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DIVISION 07 - THERMAL AND MOISTURE PROTECTION

SECTION 07223

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SECTION 07223

REROOFING INSULATION

PART 1 GENERAL

1.1 REFERENCES

The following publications form a part of these specifications to the extent indicated by their references. The exclusion of a publication from this section will not relieve the Contractor from complying with the publication reference elsewhere.

ASTM INTERNATIONAL (ASTM)

ASTM C 518	(2002, E1) Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
ASTM C 728	(1997e1) Standard Specification for Perlite Thermal Insulation Board
ASTM C 1177	(2004) Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
ASTM C 1289	(2001) Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
ASTM D 41	(1994; R 2000e1) Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
ASTM D 312	(2000) Standard Specification for Asphalt Used in Roofing
ASTM D 1621	(2000) Standard Test Method for Compressive Properties Of Rigid Cellular Plastics
ASTM D 4586	(2000) Standard Specification for Asphalt Roof Cement, Asbestos Free
ASTM E 84	(2004) Standard Test Method for Surface Burning Characteristics of Building Materials

1.2 SUBMITTALS

The following shall be submitted in accordance with Section 01330, "Submittals," in sufficient detail to show full compliance with the specification:

SD-01 Preconstruction Submittals

Material, Equipment, and Fixture Lists shall be submitted for the following in accordance with the paragraph entitled, "Material, Equipment, and Fixture Lists," of this section.

Each type of roof insulation specified including cover board
Insulation fasteners
Each type of adhesive specified

SD-02 Shop Drawings

Shop drawings shall be submitted for the following items in accordance with the paragraph entitled, "Shop Drawings," of this section.

Membrane manufacturer for review
Manufacturer reviewed and approved shop drawings to the Contracting Officer.

Insulation Drawings showing all valleys, ridges, slopes, saddles, crickets, drain sumps, cants and curb details (for Base Bid)

Insulation fastening pattern

Cross section drawing showing all layers of insulation and cover board providing the overall slope

SD-03 Product Data

Manufacturer's product information, including manufacturer's Literature and Material Safety Data Sheets, for each of the following products indicated:

Insulation Materials
Roofing Asphalt
Roofing Cement
Fasteners

SD-04 Samples

Samples shall be submitted for each of the following items in accordance with the paragraph entitled, "Samples" of this section.

Roof insulation: full thickness for each type specified
Cover board: full thickness samples
Perlite tapered edge strips
Perlite fiber cant strips
Six insulation fasteners of each type, length, and finish
One quart container of roofing cement
One quart container of roofing asphalt
Sample copy of the contractor’s warranty
Sample copy of the manufacturer’s warranty

SD-07 Certificates

Product Certificates shall be submitted for each of the following items in accordance with the paragraph entitled, "Certificates" of this section.

Asphalt primer
Roofing asphalt
Roofing cement
Roofing Contractor’s Certificates
Manufacturer Certificates
Written approval of roofing assembly and fasteners

SD-08 Manufacturer's Instructions

Manufacturer's Instructions shall be submitted for the following in accordance with the section entitled, "Manufacturer's Instructions," of this section.

Manufacturer's Installation Instructions
Roofing Insulation Including Cover Board
Manufacturer's Maintenance Data for roofing system

1.3 MATERIAL, EQUIPMENT, AND FIXTURE LIST

Material, Equipment, and Fixture List shall be submitted for each type of roof insulation specified including cover board, insulation fasteners, and each type of adhesive specified including the manufacturer's style or catalog numbers, specification and drawing reference numbers, warranty information, and fabrication site for each type of insulation, fasteners, and adhesives specified.

1.4 SHOP DRAWINGS

Submit shop drawings to the membrane manufacturer for review. Submit only manufacturer reviewed and approved shop drawings to the Contracting Officer. Minimum Scale for Roof Plan: 1/8 inch = 1 foot- 0 inches and Minimum Scale for Details: 1 inch = 1 foot - 0 inches

For Base Bid and Option Bids the following shall be submitted; Insulation Drawings showing all valleys, ridges, slopes, saddles, crickets, drain sumps, cants and curb details.

For Base Bid and Option Bids insulation fastening pattern.

For Base Bid and Option Bids cross section drawing showing all layers of insulation and cover board providing the overall slope. Note: The completed finished scope of the roofing shall not exceed 1/8 inch per foot, or as listed in Table 1.0 in Section 01019 "Project Description" for a specific building.

1.5 SAMPLES

Submit three samples, 12-by-12-inch square, of each: Roof insulation: full thickness for each type specified, Cover board: full thickness samples, Perlite tapered edge strips, and Perlite fiber cant strips.

Submit the designated sample amounts for Six insulation fasteners of each type, length, and finish, One quart container of roofing cement, One quart container of roofing asphalt, Sample copy of the contractor’s warranty, and Sample copy of the manufacturer’s warranty

1.6 CERTIFICATES

Submit Product Certificates for all roof system products, showing

conformance with referenced standards contained in this section.

Submit Roofing Contractor’s Certificates, signed by insulation manufacturer, certifying that the Roofing Contractor is approved, authorized, or licensed by manufacturer to install the roofing insulation specified.

Submit Manufacturer Certificates, signed by roofing manufacturer, certifying that insulation complies with requirements specified within this Section.

Submit written approval by the insulation manufacturer for use and performance of the insulation system over the existing deck including that all materials supplied for this job comply with the requirements of the ASTM standards cited and that materials are suitable for a UL Class A roof. Written approval must indicate that the use of the material and components specified for this project meets the design intent and capabilities associated with a Factory Mutual Laboratories derived wind uplift rating that is based on the basic wind speed as specified in Table 1.0 Section 01019 "Project Description" for the roofing membrane system as specified.

1.7 MANUFACTURER'S INSTRUCTIONS

Submit the Manufacturer's Installation Instructions for each type of roofing insulation including cover board. Include instructions on method of attachment for each layer of insulation and the coverboard. Submit the Manufacturer's Maintenance Data for roofing system to include in maintenance manuals.

1.8 QUALITY ASSURANCE

1.8.1 Roofing Contractor’s Qualifications

A qualified firm that is approved, authorized, or licensed by roofing insulation manufacturer to install manufacturer’s product and that is eligible to receive manufacturer’s warranty.

Firm must employ only experienced workmen, skilled and qualified in the installation for the specified roof insulation system.

1.8.2 Source Quality Control

Manufacturer’s Product: Obtain roofing insulation materials from only one insulation manufacturer. Provide materials not available from the insulation manufacturer from sources, which are recommended and approved by the insulation manufacturer.

Provide insulation materials that are compatible with one another under conditions of service and application required, as demonstrated by insulation manufacturer based on testing and field experience.

Written approval by the insulation and roofing membrane manufacturer for use and performance of the specified board insulation (as a substrate for the specified roofing membrane system) including that all materials supplied for this job comply with the requirements of the ASTM standards cited and that the materials are suitable for a UL Class A roof. Written approval shall indicate that the use of the materials and components specified for this project meets the design intent and capabilities associated with a basic wind uplift rating for the roofing system as

specified in Table 1.0 Section 01019 "Project Description" for each specific building.

1.8.3 Manufacturer Qualifications

Manufacturers: A qualified manufacturer that has UL listing and FMG approval for roofing insulation system that meets the design intent and capabilities for this Project. Materials shall be obtained only from manufacturers who will, send a qualified technical representative to the project site for the purpose of advising the contractor on the procedures and precautions for use of the materials specified in "Part 2 Products".

1.8.4 Underwriters Laboratories (UL) Listed Products

Provide materials that have been tested and listed by UL, and bear UL label on each package, or are shipped to the project with a UL Certification of Compliance.

1.8.5 Fire and Insurance Ratings

Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency. Comply with the following:

Underwriters Laboratories requirements for “Roof Deck Constructions” which are rated “Fire-Acceptable,” Class “A” fire rating.

Coordinate with other sections of these specifications such that the Class "A" fire rating is achieved. The reroofing system includes weatherproofing Section 07590 "Re-Roofing Preparation And Procedures" and as such a cover board over metal deck is required.

Factory Mutual: Must meet design intent for derived FM wind uplift rating based on basic wind speed for the specified roofing membrane system, at each building per Table 1.0 Section 01019 "Project Description".

1.9 DELIVERY, HANDLING, AND STORAGE

Roofing materials are to be on the project site before work is begun.

Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer’s name, product brand name and type, date of manufacture, and directions for storage.

Original packaging must not be disturbed until materials are to be applied.

Only approved roofing materials may be brought to or stored at the site.

Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources while they are transported, stored, and installed.

Keep all materials dry while they are transported, stored, and installed. Protect materials from exposure to moisture during transportation, storage,

handling and installation. Reject and remove from the site any new materials, which exhibit evidence of moisture during application, or have been exposed to moisture. Reject and remove from the site any material, which has moisture content more than 10-percent greater than the Equilibrium Moisture Content (EMC) at 90-percent relative humidity.

Do not expose to sunlight, except to extent necessary for period of installation and concealment.

Store and protect roofing materials from contact with soil, rain, or snow. Store all materials on raised platforms with weather protective coating. The manufacturer's standard packaging is not considered adequate weather protection. Tarpaulins are preferred for protection of all roof materials. If visqueen coverings are used, venting of each package is required. Material storage procedures will be monitored and enforced.

Not more than a 1-day supply of insulation is to be stored on the roof at any time. This 1-day supply is to be stored on raised platforms with weather protective coating whenever work is interrupted or when there is precipitation of any kind. Plastic sheeting is to be securely fastened to the pallets so as to be completely weather tight. Materials not so protected are not to be used and are to be permanently removed from the site.

Protect existing building construction and all work in place from damage resulting from the storage, preparation, handling, and application of insulation materials. Do not store materials at any locations where new roofing insulation or roofing membrane materials have been installed.

In addition to the following the Contractor shall prior to placing any loads onto roof shall have previously submitted and received approval of a weight and load management plan. The "Weight and Load Management Plan" is part of the demolition plan submittal required per Section 02410 DEMOLITION.

Handle and store roofing materials and place equipment in a manner to eliminate permanent deflection of the roof deck. Distribute materials temporarily stored on the roof to stay within the indicated live-load limits of the "Weight and Load Management Plan". Where conflict may exist between the 20 psf L.L. and the approved "Weight and Load Management Plan", the most restrictive requirement shall apply. Provide ample bases under equipment to distribute the weight to conform to these live-load limits.

1.10 PROJECT CONDITIONS

1.10.1 Field Verification

Field verify all dimension and existing details prior to bidding and acquisition or installation of materials.

Notify the Contracting Officer of any existing condition found to be different than that indicated in the contract documents. The conditions will be reviewed by the Contracting Officer and required modifications will be made, if any.

1.10.2 Project Safety

Comply with safety requirements as specified in Section 01410, "Contractor Safety and Health Program".

1.11 QUALIFICATIONS FOR ROOFING INSULATION WORK

Roofing insulation work is to be performed by a contracting organization specializing in roof insulation (rigid board) applications of the nature and size of this project. Provide equipment in an operable condition, functionally as good as new equipment, and conforming to the requirements of this specification.

Provide backups for important equipment, available in standby mode, to be set up within 2 hours at the project if the primary equipment experiences mechanical difficulty.

Submit certified evidence of projects where work of a similar kind and scope has been performed by this organization within the past five years.

The roofing contractor must be authorized and previously trained by the insulation manufacturer to install the specified insulation system(s).

Substitution of a different superintendent or foreman during the roofing application is not permitted unless approved previously in writing by the Contracting Officer. Individual crew members are to have each worked on at least 3 similar projects within the previous year and one half. Submit written evidence of this for all crew members.

1.12 PROTECTION OF PROPERTY

Appoint an approved fire watch, if sprinkler systems are to be taken down for more than 4 hours in a 24 hour period.

At no time will personnel working inside a facility be exposed to hazards as a result of work being performed on the exterior of the facility. Do not compromise the means of egress with the location of work equipment or processes.

See additional requirements in Section 07590, "Preparation and Procedure for Reroofing".

PART 2 PRODUCTS

2.1 ROOF INSULATION

2.1.1 General

Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer’s standard sizes and of thicknesses indicated.

For mechanically attached insulation, 4-by-8-foot sections can be used. When insulation is fully adhered with hot asphalt or cold adhesive, use 4-by-4-foot sections. Where possible install largest appropriate sizes that approach but not exceed 4-by-8-foot or 4-by-4-foot, respectively. The use of multiple smaller sized sections of insulation where larger sections can be installed is not permitted.

2.1.2 Polyisocyanurate Board Insulation

ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces. Boards shall meet the following requirements.

Factory insulation board with a minimum thickness of 1/2 inch. Note that the completed finished surface of the roofing system shall not exceed 1/8 inch per foot, or as listed in Table 1.0 Section 01019 "Project Description" for each specific building.

Thermal resistance value: minimum of 5.56 per inch of thickness per ASTM C 518.

Minimum compressive strength of 20 psi per ASTM D 1621

Meet flame spread requirements of ASTM E 84.

Acceptable products and manufacturers as recommended by the roofing membrane manufacturer for the system warranty and as approved by Contracting Officer.

For Base Bid and Option Bids per Table 1.0, Section 01019 "Project Description", where LIC is to remain the insulation is to be installed on top of the buildings original LIC per manufacturers instructions and other required components per specifications and roofing manufacturer requirements. The thickness of insulation shall be per Table 1.0, Section 01019 "Project Description" for each specific building roof.

2.1.3 Slopes

Provide preformed saddles, crickets, flat, tapered system, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.1.4 Insulation Thickness

Base Bid and Option Bid, insulation thickness is per Table 1.0, Section 01019 "Project Description" that finished roof slope as indicated in Table 1.0 is not exceeded.

2.2 INSULATION ACCESSORIES

2.2.1 General

Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

2.2.1.1 Insulation Cant Strips

Perlite insulation board conforming to ASTM C 728, or as recommended by roofing manufacturer.

2.2.1.2 Tapered Edge Strips

Perlite edge strips tapered a maximum of 1/2-inch to 0-inches by 24-inches wide and conforming to ASTM C 728, or as recommended by roofing manufacturer.

2.2.1.3 Wood Nailer Strips

Comply with requirements in Division 6 Section 06100 “Rough Carpentry”.

2.2.1.4 Cover Board

Boards installed a top board insulation and LIC shall be 1/2-inch thick minimum and meet the following requirements. Cover board to meet roofing manufacturers requirements for the roofing system.

Minimum compressive strength 600 psi per ASTM D 1621

Flexural strength per ASTM C 1177.

Thermal resistance value: per ASTM C 518.

Coefficient of thermal expansion: per roofing system manufacturer.

Absorption: Per ASTM C 1177

Flute spanability: To meet job conditions.

Acceptable products and manufacturers include:

As determined by Roofing System Manufacturer.

Similarly manufactured produces meeting the requirements noted above, and as recommended by the roofing manufacturer for a system warranty and as approved by the Contracting Officer.

Boards installed directly to metal decks shall be minimum 5/8 inch thick and per FMG requirements for Class A fire rating.

2.3 ASPHALT PRODUCTS

2.3.1 General

Asphalt products may not be required by the roofing system's manufacturer. If asphalt products are included in a roofing system that is approved by the roofing system manufacturer then the following apply.

Asphalt products are to be recommended and approved by roofing system manufacturer, FM, and UL for intended use and compatible with roofing membrane for the type and condition of existing roof deck.

2.3.2 Asphalt Primer

Asphalt Primer: ASTM D 41.

Product and manufacturer as recommended by roof membrane manufacturer.

2.3.3 Roofing Asphalt

Roofing Asphalt: ASTM D 312, Type IV.

Product and manufacturer as recommended by roof membrane manufacturer and insulation manufacturer.

2.3.4 Asphalt Roofing Cement

Asphalt Roofing Cement: ASTM D 4586.

Asbestos free, product and manufacturer as recommended by roof membrane

manufacturer and insulation manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

Examine substrates, areas, and conditions for compliance with the following requirements and other conditions affecting performance of roofing system:

Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.

Verify that perlite cants, blocking, curbs, and nailers that are not designated for replacement are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

Verify that the deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane relative to adjoining deck.

Examine deck surfaces for inadequate anchorage, foreign material, moisture, and unevenness that would prevent the execution and quality of application of the insulation and accessory components as specified. Notify Contracting Officer in writing of unsatisfactory conditions.

Verify that work of other trades that penetrates the roof deck or that requires men and equipment to traverse the roof deck has been completed.

Verify that areas to have new insulation meet the slope requirements. Notify the Contracting Officer in writing if unsatisfactory conditions are encountered.

Do not proceed with work until defects have been corrected to the satisfaction of the Contracting Officer and insulation/membrane manufacturers. Starting work designates acceptance of the surfaces.

3.2 PREPARATION

Coordinate with work specified in Division 7, “Built-Up Reroofing” and 07590 "Preparation and Procedures for Reroofing".

Conduct necessary field measurements to determine material quantities and sizes. The accuracy of all field measurements and estimates of material quantity and sizes is the responsibility of the Contractor.

See Section 07590 "Preparation and Procedures for Reroofing" Part 1 General, for a reroofing system attachment requirements and testing.

Coordinate with work under Division 6 that impacts the insulation installation, including but not limited to, installation of wood nailers in areas where insulation materials will be installed.

Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing insulation and roofing system manufacturer’s written instructions. Remove sharp projections.

Prime surface of parapet walls, lead flashings, cants, nailers, curbs,

penetrations and other surfaces that will receive roofing with asphalt primer at a rate of 3/4 gal./100 sq. ft. and allow primer to dry. Allow primer to dry completely prior to roof system installation. Primed areas that are not covered by insulation in a 24 hour period are to have primer reapplied before insulation installation proceeds. Allowable alternate to the asphalt primer can be the roofing manufacturers approved primer.

3.3 APPLICATION

3.3.1 General Requirements

Install insulation only after building construction has progressed to the point that inclement weather will not damage or wet the insulation material.

See Section 07590, "Preparation and Procedures for Reroofing" for specific requirements.

Coordinate with work specified in Division 7, “Built-Up ReRoofing”.

Coordinate and cooperate with testing and inspecting agencies engaged or required to perform services for installing the roofing insulation and roofing system

Cut and fit underlayment or insulation material as necessary to fully insulate small areas and to accommodate piping, scuttles, skylights, vents, and other construction penetrating the insulation material. Where possible install the largest appropriate sizes.

Install underlayment or insulation continuously with all operations proceeding together.

Install only the amount of insulation that can be covered with completed built-up roof system on a day to day basis.

Do not install insulation when ambient temperature is below 50 degrees F.

Do not dilute or alter primers, roofing cements, sealants, or coatings. Keep containers closed except when removing materials from them. Do not allow mixing of various bitumen classes through mixing of kettle remains or dual use of transporting or application equipment. Do not use equipment with remains of bitumens other than asphalt.

Bitumen quantities specified for laminating insulation shall be regarded as square-foot by square-foot minimums, not as averages for areas.

3.3.2 Asphalt Heating

This paragraph only applies if roofing manufacturer approved roofing system includes asphalt.

See paragraph entitled, GENERAL of this section.

Do not raise roofing asphalt temperature above equiviscous temperature range more than one hour before time of application.

Do not exceed roofing asphalt manufacturer’s recommended temperature limits during roofing asphalt heating. Bitumen heated above the specified maximum shall be discarded.

Maximum temperature in kettle:

Asphalt, Type IV: 475 degrees F or as recommended by membrane manufacturer.

Minimum temperature at the time and point of application:

Asphalt, Type IV: 425 degrees F or as recommended by membrane manufacturer.

Do not heat roofing asphalt within 25 deg F of flash point.

Discard roofing asphalt maintained at a temperature exceeding finished blowing temperature for more than 4 hours.

Provide thermostatic controls and a visible thermometer on the kettle, maintain them in working order, and keep them calibrated.

The foreman is to frequently check bitumen temperatures with an immersion thermometer, accurate within plus or minus 2 degrees F that is to be carried on his person at all times. If the temperature of the bitumens in the applicators is below specified amounts, removal and replacement of the affected roofing may be required.

Tend heating kettles continuously at all times. Upon request of the Government, maintain a record of the kettle temperature at intervals of 15 minutes and give to the Contracting Officer at the end of roofing perations each day.

Substrate-Joint Penetrations: Prevent roofing asphalt from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction. Bitumen dams (using felt or base sheets) are to be installed as required to prevent asphalt drippage into the building or decking.

3.3.3 Insulation Attachment

Install the roofing insulation in accordance with the accepted roofing insulation manufacturer’s requirements for this project and as specified in paragraph entitled, "Fire and Insurance Ratings", and per Section 07590 "Preparation and Procedures for Reroofing", General paragraph.

3.3.3.1 Insulation Over Temporary Roof System

Fully attach insulation per roofing system manufacturer's instructions. Offset joints of each of the subsequent layers a minimum of 6-inches in both directions from joints in the adjacent layer below.

All boards shall be laid with joints tightly butted, but not forced into place. Fill gaps exceeding 1/4-inch with insulation. Cut and fit insulation within 1/4-inch of nailers, projections, and penetrations.

Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2 inches or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction. Slope the insulation system to achieve finished roof slope to the roof drains and roof edges as designated in specifications.

3.3.3.2 Insulation at Roof Drains

At roof drains, taper surface of insulation where necessary so completed surface is flush and does not restrict flow of water providing a smooth transition from drain bowl to deck surface. Taper insulation back from center line of drain a minimum of 24 inches to provide for positive drainage. Install tapered edge strips as indicated in this section. Prime all metal surfaces. Total nominal thickness at the roof drain is to be 1-inch. Using a trowel, set a 6 inch wide layer of roofing cement around the drain bowl edge as water cut-off.

Joints of insulation board shall be taped, if required by manufacturers of insulation and roofing membrane.

3.3.3.3 Cover Board

Install roofing system manufactured recommended cover board insulation over the polycyanurate insulation on top of the roofing insulation, in accordance with the manufacturer’s recommendations and the following requirements.

Discard any wet or damaged insulation.

Fully attach the cover board in accordance with the insulation and membrane manufacturer’s recommendations and with the following requirements.

Attachment of insulation is to meet Table 1.0, Section 01090 "Project Description" wind uplift requirements.

Attach to adequately resist uplift pressure at corners, perimeter, and field of roof.

Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Stagger joints from joints in insulation below a minimum of 6 inches in each direction.

Lay boards with joints tightly butted, but not forced into place. Tape joints if required by roofing system manufacturer.

Install boards with long joints continuous and short joints staggered at mid-point of boards. Orient the longitudinal joints parallel to the short dimension of the roof.

Trim ends of boards to have 1/8-inch maximum gap at roof edges or walls.

Use the largest full section of board material as appropriate. Do not use multiple small sections where a single larger section can be used.

3.3.3.4 Tapered Edge Strips

Use tapered edge strips at drain locations to form smooth transition to drain edges.

Aligned the narrow end of the edge strip (0-inch thickness) at the edge of the drain flanges.

Use tapered edge strips at gravel stop, drip edge, and the leading edge of tapered insulation used as saddles and crickets to form smooth

transitions for the coverboard.

3.4 CLEANING

Carefully inspect all completed work and correct all defects.

Remove from the job site and legally dispose of all debris.

Remove all surplus materials, tools, and equipment.

Prevent storage of materials and equipment on completed roof.

Accompany the manufacturer’s technical inspector, and assist with equipment and workmen if necessary to provide access to the roof. Correct all defects noted during the inspection.

3.5 ACCEPTANCE

Finished Roof Insulation Requirements: Roof insulation work will be rejected for any of the following deficiencies:

Thermal insulation material not conforming to type and nominal thickness indicated for the kind of construction.

Insulated construction not having all areas fully insulated, in-cluding small areas.

Installed thermal insulation material damaged or wetted by expo-sure to inclement weather.

Slope that exceeds project requirements.

Repair of Defective Work

Defective work shall be removed and replaced with roofing-insulation materials that meet the requirements of this section at no expense to the Government.

Provide all close-out documents to the Contracting Officer upon completion of the Work.

Provide construction (as-built) details to the Contracting Officer. Construction as-built details shall include the following.

By building area, the material type, amount, and installation method. An illustration or map of the building may serve this purpose.

As-built information shall have a cover letter/sheet clearly marked with the system name, date, and the words "As built insulation/material - Forward to the Contracting Officer".

-- End of Section --