



PART 6 - INSULATED WALL SYSTEMS

System Summary

This specification details the materials and installation of foamed plastic sheathing exterior to the metal stud structure. The joints and transitions are taped to facilitate an air barrier system while at the same time offering thermal protection to augment stud cavity insulation. The system herein described shall be referred to as the Enerfoil Exterior Wall System.

Part 1 - General

1.01 General Requirements

- A. General Conditions, Supplementary Conditions, and Division 1 apply to this section.

1.02 Summary of Components

- A. Section Includes:
 - 1. Rigid Foamed Plastic, foil faced panels, Enerfoil.
 - 2. AquaBarrier™ air / vapour barrier tape.
 - 3. 2 mil foil tape by 3m, Venture, Cantech or other
 - 4. AquaBarrier™ AVB membranes
 - 5. AquaBarrier™ Primer
 - 6. IKO Cold Gold Flashing cement
 - 7. AquaBarrier™ Mastic and mechanical fasteners.
- B. Related Sections:
 - 1. Section 04220 Masonry.
 - 2. Section 051000 Structural Metal Framing.
 - 3. Section 06100 Rough Carpentry
 - 4. Section 07620 Sheet Metal and Trim.



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1.03 Quality Assurance

A. Contractor Qualifications

1. The contractor shall have a minimum of 5 years proven experience in the installation of insulated wall assemblies.
2. The contractor shall have on site a copy of the manufacturer's written instructions for the application of their products and ensure instructions are followed.
3. The contractor shall not alter the specifications herein without written permission of the consultant.

B. Other Qualifications

1. Source Limitations: All components of the wall system shall be acceptable by the wall system manufacturer.

C. Pre-Installation Conference

1. Convene a pre-installation conference at the site, one week prior to commencing work of this section. Required attendance to include all parties directly affecting work in this section, including but not limited to, Owner, Consultant, Contractor, Insulation Sub-contractor, Manufacturer.
2. Contact Consultant at least 2 weeks prior to pre-construction meeting to confirm details of meeting.
3. Review preparations and installation procedures and coordinate scheduling required to do work of this section.
4. Record discussions of conference, decisions, agreements or conflicts reached and furnish a copy of same for all attendees. Review methods and procedures related to wall assembly including the following:
 - a) Tour, inspect and discuss conditions of substrate, locations of penetrations, and any other work performed by other trades impacting this section.
 - b) Review structural loading limits and inspect studding for loss of flatness and suitability for required mechanical fastening.
 - c) Review wall system requirements (drawings, specifications, and other contract documents).



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- d) Review required submittals, both completed and yet to be completed.
- e) Review and finalize construction schedules related to wall work and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- f) Review required inspections, testing, certifying and material usage accounting procedures.
- g) Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions.
- h) Review flashing details, penetrations, and other conditions that will affect work in this section.

1.04 Performance Requirements

- A. Contractor shall provide and install wall system to remain air tight, that do not permit the passage of water through the finished wall system, and resist thermal loss without failure.
- B. Material Compatibility: Contractor shall provide materials that are compatible under application and service as demonstrated by the wall system manufacturer and based on testing and field experience.
- C. Wind/Air Resistance: The wall system provided shall meet proposed standard CAN/ULC S741-07 and / or ASTM E2357-05. Proof provided by the wall system manufacturer. Sheathing Materials to meet standards CAN/ULC S704-03, Type 1, Class 1, CAN/ULC S740-08, and ASTM C518. Thermal resistance to be a minimum of R6 per inch of thickness. Air Leakage to be no more than .05L/s.m² for completed system as per test method described herein at or equal to 22°C @ 27% RH.
- D. Compliance to Local, Provincial and Federal Building Codes: The wall system provided shall be in compliance with those authorities having jurisdiction over construction covered within the scope of this specification.

1.05 References

- A. ASTM International (ASTM)
- B. Underwriters Laboratories of Canada (ULC)
- C. Underwriters Laboratories (UL)



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1.06 Submittals

- A. Submit shop drawings as required. Drawings shall show edge condition details, penetration flashing details, standard wall sections, and all other details required for the proper wall system installation that are not specified in, or that are different from, the Specifications and Drawings.
- B. Contractor to supply to the Owner/Consultant, samples of the manufacturer's wall system components prior to the commencement of work in this section.
- C. A total of two (2) copies of each submittal are required.

1.07 Product Delivery, Storage and Handling

- A. Deliver all materials in Manufacturer's original, unopened containers with manufacturer's labels intact and legible.
- B. Store rolls of membrane, cans/drums of cement, and primers/coatings on end in up-right position. Damaged materials shall not be used.
- C. All materials shall be stored so as to protect them from damage by elements, weather and other activities. Materials shall be stored on raised platforms and covered with breathable tarpaulins.
- D. During cold weather application, membranes and pail-goods shall be kept above freezing prior to use.
- E. Pail-goods shall have tight fitting lids when not in use.

1.08 Environmental Requirements

- A. Do not apply wall system during inclement weather or when ambient temperatures are expected to be below forty (40°F) degrees Fahrenheit. For temperature below this practice cold weather application techniques as recommended by the membrane manufacturer.

Part 2 - Products

2.01 General

- A. The Contractor is responsible for furnishing the following materials in the amount required for completion of the entire project specified herein.



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2.02 Material

- A. Polyisocyanurate Insulation: Closed cell rigid foamed plastic boards conforming to CAN/ULC S704-03, Type 1, Class 1, faced with glass reinforced organic felt paper bonded to aluminum foil, maximum board size 4' x 8' being 1.5 inches thick to furnish a minimum R-Value in accordance with ASTM C518 of 9.0. Enerfoil by IKO Industries Ltd.
- B. Openings: A self adhering cross laminated woven HDPE film bonded to SBS modified bitumen covered with a silicone treated release paper, 75 feet in length and 4" in width, yellow in color. AquaBarrier™ AVB Tape by IKO Industries Ltd.
- C. Through-Wall flashing membrane: A self adhering cross laminated woven HDPE film bonded to SBS modified bitumen covered with a silicone treated release paper, 75 feet in length and 12" or 18" in width, grey in color. AquaBarrier™ TWF by IKO Industries Ltd.
- D. Insulation seam: 2mil foil tape
- E. Primer for Self-Adhering Joint and Flashings: A solvent based, single component primer specifically formulated to prepare substrates for the application of IKO's Aquabarrier AVB Tape and AquaBarrier™ TWF. AquaBarrier™ Solvent Based Primer by IKO Industries Ltd.
- F. Mastics: Asphalt mastic conforming to CAN/CGSB 37.9Ma requirements. AquaBarrier™ Mastic by IKO Industries Ltd.
- G. Fasteners:
 1. Fasteners used to secure rigid insulation to studding shall be self drilling, self tapping, sheet metal #8 screws. Length shall be enough to secure the rigid insulation and penetrate a minimum of 3/4" into studding.
 2. Stressplates for Insulation attachment shall be 1.5" minimum diameter, plastic round disks as acceptable to rigid insulation manufacturer.
Or
 3. "Wedge" type fastener compatible to brick connector
Or
 4. "Surface Mount" all-in-one brick connector and insulation fastener, such as the Posi-Tie as manufactured by Heckman Industries (to be used with a Nylon washer having an OD of no less than 38mm as manufactured by Cords) or X-Seal as manufactured by Hohmann & Bernard Company



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Part 3 - Execution

3.01 Examination

- A. The Contractor shall have the sole responsibility for the accuracy of all measurements and for the estimate of material quantities required to complete the work in this specification.
- B. Examine the substrate for compliance of conditions that affect installation and performance of the wall system.
- C. Only proceed with installation of the wall system after unsatisfactory conditions have been corrected.

3.02 Substrate Preparation

- A. Ensure that the new metal studding is clean, dry, and properly anchored prior to the beginning of the wall installation.

3.03 Workmanship General

- A. All work shall be accomplished with a supervisory foreman overseeing the work of applicators. All workmanship shall be of good quality and in keeping with generally accepted good construction practices and of those specified within the scope of this specification.
- B. Proceed with work only when weather permits and practice those applications as noted within this specification when weather is outside the generally accepted conditions associated with good weather relative to wall applications.

3.04 Cold Weather Precautions

- A. When temperatures are expected to be below 40°F, the Contractor shall follow cold weather application guidelines as dictated by the manufacturer. If such guidelines are unavailable or not known, the Contractor shall call the manufacturer for clarification.
- B. During cold weather, roll goods and pail goods shall be store in a heated environment and brought to the site just prior to their use.



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3.05 Rigid Insulated Sheathing.

- A. Install the 4' x 8' sheets of insulation such that all joints are tightly fit. Secure each board with twelve (12) screws and stressplates such that the insulation is firmly held in place. Fasteners shall be equally spaced over the entire sheet.
Or
- B. When using brick connectors to fasten the insulation, position the insulation board and temporarily install connector “wedges” or “stress plates” to hold board in place until joint treatment is completed.
- C. Any gaps in excess of 1/8" shall be filled with insulation material trimmed from the same insulation being installed or by using a low rise blown insulation.
- D. Insulation shall be installed around all penetrations so as to limit thermal loss through the wall system. Gaps shall be filled with insulation to ensure a tight fit.

3.06 Flashing and Joint Taping

- A. Apply lengths of Foil Tape such that the length covers the full length of the insulation boards from top to bottom. Starting at one edge of the insulation panel, remove the release film and smooth down tape over the joint by hand ensuring a firm solid seal is in effect, free of gaps and bubbles.
- B. Apply IKO Cold Gold Flashing Cement as described above over all fasteners to effect a proper air seal. The liquid membrane should be positioned such that it is centered over the fastener and stressplate. Smooth by hand to remove any trapped air.
- C. Apply primer to all areas where tape is to contact the substrate and join to the insulation sheathing. Allow the primer to dry to a high tact before applying the tape. Smooth by hand to ensure a smooth and continuous bond to both parts.
- D. Apply tape to all rough window and door openings starting at the bottom and working up in shingle fashion so as to shed water. Ensure all corners are secure and void of pinholes. Touch up with mastic to provide an air tight seal. Prime all materials that tape will adhere to.
- E. Install AquaBarrier™ TWF at junctions or on substrates used to support masonry details or masonry veneers.



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3.07 Mastic

- A. Apply mastic by hand around any loose or irregular penetrations such as electrical conduit and air vents where taping cannot be secured without the risk of air leakage.
- B. Secure brick ties, if required, such that a liberal amount of mastic is formed into an air tight seal. Placing the tie into a bed of mastic may be required to form a proper seal.
- C. Follow manufacturer's instructions where applicable.

End of Section 07 21 13 .13

IKO Industries manufactures and sells air/vapour barrier materials. IKO does not practice architecture or engineering. Therefore the design responsibility remains with the architect, engineer, or consultant. We hope the information given here will be of some assistance. It is based upon data considered to be true and accurate and is offered solely for the user's consideration, investigation and verification. Nothing contained herein is representative of a warranty or guarantee for which IKO Industries can be held legally responsible. IKO does not assume any responsibility for any mis-interpretation or assumptions the reader may formulate.