

Technical Bulletin



EIFS Council of Canada / (416) 499-4000

Cold Weather EIFS Construction

INTRODUCTION

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As colder temperatures arrive, builders and Exterior Insulation and Finish Systems (EIFS) contractors must take precautions with EIFS construction. Precautions are needed on the construction site from delivery of material, to storage, to handling and application in order to avoid potential problems associated with cold weather conditions. Conditions during cold weather construction can contribute to avoidable problems. Base coat failure, delayed or improper curing of EIFS component materials,

insufficient bond of insulation board to the substrate, finish coat delamination, efflorescence, and overall system performance failure occur more often in winter months than any other time of the year, even though these problems may not be visible until the warmer weather arrives.

By observing the following precautions and monitoring the following conditions, successful EIFS construction can proceed through winter months despite cold temperatures.

Temperature

The lower the temperature the longer it will take for products to dry and cure. The majority of EIFS coating components are water based and as such dry through the process of evaporation. During the cold winter months, the rate of evaporation is slower and therefore the products take significantly longer to dry. Base coats and adhesive that incorporate Portland cement will take longer to cure in cold weather, and there is a risk of efflorescence.

All manufacturers of EIFS products prescribe minimum temperatures for application of their products and systems. EIFS component materials should never be applied when the temperature of the substrate or , ambient air is below 4°C (or as required by the specific product). In



addition, the minimum temperature of 5°C (both surface and ambient temperatures) must be maintained until all the layers and components of the EIFS assembly have cured, usually 24 to 48 hours after completion of each phase of work (i.e., base coat, finish coat, etc.). Ensure any required mixing of EIFS components is conducted within the same temperature guidelines for the individual components.

E.I.F.S.
Construction can proceed through winter months if an effective cold weather protection plan is in place.

Protecting and Heating Work Areas during Construction

Enclosure and heating of a work area protects materials, workers, and installed EIFS from cold weather.

In the event of cold weather, protection of work areas must be made readily available. Tarpaulins, rolls of reinforced polyethylene plastic, or other means of protection should be installed to provide enclosure and hoarding before work begins. Such material can cover large areas of work quickly and easily. Once the work area is enclosed, temporary heat should be provided to maintain the temperature above 5°C for 24 hours or more after application of each component to allow for the materials to cure properly. Enclosed and properly heated work areas also improve the comfort and efficiency of the EIFS applicators on site. When protecting and heating work areas during cold weather ensure the following:

1. Provide temporary heating and hoarding prior to installation of EIFS materials to allow for the substrate to reach or exceed minimum required temperature (this may require heat on the interior side of the wall).
2. The enclosure is vented to the exterior so that fresh air is being heated and moist air is being released, minimizing

levels of relative humidity within the enclosure.

3. Temperature consistency by taking temperature readings from the bottom and top of the work areas. Avoid concentration of heat or over-heating in one section and under-heating in another.
4. Heat is circulated throughout the work area and not concentrated in isolated areas. This can be accomplished through the use of heaters with internal blowers or fans.
5. Competent work crew who are licensed and have been properly trained in working with fuel burning appliances.
6. Ensure that there are not extensive holes or tears in the enclosure. This would allow cold air to enter and lower the temperature in isolated areas.
7. Avoid water runoff from snowmelt in adjoining areas.

Propane fueled forced air heaters (propane fueled heaters are most frequently used) require ventilation to assure normal drying conditions and to eliminate the high humidity caused by the burning of propane fuel. Whenever possible, natural gas heaters are a better option for heating of work area enclosures.

Whenever possible natural gas fueled heaters are a better option than propane fueled heaters.

Storage of EIFS Materials

All EIFS materials should be stored in a dry location and be protected from rain, snow, ice, and cold temperatures. The storage area should consist of a protected enclosure removed from job-site traffic and sheltered from exposure to the elements. Arrange the stored material to permit easy access to the work area without material being left exposed to the elements during transportation to the work area. Schedule delivery of the material to ensure that the work crew is on site to accept the material and place it in the protected enclosure. When material is being

transported on a cold day over considerable distances it must be by heated means. Wet materials (air/moisture barriers, base and finish coats) should be protected from freezing during transportation. Packaged dry-mix materials should be securely wrapped with polyethylene and stored above the reach of moisture migrating from the ground. Materials suspected of having been subjected to freezing conditions should not be used until the manufacturer has been notified and verification obtained that the material is suitable for use.

Job Scheduling for Cold Weather Construction

As with most cladding systems, proper preparation, handling and protection of EIFS materials and work in progress during periods of cold weather may consume additional time and material.

As such, cold weather EIFS construction requires a more realistic work schedule. Coordinate and plan work with other aspects of the construction project to ensure quick completion between successive

installation steps. Rapid work progress should not be achieved by disregarding recommended drying/curing times. The work schedule should always conform to the manufacturer's recommendations. In addition to affecting the performance of the EIFS material, cold weather may also affect productivity and workmanship of the applicators on site. During cold weather, applicators must first ensure their own comfort and safety.

The goal of this Technical Bulletin is to eliminate or minimize the effects of cold temperatures on the material and crew in a cost-effective manner. Taking precautions and

adhering to recommended cold weather procedures normally results in lower costs than would be experienced as a result of performing repair work at a later date.

Technical Bulletins

This is one of a series of Technical Bulletins that the EIFS Council has produced to provide guidance concerning the performance of EIFS installations. New bulletins, as well as updates of existing bulletins, are

issued periodically, as necessary. The bulletins do not create regulations; rather they provide specific guidance for complying with the minimum requirements of manufacturer's recommendations.

About the EIFS Council of Canada

The EIFS Council of Canada (ECC) was formed in 1987 to help focus attention and awareness on industry accepted practices and quality in the installation of EIFS claddings in the Canadian construction marketplace.

The development of an EIFS Quality Assurance Program (QAP) is expected to further enhance consumer protection through implementation of consistent guidelines and specifications for installers once its' development is complete and delivered to the marketplace.

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the Word