FIBERTITE ROOFING SYSTEM

By Seaman Corporation

FTR-MR 08/17

General Guid Specification for Installation of Mechanically Attached FiberTite® Roofing System Installed Over Existing Metal Roofing

FTR-MR 08/17 is provided as a general foundation for the design and installation of a quality, high performance FiberTite Roofing Systems intended for use over existing standing seam metal roof systems.

PART 1 – GENERAL

1.1 SUMMARY

A. Scope

1. Furnish and install a FiberTite Roofing System as manufactured and supplied by:

   Seaman Corporation
   1000 Venture Blvd.
   Wooster, Ohio 44691
   Tel.: 1-800-927-8578
   Fax: 1-800-649-2737

B. Special Conditions

1. This specification is applicable to only those building roofs that have decking of sufficient structural integrity, capable of supporting the FiberTite Roofing System proposed.
2. All applications and project specifications require review by FiberTite Technical Customer Services (FTCS) for acceptance prior to any commitment to provide a commercial warranty.
3. Seaman Corporation FiberTite Preinstallation Notice (FTR-PIN), must be completed, signed by an authorized roofing contractor, submitted to and approved by FTCS before any consideration for warranty and/or the release of any materials can be authorized.

C. Special Design Considerations

1. The building owner *may* be requested to submit an engineering study, or Statement of Sound Roof Structure, to FTCS, indicating that the structure is able to accommodate additional live and/or dead loads including snow and water retention.
2. FiberTite Roofing Systems can be installed over the existing metal roof:
   a. In conventional (open) overlap parallel to the purlins at a maximum spacing of 60 inches.
   b. Using FiberTite membrane loose laid and through fastened (closed lap) to the purlins at a maximum of every 120; followed by a 6 inch cover strip.
   c. Using an Induction Welded alternative attachment method at purlin intervals no greater than 60 inches.
3. All FiberTite Roofing Membranes may be used for a Metal Recover Roofing System.

D. Environmental Considerations

1. Severe environmental exposure [e.g., coastal or high wind area(s)].
2. Chemical discharge not listed on the Seaman Corporation/FiberTite chemical resistance publication.
3. Environmental conditions such as fog, dew, rain or snow and/or 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. All adhesives can be described as temperamental. The contractor must be aware of all potential environmental variables when installing adhered roofing systems.
6. Pay particular attention to and follow *all* adhesive storage and application precautions guidelines.
7. Do not apply/use waterborne adhesives (FTR-490) if the ambient air temperature is expected to drop below 32°F (0°C) within 72 hours of application.

1.2 INCLUDED BY REFERENCE

A. FiberTite General Guide Specification FTR GS 08/17

B. FiberTite Induction Welded General Guide Specification FTR-IW GS08/17

C. FiberTite Construction Details

D. FiberTite Foreman's Manual

1.3 QUALITY ASSURANCE

A. FiberTite Roofing Systems shall be installed only by a roofing contractor, authorized by Seaman Corporation to install FiberTite Roofing Systems prior to bid and/or contract award. Herein, the term Authorized FiberTite Roofing Contractor is synonymous with authorized, roofing contractor and/or contractor.

B. Roofing contractor's key personnel shall have received specialized training in the installation of FiberTite Roofing Systems and the Induction Weld installation methodology by Seaman Corporation.

C. FiberTite Roofing Systems shall be installed in accordance with the most current guide specifications and details as amended and/or authorized by FTCS for specific project requirements.

D. There shall be no deviations from approved contract specifications or shop drawings without prior written approval by the owner/owner representative and FTCS.

E. Unauthorized deviations may subject the roof system to warranty ineligibility.

F. 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.

G. Upon completion and certification by the contractor that a quality installation has been completed in accordance with the approved contract specifications and all field welds have been probed and inspected, a quality assurance inspection of the roof system shall be performed by FTCS for acceptance and approval.

1.4 SUBMITTALS

A. The following information shall be submitted to FTCS for review before warranty consideration, material shipment or acceptance can be confirmed.

1. Complete copy of project architectural specifications or roofing contractor'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.

B. At the time of contract award, the roofing contractor shall submit to the owner/owner's representative the following:

1. Most recent published technical literature and guide specifications issued by FTCS.
2. Roofing Contractor's approved copy of submittal form FTR-PIN.
3. Dimensioned shop drawings, including roof plan detailing perimeter enhancement, flashing methods, terminations and acceptance by FTCS.
4. Written approval from FTCS confirming any accessories submitted, not manufactured or expressly approved in FiberTite literature are acceptable and compatible with the proposed FiberTite Roofing System.
5. Material Safety Data Sheets (MSDS) relating to all products, chemicals and solvents.
6. Certification that the system specified complies with all identifiable building code and insurance requirements.

1.5 DELIVERY & STORAGE

A. 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.

B. Select and operate material handling equipment in a safe manner, guarding against damage to existing construction or newly applied roofing and conforming to manufacturer's recommendations of handling and storage.

C. All rolls of membrane shall be stored, lying down, elevated above the roof deck and completely protected from moisture with tarpaulins. Manufacturer’s packaging is not considered adequate for outdoor storage.

D. Insulation and cover board materials shall be elevated on pallets and fully protected from moisture with tarpaulins. Manufacturer's packaging is not considered adequate protection from moisture.

E. Adhesives and sealants shall be safely stored between 50°F and 80°F prior to use.

F. Flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow all precautions as outlined in manufacturer's Material Safety Data Sheets.

G. Materials, having been determined by the owner/owner's representative to be damaged, shall be immediately removed from the construction site and replaced at no cost to the owner.

1.6 JOB CONDITIONS

A. Safety

1. Take all necessary precautions regarding worker health and safety when using solvents and adhesives.
2. Worker safety is paramount when working on steep slopes.
3. FiberTite is slippery when wet or exhibits dew, frost, ice or any other form of moisture.
4. Comply with all OSHA requirements for steep slope construction and fall protection where required.
5. Store flammable liquid and materials away from open sparks, flames and extreme heat.
6. Take necessary precautions when using solvents and adhesives near fresh air intakes.
7. Daily site cleanup shall be performed to minimize debris and hazardous congestion.

B. Protection

1. Schedule installation sequence to limit access and utilization of the newly installed membrane for material storage, construction staging, mechanical and/or excessive foot traffic.
2. Provide proper protection on all newly completed roofing to avoid damage to the new roofing system.

3. Traffic should be minimized on a freshly laid roof.
4. Protect building walls, rooftop units, windows and other components during installation.

C. 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/or the quality of the finished installation. Contact FTCS for recommendations and acceptable tolerances.
2. Daily production schedules of new roofing shall be limited to only that which can be made 100% watertight at the end of the day, including all flashing and night seals.
3. All surfaces to receive 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. All construction debris shall be removed from the construction site and legally dispose of offsite.

1.7 COORDINATION

A. Prior to installation of materials, a pre-roofing conference shall be held with the roofing contractor, and owner/owner's representative(s) to discuss the specified roofing system coordinate its proper application and the expectations of all parties involved. The authorized roofing contractor and the owner/owner's representative shall notify all parties a minimum of fourteen days prior to the meeting.

B. 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.

C. FTCS shall be available to make recommendations necessary to ensure compliance with project specifications and specification alternatives due to unforeseen job conditions.

D. 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.

1.8 WARRANTY

A. Inspections

1. A FiberTite Technical Customer Service Representative shall inspect the completed FiberTite Roofing installation, and upon acceptance, Seaman Corporation shall issue the preauthorized warranty, subject to the terms and conditions of the sample warranty and contract documents.

B. Available Warranties

1. Seaman Corporation offers the following FiberTite Roofing System warranties:
   a. Material Warranty provides the building owner protection against the cost of repairing defects in the membrane only. This warranty is offered at no cost to the owner.
   b. Standard Warranty provides the building owner protection against the cost of repairing leaks as a direct result of either defects in the membrane or the workmanship involved in its installation for a period of 10 years. There is a nominal premium.

c. Extended Warranty provides the building owner protection against the cost of repairing leaks as a direct result of either defects in the membrane or the workmanship involved in its installation beyond 10 years. There is an additional premium.

C. Maintenance

1. Along with the issuance of the warranty, a set of instructions shall be included detailing preventative maintenance requirements on the part of the building owner and noting a list of harmful substances that may damage the FiberTite Roofing membrane.

PART 2 – PRODUCTS

2.1 GENERAL

A. All products and components for the FiberTite Roofing System shall be supplied by Seaman Corporation.

B. Components other than those manufactured and/or supplied by Seaman Corporation shall be submitted for review, prior to ordering. Any product(s) not specifically authorized in writing for the project by Seaman Corporation, shall be considered unacceptable and their performance excluded from the warranty.

C. FiberTite Roofing Systems for metal roofing recover shall be installed directly over preapproved insulation, cover board or composites thereof. Contact FTCS for additional information regarding compatible substrates.

2.2 MEMBRANE

A. FiberTite Membrane

FiberTite is a nominal 36-mil ketone ethylene ester (KEE) membrane, reinforced with a 5.0-oz yd² knitted polyester fabric as manufactured by Seaman Corporation, under the trade name FiberTite, conforming to the physical properties as outlined in the associated data sheet. FiberTite exceeds all requirements outlined in ASTM D 6754 – 15 Standard Specification for Ketone Ethylene Ester (KEE) Sheet Roofing.

B. FiberTite-XT Membrane

FiberTite-XT is a nominal 50-mil ketone ethylene ester (KEE) membrane, reinforced with a 6.5-oz yd² knitted polyester fabric as manufactured by Seaman Corporation, under the trade name FiberTite-XT, conforming to the physical properties as outlined in the associated data sheet. FiberTite-XT greatly exceeds all requirements outlined ASTM D 6754 - 15 Standard Specification for Ketone Ethylene Ester (KEE) Sheet Roofing.

C. FiberTite-SM Membrane

FiberTite-SM is a nominal 45-mil ketone ethylene ester (KEE) membrane, reinforced with a 5.0-oz yd² knitted polyester fabric as manufactured by Seaman Corporation, under the trade name FiberTite-SM, conforming to the physical properties as outlined in the associated data sheet. FiberTite-SM exceeds the physical property requirements and the surface compound meets polymer content definitions as outlined in ASTM D 6754 - 15 Standard Specification for Ketone Ethylene Ester (KEE) Sheet Roofing.

D. FiberTite-XTreme Membrane

FiberTite-XTreme is a nominal 60-mil ketone ethylene ester (KEE), reinforced with a 12.5-oz yd² woven polyester mat, as manufactured by Seaman Corporation, under the trade name FiberTite-XTreme, conforming to the physical properties

as outlined in the associated data sheet. FiberTite-XTreme greatly exceeds the physical property requirements and the surface compound meets polymer content definitions as outlined in ASTM D 6754 - 15 Standard Specification for Ketone Ethylene Ester (KEE) Sheet Membranes.

E. Flashing Membrane

Nominal 36-mil FiberTite, 45-mil FiberTite-SM or 50-mil FiberTite-XT membrane shall be used for all respective roofing system flashing requirements and field stripping where required to match the field membrane and warranty expectations selected for the roofing system.

F. Acceptable Substrate

Authorized rigid insulation or cover board.

2.3 RELATED MATERIALS "BY SEAMAN CORPORATION"

The following product(s)/material(s) shall be supplied by Seaman Corporation.

A. FTR Fasteners

1. FiberTite Purlin Fasteners

   Self drilling hardened fastener, used with FiberTite Stress Plates, for attaching FiberTite membranes to purlins

2. FiberTite Retro-Driller

   Self drilling hardened fastener, used with FiberTite Induction Weld Plates, for attaching FiberTite membranes to purlins

3. FiberTite HD

   To secure insulation to steel roof panels. A #14-13, heavy duty threaded steel #3 Phillips truss, self tapping corrosion resistant fastener.

B. FTR Stress Plates

1. **FiberTite Induction Weld Plates**

   A 3 inch (75 mm) round, high tensile 22-gauge corrosion resistant steel plate with a KEE compatible polymeric coating used with FiberTite Purlin Fasteners or FiberTite Retro-Drillers or FiberTite HD Fasteners to attach insulation boards or FiberTite membrane to the structural deck and as a subsequent platform to induction weld the FiberTite Roofing Membrane.

2. **FTR-MAGNUM Series Barbed Stress Plates**

   A 2.5” x 1.5” rectangular in dimension with 0.75 inch radial corners, manufactured from 20-gauge AZ-50 galvalume steel with a 0.25 inch diameter hole in its center. The plate has a raised reinforcement area and eight "barbs" used with purlin fasteners to anchor FiberTite Roofing membranes to the roof system purlins.

3. **FTR 3-in Metal Round Insulation Stress Plates**

   Finished with AZ50 galvalume and have a flat/flush profile for use on rigid board surfaces.

C. FTR Adhesives

Adhesives, supplied by Seaman Corporation have been specially formulated for FiberTite Roofing Systems.

NOTE: Solvent borne adhesives are not compatible with polystyrene insulations. Georgia-Pacific Gypsum LLC DensDeck Prime®, United States Gypsum Company Securock® or National Gypsum DEXcell® are the only approved

coverboards for use with FiberTite adhesives and subsequent adhered roofing systems. Application technique and coverage rates will vary according to substrate and environmental conditions.

1. **FTR-190e Bonding Adhesive**

   A VOC compliant solvent borne, contact (two-sided) bonding adhesive, designed for bonding non-fleece back FiberTite membranes to properly prepared and preauthorized horizontal and vertical substrates.

2. **FTR #201 Mastic**

   A trawl grade elastomeric adhesive/sealant used to adhere FiberTite flashing membranes to preapproved vertical substrates.

D. Additional Components

1. **FTR-101 Sealant** - A single component gun-grade polyether sealant to seal flashing termination.
2. **FTR-SLS Sealant** - A single component self leveling polyether sealant for pitch pans.
3. **Fiber Clad Metal** - To fabricate metal flashing, 4' x 10' sheets of 24 gauge hot dipped G-90 steel, or 0.040" thick 3003H14 aluminum, laminated with a 0.020-mil polymeric coating. (Can be painted with FTB-Kynar Primer followed by FTB-Kynar Touch Up Paint)
4. **FTR-Premolded Flashing(s)** - Injection molded vent stack, split WrapidFlash® and inside/outside corner flashing using FiberTite Vinyl compound.
5. **FTR Non-Reinforced Membrane** - Field fabrication membrane, 60-mil non-reinforced vinyl membrane. (Non-reinforced FiberTite membrane.
6. **FTR-Tuff Track Walkway & Protection Pads** - High grade walk way/protection material with slip resistant design.
7. **FTR-Termination Bar** - Membrane flashing(s) restraint/termination seals, nominal 0.125" x 1" x 10' 6060-T5 extruded aluminum bar with pre-punched slots, 8 inches on center.
8. **FiberTite Metal Fascia System** - Two piece snap-on preformed, architectural Kynar metal edge systems.
9. **FTR-Value Insulation** - Polyisocyanurate and extruded polystyrene flat or tapered insulation.
10. **FTR-601** - 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 and/or cover boards to structural roof decks and base sheets.
11. **FTR T-Joint Covers** – Pre-cut 4" x 4" 60 mil non-reinforced membrane to reinforce areas where three overlapping sheets of membrane intersect.
12. **FiberTite Seam Cleaner** - FiberTite Seam Cleaner is to be used with clean white cotton cloths/rags to clean contamination from the seam areas of the membrane prior to welding.
13. **FTR-Coverboard** - Gypsum or gypsum/cellulose core board.

2.4 RELATED MATERIALS

A. Wood Nailers

1. Wood Nailers are being tested to determine the effect preservatives on metal components. Borate treated lumber seem to be the less corrosive and is strongly recommended. Installation of other types of treated lumber should be verified with a design professional.
2. Wood shall be No. 2 or better construction grade lumber.
3. Creosote or asphaltic type preservatives are not acceptable.
4. Minimum top nailer thickness shall be 1.5 inches nominal.

B. Vapor Retarder

1. The decision regarding the inclusion of a vapor retarder within the roof system shall fall within the responsibility of the design professional. Consult N.R.C.A. or other technical resource for appropriate guidelines.
2. The use of a Vapor Retarder in the FiberTite Roofing system may require additional insulation attachment beyond the specified. Consult FTCS for guidelines
3. Vapor retarder for use in a roof system shall comply with identifiable code and/or insurance requirements.
4. The vapor retarder manufacturer shall certify, in writing, that the specified vapor retarder meets identifiable code requirements and is approved for its intended use.

C. Insulation

NOTE: For the purpose of this guide specification, unless explicitly defined otherwise, the term insulation is used interchangeably to refer to rigid insulation materials, tapered or flat, coverboard, thermal barriers and or multilayered composites.

1. Insulation shall be installed, where specified and/or required to provide a suitable surface for the FiberTite Roofing System and/or meet desired thermal values.
   a. Approved Products
      i. FTR-Value Polyisocyanurate
         FM approved rigid insulation meeting Class A 1-90, for fire and wind.
         UL Classification : Class A.
         Density: 2.0 pcf. Minimum
         Meet requirements of ASTM C1289
      ii. Gypsum Core Cover Board
         FM approved meeting Class A 1-90, for fire and wind.
         UL Classification : Class A Assembly.
         Meet requirements of ASTM C 473
         Georigia-Pacific Gypsum LLC, DensDeck® Prime
         National Gypsum DEXcell®
         United States Gypsum LLC SECUROCK®

PART 3 EXECUTION

3.1 GENERAL

A. The "Authorized" roofing contractor shall ensure strict compliance with FTR-MR GS 08/17 General Guide Specification and specified references for the Installation of FiberTite Roofing System.

B. The roofing contractor shall provide a suitable substrate surface for the proper installation of the FiberTite Roofing System, roof insulation and specified components.

C. Application of Seaman Corporation/FiberTite materials constitutes an agreement that the roofing contractor has inspected and found the substrate suitable for the installation of the FiberTite Roofing System.

D. The roofing contractor shall coordinate the installation to ensure that the system remains watertight at the end of each working day

3.2 SUBSTRATE PREPARATION

A. The roofing contractor shall verify that the deck condition and/or existing roof construction is suitable for the specified installation of the FiberTite Roofing System.

B. Seaman Corporation requires fastener withdrawal values (pull-out tests) on all reroofing projects to verify the suitability of decking to accept a mechanically fastened insulation system.

C. 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 of the FiberTite Roofing System as specified.

D. Prepared substrate shall be smooth, dry, and free of debris and/or any other irregularities which would interfere with the proper installation of the FiberTite Roofing System.

E. Do not proceed with any part of the application until all defects and preparation work have been corrected and complete.

3.3 SUBSTRATE PREPARATION

A. General

1. Roofing Contractor shall inform the building owner/owner representative of any issues in regard to the condition and structural integrity of the existing metal roofing system.
2. The building owner/owner representative shall make and be responsible for the determination as to the proper method of treatment and/or replacement.
3. All Reroofing applications require fastener withdrawal tests to substantiate proposed attachment patterns for the new mechanically fastened insulation systems and/or membranes.
4. Reroofing applications that require modification to the deck and/or insulation system should be installed to provide positive slope and subsequent positive drainage of the new FiberTite Roofing System.
5. All terminations of the FiberTite Roofing System must be constructed to prevent water from penetrating behind or beneath the new FiberTite Roofing System. This includes water from above, beside, below and beneath the new system.

B. Removal of Existing Roof System(s)

1. Remove all existing roofing material(s), insulation, flashing, metal and deteriorated wood blocking and legally dispose off-site.
2. All deteriorated metal roof system panels be removed and replaced with like kind.
3. All decking shall be inspected for proper attachment and excessive deflection that would compromise the uplift performance of the new mechanically attached FiberTite Roofing System.

4. Attachment and deflection deficiencies shall be repaired and brought into compliance with current, local building code requirements
5. Remove only enough roofing to accommodate the day's work and ensure the exposed area can be made 100% watertight at the end of the day or first sign of inclement weather.

3.4 WOOD NAILERS

A. Install treated lumber at the same heights as insulation layer or adjacent construction ± 0.25 inch. Continuous treated wood nailers are to be installed at all perimeters, around roof projections and penetrations as shown in approved details.

B. Where wood nailers are to be installed directly on the structural (purlins) substrate shall be carefully examined to confirm that the entire area provides a suitable fastening surface. All defects shall be repaired by the appropriate trade prior to installation.

C. Nailers shall be at least 3.5 inches wide and 1.5 inches high and installed and anchored in such a manner to resist a force of 250 lbs. per linear foot of wood blocking in any direction.

D. Nailers along all exterior edges, parapets, curbs and expansion joints are recommended. Consult FiberTite Construction Details or FiberTite Technical Customer Services for optional/alternate membrane termination/securement methods.

3.5 ROOF INSULATION

A. General

1. For the top leveling layer of insulation, the roof insulation shall be installed where by the long dimension of the board(s) 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 0.375 of an inch. Damaged corners shall be cut out and replaced with an insulation piece a minimum of 12" x 12". 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 or less, taper 12 inches from the drain bowl. If insulation thickness exceeds 1.5 inches, taper 18 inches 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 cover board and/or multiple layers are installed each layer shall be offset from the previous layer a minimum of 12 inches on center.
6. At the end of each working day, provide a watertight cover on all unused insulation as to avoid moisture penetration.

B. Insulation Installation

1. Insulation shall be applied to and installed over properly prepared and preapproved substrates, free of any debris, dirt, grease, oil or moisture.
2. Install in fill roof insulation to match the profile and height of the existing metal roof system's panels.
3. Loose lay the insulation between the raised profiles of the existing metal roof system panels with long dimensions running parallel to the raised metal profiles.
4. Install insulation to thickness to flatten the metal roof profile and support the coverboard.
5. FM does not accept polystyrene insulation as an in fill for metal building recover.

6. Install the authorized coverboard over the in-fill insulation.
7. Lay the coverboard with the long dimension running perpendicular to the infill insulation and metal roof profiles.
8. Install coverboard panels with minimum joint dimensions and tightly aligned. Maximum joint widths shall be 0.375 of an inch. Damaged corners shall be cut out and replaced.
9. Mechanically attach the coverboard using a minimum of eight FiberTite HD Fasteners and Stress Plates per 4' x 8' coverboard panel in the field, perimeter and corner areas.
10. For Induction Welded Roofing System – in addition to the insulation attachment; install rows of Purlin Fasteners or Retro Drillers and Induction Weld Stress Plates 12 inches on center into the purlins at maximum 60 inch intervals.
11. All fasteners and stress plates shall be Factory Mutual Research approved for mechanical attachment of insulation and comply with FM Standard 4470 for corrosion resistance.
12. Fasteners shall be installed flush with the substrate and not overdriven to the point of promoting plate deformation.
13. Fasteners shall be installed using depth sensing tool attachments to ensure proper installation.

3.6 INSTALLATION OF FIBERTITE® MEMBRANE(S)

A. Quality Control

1. It is the responsibility of the roofing contractor to initiate and maintain a Quality Control program to govern all aspects of the installation of the FiberTite Roofing System.
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 and induction welded plates incorporated within the FiberTite Roofing System.
3. If inconsistencies in the quality of the application of the composite, membrane and/or welds are found, all work shall cease until corrective actions are taken to ensure the continuity the installation.

B. General

1. Work shall be coordinated to ensure that sequencing of the installation promotes a 100% watertight installation at the end of each day.
2. All FiberTite Roofing Systems shall be designed utilizing and determined to be in compliance with the procedures outlined within the current publication of ASCE Standard 7. Alternative designs may be determined using the criteria within Factory Mutual Research Loss Prevention Data.
3. Restrictions regarding outside ambient air temperature are relative only to the exposure limits of the workers and/or adhesives when necessary.
4. When using adhesives outside ambient air temperature shall be 40°F and rising. Curing or drying time of the adhesive will be affected by ambient temperatures and must be taken into consideration when determining flashing lengths.
5. Humidity can affect the drying time of solvent borne adhesives and/or cause condensation to form on the newly applied adhesive.
6. No moisture may be present on the adhesive(s) prior to mating or application of FiberTite membranes.
7. FiberTite Roofing Systems shall only be installed over properly prepared and sound substrates, free from excessive surface roughness, dirt, debris and moisture.

C. Through Fastened (Closed Lap)

1. Loose lay the rolls of FiberTite Roofing (FTR) over the mechanically attached coverboard.
2. Align the rolls to the purlin system. The membrane should be positioned snug but not taut.
3. Align subsequent and adjoining custom rolls to stager overlap 5 inches.
4. The properly positioned membrane shall be attached using FTR Purlin Fasteners or FTR Retro-Drillers and Magnum Stress Plates installed through the membrane, insulation assembly and existing metal roof panels to engage the structural purlin.
5. The Magnum stress plates shall be installed straight and centered to existing structural purlins.
6. Fastener row spacing and intervals shall be established to resist design pressures, determined in compliance with procedures outlined within the current publication of ASCE Standard 7. Alternative designs may be determined using the criteria within Factory Mutual Research Loss Prevention Data.
7. Metal re-cover projects require enhanced perimeter and corner enhancement.
8. The width of the perimeter area shall be calculated to be either ten (10%) percent of the width of the roof section or forty (40%) percent of the building or section height above ground, whichever is less to **a minimum of 10 feet.**
9. Perimeter and corner enhancement shall be accomplished by installing additional rows of fasteners through the top of the membrane system within the perimeter and corner zones, into the structural purlins.
10. The following fastener attachment patterns are for general construction when purlins are space at a nominal 5 feet on center and accommodate compliance with 1-90 membrane attachment.

    a. Field: The field area of the roof shall be defined as all areas not considered perimeter or corners.

    Install FTR Purlin Fasteners or Retro Drillers and Stress Plates through the top of the membrane system in a straight line with fastener rows intervals no greater than 10 feet apart. (every other purlin) with fasteners spaced no greater than 12 inches on center. Seal fastener rows by heat welding a nominal 6 inch cover strip over the fasteners.

    b. Perimeter: The perimeter area of the roof shall be defined as the outer parallel boundary of the roof section, including the eave, peak and rake edge.

    Install FTR Purlin Fasteners or Retro Drillers and Stress Plates through the top of the membrane system in a straight line with fastener rows a maximum of 5 feet apart (every purlin) with fasteners spaced no greater than 12 inches on center. Seal fastener rows by heat welding a nominal 6 inch cover strip over the fasteners.

    c. Corner: The corner area shall be defined as the square area created when the perimeter area is overlapped at a directional change at the outer parallel boundary of the roof section or edge.

    Install FTR Purlin Fasteners or Retro Drillers and Stress Plates through the top of the membrane system in a straight line with fastener rows a maximum of 5 feet apart (every purlin) with fasteners spaced no greater than 6 inches on center.

D. Conventional Lap Fastened (open lap)

1. Rolls of FiberTite Roofing (FTR) are to be positioned parallel to the purlins and installed straight and snug but not taut. Stretching of the membrane places undue stress on the mechanical fasteners.
2. Adjoining rolls shall overlap a minimum of 5 inches but in no case more than 2 inches beyond the purlin/attachment line of the lap.

3. Adjoining rolls shall be properly shingled with the flow of water where possible.
4. The properly positioned membrane shall be attached using FTR Purlin Fasteners and Magnum Stress Plates installed through the membrane and insulation assembly and engage the structural purlins.
5. The Magnum stress plates shall be installed straight and parallel to existing structural purlin members. All stress plates must set completely on the membrane allowing a minimum of 0.5 inch from the edge and allow sufficient room to facilitate welding.
6. Fastener row spacing and intervals shall be established to resist design pressures, determined in compliance with procedures outlined within the current publication of ASCE Standard .
7. Alternative designs may be determined using the criteria within Factory Mutual Research Loss Prevention Data.

E. FiberTite Membrane Installation – Induction Weld

1. Unroll and position the FiberTite membrane and/or Custom Panel onto the properly prepared substrate, covering the previously installed Induction Weld plates.
2. Install the membrane in a flat, relaxed position avoiding excess wrinkles and stretching.
3. Adjoining rolls shall overlap a minimum of 2 inches, properly shingled with the flow of water wherever possible.
4. Stager the factory seams in custom rolls to prevent adjacent factory welds from falling on top of one another.
5. 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 in length. Do not use Induction Weld plates for transitional attachment. (See Current FiberTite Construction Details)

F. Welding

1. **General**
   - **a.** All field seams exceeding 10 feet in length shall be welded with an approved automatic welder.
   - **b.** All field seams must be clean and dry prior to initiating any field welding.
   - **c.** Remove foreign materials from the seams (dirt, oils, etc.) with FiberTite Seam Cleaner or authorized alternative.
   - **d.** 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.
   - **e.** Contaminated areas within a membrane seam will inhibit proper welding and will require a membrane patch.
   - **f.** All welding shall be performed only by qualified personnel to ensure the quality and continuity of the weld.
   - **g.** Keep the bottom of the induction Welding Tool and cooling magnets clean.
   - **h.** Continuous operation of the Induction Welding process can promote overheating of the cooling magnets. Periodically cool the magnets using clean water to prevent melting and/or scarring of the FiberTite membrane
   - **i.** Follow the Induction Welder Tool Manufacturer's recommendations for periodic cleaning and maintenance for the equipment.
2. **Hot Air Hand Welding**
   - **a.** The lap or seam area of the membrane may be intermittently tack welded to hold the membrane in place.
   - **b.** 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.
   - **c.** The nozzle of the hand held hot air welder shall be inserted into the lap at a 45° angle to the lap. Once the polymer on the material begins to flow, a hand roller shall be use to apply pressure at a right angle to the tip of

the hand welder. Properly welded seams shall utilize a 1.5 inch wide nozzle, to create a homogeneous weld, a minimum of 1.5 inches in width.

d. Smaller nozzles may be used for corners and other field detailing, maintaining a minimum 1 inch weld.

3. Automatic Hot Air Machine Welding

a. Proper welding of the FiberTite Membrane can be achieved with a variety of automatic welding equipment. Contact FTCS for specific recommendations.

b. Follow all manufacturers' instructions for the safe operation of the automatic welder.

c. Follow local code requirements for electric supply, grounding and surge protection.

d. The use of a dedicated, portable generator is highly recommended to ensure a consistent electrical supply, without fluctuations that can interfere with weld consistency.

e. Properly welded seams shall utilize a 1.5 inch wide nozzle, to create a homogeneous weld, a minimum of 1.5 inches in width.

4. Induction Welding

a. Calibrate the Induction Welding Tool by making test welds with the FiberTite Membrane and the Induction Weld stress plates. Make test welds using variable settings on the welder and then perform peel tests to examine the continuity of the weld to the plate.

b. The lowest energy setting that creates the most comprehensive and continuous bond is the preferred setting.

c. All membrane shall be clean and dry prior to induction welding.

d. Immediately place the cooling magnet directly centered over the welded membrane/plate assembly upon completion of the induction welding process.

e. Repeat the welding and magnet cooling process for each and every Induction Weld plate in the installation assembly.

G. Inspection

1. The job foreman and/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 that all aspects of the installation (sheet layout, attachment, welding, flashing details, etc.) are in strict 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 preapproved specifications and/or details requires written authorization from the FTCS prior to application to avoid any warranty disqualification.
5. It is the contractor, job foreman, and supervisor and/or quality control personnel to perform a final self inspection on all seams prior to requesting the inspection for warranty issuance by the FTCS.

3.7 FLASHING

A. Clean all vents, pipes, conduits, tubes, walls, and stacks to bare metal. All protrusions must be properly secured to the roof deck with approved fasteners. Remove and discard all lead, pipes and drain flashing. Flash all penetrations according to approved details.

B. Remove all loose and/or deteriorated cant strips and flashing.

C. Flash all curbs, parapets and interior walls in strict accordance with approved FiberTite details.

D. All flashing shall be adhered to properly prepared, approved substrate(s) with either FTR 190e Adhesive or FTR-201 mastic applied in sufficient quantity to ensure total adhesion.

E. 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.

F. Vertical flashing shall be terminated no less than 8 inches above the plane of the deck with approved termination bar and counter-flashing or metal cap flashing.

G. When using FTR-201 as the adhesive, vertical wall flashing termination shall not exceed 40 inches without supplemental mechanical attachment of the flashing between the deck and the termination point of the flashing.

H. Complete all inside and outside corner flashing details with FiberTite preformed corners or an approved field fabrication detail.

I. Probe all seams with a dull, pointed probe to ensure the weld has created a homogeneous bond.

J. 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.)

3.8 METAL FLASHING

A. All perimeter edge details are to be fabricated from FiberClad Metal or utilize a prefabricated FiberTite Fascia System.

B. Ensure all fascia extend a minimum of 2 inches lower than the bottom of the wood nailers.

C. Fasten all metal flashing to wood nailers or approved substrate with approved fasteners 8 inches on center.

D. Break and install FiberClad metal in accordance with approved details, ensuring proper attachment, maintaining 0.5 inch expansion joints and the installation of a minimum 2 inch bond breaker tape prior to sealing the joint.

E. Solidly weld FiberClad expansion joints with a 6 inch strip of FiberTite membrane welded to the FiberClad, covering the bond breaker tape (cover plates are optional).

F. 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 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 of exposed 60-mil on all sides of the drain.

G. Pitch Pans

1. EVERY REASONABLE effort shall be made to eliminate the need for pitch pans including the removal of all existing pans. Contact FTCS 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 clearance around the penetration.
3. Pitch Pans shall be filled with non-shrinking grout to within 1 inch of the top of the pan. Allow the grout to dry and fill remainder of the pan with FTR-SLS pour able sealant.
4. Pitch Pans and the sealant will require periodic maintenance by the building owner's maintenance personnel.

H. T-Joint Cover Installation

1. Installation of T-Joint Covers is mandatory on all FiberTite Membrane Systems greater than nominal 50 mil, vegetated roofs, ballast roofs or where T-Joints have not been properly sealed to exhibit a minimum 1.5" 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% welded.

3.9 EXPANSION JOINTS

A. 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.

B. 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.

3.10 SEALANTS

A. Apply authorized sealant(s) to all surface mounted reglets and per project requirements. Sealant(s) are to shed water. Follow all manufacturer's instructions and installation guides.

B. Use primer when recommended by the manufacturer.

C. Sealants will require periodic maintenance by the building owner's maintenance personnel.

3.11 TEMPORARY SEALS

A. At the end of each working day or at the sign of rain, install temporary, 100% watertight seal(s) where the completed new roofing adjoins the uncovered deck or existing roof surface.

B. The authorized roofing contractor shall create and maintain the temporary seal in such a manner to prevent water from traveling beneath the new and/or existing roof system.

C. The use of plastic roofing cement is permissible when sealing to an existing built up roof.

D. If water is allowed to enter beneath the newly completed roofing, the affected area(s) shall be removed and replaced at no additional expense to the building owner.

E. Prior to the commencement of work, cut out and remove all contaminated membrane, insulation, roof cement or sealant and properly dispose off site.

3.12 WALKWAYS

A. FiberTite walkways and protection pads shall be installed at staging areas for rooftop equipment maintenance or areas subject to regular foot traffic.

B. 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 walkway to the previously cleaned FiberTite roofing membrane. Avoid excessive heating of the walk way material to prevent scorching the underlying roofing membrane.

C. 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 2' x 4'), weld a 6" x 6" 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 around the 90° 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.

3.13 LIGHTNING PROTECTION

A. The installation of lightning protection must be coordinated with the authorized FiberTite roofing contractor, certified lightning contractor and the building owner.

B. 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.

C. Cables and air terminals may be attached to the membrane using base plates and an approved construction adhesive or by welding intermittent strips of FiberTite membrane over the base plates and cables to the FiberTite roofing. Contact FTCS for specific adhesive recommendations.

D. 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.

3.14 COMPLETION

A. Remove any and all debris, excess materials and scrap of any kind from the roof and surrounding premises prior to demobilization.

B. Inspect all field welds, detailing and terminations to ensure a 100% the watertight installation.

3.15 WARRANTY INSPECTION

A. Upon completion of the project, the authorized roofing contractor shall complete and submit the FiberTite Project Completion Notice to FTCS.

B. Upon receipt of the notice of completion, a FTCS representative will schedule an inspection with a representative of the authorized roofing contractor to thoroughly review the installation and verify compliance with Seaman Corporation specifications.

C. 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.

D. Upon completion of all punch list items and final acceptance of the installation, a warranty as authorized by the approved Seaman Corporation/FiberTite Preinstallation Notice will be issued.

END of SECTION FTR-MR 08/17