SECTION 07 54 16.60

BALLASTED ROOFING SYSTEMS

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\*\* NOTE TO SPECIFIER \*\* FiberTite, Seaman Corporation; roofing systems.
This section is based on the products of FiberTite, Seaman Corporation, which is located at:
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Wooster, OH 44691-9360
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 [ [Click Here](https://www.arcat.com/arcatcos/cos35/arc35405.html) ] for additional information.
Since 1979, FiberTite, a roofing system for commercial facilities, has demonstrated unmatched resistance to puncture, tear, UV rays and chemicals. Product options are numerous, including: FiberTite Hybrid (tm), combining single ply with modified bitumen technology for extreme performance and, FiberTite SMR, a simulated metal roof membrane system. Our membranes come in nominal 36-mil, 45-mil, 50-mil, and 60-mil thicknesses, and we provide a full line of adhesives, components and accessories for diverse installations.

Herein the term FiberTite Technical Service is synonymous with FTS.

1. GENERAL
	1. SECTION INCLUDES
		1. Ballasted FiberTite Roofing Systems. (FTR-BA)
	2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
		2. Section 03 51 13 - Cemetitious Wood Fiber Decks.
		3. Section 03 52 00 - Lightweight Concrete Roof Insulation.
		4. Section 05 31 00 - Steel Decking.
		5. Section 05 36 00 - Composite Metal Decking.
		6. Section 06 10 00 - Rough Carpentry.
		7. Section 07 27 00 - Air Barriers.
		8. Section 07 26 00 - Vapor Retarders.
		9. Section 07 72 00 - Roof Accessories.
		10. Section 07 50 00 - Membrane Roofing.
		11. Section 07 54 16.10 - Green Vegetated Roofing Systems. (FTG VRS)
		12. Section 07 54 16.20 - Induction Welded Roofing Systems. (FTR-IW)
		13. Section 07 54 16.30 - Multi-Ply Roofing Systems. (FTR-MP)
		14. Section 07 54 16.40 - Mechanically-Attached Roofing Over Metal Roofing. (FTR-MR)
		15. Section 07 54 16.50 - Mechanically-Attached Roofing Systems. (FTR-MA)
		16. Section 07 54 16.70 - Adhered Roofing Systems. (FTR-AD)
		17. Section 07 54 16.80 - Simulated Metal Roofing Systems. (FTR-SMR)
		18. Section 07 62 00 - Sheet Metal Flashing and Trim.
		19. Section 07 70 00 - Roof and Wall Specialties and Accessories.
		20. Section 08 60 00 - Roof Windows and Skylights.
		21. Section 22 40 00 - Plumbing Fixtures.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
			1. ASTM D6754 - Standard Specification for Ketone Ethylene Ester Based Sheet Roofing.
			2. ASTM D312 - Standard Specification for Asphalt Used in Roofing.
			3. ASTM D4601 - Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
			4. ASTM D4897 - Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing.
			5. ASTM D 7654 - Standard Specification for Asphalt Used in Roofing Measured by Dynamic Shear Rheometer.
			6. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
			7. ASTM C473 - Standard Test Methods for Physical Testing of Gypsum Panel Products.
			8. ASTM D6163 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.
			9. ASTM D6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
		2. American Society of Civil Engineers (ASCE):
			1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
		3. FM Approvals (FM):
			1. FM Standard 4470 - Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction.
			2. Loss Prevention Data Sheets 1-28, 1-29.
		4. UL - Fire Resistance Directory.
			1. UL-790 - Standard Test Method for Fire Tests of Roof Coverings.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data:
			1. Most recent published technical literature and guide specifications issued by FTS.
			2. Authorize Applicator's Applicator approved copy of FiberTite Project Registration.
			3. Preparation instructions and recommendations.
			4. Storage and handling requirements and recommendations.
			5. Typical installation methods.
			6. Dimensioned shop drawings, including roof plan detailing perimeter enhancement, flashing methods, terminations and acceptance by FTS.
			7. Written approval from FTS confirming any accessories submitted, not manufactured or expressly approved in FiberTite literature are acceptable and compatible with the proposed FiberTite Roofing System.
			8. Safety Data Sheets (SDS) relating to all products, chemicals and solvents.
			9. Certification that the system specified complies with identifiable building code and insurance requirements.
			10. FiberTite Roofing Systems (FTR) References:
				1. FTR GS 01/21 FiberTite General Guide Specification.
				2. FiberTite Construction Details.
				3. FiberTite Foreman's Manual.
				4. FiberTite Technical Bulletins

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern and color.
		2. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.
		3. For Project Registration and Warranty Acceptance: FTS will review the following.
			1. Complete copy of project architectural specifications or Applicator's proposal outlining design parameters.
			2. Complete list of accessories or materials not manufactured or expressly authorized for use in FiberTite literature.
			3. Dimensioned outline of the roof indicating all FTR-Detail references.
			4. Dimensioned shop drawings illustrating non-FiberTite details. Details that do not conform with standard FiberTite details shall be returned with appropriate recommendations.
	1. QUALITY ASSURANCE
		1. FiberTite Roofing Systems shall be installed only by an Applicator, authorized by Seaman Corporation to install FiberTite Roofing Systems prior to bid or contract award. Herein, the term Authorized FiberTite Applicator is synonymous with Applicator.
		2. Applicator's key personnel shall have received specialized training by Seaman Corporation.
		3. FiberTite Roofing Systems shall be installed in accordance with the most current guide specifications and details as amended or authorized by FTS for specific project requirements.
		4. There shall be no deviations from approved contract specifications or shop drawings without prior written approval by the Owner or Owner's representative and FTS.
		5. Unauthorized deviations may subject the roof system to warranty ineligibility.
		6. Any and all work found to be substandard or in violation of the contract documents or manufacturer's specifications shall be subject to rejection including complete removal and replacement with new materials at the expense of the Contractor.
		7. A quality assurance inspection of the roof system shall be performed by FTS for acceptance and approval. This inspection shall be performed upon completion and certification by the Applicator that the FiberTite Roofing System has reached 100 percent completion, a quality installation has been completed in accordance with the approved contract specifications, and all field welds have been probed and inspected.
		8. All field seams shall be visible and available to FTS at the time of final inspection.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. COORDINATION
		1. Prior to installation of materials, a pre-roofing conference shall be held with the Authorized Applicator, and Owner or Owner's Representatives to discuss the specified roofing system, coordinate its proper application and the expectations of all parties involved. The Authorized Applicator and the Owner or Owner's representative shall notify all parties a minimum of fourteen days prior to the meeting.
		2. Plan and coordinate the installation of the roofing system with other trades in such a manner to avoid membrane damage, keeping the complete installation weather tight and in accordance with all approved details and warranty requirements.
		3. FTS shall be available to make recommendations necessary to ensure compliance with project specifications and specification alternatives due to unforeseen job conditions.
		4. Field services are provided at the discretion of Seaman Corporation. A minimum two weeks' notice is required to evaluate and coordinate any request for onsite technical assistance.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Deliver all materials to the job site in manufacturer's original, unopened containers, with legible labels and in sufficient quantity to allow for continuity of work.
		2. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
			1. Store rolls of membrane lying down, elevated above the roof deck and completely protected from moisture with tarpaulins. Manufacturer's packaging is not considered adequate for outdoor storage.
			2. Elevate Insulation and cover board materials on pallets and fully protect from moisture with tarpaulins. Manufacturer's packaging is not considered adequate protection from moisture.
			3. Store adhesives and sealants between 50 and 80 degrees F (10 and 26.7 degrees C) prior to use.
			4. Store flammable materials in cool dry areas away from sparks and open flames.
			5. Follow all precautions as outlined in manufacturer's material safety data sheets.
		3. Materials, having been determined by the Owner or Owner's representative to be damaged, shall be immediately removed from the construction site and replaced at no cost to the Owner.
	3. JOB CONDITIONS
		1. Safety:
			1. Take necessary precautions regarding worker health and safety when using solvents, adhesives or hot asphalt.
			2. Worker safety is paramount.
			3. FiberTite is slippery when wet, exhibits dew, frost, ice or other form of moisture.
			4. Comply with OSHA requirements for roof construction and fall protection.
			5. Store flammable liquid and materials away from open sparks, flames and extreme heat.
			6. Take necessary precautions when using solvents and adhesives.
			7. Daily site cleanup to minimize debris and hazardous congestion.
		2. Protection:
			1. Schedule installation sequence to limit access and utilization of installed membrane for material storage, construction staging, mechanical and excessive foot traffic.
			2. Provide proper protection on newly completed roofing.
			3. Minimize traffic on freshly laid roofing.
			4. Protect walls, rooftop units, windows and other components during installation.
		3. Additional Precautions:
			1. Adverse weather conditions, e.g. extreme temperature, high winds, high humidity and moisture, could have a detrimental effect on adhesives, general production efforts and the quality of the finished installation.
			2. Daily production schedules shall be limited to what can be made 100 percent watertight at the end of each day, including flashing and night seals.
			3. All surfaces to receive the new roof system, including insulation and flashing, shall be free from all dirt, debris and be thoroughly dry.
			4. Comply with local EPA requirements as published by local, state and federal authorities.
			5. During the construction process temporary ballast, especially in the perimeter and corner areas may be required to provide protection against high winds.
	4. DESIGN CONDITIONS
		1. This specification is applicable to only those building roofs that have decking of sufficient structural integrity, capable of supporting a FiberTite Roofing System.
		2. Applications and project specifications require review by FiberTite Technical Services (FTS) for acceptance prior to commitment to provide a commercial warranty.
		3. Seaman Corporation FiberTite Project Registration, must be completed by an Authorized Applicator, submitted to and approved by FTS before any consideration for warranty or the release of any materials can be authorized.
		4. Special Design Considerations:
			1. The building Owner may be required to submit an engineering study, or Statement of Sound Roof Structure, to FTS, indicating that the structure is able to accommodate additional live and dead loads including snow and water retention.
			2. Moisture conditions in existing roofs, new structural concrete or new lightweight insulating concrete that would impair or prohibit the desired performance of the new roof system.
			3. Coal tar recover or direct contact with bituminous materials.
			4. Positive slope to promote adequate drainage to avoid the potential damage to the substrate or components.
			5. Roof areas subject to heavy or excessive mechanical traffic.

\*\* NOTE TO SPECIFIER \*\* Delete design requirements from the list below that are not actually required by the text of the edited section.

* + 1. Exterior Fire Test Exposure: Roof system shall achieve a FM or UL Class rating for roof slopes indicated as follows:
			1. Factory Mutual Class A Rating.
			2. Underwriters Laboratory Class A Rating.
		2. Design Requirements:
			1. Uniform Wind Uplift Load Capacity
				1. Installed roof system shall withstand negative (uplift) design wind loading pressures complying with the following criteria.

Design Code: ASCE 7, Method 2 for Components and Cladding.

Importance Category:

I.

II.

III.

IV.

Importance Factor of:

0.77

1.0

1.15

2.0

Wind Speed: \_\_\_ mph

Ultimate Pullout Value: \_\_\_ pounds per each of the fastener

Exposure Category:

B.

C.

D.

Design Roof Height: \_\_\_ feet.

Minimum Building Width: \_\_\_ feet.

Roof Pitch: \_\_\_ :12.

Roof Area Design Uplift Pressure:

Zone 1 - Field of roof \_\_\_ psf.

Zone 2 - Eaves, ridges, hips and rakes \_\_\_ psf.

Zone 3 - Corners \_\_\_ psf.

* + - 1. Live Load: 20 psf, or not to exceed original building design.
			2. Dead Load:
				1. installation of new roofing materials shall not exceed the dead load capacity of the existing roof structure.

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs as required and as appropriate to Code, and the Owner's, or Owner's Insurance Underwriter requirements. Delete paragraphs that are inapplicable.

* + 1. Roof system shall have been tested in compliance with the following codes and test requirements:
			1. Underwriters Laboratories:
				1. Certification TGFU.R: 10117\_\_\_\_\_\_\_\_.
			2. FM Approvals:
				1. RoofNav Website: RoofNav Assembly No: \_\_\_\_\_\_\_\_\_\_\_\_.
		2. Environmental Considerations:
			1. Severe environmental exposure e.g. coastal or high wind areas.
			2. Chemical discharge not listed on the Seaman Corporation/FiberTite chemical resistance publication.
			3. Environmental conditions such as fog, dew, rain or snow and freezing temperatures can have a detrimental effect on the application and performance of adhesives.
			4. Compliance with EPA and OSHA requirements as published by local, state and federal authorities.
			5. Adhesives can be described as temperamental. The Applicator must be aware of potential environmental variables when installing adhered roofing systems.
			6. Pay particular attention to and follow adhesive storage and application precautions and guidelines.
			7. The use of polystyrene insulation and coverboard assemblies for adhered roofing systems incorporating solvent borne adhesives shall also include a minimum 10-mil polyethylene solvent barrier between the insulation and coverboard.
	1. WARRANTY

\*\* NOTE TO SPECIFIER \*\* Available Warranties:
Material: Protection against repairing defects in membrane only. Offered at no cost to Owner.
Standard: Protection against repairing leaks as a result of membrane defects or workmanship involved in its installation for a 10 year period. Nominal premium.
Extended Warranty: Protection against repairing leaks as a result of membrane defects or workmanship involved in its installation beyond ten years. Additional premium.

* + 1. Upon Inspection and Acceptance by a FiberTite Technical Service Representative: Seaman Corporation will issue the pre-authorized warranty, subject to the terms and conditions of the sample warranty and contract documents.

\*\* NOTE TO SPECIFIER \*\* Delete warranty type options not required.

* + - 1. Warranty Type:
				1. Material Warranty Only.
				2. Material and Labor Warranty
			2. Time Period:
				1. 5 year warranty.
				2. 10 year warranty.
				3. 15 year warranty.
				4. 20 year warranty.
			3. Maintenance Requirements: A set of instructions including detailed preventative maintenance requirements on the part of the building Owner and noting a list of harmful substances that may damage the FiberTite membrane.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: FiberTite, Seaman Corporation, which is located at: 1000 Venture Boulevard; Wooster, OH 44691-9360; Toll Free Tel: 800-927-8578; Tel: 330-262-1111; Fax: 800-649-2737; Email: afrank@seamancorp.com; Web: <https://www.fibertite.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. GENERAL
		1. All products and components for the FiberTite Roofing System shall be supplied by Seaman Corporation.
		2. Components other than those manufactured and supplied by Seaman Corporation shall be submitted for review, prior to ordering. Any products not specifically authorized in writing for the project by Seaman Corporation, shall be considered unacceptable and their performance excluded from the warranty.
		3. FiberTite Roofing Systems may be installed over or directly to pre-approved insulation, cover board or composites thereof. Contact FTS for additional information regarding compatible substrates.
	2. MEMBRANE
		1. Standards Compliance: ASTM D6754 - 15 Standard Specification for Ketone Ethylene Ester (KEE) Based Sheet Roofing.
		2. Physical Properties: See associated data sheets.
		3. Acceptable Substrate:
			1. Authorized rigid insulation or cover board.
			2. Structural Concrete, insulated.
			3. Insulated Steel Decking.
		4. Field Membrane:

\*\* NOTE TO SPECIFIER \*\* Delete field membrane options not required.

* + - 1. FiberTite 36-mil Membrane: Nominal 36 mil (0.91 mm) ketone ethylene ester (KEE) membrane reinforced with 5.0 oz per sq. yd (169.5 grams per sq m) knitted polyester fabric.
			2. FiberTite 36-mil FB (Fleeceback) Membrane: Nominal 36 mil (0.91 mm) ketone ethylene ester (KEE) membrane reinforced with 5.0 oz per sq. yd (169.5 grams per sq m) knitted polyester fabric and heat bonded 4 oz (113.4 grams) polyester backing.
			3. FiberTite-SM 45-mil Membrane: Nominal 45 mil (1.14 mm) ketone ethylene ester (KEE) membrane reinforced with 5.0 oz per sq yd (169.5 grams per sq m) knitted polyester fabric.
			4. FiberTite 45-mil FB (Fleeceback) Membrane: Nominal 45 mil (1.14 mm) ketone ethylene ester (KEE) membrane reinforced with 5.0 oz per sq yd (169.5 grams per sq m) knitted polyester fabric and heat bonded 4 oz (113.4 grams) polyester backing.
			5. FiberTite-XT 50-mil Membrane: Nominal 50 mil (1.27 mm) ketone ethylene ester (KEE) membrane reinforced with 6.5 oz per sq yd (220.4 grams per sq m) knitted polyester fabric.
			6. FiberTite 50-mil FB (Fleeceback) Membrane: Nominal 50 mil (1.27 mm) ketone ethylene ester (KEE) membrane reinforced with 6.5 oz per sq yd (220.4 grams per sq m) knitted polyester fabric and heat bonded 4 oz (113.4 grams) polyester backing.
			7. FiberTite-SM 60-mil Membrane: Nominal 60 mil (1.5 mm) ketone ethylene ester (KEE) membrane reinforced with 5.0 oz per sq yd (220.4 grams per sq m) knitted polyester fabric.
			8. FiberTite-SM 60-mil FB (Fleeceback) Membrane: Nominal 60 mil (1.5 mm) ketone ethylene ester (KEE) membrane reinforced with 5.0 oz per sq yd (220.4 grams per sq m) knitted polyester fabric and heat bonded 4 oz (113.4 grams) polyester backing.
			9. FiberTite-XT 60-mil Membrane: Nominal 60 mil (1.5 mm) ketone ethylene ester (KEE) membrane reinforced with 6.5 oz per sq yd (220.4 grams per sq m) knitted polyester fabric.
			10. FiberTite-XT 60-mil FB (Fleeceback) Membrane: Nominal 60 mil (1.5 mm) ketone ethylene ester (KEE) membrane reinforced with 6.5 oz per sq yd (220.4 grams per sq m) knitted polyester fabric and heat bonded 4 oz (113.4 grams) polyester backing.
			11. FiberTite-XTreme 60-mil Membrane: Nominal 60 mil (1.5 mm) ketone ethylene ester (KEE), reinforced with 12.5 oz per sq yd (423.8 grams per sq m) woven polyester mat.
			12. FiberTite-XTreme 60-mil FB (Fleeceback) Membrane: Nominal 60 mil (1.5 mm) ketone ethylene ester (KEE), reinforced with 12.5 oz per sq yd (423.8 grams per sq m) woven polyester mat and heat bonded 4 oz (113.4 grams) polyester backing.
		1. Flashing Membrane:

\*\* NOTE TO SPECIFIER \*\* Delete roofing systems not required.

* + - 1. Requirements to match field membrane and warranty expectations selected for roofing system.
				1. Basis of Design: FiberTite Nominal 36 mil (0.91 mm).
				2. Basis of Design: FiberTite-SM Nominal 45 mil (1.14 mm).
				3. Basis of Design: FiberTite-XT Nominal 50 mil (1.27 mm).
	1. ANCILLARY MATERIALS

\*\* NOTE TO SPECIFIER \*\* Supply the following products and materials from the Seaman Corporation. All ancillary materials are required. No items are optional unless the final approved design dictates otherwise. Seaman Corporation supplied adhesives are formulated for FiberTite Roofing Systems. Solvent borne adhesives are not compatible with polystyrene insulation. Application technique and coverage rates will vary according to substrate and environmental conditions. Refer to FiberTite Adhesives Guide and Compatibility Chart for product coverages. Use of FTR-190e adhesive and Alpha-Tite adhesive are only permitted on smooth-back (non-fleeceback) membranes. Use of FTR-290, FTR-390, FTR-490, CR-20 and FTR-601 PG are only permitted on fleece-back membranes.

* + 1. Flashing Adhesive:

\*\* NOTE TO SPECIFIER \*\* Delete flashing adhesive type not required.

* + - 1. FTR-190e: VOC compliant solvent borne, contact (two-sided) bonding adhesive, for bonding smooth-back FiberTite membranes to properly prepared and preauthorized horizontal and vertical substrates.
			2. Alpha-Tite: VOC compliant solvent borne, contact (two-sided) bonding adhesive for bonding smooth-back FiberTite membranes to properly prepared and preauthorized horizontal and vertical substrates.
			3. FTR-201 Mastic: Trowel grade elastomeric adhesive and sealant used to adhere FiberTite flashing membranes to pre-approved vertical substrates.
		1. Fasteners:

\*\* NOTE TO SPECIFIER \*\* Delete fastener type not required.

* + - 1. Securing membranes to steel, wood and structural concrete decks.
				1. FiberTite MAGNUM Series: No. 15-13, buttress threaded, No. 3 Phillips head fastener constructed of case-hardened carbon steel with a reduced diameter drill point and corrosion resistant coating.
		1. FTR Stress Plates: Used to anchor membranes.

\*\* NOTE TO SPECIFIER \*\* Delete stress plate options not required.

* + - 1. FTR Magnum Plus: 1.5 x 2.75 inch (38 x 70 mm) Barbed Rectangular Stress Plate with radial corners; 8 gauge AZ-50 galvalume steel.
		1. Additional Components:
			1. Flashing Terminations Sealant: FTR-101. Single-component gun-grade polyether.
			2. Sealant for Pitch Pans: FTR-SLS Sealant. Single -component self-leveling polyether.
			3. Fabricated Metal Flashing: FiberClad Metal. 48 x 120 inch (1219 x 3048 mm) sheets.
				1. Steel: 24 gauge hot dipped G-90.
				2. Aluminum 300H14: 0.040 inch (1.02 mm) thick laminated with a 0.02 mil (0.0005 mm) polymeric coating.(Can be painted with FTB-Kynar Primer followed by FTB-Kynar Touch Up Paint.)
			4. FTR Premolded Flashings: Injection molded vent stack, split Wrapid Flash and inside and outside corner flashing using FiberTite vinyl compound.
			5. FTR Non-Reinforced Membrane: Field fabrication membrane, 60 mil (1.5 mm) non-reinforced vinyl membrane.
			6. Forti-Lock: A rapid-curing, proprietary formulation of polymethyl-methacrylate (PMMA) liquid flashing resin. Forti-Lock is combined with Forti-Lock Primer and Forti-Lock Fleece reinforcing fabric to form a flexible and monolithic, reinforced membrane used in aberrant FiberTite flashing and detail applications.
			7. Forti-Lock Metal Primer: An acrylic primer used with various metal substrates to promote adhesion of Forti-Lock™ waterproofing and surfacing components
			8. Forti-Lock Fleece: a proprietary non-woven polyester reinforcement used in Forti-Lock liquid flashing applications.
			9. Walkway and Protection Pads: FTR-Tuff Track. High grade walk way and protection material with slip-resistant design.
			10. FTR-Termination Bar: Membrane flashings restraint and termination seals. 0.125 x 1 x 120 inch (3 x 25 x 3048 mm) 6060-T5 extruded aluminum bar with pre-punched slots, 8 inches (203 mm) on center.
			11. FiberTite Metal Fascia System: Two piece "snap-on" pre-formed, architectural Kynar metal edge systems.
			12. FTR-Value Insulation: Polyisocyanurate and extruded polystyrene flat or tapered insulation.
			13. FTR-601 & FTR-601 PG: Dual component, single bead (ribbon applied) urethane insulation adhesive. Adhesive is a non-solvent, elastomeric, urethane adhesive, specifically designed for bonding single or multiple layers of roof insulation and insulation composites or cover boards to structural roof decks and base sheets.
			14. FiberTite Seam Cleaner: FiberTite Seam Cleaner is to be used with clean white cotton cloths or rags to clean contamination from the seam areas of the membrane prior to welding.
			15. FTR T Joint Covers: Pre-cut 4 x 4 inch (102 x 102 mm) 60 mil (1.5 mm) non-reinforced membrane to reinforce areas where three overlapping sheets of membrane intersect.
	1. BASE SHEET

\*\* NOTE TO SPECIFIER \*\* Delete one of the two following paragraphs.

* + 1. Base Sheets: Not required.
		2. Base Sheets:
			1. Preapproved base sheet shall be installed, where specified or required, to provide a suitable surface for installation of FiberTite Roofing System.
			2. Acceptable products must be preapproved or approved in writing by Seaman Corporation and comply with the following minimal characteristics and classifications.

\*\* NOTE TO SPECIFIER \*\* Delete the characteristics and classifications options not required.

* + - * 1. FM approved, Class 1-90, wind uplift.
				2. FiberTite SBS Base Sheets as provided by Seaman Corporation
				3. ASTM D4601 Type II Asphalt Coated Glass-Fiber Base Sheet.
				4. ASTM D4897 Type II Asphalt Coated Glass-Fiber Venting Base Sheet.
	1. VAPOR RETARDER

\*\* NOTE TO SPECIFIER \*\* Delete one of the two following paragraphs.

* + 1. Vapor Retarders: Not required.
		2. Vapor Retarders:
			1. Preapproved vapor retarders shall be installed, where specified or required, to provide a suitable surface for installation of FiberTite Roofing System.
			2. Acceptable products must be preapproved or approved in writing by Seaman Corporation and comply with the following minimal characteristics and classifications.

\*\* NOTE TO SPECIFIER \*\* Delete the characteristics and classifications options options not required.

* + - * 1. ASTM D4601, Type II Asphalt Coated Glass-Fiber Base Sheet.
				2. ASTM D4897, Type II Asphalt Coated Glass-Fiber Venting Base Sheet.
				3. ASTM D6163, Type I, Grade S, FiberTite SBS modified membrane.
				4. ASTM D6164 , Type I, Grade S, FiberTite SBS modified membrane.

\*\* NOTE TO SPECIFIER \*\* Delete preapproved product options not required or delete entire paragraph.

* + - 1. Preapproved Products:
				1. VaporTite.
				2. FiberTite SBS Base Sheets as provided by Seaman Corporation.
				3. Minimum 6-mil Polyethylene.
	1. INSULATION

\*\* NOTE TO SPECIFIER \*\* For the purpose of this guide specification, unless explicitly defined otherwise, the term insulation is used interchangeably to refer to rigid insulation materials, in single or multiple layers of tapered or flat, cover board, thermal barriers and or multilayered composites.

* + 1. Insulation shall be installed, where specified or required to provide a suitable surface for the FiberTite Roofing Systems and meet desired thermal values.
		2. Products must be pre-approved in writing by Seaman Corporation and comply with minimal characteristics and classification listed for the products below:

\*\* NOTE TO SPECIFIER \*\* Delete polyisocyanurate insulation not required.

* + - 1. Polyisocyanurate Rigid Insulation (ASTM C1289):
				1. FTR-Value III Polyisocyanurate Rigid Insulation.
				2. FTR-Value H Polyisocyanurate Rigid Insulation.
				3. FTR-Value A Polyisocyanurate Rigid Insulation.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below if no XPS insulation.

* + - 1. XPS Rigid Insulation (ASTM D1621):
				1. FTR-Value XPS Rigid Insulation.

\*\* NOTE TO SPECIFIER \*\* Delete cover boards from below that are not required.

* + - 1. Gypsum Core Cover Board (ASTM C473):
				1. National Gypsum DEXcell.
				2. Georgia-Pacific Gypsum LLC DensDeck Prime.
				3. United States Gypsum Company SECUROCK.
		1. Adhesives for Insulation Attachment: Preauthorized by Seaman Corporation.
			1. Listed and approved by FM in conjunction with specified insulation and substrate.
			2. Meet minimum roofing system design requirements, evidenced by testing in conjunction with the proposed substrate and or composite.
				1. Testing to be performed under FM-Global requirements or acceptable third-party laboratory.
			3. Provide written specifications regarding the safe handling, storage and surface preparation for a quality application of the product.
			4. Insulation Adhesives:

\*\* NOTE TO SPECIFIER \*\* Edit paragraph below if to indicate which insulation adhesive is being used. Select none if insulation is being mechanically fastened or loose laid.

* + - * 1. None: Insulation was mechanically fastened or loose laid.
				2. Polyurethane Adhesive: Either a dual or single component polyurethane, dispensed from a portable pressurized container or traditional foam equipment.

Preapproved Products:

FTR-601.

FTR-601 PG.

Polyset CR20.

\*\* NOTE TO SPECIFIER \*\* Delete related materials options not required. Delete article if not required.

* 1. RELATED MATERlALS
		1. Wood Nailers: No. 2 or better construction grade lumber.
			1. Installation of other types of treated lumber should be verified with a design professional.

\*\* NOTE TO SPECIFIER \*\* Delete wood treatment options not required.

* + - 1. Wood treatment: Borate.
			2. Wood Treatment: \_\_\_\_\_\_\_.
			3. Wood Treatment: As designated on the Drawings.
			4. Wood Treatment: As determined by the Architect.
			5. Creosote or asphaltic type preservatives are not acceptable.
			6. Top Nailer Thickness: 1.5 inches (38 mm) minimum.
		1. Ballast:
			1. Nominal 2.5 inch (63.5 mm) smooth river bottom stone consisting of a ballast gradation size No. 2, as specified in ASTM D7665 / D7655M.
			2. Freeze and Thaw resistant concrete roof pavers, specifically designed and manufactured for use in ballasted membrane systems.
			3. Heavyweight, non-interlocking pavers weighing 22 lbs per sq ft (1.05 kPa) or more which are unrestrained by adjacent units.
			4. Lightweight, interlocking pavers weighing less than 22 lbs per sq ft (1.05 kPa) which incorporate physical dependency with adjacent pavers.
			5. Concrete pavers shall be installed according to the manufacturer's most recent published specification.
1. EXECUTION
	1. GENERAL
		1. Authorized Applicator: Ensure strict compliance with FTR GRS 01/21; General Guide Specifications for Installation of FiberTite Roofing Systems.
			1. Provide suitable substrate surface for proper installation of roofing system, roof insulation and specified components.
			2. Coordinate installation ensuring system remains watertight at end of each working day.
		2. Application of Seaman Corporation/FiberTite materials constitutes an agreement that Applicator inspected and found the substrate suitable for installation of roofing system.
	2. SUBSTRATE PREPARATION
		1. Authorized Applicator: Verify the deck condition or existing roof construction is suitable for the specified installation.
		2. Examine surfaces for inadequate anchorage, low areas that will not drain properly, foreign material, ice, wet insulation, unevenness or any other defect which would prevent the proper execution and quality application roofing system as specified.
		3. Prepared substrate shall be smooth, dry, and free of debris and any other irregularities which would interfere with proper installation.
		4. The application of adhesives or hot asphalt directly to structural concrete, gypsum, Tectum, lightweight insulating concrete, existing smooth or granulated BUR materials may require sealing or priming with an appropriate elastomeric or asphalt primer prior to application.
		5. Adhesives will not bond to wet, damp or inadequately cured lightweight insulating concrete or poured structural concrete.
		6. Do not proceed with any part of the application until all defects and preparation work have been corrected and complete.
	3. SUBSTRATE PREPARATION (NEW CONSTRUCTION)

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs as required. Include the substrates to which the insulation will be applied and delete those not required. Contact the manufacturer for surfaces not listed.

* + 1. Steel Deck:
			1. Steel decking shall conform to FM Approvals (FM) guidelines for Class-1 insulated steel deck construction.
			2. Steel decking shall be constructed of a minimum 22-gauge cold rolled steel sheets with factory G-90 galvanized coating.
			3. Panel profiles (ribs) shall be formed to minimize deflection and provide suitable strength and integrity to support anticipated structural live and dead loads.
			4. Steel decking shall be installed in compliance with specified design criteria and local building code requirements.
			5. Steel decking that is less than 22-gauge may be considered for application by Seaman Corporation. Fastener withdrawal tests shall be performed on all non-FM Approved steel decking, (decking less than 22-gauge) to determine suitability and appropriate fastener patterns and densities for mechanical attachment of the new components of the FiberTite Ballasted Roofing Systems.
		2. Structural Concrete (Poured or Pre-cast):
			1. Decking shall be installed in strict conformance with industry standards, practices and/or pre-cast panel manufacturer's installation requirements.
			2. Decking shall be installed to provide positive slope and subsequent positive drainage of the new FiberTite Ballasted Roofing Systems.
			3. Finished decking shall be properly cured and dried prior to the installation of approved insulation.
			4. Finished surfaces to receive new roof system shall be smooth and level without significant surface depressions or irregularities. Camber differentials greater than 3/16 inch (5 mm) must be leveled using a cementitious grout.
			5. Finished surfaces shall be free of moisture, dust, loose debris and any other irregularities that may hinder the proper performance of the new FiberTite Roofing Systems.
	1. SUBSTRATE PREPARATION (REROOFING)
		1. General:
			1. Applicator shall inform the building Owner or Owner Representative of any issues regarding to the condition and structural integrity of the existing decking.
			2. The building Owner or Owner Representative shall make and be responsible for the determination as to the proper method of treatment or replacement.
			3. Re-roofing applications that require modification to the deck or insulation system should be installed to provide positive slope and subsequent positive drainage of the new FiberTite Ballasted Roofing Systems.
			4. All terminations of the FiberTite Ballasted Roofing Systems must be constructed to prevent water from penetrating behind or beneath the new roofing system. This includes water from above, beside, below and beneath the new system.

NOTE TO SPECIFIER \*\* Edit the following paragraphs as required. Include the substrates to which the insulation will be applied and delete those not required. Contact the manufacturer for surfaces not listed.

* + 1. Removal of Existing Roof Systems:
			1. Remove all existing roofing materials, insulation, flashing, metal and deteriorated wood blocking and legally dispose off-site.
			2. Remove only enough roofing to accommodate the day's work and ensure the exposed area can be made 100 percent watertight at the end of the day or first sign of inclement weather.
		2. Recover of Existing Roof Systems:
			1. Remove loose aggregate and debris by power broom and vacuum and legally dispose of offsite.
			2. Remove and replace wet or deteriorated insulation and wood blocking.
			3. Clean exposed metal surfaces such as pipes, pipe sleeves, drains, duct work, etc., by removing loose paint, rust and any asphalt or coal tar pitch of any kind. Remove and properly discard lead sleeves at soil stacks.
			4. If the existing roof is coal tar pitch, has been repaired with coal tar pitch or has been re-saturated with coal tar pitch, a minimum 10 mil polyethylene pitch vapor retarder shall be installed before recovering.
		3. Steel and Wood Decks:
			1. Rotted or deteriorated decking shall be removed and replaced with like kind.
			2. Areas of structurally acceptable steel decking exhibiting slight surface rust shall be properly cleaned, primed and painted prior to installing the approved insulation.
			3. All decking shall be inspected for proper attachment and excessive deflection that would compromise the uplift performance of the new FiberTite Ballasted Roofing System.
			4. Attachment and deflection deficiencies shall be repaired and brought into compliance with current, local building code requirements.
		4. Concrete:
			1. Deteriorated decking shall be repaired or replaced with appropriate materials according to standard industry regulations and practices.
			2. Repair any depressions or areas where reinforcing has become exposed.
			3. When new insulation system is to be installed using an approved adhesive.
				1. Cracks and or camber differentials greater than 3/16 inch (5 mm) shall be repaired using an appropriate cementitious grout or fill, and feathered to promote a smooth transition.
				2. Joints between prestressed panel units and over bulb-tees shall be taped, stripped or grouted with an appropriate cementitious fill.
				3. All surface irregularities shall be leveled to ensure complete contact with the decking for insulation bonded in hot asphalt or approved adhesives.
		5. Lightweight Insulating Concrete:
			1. Wet lightweight shall be removed and replaced with appropriate compatible material.
			2. Surface to receive new roofing system shall be smooth and free of ridges, depressions and other irregularities.
			3. Repair any depressions, irregularities and excessive deflections with compatible material.
	1. WOOD NAILERS
		1. Install treated lumber at same heights as insulation layer or adjacent construction plus or minus 0.25 inch (6 mm). Install continuous treated wood nailers at all perimeters, around roof projections and penetrations as shown in approved details.
		2. Wood Nailers Installed Directly on the Substrate: Carefully examine substrates to confirm the entire area provides a suitable fastening surface. Repair defects by appropriate trades prior to installation.
		3. Nailers (WxH): Minimum 1.5 x 1.5 inches (38 x 38 mm). Installed and anchored in such a manner to resist a force of 250 lbs per linear foot (2.919 kN per m) of wood blocking in any direction.
		4. Nailers along parapets, curbs and expansion joints are recommended for insulated decking. Consult FiberTite Construction Details or FiberTite Technical Customer Services for optional and alternative membrane termination, and securement methods.

\*\* NOTE TO SPECIFIER \*\* Delete Base Sheet article if base sheet is not being used or edit paragraphs in article based on type of base sheet specified.

* 1. BASE SHEET
		1. General:
			1. Approved base sheet, when required or specified, shall be applied only to properly prepared and preapproved substrates.
			2. Install no more than can be covered or made 100 percent water tight during the same working day.
			3. Base sheets shall be installed starting at the low point of the roof deck.
			4. Base sheet shall be side lapped, a minimum of 3 inches (75 mm), and properly shingled to shed water.

\*\* NOTE TO SPECIFIER \*\* Delete Article if vapor retarder is not being used or edit paragraphs in article based on type of vapor retarder specified.

* 1. VAPOR RETARDERS
		1. General:
			1. Approved vapor retarder, when required or specified, shall be applied only to properly prepared and preapproved substrates.
			2. Install no more than can be covered or made 100 percent water tight during the same working day.
			3. Vapor retarders shall be installed starting at the low point of the roof deck.
			4. Vapor retarder shall be side lapped, a minimum of 3 inches (75 mm), and properly shingled to shed water.
		2. VaporTite: Install one ply sheet over the entire prepared substrate. Shingle in direction of slope of roof to shed water on each area of roof.
		3. 6-mil Polyethylene: Loose lay polyethylene according to specifications and construction drawings. Lap polyethylene sheet minimum 3-in and tape laps.
		4. Hot Applied Vapor Retarder: Install one ply sheet in 25 lbs. per square (11.3kg) of ASTM D 312 Type III bitumen over the entire prepared substrate. Shingle in direction of slope of roof to shed water on each area of roof.
		5. Torch Applied Vapor Retarder: Install one ply FTR SBS Base Sheet using a suitable heat source, to the entire surface. Shingle in direction of slope of roof to shed water on each area of roof.
		6. Cold Applied Vapor Retarder: Install one ply FTR SBS Base Sheet in FiberTite cold applied FTR SBS Adhesive over the entire prepared substrate. Shingle in direction of slope of roof to shed water on each area of roof.
		7. Two Ply Fiberglass Vapor Retarder: Install two fiberglass ply sheets in 25 lbs. per square (11.3kg) of ASTM D 312 Type III bitumen shingled uniformly to achieve two plies over the entire prepared substrate. Shingle in direction of slope of roof to shed water on each area of roof.
	2. ROOF INSULATION AND COVERBOARD INSTALLATION
		1. General:
			1. Roof insulation shall be installed where by the long dimension of the boards run in parallel alignment and the short dimensions are staggered.
			2. Insulation shall be installed with minimum joint dimensions and shall be tightly butted where possible. Maximum joint widths shall be 0.125 inch (3 mm). Damaged corners shall be cut out and replaced with an insulation piece a minimum of 12 x 12 inch (305 x 305 mm). Pieces that are cut from larger panels and are smaller than one square foot are not acceptable.
			3. Install no more than can be covered during the same working day.
			4. Taper roof insulation to drain sumps using tapered edge strips. If an insulation layer is 1.5 inches (38 mm) or less, taper 12 inches (305 mm) from the drain bowl. If insulation thickness exceeds 1.5 inches (38 mm), taper 18 inches (457 mm) from the drain bowl. All taper boards or pieces must be adhered or mechanically fastened with a minimum of two fasteners per board.
			5. When a coverboard or multiple layers are installed each layer shall be offset from the previous layer a minimum of 12 inches (305 mm) on center.
			6. At the end of each working day, provide a watertight cover on all unused insulation as to avoid moisture penetration.
		2. Loose Laid Insulation:
			1. Insulation shall be applied to or installed over properly prepared and pre-approved substrates, free of any debris, dirt, grease, oil or moisture.
			2. Ballast applications require that the base layer of insulation, in multiple layer applications, be lose laid, staggering all joints. All insulation joints in subsequent layers shall also be staggered (above and below) within the multiple layers.
	3. INSTALLATION OF MEMBRANES
		1. Quality Control:
			1. It is the responsibility of the Applicator to initiate and maintain a Quality Control program to govern all aspects of the installation.
			2. The project foreman and or supervisor will be responsible for the daily execution of the Quality Control program which will include but is not limited to the supervision, inspection and probing of all heat welded seams incorporated within roofing system.
			3. If inconsistencies in quality of the application of the composite, membrane or welds are found, work shall cease until corrective actions are taken to ensure the continuity of the installation.
		2. General:
			1. Coordinate work ensuring that sequencing of installation promotes a 100 percent watertight installation at the end of each day.
			2. Roofing systems to be designed utilizing and determined to be in compliance with the procedures outlined within the current publication of ASCE 7. Alternative designs may be determined using the criteria within FM Loss Prevention Data.
			3. A FiberTite Roofing Systems shall utilize either conventional roll goods.
			4. Restrictions regarding outside ambient air temperature are relative only to the exposure limits of the workers and adhesives when necessary.
			5. When using adhesives outside ambient air temperature shall be above 40 degrees F (4.4 degrees C). Curing or drying time of the adhesive will be affected by ambient temperatures and must be taken into consideration.
			6. Humidity can affect the drying time of solvent borne adhesives or cause condensation to form on the newly applied adhesive.
			7. No moisture may be present on the adhesives prior to mating or application of membranes.
			8. Roofing systems shall only be installed over properly prepared and sound substrates, free from excessive surface roughness, dirt, debris and moisture.

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs as required.

* + 1. Ballasted FiberTite Membrane:

\*\* NOTE TO SPECIFIER \*\* All FiberTite Membranes are eligible for ballast upon review and acceptance for FTS.

* + - 1. For velocity pressures greater than 40 psf (1.9 kPa), coastal applications or buildings with significant openings, please consult FTS.
				1. Unroll and position the FiberTite membrane onto the properly prepared substrate, insulation or coverboard.
				2. Install the membrane in a flat, relaxed position avoiding excess wrinkles and stretching.
				3. Adjoining rolls shall overlap a minimum of 3 inches (76 mm), properly shingled with the flow of water wherever possible.
				4. The field membrane shall be properly affixed to wood blocking or restrained in an approved manner at all roof perimeters, walls, expansion joints, curbs and penetrations having any one dimension greater than 24 inches (610 mm) in length. (See Current FiberTite Construction Details.)
			2. Ballast shall be loose laid and sufficient to provide 100 percent coverage of the FiberTite membrane.
			3. A minimum 2 inch (51 mm) high gravel stop or approved ballast restraint shall be installed at exterior perimeter edges.
			4. Perimeter shall be defined as a rectangular area along and parallel to the exterior edge of the roof. The width of the rectangle shall be determined as 10 percent of the building width or 40 percent of the building height, whichever is less to a minimum of 10 feet (3048 mm).
			5. Corner shall be defined as a square external corner section of the roof. The width of the square shall be determined as 10 percent of the building width or 40 percent of the building height, whichever is less to a minimum of 10 feet (3048 mm).
			6. When applicable, a special mechanical termination shall be constructed between areas of loose laid, mechanically attached or adhered roof sections.
			7. The building's degree of exposure to the effects of wind will vary according to specific design wind speed, building height, parapets, permeability and geographic location.
			8. The following is a list of minimum guidelines for ballasted FiberTite Roof Systems. Final design and approval shall rest with the local building official or within the local building code having jurisdiction over the project.
				1. Design Pressure: Less Than or Equal to Minus 20 psf (958 Pa):

Roof Area: Field:

Stone Ballast, No. 2, 2.5 inch (63.5 mm): 10 psf (478 Pa).

Pavers, Interlocking: 10 psf (478 Pa).

Pavers, Non-Interlocking: 22 psf (1053 Pa).

Roof Perimeter:

Stone Ballast, No. 2, 2.5 inch (63.5 mm): 12 psf (575 Pa).

Pavers, Interlocking: 10 psf (478 Pa).

Pavers, Non-Interlocking: 22 psf (1053 Pa).

Roof Corners:

Stone Ballast, No. 2, 2.5 inch (63.5 mm): 12 psf (718 Pa).

Pavers, Interlocking: 10 psf (478 Pa).

Pavers, Non-Interlocking: 22 psf (1053 Pa).

* + - * 1. Design Pressure: Less Than or Equal to Minus 30 psf (1436 Pa):

Roof Area: Field:

Stone Ballast, No. 2, 2.5 inch (63.5 mm):12 psf (575 Pa).

Pavers, Interlocking: 10 psf (478 Pa).

Pavers, Non-Interlocking: 22 psf (1053 Pa).

Roof Perimeter:

Stone Ballast, No. 2, 2.5 inch (63.5 mm): 12 psf (718 Pa).

Pavers, Interlocking: 10 psf (478 Pa).

Pavers, Non-Interlocking: 22 psf (1053 Pa).

Roof Corners:

Stone Ballast, No. 2, 2.5 inch (63.5 mm): 18 psf (862 Pa).

Pavers, Interlocking: 10 psf (478 Pa).

Pavers, Non-Interlocking: 22 psf (1053 Pa).

* + - * 1. Design Pressure: Less Than or Equal to Minus 40 psf (1915 Pa):

Roof Area: Field:

Stone Ballast, No. 2, 2.5 inch (63.5 mm): 12 psf (718 Pa).

Pavers, Interlocking: Special design only.

Pavers, Non-Interlocking: 22 psf (1053 Pa).

Roof Perimeter:

Stone Ballast, No. 2, 2.5 inch (63.5 mm): MA or FA Only.

Pavers, Interlocking: MA or FA only.

Pavers, Non-Interlocking: MA or FA only.

Roof Corners:

Stone Ballast, No. 2, 2.5 inch (63.5): MA or FA only.

Pavers, Interlocking: MA or FA only.

Pavers, Non-Interlocking: MA or FA only.

* + 1. Welding:
			1. General:
				1. Field seams exceeding 10 ft (3048 mm) in length shall be welded with an approved automatic welder.
				2. Field seams must be clean and dry prior to initiating any field welding.
				3. Remove foreign materials from the seams (dirt, oils, etc.) with Fibertite Seam Cleaner or authorized alternative.
				4. Use clean white cotton cloths and allow approximately five minutes for solvents to dissipate before initiating the automatic welder. Do not use denim or synthetic rags for cleaning.
				5. Welding shall be performed only by qualified personnel to ensure the quality and continuity of the weld.
				6. Contaminated areas within a seam will inhibit proper welding and will require a membrane patch or strip.
			2. Hot Air Hand Welding:
				1. The lap or seam area of the membrane may be intermittently tack welded to hold the membrane in place.
				2. The back interior edge of the membrane shall be welded first, with a thin, continuous weld to concentrate heat along the exterior edge of the lap during the final welding pass.
				3. The nozzle of the handheld hot air welder shall be inserted into the lap at a 45 degree angle to the lap. Once the polymer on the material begins to flow, a hand roller shall be used to apply pressure at a right angle to the tip of the hand welder. Properly welded seams shall utilize a 1.5 inch (38 mm) wide nozzle, to create a homogeneous weld, a minimum of 1.5 inch (38 mm) in width.
				4. Smaller nozzles may be used for corners, and other field detailing, maintaining a minimum 1 inch (25 mm) weld.
			3. Automatic Hot Air Machine Welding:
				1. Proper welding of the FiberTite Membrane can be achieved with a variety of automatic welding equipment.
				2. Follow all manufacturers' instructions for the safe operation of the automatic welder.
				3. Follow local code requirements for electric supply, grounding and surge protection.
				4. The use of a dedicated, portable generator is highly recommended to ensure a consistent electrical supply, without fluctuations that can interfere with weld consistency.
				5. Properly welded seams shall utilize a 1.5 inch (38 mm) wide nozzle, to create a homogeneous weld, a minimum of 1.5 inch (38 mm) in width.
		2. Inspection:
			1. The job foreman or supervisor shall initiate daily inspections of all completed work which shall include but is not limited to the probing of all field welding with a dull pointed instrument to assure the quality of the application and ensure that any equipment or operator deficiencies are immediately resolved.
			2. Ensure all aspects of installation (sheet layout, attachment, welding, flashing details, etc.) are in accordance with the most current FiberTite Roofing Systems Specifications and Details.
			3. Excessive patching of field seams because of inexperienced or poor workmanship will not be accepted at time of Final Inspection For Warranty Acceptance.
			4. Any deviation from pre-approved specifications or details requires written authorization from the FTS prior to application to avoid any warranty disqualification.
			5. It is the Applicator, job foreman, supervisor, or quality control personnel's responsibility to perform a final self-inspection on all seams prior to requesting the inspection for warranty issuance by the FTS.
		3. T-Joint Cover Installation:
			1. Installation of T-Joint Covers is mandatory on FiberTite Membrane Systems greater than nominal 50 mil (1.3 mm), vegetated roofs, ballast roofs or where T-Joints have not been properly sealed to exhibit a minimum 1.5 inch (38 mm) defined crease along the T-Joint.
			2. Install T-Joint Covers, centered and aligned so edges are parallel to roof system seams.
			3. The T-Joint Cover shall be 100 percent welded.
	1. FLASHING
		1. Clean vents, pipes, conduits, tubes, walls, and stacks to bare metal. Protrusions must be properly secured to roof deck with approved fasteners. Remove and discard lead pipes and drain flashing. Flash penetrations according to approved details.
		2. Remove loose or deteriorated cant strips and flashings.
		3. Flash curbs, parapets and interior walls in strict accordance with approved FiberTite details.
		4. All flashing shall be adhered to properly prepared, approved substrates with FTR-190e adhesive or FTR-201 mastic applied in sufficient quantity to ensure total adhesion.
		5. The base flange of all membrane flashing shall extend out on to the plane of the deck, beyond the wood nailers to a maximum width of 8 inches (203 mm).
		6. Vertical flashing shall be terminated no less than 8 inches (203 mm) above the plane of the deck with approved termination bar and counter-flashing or metal cap flashing.
		7. When using FTR-201 as the adhesive, vertical wall flashing termination shall not exceed 40 inches (1016 mm) without supplemental mechanical attachment of the flashing between the deck and the termination point of the flashing.
		8. Complete all inside and outside corner flashing details with FiberTite preformed corners or an approved field fabrication detail.
		9. Probe all seams with a dull, pointed probe to ensure the weld has created a homogeneous bond.
		10. Install penetration accessories in strict accordance with approved details. Ensure penetration accessories have not impeded in any way the working specification. Refer to the related trade for the technical specification.
	2. METAL FLASHING
		1. All perimeter edge details are to be fabricated from FiberClad Metal or utilize a prefabricated FiberTite Fascia System.
		2. Ensure all fascia extend a minimum of 2 inches (51 mm) lower than the bottom of the wood nailers.
		3. Fasten all metal flashing to wood nailers or approved substrate with approved fasteners per manufacturers detailed drawings.
		4. Solidly weld FiberClad expansion joints with a 6 inch (152 mm) strip of FiberTite membrane welded to the Fiber Clad, covering the bond breaker tape (cover plates are optional).
		5. Roof Drains:
			1. Flash all roof drains in accordance with FiberTite roof drain details.
			2. Replace all worn or broken parts that may cut the FiberTite membrane or prevent a watertight seal. This includes the clamping ring and strainer basket.
			3. Replace all drain bolts or clamps used to hold the drain compression ring to the drain bowl.
			4. FiberTite non-reinforced 60 mil (1.52 mm) membrane shall be used for flashing the drain assembly. Drain assemblies and basins or sumps must be free of any asphalt or coal tar pitch residue prior to installation.
			5. The drain target sheet should be sized and installed to provide for a minimum of 12 inches (203 mm) of exposed 60 mil (1.52 mm) on all sides of the drain.
		6. Forti-Lock Liquid Flashing
			1. For aberrant penetrations and pitch pan avoidance, follow FiberTite Forti-Lock guidelines and details for substrate preparation and installation of Forti-Lock liquid flashing on pre-authorized aberrant penetrations.
				1. Forti-Lock Metal Primer: is required for all metal tie-ins and applications with high mechanical stresses, on detail work with small contact areas, metal components with large linear thermal expansion or edge metal terminations.
		7. Pitch Pans:
			1. Every reasonable effort shall be made to eliminate the need for pitch pans including the removal of existing pans. Contact FTS for specific design alternatives and recommendations.
			2. In the event of no alternative, fabricate pitch pans from FiberClad metal, installed in accordance with FiberTite details, ensuring proper attachment, maintaining a minimum of 2 inch (51 mm) clearance around the penetration.
			3. Pitch Pans shall be filled with non-shrinking grout to within 1 inch (25 mm) of the top of the pan. Allow the grout to dry and fill remainder of the pan with FTR-SLS pourable sealant.
			4. Pitch Pans and the sealant will require periodic maintenance by the building Owner's maintenance personnel.
	3. EXPANSION JOINTS
		1. Flash all expansion joints in accordance with authorized details. Fasten all expansion joint material according to FiberTite specifications. Ensure the expansion material has sufficient material to expand to the widest point in expansion without causing undue stress on the expansion joint material.
		2. If the expansion joint is a preformed system, the manufacturer, description and a drawing illustrating the method of installation must be included when the (FTR-PIN) is submitted.
	4. SEALANTS
		1. Apply authorized sealants to all surface mounted reglets and per project requirements. Sealants are to shed water. Follow all manufacturer's instructions and installation guides.
		2. Use primer when recommended by the manufacturer.
		3. Sealants will require periodic maintenance by the building Owner's maintenance personnel.
	5. TEMPORARY SEALS
		1. At the end of each working day or at the sign of rain, install temporary, 100 percent watertight seals where the completed new roofing adjoins the uncovered deck or existing roof surface.
		2. The authorized Applicator shall create and maintain the temporary seal in such a manner to prevent water from traveling beneath the new or existing roof system.
		3. The use of plastic roofing cement is permissible when sealing to an existing built up roof.
		4. If water is allowed to enter beneath the newly completed roofing, the affected areas shall be removed and replaced.
		5. Prior to the commencement of work, cut out and remove all contaminated membrane, insulation, roof cement or sealant and properly dispose of offsite.
	6. WALKWAYS
		1. FiberTite walkways and protection pads shall be installed at staging areas for rooftop equipment maintenance or areas subject to regular foot traffic.
		2. Walkway Installation:
			1. Roofing membrane to receive walkway material shall be clean and dry.
			2. Cut and position the FiberTite walkway material as directed by the specifications or agreement.
			3. Hot air weld the entire perimeter of the walk way to the previously cleaned FiberTite roofing membrane. Avoid excessive heating of the walk way material to prevent scorching the underlying roofing membrane.
		3. Protection Pad Installation:
			1. Roofing membrane to receive protection pad material shall be clean and dry.
			2. Prior to installing the FiberTite protection pads, 0.25 x 24 x 48 inch (6 x 610 x 1219 mm), weld a 6 x 6 inch (152 x 152 mm) strip of FiberTite membrane to each of the four corners of the back side of the pad. Position the strips in such a way that they overhang the edge of the pad a minimum of 2 inches (51 mm) around the 90 degree corner.
			3. Position the FiberTite protection pads as directed by the specifications or agreement and weld the visible portion of the previously applied stripping to the FiberTite roofing membrane.
	7. LIGHTNING PROTECTION
		1. The installation of lightning protection must be coordinated with the Authorized FiberTite Applicator, certified lightning contractor and the building Owner.
		2. The lightning protection must be installed in such a manner that base plates, air terminals and cables do not penetrate the roofing membrane without the use of pre-approved flashing details.
		3. Cables and air terminals may be attached to the membrane using base plates and an approved construction adhesive. Contact FTS for specific adhesive recommendations.
		4. Recommendations regarding the selection of adhesives or alternative affixing of lightning protection systems to the FiberTite membrane does not in any way imply a warranty covering their performance or ability of the adhesives to remain affixed to the FiberTite membrane.
	8. COMPLETION
		1. Remove any and all debris, excess materials and scrap of any kind from the roof and surrounding premises prior to demobilization.
		2. Inspect all field welds, detailing and terminations to ensure a 100 percent watertight installation.
	9. FINAL INSPECTION FOR WARRANTY
		1. Upon completion of the project, the Authorized Applicator shall register the completion of the project with FiberTite Technical Services.
		2. Upon notice of completion, an FTS representative will schedule an inspection with a representative of the Authorized Applicator to thoroughly review the installation and verify compliance with Seaman Corporation specifications.
		3. Any corrections or modifications necessary for compliance with the specifications and acceptance for warranty (punch list) will be noted on the Final Inspection for Warranty Form.
		4. Upon completion of all punch list items and final acceptance of the installation, a warranty as authorized by the approved Seaman Corporation/FiberTite Project Registration.

END OF SECTION