



# Covestro Waterborne Polyurethane Floor Coatings Aid in Beautiful Design and Sustainable Future at the Energy Innovation Center

## **Base and Top Coat:**

General Polymers 4409 WB  
Polyurethane Satin

## **Location:**

Pittsburgh, PA

## **Owner:**

Energy Innovation Center

## **Coating Supplier:**

The Sherwin Williams Company

## **Floor Coating Contractor:**

Seman Flooring Co

Formerly known as the Connelley Technical Institute, the 80 year old Historic Landmark that is situated in the Hill District neighborhood of Pittsburgh is reinventing itself as a center for innovation and a sustainable future. Built in 1930, the Connelley Technical Institute was a Great Depression-era workforce development facility where students learned basic trades such as carpentry, plumbing and automotive mechanics. Years after its closing in 2004, Pittsburgh Gateways Corporation collaborated with other corporations, research universities, economic development organizations, and the U.S. DOE's National Energy Technology Laboratory to redesign the 208,000-square-foot space into the Energy Innovation Center (EIC). This mega-center for knowledge and development will hold hundreds of students in 28 apprentice programs, along with five Pittsburgh universities, numerous nonprofits and businesses, a co-working space, design lab, and plenty more in the works. The basement alone will house a 9,500-square-foot Community Kitchen facility to engineer new ways to make high volumes of food using fewer chemicals, electricity, paper and gas.

One of the main goals for revitalizing the building was to use energy efficient and environmentally-responsible construction techniques while still maintaining aesthetic appeal. Contractors and designers recognized Covestro as a leader in both polyurethanes and innovation: a perfect fit for the EIC. Covestro raw materials are found throughout the building in the insulation products in the walls and ceilings, and in the modern LED light fixtures – but one area that attracts particular traffic and eye attention is the floor. The massive hallways in the EIC needed a coating that would be durable, sustainable, and attractive.

After 80 years of heavy use, the concrete floors of the EIC were cracked and spalled, and significant concrete repair work was needed to create an acceptable surface to coat. Once major flaws were addressed with mortars and sealants, a cementitious overlay was applied to the entire floor, which was used to level the floor and prepare it to accept a high performance coating system. The overlay was applied at a thickness of 1/4" to 3/8", and some badly damaged areas received up to 2" of overlay. The material was spread with gauge rakes to even it out, and was allowed to cure a minimum of two days before being lightly sanded.

Next, a 100% solids epoxy basecoat from Sherwin Williams was applied at 20 mils to even out the color and promote long term adhesion, and a two-component (2K) waterborne polyurethane topcoat was selected by the EIC design team to protect and seal the surface. 2K waterborne polyurethane coatings offer high durability, ultra-low VOC and low odor, with excellent gloss and workability. Two coats of Sherwin Williams' GP 4409 waterborne polyurethane floor coating was applied as the protective clear topcoat to the floor surface with a dip and roll technique using a 3/8" nap roller and a wet film thickness of 6-7 mils. The waterborne floor coating technology was available in a satin finish which was a desired design attribute from the owners since they wanted to retain the neo-industrial look throughout the building.

The results? Durable, long-lasting flooring that is both beautiful and in line with the goals of the Energy Innovation Center. The floor coating was also ultra-low VOC which helped support Pittsburgh Gateway's desire to achieve LEED Platinum certification. The EIC was the first and remains only one of a few LEED Platinum designed structures to qualify for Historic Tax Credits. A fully restored, continuous walkway throughout the building blends into the updated neo-industrial décor that the owner envisioned. The floor finish imparts a homogenous look to a very large space, and the lower satin sheen eliminates glare and reflections from the many overhead skylights. Because the area was constructed with no day joints, saw cuts, or other breaks in the surface, having a coating system with a long working time was crucial. The application will be monitored over the next few years to determine long-term performance.

GENERAL POLYMERS 4409 WB Polyurethane Satin resin is a two-component, water-based, breathable, aliphatic urethane available in a low gloss, clear and/or tint that provides the performance characteristics of solvent-based systems with the ease of application associated with water-based systems.

Sherwin Williams GP 4409 Aliphatic Waterborne Polyurethane Topcoat - Product Characteristics	
Color	Clear, and Tint Bases
Mix Ratio:	3:1; Can be reduced up to 20% with potable water
Volume Solids:	50% ± 2%, mixed
Weight Solids:	60% ± 2%, mixed
VOC (EPA Method 24):	<50 g/L mixed; 0.41 lb/gal
Viscosity, mixed:	200-1,800 cps
Drying Schedule @ 4.0 mils (100 microns) wet at 72°F (22°C)	To touch: 4-5 hours Light traffic: 18 hours
Pot Life: gallon mass 1.5 hours @ 72°F (22°C)	Pot Life: gallon mass 1.5 hours @ 72°F (22°C)
Abrasion Resistance ASTM D4060 C17 wheel 1000 cycles	41 mg loss
Pencil Hardness D 3363	4H



Covestro LLC  
1 Covestro Circle  
Pittsburgh, PA 15205 USA  
412-413-3983

[www.coatings.covestro.com](http://www.coatings.covestro.com)  
[CAS\\_NA@covestro.com](mailto:CAS_NA@covestro.com)

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance, information and recommendations to determine to your own satisfaction whether our products, technical assistance and information are suitable for your intended uses and applications. This application specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by Covestro.

Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent.

©2016 Covestro LLC. All rights reserved

COV-149 09/2016