

# Submittals

## SPECIFICATIONS:

### SPECIFICATION 1 – GENERAL:

#### 1.0 Polyurethane Material

- ✓ 1.1 The material used for lifting pavements (including base material where applicable) and sealing all drainage structures shall be a two – part, water blown, closed cell, high-density polyurethane system.
- ✓ 1.2 The material shall have a free rise minimum density of 3.0 lbs/cubic ft. (48 kilograms per cubic meter) and a minimum compressive strength of 40 PSI.
- ✓ 1.3 The material shall be a polyurethane-forming mixture, having water insoluble diluents, which permit the formation of polyurethanes in excess water. The presence of these water insoluble diluents provides polyurethane foam with improved dimensional stability properties. This formula and these characteristics must be certified by the chemical supplier prior to installation.
- ✓ 1.4 The high-density polyurethane formulation shall reach 90% of full compressive strength within 15 minutes from the time of installation.

#### 2.0 Testing and Data

- 2.1 All testing and data information related to the product and as required below shall be part of the bid document:
  - ✓ A. Material safety data sheets for all pertinent production material.
  - ✓ B. A certificate of compliance from the manufacturer of the polyurethane component materials to be used. The certification shall include the results of density and compressive strength analysis performed in accordance with ASTM D 1622 and ASTM D 1621 respectively.
  - ✓ C. A report from an industrial hygienist who has conducted a personnel review, production vehicle review, and typical job-site safety review of the contractor's implementation procedures involving the polyurethane component chemicals.
  - ✓ D. A test procedure for delivery of the contractor's polyurethane material in a simulated slab, with a report of actual performance, with regard to material spread, density, and compressive strength in both dry and wet conditions.
  - ✓ E. A copy of the contractor's employee safety manual specific to polyurethane pavement lifting and drainage structure sealing.

Dalton, GA

Mount Airy, NC

Houston, TX

April 6, 2023

## Nortex

To whom it may concern,

When processed through proper equipment in full working condition, at a 1:1 ratio, 24-003 is a two-part, closed-cell polyurethane system. Due to its chemistry which includes a water insoluble diluent, this system is hydrophobic and hydroOinsensitive, allowing its formation in the presence of water.

NCFI 24-003 meets or exceeds all physical properties outlined below when properly processed.

Technical Property	Requirement
Density, min., per ASTM D 1622	3.5 – 4.5 lbs/ft <sup>3</sup>
Compressive strength, min., per ASTM D 1621	55 psi
Flexural Strength, min., per ASTM D 790	90 psi
Shear Strength, min., per ASTM C 273	45 psi
Tensile Strength, min., per ASTM D-1623	90 psi
Closed Cell Content, per ASTM D 6226	>85%
Curing Rate	90% of compressive strength within 30 minutes after injection

Flexural Strength at 4PF reaches a minimum of 87PSI Free Rise poured, and when restricted (or confined) it can reach up to 390PSI.

Products are warrantied for a six-month shelf life.

For any additional questions please reach out to your account manager.

Regards,



Samantha Poirier - Senior Chemist

## TERRATHANE™ Polyurethanes

TerraThane™ Polyurethanes by NCFI are uniquely formulated for a variety of geotechnical applications. Each batch goes through stringent testing and quality assurance standards to ensure reliability in the field.

## About 24-003

TerraThane™ 24-003 is a hydrophobic/hydro-insensitive, MDI-based polymer formula that is specially designed for exceptional flow or spread under concrete structures when water is present. The 24-003 flowability ensures voidfill and support before lifting. 24-003 is available with an NSF/ANSI 61 Section 5 – 2017 certification.

### 24-003 APPLICATIONS

- Bridge Approaches and Departures
- Highway and Streets
- Airport Runways and Taxiways
- Concrete Slab Lifting
- Joint Matching
- Void Filling
- Deep Soil Injection

### Reaction Curve at 110°

Cream Time	7 seconds
Gel Time	13 Seconds
Tack Free Time	19 seconds



### Physical Properties

Physical Properties	Test Method	Free Rise	Restrained
Density	ASTM D1622	4.0 pcf	5-6 pcf
Compressive Strength	ASTM D1621	68 psi	80-100 psi
Compressive Modulus	ASTM D1621	1900 psi	2400-3200 psi
Tensile Strength	ASTM D1623	79 psi	100-120 psi
Tensile Modulus	ASTM D1623	1446 psi	3100 psi
Water Absorption	ASTM D2842	≤ 0.04 lbs/ft <sup>2</sup>	≤ 0.04 lbs/ft <sup>2</sup>
Closed Cell Content		>92%	>92%
Max Service Temp		200°F	200°F
Elongation	ASTM D1623	5.1%	
Shear Strength	ASTM C273	52.0 psi	90 psi
Shear Modulus	ASTM C273	602 psi	677 psi
Flexural Strength	ASTM D790	80 psi	387 psi
Flexural Modulus	ASTM D790	1625 psi	13502 psi

TerraThane Geotechnical Division • NCFI Polyurethanes

Div. of Barnhardt Manufacturing Co. • P.O. Box 1528 • Mounty Airy, NC 27030 • 800-346-8229

WWW.TERRATHANE.COM



## Special Testing/Certifications

NYDOT Hydro-insensitivity test, GTP-9	<b>&gt;96% density retention</b> <b>&gt;93% comp str retention</b>		
Dimensional stability, % volume change, 28 day aging (ASTM D-2126)	Heat age at 158°F	Freezer at -20°F	Humid age at 100% RH & 120°
	-1.5%	-0.1%	-1.0%

### Performance

*Wet Environments...* **Excellent**

*Lifting Capacity...* **Excellent**

### Chemical Resistance

*Solvents...* **Excellent**

*Mold and Mildew...* **Excellent**

## Component Properties

Component	B-24-003	A2-000
Appearance	Transparent Liquid	Clear Brown Liquid
Brookfield Viscosity @ 20rpm	500 cps at 72°	200 cps at 72°
Specific Gravity	1.07	1.24
Weight per Gallon	8.9 lbs	10.3 lbs
Storage Temperature	50° - 100°F	50° - 110°F

## Processing Parameters

ISO Temperature	100° - 120°F
Poly Temperature	100° - 120°F
Mixing Pressure	800 psi static, 600 psi dynamic, 1000/800 preferred

## Mix Ratio

**By weight...** 100 parts poly : 116 parts iso

**By volume...** 100 parts poly : 100 parts iso

## Storage and Handling

Store the poly from 50°F to 90°F. Avoid moisture contamination during storage, handling, and processing. For both components, pad containers and day tanks with either nitrogen or dry air (desiccant cartridge or air dryer @ -40°F dew point). For optimum shelf life, the recommended storage temperature for iso is 50°F to 110°F. **Do not expose iso to lower temperatures – freezing may occur.** Store components at 70°F to 90°F for several days prior to use to minimize components being too viscous at time to take to field. Shelf life is 6 months for factory sealed containers.

## Application Cautions

Careful consideration should be given to selection and application of any NCFI Polyurethane foam system where excessive foam mass build-up can occur. Excessive polyurethane foam lift thickness will result in high internal temperatures within the injected foam, which can result in degraded foam properties, or in extreme cases, fire or spontaneous combustion. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions.** Each person, firm or corporation engaged in the application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures. Please consult NCFI Polyurethanes for safety considerations, polyurethane system selection and application recommendations.

The Information contained herein is believed to be reliable, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained there from. The information is based on laboratory work with small-scale equipment and does not necessarily indicate end product performance. Because of the variation in methods, conditions and equipment used commercially in processing these materials, no warranties or guarantees are made as to the suitability of the products for the application disclosed. Full-scale testing and end product performance are the sole responsibility of the user. NCFI Polyurethanes shall not be liable for and the customer assumes all risk and liability of any use or handling of any material beyond NCFI's direct control. NCFI MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nothing contained herein is to be considered as permission, recommendations, nor as an inducement to practice any patented invention without permission of the patent owner.

TERRATHANE™

24-003  
Technical Data Sheet

# Material Safety Data Sheet



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Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

## PRODUCT IDENTIFICATION

**Trade Name:** NCFI 24-003 R

**Chemical Family:** Polyol Resin System

**Chemical Name:** Mixture

**Formula:** N/A

**Synonyms:** Polyurethane Resin

**Date Prepared:** 04/30/08

## INGREDIENTS-HAZARD CLASSIFICATION

Name:	CAS NO.	%	PEL
1,1,1,3,3-Penta Fluoropropane <sup>1</sup> (CF <sub>3</sub> CH <sub>2</sub> CHF <sub>2</sub> or HFC-245fa)	460-73-1	< 4	None Established. 300 ppm TWA recommended.
Tertiary Amine Catalysts <sup>1</sup>		< 1	None Established.

<sup>1</sup> Not listed as a carcinogen (NTA, IARC, OSHA)

## SHIPPING INFORMATION

Not regulated when shipped by land, water or air.

## PHYSICAL DATA

**Boiling Point (°F):** CF<sub>3</sub>CH<sub>2</sub>CHF<sub>2</sub>, 60°F

**Specific Gravity:** 1.07

**Solubility in Water:** Slight

**% Volatile by Volume:** 3

**Appearance and Odor:** Brown liquid, ethereal odor

## FIRE AND EXPLOSION HAZARD DATA

**Flash Point (test method):** After CF<sub>3</sub>CH<sub>2</sub>CHF<sub>2</sub> evaporation, >200°F (P-M)

**Flammable Limits (vapor)**

**Extinguishing Media:** Water, dry chemicals, CO<sub>2</sub>

Lower: None; Upper: None

**Special Fire Fighting Procedures:** A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors.

**Unusual Fire and Explosion Hazards:** Overheated containers may rupture due to pressure produced by CF<sub>3</sub>CH<sub>2</sub>CHF<sub>2</sub>. CF<sub>3</sub>CH<sub>2</sub>CHF<sub>2</sub> burns to form acids and noxious gases.

## REACTIVITY DATA

**Stability:** Stable

**Conditions to Avoid:** Temperatures over 85°F

**Polymerization:** Will not occur

**Conditions to Avoid:** N/A

**Incompatibility:** Isocyanates and other chemicals that react with hydroxyl groups.

**Hazardous Decomposition Products:** When burned; CO, CO<sub>2</sub>, NO<sub>x</sub>, aliphatic fragments, halogens, halogen acids and possibly carbonyl halides.

## HEALTH HAZARD DATA

**Permissible Exposure Limit:** None established.

**Effects of Overexposure:** May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization.

### First Aid Procedures

**Eyes:** Flush with water for at least 15 minutes. See a physician if irritation develops.

**Skin:** Wash with soap and water at first opportunity.

**Inhalation:** Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician.

**Ingestion:** Induce vomiting; get medical attention.

## SPECIAL PROTECTION INFORMATION

**Ventilation:** Local exhaust ventilation is recommended when working with this product. Uses requiring heating and/or spraying may require more ventilation or personal protective equipment.

**Respiratory Protection:** The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, *see OSHA standard 29CFR 1910.134*. All equipment must be NIOSH approved and maintained.

**Eye Protection:** Goggles or chemical safety glasses.

**Gloves:** Chemically resistant rubber or plastic.

**Other:** Avoid eye and skin contact. Eye wash system and showers should be available.

## SPILL OR LEAK PROCEDURES

Remove or extinguish ignition or combustion sources.

Contain spill. Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations.

Wash area with detergent and water.

## SPECIAL PRECAUTIONS

Store between 65°F and 85°F out of sunlight. Keep tightly sealed. Relieve pressure slowly when opening container. R Component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations.

**CAUTION:** Under no circumstances should empty drums be burned or cut open with an electric or gas torch.

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## PRODUCT IDENTIFICATION

**Trade Name:** NCFI 24-003 A

**Chemical Family:** Aromatic Isocyanate

**Chemical Name:** Polymethylene polyphenylisocyanate

**Formula:** N/A

**Synonyms:** Polymeric MDI

**Date Prepared:** 04/30/08

## INGREDIENTS-HAZARD CLASSIFICATION

Name:	CAS NO.	%	PEL
Diphenylmethane diisocyanate (MDI) <sup>1</sup>	101-68-8	50	0.02 ppm ceiling
Higher polymers of similar structure	9016-87-9	50	None Established.

<sup>1</sup> Not listed as a carcinogen (NTA, IARC, OSHA)

## SHIPPING INFORMATION

Not regulated when shipped by land, water or air when packaged in single containers of 5000 pounds or less.

## PHYSICAL DATA

**Boiling Point (°F):** 625°F

**Specific Gravity:** 1.24

**Solubility in Water:** Insoluble, reacts

**% Volatile by Volume:** None

**Appearance and Odor:** Brown liquid, slight aromatic odor

## FIRE AND EXPLOSION HAZARD DATA

**Flash Point (test method):** 390°F (P-M)

**Extinguishing Media:** Water, dry chemicals, CO<sub>2</sub>

**Special Fire Fighting Procedures:** A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors.

**Unusual Fire and Explosion Hazards:** At temperatures above 400°F, MDI can polymerize/decompose causing pressure build-up in closed containers and possibly rupture. Avoid water contamination in closed containers which may cause rupture (CO<sub>2</sub> is evolved).

## REACTIVITY DATA

**Stability:** Stable

**Conditions to Avoid:** Contamination with water

**Polymerization:** May occur from contact with water, alcohols, glycols or other materials containing active hydrogens.

**Incompatibility:** Water, alcohols, amines, strong bases.

**Hazardous Decomposition Products:** By high heat or fire; CO, CO<sub>2</sub>, NO<sub>x</sub>, benzene, toluene, aliphatic fragments and traces of HCN

## HEALTH HAZARD DATA

**Permissible Exposure Limit:** 0.02 ppm ceiling for MDI.

**Effects of Overexposure:** May cause skin or eye irritation upon contact. Inhalation of MDI vapors may cause breathlessness, chest discomfort, coughing and reduced pulmonary functions. Exposure may produce asthma-like symptoms, also may lead to allergic sensitivity.

### First Aid Procedures

**Eyes:** Flush with flowing water for at least 15 minutes, then obtain medical attention.

**Skin:** Remove contaminated clothing and wash off with soap & water.

**Inhalation:** Remove to fresh air, administer oxygen if necessary.

**Ingestion:** Drink large amounts of water. See a physician.

## SPECIAL PROTECTION INFORMATION

**Ventilation:** MDI has a very low vapor pressure at room temperature. General/local ventilation typically control exposure levels very adequately. Uses requiring heating and/or spraying may require more aggressive engineering controls or personal protective equipment. Monitoring is required to determine engineering controls.

**Respiratory Protection:** The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, *see OSHA standard 29CFR 1910.134*. All equipment must be NIOSH approved and maintained.

**Eye Protection:** Wear goggles or chemical safety glasses.

**Gloves:** Chemically resistant rubber or plastic.

**Other:** Avoid eye and skin contact. Eye wash system and safety showers should be available.

## SPILL OR LEAK PROCEDURES

Contain spill. Absorb with sawdust, etc., and shovel into open top drum. Decontaminate absorbent and spill area with 2% detergent/water solution. Let waste stand for 1 to 2 days, then dispose of waste in a licensed facility. Respiratory protection/ventilation is recommended during clean-up.

## SPECIAL PRECAUTIONS

Store between 65°F and 85°F out of sunlight. Keep tightly sealed to prevent moisture contamination. Relieve pressure slowly when opening container. Once opened, protect contents from water with dry atmosphere (-40°F dew point). If isocyanate becomes contaminated, do not reseal. Empty isocyanate drums or other container should be decontaminated by filling with water or decontamination solution, preferably outdoors. Allow to stand for 24-48 hours, open to the atmosphere. **DO NOT SEAL DRUMS OR CONTAINERS.** Drain the drums and puncture to prevent reuse. Dispose of as ordinary industrial waste.

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Date Prepared: 2/22/89

Last Revision Date: 6/16/00

## SARA 313 INFORMATION

The isocyanate (A) component product of this NCFI system contains the following chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986, EPCRA Section 313 (40 CFR 372) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>CERCLA RQ</u>	<u>CONCENTRATION</u>
Methylene Bis Phenylisocyanate (Same as Diphenylmethane diisocyanate (MDI))	101-68-8	5000 lbs.	See MSDS - A Component
Polymeric Diphenylmethane diisocyanate	9016-87-9		See MSDS - A Component

### IMPORTANT NOTICE

This notification is a part of the Material Safety Data Sheet document and must not be detached. Any copying and redistribution of the Material Safety Data Sheet shall include copying of this notice and attaching the copy to the redistributed Material Safety Data Sheet copies.

This report contains an Industrial Hygiene Review of  
Personnel, Production Vehicle and Job-Site Safety  
Of the Lift and Stabilization Process performed by

Nortex Concrete Lift and Stabilization, Inc.  
201 NW 26<sup>th</sup> St  
Fort Worth, TX 76164

Review performed on April 3, 2009  
Michele D. Smith, CIH  
ABIH#: 7882



Michele D. Smith, CIH  
845 Edgehill Rd  
Burleson, TX 76028  
817.366.2342

## **INTRODUCTION**

Michele Smith, CIH performed a review of the lift and stabilization process used by Nortex Concrete Lift and Stabilization. The review included a personnel review, a production vehicle review and a job-site safety review of the implementation of the procedures involving the polyurethane component system.

Nortex Concrete Lift and Stabilization (Nortex) is a licensed contractor that specializes in lifting and stabilizing concrete panels using specialized polyurethane foam systems. The process is designed for lifting curb sections, re-aligning mismatched joints along highways and streets, raising and stabilizing bridge approaches and departures, repairs to airport runways and taxiways, soil densification, residential and commercial concrete slab repair, etc.

## **TECHNICAL APPROACH**

The basic process involves using a box truck as a mobile unit. The crew chief performs a checklist inspection of the truck and truck contents before the start of each day. A diesel-mounted generator is contained in a front section of the box and is exhausted to the outside air. The 'generator room' also has a door to close it off from the remaining portion of the box and decrease noise levels in the direction of the workers. Two plastic totes within wire cages, with a holding capacity of 2500 pounds of product each, contain the two liquid parts of the polyurethane product. A drill is used to create a 5/8" diameter hole into the surface that is to be leveled. A tight fitting gun sleeve is inserted into the hole. The product is pumped through two separate hoses using an air gun and through the tube that is inserted into the drilled hole, and into the void spaces beneath the surface. The two parts meet at the discharge gun and are injected at approximately 1000 psi. The two parts take approximately 15-20 seconds to react and then to expand the polyurethane foam into the void spaces beneath the surface. A lifting gauge is used to determine when the product is beginning to fill the void and to raise the surface. The product is pumped into the space until the area reaches its desired lift. Once the surface has been lifted to the required level, a non-expansive concrete grout is used to seal the hole.

Depending on the size of the area to be lifted, terrain, amount of lift necessary, and any other physical parameters known about the area, holes are drilled at six to eight foot intervals throughout the area. Depending on the size of the panel to be lifted, two guns may be used to simultaneously lift a larger area to ensure the most effective and even lift of the panel.

## **MATERIALS REVIEWED**

- Nortex Work Plan
- Nortex Statement of Policy (commitment to Safety)
- Nortex Equipment List
- Technical data sheet for the NCFI 24-003 (urethane foam system) from the manufacturer
- MSDSs for NCFI R-24-003 (polyurethane resin) and NCFI ES A-24-0003 (Polymeric MDI) [2 parts of the system]
- A report by BaySystems North America, LLC as to the environmental impact of the polyurethane foam, and its possible effects of leaching

- Visually reviewed the entire process: from marking the area off through sealing with concrete grout and cleaning the area

### **SUMMARY OF FINDINGS**

The process was observed beginning with a review of the area to be lifted. Employees considered the area and determined safety measures to be taken before beginning work. Employees wore high visibility vests and hard hats, marked the area off with orange cones, and made decisions with safety as a high priority throughout the process. The crew had a person designated as the safety representative. Through interviewing the persons performing the work, and the safety representative, employees demonstrated they were familiar with the safety protocol for the process. Employees verified that safety training is a part of their weekly meetings. Crew chiefs verified that the checklist is performed before each work-day. Employees are provided with high visibility vests, hardhats, gloves, safety glasses, and hearing protection which are worn throughout the process. Employees supply their own safety shoes that are also required for this operation.

The process was performed using the recommendations found in the Technical Data Sheet provided by the manufacturer of the product being used. The personal protective equipment used was appropriate based on the safety hazards of the area and the physical hazards of the material, according to the MSDSs for the components of the product. A portable eyewash station is mounted within the box truck as a safety measure. The work area is outdoors and is well ventilated. No odor was apparent during the review. The hoses transporting the two components to the gun, as well as the air hose, are all bound in an insulating foam encasing and sealed with tape to protect the hoses from physical damage through friction or sharp edges.

### **Conclusion**

No additional hazards were identified that were not already addressed in the process. No additional recommendations were identified. No additional personal protective equipment or protective measures against personnel exposure were identified.

*Michele Smith, CIH cannot predict what will happen in the future. I have made every reasonable effort, based on the information supplied to me, through the visual demonstration of the process and written documents, to provide an accurate report. Michele Smith, CIH accepts no liability for any incident or regulatory impact that occurs through this process, either directly or indirectly.*



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***Report of Results for NCFI Polyurethanes  
TerraThane System 24-003  
Hydrophobic/Hydro-Insensitive  
Geotechnical Polymer.  
Per Test Method NMDOT GTP-9***



This report is a compilation of the data generated from foam made on August 6, 2020.

NCFI has previously conducted testing per NMDOT GTP-9. When conducting this test, we modified our procedure to avoid some pitfalls witnessed previously.

The NMDOT GTP-9 test procedure calls for the panel lid to be screwed down to the base with 1.5-inch wood screws. The pressure generated by the molding of the foam is great and many of the screw heads are pulled into the wood. We use a washer on the screw head to help disperse the pressure and we would use a fresh hole in the wood for each test. We also place 4 full drums of chemical or more than 2000 pounds on the panel lid to help hold it down.

Any ability by the foam to push the panel open by either pulling the screw head into the lid and/or stripping the screw from the used holes will distort the measurements made in the test. Expansion of the panel causes the foam to be less dense and a less dense foam is also a weaker foam.

# Hydro-Insensitivity of High Density Polyurethane Grout - Panel Test Data Sheet

Polymer Type & Manufacturer NCFI Polyurethane Foam System 24-003

Lot # & Date on Component Containers Resin, mfg'ed 8/6/2020

## PROPORTIONING EQUIPMENT

Proportioner PMC PH-40

Hose Length (ft.) 50 ft.

Gun GX-7

Gun Set-up 42/42 pour module

A/B/H Temperature (°F) 110°/110°/110°

A/B Pressure (psi) 1000 static / 800 dynamic

## CALIBRATION TEST

11:05:00 Time at Beginning of Injection (HH:MM:SS)

11:05:22 Time at End of Injection (HH:MM:SS)

5 Sample Weight (lbs.) vs. NA Certified Flow Meter Weight (lbs.)

## INJECTION PROCEDURE – DRY INJECTION PROCEDURE - WET

✓ (✓) 5 lbs. of Material Injected into Box

✓ (✓) After 10 minutes, Remove Top Cover

✓ (✓) After 30 minutes, Sample the HDP

✓ (✓) Add 15 lbs. of Water into Box

✓ (✓) 5 lbs. of Material Injected into Box

✓ (✓) After 10 minutes, Material Remove Top Cover

✓ (✓) After 30 minutes, Sample the HDP Material

## MATERIAL ANALYSIS

### Dry Injection Shots

	Density (pcf)	Compressive Strength (psi)
Sample 1	<u>4.34</u>	<u>72.51</u>

### Wet Injection Shots

	Density (pcf)	Compressive Strength (psi)
	<u>4.16</u>	<u>48.04</u>

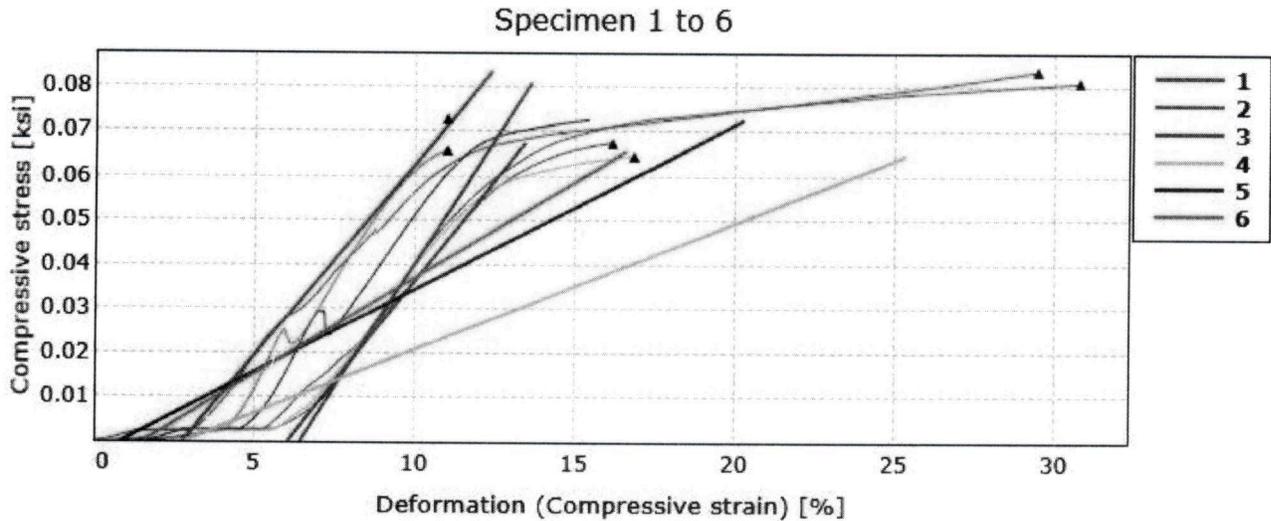
% Retention of Density

Sample 1 96%

Technician Ellis Wysinger/Steve Barnes

Date 9/30/2020

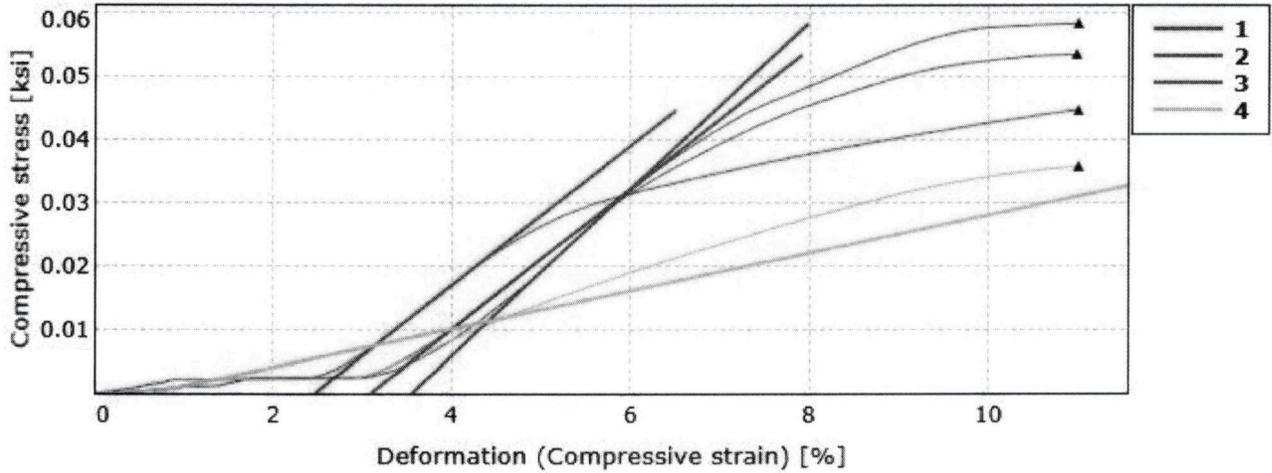
**TEST RESULTS  
GTP-9 DRY TEST RESULTS**



	Compressive Strength @ Max Load [psi]	% Deformation at Max Load [%]	Compressive Strength @ 10% Deformation [psi]	Load at 10 % Deformation [lbf]	Modulus (Automatic Young's) [psi]
1	83.37	29.42	56.48	225.92	865.16
2	80.85	30.73	39.86	159.46	1121.66
3	67.65	16.18	36.14	144.56	914.15
4	64.77	16.86	39.34	157.37	287.73
5	72.63	15.41	51.20	204.79	280.33
6	65.79	11.00	61.29	245.14	436.28
Mean	72.51	19.94	47.39	189.54	650.88

**GTP-9 WET TEST RESULTS**

Specimen 1 to 4



	Compressive Strength @ Max Load [psi]	% Deformation at Max Load [%]	Compressive Strength @ 10% Deformation [psi]	Load at 10 % Deformation [lbf]	Modulus (Automatic Young's) [psi]
1	44.66	11.00	42.61	170.46	1104.90
2	53.40	10.99	52.46	209.84	1107.76
3	58.34	10.99	57.65	230.60	1317.14
4	35.76	11.00	34.11	136.42	299.24
Mean	48.04	11.00	46.71	186.83	957.26

**SUBMERGED PERFORMANCE TESTING RESULTS**

172-25 Test 1 Dry		172-25 Test 2 Wet		
Test Sample Name #	Compressive Strength [psi]		Compressive Strength [psi]	%Differential
Sample 1	88.38	Sample 1	86.18	2%
Sample 2	89.68	Sample 2	87.56	2%
Sample 3	93.36	Sample 3	90.68	3%
Sample 4	89.1	Sample 4	85.21	4%
Sample 5	96.49	Sample 5	93.01	4%
<b>Average:</b>	<b>91.40</b>	<b>Average:</b>	<b>88.53</b>	<b>3%</b>

# **NORTEX**

**CONCRETE LIFT & STABILIZATION**

201 NW 26th St., PO Box 4935, Fort Worth, TX 76164-4935    ☎ Main: (817) 831-1240    ☎ Fax: (817) 831-1245

## **SAFETY PROGRAM**

### **A Workplace Accident and Injury Reduction (AWAIR) Program**

201 NW 26th Street  
P.O. Box 4935  
Fort Worth, TX 76164-4935  
817.831.1240  
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# **NORTEX**

## **CONCRETE LIFT & STABILIZATION**

201 NW 26th St., PO Box 4935, Fort Worth, TX 76164-4935    ☎ Main: (817) 831-1240    ☎ Fax: (817) 831-1245

DATE:                    January 2022

TO:                        All Company Employees

FROM:                    Mark Franklin  
                              Company Owner

RE:                        Company Safety Program /A.W.A.I.R. Program  
                              "A Workplace Accident and Injury Reduction Program"

It is the objective of this company to conduct all operations as safely and efficiently as possible.

To accomplish this, we have assigned the responsibility, authority and accountability for all safety to all superintendents within their individual areas of operation.

Casey DeRosa is our designated Safety Director. It is his responsibility to administer a total safety effort at a staff level, and to coordinate these efforts with all superintendents to ensure that safety standards and expectations are met throughout the company.

Each employee will have the responsibility of performing his or her job in a safe and efficient manner. We are committed to provide you a safe place to work and welcome your thoughts and ideas for improving the way we deliver our services.

If you should have any questions or need additional information, feel free to contact Casey directly.

Thank you,



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## 1. INTRODUCTION (POLICY, PURPOSE, AND SCOPE)

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It is the policy of Nortex Concrete Lift and Stabilization, Inc. to provide safe healthful working conditions and operating practices on all job sites. Accident prevention is the responsibility of each, and every person employed by this company. This responsibility can only be met by working continuously to promote safe working practices and to maintain property and equipment in safe operating condition.

This Safety Program has been developed to assure compliance with Federal, State, and Local regulations pertaining to the OSHA 1970 Act. Primary duties of the Safety Director include educating all employees about the OSHA standards and how to implement these standards to our benefit.

Each Foreman is responsible to see that this Safety Program and all other required safe work practices are followed by all employees under their supervision. It is also their responsibility to correct unsafe conditions, practices, and the enforcement of this Safety Program.

This Safety Program is designed to help protect you, the employee. It is your responsibility to follow this Safety Program for the protection of you, as well as your fellow employees. Management has made a commitment to stand behind the enforcement of this Safety Program to keep our job sites safe. Any recommendations to improve our Safety Program are encouraged.

The purpose of the Nortex Concrete Lift and Stabilization, Inc. Safety Program is to communicate with all company personnel and others who will be at any of our job sites.

Objective:

1. To safeguard our employees by providing appropriate safety policies, programs, and procedures in compliance with Federal, State, and Local regulations.
2. To provide our employees, subcontractors and licensed vendors with necessary information on safety on our job sites.
3. To comply with the applicable federal, state, and local workplace safety and health requirements.
4. This Safety Program will provide the means for the transmission of information to employees as required of the Texas OSHA "A Workplace Accident Injury Reduction Program (AWAIR)".

This Safety Program will be reviewed with all employees, so they will know what is expected of them regarding safety.

## 2. GOALS & OBJECTIVES

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Nortex Concrete Lift & Stabilization, Inc. is committed to providing its employees with a safe and healthy working environment. To achieve this environment, the company has set forth the following goals and objectives.

Goal: We will establish and maintain a company culture that is committed to workplace safety and health.

*Objectives:*

1. We will conduct an annual safety meeting to inform employees about specific workplace safety and health issues, and to build an overall awareness of employee safety and health.
2. We will actively enforce all safety rules throughout the company.

Goal: We will provide supervisors toolbox talks that pertain to jobsite specific hazards.

Toolbox talks will be performed weekly for the duration of the construction year.

*Objectives:*

1. We will distribute weekly required toolbox talks to supervisors.
2. Weekly follow up with the supervisor from the Safety Director and/or Project Manager to ensure toolbox talk has been completed and documented.

Goal: Reduce the previous year DOT violations by 20% Objectives:

1. We will implement safe driving practices and procedure videos and literature training for new and existing eligible drivers.
2. Supervisors will actively enforce the requirement of pre-trip inspection walk around of vehicle.

## 3. ROLES AND RESPONSIBILITIES & ENFORCEMENT OF SAFETY AND HEALTH PROGRAMS

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*Everyone in the organization:*

1. All employees, including supervisors and managers, must always follow all safety rules.

*Workers:*

1. Strive to ensure the safety of themselves, co-workers and others.
2. Request help when unsure on how to perform tasks or when unfamiliar with equipment.
3. Use and maintain all safety devices provided.
4. Maintain and properly use all tools in control.
5. Not report for work in such condition where it could endanger themselves or others.
6. Not allow any unauthorized personnel on a job site.
7. Evoke "stop work authority" to stop operations when imminent harm conditions exist.

*Supervisors:*

1. Supervisors must discuss any current safety issues with their employees at the beginning of all regularly scheduled toolbox and job startup meetings.
2. Supervisors should address all safety concerns raised by staff members by initially investigating the issue, determining if the concern is valid and taking appropriate corrective action whenever necessary. Corrective action can include ordering new equipment, issuing maintenance work orders or consulting with the safety director, the safety committee or upper management.
3. Immediately upon learning of an accident or near miss, the supervisor must initiate an investigation and submit the completed accident investigation report to the safety director.
4. Supervisors will actively and positively participate in all safety committee inspections of their assigned areas.
5. Supervisors must monitor employees to assure engineering controls and personal protective equipment are correctly used and procedures are correctly followed.
6. Supervisors should reinforce positive behavior yet correct negative actions and attitudes.

*Safety Director:*

1. The safety director will serve as the lead person in the organization for safety and health issues and will also serve as chairperson of the safety committee.
2. The safety director must review all accident investigation reports with the safety committee and take appropriate action to prevent recurrence.
3. The safety director will conduct, in cooperation with first-line supervision, all safety training required by regulation or identified by management, supervision or the safety committee as a need to assure a safe workplace.
4. The safety director will recommend improvements in machinery, equipment, work tasks, and raw materials.
5. Enforce safety violations through employee disciplinary action steps.
6. Create Jobsite Hazard Assessments (JHAs)

*Management:*

1. Managers will communicate to all employees and supervisors of the importance of workers safety and health.
2. Provide protective equipment where required.
3. Management shall review all safety concerns brought forward by the safety director, the safety committee or first-line supervision and take appropriate action.
4. Ensure the availability of proper safety material and protective devices and provide time for employees to properly inspect, train, and maintain equipment in a safe working order.
5. Review all accidents with the Safety Director.
6. Notify Safety Director if safety violations occur.

*Safety Committee:*

1. The safety committee will conduct quarterly meetings and area inspections to review accident reports, identify hazards and address any and all safety concerns raised by employees, first-line supervision or the safety director.
2. The safety committee will review the AWAIR program at least annually and make recommendations concerning updates and revisions to the safety director.

#### **4. COMMUNICATION AND PROGRAM REVIEW**

---

A safety meeting for all employees will be held once a year to review our Safety Program and update it if need be.

Toolbox Safety meetings will be held to instruct those working on site on our Safety Program, job site related safety topics and what we expect their performance to be while on the job.

1. Toolbo x Safety meetings will be held each Monday morning at break time throughout the life of the contract.
2. This meeting will be conducted by the superintendent, foreman or designated person and attended by all workmen at the job site that day.
3. Topics for discussion will be selected for appropriateness to the work at hand.
4. Meeting duration should not exceed 15 minutes and should include a question-and-answer period and sign-in of all present.
5. A copy of each Safety Meeting will be forwarded to the Safety Director.

Periodic jobsite visits will be made by the Safety Director and Management team to inspect and audit Safety and Health practices.

The Safety Committee and Management will review this Safety Program on an annual basis in the first quarter of each year. If a revised Program is deemed necessary, it will be published at that time. Documentation will be made on findings and Program Changes.

The safety committee will conduct quarterly meetings and area inspections to review accident reports, identify hazards and address any and all safety concerns raised by employees, first-line supervision or the safety director.

We consider the SAFETY of our personnel to be of first importance, and we ask your full cooperation in making this Safety Program effective.

#### **5. DRESS CODE and PROTECTIVE CLOTHING**

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The dress code for all employees while at work shall consist of the following minimum clothing:

1. Work type boots
2. Long pants
3. Short or long sleeve shirts
4. Specialized safety clothing as required – safety vests and pants

- No cloth shoes, short pants, or sleeveless shirts will be allowed.
- Any writing on a shirt or otherwise must not be suggestive or profane.
- No dangling jewelry or earrings.

The employee is responsible for wearing appropriate personal protective equipment in operations where there is exposure to hazardous conditions or where need is indicated to reduce hazards.

Where engineering controls are insufficient to protect the worker personalized protective equipment (PPE) shall be used. PPE is required based on the task to be performed and associated hazards and can include but not be limited to: work gloves, safety belts, aprons or vests, rubber boots, rubber gloves for concrete work, and hard hats. Safety vests and pants shall comply with Federal specification ANSI 107-2004. Safety vests will be worn at all times. Safety pants will be worn when working at night or as required.

Hard hats shall comply with Federal specification ANSI Z89.1 and be labeled as such. No other type of head gear is acceptable. Chin straps shall be provided as necessary.

Eye and face protection will be provided and must be worn when machines or operations present potential eye or face injury. Employees involved in welding operations must wear filter lenses or plates of the power shade number.

Goggles will be worn over any employee-owned prescription glasses that do not meet industrial safety standards.

Hearing protection will be worn in areas where sound levels may exceed 85 decibels.

Particulate respirators (dust masks) are provided and shall be worn where required such as working where there are heavy fumes or dust. Please refer to the Company's Respiratory Protection Program and Silica Exposure Control Program for related policies.

## **6. DRUG AND ALCOHOL ABUSE PROGRAM**

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The Company prohibits the use, possession, or distribution on its premises, facilities or workplaces of any of the following: Alcoholic beverages, intoxicants and narcotics, illegal or unauthorized drugs (including marijuana), "look-alike" (simulated) drugs, related drug paraphernalia, firearms and unauthorized explosives. Company employees must not report for duty under the influence of any drug, alcoholic beverage, intoxicant or narcotic or other substance (including legally prescribed drugs and medicines) which will in any way adversely affect the safety of others on the job.

The Company engages in these drug and alcohol testing types: Pre-employment, Post-incident, Random testing, Reasonable suspicion, Return to duty and Follow-up testing.

All supervisors are required to participate in Reasonable Suspicion training to detect the use of alcohol and drugs on the job.

Entry into or presence on Company premises, facility or workplace by any person is conditioned upon the Company's right to search the person, personal effects, vehicles, lockers, baggage and quarters of any employee or other entrant for any substances named in the paragraph above. By entering into or being present on Company premises, facility or workplace, any person is deemed to have consented to such searches which may include periodic and unannounced searches of anyone

while on, entering or leaving Company premises, facility or workp l a c e . These searches may include the use of electronic detection devices, scent trained dogs, taking of blood, urine, or saliva samples for testing to determine the presence of substances named in the paragraph above. The Company also reserves the right, at all times to have authorized personnel conduct periodic examinations of its employees and employees of its subcontractors and suppliers for the purpose of determining if any such persons present on a Company job site are using marijuana, illegal drugs, or alcohol.

**THE TAKING OF BLOOD, URINE, OR SALIVA SAMPLES FOR TESTING MAY ALSO BE REQUIRED FROM ANY PERSON ON COMPANY PREMISES OR WORKP L A C E , OR WHO IS INVOLVED IN A VEHICLE ACCIDENT, OR WHO IS INJURED IN THE COURSE OF EMPLOYMENT.**

Any person who refuses to submit to a search, screening or testing as described in this Safety Program or who is found using, possessing or distributing any of the substances named above, or who is found under the influence of any such substances, is subject to disciplinary action including immediate discharge of an employee, or removal and future prohibition from the premises, if not an employee of the Company.

Searches may be conducted without prior announcement and at such times and locations as considered necessary by the Company. While cooperation is voluntary, refusal to consent will be cause for not allowing the involved individual on Company premises, facility, or workp l a c e .

Costs for conducting drug and alcohol testing will be covered by the Company, except additional costs following a positive result test that require follow-up and return-to-duty testing.

All test results are kept strictly confidential.

Please refer to the Company's Drug and Alcohol Testing Program for Drivers of Commercial Vehicles for related policies.

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**CHAIN OF CUSTODY  
AND  
AUTHORIZATION FOR BLOOD / URINE / SALIVA TEST**

Date: \_\_\_\_\_

I agree to have a urine, blood or saliva test to detect alcohol, drugs or marijuana levels. I also agree for the report of said test(s) to be released to Nortex Concrete Lift & Stabilization, Inc.

Signature: \_\_\_\_\_

Date and Time: \_\_\_\_\_

Witness: \_\_\_\_\_

By whom was specimen obtained? \_\_\_\_\_

Date and Time: \_\_\_\_\_

Type of specimen: \_\_\_\_\_

Results: \_\_\_\_\_ (Positive) \_\_\_\_\_ (Negative) \_\_\_\_\_

Name of Medical Facility or Lab: \_\_\_\_\_

Date and Time: \_\_\_\_\_

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## **7. FIRST AID AND SANITATION**

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The job site shall be maintained at all times in such a manner as to provide a safe and healthful environment for all employees as follows:

1. Provide at least one First Aid Kit, fully stocked and sized to meet OSHA requirements. For large jobs use 25-person size, for smaller jobs 10-person size.
2. A list of emergency numbers showing listings for police, fire, emergency medical treatment, doctor, and hospital shall be prominently posted at the jobsite bulletin board.
3. A portable water supply shall be furnished for all employees.
4. A sanitary lunch area shall be provided.
5. Provide toilet facilities for all employees. One toilet required for each 25 persons and shall be heated during winter months. This facility shall be maintained and cleaned at regular intervals.

## **8. ACCIDENT REPORTING AND EMERGENCY PROCEDURES**

---

To establish uniform, effective and speedy procedures for reporting and obtaining prompt medical attention for injuries, the following procedure is in effect:

1. All accidents or injuries must be reported to the foreman and Workers' Compensation forms filled out by him. A copy of each report will be filed with the Safety Director.
  - a. Accidents and Injuries are defined, but not limited to the following:
    - i. Auto Accident
    - ii. Property Damage
    - iii. Equipment Damage
    - iv. Injuries beyond first aid
2. An area within the job office will be designated as a First Aid Station and used exclusively for the treatment of injuries and holding of injured persons.
3. Company emergency procedures for the treatment of injuries should be periodically reviewed with all employees and subcontractors on site.

## a) POST ACCIDENT INVESTIGATION

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### General Policy

Accident investigation is a critical factor in Nortex Concrete Lift and Stabilization, Inc.'s loss control efforts. It is essential that all accident investigations be fact-finding and not fault-finding procedures. Investigations will go beyond the immediate accident and involve the causal factors which contributed to the losses.

1. A Supervisor's Loss Investigation Report is to be filled out and a copy filed with the Safety Director. (See attached form)
2. The Safety Director is to review Loss Investigation Report to determine if a more detailed investigation is needed.
3. Corrective actions are to be implemented as soon as possible to correct conditions which have caused loss and to prevent them from recurring.
4. The Safety Director will determine and maintain control of the corrective action required. The Safety Director will appoint an individual to ensure corrective action is taken. That person will follow up to a conclusion, ensuring remedial action has been taken, and report back to the Safety Director.
5. Summaries of all vital information shall be posted for all employees.

## **b) POST ACCIDENT DRUG TESTING PROGRAM**

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### **General Policy**

Nortex Concrete Lift & Stabilization, Inc. is committed to providing a safe and healthy work environment. Consequently, the use, possession, concealment, transportation, promotion or sale of prohibited substances such as illegal drugs (including controlled substances, look-alike drugs and designer drugs), alcoholic beverages, and drug paraphernalia is prohibited on Interstate Improvement, Inc.'s job sites.

Employees are prohibited from reporting to work while under the influence of any drug, intoxicant, or other substance that will in any way adversely affect their working ability.

This Company recognizes that alcoholism, drug dependence and related medical / behavioral conditions are highly complex illnesses which under most circumstances can be successfully treated. Interstate Improvement, Inc. encourages employees to seek appropriate counseling and / or treatment.

### **Testing Procedures**

Testing of injured employees is mandatory in the case of accidents involving the following, but not limited to:

1. Lacerations requiring stitches or sutures.
2. Fractures or dislocations.
3. Sprains and Strains
4. Equipment damage.

The superintendent may request that an employee submit to a test after receiving permission from the Safety Director or President of the Company.

## **c) RETURN TO WORK PROGRAM**

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Nortex Concrete Lift & Stabilization, Inc. supports the practice of returning injured employees to work as soon as medically possible, to a position within our company, within the employee's medical restrictions. This program is being instituted with the cooperation of our Workers' Compensation carrier.

The prompt return of an injured employee to a position within their medical restrictions will:

1. Regain the employee's sense of job security.
2. Retain the employee's self-esteem.
3. Re-establish the employee's pre-injury lifestyle.

We believe this practice serves the best interests of both the injured employee and Interstate Improvement, Inc.

Our claim Coordinator is David Simpson. Any questions concerning your Workers' Compensation Claim should be directed to this individual.

The injured employee's current position can be modified to fit medical restrictions. If this is not possible, a temporary light duty position will be made available. Examples of these light duty positions are:

1. Light clean-up duties at job sites
2. Supplies and parts delivery to job sites
3. Clerical office work

Please reference our Return-to-Work Program for further information and guidelines.



# ACCIDENT/INCIDENT REPORT

201 NW 26th St.  
Fort Worth, TX 76164

Department \_\_\_\_\_

Date of Loss \_\_\_\_\_

## PERSONAL INJURY / ILLNESS

Name of Injured: \_\_\_\_\_ Was this a near miss? (circle) Yes / No

Department: \_\_\_\_\_

Part of Body Injured: \_\_\_\_\_ Nature of Injury / Illness: \_\_\_\_\_

Source of Injury / Illness: \_\_\_\_\_

## PROPERTY DAMAGE

Nature of Damage: \_\_\_\_\_ Was this a near miss? (circle) Yes / No

Source of Damage: \_\_\_\_\_

Estimated Cost: \_\_\_\_\_ Actual Cost: \_\_\_\_\_

## DESCRIPTION

Describe Clearly What Happened

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Location: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## ANALYSIS

Acts of Conditions Contributing to Loss: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

WITNESS \_\_\_\_\_

## PREVENTION

Describe Actions Planned or Taken to Prevent Recurrence: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Employee (print): \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor (print): \_\_\_\_\_ Date: \_\_\_\_\_

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## 9. EQUIPMENT SAFETY CHECK

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1. All equipment used on site shall be checked for safe operation and compliance to Local, State and Federal Safety Laws before being used on the job and periodically throughout use on the job.
2. Belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains or other reciprocating, rotating, or moving parts of equipment must be guarded if such parts are exposed to contact by employees or otherwise constitute a hazard. No equipment may be used without guards in place.

### a) HAND and POWER TOOLS

---

Only those employees that have been properly trained will be authorized to use hand and power tools. All tools will be inspected prior to use and will not be used if found to be damaged, excessively worn, or requiring maintenance. Wrenches may not be used when jaws are sprung to the point slippage occurs. Keep impact tools free of mushroomed heads. Keep wooden tool handles free of splinters or cracks and tight in the tool. Use necessary engineering and PPE controls when performing work with hand or power tools. All electric power tools used will be of the three-prong type or double insulated and used in conjunction with a ground fault circuit interrupter (GFCI) device.

#### 1. Welding, Cutting and Heating

Proper precautions (isolating welding and cutting, removing fire hazards from the vicinity, providing a fire watch, etc.) for fire prevention will be taken in areas where welding, cutting or heating will be done where the application of flammable paints, or presence of other flammable compounds, or heavy dust concentrations create a fire hazard. Equip torches with anti-flashback devices. An appropriate size and type fire extinguisher must be kept within 100 feet of all hot-work operations involving open flames, grinding, or other flame/spark producing activities. Observe the need to use a hot-work permit system and fire-watch where necessary.

Arc welding and cutting operations will be shielded by noncombustible or flameproof shields to protect employees from direct arc rays.

When electrode holders are left unattended, electrodes will be removed and holder will be placed or protected so they cannot make electrical contact. All arc welding and cutting cables will be completely insulated. There will be no repairs or splices within 10 feet of electrode holder, except where splices are insulated equal to the insulation of the cable. Defective cable will be repaired or replaced.

Fuel, gas and oxygen hose must be easily distinguishable and not interchangeable. Inspect hoses at beginning of each shift and repair or replace if defective.

Always wear approved eye protection when welding or in areas where welding is being done.

#### 2. Wire Ropes, Chains, Ropes, Etc.

Wire ropes, chains, ropes and other rigging equipment will be inspected prior to use and as necessary during use to assure their safety. Remove defective rigging equipment from service immediately.

Shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc. or other such attachments, will not be used. When Li-bolts are used for eye splices, the U-bolt will be applied to the "U" section that is in contact with dead end of rope.

## **b) FLEET SAFETY**

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Please refer to the "Fleet Safety Plan" for company standards on Fleet safety.

## **10.GROUND FAULT CIRCUIT**

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To prevent accidental electric shock from tools and equipment used on site, ground fault interceptor circuits will be used at every job site.

1. All temporary and permanent electricity used at the job site shall be GFI protected.
2. All electric tools and extension cords shall be in undamaged condition and used in accordance with manufacturers' recommendations.
3. Electric power operated tools will either be approved double insulated, be properly grounded, or used with ground fault circuit interrupters.

## **11.PHYSICAL AND MENTAL QUALIFICATIONS FOR EMPLOYMENT**

---

To minimize accidents, minimum standards for physical and mental condition of employees are set forth as follows.

1. All employees shall be physically able to perform in a safe manner any work activity required by their trade.
2. All employees shall be mentally alert, and not under the influence of any substance, to be able to perceive potential accident situations and thus better able to avoid them.
3. All employees shall be mentally capable, through proper training, and otherwise not distracted or impaired to operate any tool or equipment assigned to them.

## 12. JOB SITE SAFETY & HAZARD IDENTIFICATION, ANALYSIS and CONTROL

In coordination with the safety director, supervisors, and employees performing the tasks. Jobsite hazard analysis's (JHAs) will be created to identify workplace hazards within a particular task or job. These JHAs will be updated as site conditions or control measurements change.

Safety mechanisms and engineering controls installed on equipment and vehicles must be used at all times.

To promote safety, job sites must be kept free of accumulated debris from the various construction operations in progress.

1. At the end of each portion of work, workers will return all tools and excess materials to proper storage. Clean up all debris before moving on to the next phase. Each employee is responsible for keeping their work areas clean.
2. Construction areas should be lighted to not less than minimum illumination intensities listed while work is in progress.
3. Only approved containers and portable tanks will be used for storage and handling of flammable and combustible liquids.
4. All vehicles must be locked, and keys removed from the vehicle at the end of the work shift.

### Fire Protection

Firefighting equipment must be conspicuously located and readily accessible at all times, and periodically inspected and maintained in operating condition. Report any inoperative or missing equipment to supervisor.

1. For all electrical fires, use only extinguishers approved for Class C fires (carbon dioxide or dry chemical). NEVER USE ANYTHING ELSE, as the danger of electrocution exists.
2. For common fires, such as with rubbish, paper, wood, rags, etc., use water, foam or soda-acid extinguishers.
3. For fires in flammable liquids, use foam type extinguishers or other special extinguishers provided for that purpose.

***Disciplinarily Action will be taken if violations of these safety rules or unsafe acts are noted.***

## **13. CONTRACTUAL SAFETY FOR SUB CONTRACTORS**

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To promote an overall Safety Program for each project, all subcontractors will be required under our contract with them to take part in our Safety Program and conduct their work in a safe manner.

1. All subcontractor personnel will attend each Toolbox Safety Meeting.
2. All subcontractor personnel will be required to comply with all safety provisions of this and other identified programs while on site.

## **14. DISCIPLINE PROCEDURES**

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Accountability of work performance including compliance with safety requirements is delivered through these Disciplinary Procedures. These procedures identify several courses of action up to and including immediate termination of employment. The disciplinary action taken is based on guiding principles, is subjective, and based on the circumstances of the infraction.

- 1.1. Nortex Concrete Lift & Stabilization, Inc. implements the following Four-Step Disciplinary Program. This program will involve verbal warning, written reprimand, suspension, and termination of employment. Nortex Concrete Lift and Stabilization will establish the degree of reprimand (verbal, written, suspension, or termination) based upon the offense or action.
  - a) Verbal Warning (1st Offense):
    - a. Verbal warnings will be given by either the Safety director, direct supervisor or Nortex Inc. management for violations of any Nortex Inc. Safety and Health programs.
    - b. A verbal warning will be given after review of the circumstances and potential consequences of the action(s).
    - c. The circumstances, person's past work performance and consequences will be reviewed with the supervisor and safety director.
    - d. The verbal warning will be documented by the Safety Director and placed in the employee personnel file.
  - b) Written Warning (2nd Offense):
    - a. A written warning will be issued for work practices that have elevated risk for injury to personnel or equipment/material damage or loss, or for violations deemed elevated by management for other reasons.
    - b. A written warning will also be issued to personnel that have continued violations of the Health and Safety Plan.
    - c. A written warning will be documented by the Safety Director and placed in the employee personnel file.
  - c) Final Written Warning and/or Suspension (3rd Offense):
    - a. The third offense will result in another written reprimand (using the standard form) and/or suspension, the duration of which will be decided at the time of the disciplinary action and is to be weighed by the severity of the offense.
    - b. The written warning and suspension will be documented by the Safety Director and placed in the employee personnel file.

- c. The affected person will also be required to have an additional site orientation to ensure the awareness of the company's commitment to safety and the expected work practices on the project.
4. Termination (4<sup>th</sup> Offense):
- a) Termination of employment will occur for repetitive or blatant violations of the safe work practices and procedures.
  - b) Immediate termination may occur for the following activities:
    - i. Fighting or initiating/inciting violence in the workplace.
    - ii. Conducting activities without the appropriate authorization (Operating equipment with lack of experience)
    - iii. Harassment of any kind (verbal, sexual, visual)
    - iv. Vandalism of any kind
    - v. Theft of tools, materials, supplies or possessions
    - vi. Knowingly or willfully violating published safety procedures, regulations, which may result in serious bodily injury, death or substantial damage to equipment/materials.
    - vii. Any other violation that management considers unsafe or inappropriate and has potential to endanger employees or the public; or is deemed insubordinate.



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201 NW 26th St., PO Box 4935, Fort Worth, TX 76164-4935    ☎ Main: (817) 831-1240    ☎ Fax: (817) 831-1245

## **Safety / AWAIR Program Acknowledgement**

I have read and understand the Safety Program of Nortex Concrete Lift & Stabilization, Inc. I have been informed of the possible hazardous conditions that could be encountered during the course of my employment. If I have ideas on a better and safer way to do some of my job duties, I will bring them to the attention of my supervisor.

Employee Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Date: \_\_\_\_\_