FIBERTITE ROOFING SYSTEMS

By Seaman Corporation

FTR MA08/17

General Guide Specification for Installation of Mechanically Attached FiberTite® Roofing Systems

FTR MA08/17 is provided as a general foundation for the design and installation of a quality, high performance mechanically attached FiberTite Roofing System.

PART 1 – GENERAL

1.1 SUMMARY

A. Scope

1. Furnish and install a Mechanically Attached FiberTite Roofing 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 a FiberTite Roofing System according to the guidelines set forth herein.
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 required 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. Moisture conditions in existing roof(s), 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 and/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.

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 working with adhesives.

6. Pay particular attention to and follow all adhesive storage and application precautions/guidelines.

1.2 FIBERTITE® ROOFING SYSTEMS (FTR) REFERENCES

A. FTR GS08/17

B. FiberTite Construction Details

C. FiberTite Technical Bulletins

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 by Seaman Corporation.

C. FiberTite Roofing Systems shall be installed in accordance with the most current guide specifications (FTR MA08/17) 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.

H. All field seams shall be visible and available to FTCS at the time of final inspection.

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. All 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, adhesives and/or hot asphalt.
2. Worker safety is paramount.
3. FiberTite is slippery when wet, exhibits dew, frost, ice or any other form of moisture.
4. Comply with all OSHA requirements for roof 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.
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 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. 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 preroofing 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 pre-authorized 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 Systems.
   - **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 ten 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 may be installed over or directly to 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 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 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 the polymer content definitions as outlined in ASTM D 6754 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 the polymer content definitions as outlined in ASTM D 6754 Standard Specification for Ketone Ethylene Ester (KEE) Sheet Membranes.

D. FiberTite-FB Membrane

FiberTite, FiberTite-XT, FiberTite-SM and FiberTite-XTreme are all available in fleece back versions for adhered roofing. FiberTite-FB membranes have a heat bonded 4 oz. polyester backing, as manufactured by Seaman Corporation, under the trade name FiberTite-FB, conforming to the physical properties as outlined in the associated data sheet(s). FiberTite-FB exceeds the physical property requirements and definitions as outlined in ASTM D7654 Standard Specification for Ketone Ethylene Ester (KEE) Sheet Roofing per the individual sub-assembly/base membrane listed above.

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 to match the field membrane and warranty expectations selected for the roofing system.

F. Acceptable Substrate(s)

1. Authorized rigid insulation or coverboard
2. Structural Concrete, insulated or non-insulated*
3. Insulated Steel Decking
4. Existing smooth surfaced and/or granulated bituminous roof or existing single ply roof membrane*
5. Existing aggregate surfaced bituminous roof with authorized insulation or cover board
6. Exterior grade plywood; insulated or non-insulated*
7. Cementitious fiber or Gypsum, insulated or non-insulated*
8. Cellular, lightweight insulating concrete*
9. Authorized base sheet with an adhered insulation/cover board assembly

(*) A slip sheet or separation layer is recommended depending upon system type. The requirement for including and/or the selection of an appropriate slip sheet or base sheet will be determined by the system selected, surface texture of the substrate, environmental and/or fire classification requirements of the project roof assembly.

2.3 RELATED MATERIALS "BY SEAMAN CORPORATION"

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

A. FTR Adhesives

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

NOTE: Solvent borne adhesives are not compatible with polystyrene insulation. 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 trowel grade elastomeric adhesive/sealant used to adhere FiberTite flashing membranes to preapproved vertical substrates.

B. FTR Fasteners

1. **FiberTite MAGNUM Series**

   To secure FiberTite Membranes to steel, wood and structural concrete decks. A #15-13, buttress threaded, #3 Phillips head fastener constructed of case hardened carbon steel with a reduced diameter drill point and corrosion resistant coating.

2. **FiberTite-HD**

   To secure insulation to steel, wood and structural concrete decks. A #14-13, heavy duty threaded steel #3 Phillips truss, self tapping corrosion resistant fastener.

3. **FiberTite Peel Rivets**

   To secure insulation, base sheet and/or membrane to steel, wood, cement fiber, Tectum fiberglass and lightweight plank decks. Threadless, high magnesium allog fastener.

4. **FiberTite Purlin Fasteners**

   To secure FiberTite membrane to the existing metal roofing system's structural members.

C. FTR Stress Plates

1. **FTR-Magnum Series Barbed Stress Plates** – used to anchor FiberTite membranes:

   a. **FTR Magnum Plus** – 1.5" x 2.75" Barbed Rectangular Stress Plate with radial corners; manufactured from 18 gauge AZ-50 galvalume steel.

   b. **FTR Magnum R275** – 2.75" Barbed Round Stress Plate: manufactured from 20-gauge galvanized steel.

   c. **FTR Magnum 2S** – 2.375" Barbed Round Stress Plate; manufactured from 20-gauge galvanized steel.

2. **FTR 3-in Metal Round Insulation Stress Plates** – Finished with AZ-50 galvalume and have a flat/flush profile for use on rigid board usrface.

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. **FiberClad 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 0.02-mil polymeric coating.
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 FiberTite vinyl membrane.
6. **FTR-Tuff Track Walkway & Protection Pads** - High grade walkway/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 available in cartridges or pump grade.. 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. **FiberTite VaporTite Vapor Retarder** - a self-adhered bitumen and SBS polymeric Class I Vapor Barrier.
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-Cover Board** - Gypsum or gypsum/cellulose core board.
12. **FTR T-Joint Covers** – Pre-cut 4" x 4" 60 mil non-reinforced membrane to reinforce areas where three overlapping sheets of membrane intersect.

2.4 RELATED MATERIALS

A. Wood Nailers

1. Wood Nailers are being tested to determine the effect of 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. Vapor retarder for use in a roof system shall comply with identifiable code and/or insurance requirements.
3. 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, in single or multiple layers of tapered or flat, cover board, 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 Systems and/or meet desired thermal values.
2. Acceptable products must be preapproved in writing by Seaman Corporation and comply with the minimal characteristics and classification listed for the products below:

a. Preapproved 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. FTR-Value XPS

FM approved rigid insulation meeting Class A 1-90, for fire and wind.

UL Classification : Class A.

Density: 1.5 pcf. Minimum

Meet requirements of ASTM D1621

iii. 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

Georgia-Pacific Gypsum LLC DensDeck® Prime

National Gypsum DEXcell®

United States Gypsum Company Securock®

D. Adhesives for Insulation Attachment

1. General

a. Adhesive not specifically supplied by Seaman Corporation shall be listed and approved by Factory Mutual Research in conjunction with the specified insulation and specific substrate.

b. Adhesive shall meet minimum roofing system design requirements as evidenced by testing in conjunction with the proposed substrate and or composite; under FM-Global requirements or acceptable third party laboratory.

c. Adhesive manufacturer shall provide written specifications regarding the safe handling, storage and surface preparation for a quality application of the product.

d. All adhesives shall be preauthorized by Seaman Corporation.

2. Polyurethane

a. Adhesive shall be either a dual or single component polyurethane adhesive, dispensed from a portable pressurized container or traditional foam equipment.

b. Preapproved Products

i. FTR-601

ii. ICP CR-20

E. Base Sheets

1. Preapproved base sheet shall be installed, where specified and/or required, to provide a suitable surface for installation over or adhering the insulation and/or FiberTite-FB Roofing System.
2. Acceptable products must be preapproved or approved in writing by Seaman Corporation and comply with the following minimal characteristics and classification(s).

a. FM approved, Class 1-90, wind uplift.

b. ASTM D 4601 Type II Asphalt Coated Glass-Fiber Base Sheet

c. ASTM D 4897 Type II Asphalt Coated Glass-Fiber Venting Base Sheet

3. **Preapproved Products**

a. GAF; GAFGLAS #80 Premium

b. GAF; GAFGLAS Stratavent

PART 3 EXECUTION

3.1 GENERAL

A. The “Authorized” roofing contractor shall ensure strict compliance with FTR MA 08/17; General Guide Specifications for Installation of Mechanically Attached FiberTite Roofing Systems.

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 re-roofing projects to verify the suitability of decking to accept a mechanically fastened insulation and /or membrane roof 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 (NEW CONSTRUCTION)

A. Steel Deck

1. Steel decking shall conform to Factory Mutual (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 Roofing System.

B. Structural Concrete (Poured and/or Precast)

1. Decking shall be installed in strict conformance with industry standards, practices and/or precast panel manufacturer's installation requirements.
2. Decking shall be installed to provide positive slope and subsequent positive drainage of the new FiberTite Roofing System.
3. Finished decking shall be properly cured and dry, prior to the installation of approved insulation.
4. Finished surface(s) to receive new roof system shall be smooth and level without significant surface depressions or irregularities. Camber differentials greater than 0.1875 of an inch must be leveled using a cementitious grout.

5. Finished surfaces shall be free of moisture, dust, loose debris and any other irregularity that may hinder the proper performance of the new FiberTite Roofing System.

C. Wood

1. Wood decking shall conform to Factory Mutual (FM) guidelines for Class-1 impregnated wood decking. FM Class-1 decking consists of a minimum 2 inches thick wood plank or minimum ¾ inch plywood.
2. Wood decking that is less than 0.75 inch will be considered for application by Seaman Corporation. Fastener withdrawal tests shall be performed on all "Non-FM Approved" wood decking (wood plank less than 2 inches thick or plywood less than 0.75 inch thick) to determine suitability and appropriate fastener patterns for the components of the new FiberTite Roofing System.
3. Wood decking shall be sound, well seasoned or kiln dried and of proper thickness to accommodate design loads (including wind up-lift) according to specified design criteria and/or local building code requirements.
4. Wood decking should be installed to provide positive slope and subsequent positive drainage of the new FiberTite Roofing System.

3.4 SUBSTRATE PREPARATION (REROOFING)

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 decking.
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. 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 of off-site.
2. 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 prior to inclement weather.

C. Recover of Existing Roof System(s)

1. Remove all loose aggregate and debris by power broom and/or vacuum and legally dispose of off site.
2. Remove and replace all wet or deteriorated insulation and wood blocking.
3. Clean all 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.

D. Steel and Wood Decks

1. All rotted and/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 Roofing System.
4. Attachment and deflection deficiencies shall be repaired and brought into compliance with current local building code requirements.

E. Concrete

1. Deteriorated decking shall be repaired and/or replaced with appropriate materials according to standard industry regulations and practices.
2. Repair any depressions and/or areas where reinforcing has become exposed.
3. When new insulation system is to be installed using an approved adhesive:
   - **a.** Cracks and or camber differentials greater than 0.1875 of an inch shall be repaired using an appropriate cementitious grout or fill, and feathered to promote a smooth transition.
   - **b.** Joints between prestressed panel units and over bulb-tees shall be taped, stripped or grouted with an appropriate cementitious fill.
   - **c.** All surface irregularities shall be leveled to ensure complete contact with the decking for insulation bonded in hot asphalt or approved adhesives.
4. Where insulation is to be mechanically attached, camber differentials and/or surface irregularities of up to 0.5 inch shall be acceptable.

F. Lightweight Insulating Concrete

- **a.** All wet lightweight shall be removed and replaced with appropriate and/or compatible material.
- **b.** Surface to receive new FiberTite Roofing System shall be smooth and free of ridges, depressions and other irregularities.
- **c.** Repair any depressions, irregularities and/or excessive deflection with compatible material.

3.5 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 installed directly on the substrate, the 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 parapets, curbs and expansion joints are recommended for insulated decking. Consult FiberTite Construction Details or FiberTite Technical Customer Services for optional/alternate membrane termination/securement methods.

3.6 BASE SHEET

A. 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% water tight during the same working day.
3. Field pull-out tests must be performed for mechanically attached base sheets to determine fastener withdrawal performance.
4. Base sheets shall be installed starting at the low point of the roof deck.
5. Base sheet shall be side lapped, a minimum of 3 inches, and properly shingled to shed water.

3.7 ROOF INSULATION AND COVERBOARDS

A. General

1. Roof insulation and coverboards shall be installed where by the long dimension of the board(s) run in parallel alignment and the short dimensions are staggered.
2. Insulation and coverboards 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 coverboard 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. Preliminary Attachment of Insulation for Mechanically Attached Roofing Systems

1. Insulation and/or coverboard shall be applied to or installed over properly prepared and preapproved substrates, free of any debris, dirt, grease, oil or moisture.
2. All fasteners and stress plates for the mechanical attachment of insulation and/or cover board materials shall be FTR Fasteners as provided by Seaman Corporation.
3. 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.
4. General 1-90 attachment criteria require preliminary attachment for insulation and cover boards for mechanically attached membrane roofing systems. Insulation/cover board within the field of the roof requires 6 fasteners and stress plates per 4’ x 8’ insulation board.
   a. Perimeter areas do not require an increase in the fastener density when the membrane is mechanically attached.
   b. Corner areas do not require an increase in the fastener density when the membrane is mechanically attached.
5. Fasteners shall be installed straight, tight and perpendicular to the decking complying with minimum penetration requirements of specific deck types. Do not over torque fasteners.
6. Fasteners shall be installed using depth sensing tool attachments to ensure proper installation.

7. It may be possible to utilize adhesives for the preliminary attachment of the insulation layer(s) on non-steel deck projects. The insulation/coverboard manufacturer must recommend and approve the specific board and adhesive combination in writing prior to Seaman Corporation granting approval for this method of preliminary securement.

3.8 INSTALLATION OF FIBERTITE MEMBRANE(S)

A. Quality Control

1. It is the responsibility of the roofing contractor to initiate and maintain a Quaility 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 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. A FiberTite Roofing Systems may utilize either conventional roll goods or custom prewelded panel rolls or a combination of both.
4. Restrictions regarding outside ambient air temperature are relative only to the exposure limits of the workers and/or adhesives when necessary.
5. 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.
6. Humidity can affect the drying time of solvent borne adhesives and/or cause condensation to form on the newly applied adhesive.
7. No moisture may be present on the adhesive(s) prior to mating or application of FiberTite membranes.
8. FiberTite Roofing Systems shall only be installed over properly prepared and sound substrates, free from excessive surface roughness, dirt, debris and moisture.

C. FiberTite Membrane Mechanically Attached (Class 1 Decks)

**Nom. 36-mil FiberTite; nom 45-mil FiberTite-SM; nom 50-mil FiberTite-XT and nom 60-mil FiberTite-XTreme.*

1. Rolls of FiberTite Roofing (FTR) are to be positioned and installed straight and snug but not taut. Stretching of the membrane places undue stress on the mechanical fasteners.
2. If using custom fabricated rolls, align the paneled rolls to stager the factory seams to prevent adjacent welds from falling on top of one another. Adjoining rolls shall overlap 5 inches and be properly shingled with the flow of water where possible. It is not uncommon and is acceptable for the factory laps to buck water.
3. The properly positioned membrane shall be attached using FTR Magnum Fasteners and Magnum Stress Plates installed through the membrane and insulation assembly and engage the structural decking.

4. 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.
5. 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.
6. Table MA 08/17 lists general default attachment requirements for the field of the roof, as applied to structural roof decks referred to as Class 1; minimum ¾ inch plywood, minimum 22-gauge steel or minimum 3,000 psi concrete.
7. Perimeter zone and corner zone enhancement is required on all mechanically fastened roofing systems. Perimeters and corners are defined as follows:
   a. Perimeter: 10% of the width of the roof areas or 40% of the height of the roof area, whichever is less to a minimum of 4 feet. Perimeter zones run parallel to all external roof edges including those with parapet walls.
   b. Corner zones are the square intersection of perimeters.
   c. Projects having variable roof levels shall treat the outer boundary of each level as a perimeter. Internal expansion joints, firewalls or adjoining building walls greater than 3 feet are not considered perimeter areas.
8. Perimeters and corners may be enhanced by:
   a. Installing half rolls of membrane fastened as prescribed by project requirements.
   b. Adding additional rows of fasteners through the top of the membrane system within the perimeter at prescribed intervals area and sealing with a 6 inch strip.
9. Individual project, insurance and building code requirements can vary substantially. FiberTite Technical Customer service offers design assistance and evaluation for determining acceptable fastener patterns.
10. For additional design/attachment options please contact FiberTite Technical Customer Services.

TABLE MA 08/17 – 1

Design Pressure 22 gauge steel or greater	Row Intervals / Lap Structure	Lap Fastening
≤ -30 psf /FM1-60		
80 ksi steel	95” on center - open	18” on center
33 ksi steel	95” on center - open	12” on center
≤ –45 psf/FM1-90		
80 ksi steel	95” on center - open	12” on center
33 ksi steel	69” on center - open	12” on center

D. 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 acetone 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 or strip.

f. All welding shall be performed only by qualified personnel to ensure the quality and continuity of the weld.

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.

E. 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's responsibility to perform a final self inspection on all seams prior to requesting the inspection for warranty issuance by the FTCS.

F. 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 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 flashings.

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 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.)

3.10 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 pourable sealant.
4. Pitch Pans and the sealant will require periodic maintenance by the building owner's maintenance personnel.

3.11 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.

3.12 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.

3.13 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 of off site.

3.14 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 walk way 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.

3.15 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.

3.16 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.

3.17 WARRANTY INSPECTION

A. Upon completion of the project, the authorized roofing contractor shall complete and submit the FiberTite Notice of Completion 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 MA08/17