheet.
 6. Seal entire perimeter to structure, window and door frames, and other penetrations.
 7. Where conduit, pipes, wires, ducts, outlet boxes, and other items are installed in insulation cavity, pass vapor retarder sheet behind item but over insulation and maintain air tight seal.
- G. Openings and Penetrations in Exterior Weather Barriers:
1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
 2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with at least 4 inches wide; do not seal sill flange.
 3. At openings to be filled with non-flanged frames, seal weather barrier to all sides of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.
 4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
 5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
 6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.04 FIELD QUALITY CONTROL

- A. Do not cover installed weather barriers until required inspections have been completed.

3.05 PROTECTION

- A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 32 1313
CONCRETE PAVING - ADDENDUM 3

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete sidewalks, parking areas, and drives.

1.02 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.
- B. Section 31 2323 - Fill: Compacted subbase for paving.
- C. Section 03 3000 - Cast-in-Place Concrete.
- D. Section 07 9005 - Joint Sealers: Sealant for joints.

1.03 REFERENCE STANDARDS

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2009).
- B. ACI 301 - Specifications for Structural Concrete; American Concrete Institute International; 2010 (Errata 2012).
- C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
- D. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.
- E. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 2010.
- F. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2015.
- G. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.
- H. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2014.
- I. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2014.
- J. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.
- K. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.
- L. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2011.
- M. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.
- N. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).
- O. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2004a (Reapproved 2013).

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on joint filler, admixtures, and curing compound.

PART 2 PRODUCTS

2.01 PAVING ASSEMBLIES

- A. Comply with applicable requirements of ACI 301.
- B. Concrete Sidewalks and Median Barrier: 3,000 psi 28 day concrete, 4 inches thick, standard gray color Portland cement, broom finish.

- C. Paving for driveways and parking areas: 4,000 psi 28 day concrete, 6 inches thick unless otherwise noted, sandard gray color, wood float finish.

2.02 FORM MATERIALS

- A. Joint Filler: Preformed; height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal..
 - 1. Thickness: 1/2 inch.
 - 2. Material: Closed-cell, non-absorbent, compressible polyethylene or polymer foam in sheet form.
 - 3. Product: W.R. Meadows, Inc; Deck-O-Foam Joint Filler with pre-scored top strip: www.wrmeadows.com..
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.03 REINFORCEMENT

- A. Dowels: ASTM A615/A615M, Grade 40 - 40,000 psi yield strength; deformed billet steel bars; unfinished finish.

2.04 CONCRETE MATERIALS

- A. Concrete Materials: As specified in Section 03 3000.

2.05 ACCESSORIES

- A. Liquid Surface Treatment: CreteDefender manufactured by CreteDefender, Inc. www.cretedefender.com.
 - 1. Install as specifed in Section 03 3000 and per manufacturer's recommendation.
- B. Approved equal: CHEM-CRETE Pavix CCC100 www.chem-crete.com.
- C. Joint Sealer: Specified in Section 07 9005.

2.06 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
 - 1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

2.07 MIXING

- A. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify compacted granular base is acceptable and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

- A. See Section 32 1123 for construction of base course for work of this Section.

3.03 PREPARATION

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Notify Architect minimum 24 hours prior to commencement of concreting operations.

3.04 FORMING

- A. Place and secure forms to correct location, dimension, profile, and gradient.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

- A. Place reinforcement as indicated.
- B. Interrupt reinforcement at expansion joints.
- C. Place dowels to achieve pavement and curb alignment as detailed.
- D. Provide doweled joints 12 inch on center at interruptions of concrete.

3.06 COLD AND HOT WEATHER CONCRETING

- A. Follow recommendations of ACI 305R when concreting during hot weather.
- B. Follow recommendations of ACI 306R when concreting during cold weather.
- C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.07 PLACING CONCRETE

- A. Place concrete as specified in Section 03 3000.
- B. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.
- C. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.
- D. Place concrete to pattern indicated.

3.08 JOINTS

- A. Provide sawn joints.
 - 1. At 10 feet max. intervals for 4" thick sidewalk paving and 12 feet max interval spacing for 6" thick slabs.
 - 2. Between sidewalks and curbs.
 - 3. Between curbs and pavement.
- B. Provide keyed joints as indicated.
- C. Place expansion joints as shown on Drawings.
- D. Place joint filler between paving components and building or other appurtenances. Recess top of filler 1/4 inch for joint sealant placement by Section 07 9005.
- E. Saw cut contraction joints 3/16 inch wide at an optimum time after finishing. Cut 1/4 into depth of slab.

3.09 FINISHING

- A. Area Paving: according to site plan.
- B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.
- C. Inclined Vehicular Ramps: Broomed perpendicular to slope.
- D. Place curing compound/sealer on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.
- E. Place liquid floor treatment at the rate recommended by manufacturer to all exposed concrete.

3.10 JOINT SEALING

- A. See Section 07 9005 for joint sealer requirements.

3.11 TOLERANCES

- A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- B. Maximum Variation From True Position: 1/4 inch.

3.12 FIELD QUALITY CONTROL

- A. Section 01 4000 - Quality Requirements: Iowa DOT employees performing tests.
- B. Three concrete test cylinders will be taken for every 75 or less cu yds of concrete placed each day.
- C. One additional test cylinder will be taken during cold weather and cured on site under same conditions as concrete it represents.
- D. One slump test will be taken for each set of test cylinders taken.
- E. Compressive Strength Tests: ASTM C39/C39M; for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
 - 1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
 - 2. Perform one slump test for each set of test cylinders taken.
- F. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.13 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit vehicular traffic over pavement until 75 percent design strength of concrete has been achieved.

3.14 SCHEDULES

- A. Concrete Sidewalks: 4,000 psi 28 day concrete, 4 inches thick, medium broom finish.
- B. Approach Aprons: 4,000 psi 28 day concrete, 6 inches thick, medium broom finish.
- C. Approach Slabs: 4,000 psi 28 day concrete, 6 inches thick, medium broom finish.

END OF SECTION

SECTION 06 1000
ROUGH CARPENTRY - ADDENDUM 3

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural dimension lumber framing.
- B. Rough opening framing for doors and roof openings.
- C. Sheathing.
- D. Underlayment.
- E. Roofing nailers.
- F. Preservative treated wood materials.
- G. Miscellaneous framing and sheathing.
- H. Concealed wood blocking, nailers, and supports.
- I. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS

- A. Section 06 1753 - Shop-Fabricated Wood Trusses.
- B. Section 07 6200 - Sheet Metal Flashing and Trim: Sill flashings and roof/wall flashings.

1.03 REFERENCE STANDARDS

- A. ANSI A208.1 - American National Standard for Particleboard; 2009.
- B. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; American Forest and Paper Association; 2012.
- C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.
- E. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood Protection Association; 2003.
- F. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2010.
- G. ICC-ES AC308 - Acceptance Criteria for Water-Resistive Barriers; ICC Evaluation Service, Inc; 2013.
- H. PS 1 - Structural Plywood; 2009.
- I. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; National Institute of Standards and Technology, U.S. Department of Commerce; 2010.
- J. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology, Department of Commerce; 2010.
- K. SPIB (GR) - Grading Rules; Southern Pine Inspection Bureau, Inc.; 2014.
- L. WWPA G-5 - Western Lumber Grading Rules; Western Wood Products Association; 2011.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide technical data on insulated sheathing, wood preservative materials, and application instructions.
- C. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

- D. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Iowa Department of Transportation's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with the following:
 - 1. Lumber Grading Agency: Certified by NIST PS 20.
 - 2. Wood Structural Panel Grading Agency: Certified by EWA - The Engineered Wood Association.
- B. Design structural shop-fabricated trusses under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Iowa.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. Species: Douglas Fir-Larch No. 1, unless otherwise indicated.
 - 2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
- B. Lumber fabricated from old growth timber is not permitted.
- C. Provide sustainably harvested wood; see Section 01 6000 for requirements.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Stud Framing (2 by 2 through 2 by 6):
 - 1. Species: Douglas Fir-Larch.
 - 2. Grade: No. 2.
- D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.03 EXPOSED DIMENSION LUMBER

- A. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).
- B. Sizes: Nominal sizes as indicated on drawings.
- C. Surfacing: S4S.
- D. Moisture Content: S-dry or MC19.
- E. Columns Framing (2 by 6 through 4 by 16):
 - 1. Species: Douglas Fir.
 - 2. Grade: No. 1.

2.04 TIMBERS

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry (23 percent maximum).
- C. Posts 5 inches and over in thickness:
 - 1. Species: Douglas Fir-Larch.
 - 2. Grade: Select Structural.

2.05 CONSTRUCTION PANELS

- A. Roof Sheathing: Any PS 2 type, rated Structural I Plywood Sheathing.
 - 1. Bond Classification: Exterior.
 - 2. Nominal Thickness: Not less than 1/2".
- B. Wall Sheathing: Plywood, PS 1 type, rated Structural I, Grade C-C, Exterior Exposure.
 - 1. Nominal Thickness: not less than 1/2"
- C. Panel Fasteners:
 - 1. 10d at 6" O.C. at edges
 - 2. 10d at 12" O.C. at interior supports

2.06 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for all locations.
 - 2. Anchors: Toggle bolt type for anchorage to hollow masonry.
 - 3. Nails, Brads, and Staples: ASTM F 1667.
 - 4. Power-Driven Fasteners: NES NER-272.
 - 5. Wood Screws: ASME B18.6.1.
- B. Die-Stamped Connectors: Hot dipped galvanized steel, sized to suit framing conditions.
- C. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.
- D. Sill Flashing: As specified in Section 07 6200.
- E. Water-Resistive Barrier: Plastic sheet complying with ICC-ES AC38.

2.07 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 - 1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- B. Preservative Treatment:
 - 1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.

PART 3 EXECUTION

3.01 PREPARATION

- A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.
- B. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.
- C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.
- F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- C. Provide the following specific non-structural framing and blocking:
 - 1. Wall brackets.
 - 2. Wall paneling and trim.
 - 3. Joints of rigid wall coverings that occur between studs.
 - 4. Equipment suspended from ceiling.
 - 5. All plywood sheathing panel edges.

3.05 ROOF-RELATED CARPENTRY

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.06 INSTALLATION OF CONSTRUCTION PANELS

- A. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing .
 - 1. At long edges use sheathing clips where joints occur between roof framing members.
 - 2. Nail panels to framing; staples are not permitted.
- B. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.
 - 1. Place water-resistive barrier horizontally over wall sheathing, weather lapping edges and ends.

3.07 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
- B. Allow preservative to dry prior to erecting members.

3.08 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.09 CLEANING

- A. Waste Disposal: Comply with the requirements of Section 01 7419.
 - 1. Comply with applicable regulations.

2. Do not burn scrap on project site.
 3. Do not burn scraps that have been pressure treated.
 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

3.10 SCHEDULES

Application:Type:

Wall Sheathing (Exterior)	1/2 inch Treated Plywood
A. Wall Sheathing (Interior)	1/2 inch Plywood
Roof Sheathing	1/2 inch Plywood
Door Opening Blocking	Treated
Door Jambs	S/P/F species, 19 percent maximum moisture content, treated
Door Thresholds	S/P/F species, 19 percent maximum moisture content, treated
Roof Blocking	S/P/F species, 19 percent maximum moisture content, treated
Door	S/P/F species, 19 percent maximum moisture content, treated
Brine Building Addition Framing	S/P/F species, 19 percent maximum moisture content, treated

END OF SECTION

SECTION 07 2500
WEATHER BARRIERS - ADDENDUM 3

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Vapor Barrier (Retarder): Materials to make exterior walls, joints between exterior walls and roof, joints around frames of openings in exterior walls, and at ceiling water vapor resistant and air tight.
- B. Air Barriers: Materials that form a system to stop passage of air through exterior walls.

1.02 DEFINITIONS

- A. Air Barrier: Air tight barrier made of material that is relatively air impermeable but water vapor permeable, both to the degree specified, with sealed seams and with sealed joints to adjacent surfaces. Note: For the purposes of this specification, vapor impermeable air barriers are classified as vapor retarders.
- B. Vapor Barrier: Air tight barrier made of material that is relatively water vapor impermeable, to the degree specified, with sealed seams and with sealed joints to adjacent surfaces.
 - 1. Water Vapor Permeance: For purposes of conversion, $57.2 \text{ ng}/(\text{Pa s sq m}) = 1 \text{ perm}$.

1.03 REFERENCE STANDARDS

- A. ASTM D4397 - Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications; 2010.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.
- C. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.
- D. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; 2013.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on material characteristics and performance criteria.
- C. Manufacturer's Installation Instructions: Indicate preparation, installation methods, and storage and handling criteria.

1.05 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

- A. Air Barrier:
 - 1. On outside surface of sheathing of exterior walls use air barrier sheet, mechanically fastened type.
- B. Interior Vapor Barrier:
 - 1. On inside face of studs of exterior walls, under cladding, use mechanically fastened vapor barrier sheet.
 - 2. On bottom face of rafters, under cladding, use mechanically fastened vapor barrier sheet.

2.02 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

- A. Air Barrier Sheet, Mechanically Fastened:
 - 1. Air Permeance: 0.001 cubic feet per minute per square foot, maximum, when tested in accordance with ASTM E2178.
 - 2. Water Vapor Permeance: 20 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure A (desiccant method).

3. Ultraviolet and Weathering Resistance: Approved in writing by manufacturer for minimum of 6 months weather exposure.
4. Surface Burning Characteristics: Flame spread index of 25 or less, and smoke developed index of 50 or less, when tested in accordance with ASTM E84.
5. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches wide, compatible with sheet material; unless otherwise specified.
6. Products:
 - a. DuPont Building Innovations; Tyvek Commercial Wrap with Tyvek Fluid Applied Flashing - Brush Formulation, Tyvek Fluid Applied Flashing and Joint Compound, FlexWrap NF, StraightFlash, StraightFlash VF, Tyvek Wrap Caps, and Tyvek Tape: www.dupont.com.

2.03 VAPOR RETARDER MATERIALS (AIR BARRIER AND WATER-RESISTIVE)

- A. Vapor Barrier (Retarder) Sheet : ASTM D4397 polyethylene film , clear.
 1. Thickness: 6 mil.
 2. Water Vapor Permeance: As required by referenced standard for thickness specified.
 3. Seam and Perimeter Tape: Polyethylene self adhering type, 2 inches wide, compatible with sheet material.

2.04 ACCESSORIES

- A. Sealants, Tapes, and Accessories for Sealing Weather Barrier and Sealing Weather Barrier to Adjacent Substrates: As specified or as recommended by weather barrier manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

- A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.
- B. Clean and prime substrate surfaces to receive adhesives in accordance with manufacturer's instructions.

3.03 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- C. Vapor Barriers (Retarders): Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- D. Apply sealants and adhesives within recommended application temperature ranges. Consult manufacturer if temperature is out of this range.
- E. Mechanically Fastened Sheets - On Exterior:
 1. Install sheets shingle-fashion to shed water, with seams generally horizontal.
 2. Overlap seams as recommended by manufacturer but at least 6 inches.
 3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches.
 4. For applications specified to be air tight, seal seams, laps, penetrations, tears, and cuts with self-adhesive tape; use only large-headed, gasketed fasteners recommended by the manufacturer.
 5. Install air barrier and vapor retarder UNDER jamb flashings.
 6. Install head flashings under weather barrier.
 7. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.
- F. Mechanically Fastened Sheets - Vapor Barrier (Retarder) On Interior:

1. When insulation is to be installed in assembly, install vapor retarder over insulation.
 2. Anchor to wood framing using large-headed nails or staples at 12 to 18 inches on center along each framing member covered; cover fasteners with seam tape.
 3. Anchor to metal framing using seam tape, adhering at least one-half of tape width to substrate.
 4. Seal seams, laps, perimeter edges, penetrations, tears, and cuts with self-adhesive tape, making air tight seal.
 5. Locate laps at a framing member; at laps fasten one sheet to framing member then tape overlapping sheet to first sheet.
 6. Seal entire perimeter to structure, window and door frames, and other penetrations.
 7. Where conduit, pipes, wires, ducts, outlet boxes, and other items are installed in insulation cavity, pass vapor retarder sheet behind item but over insulation and maintain air tight seal.
- G. Openings and Penetrations in Exterior Weather Barriers:
1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
 2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with at least 4 inches wide; do not seal sill flange.
 3. At openings to be filled with non-flanged frames, seal weather barrier to all sides of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.
 4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
 5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
 6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.04 FIELD QUALITY CONTROL

- A. Do not cover installed weather barriers until required inspections have been completed.

3.05 PROTECTION

- A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 32 1313
CONCRETE PAVING - ADDENDUM 3

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete sidewalks, parking areas, and drives.

1.02 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.
- B. Section 31 2323 - Fill: Compacted subbase for paving.
- C. Section 03 3000 - Cast-in-Place Concrete.
- D. Section 07 9005 - Joint Sealers: Sealant for joints.

1.03 REFERENCE STANDARDS

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2009).
- B. ACI 301 - Specifications for Structural Concrete; American Concrete Institute International; 2010 (Errata 2012).
- C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
- D. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.
- E. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 2010.
- F. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2015.
- G. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.
- H. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2014.
- I. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2014.
- J. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.
- K. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.
- L. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2011.
- M. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.
- N. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).
- O. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2004a (Reapproved 2013).

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on joint filler, admixtures, and curing compound.

PART 2 PRODUCTS

2.01 PAVING ASSEMBLIES

- A. Comply with applicable requirements of ACI 301.
- B. Concrete Sidewalks and Median Barrier: 3,000 psi 28 day concrete, 4 inches thick, standard gray color Portland cement, broom finish.

- C. Paving for driveways and parking areas: 4,000 psi 28 day concrete, 6 inches thick unless otherwise noted, sandard gray color, wood float finish.

2.02 FORM MATERIALS

- A. Joint Filler: Preformed; height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal..
 - 1. Thickness: 1/2 inch.
 - 2. Material: Closed-cell, non-absorbent, compressible polyethylene or polymer foam in sheet form.
 - 3. Product: W.R. Meadows, Inc; Deck-O-Foam Joint Filler with pre-scored top strip: www.wrmeadows.com..
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.03 REINFORCEMENT

- A. Dowels: ASTM A615/A615M, Grade 40 - 40,000 psi yield strength; deformed billet steel bars; unfinished finish.

2.04 CONCRETE MATERIALS

- A. Concrete Materials: As specified in Section 03 3000.

2.05 ACCESSORIES

- A. Liquid Surface Treatment: CreteDefender manufactured by CreteDefender, Inc. www.cretedefender.com.
 - 1. Install as specified in Section 03 3000 and per manufacturer's recommendation.
- B. Approved equal: CHEM-CRETE Pavix CCC100 www.chem-crete.com.
- C. Joint Sealer: Specified in Section 07 9005.

2.06 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
 - 1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

2.07 MIXING

- A. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify compacted granular base is acceptable and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

- A. See Section 32 1123 for construction of base course for work of this Section.

3.03 PREPARATION

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Notify Architect minimum 24 hours prior to commencement of concreting operations.

3.04 FORMING

- A. Place and secure forms to correct location, dimension, profile, and gradient.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

- A. Place reinforcement as indicated.
- B. Interrupt reinforcement at expansion joints.
- C. Place dowels to achieve pavement and curb alignment as detailed.
- D. Provide doweled joints 12 inch on center at interruptions of concrete.

3.06 COLD AND HOT WEATHER CONCRETING

- A. Follow recommendations of ACI 305R when concreting during hot weather.
- B. Follow recommendations of ACI 306R when concreting during cold weather.
- C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.07 PLACING CONCRETE

- A. Place concrete as specified in Section 03 3000.
- B. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.
- C. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.
- D. Place concrete to pattern indicated.

3.08 JOINTS

- A. Provide sawn joints.
 - 1. At 10 feet max. intervals for 4" thick sidewalk paving and 12 feet max interval spacing for 6" thick slabs.
 - 2. Between sidewalks and curbs.
 - 3. Between curbs and pavement.
- B. Provide keyed joints as indicated.
- C. Place expansion joints as shown on Drawings.
- D. Place joint filler between paving components and building or other appurtenances. Recess top of filler 1/4 inch for joint sealant placement by Section 07 9005.
- E. Saw cut contraction joints 3/16 inch wide at an optimum time after finishing. Cut 1/4 into depth of slab.

3.09 FINISHING

- A. Area Paving: according to site plan.
- B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.
- C. Inclined Vehicular Ramps: Broomed perpendicular to slope.
- D. Place curing compound/sealer on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.
- E. Place liquid floor treatment at the rate recommended by manufacturer to all exposed concrete.

3.10 JOINT SEALING

- A. See Section 07 9005 for joint sealer requirements.

3.11 TOLERANCES

- A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- B. Maximum Variation From True Position: 1/4 inch.

3.12 FIELD QUALITY CONTROL

- A. Section 01 4000 - Quality Requirements: Iowa DOT employees performing tests.
- B. Three concrete test cylinders will be taken for every 75 or less cu yds of concrete placed each day.
- C. One additional test cylinder will be taken during cold weather and cured on site under same conditions as concrete it represents.
- D. One slump test will be taken for each set of test cylinders taken.
- E. Compressive Strength Tests: ASTM C39/C39M; for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
 - 1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
 - 2. Perform one slump test for each set of test cylinders taken.
- F. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.13 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit vehicular traffic over pavement until 75 percent design strength of concrete has been achieved.

3.14 SCHEDULES

- A. Concrete Sidewalks: 4,000 psi 28 day concrete, 4 inches thick, medium broom finish.
- B. Approach Aprons: 4,000 psi 28 day concrete, 6 inches thick, medium broom finish.
- C. Approach Slabs: 4,000 psi 28 day concrete, 6 inches thick, medium broom finish.

END OF SECTION



Bidders Request for Alternatives or Exceptions (BRAE)

Letting Date: 5/11/2016

Proposal No.: 16355

BRAE form due on or before: 1:00pm

Item: CreteDefender

Spec. No.: 03 30 00 / 32 13 13

Request: Equal Product Substitution

Bidder Proposes to furnish in lieu of above: Pavix CCC 100

NOTE: The determination of acceptance of this BRAE request is only valid for the bid for which it was submitted. BRAE approvals received for this bid do not determine or set a precedent for what is acceptable in any other bid posted by the State of Iowa.

Email/Fax to:

Iowa Department of Transportation
Purchasing Section
Attention: Jody McNaughton
Email: jody.mcnaughton@dot.iowa.gov

Fax No.: 515-239-1538

Submitted By Jill Lindeman

Company Logan Contractors Supply

Address 4101 106th St

Des Moines, IA 50322

City State Zip
Phone No. (515) 253-9048

Fax No. (515) 253-9491

=====
DOT USE ONLY

Approved

Disapproved

Reason _____

Signature: B. Wilder

Date: 3 May 2016



SUBSTITUTION REQUEST (During the Bidding Phase)

Project: _____ Substitution Request Number _____

 To: _____ From: Abbey Strum – Logan Contractors Supply
 _____ Date: _____
 Re: _____ A/E Project Number: _____
 _____ Contract For: _____

Specification Title: _____ Description: _____
 Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
 Manufacturer _____ Address: _____ Phone: _____
 Trade Name: _____ Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by Abbey Strum
 Signed by: Abbey Strum
 Firm: Logan Contractors Supply, Inc.
 Address: 4101 106th Street
Des Moines, IA 50322
 Telephone (515-253-9048)

A/E's REVIEW AND ACTION

- Substitution approved - Make submittals in accordance with Specification Section 01330.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: _____

Date: _____

Supporting Data Attached: Drawings Product Data Samples Tests Reports Specs _____



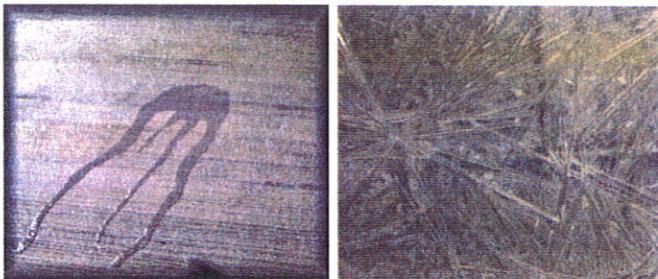
CHEM-CRETE Pavix[®] CCC100

Concrete Moisture Protection System For Airport, Highway & Bridge Structures

PRODUCT DESCRIPTION

Chem-Crete PAVIX CCC100 is a unique water-based chemical product for the moisture protection of large-scale concrete substrates against temperature and water associated problems such as thermal cracking, damage caused by repeated freeze and thaw cycles, chloride ion penetration, as well as alkali silica reactions.

Chem-Crete PAVIX CCC100 keeps treated concrete reasonably dry, thus helping to eliminate most water and moisture associated problems. Chem-Crete Pavix CCC100 provides three effective mechanisms for concrete protection in all weather conditions by formation of two types of crystals and water repellency. In the presence of moisture, one type of the crystals present in the product swells, therefore, blocking the pores completely. The second type of crystals absorbs the extra moisture on the surface of the first crystal preventing surface moisture on that crystal from diffusion to the concrete. These hydrophilic and hygroscopic properties provide double and durable protection against moisture penetration in concrete.



ADVANTAGES & BENEFITS

- Provides long lasting internal waterproofing and moisture blocking from positive and negative sides.
- Excellent repelling property preventing water, jet fuel and oil penetration intrusion from the surface.
- Resists aggressive chemicals such as acids, caustics Jet fuels and oil.
- Protects reinforcing steel bars against corrosion without any negative effect on existing steel cathodic protection.
- Increases joint sealant adhesion by preventing moisture intrusion through the joint material bond line.
- Reduces Alkali Silica Reactions (ASR), and eliminates silicate dusting.
- Prevents penetration of chloride ions from de-icing salts.

- Eliminates damage caused by repeated freezing and thawing cycles.
- Prevents concrete scaling.
- Increases concrete hardness.
- Seals and protects cracks up to 1/16th inch (1.5 mm).
- Repair cracks greater than 1/16" and seal joints prior to applying Pavix CCC100.

FIELDS OF APPLICATION

Chem-Crete PAVIX CCC100 can be used as a treatment and protection against water and moisture associated problems for all concrete and cementitious structures.

- Airport Runways
- Aircraft Parking
- Tunnels
- Parking Lots
- Sea Ports
- Airport Taxiways
- Bridges
- Concrete Roads-Highways
- Buildings
- Walkways

PACKAGING

Product	Packaging
CHEM-CRETE PAVIX CCC100	1 GAL (3.785 LITER) JUG
	5 GAL (18.925 LITER) PAIL
	55 GAL (208 LITER) DRUM

TECHNICAL SPECIFICATIONS

Physical Properties:

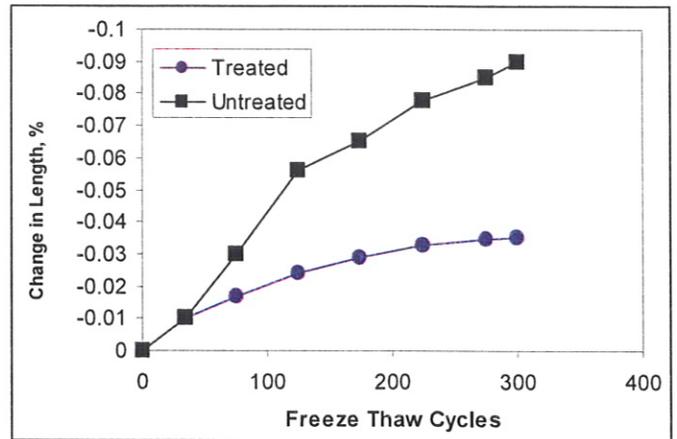
Specific Gravity	1.1
Viscosity	2.4 centipoises
Freezing Point	28°F (-4°C)
Boiling Point	219°F (104 °C)
Environmental Hazards	None
Color	Clear
Odor	None
Toxicity	None
Fumes	None
Flammability	None

Product Performance: Chem-Crete Pavix CCC100 complies with the following standards:

ASTM STANDARDS:

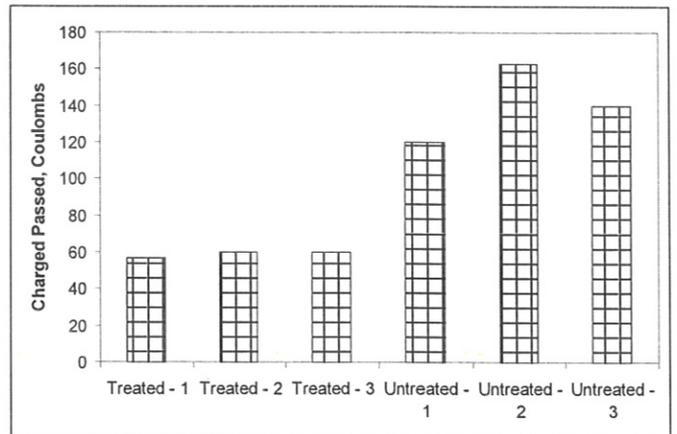
- ASTM C666-97 Standard Test Method for Resistance of Concrete to Rapid Freezing & Thawing.
- ASTM C 1262-98 Standard Test Method for Evaluating the Freeze Thaw Durability of Manufactured Concrete Masonry Units and Related Concrete Units.

- ASTM C 672-98 Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals.
- ASTM C1218 Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.
- ASTM C1202-97 Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration.
- ASTM D6489-99 Standard Test Method for Determining the Water Absorption of Hardened Concrete Treated With a Water Repelling Coating.
- ASTM C944-99 Standard Test Method for Abrasion Resistance of Concrete or Mortar Surfaces by the Rotating-Cutter Method.
- ASTM D4541-95 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
- ASTM F609-96 Standard Test Method for Measuring Static Slip Resistance of Footwear Sole, Heel or Related Materials Using a Horizontal Pull Slipmeter (HPS).
- ASTM E303-93 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.
- ASTM C 642-97 Standard Test Method for Density, Absorption, and Voids in Hardened Concrete.
- ASTM C 457-98 Standard Test Method for Microscopical Determination of Parameters of the Air Void System in Hardened Concrete.
- AASHTO T259-00 Resistance of Concrete to Chloride Ion Penetration.



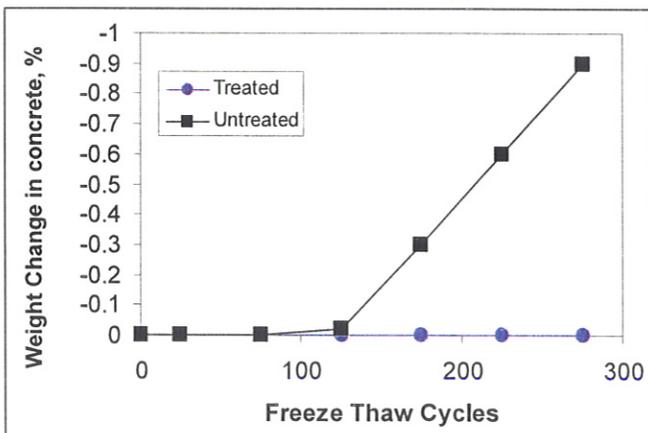
Freezing & Thawing effect on treated & untreated concrete samples

ASTM C666-97



Chloride Ion Penetration tests on treated & untreated concrete samples

ASTM C1202-91 & AASHTO T259



ASTM C-666-97

Other Standards

ISO 2812-2:1993	Paints and varnishes -- Determination of resistance to liquids -- Part 2: Water immersion method
CSN 73 2578	Test for Water-tightness of Surface Finishes of Building Materials
CSN 73 1326 Method B	Determination of resistance to de-icing salts
GOST 12730.5-84	Concretes. Method for the determination of water tightness
GOST 10060-87	Concretes. Methods of frost resistance determination

APPLICATION

Concrete surfaces must be clean and sound prior to application of the product. Proper cleaning will open the surface pores and capillaries in order to enhance the

penetration process. Compressed air can be used to remove dust and loose particles from the surface. Flushing the area to be treated with water can improve the cleaning process, however for heavily contaminated areas; special concrete cleaning agents such as Chem-Crete CONCLEAN CCC 060 can be used to remove dirt especially those contaminated with oil.

For large-scale applications, such as airport runways, it is recommended to spray the product using a heavy-duty commercial sprayer.

Coverage:

It is recommended to apply Chem-Crete PaviX CCC100 at an average rate of 150 to 200 ft²/gal (3.7 to 4.9 m² / lit) in one coat.

Limitations:

Do not apply Chem-Crete PaviX CCC100 in the following cases:

- If temperature falls below 40°F (5°C).
- Do Not Allow Product to Freeze.
- To areas previously treated with sealing agents unless these sealers are removed by chemical or mechanical means.

STORAGE

Chem-Crete PaviX CCC100 must be stored under room temperature. Cold temperatures may cause the product to crystallize. Shelf life is ONE YEAR in its original unopened packaging.

Do Not Allow Product to Freeze.

SAFETY PRECAUTIONS

As with all construction chemical products, adequate precautions and care must be taken during usage and storage. Avoid direct contact with foodstuff, eyes, skin, and mouth. Any direct contact with skin, eyes, etc. should be washed thoroughly with clean running water and soap.

Always wear protective goggles and gloves. In case of eye contact, flush for 15 minutes with warm water. Keep out of reach of children.

TECHNICAL ASSISTANCE

Please contact International Chem-Crete Corporation for Technical Personnel.

WARRANTY

LIMITED WARRANTY: International Chem-Crete Inc. warrants that, at the time and place we make shipment, our materials will be of good quality and will conform to our published specifications in force on the date of acceptance of the order.

DISCLAIMER: The information contained herein is included for illustrative purposes only and, to the best of our knowledge, is accurate and reliable. International chem-crete Inc. is not under any circumstances liable to connection with the use of information. As International Chem-Crete Inc. has no control over the use to which others may put its products, it is recommended that the products be tested to determine the suitability for specific applications and/or our information is valid in a particular circumstances. Responsibility remains with the architect or engineer, contractor and owner of the design, application and proper installation of each product. Specifier and user shall determine the suitability of the product for specific application and assume all responsibility in connection therewith. AM1114

Manufactured By:



International Chem-Crete Inc., 800 Security Row, Richardson, TX 75081, U.S.A

Tel: (972) 671-6477, Fax: (972) 238-0307

contactus@chem-crete.com

www.chem-crete.com



Bidders Request for Alternatives or Exceptions (BRAE)

Letting Date: 5/11/2016

Proposal No.: 16355

BRAE form due on or before: 1:00pm

Item: MasterSeal NP 2

Spec. No.: 07 90 05

Request: Equal Product Substitution

Bidder Proposes to furnish in lieu of above: SikaFlex 1A

NOTE: The determination of acceptance of this BRAE request is only valid for the bid for which it was submitted. BRAE approvals received for this bid do not determine or set a precedent for what is acceptable in any other bid posted by the State of Iowa.

Email/Fax to:

Iowa Department of Transportation
Purchasing Section
Attention: Jody McNaughton
Email: jody.mcnaughton@dot.iowa.gov

Fax No.: 515-239-1538

Submitted By Jill Lindeman

Company Logan Contractors Supply

Address 4101 106th St

Des Moines, IA 50322

City State Zip
Phone No. (515) 253-9048

Fax No. (515) 253-9491

=====
DOT USE ONLY

Approved 

Disapproved _____

Reason _____

Signature: 

Date: 03 May 2016



SUBSTITUTION REQUEST (During the Bidding Phase)

Project: _____ Substitution Request Number _____

 To: _____ From: Abbey Strum – Logan Contractors Supply
 _____ Date: _____
 Re: _____ A/E Project Number: _____
 _____ Contract For: _____

Specification Title: _____ Description: _____
 Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
 Manufacturer _____ Address: _____ Phone: _____
 Trade Name: _____ Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by Abbey Strum
 Signed by: Abbey Strum
 Firm: Logan Contractors Supply, Inc.
 Address: 4101 106th Street
Des Moines, IA 50322
 Telephone (515-253-9048)

A/E's REVIEW AND ACTION

- Substitution approved - Make submittals in accordance with Specification Section 01330.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: _____

Date: _____

Supporting Data Attached: Drawings Product Data Samples Tests Reports Specs _____

Product Data Sheet
Edition 9.13.2012
Sikaflex-1a

Sikaflex®-1a

One part polyurethane, elastomeric sealant/adhesive

SEALANT-WATERPROOFING & RESTORATION INSTITUTE		
Issued to: Sika Corporation Product: Sikaflex®-1A		
C719: Pass	Ext:+35%	Comp:-35%
Substrate: Mortar, Aluminum, Glass <small>(mortar substrate primed with Sika Primer 429)</small>		
C661: Rating 40		
Validation Date: 8/3/12 - 8/2/17		
No. 0812-S11211		Copyright © 2012
SEALANT VALIDATION www.swrionline.org		

Description	Sikaflex-1a is a premium-grade, high-performance, moisture-cured, 1-component, polyurethane-based, non-sag elastomeric sealant. Meets Federal specification TT-S-00230C, Type II, Class A. Meets ASTM C-920, Type S, Grade NS, Class 35, use T, NT, O, M, G, I; Canadian standard CAN/CGSB 19.13-M87.
Where to Use	<ul style="list-style-type: none"> Designed for all types of joints where maximum depth of sealant will not exceed 1/2 in. Excellent for small joints and fillets, windows, door frames, reglets, flashing, common roofing detail applications, and many construction adhesive applications. Suitable for vertical and horizontal joints; readily placeable at 40°F. Has many applications as an elastic adhesive between materials with dissimilar coefficients of expansion. Submerged conditions, such as canal and reservoir joints.
Advantages	<ul style="list-style-type: none"> Eliminates time, effort, and equipment for mixing, filling cartridges, pre-heating or thawing, and cleaning of equipment. Fast tack-free and final cure times. High elasticity - cures to a tough, durable, flexible consistency with exceptional cut and tear-resistance. Stress relaxation. Excellent adhesion - bonds to most construction materials without a primer. Excellent resistance to aging, weathering. Proven in tough climates around the world. Odorless, non-staining. Jet fuel resistant. Certified to the NSF/ANSI Standard 61 for potable water. Urethane-based; suggested by EPA for radon reduction. Paintable with water-, oil- and rubber-based paints. Capable of ±35% joint movement.
Coverage	10.1 fl. oz. cartridge seals 12.4 lineal ft. of 1/2 x 1/4 in. joint. 20 fl. oz. uni-pac sausage seals 24 lineal ft. of 1/2 x 1/4 in. joint.
Packaging	Disposable 10.1 fl. oz., moisture-proof composite cartridges, 24/case; and uni-pac sausages, 20 fl. oz., 20/carton.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	10.1 fl. oz. cartridges	12 months
	20 fl. oz. uni-pac sausages	12 months
	5 gallon pail	6 months
	55 gallon drum	6 months
Storage Conditions	Store at 40°-95°F (4°-35°C). Condition material to 65°-75°F before using.	
VOC Content	40 g/L	
Colors	White, colonial white, aluminum gray, limestone, black, dark bronze, capitol tan, stone and medium bronze. Special architectural colors on request.	
Application Temperature	40° to 100°F. Sealant should be installed when joint is at mid-range of its anticipated movement.	
Service Range	-40° to 170°F	
Curing Rate	Tack-free time	3 to 6 hours
	Tack-free to touch	3 hours
	Final cure	4 to 7 days
Tear Strength (ASTM D-624)	55 lb./in.	
Shore A Hardness (ASTM C-661)	21 day	40±5
Movement Capability (ASTM C-719)	+/- 35%	
Tensile Properties (ASTM D-412)		
	21 day Tensile Stress	175 psi (1.21 MPa)
	Elongation at Break	550%
	Modulus of Elasticity	25% 35 psi (0.24 MPa)
		50% 60 psi (0.41 MPa)
		100% 85 psi (0.59 MPa)
Adhesion in Peel (TT-S-00230C, ASTM C 794)		
	Substrate Peel Strength	Adhesion Loss
	Concrete 20 lb.	0%
	Aluminum 20 lb.	0%
	Glass 20 lb.	0%
Weathering Resistance	Excellent	
Chemical Resistance	Good resistance to water, diluted acids, and diluted alkalines. Consult Technical Service for specific data.	



How to Use

Surface Preparation

Clean all surfaces. Joint walls must be sound, clean, dry, frost-free, and free of oil and grease. Curing compound residues and any other foreign matter must be thoroughly removed. A roughened surface will also enhance bond. Install bond breaker tape or backer rod to prevent bond at base of joint.

Priming

Priming is not usually necessary. Most substrates only require priming if testing indicates a need or where sealant will be subjected to water immersion after cure. Consult Sikaflex Primer Technical Data Sheet or Technical Service for additional information on priming.

Application

Recommended application temperatures: 40°-100°F. For cold weather application, condition units at approximately 70°F; remove prior to using.

For best performance, Sikaflex-1a should be gunned into joint when joint slot is at mid-point of its designed expansion and contraction.

Place nozzle of gun into bottom of the joint and fill entire joint. Keep the nozzle in the sealant, continue on with a steady flow of sealant preceding the nozzle to avoid air entrapment.

Avoid overlapping of sealant to eliminate entrapment of air. Tool sealant to ensure full contact with joint walls and remove air entrapment. Joint dimension should allow for 1/4 inch minimum and 1/2 inch maximum thickness for sealant. Proper design is 2:1 width to depth ratio,

For use in horizontal joints in traffic areas, the absolute minimum depth of the sealant is 1/2 in. and closed cell backer rod is recommended.

Limitations

- Allow 1-week cure at standard conditions when using Sikaflex-1a in total water immersion situations and prior to painting.
- When overcoating with water, oil and rubber based paints, compatibility and adhesion testing is essential.
- Avoid exposure to high levels of chlorine. (Maximum continuous level is 5 ppm of chlorine.)
- Maximum depth of sealant must not exceed 1/2 in.; minimum depth is 1/4 in.
- Maximum expansion and contraction should not exceed 25% of average joint width.
- Do not cure in the presence of curing silicone sealants.
- Avoid contact with alcohol and other solvent cleaners during cure.
- Do not apply when moisture-vapor-transmission condition exists from the substrate as this can cause bubbling within the sealant.
- Use opened cartridges and uni-pac sausages the same day.
- When applying sealant, avoid air-entrapment.
- Since system is moisture-cured, permit sufficient exposure to air.
- White color tends to yellow slightly when exposed to ultraviolet rays.
- Light colors can yellow if exposed to direct gas fired heating element.
- The ultimate performance of Sikaflex-1a depends on good joint design and proper application with joint surfaces properly prepared.
- The depth of sealant in horizontal joints subject to traffic is 1/2 in.
- Do not tool with detergent or soap solutions.
- Do not use in contact with bituminous/asphaltic materials.

Caution

WARNING: IRRITANT, SENSITIZER. Contains Polyisocyanate Prepolymer (Mixture), Xylene (CAS 1330-20-7). Causes eye irritation. May cause skin/respiratory irritation. May cause skin and/or respiratory sensitization after prolonged contact. May be harmful if swallowed. Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain, liver, kidney and nervous system damage. Headaches and dizziness may result. **Deliberate misuse by inhalation of vapors may be harmful or fatal. Strictly follow all usage, handling and storage instructions.**

Handling & Storage

Avoid direct contact. Wear personal protective equipment (chemical resistant goggles/gloves/clothing) to prevent direct contact with skin and eyes. Use only in well ventilated areas. Open doors and windows during use. Use a properly fitted NIOSH respirator if ventilation is poor. Wash thoroughly with soap and water after use. Remove contaminated clothing and launder before reuse. Store in cool dry well ventilated area.

Cleanup

Use personal protective equipment (chemical resistant gloves/goggles/clothing). Without direct contact, remove spilled or excess product and placed in suitable sealed container. Dispose of excess product and container in accordance with applicable environmental regulations.

First Aid Measures

Eyes: Hold eyelids apart and flush thoroughly with water for 15 minutes. **Skin:** Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. **Inhalation:** Remove to fresh air. **Ingestion:** Do not induce vomiting. Dilute with water. Contact physician. **In all cases contact a physician immediately if symptoms persist.**

Linear Feet of Sealant per Gallon

Width	Depth	
	Inches	
1/4	308.0	
1/2	154.0	77.0
3/4	102.7	51.3
1	77.0	38.5
1 1/2	61.6	30.8
1 3/4	51.3	25.7

KEEP CONTAINER TIGHTLY CLOSED • KEEP OUT OF REACH OF CHILDREN • NOT FOR INTERNAL CONSUMPTION • FOR INDUSTRIAL USE ONLY
 All information provided by Sika Corporation ("Sika") concerning Sika products, including but not limited to, any recommendations and advice relating to the application and use of Sika products, is given in good faith based on Sika's current experience and knowledge of its products when properly stored, handled and applied under normal conditions in accordance with Sika's instructions. In practice, the differences in materials, substrates, storage and handling conditions, actual site conditions and other factors outside of Sika's control are such that Sika assumes no liability for the provision of such information, advice, recommendations or instructions related to its products, nor shall any legal relationship be created by or arise from the provision of such information, advice, recommendations or instructions related to its products. The user of the Sika product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with the full application of the product(s). Sika reserves the right to change the properties of its products without notice. All sales of Sika product(s) are subject to its current terms and conditions of sale which are available at www.sikausa.com or by calling 800-933-7452.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Technical Data Sheet, product label and Material Safety Data Sheet which are available online at www.sikausa.com or by calling Sika's Technical Service Department at 800-933-7452. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instruction for each Sika product as set forth in the current Technical Data Sheet, product label and Material Safety Data Sheet prior to product use.

LIMITED WARRANTY: Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Technical Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKASHALL NOT BELIEVABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKASHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

Visit our website at www.sikausa.com

1-800-933-SIKA NATIONWIDE

Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.

Sika Corporation
 201 Polito Avenue
 Lyndhurst, NJ 07071
 Phone: 800-933-7452
 Fax: 201-933-6225

Sika Canada Inc.
 601 Delmar Avenue
 Pointe Claire
 Quebec H9R 4A9
 Phone: 514-697-2610
 Fax: 514-694-2792

Sika Mexicana S.A. de C.V.
 Carretera Libre Celaya Km. 8.5
 Fracc. Industrial Balvanera
 Corregidora, Queretaro
 C.P. 76920
 Phone: 52 442 2385800
 Fax: 52 442 2250537



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Bidders Request for Alternatives or Exceptions (BRAE)

Letting Date: 5/11/2016

Proposal No.: 16355

BRAE form due on or before: 1:00pm

Item: W.R. Meadows

Spec. No.: 03 30 00

Request: Equal Product Substitution

Bidder Proposes to furnish in lieu of above: SpecFilm RTU

NOTE: The determination of acceptance of this BRAE request is only valid for the bid for which it was submitted. BRAE approvals received for this bid do not determine or set a precedent for what is acceptable in any other bid posted by the State of Iowa.

Email/Fax to:

Iowa Department of Transportation
Purchasing Section
Attention: Jody McNaughton
Email: jody.mcnaughton@dot.iowa.gov

Fax No.: 515-239-1538

Submitted By Jill Lindeman

Company Logan Contractors Supply

Address 4101 106th St

Des Moines, IA 50322

City State Zip
Phone No. (515) 253-9048

Fax No. (515) 253-9491

=====
DOT USE ONLY

Approved ✓

Disapproved _____

Reason _____

Signature: B. Wilder

Date: 4 May 2016



SUBSTITUTION REQUEST (During the Bidding Phase)

Project: _____ Substitution Request Number _____

 From: Abbey Strum – Logan Contractors Supply
 To: _____ Date: _____
 Re: _____ A/E Project Number: _____
 Contract For: _____

Specification Title: _____ Description: _____
 Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
 Manufacturer _____ Address: _____ Phone: _____
 Trade Name: _____ Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by Abbey Strum
 Signed by: Abbey Strum
 Firm: Logan Contractors Supply, Inc.
 Address: 4101 106th Street
Des Moines, IA 50322
 Telephone (515-253-9048)

A/E's REVIEW AND ACTION

- Substitution approved - Make submittals in accordance with Specification Section 01330.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: _____

Date: _____

Supporting Data Attached: Drawings Product Data Samples Tests Reports Specs

SPECFILM RTU

Ready To Use Evaporation Retardant/Finishing Aid



DESCRIPTION

SPECFILM RTU is designed to be used as an evaporation retardant and finishing aid on concrete flatwork of all types. When sprayed over fresh concrete, SPECFILM RTU forms a thin, continuous film which prevents rapid moisture loss from the concrete surface. SPECFILM RTU is especially effective when concreting operations must be performed in direct sun, wind, high temperatures, or low relative humidity.

BENEFITS:

- Significantly reduces plastic shrinkage and cracking caused by evaporation in low humidity, high temperatures and high winds
- Allows use of lower slump and lower water to cement ratio concrete
- Reduces wind crusting, stickiness, and sponginess, which often cause poor and uneven surface texture.
- Dyed pink as visual application aid. VOC compliant
- Helps minimize surface cracking due to early water loss of silica fume concrete
- Already formulated to an optimum dilution of 5 to 1 for maximum effectiveness
- Aids in finishing concrete and repair mortars that produce little or no bleed water such as micro silica or mixes containing no air entrainment.

APPLICATION

Agitate prior to using. SPECFILM RTU should be spray applied to freshly placed concrete immediately after screeding or bullfloating to prevent plastic shrinkage. When used as an evaporation retardant during dry-shake hardener applications, one or more applications may be required to prevent premature drying.

If necessary, use during and after bullfloating and troweling applications

SPECFILM RTU should be applied under normal weather conditions at the rate of 300-500 sq. ft./gal. As drying conditions or wind become more severe, increase the amount of material used to 150-300 sq. ft./gal.

Do not over apply.

STANDARDS

As recommended by ACI 302: "Evaporation Retardant/Monomolecular Film"



PACKAGING

SPECFILM RTU is packaged in 55 gallon drums, 5 gallon pails, and cases of four 1 gallon jugs.

CLEANING

Application equipment should be cleaned immediately with soap and water.

SHELF LIFE

Shelf life of SPECFILM RTU in the original tightly closed containers is one year from date of manufacture. Do not allow the accumulation of water, dirt, or other contaminants.

LIMITATIONS

SPECFILM RTU is not a curing compound. Proper curing methods must be used to assure quality concrete. Do not allow SPECFILM RTU to freeze. Thawed material will not go back into solution.

SPECFILM RTU is most effective when concrete is in the plastic state. Immediately wipe up any SPECFILM RTU spilled on hardened concrete. SPECFILM RTU, if allowed to dry on hardened concrete, may stain and must be removed with an approved solvent.

Product literature provides general information applicable in some conditions. Contact SpecChem technical services for specific application instructions and limitations.

PRECAUTIONS

DO NOT CUT OR WELD CONTAINER INDUSTRIAL USE ONLY PROTECT FROM FREEZING

Keep out of reach of children. Do not take internally. Avoid prolonged contact with skin. If swallowed, call a physician. Wear rubber gloves, goggles, and protective clothing. Additional precautions, safety information and first aid are contained in the Material Safety Data Sheet.

WARRANTY

NOTICE-READ CAREFULLY CONDITIONS OF SALE

SpecChem offers this product for sale subject to and limited by the warranty which may only be varied by written agreement of a duly authorized corporate officer of SpecChem. No other representative of or for SpecChem is authorized to grant any warranty or to waive limitation of liability set forth below.

WARRANTY LIMITATION

SpecChem warrants this product to be free of manufacturing defects. If the product when purchased was defective and was within use period indicated on container or carton, when used, SpecChem will replace the defective product with new product without charge to the purchaser. SpecChem makes no other warranty, either expressed or implied, concerning this product. There is no warranty of merchantability. NO CLAIM OF ANY KIND SHALL BE GREATER THAN THE PURCHASE PRICE OF THE PRODUCT IN RESPECT OF WHICH DAMAGES ARE CLAIMED.

INHERENT RISK

Purchaser assumes all risk associated with the use or application of the product.



1511 Baltimore Ave, Suite 600
Kansas City, MO 64108

www.specchemllc.com

866.791.8700