

1 **SECTION 07240 - EXTERIOR INSULATION & FINISH SYSTEMS**

2
3
4 **PART 1 - GENERAL**

5
6 **SUMMARY**

7
8 **Section Includes:**

9
10 EFS finish applied over proprietary gypsum board base substrate.

11
12 EFS finish applied over concrete and concrete masonry substrates.

13
14 **Related Sections:**

15
16 Division 1 Sections, general.

17
18 Division 1 - Alternates.

19
20 Division 3 - Cast-In-Place Concrete.

21
22 Division 4 - Concrete Masonry Unit.

23
24 Division 6 - Rough Carpentry.

25
26 Division 7 - Fluid Applied Waterproofing.

27
28 Division 9 - Metal Support Systems.

29
30
31 **SYSTEM DESCRIPTION**

32
33 **Design Requirements:** Unless otherwise acceptable to Design Team, comply with following:

34
35 **Texture:** Match Design Team's "Floated" texture sample.

36
37 **Color:** Custom tint to match Ameritone Paint Company's CM/B6199 "Soft Beige" color, and any
38 other color, if selected by Design Team.

39
40 **Performance Requirements:** Materials furnished for this Project to be capable of complying with following
41 tested criteria when applied over EFS Manufacturer's standard rigid plastic foam insulation board.

42
43 **Fire Related Performances:**

44
45 **Surface Burning Characteristics:** ASTM E 84, flame spread 25, smoke developed 10, fuel
46 contribution 0.

SECTION 07240 - EXTERIOR INSULATION & FINISH SYSTEMS

1 Structural Performances:

2
3 Abrasion Resistance: ASTM D 968 or FS 141A-6191, sand, 500 liters minimum, with no
4 effect.

5
6 Impact Resistance: ASTM E 72 with/or ASTM E 695, 1' to 6' drop, no cracking, some
7 indentation or other applicable impact tests acceptable to Design Team.

8
9 Wind Performance: ASTM E 330, data will be evaluated based upon required 20 PSF
10 minimum basic wind load at grade.

11
12 Weather Performance:

13
14 Mildew Resistance: MIL 810B, no growth.

15
16 Moisture Resistance: ASTM D 2247 or FS 141A-6201, 14 day exposure, no effect.

17
18 Rain Resistance, Wind Driven: FS TT-C-555B preferred, passing test requirements.
19 ASTM E 5272 will be reviewed.

20
21 Salt Spray Resistance: ASTM B 117 or FS 141A-6091, 5% solution, 3000 hour exposure
22 minimum, with no effect.

23
24 Water Vapor Transmission: ASTM E 96 or ASTM C 355, data will be evaluated based
25 upon specified EFS Manufacturers as acceptable criteria.

26
27 Weathering Accelerated: ASTM G 23 (FS 141C-6151) (Carbon Arc) or ASTM G 53
28 (QUV), 2000 hour minimum, with no effect.

29
30
31 SUBMITTALS

32
33 Product Data: Submit EFS Manufacturer's standard Project related technical data, tested performance data,
34 details, and installation instructions.

35
36 Shop Drawings: Submit drawings showing details of all terminations and joints in Work. Key details to
37 plans, sections, and elevations. If any expansion joints required in field of work, show layout. Show
38 mesh/gypsum board reinforcing methods at outside/inside corners and at openings.

39
40 Samples:

41
42 EFS Samples: For each color/texture required, comply with following:

43
44 Format:

45
46 Construction: Apply full coating system over 4' x 8' Project required gypsum
47 board substrate.

48
49 Data: Record formulations and methods for attaining each color/texture on each
50 sample.

51
52 Samples for Initial Design Team Review: Submit single samples replicating each
53 custom color and texture matching Design Team's specified requirements. Adjust
54 color/texture, if required, and resubmit single samples until satisfactory
55 representative samples attained.
56

SECTION 07240 - EXTERIOR INSULATION & FINISH SYSTEMS

1 Final Samples: Submit final samples replicating successfully reviewed initial
2 sample in accordance with Division 1 requirements.

3
4 Sealant: Submit 1/2" wide x 6" long beads set in channels matched to each coating color required.
5

6 Quality Assurance Submittals: Submit in conformance with "Quality Assurance" paragraphs herein.
7

8 Closeout Submittals: Refer to "Quality Assurance" and "Warranty" paragraphs herein.
9

10
11 QUALITY ASSURANCE
12

13 EFS Manufacturer's Qualifications: Not less than 10 (10) years experience in production of EFS products
14 similar to types required for Project.
15

16 EFS Installer's Qualifications: Submit written documentation of following:
17

18 Company Qualifications:
19

20 Experience: Not less than five (5) years current experience in installing EFS in projects of
21 similar scope and kind. Include with documentation not less than three current and
22 comparable installations utilizing EFS assembly types required for Project.
23

24 Certification: Company to be certified or approved applicators of EFS systems of kind to
25 be provided for Project.
26

27 Project Supervisor Qualifications:
28

29 Experience: Not less than three (3) years current experience in installing EFS systems on
30 projects of similar scope and kind.
31

32 Certification: Supervisor to be certified or approved applicator of EFS systems of kind to
33 be provided for Project.
34

35 Single Source Responsibility: Obtain primary materials from a single EFS Manufacturer. Related products to
36 be approved by EFS Manufacturer specifically for each EFS required.
37

38 EFS Manufacturer's Technical Representative:
39

40 Qualifications: EFS Manufacturer to make available a Technical Representative who can legally
41 certify each Project EFS installation for the EFS Manufacturer.
42

43 Certification of Contract Requirements:
44

45 Review: Review Contract Documents, including for all details at terminations.
46

47 Certification: Prior to purchase of any materials, submit written certification from EFS
48 Manufacturer indicating Technical Representative's approval that indicated requirements in
49 contract Documents are in conformance with EFS Manufacturer's Project specific
50 requirements.
51

52 Specific Certification: Certify that EFS can properly bond to Project waterproofing
53 membrane in manner indicated.
54

SECTION 07240 - EXTERIOR INSULATION & FINISH SYSTEMS

1 Certification of Installation:

2
3 Review: Technical Representative to review workmanship during course of Contract.
4 Review to include, but not be limited to, review of each prepared substrate, review of EFS
5 workmanship applied to each substrate at start of each work, continued review during
6 course of installation, and final review of each completed installation.
7

8 Certification: As part of closeout submittals, submit written certification from EFS
9 Manufacturer signed by Technical Representative and officer of EFS Manufacturer
10 certifying compliance of finished installations in conformance with EFS Manufacturer's
11 project specific requirements.
12

13 Coordination: Coordinate base substrate tolerances and preparation with other Trades over which EFS are to
14 be installed to ensure proper installation. Inform Trades in timely manner.
15

16 Tolerances: EFS Manufacturer's requirements but not less than following:

17 Framing: 1/8" in 10'-0".

18
19 Concrete: Not less than required by Division 3 - Cast-In-Place Concrete Section.

20
21 Concrete Masonry Units: Not less than required by Division 4 - Concrete Masonry Units
22 Section.
23
24

25 Additives: Do not add any materials to modify EFS products, unless otherwise published in written product
26 data that is specific to Project conditions. Where published data is not available, submit written acceptance
27 from EFS Manufacturer that considered additives are acceptable to them for Project.
28

29 Staining: Institute necessary precautions to protect the finished installation from any permanent staining,
30 including "red dirt" which is prevalent at site and surrounding area. Precautions to be maintained until date
31 certified for Substantial Completion. Precautions are to include, but not be limited to, following:
32

33 Coordination: Coordinate work conditions to minimize stain causing conditions. Refer to Division 1
34 requirements.
35

36 Soil Wetting: If required, implement wetting of grade areas directly adjacent to ongoing installations
37 where windblown contaminants would otherwise cause staining. Method of wetting to be only as
38 necessary to prevent contaminants from becoming airborne and should not cause excessive water
39 accumulation, cause flooding of area, or itself cause staining conditions. Wetting operations are in
40 addition to any wetting required of Design/Build Team.
41

1 Screens: If required, erect screens to prevent wind blown contaminants from staining installations.
2
3

4 **WARRANTY**

5
6 **Manufacturer's Warranties:**

7
8 Standard: Submit EFS Manufacturer's standard five (5) year warranty against any defects in
9 materials supplied for Project. Warranty to specifically warrant sealer against yellowing which is to
10 be considered a defect of the material.

11
12 Sealer Certification: Submit EFS Manufacturer's written certification that sealer is non-yellowing for
13 life of sealer.

14
15 Installer's Guarantee: Submit guarantee against defects in workmanship of installed Project products for
16 period of two (2) years from date established for Substantial Completion.

17
18
19 **PART 2 - PRODUCTS**

20
21 **MANUFACTURERS**

22
23 Available Manufacturers: Refer to Division 1 requirements.

24
25 Acceptable Manufacturers: Subject to compliance with requirements, systems of one following EFS
26 Manufacturers may be incorporated into the Work.

27
28 Specified Systems: Design is based upon following Manufacturer's systems.

29
30 Dryvit System, Inc.

31
32 Sto Industries.

33
34 Thoro System Products.

35
36 Other Manufacturers: Comparable systems may be incorporated when acceptable to Design Team.

37
38 Parex, Inc.

39
40 Pleko Products, Inc.

41
42 Senergy.

43
44
45 **EFS FINISH MATERIALS**

46
47 **Base Coat:**

48
49 Over Gypsum Board Base Substrate:

50
51 Cementitious acrylic modified base coat product requiring 1:1 by weight mix of polymer
52 product with portland cement, ASTM C 150, Type I.

53
54 Thoro system Products "Thorowall primer/Base Adhesive".
55

SECTION 07240 - EXTERIOR INSULATION & FINISH SYSTEMS

1 Noncementitious: Standard 100% acrylic, glass fiber reinforced, noncementitious base coat
2 product.

3
4 Dryvit System, Inc. "Primus/Adhesive NCB".

5
6 Sto Industries "Sto RFP-B".

7
8 Over Concrete/Masonry: Cementitious acrylic modified, glass fiber reinforced base coat product
9 requiring 1:1 by weight mix of polymer product with ASTM C 150, Type I, portland cement or other
10 formulation acceptable to Design Team.

11
12 Dryvit system, Inc. "Genesis".

13
14 Sto Industries "Sto Leveler".

15
16 Thoro System Products "Thorowall PBA".

17
18 Reinforcing Fabric: ASTM D 578/579 or EIMA 101.86, alkali resistant, open grid weave, fiber glass fabric
19 products as follows:

20
21 Standard Weight: 4.3 oz/sy minimum, 165 lbs/in tensile strength minimum in warp or fill direction.

22
23 Dryvit System, Inc. "Detail Mesh".

24
25 Sto Industries "Sto Detail Mesh".

26
27 Thoro System Products "Standard 423".

28
29 Intermediate Weight: 9.5 oz/sy minimum, 345 lbs/in tensile strength minimum in warp or fill
30 direction.

31
32 Dryvit System, Inc. "Intermediate Mesh".

33
34 Sto Industries "Sto Intermediate Mesh".

35
36 Thoro System Products "Intermediate 512".

37
38 Finish Coat: Factory-mixed formulation of 100% acrylic polymer emulsion admixture, color-fast mineral
39 pigments, sound aggregate particles, and fillers. Texture and color to match approved mockups.

40
41 Dryvit System, Inc. "Dryvit Finish".

42
43 Sto Industries "Stolit Finish".

44
45 Thoro System Products "Thorowall Acrylic Finish".

46

1 GYPSUM BOARD BASE SUBSTRATE MATERIALS

2
3 Gypsum Board:

4
5 Primary Sheathing: Proprietary 5/8" thick, Type X, gypsum board product with silicone treated
6 gypsum core and nonorganic facer mats of fiberglass. Georgia-Pacific "Dens-Glass Gold Plus Fire-
7 Stop" product. No substitutions ~~permitted~~, except where soffit board sheathing approved.

8
9
10 Soffit Board Sheathing: Where indicated for Architect selected soffit conditions and approved by
11 EIFS Manufacturer in writing for specific Project applications. U.S. Gypsum Co. 5/8" thick,
12 "Exterior Gypsum Ceiling Board" (when approved) or other comparable EIFS Manufacturer
13 approved product; acceptable to Design Team.

14
15 Mechanical Fasteners: Gypsum Board Manufacturer's recommended corrosion resistant screw or nail
16 fasteners acceptable to EFS Manufacturer.

17
18 Moisture Barrier: ASTM D 226, Type I, No. 15 asphalt saturated (perforated) organic felt.

19
20
21 RELATED MATERIALS

22
23 Joint Sealer Materials: EFS Manufacturer's approved materials as follows:

24
25 Joint Filler: Backer rod.

26
27 Joint Sealant: Custom colorable two component urethane elastomeric sealant complying with
28 standards specified for similar sealants in Division 7 - Joint Sealers, or other elastomeric sealant
29 products approved by EFS Manufacturer for each specific Project use and which are acceptable to
30 Design Team.

31
32 Trims: ASTM D 3678, PVC trims as required for termination and control joints in EFS assemblies. Provide
33 Plastic Components, Inc. "VinylTech" trims for terminations and control joints or comparable products
34 approved by EFS Manufacturer and acceptable to Design Team. Products include, but are not necessarily
35 limited to following.

36
37 Corner beads: No. 4.

38
39 Casing Beads, L-Type: No. 221.

40
41 Expansion Joint: No. 2025.

42
43 Surface Mounted Casing, J-Type: No. 1025.

44
45 Drip Screed: No. 2025, expansion joint used as surface mounted drip screed.

46
47 Water: Potable and nondeleterious to materials being used with it.

48
49 Primers: If required by EFS Manufacturer for specific Project assembly conditions, provide additional
50 recommended substrate and intermediary primers to ensure proper bonding of each coating component.

51

SECTION 07240 - EXTERIOR INSULATION & FINISH SYSTEMS

1 Framing: Same type and size as adjacent framing and as follows:

2
3 Wood: Treated Douglas Fir dimension lumber complying with Division 6 - Rough Carpentry
4 Section.

5
6 Metal Studs: 18 gauge minimum, complying with Division 9 - Metal Support Systems Section.
7

8 9 **PART 3 - EXECUTION**

10 11 **EXAMINATION**

12
13 Verification of Conditions: Examine framing, concrete, masonry, and other substrates to which EFS
14 assemblies are to be installed for tolerances and proper preparation by other Trades. Do not proceed where
15 EFS assemblies cannot be installed properly or where conditions can affect warranty requirements.
16 Beginning of installation means acceptance of existing conditions.
17

18 19 **PREPARATION**

20
21 Gypsum Board Base Substrate:

22
23 General: Install in accordance with Gypsum Board Manufacturer's requirements for EFS type
24 systems and which are acceptable to EFS Manufacturer.

25
26 Framing: Install framing where any end joints and edge joints would not otherwise have any
27 framing for anchorage.
28

29 Moisture Barrier: Apply asphalt saturated felt with long dimension horizontal to all metal framing
30 prior to installation of gypsum board base with 2" end laps and 4" side laps.
31

32 Board Orientation: Install edge joints parallel with length of framing, except install edge joints
33 perpendicular to framing if required for compliance with a specific fire rated assembly and at narrow
34 width areas such as soffits where end joints would be minimized by a perpendicular orientation.
35 Stagger end joints in adjacent parallel rows.
36

37 End Joints: Minimize end joints to greatest extent possible.
38

39 Fit:

40
41 Adjacent Abutting Boards: Butt joints for snug fit. Minimize end joints.
42

43 Adjacent Abutting Construction: Hold away in manner so installed trim provides a 1/4"
44 finish joint.
45

46
47 Anchorage: Locate fasteners 3/8" away from edge. Fasten 8" o.c. at edge and end joint perimeters
48 and 8" o.c. in field to framing in field of board. Flush fasten; do not countersink.
49

50 Openings: No joints are allowed within 8" of corners of openings. Cut each gypsum board panel to
51 form an L-shape and install around each corner of an opening.
52

SECTION 07240 - EXTERIOR INSULATION & FINISH SYSTEMS

1 Trim Installation: Install at following locations.
2

3 Corner Beads: Outside corners.
4

5 Casing Beads: At joint edges abutting adjacent construction. Leave 1/4" finished joint gap for joint
6 sealers.
7

8 Expansion Joints: If required, work with Design Team in locating joint, prior to start of gypsum
9 board work. Provide where following occurs.
10

11 Panel Size: 10' x 20' minimum.
12

13 Area: 200 sf maximum.
14

15 Surface Mounted Casing, J-Type: Surface mounted to masonry; for terminations in direct applied
16 coatings.
17

18 Drip Screed, Framed Installations: Drip for metal or wood framed installations.
19

20 Drip Screed, Surface Mounted Installations: Drip for masonry installations or where required to be
21 surface mounted in field of a substrate.
22

23 24 EFS COATINGS INSTALLATION

25
26 General: Comply with EFS Manufacturer's project specific instructions.
27

28 Base Coat: Apply base coat materials and reinforcing mesh as follows.
29

30 Profile Texture: Where a pronounced profile texture is required, utilize this coating to create the
31 initial texture.
32

33 Each Coat Thickness: 1/16" minimum or as required to level surface and as required to prevent
34 telegraphing of surface conditions through exposed to view finish coats, e.g. telegraphing of concrete
35 masonry unit mortar joints.
36

37 Base Coat Layer with Reinforcement: Fully embed required weight reinforcement in center of base
38 coat. Lap in accordance with EFS Manufacturer's requirements but not less than 2-1/2". Lap
39 reinforcement at outside and inside corners or provide additional reinforcement. Corners to have not
40 less than two layers of reinforcement. Provide additional reinforcements at openings as required by
41 EFS Manufacturer.
42

43 At Trim: Apply color coat over portions of trim that would otherwise be left exposed to view after
44 final work completed.
45

46 Finish Coat: Apply 1/16" minimum thickness finish coat over fully cured base coat layer(s).
47

48 Sealer: Apply sealer to clean and fully cured finish coat at EFS Manufacturer's recommended rates.
49
50

SECTION 07240 - EXTERIOR INSULATION & FINISH SYSTEMS

1 JOINT SEALERS

2
3 General: Install backer rod and EFS Manufacturer's approved sealants in joints abutting adjacent construction
4 in strict conformance with Division 7 - Joint Sealers and recommendations of compatibility tests. Custom
5 colored sealants where exposed to view in each EFS installation. Sealants concealed behind coating systems
6 may be any standard color.
7

8 9 ASSEMBLY TYPES

10
11 Assembly:

12
13 First Coat Layer: Base coat with reinforcement.

14
15 Second Coat Layer: Finish coat.
16

17 Transition: Where standard and intermediate reinforced assemblies occur in same plane with each other,
18 feather in manner that thickness is not apparent.
19

20 21 POST INSTALLATION

22
23 Damages, Cleaning, Protection: Refer to Division 1 Sections.
24

25 26 SCHEDULE

27
28 General: Unless otherwise indicated, EFS-1 and EFS-2 are required in general at following locations.
29

30 EFS-1: Assemblies with standard reinforcement are required where EFS-2 not required.
31

32 EFS-2: Assemblies with intermediate reinforcement are at gypsum board substrates that are metal
33 framed adjacent to exterior walkways, corridors, and lobbies. Reinforce an area extending in height
34 from edge closest to slab up to a height of 72" minimum.
35

36
37 **END OF SECTION 07240**