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SECTION 07 61 13
STANDING SEAM SHEET METAL ROOFING
BASED ON DFD MASTER SPECIFICATION DATED (02/06/17)

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PART 1 - GENERAL

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SCOPE

The work under this section includes all labor, material, equipment and related services necessary to install standing seam metal roofing, snow guards and associated system components including metal flashing.

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PART 1 - GENERAL

- Scope
- Related Work
- Reference Standards
- Guarantee and Warranties
- Quality Assurance
- Product Delivery, Storage and Handling
- Submittals - Technical and Other Documents
- Submittals – Final Documents Required Upon Completion of the Work
- Site Conditions

PART 2 – PRODUCTS

- System Description
- Sheet Metal Materials
- Accessories

PART 3 - EXECUTION

- Examination and Preparation
- Fabrication
- Workmanship
- Installation
- Cleaning

RELATED WORK

Applicable provisions of Division 1 shall govern work under this Section. The Contractor shall consult these provisions in detail prior to proceeding with work.

13 34 19 – Metal Building Systems

In the event that the Contractor wishes to make improvements in materials and/or techniques, or is required to make improvements by the membrane supplier in order to obtain guarantees/warranties, he shall make written request stating in full the nature of the proposed changes and stating that the changes, if approved, will be accomplished at no additional cost to contract.

REFERENCE STANDARDS

- AA - Aluminum Association.
- AISI – American Iron and Steel Institute.

- 1 ASTM - American Society for Testing and Materials.
2
3 ASTM A361 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process for Roofing and
4 Siding.
5
6 ASTM A446 - Steel Sheet, Zinc-Coated, (Galvanized) by the Hot-Dip Process, Structural
7 (Physical) Quality.
8
9 ASTM A525 - General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip
10 Process.
11
12 ASTM A653: Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated
13 (Galvanized) by the Hot-Dip Process
14
15 ASTM A792 - General Requirements for Aluminum-Zinc Coated Sheet.
16
17 ASTM B137: Test Method for Measurement of Coating Mass Per Unit Area of Anodically
18 Coated Aluminum.
19
20 ASTM B209: Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
21
22 ASTM B370: Specification for Copper Sheet and Strip for Building Construction.
23
24 ASTM C920 – Elastomeric Joint Sealants.
25
26 ASTM D226 - Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
27
28 ASTM D1056 - Specification for Flexible Cellular Materials.
29
30 ASTM D2244 – Test Method for Calculation of Color Differences from Instrumentally Measured
31 Color Coordinates.
32
33 ASTM D4214 – Test Methods for Evaluating Degree of Chalking of Exterior Paint Films.
34
35 FS TT-S-00230C - Federal Specification.
36
37 NRCA - (National Roofing Contractors Association) - Roofing and Waterproofing Manual.
38
39 SMACNA - (Sheet Metal and Air Conditioning Contractors National
40 Association) - Architectural Sheet Metal Manual.
41

42 **GUARANTEE AND WARRANTIES**

43 State of Wisconsin Roof System Guarantee: Provide written **ten (10) year** guarantee warranting
44 all roofing and flashing required under contract, to be watertight and free from defects in
45 materials or workmanship for period of time, as stipulated in guarantee form.
46

47 Contractor shall perform a minimum of two (2) roof system inspections during the term of this
48 guarantee. The first inspection shall be approximately two (2) years after installation date on the
49 state guarantee and final inspection performed five (5) years after installation date on the state

1 guarantee. Contact the Agency Contact to arrange for a site visit date. Agency Contact will
2 accompany the Contractor. Submit written inspection reports, e-mailed to Owner (DFD Project
3 Manager) and Agency Contact immediately after inspection is performed and prior to guarantee
4 expiration.

5
6 It is recommended that the Contractor take digital photos of the finished work for their files and
7 future reference.

8
9 A copy of the required State of Wisconsin Roof System Guarantee form shall be bound herein
10 located at the end of this Section and may be acquired at the following State website;
11 doa.wi.gov/DFD

12
13 **Contractor and all sub-contractors shall review the guarantee and requirements of this**
14 **Section prior to providing a quote for the Work required by this Section.**

15
16 The Contractors Performance-Payment Bond is only required to apply to this trade section during
17 the construction period and the first year of the guarantee period. Said Bond shall not apply to
18 any extended guarantee period beyond the first year. Such extended guarantees are limited to the
19 applicable Contractor and manufacturer as herein specified.

20
21 Panel Manufacturer's Finish Warranty: Provide the sheet metal panel manufacturer's standard
22 pre-finished panel twenty (20) year warranty against material defects, corrosion and finish
23 degradation stating at a minimum that the metal finish will not chalk in excess of an eight (8)
24 rating, or fade in excess of a five (5) rating, when tested in accordance with ASTM D2244 and
25 ASTM D4214.

26
27 Panel Manufacturer's Weather tightness Warranty: Provide the sheet metal panel manufacturer's
28 standard no-dollar limit 20 year warranty against defects that result in leaks.

29
30 The following information shall be included on all guarantee and warranty documents:
31 State of Wisconsin (Owner), Agency, city or township, street address where work was performed,
32 building name, Owner Project number, Owner (DOA) building number, all roof areas involved
33 and total sq. ft. area of all roof areas.

34 35 **QUALITY ASSURANCE**

36 AISI CF00-01, "A Design Guide for Standing Seam Roof Panels," American Iron and Steel
37 Institute, 2000.

38
39 AISI CF97-01, "A Guide for Designing with Standing Seam Roof Panels," American Iron and
40 Steel Institute, 1997.

41
42 ASTM A653, "Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-
43 Coated (Galvannealed) by the Hot-Dip Process," American Society for Testing and Materials,
44 1998.

45
46 ASTM E1592, "Test Method for Structural Performance of Sheet Metal Roof and Siding Systems
47 by Uniform Static Air Pressure Difference," American Society for Testing and Materials, 1995.

48

1 ASTM E1646, "Test Method for Water Penetration of Exterior Metal Roof Panel Systems by
2 Uniform Static Air Pressure Difference," American Society for Testing and Materials, 1995.

3
4 ASTM E1680, "Test Method for Rate of Air Leakage through Exterior Metal Roof Panels
5 Systems," American Society for Testing and Materials, 1995.

6
7 UL 580, "Tests for Uplift Resistance of Roof Assemblies," Underwriter's Laboratories, Inc.,
8 1994.

9
10 Refer to "Submittals - Technical and Other Documents" for number of submittal required.

11
12 Manufacturer shall have had at least ten (10) years experience in architectural roofing, and the
13 roof panel itself shall have been in use for at least ten (10) years. Manufacturer shall demonstrate
14 past experience with examples of projects of similar type and exposure.

15
16 Manufacturer and persons performing panel forming shall demonstrate past experience with
17 examples of projects of similar type and exposure.

18 Personal forming panels shall demonstrate past experience with examples of projects of similar
19 type and exposure.

20
21 In the event that the Contractor wishes to make improvements in materials and/or techniques, or
22 is required to make improvements by his material manufacturer in order to obtain
23 guarantees/warranties, he shall make written request stating in full the nature of the proposed
24 changes and stating that the changes, if approved, will be accomplished at no increase in cost.

25
26 Contractor shall be recognized by the manufacturer of the sheet metal as an "approved" or
27 "authorized" applicator. The Contractor shall be a company specializing in sheet metal roof
28 installations with a minimum of five (5) years documented experience in retrofit work and a
29 minimum of three (3) projects of similar size and scope of the work specified in this section that
30 have been in installed for a minimum of four (4) years with satisfactory roof system performance.

31
32 The Contractor shall be authorized by the panel manufacturer, and the actual work shall be
33 supervised by personnel trained by the manufacturer in proper application of the product. The
34 Contractor shall have capability for preparation of shop details and fabrication of all flashings not
35 furnished by the panel manufacturer.

36
37 Roofing Contractor shall notify the panel roof system manufacturer in writing of their intent to
38 obtain all system material and send application for the warranty for work required herein.
39 Letterhead documentation shall be sent to the panel roof system manufacturer and include a
40 current date, indicate the Owner Project Number, bid document technical Section(s), indicate in
41 full the composition of roof system to be install per bid documents and be signed by the Roofing
42 Contractor Representative.

43
44 Panel roof system manufacturer shall provide Roofing Contractor with a current date written
45 documentation reply stating the receipt of Contractor request including warranty application and
46 statement that the Roofing Contractor is an "approved and authorized Contractor applicator" in
47 good standing, for the work specified herein. A copy of this letterhead documentation shall be
48 submitted to Owner at the preconstruction meeting. Such document shall include a current date,

1 acknowledgement the Owner Project Number, bid document technical Section(s), include the
2 roofing Contractor business name, certification status, year of issue and duration of such status.

3
4 **SITE VISIT:** Roofing Contractor shall notify panel roof system manufacturer representative of
5 start date and arrange for the representative to meet with the on-site foreman on the 1st or 2nd day
6 after start of the Work. Notify the Agency Contact concerning the representative visit so the
7 Agency Contact may be present. A minimum of 1 visit is required.

8
9 Changes or variations to the panel roof system composition as required herein shall be approved
10 by the Owner, in writing. Changes provided by the Contractor without Owner written approved
11 shall be cause for rejection of the Work in its entirety.

12
13 Roofing Contractor on-site Foreman shall be approved by the panel roof system manufacturer and
14 shall remain on-site throughout the duration of the project.

15
16 Contractor workers employed on this project shall be recognized by the supplier of the panel roof
17 system manufacturer as “approved” or “authorized” applicator(s) and within the past two (2)
18 years, the worker shall be able to document the successful completion of a minimum of three (3)
19 projects of similar size and/or scope of the Work as specified in this Section.

20
21 All sheet metal panel roofers by trade, and employed on this project shall have a certificate of
22 successful completion of training for the system to be installed. Undocumented roofers shall not
23 be allowed to perform the work required herein pertaining to the physical placement/installation
24 of any and all of the panel roof system components specified herein.

25
26 Metal panel roof system supplier certificate of successful completion of training for each roofer
27 employed on this project shall be submitted to Owner. Document shall be up to date, indicate
28 worker name, certification status, year of issue and duration of such status.

29
30 Contractor shall provide a list of all workers to be employed on this project. The list shall indicate
31 each of the workers by name and their construction trade including the Project foreman and
32 Contractor main office contact person.

33
34 List shall include after-hour/weekend emergency phone contact personal and their office and cell
35 phone numbers, for use in case of emergency situations.

36
37 Labors, or other non-roofer trade employees shall not be allowed to perform the actual
38 installation of any part of the panel roof system manufacturer warranted roof system required by
39 this Section without manufacturer documentation of proper training, as required herein.

40
41 Contractor shall obtain and provide Owner with the panel roof system manufacturer most current
42 dated three (3) ring or spiral bound installation and detail manual.

43
44 Contractor shall perform work required using details provided within the specifications, on the
45 drawings or as required by the metal roof system supplier for a proper watertight installation and
46 to allow issuance of warranties required herein.

47

1 All system components not specifically identified herein but required by the panel roof system
2 manufacturer or the roof system installed by the Work required in the Project Manual shall be
3 provided and included in the panel roof system manufacturer watertight warranty as required
4 herein. System components required by the Work in the Project Manual but otherwise not
5 warranted by the panel roof system manufacturer shall be upgraded to be panel roof system
6 manufacturer specific products at the time of bid such that they are covered by the warranty
7 required herein.

8
9 Provide all equipment recommended by the panel roof system manufacturer for proper
10 installation of the materials specified.

11
12 Roofing installations shall comply with fire resistive rating as defined in the Wisconsin
13 Administrative Code. Required rating on these roofs: U.L. Class A.

14
15 It is the responsibility of the General Prime Contractor to obtain the services of competent
16 licensed sub-contractor's to perform the Work associated with these bid documents.

17
18 Electrician Contractor: For removal and reinstallation of roof curb-mounted exhaust fans and
19 associated covers, ventilators, electrical equipment associated wiring connections at the unit(s) as
20 required to perform the Work.

21
22 Agency is responsible for disconnect where wiring must be pulled or cut and conduits relocated
23 to allow installation of the new roof system.

24
25 Plumber Contractor: To re-lead drain pipe, repair and/or reset the roof drain bowls to interior
26 piping as required to perform the Work required on this project.

27
28 Mechanical Contractor: For removal of belt, chain driven and/or electrical exhaust fans and
29 associated flex connection and duct runs/piping and its associated roof curb penetration.

30
31 The Contractor shall raise all existing mechanical and electrical trades' roof system penetrations
32 to a minimum height above the roof system of 8".

33
34 Contractor shall notify the Agency Contact 24 hours in advance of all Electrical, Plumbing and
35 Mechanical disconnections.

36
37 It is the responsibility of the Agency to perform inspection of the roof areas to be replaced by this
38 project and to provide the following services:

39
40 Agency is responsible for the following: Existing Electrical, Plumbing and Mechanical
41 installations and associated equipment pipe and duct runs shall be identified/verified by the State
42 Agency as in use or be spray painted in ORANGE by the Agency if they are abandoned or shall
43 be abandoned and shall be removed by this roofing Contractor, and verify that the electrical run is
44 terminated, prior to start of work by Contractor. Electrical conduct runs lying directly on the
45 existing roof membrane, or fastened to perimeter wall or metal flashing or coping shall be
46 relocated by the Agency prior to start of work.

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1 **PRODUCT DELIVERY, STORAGE AND HANDLING**

2 Make no deliveries to the project site until ready to install or approved storage is provided. The
3 State will not accept delivery nor will the State be responsible for any materials or equipment
4 stored on the premises.

5
6 Deliver materials in original unopened containers of packaging clearly labeled with
7 manufacturer's name, brand name, instructions for use, all identifying numbers and U.L. labels.

8
9 Deliver materials in sufficient quantity to allow continuity of work.

10
11 Materials used on the job must be stored in such a manner as not to create a nuisance or hazard.

12
13 Store materials on clean, raised platforms, with breathable, weather protective covering when
14 stored outdoors. Provide continuous protection from materials against weathering and moisture
15 absorption.

16
17 Factory applied "shrink-wrapping" is not considered to be an acceptable weather protective
18 covering. Improper storage practices will be grounds for rejection of questionable materials.

19
20 Store flammable products away from spark or open flame.

21
22 Store primers, coatings, sealants and similar materials between 60 degrees and 80 degrees
23 Fahrenheit.

24
25 Contaminated and Damaged Materials: Remove damaged or contaminated materials from site.

26
27 DO NOT store materials in a manner which will overload any portion of the building.

28
29 Handle all materials in a manner which will not damage the material. All damaged materials
30 shall be removed from project site.

31
32 Select and operate material handling equipment and store materials as not to damage existing
33 construction or applied roofing, and without overloading the building structural system.

34
35 **SUBMITTALS - TECHNICAL AND OTHER DOCUMENTS**

36 **At the preconstruction meeting and prior to start of work, submit the following for**
37 **approval by Owner.**

38
39 Prior to the start of any work, all of the following submittals as required herein, shall be brought
40 to the pre-construction meeting in the amount specified, for review and approval by DFD Project
41 Manager.

42
43 The following information shall be included on all submitted documents:

44
45 Agency/Location/Address where work is performed obtained from the Agency Contact listed to
46 include Building Name, Bldg. State Number, Roof Areas, DFD Project Number and total sq. ft.
47 of all roof areas.

48
49 **METAL PANEL MANUFACTURER WARRANTY ACKNOWLEDGEMENT**

1 Upon receiving the Contract Offer from the Owner, Contractor shall immediately notify the panel
2 manufacturer of intent to purchase the product and to obtain the warranty as specified by this
3 Section.
4

5 All products installed in this roof system shall be compatible with all system components. All
6 products installed shall be provided by the metal manufacturer and approved by the metal
7 manufacturer to assure the issuance of the watertight warranty required herein.
8

9 Other products, not manufactured, labeled or supplied by the metal manufacturer, but specified
10 herein to be a part of the warranted roof system, shall be specifically identified and approved by
11 the metal manufacturer required to provide the watertight system warranty specified herein.
12

13 Products installed but not approved in writing by the manufacturer and in turn by the AE shall be
14 cause for rejection of that specific work and all work accomplished over that work and all
15 products involved shall be removed and replaced at no additional cost to the contract.
16

17 **Submit:** Three (3) copies of the Contractors dated notification letter sent to the panel roof system
18 manufacturer
19

20 **Submit:** Three (3) copies, on panel roof system manufacturer letterhead, stating
21 acknowledgement of such notice and agreement to provide the warranty required by this Section.
22 The letterhead acknowledgement shall include the date such letter was issued, Owner Project
23 title, Project number, Section number(s), panel roof system manufacturer representative signature
24 and be addressed to the Roofing Contractor.
25

26 CONTRACTOR AND WORKER QUALIFICATION

27 **Submit:** Three (3) copies of the panel roof system manufacturer current written documentation
28 stating the Contractor is an "approved Contractor applicator" in good standing, for the work
29 specified herein shall to be submitted to Owner at the preconstruction meeting. Document shall
30 be up to date, indicate Contractor name, certification status, year of issue and duration of such
31 status.
32

33 **Submit:** Three (3) copies of the panel roof system manufacturer certificate of successful
34 completion (If available from panel roof system manufacturer) of training for each roofer
35 employed on this project shall be submitted to Owner at the preconstruction meeting. Document
36 shall be up to date, indicate worker name, certification status, year of issue and duration of such
37 status.
38

39 **Submit:** Three (3) copies of a list of all workers to be employed on this project. The list shall
40 indicate each workers name and trade. Project supervisor and main contact person shall be
41 identified. (See Quality Assurance herein)
42

43 MEMBRANE SUPPLIER INSTALLATION INSTRUCTIONS

44 **Submit:** One (1) copy of the membrane suppliers most current version, complete edition paper-
45 copy installation and detail 3-ring or spiral bound manual. Partial submittals taken from within
46 the bound manual are not acceptable.
47

48 EMERGENCY AND OFFICE CONTACT PHONE LIST

1 **Submit:** Three (3) copies of the Contractor's office superintendent and job foreman daytime,
2 after hours and weekend office and cell phone numbers to be given to the Agency Contact at the
3 pre-installation meeting.

4
5 **MATERIAL LIST**

6 **Submit:** Three (3) copies of a list of all materials intended for use on the project, to include
7 roofer and all other sub-contractor composite system materials, starting at the roof deck and
8 identified by manufacturer's name, size, thickness, type or grade. List shall be submitted on
9 Roofing Contractor's letterhead stationery. Submit product data sheets as required.

10 Contractor shall state the following on the material list submittal: **"New products installed on**
11 **this project do not contain asbestos"**.

12
13 **SHOP DRAWINGS:**

14 **Submit:** Three (3) copies of panel manufacturer shop drawings with details of all project
15 conditions, roof plan with panel layout, clip spacing, location of fixed points and expansion and
16 contraction allowances.

17 Shop drawings indicating, material profile, dimensions, jointing pattern, jointing details, fastening
18 methods, installation details, etc.;

19 Edge details at eaves and rakes, soffit, fascia, gutters, downspout (and their connections.)
20 Other pertinent details such as ridge, flashings, counterflashings, etc.

21 The following material samples:

22 Panels: One piece, full width, 12" long of each type to be used.

23 Accessories: One each of each anchor clip, roll formed part or press formed or molded closure.

24 A flat sample 6" x 6" of material for fabrication of any custom formed profile, such as hip, ridge
25 and rake caps.

26 Fasteners: Two samples of each type to be used, identified as to use.

27 Sealant and seal tape: One sample at least 8 oz., with descriptive data.

28 **CERTIFICATION:** Provide three (3) copies of current proof of manufacturer certification for the product
29 to be installed on the project and submit such dated certification status to DFD along with the product
30 submittal package.

31 **METAL PANEL COLOR CHART:** Provide one (1) original color chart to the A/E, via submittal process.
32 Architect to choose color from manufacturer's standard color chart.

33
34 **SNOW GUARDS:**

35 Shop Drawings: Show locations of snow guards on roof and attachment spacing.

36 Product Data: Include product description and installation instructions. Provide samples of clamps and 24
37 inch long cross member samples including color-matched metal strip, splice connector, and other hardware.

1 RECYCLED MATERIALS:
2 **Submit:** Three (3) copies of a materials recycle plan to Owner for review. Include recycle
3 business name, address, contact, and phone number where all recycled roofing material removed
4 by this project will be delivered.

5
6 **Submit:** Three (3) copies of current proof of manufacturer certification for the product to be
7 installed on the project and submit such dated certification status to DFD along with the product
8 submittal package.

9
10 **Submit:** One (1) original metal panel color chart shall be delivered to the Agency Representative
11 at the preconstruction meeting. Contact the Agency Representative listed on page B-1 of this
12 specification for delivery address. Agency Representative shall select the color at the meeting or
13 notify the DFD Project Manager and Contractor afterward via e-mail as to the color selected.

14
15 **Submit:** Three (3) sets of shop drawings showing locations of snow guards on roof and
16 attachment spacing.

17
18 Product Data: Include product description and installation instructions to include samples of
19 clamps, 24 inch long cross member samples including color-matched metal strip, splice
20 connector, and other hardware.

21
22 SAFETY REPORT

23 **Submit:** One (1) copy of a written report to be given to the Agency Representative at the
24 preconstruction meeting, describing in detail the Contractors implementation of specific OSHA
25 regulations, Contractor's worker safety program methods/means, roof perimeter safety and
26 identification of the "watch person" required at all roof levels. Identify fire extinguisher and their
27 locations, all equipment/operators on roof/ground in setup/storage area and travel routes used
28 while performing the work.

29 MSDS DATA:

30 **Submit:** One (1) copy of all MSDS paperwork for each products used on this project to be given
31 to the Agency Representative at the preconstruction meeting.

32
33 Contractor shall maintain the following at the Project site throughout construction. One (1) copy
34 of the specifications, drawings, addenda, value enhancement, change order and all approved
35 submittals at the project site throughout construction.

36
37 One (1) copy of the latest version of the manufacturer handbook including details and technical
38 information concerning application techniques for all primary roofing system materials required
39 by the work.

40
41 One (1) copy of the Material Safety Data Sheets (MSDS) manual for all materials used on this
42 project.

43
44 **SUBMITTALS – FINAL DOCUMENTS REQUIRED UPON COMPLETION OF THE**
45 **WORK:**

46 **Prior to final payment, submit the following to Owner as one (1) package including a cover**
47 **page listing all documents sent:**

48
49 The following information shall be included on all guarantees, warranty and other submittal
50 documents:

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Agency, city or township, street address where work was performed, building name, Owner Project number, Owner (DOA) building #, all roof areas involved and total sq. ft. of all roof areas.

DIGITAL PHOTOS:

Submit: One (1) copy of a CD with all photos taken.

Provide digital camera photos throughout the project as required by these specifications and/or requested by Owner. Contractor shall take multiple digital camera photos of the following to be submitted electronically, via e-mail to Owner.

Contractor shall take and submit digital camera photos' of the various difficult watertight locations and mechanical fastening that will be hidden from view or otherwise concealed beneath the completed work. Multiple photos shall be taken of the entire installation starting at the roof deck and continuing throughout the roof system installation as it progresses in layers, as required per specification

Contractor shall take and submit digital camera photos of all changes to the scope of work to include existing conditions as the work takes place in its various stages of demolition and of the new Work as it takes place throughout its various stages.

Provide digital camera photos of the completed work. Photos shall include the various metal flashing details, transitions and penetration height changes and in general an over-all view of the field of all roof areas. Photos shall be identified by the roof area where photos are taken.

CERTIFICATION: Installer's certification that snow guard system was installed in accordance with manufacturer's instructions and accepted Shop Drawings.

STATE OF WISCONSIN ROOF GUARANTEE:

Submit one (1) original guarantee as required herein. (Refer to GUARANTEE article in Part 1 of this Section).

METAL PANEL ROOF WARRANTY

Submit: One (1) of the original membrane suppliers warranty of all membrane warranties required herein. (Refer to GUARANTEE article in Part 1 of this Section).

SETTLEMENT CERTIFICATE :

Submit: One (1) copy of each document.

The following information shall be included on all submittal documents.
Agency/Location/Address where work is performed to include the Building Name, Bldg. State Number, Roof Areas, Owner Project Number and total sq. ft. of all roof areas.

SITE CONDITIONS

Apply roofing in dry weather. All roofing materials installed during rain shall be removed and replaced with dry materials at Contractor's expense.

1 DO NOT apply roofing unless authorized by the Architect/Engineer when the working hours
2 ambient temperature is below 32 degrees Fahrenheit. Under no circumstances will any seaming,
3 flashing or adhesive activities be allowed when the ambient temperature is below 20 degrees
4 Fahrenheit, or the wind chill factor is below 0 degrees Fahrenheit.

5
6 Existing materials designated to remain, which are damaged or defaced as a result of the work
7 shall be replaced at Contractor's expense to like new condition.

8
9 Install all rooftop mounted equipment in a watertight manner and repair any damage to sheet
10 metal or other components related to connection and protection of the roof system.

11
12 Protection of surfaces:

13
14 Take every precaution to prevent water leakage, or debris falling into the building interior, or
15 other such occurrences. Contractor is responsible for any damage to the building interior, or
16 contents, during construction.

17
18 Provide special protection or avoid heavy traffic on completed work. Temporary walkways and
19 work platforms shall be provided as necessary.

20
21 The Contractor is responsible for any charges, such as landfill fees, incurred for disposal of
22 materials.

23 24 **PART 2 - PRODUCTS**

25 26 **SYSTEMS DESCRIPTION**

27 New roofing system shall be prefinished sheet metal, with minimum 2" standing-seams. Panels
28 shall be approximately 16" in width with intermediate stiffener ribs. Panel seams shall be
29 mechanically rolled to form a double-lock. Fasteners shall be concealed.

30
31 Clip-over, or pressure caps installations are not acceptable standing seam metal panel
32 applications.

33
34 System shall carry an Underwriters Laboratories (UL) Class 90 wind uplift rating.

35 36 **SHEET METAL MATERIALS**

37 Roof panels shall have a 2" high vertical leg double lock standing seam.

38
39 Roof panel seam shall have a thermally-applied in-seam sealant.

40
41 Roof Panel Anchor Clips: Manufacturers standard clip that allows for required thermal
42 movement.

43
44 Roof Panel and Associated Metal Flashings Finish: Prefinished Galvanized (Galvalume): ASTM
45 A653, G-90; 24 gauge galvanized steel for roof panels, 22 gauge for continuous cleats.

46 47 **ACCESSORIES**

48 Anchor Clips: Non-magnetic stainless steel or aluminum coated with nylon to minimize wear
49 from thermal movement. Fasteners in support and screws installed in clips shall be fully recessed
50 so that no sharp edges come in contact with the roof material. Clip shall allow for adequate
51 thermal expansion and contraction of the panels system.

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48

Butyl Sealant Tape: 3/16 x 7/8” mini-triple bead butyl rubber tape designed for sealing metal roofs. Schnee-Morehead SM5227 Tacky Tape or as acceptable to roof panel manufacturer.

Butyl Sealant (Gun Grade): Non-skinning, non-sag gun grade butyl sealant designed for standing seam metal roofs. Sika Sikalastomer 511, Tremco TremPro JS-773 or as acceptable to roof panel manufacturer.

Expandable Sealant Tape: Self Adhering open-cell polyurethane foam impregnated with a water based acrylic-modified asphalt emulsion. Designed to seal out moisture on metal roofs. Size to obtain a maximum of 80% compression form fully expanded size. Emseal “AST Hi-Acrylic”

Pipe Flashing: EPDM boot bonded to aluminum base with manufacturers 20 year warranty. Buildex Decktite or as acceptable to roof panel manufacturer.

GUTTERS AND DOWNSPOUTS

Specified, provided, and installed under section 13 34 19.

SNOW GUARDS

“ColorGard” snow guard with non-penetrating S-5 clamp attachment and roof panel color insert. Provide bar clip with rubber foot to break-up snow slides. ColorGard, Snowmax by Alpine SnowGuards, or acceptable equal.

Clamps:

Manufactured from 6061-T6 aluminum extrusions conforming to ASTM B221 or aluminum castings conforming to ASTM B85 and to AA Aluminum Standards and Data.

Clamp model: No. S-5-U.

Set screws: 300 Series stainless steel, 18-8 alloy, 3/8 inch diameter, with round nose point.
Attachment bolts: 300 Series stainless steel, 18-8 alloy, 10 mm diameter, with flat washers.

Cross Members:

Manufactured from 6061-T6 alloy and temper aluminum extrusions conforming to ASTM B221 and AA Aluminum Standards and Data.

Receptacle in face to receive color-matched metal strips.

Provide splice connectors ensuring alignment and structural continuity at end joints.

Color Strips: Same material and finish as roof panels; obtained from roof panel manufacturer.

Snow and Ice Clips: Aluminum, with rubber foot, minimum 3 inches wide.

1 Fasteners: Any exposed fasteners shall be factory-colored to match metal. Where not
2 specified, size fasteners to suit conditions.

3
4 Metal to Metal: #10 x 3/4" self-drilling, self tapping stainless steel sheet metal screws
5 with pan or hex heads.

6
7 For weathertightness, screws shall have separate washers with hot bonded neoprene
8 faces, and pop-rivets shall be set in wet sealant.

9
10
11 Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT, M, G, A or O; FS TT-S-00230C,
12 Type II, Class A; one-part polyurethane base, elastomeric joint sealing compound such as Sika
13 Chemicals "Sikaflex 1a", Sonneborn-Contech "Sonolastic NP1" or Tremco "Vulkem 116" or
14 "Dymonic".

15
16 Compression Type Metal to Metal Joints: Butyl type sealant or tape recommended by the panel
17 system manufacturer.

18
19 Other products, not specifically described, but required for a complete and proper installation of
20 the work in this section shall be selected by the Contractor subject to the approval of
21 Architect/Engineer.

22 **PART 3 - EXECUTION**

23
24
25 Refer to the drawings included with these specifications.

26
27 Fabricate and install all material in accordance with the latest edition of SMACNA, the best-
28 accepted practices of the industry and these specifications.

29 **EXAMINATION AND PREPARATION**

30
31 Inspect existing roof to verify surface dry and free of snow or ice, free of depressions, waves, or
32 unused projections.

33
34 Bring to the Project Representative's attention any conditions detrimental to the proper and
35 timely completion of the work. Do not proceed until any unsatisfactory conditions have been
36 corrected.

37
38 Beginning of installation means acceptance of existing conditions.

39
40 Field measure site conditions and submit all shop drawings for approval prior to fabricating work.
41 Contractor shall obtain and use profile seamer as recommended by the roof panel manufacturer

42
43 Relocated pipes that will occur within four (4) inches of a seam.

44 **FABRICATION**

45
46 Fabricate new sections as detailed. Form sections true to shape, accurate in size, square and free
47 from distortion or defects. Do not "punch" metal at brake points.

48
49 Unless detailed otherwise, hem exposed edges on underside 1/2"; fabricate vertical faces with
50 bottom edge formed outward 3/4" at 45 degrees and hemmed to form drip.

51

1 Outside corners shall be prefabricated such that the outside face of section is broken at corner;
2 seam at corner is unacceptable. Miter and seam top of outside and inside corners using rivets and
3 specified polyurethane or manufacturer recommended and approved sealant. Corner pieces shall
4 be a minimum of 18” in length, in both directions from the corner.
5

6 **WORKMANSHIP**

7 Make all work weather and watertight throughout; provide allowances for material expansion and
8 contraction.
9

10 **Note:** Oil canning is an aesthetic issue that can be the result of panel forming and installation. As
11 such, oil canning will be cause for rejection of installed work.
12

13 All valley and valley edge/fascia installations shall be recorded from deck to finish by taking
14 digital photo’s of the installation as each product is applied over the preceding product. Digital
15 photos shall be properly identified as to their location on the roof and sent to the DFD Project
16 Manager electronically.
17

18 Contractors workers shall carry a container or apron to deposit all metal cut offs, droppings or
19 other debris created by the work. Waste shall not be dropped to the roof and ground.
20

21 Sections shall be uniform, accurately fitted so as to line up straight and true and rigidly secured in
22 place, without kinks or buckles. Joints at corners and angles shall be smooth, tight and neatly
23 mitered and seamed.
24

25 Unless detailed otherwise, lap all vertical joints between adjacent sections a minimum of 2".
26 Where metal is hooked to a continuous cleat, crimp metal to cleat along entire length.
27

28 **INSTALLATION**

29 Install wood blocking as indicated on drawings.
30

31 Install condensation control fiberglass batt type insulation as indicated on drawings.
32

33 **Metal Roof System Fabrication:**

34
35 Panels shall be fabricated in full lengths from ridge to eave without end laps. Panels shall be 16"
36 wide with concealed anchors that resist wind uplift yet permit expansion and contraction with
37 temperature changes. Two intermediate stiffener ribs shall be located in the flat pan to minimize
38 oil-canning and telegraphing of structural members.
39

40 Standing seams shall be a minimum of 2” high. Ribs shall be securely locked over anchor clips
41 with a field operated roll-forming tool.
42

43 Insofar as possible, attachment screws shall be eliminated in favor of concealed cleats or clips.
44

45 **Workmanship:**
46

1 All work shall be installed in accord with the approved shop details under direct supervision of an
2 experienced sheet metal craftsman. Attachments and joints shall allow for expansion and
3 contraction from temperature changes without distortion or elongation of fastener holes. Flashing
4 shall be installed in strict accord with the recommended practice in the AA, NRCA and
5 SMACNA architectural sheet metal manuals: without fasteners in end laps and isolated from
6 dissimilar materials.

7
8 Completed work shall be plumb and true, free of scrapes and dents. Panel ribs shall be on the
9 module indicated in the contract drawings within the tolerance allowed by the actual construction
10 dimension. Excess sealant shall be removed and touch-up paint applied to any areas where paint
11 scrapes occur. Any panels, which are badly damaged and in the judgement of the architect cannot
12 be repaired shall be removed and replaced.

13
14 Form ridge caps of sheets not exceeding 10 feet in length. Lap joints 6 inches.

15
16 **Metal Roof Panel Installation:**

17
18 Install roof panels symmetrical across individual roof area.

19
20 At time of installation confirm expansion and contraction allowances with A/E
21 Provide first clip a maximum of [16] 18 inches up from eave and down from upper termination.

22
23 Provide 5/8" closed cell backer-rod secured to substrate such that the backer-rod is at mid point of
24 each panel to be placed and runs continuous the full length of the panel.

25
26 Provide intermediate clips a maximum of 36 inches on center in the field of the roof and 12
27 inches on center along an eight (8) foot perimeter of each individual roof area.

28
29 Panel fixed point on all areas shall be the high side of each area.

30
31 Total panel expansion/contraction allowance shall be 3/4 inch. Set points of clips and panel
32 overlaps at eave shall be determined at time of installation.

33
34 Fold tab ends of panel seams over the end of the seam. Always fold tab to the inside of the seam.

35
36 Apply supplemental sealants as required by drawings and manufacturer.

37
38 Mechanically seam all metal panel seams.

39
40 **Flashing and Counterflashings:**

41
42 Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines
43 accurate to profiles. Seal all joints watertight.

44
45 Counterflashing shall be creased longitudinally just enough to provide a spring action that will
46 hold bottom edge firmly against base flashing. Notch and lap all joints a minimum of three (3)
47 inches.

48
49 Install appropriate flashings at all exhausts, vents and penetrations not specifically called out but
50 required.

51

1 **Roof Edges (Eaves and Rakes):**

2

3 Fabricate roof edge from 8'-0" or 10'-0" long sheets with a six (6) inch roof flange.

4

5 Notch and lap pieces three (3) inches. Start at eave and work up rake. Notch and seam corners.
6 Fasten edge six (6) inches o.c.

7

8 **Standing Seam Roof and Fascia Panels:**

9

10 Standing seam roof panels shall be formed from 0.040 prefinished aluminum. Width of finished
11 pan shall match width of overlaying roof panel with a finished seam height of one inch.

12

13 Secure each panel with 0.032 aluminum cleats 12 inches o.c., minimum of two (2) cleats per panel.
14 Cleats shall be two (2) inches wide with one end locked into standing seam and other end fastened
15 with two (2) copper nails or stainless steel screws to substrate and tab folded back over heads.

16

17 Standing Seam: Standing seams shall finish one inch high with seams. One side edge shall be
18 bent up 1-1/2 inches and the opposite side 1-3/4 inches. First fold shall be single fold 1/4 inch
19 wide; second fold shall be 1/2 inch wide. Locked portions of standing seam shall be five (5) plies
20 in thickness.

21

22 **Gutter:**

23

24 Provide expansion joints where indicated on the roof plan.

25

26 Temporarily hang gutters from fascia using roofing nails through the top of the back leg only @
27 12" O.C. Install hanger straps @ 24" O.C. and secure to fascia with two stainless screws as
28 detailed. Gutters shall have a net positive slope of 1/8" per foot between the high point and
29 downspouts.

30

31 **Downspouts:**

32

33 Install downspouts and associated elbows in locations shown on the elevations and roof plan as
34 follows:

35

36 Downspouts shall be 4" x 6" open style, 18 ga. With kynar 500 finish..

37

38 Gutter outlets shall extend into downspout a minimum of 3". Upper end of outlet tube shall be
39 flanged 1/2" and riveted and sealed to inside of gutter. Provide removable strainers at all outlets.

40

41 Fasten downspouts with hangers at eight (8) feet O.C. Install an additional hanger one foot from
42 the top and bottom, and within one foot of all elbows.

43

44 Downspouts shall have elbows and splash blocks at the bottom to divert water away from the
45 building foundation.

46

47 Mount downspout a minimum of 1" off all surfaces

48

49 **Snow Guards:**

50

51 Prior to beginning installation, verify that:

- 1
- 2 Panel seaming is complete.
- 3
- 4 Panel attachment is sufficient to withstand loads applied by snow guard system.
- 5
- 6 Installation will not impede roof drainage.
- 7
- 8 Clean areas to receive attachments; remove loose and foreign matter that could interfere with
- 9 installation or performance.
- 10
- 11 Install system in accordance with manufacturer's instructions and approved Shop Drawings.
- 12
- 13 Place clamps at maximum 32 inches on center or as required by in-service loads.
- 14
- 15 Place clamps in straight, aligned rows. On tapered panels stagger clamp assembly.
- 16
- 17 Place both set screws on same side of clamp.
- 18
- 19 Tighten set screws to manufacturer's recommended torque. Randomly test set screw torque using
- 20 calibrated torque wrench.
- 21
- 22 Insert color-matched metal strips into cross members, staggering strips to cover cross member
- 23 joints.
- 24
- 25 Attach cross members to clamps; tighten bolts to manufacturer's recommended torque.
- 26
- 27 Install splice connectors at cross member end joints.
- 28
- 29 Do not cantilever cross members more than 3 inches beyond last clamp at ends.
- 30
- 31 Install one SnoClip per panel between panel seams.
- 32
- 33 Snow dams shall be mechanically fastened on standing seam of metal panel.
- 34
- 35 Pipe/penetration brace devices shall be mechanically fastened to the standing seam of the metal
- 36 panel.
- 37
- 38 Adhered or mechanically fastened snow dams or pipe/penetration braces meant to be applied to
- 39 the metal pan are not acceptable.
- 40
- 41 Install metal snow dams as indicated on drawings and per manufacture's instructions.
- 42
- 43 **Miscellaneous:**
- 44
- 45 Install appropriate flashings at all exhausts, vents and penetrations not specifically called out but
- 46 required.
- 47
- 48 Secure all rooftop equipment. Use threaded fasteners.
- 49

1
2
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10

CLEANING

The work areas including the roof and ground below shall be inspected on a daily basis for waste/droppings.

Properly dispose of all cut offs, droppings and other debris on a daily basis to avoid damage or injury to others and/or owners property.

***** END OF SECTION *****

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State of Wisconsin – Metal Roofing/Wall Panel System 10-yr Guarantee

State Agency/Location/Address _____

Building Name _____ Bldg. No. _____ Roof Area(s) _____

D.S.F. Project No. _____ Project Total Sq. Ft. _____ Manufacturer _____

Type of Roofing System _____ Prime Contractor _____

Shingle Warranty Registration No. _____ Warranty web site _____

Date of Completion _____ State Guarantee Starts _____ State Guarantee Expires _____

List Additional Manufacturer Warranty and/or Guarantee Submittals Required

(submit all of the additional warranty/ guarantees required at the same time along with this guarantee)

Total System Warranty -Yes **No** **Membrane Warranty -Yes** **No** **Metal Guarantee -Yes** **No**

Subject to the terms, conditions and limitations stated herein, we, the undersigned hereby jointly and severally guarantee that the roofing system installed on the above named building, will remain in a watertight condition, free from leaks and defects in materials or workmanship, for a period of ten (10) years from the date of completion; and that we will at our expense, make or cause to be made such permanent repairs to said roofing system having defects in any of the materials and workmanship applied by or through the undersigned, as may be necessary to restore to compliance with the specifications or replace said roofing system in a water tight condition without defects as hereinafter defined. **Contractor shall perform a minimum of two (2) roof system inspections during the term of this guarantee with final inspection performed within last 6-months of term. Submit written inspection/repair and location reports to DFD Project Manager and Agency Representative.**

This guarantee is made subject to the following terms and conditions: The term “defect” shall include leak(s), faulty installation, installation of other than specified materials, and the following,

- **Panel Paint Finish:** Material defects, corrosion and finish degradation, excessive fade and/or chalking.
- **Panel Weather Tightness:** Defects resulting in leaks, excessive or deficient adhesive tape or sealant, loose and/or failing neoprene closers/fillers, improper fastening and fasteners.
- **Ice Dam and Underlayment:** Defects that result in leaks, improper substrate preparation, improper installation to include buckling, rolling of membrane and inadequate membrane seam lap.
- **Metal Roofing/Wall Systems:** Loose components/fasteners, excessive buckling, oil-canning, damaged finish, snow guard installation, finish/fastener failure, vent pipe flashing/clamps and proper curb saddle.
- **Sheet Metal Roof Flashing- Skylight Panels:** Loose, unsecured metal flashing, panels and associated cleats, anchors, clips, wood blocking, fasteners, inadequate, improper, loose and sealant.

The term “roofing system” shall mean all the materials above the structural roof deck associated with the roof system that are furnished under this contract and the workmanship for installing such materials as required per the manufacture’s installation instructions to achieve a watertight system.

METAL ROOFING/WALL PANEL SYSTEM GUARANTEE

Page 2

No work will be done on said roof by the State, including, but without limitation, work in connection with flues, vents, drains, sign braces, antennas, railings, platforms or other equipment fastened to or set on the roof, and no repairs or alterations will be made to said roof, unless the undersigned are first notified and given the opportunity to make the necessary roofing application recommendations with respect thereto, and such recommendations are complied with by the State. Failure to observe this condition shall render this guarantee null and void.

In the event leak(s) or defects should occur, the User Agency shall notify the undersigned parties in writing at the addresses listed below within thirty (30) days of discovery of leak(s) or defects. If repairs are not initiated within ten (10) days from the date of receipt of written notice that leaks or defects exist, the State is hereby authorized to have repairs made to the roofing system as is required without invalidating this guarantee, and the undersigned agrees to pay all costs for repair or replacement of leak(s) or defects in roofing system within thirty (30) days from the date such repairs or material replacement have been completed and approved by the State.

In the event that the State has notified the Contractor of the need to repair leak(s) through the roofing system and an emergency condition exists which requires immediate repair to avoid substantial damage to the State, the State may make such temporary repairs as may be essential and such action shall not be a breach of this Guarantee, so long as the State complies with other provisions of the Guarantee.

This Guarantee is in lieu of all other warranties expressed or implied, including warranties of merchantability or fitness for any particular purpose. No representatives of the parties herein named have the authority to make any representations other than those stated herein.

Specifically excluded from this guarantee is any and all damages to said roof system, the building or contents therein caused by one or combination of the following,

- Acts or omissions of the State.
- Damage resulting from natural disasters; i.e., windstorm (exceeding velocity of 70 miles per hour), hail, flood, hurricane, lightning, or other phenomena of the elements.
- Damage resulting from the building structure failing to have adequate strength to support all live and dead loads, including water and snow loads, or any damage resulting from any other structural defects or failures.
- Damage resulting from objects, misuse or abuse of the roofing system, or traffic, recreational activities, or storage of material on the roofing system.
- Discharge of vegetable, mineral, animal oils, greases, solvents, or chemicals such as industrial wastes, upon the roof surface, unless originally designed for such purpose and prior written approval is received.

IN WITNESS WHEREOF, this instrument has been duly executed,

PRIME CONTRACTOR

ROOFING CONTRACTOR

(If the Roofing Contractor is also the Prime Contractor, only one signature in either signature block is required)

Signature _____

Signature _____

Name/Title _____

Name/Title _____

Date _____

Date _____

Address _____

Address _____

Telephone _____

Telephone _____

Seal

Seal

1 **LIMITED WARRANTY**

2 The manufacturer shall furnish a copy of the standard limited 5 year warranty on the roof scuttle. The
3 inclusion of the warranty shall be made a part of this Specification.

4
5 **PART 2 - PRODUCTS**

6 **ACCEPTABLE MANUFACTURERS**

7 The Bilco Company, P.O. Box 1203, New Haven, CT 06505
8 Babcock-Davis Hatchways, Inc., 9300 73rd Ave., Brooklyn Park, MN 55428
9 Cotterman
10 Global Industrial

11 **MATERIALS**

12 **Exterior Roof Step Access Ladder** – For ladder access to roof from ground. To be located per plan
13 and elevations.

14 300 LB Load Capacity

15 Walk through forward exit at top.

16 See building elevations for height requirement. (16'-8" +/-)

17 Galvanized Steel Construction.

18 20 inch width.

19 OSHA and ANSI compliant.

20 ¾" rungs at 12" spacing.

21 Provide feet at ladder base for anchoring to concrete apron.

22 Provide ladder connections 4'-0" O.C. max for anchoring to exterior building wall.

23 **FASTENERS**

24 Fasteners shall be non-corrosive, of size and type suitable for roof scuttle manufacturer's
25 recommendations. Fasteners to be number required by scuttle manufacturer.

26 **OTHER MATERIALS**

27 Suitable blocking, spacers, and framing to be used to provide solid installation.

28 All voids around units to be sealed and filled with insulation.

29
30 **PART 3 - EXECUTION**

31 **INSTALLATION**

32 Install roof scuttle where shown on the Drawings.

33 Coordinate installation of roof scuttle with other trades and Owner's use of building.

34 Install insulation in perimeter frame of all scuttles.

35 Seal perimeter of the roof scuttle on both sides.

36 **CLEANING**

37 Roof scuttle to be left in a clean condition with all sill channels free of debris.

38 Roof scuttle to be able to operate without binding or force above the manufacturer's certified test
39 amounts.

40 **PROTECTION**

41 Roof scuttle shall be protected after installation by the Contractor. Project shall be turned over to
42 Owner with clean frames and hardware in good operating condition.

43 **END OF SECTION**

1 **PART 2 - PRODUCTS**

2 **SEALANTS**

3 Sealant material shall be a one part polyurethane sealant exceeding the requirements of Federal Specification TT-S-
4 00230.

5 Sealant Manufacturers and Products:

6 BASF "Masterseal NP1"

7 Sika Corp."Sikaflex 180"

8 Tremco, Inc. "Dymeric 511"

9 Sealant shall be applied on the exterior of the building between exterior door, sidelight, window and louver frames
10 and masonry and concrete; at exterior expansion and control joints in masonry; under thresholds; and other areas
11 where nature of work required it for appearance or to insure tight construction.

12 Provide acrylic-latex sealant at all plumbing fixtures.

13 Prime surfaces in accordance with manufacturer's recommendations prior to applying sealant.

14 Follow manufacturer's recommendation on maximum width and depth of beads, generally maximum width of bead
15 not-to-exceed two times the depth, minimum depth 1/4".

16 Fill joints deeper than 1/2" with polyurethane foam spacers.

17 Sealant shall be applied on the interior of the building between all doors, sidelight, window and louver frames and
18 masonry, drywall, and concrete; at interior expansion and control joints in masonry; under thresholds, between
19 cabinetry and walls; and other areas where nature of work requires it for appearance or to insure tight construction.

20 Sealant shall be at least 1/2" deep; fill joints deeper than 1" with non-impregnated filler before caulking. Prime
21 block and other porous surfaces prior to caulking as per manufacturer's specifications.

22 Sealant behind removable flanges, beads or drops when possible, removing items or doing work in advance for this
23 purpose.

24 **COLORS**

25 Colors for each sealant will be selected by the Architect/Engineer from standard colors normally available from the
26 specified manufacturers. Should such standard color not be available from the approved manufacturer except at
27 additional charge, provide all such colors at no additional cost to the Owner.

28 In concealed installations and in partially or fully exposed installations where so approved by the
29 Architect/Engineer, standard gray or black sealant may be used.

30 **PRIMERS**

31 Use only those primers which are non-staining, have been tested for durability on the surfaces to be sealed, and are
32 specifically recommended for this installation by the manufacturer of the sealant used.

33 **BACKUP MATERIALS**

34 General: Use only those backup materials which are specifically recommended for this installation by the
35 manufacturer of the sealant used, and which are non-absorbent and non-staining.

36 **BOND-PREVENTIVE MATERIALS**

37 Use only bond-preventive materials best suited for the application and as recommended by the manufacturer of the
38 sealant used.

39 **MASKING TAPE**

40 For masking around joints, provide masking tape conforming to Federal Specification -UU-T-106c.

41 **OTHER MATERIALS**

42 All other materials, not specifically described but required for complete and proper caulking and installation of

1 sealants, shall be first quality of their respective kinds, new, and as selected the Contractor subject to the approval of
2 the Architect/Engineer.

3 **PART 3 - EXECUTION**

4 **INSPECTION**

5 Examine the areas and conditions under which work of this Section will be performed. Correct conditions
6 detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have
7 been corrected.

8 **PREPARATION**

9 Follow the manufacturer's recommended method of preparation for each type of material to which sealant to be
10 applied.

11 **INSTALLATION OF BACKUP MATERIAL**

12 Use only the backup material recommended by the manufacturer of the sealant and approved by the
13 Architect/Engineer for the particular installation, compressing the backup material 25% to 50% to secure a positive
14 and secure fit. When using backup of tube or rod stock, avoid lengthwise stretching of the material. Do not twist or
15 braid hose or rod backup stock. Open cell backer rod is not permitted.

16 **PRIMING**

17 Use only the primer recommended by the manufacturer of the sealant and approved by the Architect/Engineer for
18 the particular installation. Apply the primer in strict accordance with the manufacturer's recommendations as
19 approved by the Architect/Engineer.

20 **BOND-BREAKER INSTALLATION**

21 Install an approved bond-breaker where recommended by the manufacturer of the sealant and where directed by the
22 Architect/Engineer, adhering strictly to the installation recommendations as approved by the Architect/Engineer.

23 **INSTALLATION OF SEALANTS**

24 **General:**

25 Prior to start of installation in each joint, verify the joint type according to the details in the Drawings, and verify
26 that the required proportion of width of joint to depth of joint has been secured.

27 **Equipment:**

28 Apply sealant under pressure with hand or power-actuated gun or other appropriate means. Guns shall have nozzle
29 of proper size and shall provide sufficient pressure to completely fill joints as designed.

30 **Masking:**

31 Thoroughly and completely mask all joints where the appearance of sealant on adjacent surfaces would be
32 objectionable.

33 **Installation of Sealant:**

34 Install the sealant in strict accordance with the manufacturer's recommendations as approved by the
35 Architect/Engineer, thoroughly filling all joints to the recommended depth.

36 **Tooling:**

37 Tool all joints concave.

38 **Cleaning Up:**

39 Remove masking tape immediately after joints have been tooled.

40 Clean adjacent surfaces free from sealant as the installation progresses. Use solvent or cleaning agent as
41 recommended by the sealant manufacturer.

42 **END OF SECTION**

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