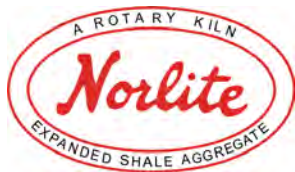


**HAZARDOUS WASTE CONTAINER STORAGE FACILITIES
SECONDARY CONTAINMENT
BIENNIAL INTEGRITY ASSESSMENT
2016**

Prepared For:



Norlite LLC

628 SOUTH SARATOGA STREET
COHOES, NEW YORK 12047

Prepared By:



Harvey M. King, P.E.
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Secondary Containment Biennial Assessment Report
Norlite, LLC, Cohoes, NY Facility

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1. INTRODUCTION

Norlite Corporation, located at 628 South Saratoga Street, Cohoes, NY, operates a manufacturing process that includes the use of two large rotary kilns fueled by a combination of natural gas, fuel oils and various other low-grade fuels that may be classified as hazardous waste.

The hazardous waste streams (low-grade fuels) are managed on site in a series of fifteen (15) storage and processing tanks prior to use. These waste streams typically arrive on site in tank vehicles that are processed at the Waste Transfer Building, which provides secondary containment and protection from the weather during processing for up to 4 tank vehicles. Waste streams also arrive at this building in containers of various sizes where they may be stored in Truck Containment #1 (north bay) or the adjacent Solids Processing Building (permit ID), now referred to as the Drum Processing Building. Each of these areas is permitted for hazardous waste storage under the facilities NYS Part 373 Hazardous Waste Management Facility Permit.

For purposes of this report, waste transfer area #2 (south bay) of the waste transfer building is considered secondary containment for containers (i.e. tank vehicles) although the area is not specifically identified in the NYS Part 373 permit, since it is not a storage area, and is instead, a loading/unloading area providing secondary containment.

This document has been prepared to present and summarize the review of design specifications, available drawings, and similar related technical information, as well as all inspection and/or maintenance activities, to provide an integrity assessment of the hazardous waste container storage areas secondary containment systems located at the facility for the calendar year 2016. This report has been created to fulfill the requirements of the current NYS Part 373 Hazardous Waste Management Permit, Module III Condition K.1 and Condition B.2 of Exhibit C.

2. SECONDARY CONTAINMENT SYSTEM INTEGRITY ASSESSMENT PARAMETERS

The secondary containment systems integrity assessment is comprised of a visual inspection of all visible/accessible portions of the containments delineated herein. The specific intent of this inspection and resulting documentation are provided herein to support that the secondary containment for container storage areas meets or exceeds the following regulatory standards and any supplemental conditions set forth in the latest version of the Part 373 Hazardous Waste Management permit.

Containment and Detection of Releases for Containers

In order to prevent the release of hazardous wastes or hazardous constituents to the environment, secondary containment must be provided for container storage areas that meet the requirements of 6NYCRR 373-2.9 and as outlined in Module III and Exhibit C of the permit. Pertinent sections have been provided for convenience as follows:

- (i) A base must underlay the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed;
- (ii) The base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquid resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids.
- (iii) The containment system must have sufficient capacity to contain the volume of the largest container or 10 percent of the total volume of containers, whichever is greater. Containers that do not contain free liquids need not be considered in this determination.
- (iv) Run-on into the containment system must be prevented unless the collection system has sufficient excess capacity in addition to that required in (iii) above to contain any run-on which might enter the system.

The container storage areas assessed herein are represented by the drawings listed below and have been previously provided in the latest 373 Permit Application Documentation. These drawings represent an overview and some details of construction as best known from a historic perspective. Current coatings and records of repairs, as necessary are provided in the details of this report.

Drawing ID	Drawing Title
NY003-2475-1	Material Transfer Facility
NY003-2475-3	Material Transfer Facility Design Specifications
NY003-3008	General Arrangement Foundation Plan and Sections Drum Processing Building

3 SECONDARY CONTAINMENT ASSESSMENT OF THE DRUM PROCESSING BUILDING

As noted previously, the Solids Processing Building (permit ID), now referred to as the Drum Processing Building, is the primary location of container storage at the facility along with a portion of Unloading Area #1 (north), the original truck unloading bay of the Waste Transfer Facility. The Drum Processing Building currently has the out-of-service solids processing tank in place, limiting the available storage, however the entire containment area is approximately 1000 square feet, with a current functional storage area of approximately 700 square feet. The entire area has a 4-inch curb with the exception of the speed bump 'curb' at the entrance to the Waste Transfer Building, as well as a 16-inch square by 13-inch deep collection sump in the northeast corner for evacuation of any spills. This area is currently restricted to the storage of 120 55-gallon drums or the equivalent of that liquid quantity, 6,600 gallons, in smaller containers or larger intermediate bulk containers. The area of Unloading Area #1 allowed for use as container storage is approximately 530 square feet with a capacity of 137 drums or 7,535 gallons.

The following are photographs of the Drum Processing Building, Unloading Area #1, and Unloading Area #2, presented in support of the final visual inspection. Earlier photos were taken as a matter of record and are shown to illustrate sound baseline maintenance. Recommendations were made for necessary repairs that were undertaken within several weeks. Record photographs represent the remediated containment areas.

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City of Cohoes, Town of Colonie, Albany County, New York

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Southwest Corner of Drum Processing Building @ Entrance



Drum Processing Building Looking Northeast from Unloading Area 1 Entrance



Close-up of Curb & Corner Repair at North Side Overhead Door



Close-up of Curb Repair along Interior Wall

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Earlier Photo Prior to Re-coating Shows Slab Coating In General in Well Maintained Condition

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Drum Processing Building Access Ramp from Unloading Area #1



Earlier Photo at Speed Bump Entrance Curb Prior to Re-coating Showing Slab Coating In General in Well Maintained Condition

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Aged Coating Repair of Slab Indicative of Acceptable Condition of Slab in General



Alternate View of Speed Bump Entrance Curb and General Maintenance of Major Cracks to Acceptable Conditions

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Unloading Area #1 (North) with Most Recent Maintenance Coating

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Unloading Area #1 at the Entry Berm Showing Maintenance Coat with Grit Broadcast for Traction



Closeup View of Unloading Area #1 Containment Showing Underlying Original Coating with Maintenance Re-coat



Unloading Area #1 Pumping Equipment Containment



Closer View of Unloading Area #1 at Southeast Corner with Sump Trench in Background

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Unloading Area #1 North Side Looking Northeast

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Unloading Area #1 Sump Trench at East End Showing Maintenance Recoat

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Unloading Area #2 of Materials Management Building Looking Northeast

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Unloading Area #2 Equipment End East

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Unloading Area #2 Looking Northeast

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Southwest Curbing Showing Maintenance Coating and Floor Repairs

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Entrance End of Unloading Area #2

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Western End of Unloading Area #2 Looking Southeast



Pump Equipment at Unloading Area #2 Looking Southeast

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Unloading Area #2 Sump Trench

3.1 Characteristics of Stored Hazardous Waste

Waste characteristics include flammable liquids such as industrial solvents, spent or contaminated fuels, oils, and liquids contaminated with these materials which are candidates for fuels blending.

3.2 Design Standards for the Containment System

The design standards for the containment areas where containers are managed has been set forth in the original and each subsequent renewal of the Part 373 permit. In brief, these areas are all constructed of reinforced concrete slabs and curbs incorporated in the building system. Drawings and historic information support that all construction control/contraction/isolation joints in the concrete placement all were fitted with appropriate water-stops to preclude any contained liquid from contaminating underlying soils.

3.3 Containment Protective Measures

Each of the containment areas were coated with specialized coating systems at the time of construction and repaired and over-coated during the ensuing years for maintenance.

Historically, it is reported that the Drum Processing Building was coated with Phenoline 300 Floor Finish in a 3/32 inch coating after sealing the construction joints with Sikaflex-1(a) urethane sealant. A product data sheet providing the details of this coating are presented in the attachments.

Historically, it is also reported that the original Unloading Area #1, also utilized for container storage, was coated with a layered Dudick Protecto-Line 900 vinyl ester resin coating system that includes a silica-filled basecoat, a 9.8 ounce woven fiberglass reinforcement layer, a vinyl ester resin saturant to wet out the reinforcing fabric and then a Protecto-line silica filled vinyl ester resin topcoat. This can be verified by the visible evidence of the fiberglass reinforcement beginning to show through from years of wear. A current data sheet for this coating system is contained in the attachments.

Historically, as a matter of record, Unloading Area #2, utilized for truck unloading, was coated with a base layer of DUR-A-FLEX elast-o-coat epoxy primer at 50 mils thickness and a 32 mil final coat of Dur-A-Glaze Novolac epoxy protective coating.

Maintenance of these areas are typically performed using a 2-part epoxy mastic coating in addition to similar coatings to the original for severe repairs such as cracks.

3.4 Review of Secondary Containment Integrity Assessment Results

The inspections, historic review of information, and corrections/maintenance performed during the process of assessment of the secondary containment areas, support that the areas have been found to meet the requirements set forth by NYCRR Part 373-2.9.

3.4.1 Containment Coating Integrity

A literature review of the known historic and current coating systems was performed to verify compatibility with waste streams and function for the locations used.

Visual inspections were performed and interim recommendations made for repair/maintenance of specific areas of concern in the locations covered by this report. Maintenance follow-up was further inspected prior to acceptance upon completion of recommended actions.

3.4.2 Containment Structural Integrity

A literature/drawing review was undertaken in support of the secondary containment assessment to better understand where structural integrity issues may exist, such that maintenance issues could be evaluated in terms of the possibility of inadequate structural capability. As a result none of the maintenance issues could be found to be directly related to structural inadequacy.

3.4.3 Recommendations Based on Secondary Containment System Assessment Results

During the process of inspections and evaluation all containment issues were directly related to coatings. Since this was the case, and most issues were minor in nature, verbal recommendations were made and pointed out specifically in the field to Norlite staff during the inspections, such that prompt maintenance could be initiated. The action was taken in all cases and re-inspections made of all areas necessary to support the compliance determination.

While for the short-term, the present coatings prevent intrusion into the concrete containment slabs, some areas have not held up well in general. This primarily relates to Unloading Area #2 at the waste transfer building. While this is the most recent construction, the coating recommended at the time, while it has held up well for the first 17 years, has not held up as well as the original unloading bay or the container storage building. It is recommended that the facility plan to take action on this area during the course of the next year to avoid more serious problems, which in turn will save time and money by eliminating many hours of maintenance efforts required.

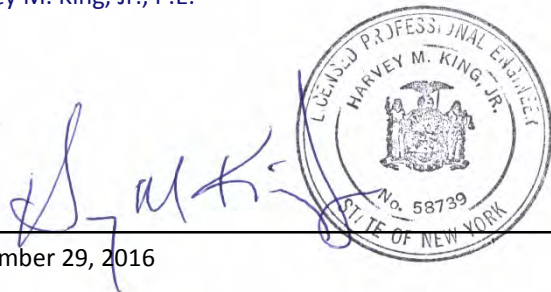
3.5 Container Secondary Containment System Assessment Certification

I, Harvey M. King, Jr., P.E. have reviewed the design standards, integrity and suitability of the secondary containment system components set forth in this area assessment, located within Drum Storage Building at Norlite, LLC, Cohoes, NY facility. This review confirms the containments compliance with the applicable requirements of 6 NYCRR Part 373-2.9 – Use and Management of Containers, as of November 14, 2016. I certify under penalty of law that this document and all attachments and supporting information were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete to meet the applicable requirements as set forth in the applicable regulations and permit requirements outlined herein. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name: Harvey M. King, Jr., P.E.

Signature

Date: November 29, 2016



Norlite, LLC

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City of Cohoes, Town of Colonie, Albany County, New York

Hazardous Waste Container Storage Facilities Secondary Containment - Biennial Integrity Assessment – 2016

ATTACHMENTS

Norlite, LLC

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Coating Product Data Sheets

ELAST-O-COAT

DESCRIPTION

ELAST-O-COAT Waterproofing Membrane is a tough, high quality, 100% solids, 2 part elastomer-modified, high build epoxy coating. It is applied on floors and molded up onto vertical areas, over curbs, etc. as a seamless elastomeric membrane. It can be applied to virtually any shape or contour by brush, paint roller, trowel or squeegee.

ELAST-O-COAT is designed for use underneath epoxy flooring systems and as a base coat for vinyl chip seamless flooring to provide a vibration resilient cushion and to deaden sound. It can also be used as a traffic-bearing surface in light traffic areas and as a crack & joint filler. ELAST-O-COAT can be applied on properly prepared concrete, plywood, metal and quarry tile.

BENEFITS

- No solvents
- Very good abrasion resistance for foot traffic
- Cures tack free overnight at 55° F or warmer temp.
- Very good resistance to salt, oil, gasoline, detergents, etc.
- Excellent adhesion
- Elongation 150%

LIMITATIONS

Minimum temperature of 55°F is required during curing period. ELAST-O-COAT must be applied at a uniform film thickness to provide proper protection.

TYPICAL USES

- Shower Rooms
- Medical Research Labs
- Drum Storage Area
- Secondary Containment
- Mechanical Rooms
- Cagewash Areas
- Wet Processing Area
- Control Joints

COLORS

ELAST-O-COAT is produced clear but can be tinted by adding 20 % DUR-A-GARD resin to the ELAST-O-COAT. ELAST-O-COAT is available in 15 standard colors. Please refer to the Standard Color Chart on our website. Custom colors are available upon request.

PACKAGING

ELAST-O-COAT is available in 1-gallon cans, 5-gallon pails, and 50-gallon drums.

SURFACE PREPARATION

This product requires preparation in order to perform as expected. Please refer to the master Surface Preparation Guide for more information.

APPLICATION METHOD/SPREAD RATES

ELAST-O-COAT is typically applied with a notched trowel or squeegee at various spread rates. Surface profile and amount of expansion/contraction determines the required spread rate. A coarse surface requires more ELAST-O-COAT.

Film Thickness:	Spread Rate:
20 mils	80 Sq Ft/gal
30 mils	50 Sq Ft/gal.
50 mils	32 Sq Ft/gal.

PURPOSE OF ELAST-O-COAT MEMBRANE

The purpose is to reduce the risk of water passage to occupied areas below the floor in the event it is damaged or the substrate cracks. ELAST-O-COAT membrane greatly reduces crack transmission. It relieves stress that occurs when a substrate cracks or shifts, to prevent the crack from transmitting up through an epoxy floor or coating. ELAST-O-COAT may also be used to fill control joints that aren't moving prior to installation of DUR-A-GARD, SHOP FLOOR, DUR-A-QUARTZ, DUR-A-CRETE, and DUR-A-CHIP epoxy systems. This is done by thickening ELAST-O-COAT with NO-SAG #1. A fiberglass mat can also be embedded into ELAST-O-COAT over control joints or where the floor meets the wall if desired.

ELAST-O-COAT

TECHNICAL INFORMATION

<u>Physical Properties</u>	<u>Hardener</u>	<u>Resin</u>
Composition	Modified diamine	Modified epoxy resin
Color	Clear	Clear
Solids Content	100%	100%
Viscosity at 70°F	750 cps	1700 cps
Weight per Gallon	8.44 lbs.	9.10 lbs.
Mix Ratio by Volume	1 part	2 parts
Flash Point, Closed Cup Test	218°F	335°F
Working Time at 70°F	25 minutes after mixing hardener and resin, less time at higher temperatures	
Re-Coating Time at 70°F	Approx. 8 hours minimum, 36 hours maximum	
Full Cure Time 55°F or higher	10 days	
Dry Film Thickness	16 mils at 100 sq. ft. per gallon	
Water Absorption at 75°F	Negligible after 90 days submersion	
Adhesion	Equal to or better than unmodified epoxy coatings	
Water Vapor Transmission	ASTM E96 Method B	0.252 perm
Tear Strength	ASTM D-624, DIEA	375 PLI
Elongation	ASTM D-412	150%
Tensile Strength	ASTM D-412	2,400 psi
Hardness	ASTM D-2240	90 Shore A
Storage Stability	1 year in unopened containers	
Thinner	None required.	
Clean-up	DUR-A-SOLVE #4, Lacquer Thinner, Xylol, Toulene	
VOC Content	4.34 g/l	

GUIDE SPECIFICATIONS

This product is part of the DUR-A-FLEX family of polymer systems. Please contact DUR-A-FLEX for complete three part guide specs.

DRAWINGS AND DETAILS

Standard CAD drawings and details are available for coves, drains, breaches, transitions, etc. Please contact DUR-A-FLEX for actual drawings.

JOINT GUIDELINES

Refer to the Joint Guidelines for complete details on our website.

MOISTURE CONCERNS

Please refer to the Floor Evaluation Flow Chart in the Contractor's Center of our website for a step-by-step process to determine the condition of the concrete.

CLEANING

This product is considered to be a low maintenance flooring solution, however, certain textures and service environments require specific procedures. Please refer to the master Cleaning Guide on our website.

CAUTION

Follow the Hazardous Materials Identification System labeling guide for proper personal protective equipment to use when handling this product. Use only as directed. KEEP OUT OF REACH OF CHILDREN.

Before using any DUR-A-FLEX, Inc. product, be sure the Material Safety Data Sheet is read and understood



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PROTECTO-LINE 900/905/900AR

**TROWEL APPLIED, REINFORCED,
 NOVOLAC VINYL ESTER LINING
 AND FLOOR TOPPING, 1/8" (3.17 mm)**

FEATURES

Low Permeability
 Conductive Version Available

RECOMMENDED APPLICATIONS

Plating Room Floors
 Acid Neutralization
 Food Processing
 Plating Room Floors
 Concentrated Acid Spills
 Paint Rooms

CHEMICAL RESISTANCE

Inorganic Acids	Organic Acids
Dilute Alkali Solutions	Oils
Fluorides (905-900AR)	Salts
Solvents	

TEMPERATURE LIMITS (METAL APPLICATION)

Immersion up to 180°F
 Dry - 200°F Continuous
 - 250°F Intermittent

PHYSICAL PROPERTIES

Compressive Strength ASTM C-579	12,500 PSI
Coefficient of Expansion in./in./°F ASTM D-696	12-15 x 10 ⁻⁶
Tensile Strength ASTM C-307	2,400 PSI
Taber Abrasion, CS-17 wheel, 40 mg. (G-1) 1000 cycles, 1000 gram load 20 mg. (AR) ASTM D-4060	
Flame Spread ASTM D-635	<5 mm
WVT ASTM E-96	0.0017 perm. in.

Protecto-Line 905

Electrical Properties	0-200,000 Ohms
ASTM F-150	
NFPA #99	

SPECIFICATIONS

Protecto-Line 900 shall be a nominal 1/8" thick, silica filled novolac vinyl ester lining, consisting of a penetrating primer, 1/16" basecoat, woven fiberglass roving and 1/16" topcoat as manufactured by Dudick, Inc. Material shall be trowel-applied in accordance with manufacturer's recommended practices.

Protecto-Line 905 is a novolac vinyl ester based system identical to **Protecto-Line 900**, but utilizes a carbon filler and synthetic fabric in place of the silica filler and glass roving for resistance to fluorides. The carbon filler also provides conductivity.

Protecto-Line 900AR uses a penetrating primer, 1/16" silica filled basecoat, woven fiberglass roving and a 1/16" aluminum oxide filled topcoat. Inert aluminum oxide fillers are used to significantly increase resistance to abrasion, fluorides, and strong caustics. A synthetic fabric can be substituted for the glass woven roving for strong fluoride and caustic solutions.

THE PROTECTO-LINE 900/905/900AR SYSTEM

Protecto-Line 900/905/900AR uses several layers of thermosetting, filled novolac vinyl ester resin to build up the protection that metal and concrete need in chemical manufacturing or processing operations. When fully cured, the separate elements lose their individual identity and become a single, monolithic lining.

Primer 27 is designed to prevent abrasive blasted metal from developing rust bloom prior to the application of the **Protecto-Line 900/905/900AR**. For maximum performance, all metal surfaces should be primed. Concrete must be primed to aid in the "wetting out" required for good bonding.

Primer 27C is designed for applications on concrete where spark testing is required or specified.

Basecoat: Protecto-Line 900/905/900AR novolac vinyl ester resins are filled with graded silica or carbon depending on the chemical environment involved to reduce the coefficient of expansion and provide a thixotropic base on which to embed the fiberglass roving or synthetic fabric.

Reinforcement: A woven fiberglass roving or synthetic fabric is used to help bridge small surface cracks and provides additional strength to resist thermal shock. It is applied to the wet basecoat and becomes an integral part of it, acting much the same as a reinforcing bar does in concrete.

Saturant: Catalyzed **Protecto-Line 900/905/900AR** novolac vinyl ester resin is used to wet out the reinforcement, thus providing a mechanical and chemical bond.

Topcoat: Protecto-Line 900 systems are aluminum oxide, carbon or silica filled to provide an abrasion and chemical resistant barrier.

ESTIMATING QUANTITIES AND ORDER BILL OF MATERIAL

Note: Resin includes 3 oz. hardener/gallon as standard and 6 oz. for carbon filled.

APPROXIMATE SQUARE FEET PER GALLON		
	CONCRETE	STEEL
PRIMER 27	150-200 ft. ²	250-300 ft. ²
Primer 27C	100-150 ft. ²	-----
	P-Line 900	PLINE 905
Basecoat Saturant & Topcoat	16 ft. ²	18 ft. ²
Roving/Fabric	Area + 10%	Area + 10%
G-1 Filler (Silica)	1 lb./ ft. ²	-----
G-9 Filler Carbon	0.7lb./ ft. ²	0.7 lb./ ft. ²
S-30 Liquid	150 ft. ²	150 ft. ²
S-10 Solvent	500 ft. ²	500 ft. ²

*For **Protecto-Line 900AR** use **AR Filler** at .65 lbs. / ft.². for topcoat.

*Quantities shown are for estimating purposes only. Actual field usage may vary.

During manufacturing, some air entrapment occurs in the more viscous lining systems. During storage and transportation, settling can occur when entrapped air escapes this mix indicating less than 100% volumetric fill. All products are priced and sold by weight and not necessarily by volume

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Metal: Abrasive blast to a white metal finish according to SSPC SP5 or NACE # 1 and a 3.0 mil minimum profile.

Concrete: Concrete must be mechanically prepared to remove surface laitance. Oils, grease or other contaminant must be removed prior to surface preparation. Concrete must be free of curing compounds and form release agents. Surface texture should be similar to 40-60-grit sandpaper or the visual standard, CSP-5 from the International Concrete Repair Institute **with exposed pea gravel**. The prepared surface should have a nominal tensile strength of 250 PSI per ASTM D-4541.

All concrete substrates must be checked for moisture prior to product application using the Plastic Sheet Test, ASTM D-4263.

Additional surface preparation will be required if a 40-60 grit texture **with exposed pea gravel** is not achieved and the surface laitance not completely removed with the first mechanical preparation procedure.

Mechanical preparation removes laitance, exposing honeycombs or voids beneath the surface that must be filled with **Scratch Coat 800**. (Refer to separate product bulletin.)

APPLICATION SPECIFICATIONS

Substrate temperature for concrete must be between 50°F and 110°F.

Relative humidity must not exceed 90%.

Substrate temperature must be 5°F above the Dew Point.



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PROTECTO-LINE 900/905/900AR

**TROWEL APPLIED, REINFORCED,
 NOVOLAC VINYL ESTER LINING
 AND FLOOR TOPPING, 1/8" (3.17 mm)**

Hardener Amount/Gallon Resin:

Hardener	Substrate Temp.	Primer		PL-900AR Basecoat	PL-905 Basecoat
		27	27C	Topcoat	Topcoat
PH-1	60°-70°F	3-4 oz.	4-5 oz.	3-4 oz.	6-8 oz.
PH-1	70°-90°F	2-3 oz.	3-4 oz.	2-3 oz.	4-6 oz.

Pot life of the mixed **Protecto-Line 900** systems will depend on the temperature. To prevent material waste and avoid damage to equipment, do not mix more material than can be used according to the following table:

TEMPERATURE	POT LIFE
50°F	60 min.
75°F	40 min.
90°F	25 min.

Do not attempt to store mixed material. Residual material should be properly disposed of at the end of each work period.

PRIMING

Metal: Mix **Primer 27** with the correct amount of **PH- 1 Hardener** for 2-3 minutes and apply with a roller, brush or spray at 3-4 mils WFT.

Concrete: Concrete must always be primed to aid in the "wetting out" required for good bonding. Mix **Primer 27/27C** with the correct amount of **PH-1 Hardener** for 2-3 minutes and apply with a brush, roller or spray. Do not allow the primer to puddle.

Always examine the primed surface before beginning the basecoat application. If any dry areas appear, they must be re-primed to insure proper concrete wet out before the lining is applied.

Important: **Primer 27C** must be mechanically mixed for 1-2 minutes prior to adding the correct amount of **PH- 1 Hardener**.

Primer 27C must be roller applied. Use brush application for small touch-up repair work only.

BASECOAT

Add the correct amount of **PH- 1 Hardener** to the resin. Mix thoroughly for 2-3 minutes. For **Protecto-Line 900/900AR**, add 18-25 lbs. of **G-1 Filler**/gal. For **Protecto-Line 905** add 10-15 lbs. carbon filler/gal. Mix well and apply a 1/16" thick basecoat, using a plasterer's trowel. Apply to an even finish.

REINFORCEMENT AND SATURANT

Press the reinforcement into the wet basecoat. Lap all edges by 1 inch. Saturate the reinforcement with catalyzed **Protecto-Line 900/905/900AR** resin using a short nap paint roller. Roll vigorously until the reinforcement has lost its white color and turns translucent. Use enough resin to "wet out" the reinforcement but do not allow the saturant to drip or puddle. It is highly recommended, for good adhesion, that a clean dry sand be lightly broadcast into the wet saturant.

TOPCOAT

Before applying the topcoat, examine the overall application and grind any sharp glass protrusions and fill any voids with catalyzed saturant resin.

Add the correct amount of **PH- 1 Hardener** to the resin. Mix thoroughly for 2-3 minutes. For **Protecto-Line 900**, add 18-25 lbs. **G-1 Filler**/gal.

For **Protecto-Line 905**, add 10-15 lbs. **G-9 Carbon Filler**/gal. For **Protecto-Line 900AR**, add 25-30 lbs. **AR Filler**/gal. Mix well and apply a 1/16" thick topcoat, using a plasterer's trowel. Apply to an even finish.

SMOOTHING

Immediately after the trowel application and before the topcoat has cured dampen a natural bristle brush (thick bristle 4" wide) or roller with **S-30 Smoothing Liquid**. Lightly brush or roll the wet topcoat to remove trowel marks and pinholes. Never allow **S-30 Smoothing Liquid** to puddle.

Protecto-Line 900 topcoats must be applied within 6 hours when exposed to direct sunlight.

If this recoat time is exceeded, consult a Dudick representative; sanding or abrasive blasting may be required. Recoat times are dramatically reduced when the lining is exposed to direct sunlight.

Application of **Protecto-Line 900/905/900AR** systems in direct sunlight may lead to blistering, pinholes, or wrinkling due to out-gassing of air in the concrete and high substrate temperatures. Double priming shading or evening application may be required. Consult a Dudick representative.

In order to prevent curing problems with styrenated products, air movement and/or ventilation must be maintained not only during application but also after application until the system has totally cured. This will prevent high concentration of styrene inhibiting/retarding the cure of the system.

TESTING

If spark testing is required, use a DC spark/holiday tester set to the appropriate voltage to achieve a minimum 100 volts per mil of applied coating. An AC tester can be used, but is not as effective as a DC tester. Mark and repair all pinholes using the topcoat material. Retest only the repairs. Testing of **Protecto-Line 905** is limited to a visual inspection because the lining is conductive.

Concrete: The lining can be spark tested provided **Primer 27C** was used to prime the concrete.

CLEANING

Use **S-10 Cleaning Solvent** to clean tools and equipment. **DO NOT USE ACETONE.**

SHIPPING

Refer to Material Safety Data Sheets.

STORAGE

Warning: All Dudick products classified by DOT with either white, yellow or red labels must not be mixed or stored together as an explosive reaction may occur.

All products should be stored in a cool, dry area away from open flames, sparks or other hazards.

When properly stored in their original, unopened containers at 50°F-75°F, **Primer 27** and **Protecto-Line 900/905/900AR** components will have a shelf life of three months or less, at temperatures above 75°F, two months or less. **Primer 27C** will have a thirty-day shelf life. **PH-1 Hardener** has a six-month shelf life at 50°F-75°F.

SAFETY

M.S.D.S: Material Safety Data Sheets must always be read before using products. **Protecto-Line 900** systems are intended for application by experienced, professional personnel. Dudick, Inc. can supply supervision to help determine that the surface has been properly prepared, the ingredients correctly mixed, and the materials properly and safely applied.

If **Protecto-Line 900** materials are to be applied by your own personnel or by a third party contractor, please be sure that they are aware of the following safety precautions:

- Exposure to resins and hardeners through direct skin contact and/or inhalation may cause severe dermatitis reactions in some people. Cleanliness of the skin and clothing is critical and must be of paramount concern.
- Fumes are flammable and heavier than air. Proper ventilation should be maintained to minimize breathing of concentrated fumes.
- Suitable respirators should be used during application.
- Safety glasses, gloves, and suitable protective clothing must be worn at all times during application.
- If contact with hardeners occurs, remove any clothing involved and flush the skin with flowing water. Discard the clothing. Do not attempt to wash and reuse it. **Protecto-Line 900** liquids can be removed with S-10 Cleaning Solvent, MEK, or lacquer thinner. **DO NOT USE ACETONE.**



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PROTECTO-LINE 900/905/900AR

**TROWEL APPLIED, REINFORCED,
NOVOLAC VINYL ESTER LINING
AND FLOOR TOPPING, 1/8" (3.17 mm)**

- Keep open flames and sparks away from the area where materials are being mixed and applied.
- If a rash occurs, remove the individual from the work area and seek a physician's care for dermatitis.
- In case of eye contact, flush with water for at least 15 minutes and consult a physician.
- If swallowed, do not induce vomiting; call a physician immediately.

NOTE: Dudick, Inc. ("Dudick") warrants all goods of its manufacture to be as represented in its catalogs and that the manufacture of its products by its employees or sub-contractors shall be performed in a workmanlike manner. Dudick's sole obligation under this warranty shall be to replace any material which its examination shall disclose to be defective. Dudick makes no warranty concerning the suitability of its product for application to any surface, it being understood that the goods have been selected and the application ordered by the Purchaser. DUDICK, INC. MAKES NO WARRANTY, EXPRESS OR IMPLIED, THAT THE GOODS SHALL BE MERCHANTABLE OR THAT THE GOODS ARE FIT FOR ANY PARTICULAR PURPOSE. THE WARRANTY OF REPAIR OR REPLACEMENT SET FORTH HEREIN IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES ARISING BY LAW OR OTHERWISE; AND DUDICK INC. SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS, DOWN TIME, DAMAGES TO PROPERTY OF THE PURCHASER OR OTHER PERSONS, OR DAMAGES FOR WHICH THE PURCHASER MAY BE LIABLE TO OTHER PERSONS, WHETHER OR NOT OCCASIONED BY DUDICK'S NEGLIGENCE. This warranty shall not be extended, altered or varied except by written instrument signed by Dudick and Purchaser.

9/10/15

Selection & Specification Data

Generic Type	Modified Phenolic
Description	A high build, high solids material with a long established record of successful applications in severe chemical exposures. Resistant to a wide range of acids, alkalies, solvents, salts and a combination of these materials, in both immersion and heavy-duty maintenance. Recommended for use as the final coat of a tank lining, floor coating system, or other structures in severe chemical environments. Not recommended for immersion and splash or spill of hot and/or concentrated oxidizing acids.
Features	<ul style="list-style-type: none"> ▪ Excellent chemical resistance ▪ Hard tough film ▪ Excellent abrasion resistance ▪ Meets the most stringent VOC requirements
Color	White (S800) and Gray (C703) are standard. Also available in a limited variety of other colors.
Finish	Semi-Gloss
Primers	A typical primer is Phenoline 300 Primer. May be applied over catalyzed epoxies, phenolics or others as recommended.
Topcoats	Normally not topcoated but may be topcoated with itself, epoxies, phenolics, or others as recommended.
Dry Film Thickness	8 mils (200 microns) per coat.
Solids Content	By Volume: 78% ± 2%
Theoretical Coverage Rate	1251 mil ft ² (30.7 m ² /l at 25 microns) 1561 ft ² at 8 mils (3.9 m ² /l at 200 microns) Allow for loss in mixing and application.
VOC Values	As supplied: 1.46 lbs/gal (175 g/l) Thinned w/ 32 oz/gal Phenoline Thinner: 2.61 lbs/gal (313 g/l) These are nominal values and may vary slightly with color.
Dry Temp. Resistance	Continuous: 200°F (93°C) Non-Continuous: 250°F (121°C) Immersion temperature resistance depends on exposure. Contact Carboline Technical Service for specific recommendations. It is recommended that tanks must be insulated when temperature exceeds 140°F (60°C).

Substrates & Surface Preparation

General	Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating.
Steel	Apply over clean, dry recommended primers only.
Concrete	Apply over clean, dry, recommended primer or surfacer only.

Phenoline® 300 Finish

Application Equipment

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

General Guidelines:

Spray Application (General) The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.

Conventional Spray Pressure pot equipped with dual regulators, ½" I.D. minimum material hose, 0.052" I.D. fluid tip and appropriate air cap.

Airless Spray Pump Ratio: 30:1 (min.)*
GPM Output: 3.0 (min.)
Material Hose: 3/8" I.D. (min.)
Tip Size: .017"-.019"
Output PSI: 2000
*Teflon packings are recommended and available from the pump manufacturer.

Brush For stripping of welds and touch-up only. Use a natural bristle brush. Brush out using full strokes and avoid rebrushing.

Roller Not recommended.

Mixing & Thinning

Mixing Power mix separately, then combine and power mix. DO NOT MIX PARTIAL KITS.

	<u>1.25 Gal Kit</u>	<u>6.25 Gal Kit</u>
Phenoline 300 Finish Part A	1 gal	5 gals
Phenoline 300 Part B	.25 gal	1.25 gals

Thinning May be thinned up to 32 oz/gal with Phenoline Thinner. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Pot Life 60 minutes at 75°F (24°C) and less at higher temperatures. Pot life ends when coating loses body and begins to sag.

Cleanup & Safety

Cleanup Use Thinner #2. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

Safety Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

Ventilation Vapors and/or spray mist may cause explosion. When used as a tank lining or in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. In addition to ensuring proper ventilation, appropriate respirators must be used by all application personnel. Where flammable solvents exist, explosion-proof lighting must be used.

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Normal	65°-85°F (18°-29°C)	60°-85°F (16°-29°C)	60°-85°F (16°-29°C)	30-70%
Minimum	55°F (13°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	90°F (32°C)	120°F (49°C)	120°F (49°C)	85%

Do not apply when the surface temperature is less than 5°F (3°C) above the dew point. Special thinning and application techniques may be required above or below normal application conditions.

Curing Schedule

Surface Temp. & 50% Relative Humidity	Minimum Recoat Time	Maximum Recoat Time	Final Cure
50°F (10°C)	24 Hours	4 days	NR
60°F (16°C)	18 Hours	3 Days	14 days
75°F (24°C)	12 Hours	2 Days	7 days
90°F (32°C)	6 Hours	1 Day	5 days

These times are based on a 8.0 mil (200 micron) dry film thickness. Higher film thicknesses, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure. Condensation on the surface or humidity above 25% during application and curing will result in a surface haze or blush. Any haze or blush must be removed by water washing before recoating. If the maximum recoat time is exceeded, the surface must be abraded by sweep blasting prior to the application of additional coats.

Force Curing: Force Curing is recommended for all tank linings. The following schedule may be used to force cure the system after the final coat is applied. Elevate temperature no more than 30°F (16°C) every 30 minutes.

Surface Temperature	Final Cure for Immersion Service
75°F (24°C)	4 hours followed by
150°F (66°C)	8 hours

Final cure requirement varies depending upon film thickness and exposure. Refer to Carboline Tank Lining Guide for additional Force Curing and Safety Information.

Packaging, Handling & Storage

Shipping Weight (Approximate) 1.25 Gallon Kit 18 lbs (8.2 kg) 6.25 Gallon Kit 83 lbs (37.7 kg)

Phenoline Thinner 1's 9 lbs (4.1 kg) 5's 45 lbs (20.4 kg)

Flash Point (Setflash) Part A: 77°F (25°C)
Part B: 68°F (20°C)
Thinner: 77°F (25°C)

Storage (General) Store Indoors.

Storage Temperature & Humidity 45°- 110°F (4°-43°C)
0-100% Relative Humidity

Shelf Life 24 months at 75°F

***Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.**



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An **RPM** Company

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ELAST-O-COAT

DESCRIPTION

ELAST-O-COAT Waterproofing Membrane is a tough, high quality, 100% solids, 2 part elastomer-modified, high build epoxy coating. It is applied on floors and molded up onto vertical areas, over curbs, etc. as a seamless elastomeric membrane. It can be applied to virtually any shape or contour by brush, paint roller, trowel or squeegee.

ELAST-O-COAT is designed for use underneath epoxy flooring systems and as a base coat for vinyl chip seamless flooring to provide a vibration resilient cushion and to deaden sound. It can also be used as a traffic-bearing surface in light traffic areas and as a crack & joint filler. ELAST-O-COAT can be applied on properly prepared concrete, plywood, metal and quarry tile.

BENEFITS

- No solvents
- Very good abrasion resistance for foot traffic
- Cures tack free overnight at 55° F or warmer temp.
- Very good resistance to salt, oil, gasoline, detergents, etc.
- Excellent adhesion
- Elongation 150%

LIMITATIONS

Minimum temperature of 55°F is required during curing period. ELAST-O-COAT must be applied at a uniform film thickness to provide proper protection.

TYPICAL USES

- Shower Rooms
- Medical Research Labs
- Drum Storage Area
- Secondary Containment
- Mechanical Rooms
- Cagewash Areas
- Wet Processing Area
- Control Joints

COLORS

ELAST-O-COAT is produced clear but can be tinted by adding 20 % DUR-A-GARD resin to the ELAST-O-COAT. ELAST-O-COAT is available in 15 standard colors. Please refer to the Standard Color Chart on our website. Custom colors are available upon request.

PACKAGING

ELAST-O-COAT is available in 1-gallon cans, 5-gallon pails, and 50-gallon drums.

SURFACE PREPARATION

This product requires preparation in order to perform as expected. Please refer to the master Surface Preparation Guide for more information.

APPLICATION METHOD/SPREAD RATES

ELAST-O-COAT is typically applied with a notched trowel or squeegee at various spread rates. Surface profile and amount of expansion/contraction determines the required spread rate. A coarse surface requires more ELAST-O-COAT.

Film Thickness:	Spread Rate:
20 mils	80 Sq Ft/gal
30 mils	50 Sq Ft/gal.
50 mils	32 Sq Ft/gal.

PURPOSE OF ELAST-O-COAT MEMBRANE

The purpose is to reduce the risk of water passage to occupied areas below the floor in the event it is damaged or the substrate cracks. ELAST-O-COAT membrane greatly reduces crack transmission. It relieves stress that occurs when a substrate cracks or shifts, to prevent the crack from transmitting up through an epoxy floor or coating. ELAST-O-COAT may also be used to fill control joints that aren't moving prior to installation of DUR-A-GARD, SHOP FLOOR, DUR-A-QUARTZ, DUR-A-CRETE, and DUR-A-CHIP epoxy systems. This is done by thickening ELAST-O-COAT with NO-SAG #1. A fiberglass mat can also be embedded into ELAST-O-COAT over control joints or where the floor meets the wall if desired.

ELAST-O-COAT

TECHNICAL INFORMATION

Physical Properties	Hardener	Resin
Composition	Modified diamine	Modified epoxy resin
Color	Clear	Clear
Solids Content	100%	100%
Viscosity at 70°F	750 cps	1700 cps
Weight per Gallon	8.44 lbs.	9.10 lbs.
Mix Ratio by Volume	1 part	2 parts
Flash Point, Closed Cup Test	218°F	335°F
Working Time at 70°F	25 minutes after mixing hardener and resin, less time at higher temperatures	
Re-Coating Time at 70°F	Approx. 8 hours minimum, 36 hours maximum	
Full Cure Time 55°F or higher	10 days	
Dry Film Thickness	16 mils at 100 sq. ft. per gallon	
Water Absorption at 75°F	Negligible after 90 days submersion	
Adhesion	Equal to or better than unmodified epoxy coatings	
Water Vapor Transmission	ASTM E96 Method B	0.252 perm
Tear Strength	ASTM D-624, DIEA	375 PLI
Elongation	ASTM D-412	150%
Tensile Strength	ASTM D-412	2,400 psi
Hardness	ASTM D-2240	90 Shore A
Storage Stability	1 year in unopened containers	
Thinner	None required.	
Clean-up	DUR-A-SOLVE #4, Lacquer Thinner, Xylol, Toulene	
VOC Content	4.34 g/l	

GUIDE SPECIFICATIONS

This product is part of the DUR-A-FLEX family of polymer systems. Please contact DUR-A-FLEX for complete three part guide specs.

DRAWINGS AND DETAILS

Standard CAD drawings and details are available for coves, drains, breaches, transitions, etc. Please contact DUR-A-FLEX for actual drawings.

JOINT GUIDELINES

Refer to the Joint Guidelines for complete details on our website.

MOISTURE CONCERNS

Please refer to the Floor Evaluation Flow Chart in the Contractor's Center of our website for a step-by-step process to determine the condition of the concrete.

CLEANING

This product is considered to be a low maintenance flooring solution, however, certain textures and service environments require specific procedures. Please refer to the master Cleaning Guide on our website.

CAUTION

Follow the Hazardous Materials Identification System labeling guide for proper personal protective equipment to use when handling this product. Use only as directed. KEEP OUT OF REACH OF CHILDREN.

Before using any DUR-A-FLEX, Inc. product, be sure the Material Safety Data Sheet is read and understood

DUR-A-GLAZE NOVOLAC

DESCRIPTION

DUR-A-GLAZE NOVOLAC epoxy is a clear or pigmented two component, performance topcoat for broadcast systems. It is designed to provide protection against chemicals, acids, solvents, and high temperatures.

BENEFITS

- Superior Chemical Resistance
- Superior Solvent Resistance
- Superior Stain Resistance
- High Heat Distortion Temperature
- Low odor, low VOCs

LIMITATIONS

This product is best suited for application in temperatures between 60°F and 90°F. Substrate must be clean, sound, and dry.

DO NOT PIGMENT THIS PRODUCT WITH DUR-A-GARD (PINHOLES and or FISHEYES WILL OCCUR). Pigmented product must be formulated at DUR-A-FLEX.

DO NOT USE AS A SMOOTH COATING: Fisheyes and / or bubbling will occur. Use Dur-A-Gard Novolac for smooth coatings.

DUR-A-GLAZE NOVOLAC is not recommended as a topcoat for light colored DUR-A-QUARTZ floors because it will amber under UV light.

DUR-A-GLAZE NOVOLAC is meant to be a final topcoat and should not be top coated with any other Performance Topcoat.

TYPICAL USES

DUR-A-GLAZE NOVOLAC is recommended as a performance grout coat for Dur-A-Quartz, Shop Floor and Poly-Crete MDB, SLB, MDQ systems. Some typical areas of application are:

- Kitchens
- Chemical Storage
- Secondary Containment
- Pharmaceutical Plants
- Metal Plating Rooms
- Battery Storage
- Pulp & Paper Mills
- Acid Cleaning Bath Areas

COLORS

DUR-A-GLAZE NOVOLAC is available in clear and 5 standard colors: Medium Grey, Slate Grey, Tile Red, Charcoal Grey and Concrete Grey. Custom colors are available however light colors MUST use a similar background color to prevent hiding issues.

PACKAGING

DUR-A-GLAZE NOVOLAC EPOXY is available in 1 gallon cans, 5 gallon pails, and 50 gallon drums. Store in a dry area at or above 55°F. Avoid excessive heat. The shelf life is 1 year in unopened original containers.

SURFACE PREPARATION

This product requires preparation in order to perform as expected. Substrate must be profiled, clean, sound, and dry. For more information please refer to the master Surface Preparation Guide on our website.

APPLICATION METHOD

Substrate must be primed with DUR-A-SHIELD, DUR-A-GLAZE #4 WB, or DUR-A-GLAZE TIE COAT II with epoxy systems (Poly-Crete systems are self priming).

Mixing

DUR-A-GLAZE NOVOLAC Resin and Novolac Hardener should be premixed prior to combining. Mix 1 part Hardener to 2 parts Resin by volume. Scrape the sides of the Hardener and Resin containers to ensure a proper reaction occurs. Use a slow speed 450 RPM drill with a jiffler paddle. Keep the paddle below the surface to avoid air entrapment. Mix for 2 minutes to ensure proper mix.

Application as a Grout Coat

1. Pour a 6 inch ribbon of material across the floor.
2. Use a Flat squeegee to spread material at desired spread rate. The typical spread rate is 90 SF/gal over Q28 & Flintshot and 50 SF/gal over Q11 & Q-Rok.
3. Back roll the material against the squeegee lines with a high quality 3/8" nap roller.
4. Cross roll the material side to side overlapping the previous pass with half the roller width.

JOINT GUIDELINES

Refer to the Joint Guidelines on our website for complete details.

DUR-A-GLAZE NOVOLAC

TECHNICAL INFORMATION

Mix ratio, by volume	1 part hardener to 2 parts resin
Pot Life at 70°F	30 minutes
Tack Free Time at 70°F (ready for re-coat)	8-10 hours
Cure Time at 70°F	24 hours
Full Cure Time (full chemical resistance)	7 days @ 70°F
Minimum Temperature for Application	60°F
Cured Film Thickness	8mils @ 200 sq.ft./gallon - 16 mils @ 100 sq. ft./gallon
Hardness, Shore D	86 – 90
Heat Resistance Limitation (intermittent only)	250°F (122°C)

Physical Property	Test Method	Result
Compressive Strength	ASTM C-579	14,000 psi
Flexural Strength	ASTM C-580	5,500 psi
Tensile Strength	ASTM C-307	2,500 psi
Flexural Modulus of Elasticity	ASTM D-790	1.95 x 10 ⁶ psi
Bond Strength	ACI-403-PP	420 psi (concrete fails)
Indentation	MIL-D 3134-F	No Indentation
Water Absorption	ASTM D-570 ASTM D-696	0.05%, 24 hours in water 2.2 X 10 ⁻⁵ in/in/°F
Abrasion Resistance C-10 Wheel, 1,000 gm load, 1,000 cycles	ASTM D-1044	0.075 gm weight loss
Flammability	ASTM D-635	Self-Extinguishing. Extent of burning less than 0.35 in.
VOC Content		8 g/l

MOISTURE CONCERNS

Please refer to the Floor Evaluation Guidelines in the Contractor's Center of our website for a step-by-step process to determine the condition of the concrete.

CHEMICAL RESISTANCE

Please refer to Novolac on the master Chemical Resistance Chart on our website for actual resistance to specific chemicals/reagents.

CLEANING

This product is considered a low maintenance flooring solution; however, certain service environments do require certain cleaners. Please refer to master Cleaning Guide on our website.

CAUTION

Follow the Hazardous Materials Identification System labeling guide for proper personal protective equipment to use when handling this product. Use only as directed. KEEP OUT OF REACH OF CHILDREN.

Before using any DUR-A-FLEX, Inc. product, be sure the Material Safety Data Sheet is read and understood.

high solids epoxy mastic

Type:

Epoxy/Amine Modified Polyamide

Description:

DuPont 25P is a two package (1:1 mix), high solids, high build, VOC Conforming (2.1 lbs./gal), multi-use epoxy mastic coating. It provides outstanding application properties — no induction time, long pot life, can be applied in hot or cold weather, faster dry times, excellent film build on *both* flat surfaces and edges, goes over hand-cleaned rusty surfaces, can be applied over damp surfaces, most other coatings, and can be top-coated with a wide range of coatings. Its performance and durability are excellent under most conditions and environments.

Suggested Uses:

25P is a multi-use product suitable for application in a variety of situations.

- As a single coat in non-corrosive interior environments (5-8 mils DFT).
- As a single coat in corrosive interior environments (10-12 mils DFT).
- As a primer in 2 or 3 coat systems (3-8 mils DFT).
- As an intermediate or mid-coat in a 3 coat system (4-6 mils DFT).
- Provides excellent durability and adhesion over steel, galvanized steel, masonry — concrete, concrete floors, and wood.

Recommended For Immersion Service:

25P is recommended for immersion service in near neutral, fresh, or salt water exposures. It is not recommended for use with potable water. It may be used for fire water towers, ballast tanks, clarifiers, waste water treatment plants, offshore structures, pier pilings and supports, and other areas where a high level of water resistance is required.

Compatibility With Other Coatings:

- 25P is highly compatible with most generic types of coatings.
- It can be applied over most coatings in sound condition; if in doubt, apply a test patch before painting.

Color Change/Chalking

DuPont 25P is primarily designed for corrosion protection. If gloss, color retention, and color stability are important. DuPont 25P should be topcoated with Corlar® 26P or 76P, Imron® 326 or 333, DuPont 50P, or Tufcote 72P.

Resistance:

Acids:	Very good	Solvents:	Excellent
Alkalis:	Excellent	Abrasion:	Excellent
Humidity:	Excellent	Weather:	Very good

(Will chalk on exterior exposure)

Salts: Excellent
Ammonia: Excellent

Maximum Service Temperature:

250°F (121°C) in continuous service
300°F (148°C) in intermittent heat
100°F in immersion service

Volume Solids (Mixed):

70% Avg.

Weight Solids (Mixed):

82% Avg.

Weight Per Gallon (Mixed):

11.8 Lb. Avg. 5.4 Kg. Avg.

Suggested Film Build (DFT):

- Single Coat — 5-8 mils in non-corrosive environment
10-12 mils in corrosive environment and immersion service
- Primer — 3-8 mils
- Mid Coat — 4-6 mils

Coverage Per Gallon:

1122 Ft² @ 1 mil DFT
224 Ft² @ 5 mils DFT
112 Ft² @ 10 mils DFT

Gloss:

Satin Finish

Colors:

Standard — White, Cirrus Gray, Shale Gray, Clay Tan, Red Oxide, Aluminum
Custom Color — See Color Spectrum Color Wheel

All technical advice, recommendations and services are rendered by the Seller gratis. They are based on technical data which the Seller believes to be reliable, and are intended for use by persons having skill and know-how at their own discretion and risk. Seller assumes no responsibility for results obtained or damages incurred from their use by Buyer in whole or in part. Such recommendations, technical advice or services are not to be taken as a license to operate under or intended to suggest infringement of any existing patent.



Flash Point (Tag Closed Cup):

25P Bases > 100°F
VF-525 < 73°F

Surface Preparation:

For atmospheric service an SSPC-SP-6 (Commercial) is preferred for optimal performance. If not possible or practical, then hand tool clean to an SSPC-SP-2 or power tool clean to an SSPC-SP-3. For immersion service a SSPC-SP-5 is required.

Activator:

Add 1 part VF-525 Activator to 1 part 25P Base. Mix until thoroughly blended. You may begin painting immediately—there is no induction time.

Pot Life:

8 hours at 70°F-90°F when reduced 15% by volume with Y-32035 or RTOO1P thinner.

Shelf Life:

12 Months Minimum

Reduction:

2-5% of Y-32035 is required under normal conditions for airless spray. 7-10% is the suggested level of thinning for conventional spray. For maximum pot life, reduce 15% by volume with Y-32035 or RTOO1P.* Use T-8054 thinner in hot or windy conditions for spray application. Reduce 10-15% with RTOO1P thinner when applying by roller or brush in hot or windy conditions. If more than 25% reduction is required, consult your local DuPont representative. *See additional comments #5.

Application Thinners:

Normal Conditions—Y-32035
Hot or Windy Conditions—T-8054 (spray)
Hot or Windy Conditions—RTOO1P (roll or brush).

Clean Up Thinners:

T-8054 or MEK

Packaging:

1 & 5 Gallon Containers

Shipping Weight (lbs.):

	BASE	ACTIVATOR
1 Gallon Container	14	11
5 Gallon Container	68	55

Application Conditions:

Do not apply if material, substrate, or ambient temperature is below 35°F (2°C) or above 100°F (43°C).

Dry Times (Hours):

@ 5 mils DFT 50% R.H.

	50°F (10°C)	70°F (21°C)	90°F (32°C)
To Touch	3-4	2-3	1-2
To Handle	8	4	2
To Recoat	5	3	2
Full Cure	14 Days	7 Days	4 Days

Application Equipment:

- Apply by brush, roll, or spray.
- ROLL: 1/4"-1/2" lambs wool or synthetic roll cover such as One Coater. Keep roll wet. Roll in one direction, rewet, then cross roll.
- Manufacturers listed below are a guide. Others may be used. Changes in pressure and tip size may be required to achieve proper application.

Air Spray:

	Binks	DeVilbiss	Graco
Spray Gun:	#18 or #62	JGA502 or MBC510	800 or 900
Fluid Nozzle:	66 or 67	E or D*	04 or 086
Air Cap:	66 or 67PB	704, 765 or 78	02, 03 or 952

*See additional comments #6.

Airless Spray:

Pump: Capability to produce 3000 psi (e.g. Graco Bulldog, EH333 or GM5000)
High Pressure Filter: 60 mesh
Fluid Hose: 3/8" x 150' max.
Note: If more than 100', use 45:1 King and to 1/2" x 100' plus 3/8" x 50'
Airless Gun: Graco 207945, 208663, 220-954 or 220-730
Tips: .015"-.027"
Minimum pressure to avoid fingering: 2000 psi

Additional Comments:

1. VOC = 2.1 lbs./gal. (252g/l) (avg.)
2. Custom Color Bases are short filled to allow for colorant addition.
1LB25P—Light Base (124 oz./gal.)
2MB25P—Medium Base (120 oz./gal.)
3DB25P—Deep Base (116 oz./gal.)
4NB25P—Neutral Base (112 oz./gal.)
3. Consult the Material Safety Data Sheet prior to use.
4. USDA approved.
5. At 15% reduction, reduced maximum film thickness will be obtained.
6. If using D fluid nozzle, minimize reduction to avoid runs and sags.

All technical advice, recommendations and services are rendered by the Seller gratis. They are based on technical data which the Seller believes to be reliable, and are intended for use by persons having skill and know-how at their own discretion and risk. Seller assumes no responsibility for results obtained or damages incurred from their use by Buyer in whole or in part. Such recommendations, technical advice or services are not to be taken as a license to operate under or intended to suggest infringement of any existing patent.



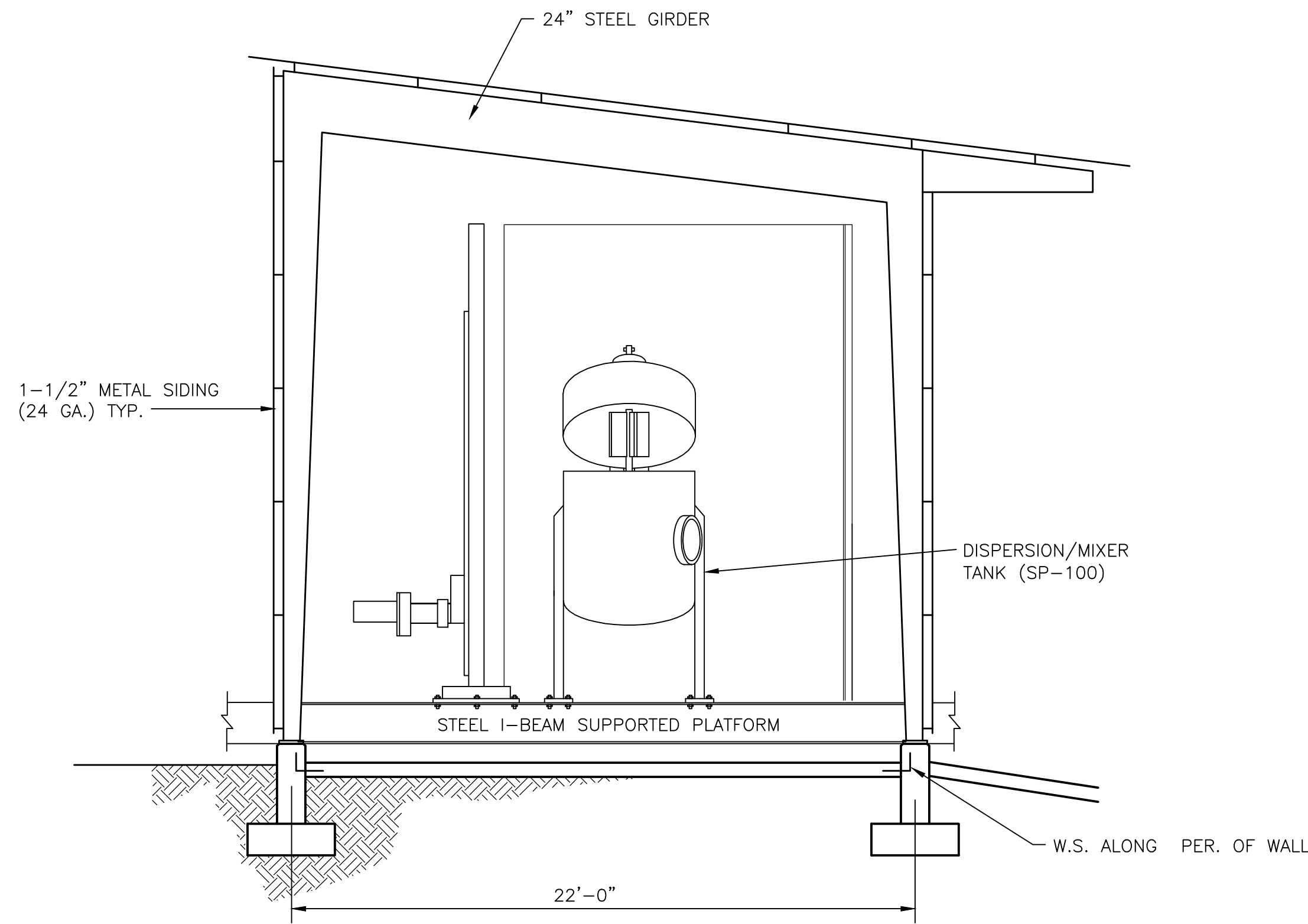
Norlite, LLC

EPA ID# NYD080469935 | NYSDEC Part 373 Permit #4-0103-16/16-0

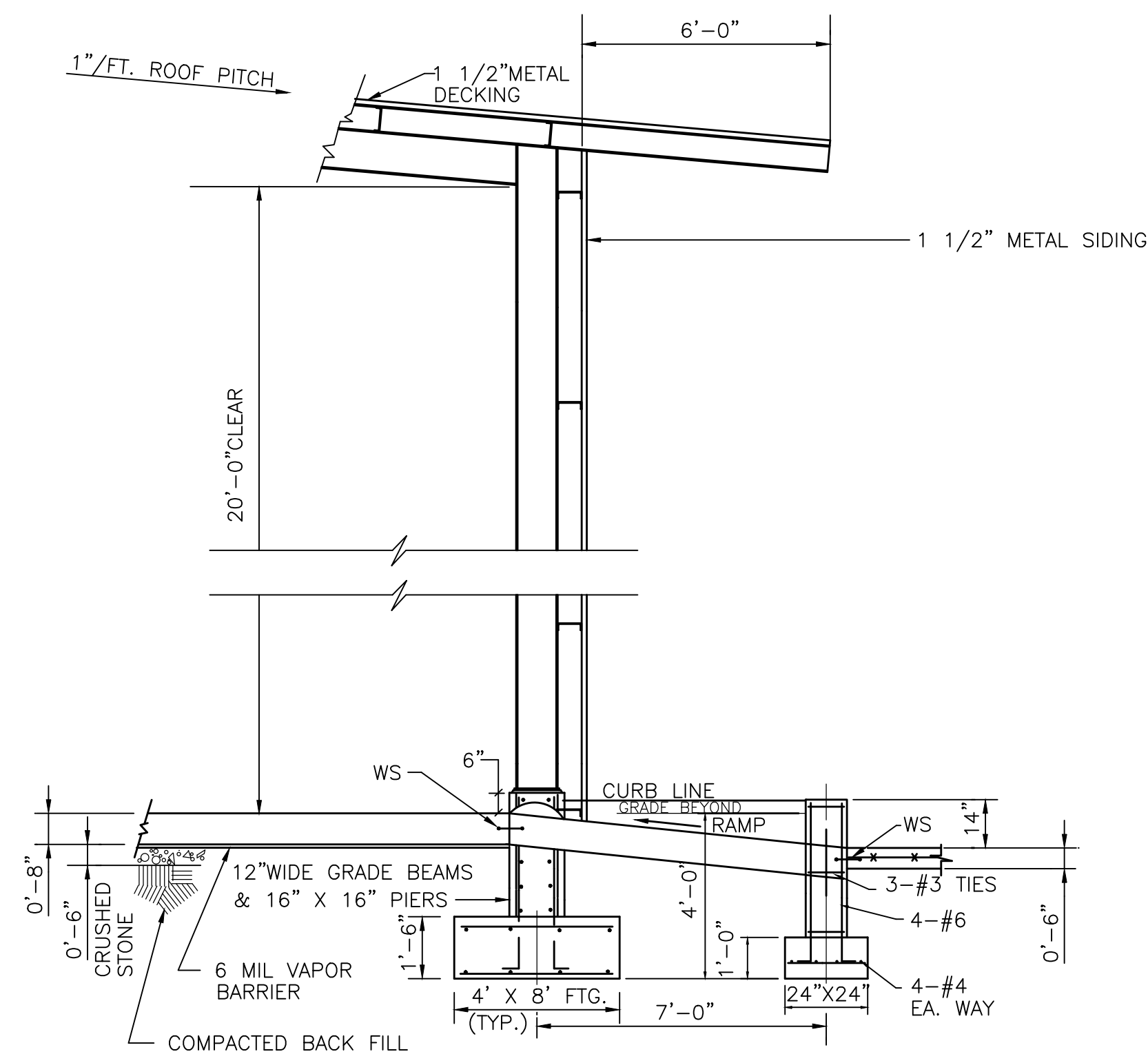
City of Cohoes, Town of Colonie, Albany County, New York

Hazardous Waste Container Storage Facilities Secondary Containment - Biennial Integrity Assessment – 2016

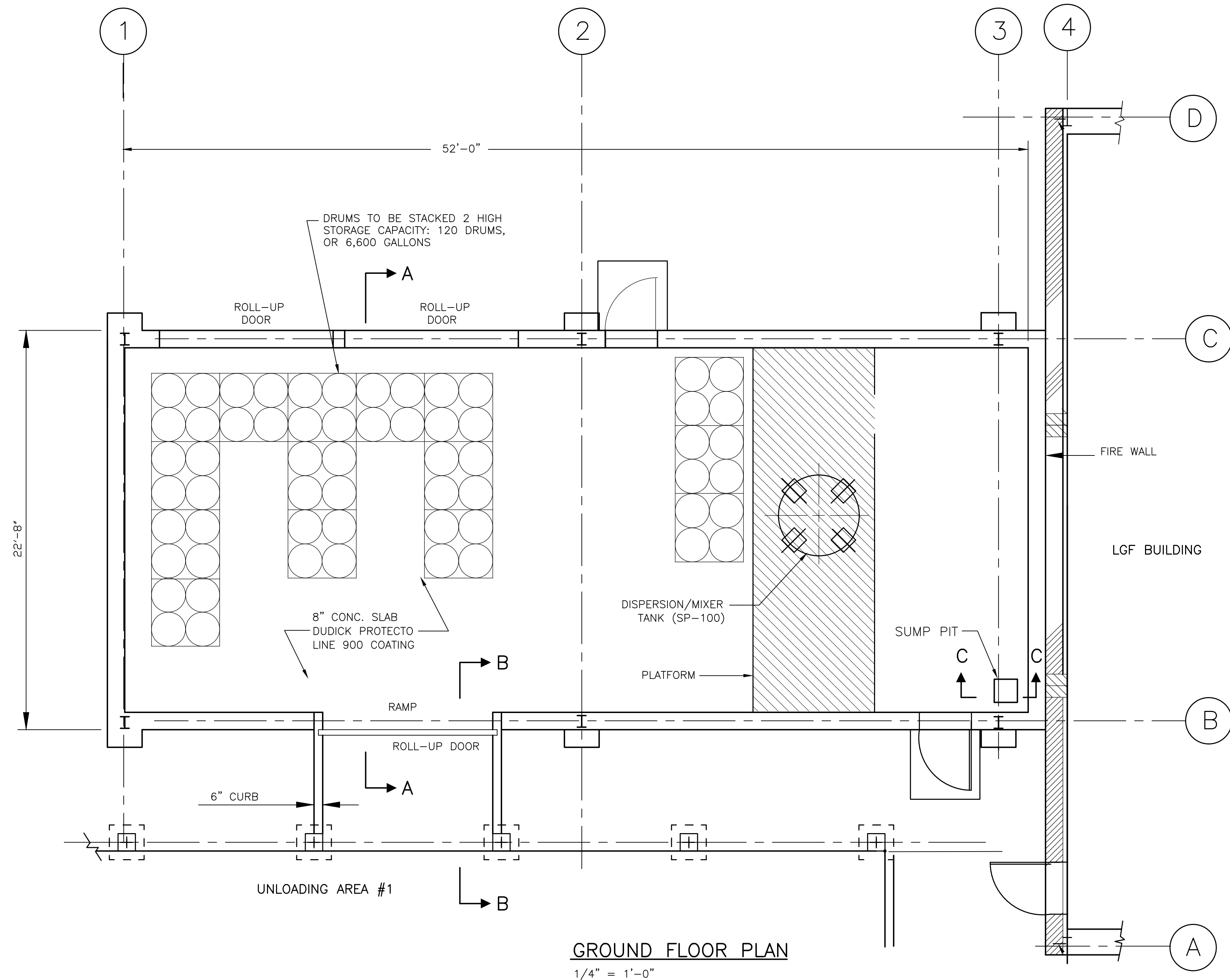
Historic Drawings Relative to Secondary Containment



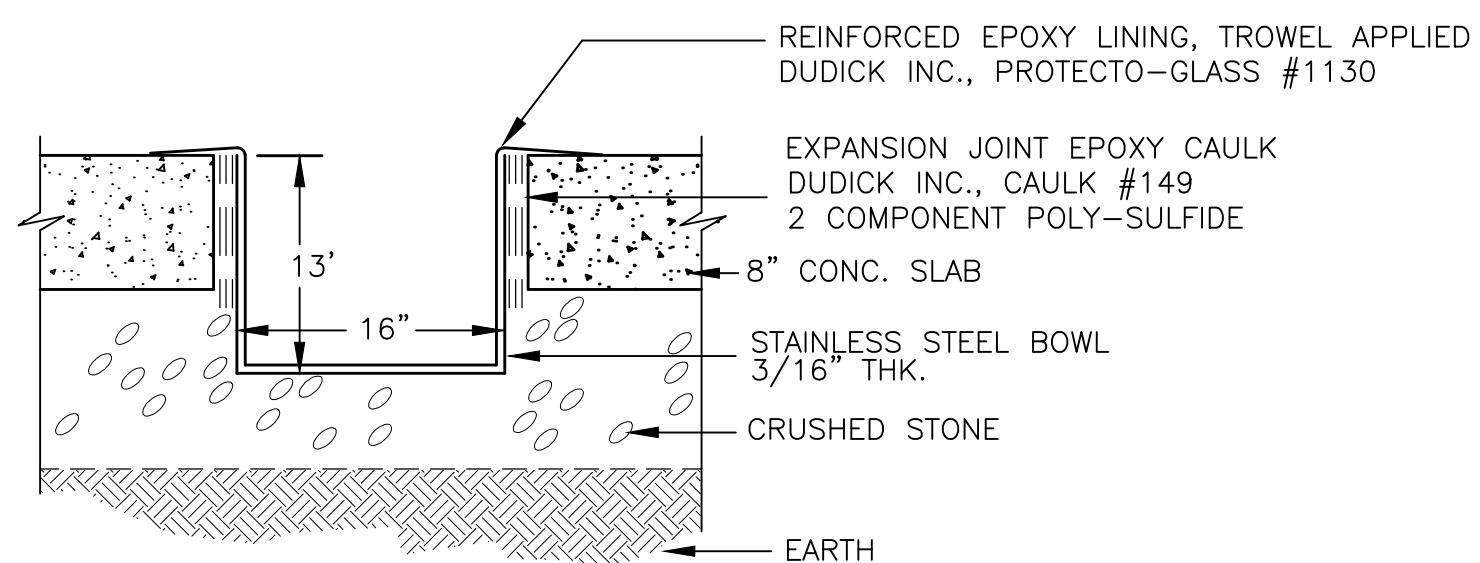
CROSS SECTION A-A
1/4" = 1'-0"



COLUMN PILASTER & FOOTING DETAIL
SECTION B-B
3/8" = 1'-0"



GROUND FLOOR PLAN
1/4" = 1'-0"



SUMP PIT SECTION C-C

SECONDARY CONTAINMENT REQUIREMENTS:

(180) 55 GALLONS DRUMS = 9,900 GALLONS +
TANK SP-100 = 623 GALLONS
TOTAL VOLUME = 10,523 GALLONS

TOTAL CONTAINMENT REQUIRED = 10,523 X 0.1 = 1,052 GAL.

AVAILABLE CONTAINMENT: (52' X 21' X 0.25') X 7.48 GAL./C.F. = 2,042 GAL.
PROVIDED CONTAINMENT IS GREATER THAN IS REQUIRED.



INFORMATION PRESENTED ON THIS DRAWING HAS BEEN COMPILED FROM CURRENT FIELD DATA AND ORIGINAL DESIGN DRAWINGS PREPARED BY ENSR CONSULTING & ENGINEERING.

FOUNDATION PLAN INFORMATION TAKEN FROM:
ENSR DRAWING NY003-D4305

REV.	DESCRIPTION	DWN	ENG.	CHK.	DATE
4	UPDATED CONFIGURATION	T.V.B.			7/17/02
3	MISC. NOTES ADDED	JJN	JBM		11/2/95
2	RENERAL REV.	JF	DR		9/10/95
1	DEC COMECT REV. SUBMITTAL	MP	RCB		1/20/92
0	NYSDEC SUBMITTAL	RPF	KP		5/5/92

CLIENT APPROVAL: _____ DATE: _____

HARVEY M. KING, P.E.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148-1608

NORLITE CORPORATION - COHOES, NY
GENERAL ARRANGEMENT
FOUNDATION PLAN AND SECTIONS
DRUM PROCESSING BUILDING

DRAWN BY: T.V.B. ENGINEER: H.M.K.	DATE: 04/29/02 FILE NAME: NY003-3008	DRAWING/FILE REF: NY-D-C-3008 DRAWING NO: NY003-3008
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PROJECT TECHNICAL SPECIFICATIONS

SELECTIVE DEMOLITION

RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions provided by the Owner apply to this section.

DEFINITIONS:

Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Engineer, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

MATERIALS OWNERSHIP:

Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

SUBMITTALS:

General: Submit each item in this article according to the Conditions of the Contract or Owner's requirements for information purposes only.

- Schedule of selective demolition activities indicating the following:
 - Detailed sequence of selective demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
 - Interruption of utility services.
 - Coordination for shutoff, capping and continuation of utility services.

Regulatory Requirements: Comply with governing local regulations and site work permits before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

PROJECT CONDITIONS:

Asbestos: It is not expected that asbestos will be encountered in the Work. If any materials suspected of containing asbestos are encountered, do not disturb the materials. Immediately notify the Owner.

SCHEDULING:

Arrange selective demolition schedule so as not to interfere with Owner's on-site operations. The schedule shall be as approved by the Owner.

PRODUCTS:

REPAIR MATERIALS

Use repair materials identical to existing materials unless otherwise agreed to by the Owner or specified.

EXECUTION:

EXAMINATION

Verify that utilities have been disconnected and capped.

When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Owner and Engineer.

UTILITY SERVICES

Utility Requirements: Locate, identify, disconnect and seal or cap off any utility service necessary during selective demolition as instructed by Owner.

PREPARATION

Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain and to ensure minimum interference with roads, streets and walks. Ensure safe passage of people around selective demolition area. Protect existing site improvements, appurtenances, and landscaping to remain.

Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of adjacent structures, walks, and streets during progress of selective demolition.

CAST-IN-PLACE CONCRETE

GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions supplied by the Owner, apply to this Section.

SUMMARY:

This Section specifies cast-in-place concrete, including formwork, reinforcing, mix design, placement procedures and finishes.

Cast-in-place concrete includes the following:

- Slabs-on-grade.
- Curbing
- Sump

SUBMITTALS:

General: Submit the following according to Conditions of the Contract and specification Sections as required by the Owner.

Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, finish materials and others if requested by Engineer or Owner.

- Laboratory test reports for concrete materials and mix design test.
- Material certificates in lieu of material laboratory test reports when permitted by Engineer. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

QUALITY ASSURANCE:

Codes and Standards: Comply with provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified:

- ACI 318, Building Code Requirements for Reinforced Concrete".
- Concrete Reinforcing Steel Institute (CRSI) –Manual of Standard Practice.

PRODUCTS:

REINFORCING MATERIALS

Reinforcing Bars: ASTM A 615, Grade 60, deformed.

- **Supports for Reinforcement:** Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI specifications.
- For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).

CONCRETE MATERIALS

Portland Cement ASTM C 150, Type IV [HIGH-EARLY]

- Use one brand of cement throughout Project unless otherwise acceptable to Engineer.

Normal-Weight Aggregates: ASTM C 33 and as specified. Provide aggregates from a single source for exposed concrete.

- For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling.

Water: Potable.

Admixtures, General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions.

RELATED MATERIALS:

CONTAINMENT COATING

The concrete containment shall receive a chemically compatible coating after installation of the new foundation slab. Surface preparation for the installation of the coating materials shall be void filling, removal of sharp corners and application of Dur-A-Flex elast-o-coat (or equal) epoxy primer at 50 mils thickness. Transition between floor and wall at joint and at outside corners shall be constructed using a slurry mix of DUR-A-FLEX elast-o-coat (or equal) resin.

Final coating shall be a minimum of 32 mils of Dur-A-Glaze Novolac (or equal) epoxy protective coating with broadcast aggregate and final Novolac coating. Color(s) as specified by Owner.

Final coating shall cover all concrete surfaces including extending over the top of the curb and down the exterior surface at least 3 inches.

Chemically compatible waterstops

Waterstops shall be installed as shown on the drawings and as specified by the owner.

Moisture-Retaining Cover & Underlayment: One of the following, complying with ASTM C 171.

- Waterproof paper.
- Polyethylene film.

PROPORTIONING AND DESIGNING MIXES:

Limit use of fly ash to not exceed 25 percent of cement content by weight.

Design mixes to provide normal weight concrete with the following properties as indicated on drawings and schedules:

- 4000-psi, 28-day compressive strength; water-cement ratio, 0.44 maximum (non-air-entrained), 0.35 maximum (air-entrained).

Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:

- Subjected to freezing and thawing: W/C 0.45.
- Subjected to deicers/watertight: W/C 0.40.

Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

- Reinforced foundation systems: Not less than 1 inch and not more than 3 inches.

CONCRETE MIXING:

Ready-Mixed Concrete: Comply with requirements of ASTM C 94, and as specified.

EXECUTION:

GENERAL

Coordinate the installation of joint materials, vapor retarder/barrier and other related materials with placement of forms and reinforcing steel.

Construct forms to sizes, shapes, lines, and dimension shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, settling, keyways, recesses, moldings, rustication, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in the Work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent cement paste from leaking.

Provisions for Other Trades: Provide openings in concrete form work to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.

PLACING REINFORCEMENT:

General: Comply with Concrete Reinforcing Steel Institutes recommended practice for Placing Reinforcing Bars, for details and methods of reinforcement placement and supports and as specified.

Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.

Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers as approved by Engineer.

Place reinforcement to maintain minimum coverages as indicated for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

JOINTS:

Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Engineer.

Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.

Isolation Joints in Slabs-on-Grade: Construct isolation joints in slabs-on-grade at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, curbs, foundation walls, grade beams, and other locations, as indicated.

- Joint fillers and sealants shall be as specified herein or by the Owner.

Contraction (Control) Joints in Slabs-on-Grade & Curbing: Construct contraction joints in slabs-on-grade to form panels or patterns as shown. Use saw cuts 1/8 inch wide by one-fourth of slab depth or inserts 1/4 inch wide by one-fourth of slab depth, unless otherwise indicated.

- Form contraction joints by inserting pre-molded plastic or hardboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges down on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
- Contraction joints in floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.

- If joint pattern is not shown, provide joints not exceeding 12 feet in either direction and located to conform to bay spacing wherever possible (at column center lines, half bays, third bays).

- Joint fillers and sealants are as specified by owner.

INSTALLING EMBEDDED ITEMS:

General: Set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.

Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

CONCRETE PLACEMENT:

Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

General: Comply with ACI 304, Guide for Measuring, Mixing, Transporting, and Placing Concrete, and as specified.

Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.

Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.

FINISHING FORMED SURFACES:

Smooth-Formed Finish: Provide a smooth-formed finish of formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, such as waterproofing, damp-proofing, veneer plaster, painting, or another similar system. Repair and patch defective areas with fins and other projections completely removed and smoothed.

CONCRETE CURING AND PROTECTION:

General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. During cold weather protect from freezing with appropriate measures. If these measures include heating protect concrete from rapid moisture loss as stated herein. Apply evaporation control material according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

Curing Methods: Cure concrete by moist curing, by moisture-retaining cover curing, or by combining these methods, as required by site conditions.

CONCRETE SURFACE REPAIRS:

Repairing Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope.

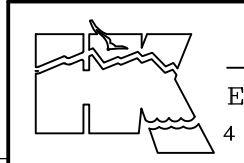
- Repair finished unformed surfaces containing defects that affect the concrete's durability. Surface defects include crazing and cracks in excess of 0.01 inch wide or that penetrate to the reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.

- Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.

Repair methods not specified above may be used, subject to acceptance of Engineer



FOR PERMIT PURPOSES ONLY

CLIENT APPROVAL:		DATE:	
 HARVEY M. KING, P.E. ENVIRONMENTAL ENGINEERS & SCIENTISTS 4 STONY BROOK DRIVE, REXFORD, NEW YORK 12148-1608			
NORLITE CORPORATION - COHOES, NY MATERIAL TRANSFER FACILITY DESIGN SPECIFICATIONS			
1	RECORD INFORMATION ADDED	TVB	HMK 12/04/00
REV.	DESCRIPTION	DWN	ENG. CHK. DATE
DRAWN BY: T.V.B.		DATE: 04/29/02	DRAWING/FILE REF: HMK-2475-99-S
ENGINEER: H.M.K.		FILE NAME: NY003-2475-3	DRAWING NO: NY003-2475-3

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