ENVERGE® | PROFILL® OPEN CELL SYSTEM

OC - CMU BLOCK FILL

APPLICATION GUIDE

PRODUCT USAGE

Enverge® ProFill Open Cell System is a two-component open cell polyurethane foam designed specifically for injection into a variety of empty cavities in both residential and commercial applications. The two components leave the gun as a liquid and react inside the cavity to create foam.

SAFETY

PERSONAL PROTECTIVE EQUIPMENT (PPE)

SKIN - Wear gloves, coveralls, apron and boots as necessary to prevent contact of liquid components or partially-cured spray foam with skin. When handling liquid components, gloves should be made of nitrile, neoprene, butyl, or PVC.

EYES - Protect eyes while handling liquid components or spraying with safety goggles or safety goggles combined with a face shield. During spray application, eye protection may be provided by a full-face or hood respirator.

RESPIRATION - Contractors engaged in the application of Enverge spray foam must have a written respiratory protection program for employees handling or applying Enverge spray foam materials. Depending on the situation, respiratory protection may include dust masks, air-purifying respirators (APR), powered air-purifying respirators (PAPR), or supplied-air respirators (SAR).

VENTILATION - Provide ventilation and other engineering controls to exhaust vapors from work areas and to protect building occupants and other workers on site.

HANDLING OF LIQUID COMPONENTS

Applicators should use engineered controls and proper PPE before handling liquid components. Use caution in removing bungs from 55-gallon drums. Loosen ¾-inch bung and let gas escape before completely removing. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to “Working with MDI and Polymeric MDI: What You Should Know,” Reference No. AX 205, published by Alliance for the Polyurethanes Industry, 1300 Wilson Boulevard, Arlington, VA 22209, www.polyurethane.org.

START UP & APPLICATION PROCEDURES

AMBIENT CONDITIONS

For best results, ambient air should be less than 85% relative humidity and not within 5ºF (-15ºC) of dew point.

APPROVED SUBSTRATES

Approved for application to gypsum, wood, concrete, metal, and masonry.

SUBSTRATE REQUIREMENTS

Substrates should be clean, dry and warm. While clean and dry offers the best success for adhesion, warmer substrates provide better yields. The colder the substrate the lower the yields we can expect.

MIXING

Mix on high speed to achieve a milky solution prior to application or recirculation. If Enverge ProFill Open Cell System resin is in the line from the previous spray day, it must be recirculated into the drum and mixed before spraying can take place. **Enverge ProFill Open Cell System must be continuously mixed during application.**

DRUM TEMPERATURE REQUIREMENTS

Drum temperature for application should be a minimum of 70°F (32°C).

SPRAY RIG & DRUM PREP

If this installation requires changing the spray rig system from a closed cell product to an open cell product ***OR*** an open cell to a closed cell, flush B-side (resin) with soapy water to remove the product first. Then flush the water in the system out with the new open cell or closed cell product. Remember to flush the entire B-resin side including recirc lines, proportioner, and spray hose. For additional information on air purge visit **EnvergeSprayFoam.com.**

In order for the drum to be ready for use, the drum must be in a temperature range where your proportioner can reach required spray temperatures.

PLEASE REFERENCE THE EQUIPMENT SETTINGS AND TEMPERATURE SETTINGS EXAMPLE ON THE NEXT PAGE FOR PROPER APPLICATION TEMPERATURES.

START UP & APPLICATION PROCEDURES (CONT.)

EQUIPMENT SETTINGS

Pre-Heaters - Iso (A)	120°F to 135°F (49°C to 57°C)
Pre-Heaters - Poly (B)	120°F to 135°F (49°C to 57°C)
Hose Heat	120°F to 135°F (49°C to 57°C)
Recommended Spray Pressure	1,000 to 1,200 psi (dynamic)
Shelf Life	A side, 12 months – B side, 6 months

*The values in the Equipment Settings chart show initial optimum settings. Actual operating temperatures vary as ambient air, humidity, moisture, and substrate temperatures vary. Extreme conditions will affect the adhesion, cured physical properties, and yield of the foam. Applicator must make adjustments depending on conditions.

TEMPERATURE SETTING EXAMPLE

> If your drum temperature is 80°F (27°C) and you have a rig with a delta T of 50°F (10°C), your max spray temperature can only be 130°F (54°C). With this information it is important to know the delta T of your proportioner and drum temperature to achieve the proper spray temperature.

OVERSPRAY & LEAK PREVENTION

Inform the owner or builder of the need to take preventive measures that will prevent property damage due to potential overspray. Explain the precautionary measures you'll take to protect windows, doors, floors, HVAC equipment, vents or other equipment. Take preventative measures to isolate HVAC equipment, especially in retrofit applications.

It is highly recommended to lay down polyethylene film underneath the trailer and hoses to prevent damage in the event of hose rupture.

REQUIRED EQUIPMENT

Same Proportioner, Hoses and Gun as used for Enverge Open Cell and Closed Cell Foam.
Pour Cap for gun.
Hard Tubing – recommended size: 1/4" interior diameter & 3/8" exterior diameter; approximately a dozen pieces depending on job size, cut at 4" to 6" length.

REQUIRED EQUIPMENT & ACESSORIES

Same Proportioner, Hoses and Gun as used for Enverge Open Cell and Closed Cell Foam.

Pour Nozzle/Air-Cap Kit Assembly for Gun – recommended models include the following: Graco Fusion Air-Purge (AP) Pour Adapter Kit, Part # 248528. This kit includes an Air Cap, 2 Teflon Rings (1 for flat mixing chamber and 1 for round mixing chamber), and 2 feet of hose. Pour kits are also available for the P2, Probler and PMC guns.
Tips and Kits are available from your regular parts supplier.

Plastic Tubing – recommended hole size is ¾" to 1" in diameter (or larger).

Drill and Bits – 3/8" or 1/2" Drive Drills with 3/8" and 7/16" masonry bits are recommended for drilling holes for block fill applications; Use 3/8" to 1/2" wooden dowels to plug holes after filling. Drills, Bits and Dowels are available at your local hardware store.

Block Mortar Mix – Check with the masonry contractor on site for a block mortar mix and recommended tools for spot patching of holes made in the block and mortar joints. The masonry contractor can help you with your selection of materials and tools to make patching the holes fast and easy.

InfraRed Thermal Imaging Camera, i.e. FLIR
A thermal imaging camera is required to check the reliability and consistency of installation and to provide traceability and documented proof of the installation.

Enverge ProFill can reach temperatures up to 180°F (82°C) in a wall cavity during the installation and curing process.

PROPER PPE

Personal Protective Equipment (PPE) is essential. Ensure all workers involved in the installation of Enverge ProFill are assigned the appropriate PPE and have it available when arriving on jobsite. Applicators and Assistants should wear:

- A NIOSH-approved full face or hood-type supplied air respirator (SAR) as outlined in your company's Respiratory Protection Program
- MDI-resistant chemical gloves (e.g., nitrile), or fabric gloves coated in nitrile, neoprene, butyl, or PVC
- Chemically resistant long-sleeve coveralls or chemically resistant full body suit with hood
- MDI-resistant fitted boots/booties

Please visit www.spraypolyurethane.org for additional information.

GENERAL PROCEDURES

DRILLING FILL HOLES

Using a 3/8" to 1/2" drive drill with a 3/8" or 7/16" masonry bit, begin drilling holes 4 courses off of the floor into the 3/8" mortar joint centering over the core of each half block. Holes should be drilled every 4 to 5 courses. Care should be taken to avoid drilling on mortar joints with wire block reinforcement. If block reinforcement is encountered, move up or below a course and begin drilling or drill on the block itself. Holes should be drilled in each half block side by side at the mortar joint or between mortar joints in the center of each half block itself to ensure drilling into the core.

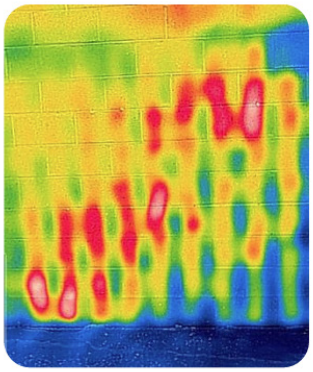
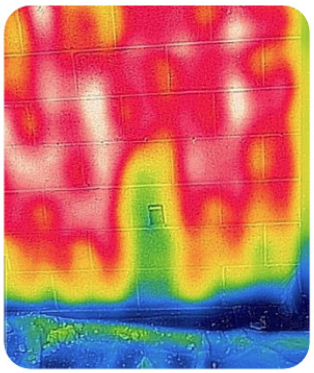
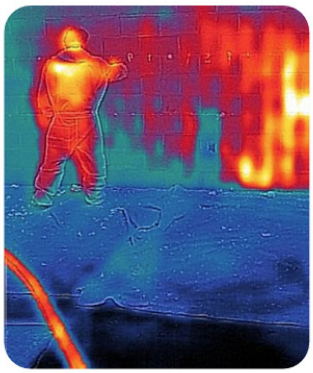
Before filling any wall cavities, the foam should be sprayed out into a trash bag to check the cream time of the product. Cream time is the time it takes before the product actually begins to rise and expand to its final thickness.

FILLING CORES WITH ENVERGE PROFILL

• With pour cap and tube installed on gun, place tube into cavity working from the bottom of the wall up, taking care to fill each and every cavity. Again, a check with a thermal camera helps ensure every core cavity is being filled. A record of the thermal images can also be recorded for the building owner as a proof of performance for the project.

• When foam is installed in an 8" concrete block, it can travel 4 courses or more on a 6 second trigger pull using a Graco AR4242 (01) mixing chamber in a Fusion AP gun depending on machine temperature, pressure settings and concrete block temperature. This will be trial and error and must be tested and checked on every job. When injecting, count down the number of seconds you are injecting to develop a feel for how much foam is required to fill a core. Doing this preliminary trial will develop the hole/fill pattern for the entire project.

• Core fill times may vary from core to core as Brick Masons can throw varying amounts of mortar in block cores. Larger concrete blocks will require longer trigger pulls and larger diameter mixing chambers. **Check core fill using a thermal imaging camera and by viewing the travel distance of the foam in the block.**

FILLING CORES WITH ENVERGE (CONT.)

• As the cores are filled, a tapered wooden dowel pin should be inserted into the fill hole once the tubing is removed to keep the foam from spilling out of the fill hole as the applicator moves down the wall. Develop a sequence for filling that will complete the job in an efficient and cost effective manner. Make sure that personnel drilling fill holes are well ahead of the fill applicator.

CLEANING AND PATCHING FILL HOLES

• Clean the fill holes with a drill/wire brush attachment to insure a clean hole before patching. The GacoProFill foam is very easy to clean and remove from concrete block.

• Visit with the Masonry contractor on site to get the mortar mix for patching the mortar joints and holes or purchase mortar tubes that fit in a standard caulking gun. If the contractor is not available, a visit to a local home center will get you the materials needed to make the repairs on the fill holes. These are small repairs; take care in making sure they are done neatly and correctly and they should not be noticeable after making the repairs. Fill holes may be cleaned and repaired four hours after the foam has been injected.

• Do a final walk through of the project to make sure that all of the loose foam has been cleaned up and disposed of. Make sure there are no areas on either side that may have had some foam bleed through gaps and openings that were not noticed beforehand and make sure that they are cleaned and taken care of before leaving the project site.