



TrafficPatternsXD™ SPECIFICATION

PART 1 -GENERAL

- A. **TrafficPatternsXD™** is a thermoplastic surfacing system that provides a textured, highly attractive and durable topical treatment to the surface of asphalt pavement. Typically the system replicates, in relief, the grout lines common to brick or other types of unit pavers, but may also be used to create other patterns.
- B. TrafficPatternsXD™ is intended for use on asphalt pavements to create decorative crosswalks, medians, intersections and through areas in parking lots.
- C. TrafficPatternsXD™ provides a seamless, elegant look without the trip hazards and ongoing maintenance often associated with pavers and stamped concrete.
- D. Before specifying TrafficPatternsXD™ please contact Flint Trading, Inc. (336-475-6600) to help ensure the TrafficPatternsXD™ thermoplastic surfacing system is the correct product for the intended application. Flint has representation in all states and provinces in North America, so you will be directed to your local representative.
- E. TrafficPatternsXD™ is applied to asphalt pavement using patented asphalt pavement reheating equipment. The asphalt surface is covered with 2' x 2' (.61m x .61m) panels of aggregated reinforced thermoplastic then heated to the required liquefaction temperature. Sand is applied at the end of the melting process to achieve added friction properties on the surface. As the material is cooling, it is imprinted with a template made from 3/8 in. (9.5mm) flexible wire rope in the required design to create crisp, clean lines which define the pattern. For crosswalks, the TrafficPatternsXD™ is typically demarcated by applying white preformed thermoplastic transverse lines on both sides of the installed TrafficPatternsXD™.
- F. TrafficPatternsXD™ is available in a variety of standard colors and patterns. Color can be used to create patterns within the crosswalk area to reflect the typical white crosswalk "ladder-bars" for additional visibility and awareness. Within certain limitations, custom patterns and colors are available upon request.

1.2 REFERENCES

- A. **ASTM D570** Standard Test Method for the Water Absorption of Plastics.
- B. **ASTM D792** Standard Test Methods for Density and Specific Gravity (relative density) of Plastics by Displacement.
- C. **ASTM D2240** Standard Test Method for Rubber Property – Durometer Hardness.
- D. **ASTM D92** Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester.
- E. **ASTM D256, Mtd A** Standard Test Methods for Determining the IZOD Pendulum Impact Resistance of Plastics.
- F. **AASHTO T250** Standard Method of Test for Thermoplastic Traffic Line Material.
- G. **ASTM D4541** Standard Test method for Bond Strength of Thermoplastic Traffic Marking Materials.
- H. **TrafficPatternsXD™** Substrate Guide.
- I. **TrafficPatternsXD™** Recommended Applications Procedure Guide.

1.3 DEFINITIONS

- A. **"Accredited TrafficPatternsXD™ Applicator"** is an applicator that is accredited and licensed for the current calendar year by Flint Trading Inc. (Tel. 336-475-6600) to install TrafficPatternsXD™.
- B. **"Owner"** refers to the representative person who has decision making authority for the application of the TrafficPatternsXD™ system.
- C. **"Ambient air temperature"** is the air temperature in the immediate surrounding area.
- D. **"The Work"** is as outlined in the Scope of Work and includes the execution of the TrafficPatternsXD™ system.
- E. **"ASTM"** ASTM International.



1.4 REQUIRED BID SUBMITTAL DOCUMENTS

- A. TrafficPatternsXD™ Brochure
- B. TrafficPatternsXD™ Specification
- C. A copy of the current year certificate of accreditation as provided by Flint Trading, Inc. to the Accredited TrafficPatternsXD™ Applicator or written verification from Flint Trading, Inc. that the bidding applicator is qualified to perform this Work.

PART 2 -PRODUCTS

2.1 MATERIALS

The materials required for proper execution of the TrafficPatternsXD™ system are listed as follows:

- A. TrafficPatternsXD™ is available in a variety of colors and is provided in 2 in. x 2 in. (.61m x .61m) panels. This material is provided by the Accredited TrafficPatternsXD™ Applicator and is available only from Flint Trading, Inc. **No substitutions.**
- B. **TrafficPatternsXD™ Sand** is packaged in 50 lb (22.68 kg) bags. The sand is provided by the Accredited TrafficPatternsXD™ Applicator and is available only from Flint Trading, Inc. **No substitutions.**
- C. **Transverse lines for crosswalk applications.** These are supplied as preformed, white, retroreflective, thermoplastic line stripe material 90 mils (2.3mm) or 125 mils (3.2mm) thick, and are available in 6 in. (.15m), 8 in. (.20m) or 12 in. (.30m) widths. This material should be provided by the Accredited TrafficPatternsXD™ Applicator and is available from Flint Trading, Inc.

2.1.1 Characteristics of TrafficPatternsXD™ thermoplastic

- A. TrafficPatternsXD™ thermoplastic consists of homogeneously mixed nonhazardous polymer resins, pigments, fillers consisting of TiO₂ and CaCO₃, and at least 12% coarse aggregate particles sized 6-14 mesh. This product is not a hazardous chemical as defined by the OSHA Hazard Communication Standard CFR TITLE 29 1910.1200 or the WHMIS Canadian Legislation.
- B. TrafficPatternsXD™ thermoplastic has a negligible VOC level.
- C. TrafficPatternsXD thermoplastic shall be supplied as 2 in. x 2 in. (.61m x .61m) panels at a standard thickness of ≥140 mils (3.6 mm).
- D. Upon heating to application temperature, the TrafficPatternsXD™ thermoplastic will flow and preserve the integrity of its properties including its color.
- E. Environmental and Chemical Resistance: TrafficPatternsXD™ thermoplastic is resistant to deterioration when exposed to sunlight, gasoline, oil, salt, water or adverse weather conditions.
- F. Storage Life: TrafficPatternsXD™ thermoplastic can be stored for a period of one year if stored indoors in its original packaging and protected from the elements.
- G. The following table provides typical characteristics of the TrafficPatternsXD™ thermoplastic.

TABLE 1 Characteristics for TrafficPatternsXD™ Thermoplastic

Characteristic	Test Method	Typical Results of TrafficPatternsXD Thermoplastic Regular Formula
Water Absorption	ASTM D570	< 0.5%
Binder Content	AASHTO T250	> 18%
Low Temp. Resistance	AASHTO T250	No cracking
Specific Gravity	ASTM D792	< 2.15
Indentation resistance (Shore A)	ASTM D 2240	>40
Impact Resistance	ASTM D256, Mtd A	> 10 in.-lb
Flash Point	ASTM D92	>475°F
Bond Strength	ASTM D4796	>180 psi or cohesive failure
Friction	British Pendulum	BPN > 65



2.2 EQUIPMENT

The following equipment available from Flint Trading, Inc. is an integral part of the proper execution of the TrafficPatternsXD™ system. **Equipment substitutions are not permitted.**

- A. Template. The wire rope template is required in the execution of the TrafficPatternsXD™ system. The template is used for imprinting to define the pattern once the TrafficPatternsXD™ thermoplastic has been applied. The wire rope diameter for the imprinting template used for the specified pattern is 3/8 in.(9.5mm).
- B. TrafficPatternsXD™ Pavement Heaters. Flint Trading, Inc. offers three mobile pieces of equipment designed specifically to elevate the temperature of the thermoplastic without adversely affecting this material, or the underlying asphalt pavement. Two of these, the SR-120 and SR-60 Pavement Heaters each employ a bank of propane fired infrared heaters, mounted on a track device that allows it to reciprocate back and forth over a designated area, thereby allowing the operator to monitor the temperature during the heating process.
- C. The third mobile reheating device is the StreetHeat™ SR-20/28 Pavement Heater. The SR-20/28 is designed specifically to heat small areas that are inaccessible to the SR -120 and SR-60 heaters. It may also be used to melt the white, preformed thermoplastic transverse lines in place. Similar to the SR-120 and SR-60, the SR-20/28 allows the operator to monitor the temperature of the thermoplastic at all times during the heating process.
- D. The recommended heat torch is a hand-held portable heating device to be used to heat isolated areas of the TrafficPatternsXD™ thermoplastic.
- E. The TrafficPatternsXD™ Hand Held Finishing Tool enables the applicator to complete the stamping of the thermoplastic in areas around permanent structures, such as curbs and manhole covers, which may be inaccessible to the template.
- F. An air powered sand spreader is used to spray the sand in a uniform manner.
- G. Vibratory Plate Compactors in the size range from 700 – 900 pounds shall be used for pressing the template into the thermoplastic. Flint Trading, Inc. does not supply Vibratory Plate Compactors.

PART 3 - EXECUTION

3.1 GENERAL

The TrafficPatternsXD™ system shall be supplied and installed only by an Accredited TrafficPatternsXD Applicator or an applicator authorized in writing by Flint Trading, Inc. for a specific project. The TrafficPatternsXD system shall be supplied and installed in accordance with the most recent Recommended Application Procedure Guide as provided by Flint Trading, Inc. The work shall be carried out in accordance with the plans and specifications or as directed by the Owner. Do not begin installation without written confirmation of applicator accreditation or authorization.

3.2 PRECONDITIONS

A highly stable asphalt pavement free of defects is a prerequisite for the installation of the TrafficPatternsXD™ system. **Do not install TrafficPatternsXD™ over poor quality asphalt pavement.** For further information, please refer to the TrafficPatternsXD™ Substrate Guide.

3.2.1 Prerequisites for new asphalt pavement

A durable and stable asphalt pavement mix design installed, according to best practices, over a properly prepared and stable substrate is a prerequisite for all long-lasting asphalt pavement surfaces. The application of TrafficPatternsXD does not change this requirement. **Generally, the asphalt pavement mix design for roadways as prescribed by the local jurisdiction will be sufficient for the application of TrafficPatternsXD™.**

3.2.2 Prerequisites for existing asphalt pavement

Depending upon the condition and age, existing asphalt pavement may or may not be suitable for the successful installation of TrafficPatternsXD™. Minimally, the asphalt pavement must be free of all visible defects, including cracks, ruts or potholes, nor can it demonstrate any flushing, excessive raveling or like deficiencies. Heavily oxidized pavements and those that show polishing of the aggregates may require thermoplastic primer. The Accredited TrafficPatternsXD™ Applicator can advise on the suitability of the asphalt pavement.

3.2.3 Pavement Marking Removal: recommended guidelines

Pavement markings may be removed by sandblasting, water-blasting, grinding, or other approved mechanical methods. The removal methods should, to the fullest extent possible, cause no significant damage to the pavement surface. Heavy duty equipment, such as a milling machine, will likely cause too much damage to the pavement. The Accredited TrafficPatternsXD™ Applicator can advise on the suitability of the asphalt pavement after the markings have been removed.

3.2.4 Recommended guidelines for Mill & Fill applications. The Owner may decide to remove and replace the existing asphalt pavement. If so, a durable, stable mix design installed in accordance with best practices is a prerequisite. A minimum lift thickness of two inches is recommended. It is not generally recommended to proceed with a Mill & Fill pavement application when the outside air temperature is less than 50°F (10°C). For further information, refer to the latest version of the TrafficPatternsXD™ Substrate Guide.

3.3 SURFACE PREPARATION

The asphalt pavement surface shall be dry and free of all foreign matter, including but not limited to dirt, dust, de-icing materials, and chemical residue.

3.4 LAYOUT

Layout of the thermoplastic shall be as per the drawings and specifications and in accordance with the pattern, dimensions and methods prescribed by the Accredited TrafficPatternsXD™ Applicator in conjunction with the Owner.

3.5 INSTALLING TrafficPatternsXD™

- A.** The area must be thoroughly cleaned and dried before installing the TrafficPatternsXD™ thermoplastic.
- B.** Do not install during periods of precipitation.
- C.** Both the ambient air temperature and the pavement temperature must be above 45°F (7°C). Do not install when there is frost still on the ground.
- D.** Place the TrafficPatternsXD™ thermoplastic panels on the asphalt pavement. The panels are butted together without overlap and cover the entire area designated to receive TrafficPatternsXD™.
- E.** Using the **StreetHeat™** equipment, heat is applied to the thermoplastic to gradually raise the temperature, so that the thermoplastic is thoroughly molten all the way through. It will begin to flow and fuse with both the surface of the asphalt pavement and the edges of the neighboring thermoplastic sheet.
- F.** After the TrafficPatternsXD™ starts to flow and adhesion to the pavement surface is achieved, the TrafficPatternsXD™ Sand is applied evenly using the sand hopper so it can be imbedded. The sand is applied until the thermoplastic stabilizes and stops accepting sand.
- G.** Once cooled to the appropriate temperature, using the vibratory plate compactor, the thermoplastic is then stamped using the 3/8 in. (9.5mm) diameter wire rope template. The pattern will now be clearly defined.
- H.** In areas difficult to get at with the template, or areas that have light print, the TrafficPatternsXD™ Hand Held Finishing Tool may be used to complete the imprint process.
- I.** TrafficPatternsXD™ crosswalks require boundary demarcation to be compliant with the MUTCD. These lines may be applied by the Accredited TrafficPatternsXD™ Applicator using white preformed thermoplastic retroreflective line striping material.

3.6 PROTECTION AND OPENING TO TRAFFIC

The molten thermoplastic is to be protected until it cools and hardens. Do not permit any debris such as dust, excessive water, pollen etc to come in contact with the molten thermoplastic. The road may be opened to traffic once the thermoplastic has cooled to adjacent pavement temperature.

PART 4 – MEASUREMENT AND PAYMENT

4.1 Measurement

The measured area is the actual area of pavement that has received the TrafficPatternsXD™ thermoplastic and (where applicable) transverse white lines, measured in place. No deduction will be made for the area(s) occupied by manholes, inlets, drainage structures, bollards or by any public utility apparatus within the area.

4.2 Payment

Payment will be full compensation for all work completed as per conditions set out in the contract. For unit price contracts, the payment shall be calculated using the measured area as determined above.