SECTION 07811

BARRIER COAT FIREPROOFING

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PART 1 GENERAL

1.1 SECTION INCLUDES

A. Barrier Coat Fireproofing.

1.2 RELATED SECTIONS

A. Section 07200 – Thermal Protection: Thermal insulation systems.

B. Section 07810 - Applied Fireproofing: Requirements for and application of mineral fiber and cementitious fireproofing.

C. Section 07815 - Sprayed-On Fireproofing: Requirements for and application of sprayed-on fireproofing.

D. Section 07840 - Firestopping: Requirements for and installation of firestopping protection.

E. Section 09260 - Gypsum Board Assemblies: Gypsum board fireproofing.

F. Section 09210 - Gypsum Plaster: Gypsum plaster fireproofing.

G. Section 09966 – Fire Retardant Coatings.

H. Section 09967 – Intumescent Painting.

1.3 REFERENCES

A. ASTM D 412 - Tensile set of Rubber and Thermoplastic Elastomers.

B. ASTM D 522 - Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.

C. ASTM D 661 - Standard Test Method for Evaluating Degree of Cracking of Exterior Paints.

D. ASTM D 968 - Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.

E. ASTM D 1729 - ASTM D1729-96 Standard Practice for Visual Appraisal of Colors and Color Differences of Diffusely-Illuminated Opaque Materials.

F. ASTM D 2243 - Standard Test Method for Freeze-Thaw Resistance of Water-Borne Coatings.

G. ASTM D 2486 - Standard Test Methods for Scrub Resistance of Wall Paints.

H. ASTM D 2794 - Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

I. ASTM D 2898 Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing meth B

J. ASTM D 3273 - Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

K. ASTM D 4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.

L. ASTM D 4541 - Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.

M. ASTM D 4585 - Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation.

N. ASTM D 6904 - Standard Practice for Resistance to Wind-Driven Rain for Exterior Coatings Applied on Masonry.

O. ASTM G 153 - Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials

P. FTMS 141 M 4494 – Film Application & Test Charts – Leveling & Sagging.

Q. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

R. ASTM E2768-11 “Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)

S. AS 3959_2009 Bush Fire Standard

T. AS 3837:1998 Method of test for heat and smoke release rates for materials and products using oxygen consumption calorimeter.

U. IBC 703.5.2 (Non combustible Composite Materials) of the International Building Code when applied to a non-combustible substrate.

V. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.

W. NFPA 285 – “Standard fire test method for evaluation of fire propagation characteristics of exterior non-load bearing wall assemblies containing combustible components”

X. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

Y. FM 4975 – Fire retardant coatings for interior finish and insulation.

Z. UL 723 - Test for Surface Burning Characteristics of Building Materials

AA. ICC – International Urban-Wildland Interface Code.

BB. SFI 54.1 - Non-Flammable Thermal Barrier Fire Extinguishing Coatings.

CC. ICC - AC 377 – Acceptance Criteria for Spray Applied Foam Plastic Insulation.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: As indicated by UL Fire Resistance Directory designation.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

D. Certification: Obtain and submit certification by authority having jurisdiction that fireproofing products are acceptable.

E. Installer's qualification statement indicating installer is approved by the manufacturer as an installer.

F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in the manufacture of the products specified, with minimum of 5 years documented experience.

B. Installer Qualifications: Trained and approved by manufacturer, with minimum of 3 years documented experience.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Finish areas designated by Architect.
2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

4. Accepted mock-ups shall be comparison standard for remaining Work

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products indoors in a heated location in manufacturer's unopened packaging until ready for installation.

B. Protect products against freezing.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Do not install when substrate temperature is less than 50 degrees F (10 degrees C) or above 95 degrees F (35 degrees C) and when relative humidity is above 70 percent.

C. Maintain ventilation after application of fireproofing in accordance with manufacturer's ventilation procedure and recommendations.

D. Coordinate sequence of work with other installers of work that needs to penetrate fireproofing, to avoid unnecessary damage and patching.

E. Coordinate sequence of work with other installers of work that would obstruct access to surfaces to be fireproofed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Thermal Product Research (TPR2) Corp.; 36 Plains Road, Essex, CT 06426. ASD. Phone: (860) 767-8772. Fax: (860) 767-8779. Web Site: www.tpr2.com. E-mail: mail@tpr2.com.

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 MATERIALS

A. AFES-F1/F4 Fire Extinguishing Coating:
1. Proprietary Non-flammable Coating.
2. Flexible, ductile, elastomeric.
3. Extinguishes liquid fires as tested in accordance with SFI 54.1.
4. Maintains protective integrity in vapor fires.
5. Meets weatherability requirements for exterior coating as follows:
   a. ASTM D 522: Flexibility over conical mandrel.
   b. ASTM D 2486: Scrub resistance.
   c. ASTM D 968: Abrasion, falling sand.
   d. ASTM D 2794: Impact resistance.
   e. ASTM D 4541: Adhesion, pull off strength.
   f. ASTM D 2243: Freeze thaw resistance.

g. ASTM G 153: Accelerated weathering - 1000 hrs, 8 hours UVA 340@ 60c.
h. ASTM D 412: Tensile, elongation properties.
i. ASTM D 6904: Wind driven rain.
j. ASTM D 3273: Mold resistance.
k. FTMS 141 M4494: Sag resistance.
l. ASTM D 4585: Moisture resistance, 100 hours.
m. ASTM D 1729: Color change.
n. ASTM D 4214: Degree of chalking.
o. ASTM D 661: Degree of cracking.

6. Non-toxic, drain safe, water based, non-fuming.
7. Suitable for Interior and Exterior surfaces.
8. Sprayable with standard spray equipment.
9. Approvals:
   a. Meets Flame Spread/Smoke Developed ASTM E 84 and UL 723: flame 0 smoke 0.
10. Volatility/VOC: 0.
11. Solvent: Water based.
12. Total Dry Film Thickness: 20 to 30 mils DFT, nominal.
13. No primer required.
14. Color:
    a. White.
    b. Gray.
    c. Red.
    d. Charcoal.
    e. Black.
    f. Custom Color.

B. Fireshell F10E/TB/BMS-TC/JM-TC/Blazelok®TBX - NFPA 286 Thermal Barrier Coating for sprayfoam:
1. Non-flammable, 1-part, water based, intumescing coating.
2. Expands up to 2000 percent.
3. Non-toxic, drain safe, water based, non-fuming.
4. Can be latex or oil base top coated.
5. Suitable for Interior and Exterior surfaces.
6. Sprayable with standard spray equipment.
7. Approvals: Meets weatherability requirements for exterior coating as follows:
   a. ASTM D 522: Flexibility over conical mandrel.
   b. ASTM D 2486: Scrub resistance.
   c. ASTM D 968: Abrasion, falling sand.
   d. ASTM D 2794: Impact resistance.
   e. ASTM D 4541: Adhesion, pull off strength.
   f. ASTM D 2243: Freeze thaw resistance.
   g. ASTM G 153: Accelerated weathering - 1000 hrs, 8 hours UVA 340@ 60c.
   h. ASTM D 412: Tensile, elongation properties.
   i. ASTM D 6904: Wind driven rain.
   j. ASTM D 3273: Mold resistance.
   k. FTMS 141 M4494: Sag resistance.
   l. ASTM D 4585: Moisture resistance, 100 hours.
   m. ASTM D 1729: Color change.
   n. ASTM D 4214: Degree of chalking.
   o. ASTM D 661: Degree of cracking.
8. Approvals:
   a. Meets NFPA 285 over BASF Walltite foam and Alucobond Plus ACM panel system

b. Meets NFPA 286 over open cell Foam for Walls, Foam, Attics, and Crawl Spaces.
c. Meets NFPA 286 over closed cell Foam for Walls, Foam, Attics, and Crawl Spaces.
d. Meets ASTM E 84 Class A coating(,25fs, <50si)
e. Meets IBC 702.5 as a noncombustible composite over noncombustible substrate
f. Meets ASTM 2768-11 ignition resistant 30 minute tunnel test over lumber.
g. Meets Green Standards and Lead Paint Requirements.
h. Meets EPA requirements for Ultra Low VOC.
i. Meets ASTM E 84 and UL 723, 5 flame, 20 smoke.
j. Meets SCAQMD (California South Coast Air Quality Management District) requirements as a Supercompliant Coating.

9. Color:
   a. White, Gray, Charcoal black
   b. Custom Color.

C. Fireshell AFES-F1E Interior/Exterior Waterproof Ignition and Vapor Barrier; and Thermal Barrier as part of a wall system:
1. Non-flammable, 1-part water based, intumescing coating.
2. Flexible, ductile, elastomeric.
3. Expands up to 2000 percent.
4. Non-toxic, drain safe, water based, non fuming.
5. Can be latex or oil base top coated.
6. Suitable for Interior and Exterior surfaces.
7. Sprayable with standard spray equipment.
8. Meets weatherability requirements for exterior coating as follows:
   a. ASTM D 522: Flexibility over conical mandrel.
   b. ASTM D 2486: Scrub resistance.
   c. ASTM D 968: Abrasion, falling sand.
   d. ASTM D 2794: Impact resistance.
   e. ASTM D 4541: Adhesion, pull off strength.
   f. ASTM D 2243: Freeze thaw resistance.
   g. ASTM G 153: Accelerated weathering - 1000 hrs, 8 hours UVA 340@
   h. ASTM D 412: Tensile, elongation properties.
   i. ASTM D 6904: Wind driven rain.
   j. ASTM D 2898 Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing
   k. ASTM D 3273: Mold resistance.
   l. FTMS 141 M4494: Sag resistance.
   m. ASTM D 4585: Moisture resistance, 100 hours.
   n. ASTM D 1729: Color change.
   o. ASTM D 4214: Degree of chalking.
   p. ASTM D 661: Degree of cracking.
9. Approvals:
   a. Water Vapor Transmission: 0.5 grains/sf/hr, ASTM E 96.
   b. Water Vapor Permeance: 0.9 perms, ASTM E 96.
   c. Meets AS 3959_2009 Bush Fire Standard
   d. Meets AS 3837:1998 cone calorimeter
   e. Meets IBC 702.5 as a noncombustible composite over noncombustible substrate
   f. Meets ASTM 2768-11 ignition resistant 30 minute tunnel over lumber
   g. Meets ASTM E 84 and UL 723, Class A and 1/2 hour noncombustible ratings. Meets Urban Wildlife Codes.

h. Meets ASTM E 84 and UL 723, Class A, 15 mils DFT on cement board. Flame 0, Smoke 0.

10. Color:
    a. Light Gray.
    b. Custom Color.

D. FIRESHELL IB-4/IB/JM-IC/BMS-IC Code approved Ignition Barrier Coating for Sprayfoam:
1. Non-flammable, 1-part, water based, intumescing coating.
2. Expands up to 1000 percent.
3. Non-toxic, drain safe, water based, non-fuming.
4. Suitable for Interior and Exterior surfaces..
5. Can be latex or oil base top coated.
6. Sprayable with standard spray equipment
7. Meets weatherability requirements for exterior coating as follows:
    a. ASTM D 522: Flexibility over conical mandrel.
    b. ASTM D 2486: Scrub resistance.
    c. ASTM D 968: Abrasion, falling sand.
    d. ASTM D 2794: Impact resistance.
    e. ASTM D 4541: Adhesion, pull off strength.
    f. ASTM D 2243: Freeze thaw resistance.
    g. ASTM G 153: Accelerated weathering - 1000 hrs, 8 hours UVA 340@ 60c.
    h. ASTM D 412: Tensile, elongation properties.
    i. ASTM D 6904: Wind driven rain.
    j. ASTM D 3273: Mold resistance.
    k. FTMS 141 M4494: Sag resistance.
    l. ASTM D 4585: Moisture resistance, 100 hours.
    m. ASTM D 1729: Color change.
    n. ASTM D 4214: Degree of chalking.
    o. ASTM D 661: Degree of cracking.
8. Approvals:
    a. Meets International Building Code- Evaluation Service AC 377 over open cell foam for Attics, and Crawl Spaces.
    b. Meets International Building Code- Evaluation Service AC 377 over closed cell foam for Attics, and Crawl Spaces.
    c. Meets Green Standards and Lead Paint Requirements.
    d. Meets EPA requirements for Ultra Low VOC.
    e. Meets ASTM E 84 and UL 723, 0 flame, 20 smoke.
    f. Meets SCAQMD (California South Coast Air Quality Management District) requirements as a Supercompliant Coating.
9. Color:
    a. White.
    b. Custom Color.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify that substrates are ready to receive barrier coat fireproofing.

C. Ensure that all primers are compatible with the barrier coat fireproofing.

D. Verify that items that need to penetrate the barrier coat fireproofing film are in place, including clips, hangers, supports, and sleeves.

E. Verify that other work that would obstruct access to surfaces to be fireproofed has not been installed.

F. Where barrier coat fireproofing is to be exposed to view as a finished surface, verify that surfaces are smooth, without voids, cracks, or projections.

G. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly in accordance with manufacturer's instructions prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Clean surfaces of dirt, dust, grease, oil, loose material, and other matter that may affect bond of fireproofing.

D. Seal penetrations and open ended fireproofing terminations as required by manufacturer.

E. Protect floors and adjacent walls and ceilings from overspray, fall-out, and dusting.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Prime all surfaces unless existing primer is suitable and undamaged and compatible with fireproofing.

C. Install fireproofing in sufficient thickness to achieve fire rating indicated. Use as many passes as necessary to cover with a monolithic coating of uniform hardness, density, and texture.

D. Remove fireproofing from surfaces not specifically required to be fireproofed.

3.4 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed by Owner's independent testing agency.

B. Correct defective work and provide further inspection and testing to verify compliance, at no cost to Owner.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Remove excess material, overspray, droppings, and debris.

C. Where fireproofing is subsequently cut away to facilitate installation of other work, patch fireproofing to same thickness and texture after installation of other work at no cost to Owner.

D. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION