

# EV BATTERY FACILITY GUIDE

CONSTRUCTION SOLUTIONS





# **CONSIDER THIS YOUR ROADMAP**

# FOR NAVIGATING THE STEEL AND FLOORING PROTECTION NEEDS WHEN CONSTRUCTING A STATE-OF-THE-ART FACILITY

Together, we're driving excellence - putting more EVs on the road, faster.

Sherwin-Williams is your trusted partner in fast-tracking the future of electric vehicle and battery innovation. We're committed to safety, quality, efficiency, and sustainability, ensuring automotive and battery technology owners, general contractors, specifying engineers, commercial architects, and other construction partners meet today's demands while pioneering tomorrow's EV milestones.

The purpose of this guide is to help you discover a reality where safety meets innovation, and your facility becomes a fortress against fire hazards, chemical exposures and corrosion damage.

Our Construction Solutions team of EV battery experts will partner with you to streamline processes, creating SAFER, FASTER, SIMPLER projects, saving you time and money. Join us on a journey where every layer of protection not only safeguards your assets but elevates your operational resilience and sustainability.



# SAFER. FASTER. SIMPLER.

Shop-applied fire protection coatings offer a trifecta of benefits for mega project construction: enhancing safety by reducing on-site risks, accelerating construction timelines by pre-applying coatings and simplifying project management through more predictable and streamlined processes.

#### **ENHANCED SAFETY**

Reduced Risks: Shop application lessens liability associated with potentially dangerous on-site hazards, work performed at elevated heights and multiple trades competing on site.

#### **FASTER CONSTRUCTION**

Ready-to-Install Steel: Pre-coated steel alleviates starting and stopping due to unavoidable weather delays and allows other trades typically restrained by the process of fireproofing on-site to start tasks sooner.

#### SIMPLIFIED PROJECT MANAGEMENT

**Efficient Scheduling:** Integrates fireproofing with fabrication, streamlines timelines and reduces on-site disruptions.

#### **COST-EFFECTIVENESS**

Labor Efficiency: Less on-site work reduces labor and equipment costs, minimizing rework and waste.

## **COMPLIANCE AND QUALITY**

**Standardized Excellence:** Adherence to safety standards and thorough quality checks are more manageable at eye level in a controlled environment.

We're also leaders in protecting water/wastewater and chemical storage facilities. For optimal coating solutions for these areas, consult with one of our technical experts today.

# It's not just fireproofing. It's future proofing.

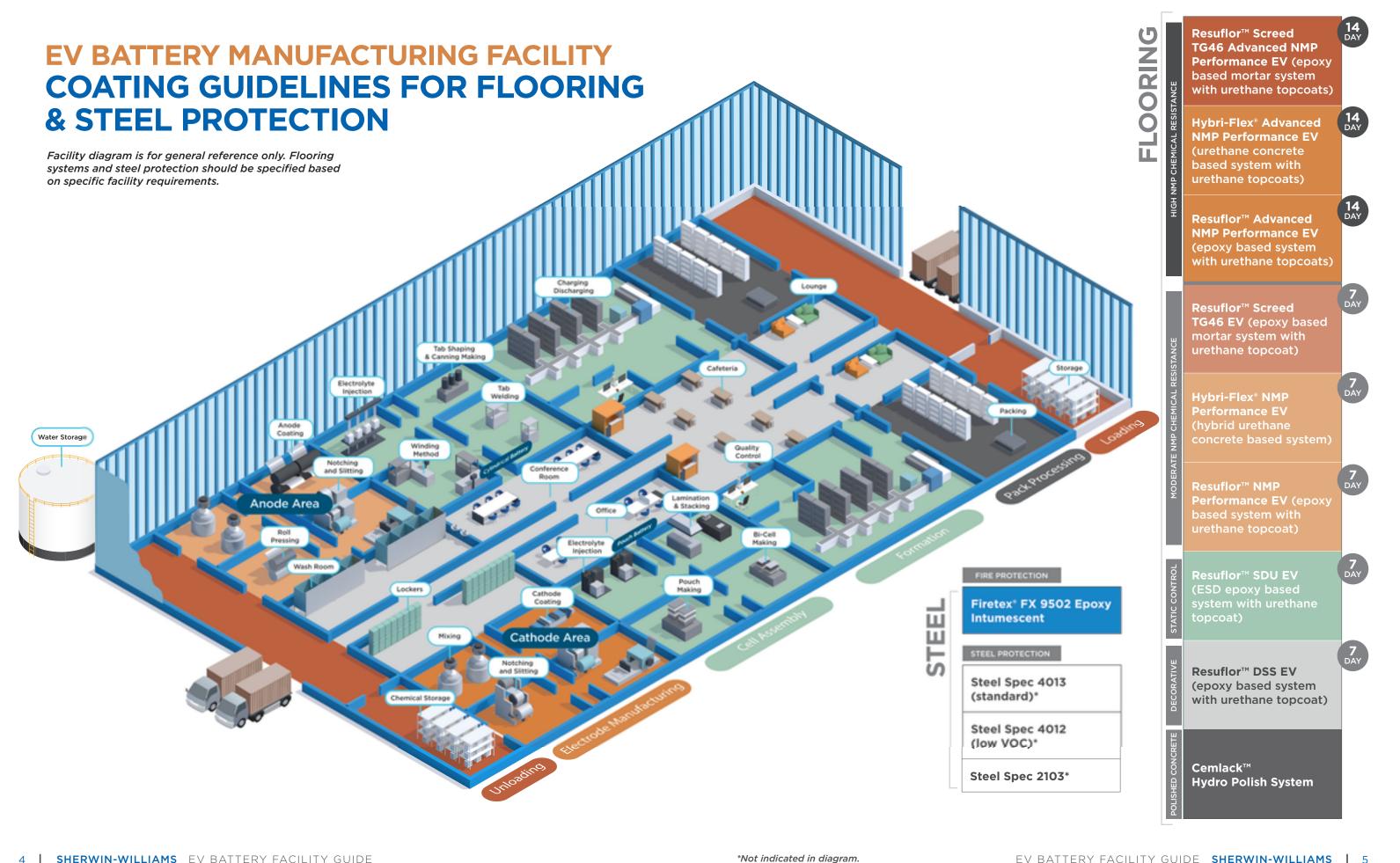
On average, our Firetex® FX9502 intumescent epoxy allows for fewer coats to achieve passive fire protection ratings. Combine this with our modern shop-application process and you'll streamline your construction schedule, enhance on-site safety, and accelerate project delivery.\*

# IT'S NOT JUST A MANUFACTURING FLOOR. IT'S A PROTECTIVE MASTERPIECE.

From a facility's raw material storage to its wet processing, production, assembly and distribution areas, there are important variables to consider when selecting floor coating systems.

- Standard epoxy floors subject to N-Methyl-2pyrrolidone (NMP), can result in full deterioration of the coating. We have flooring systems that demonstrate NMP resistance of up to 14 days.
- Our systems help guard against spill hazards with a slip coefficient rating 70% higher than the industry standard, enabling cleanability.
- High-traffic wear resistance helps shield the concrete from development of divots, cracking and trip hazards.
- A moisture vapor barrier enhances support for clean and dry rooms.
- Products can be applied to green concrete, reducing the required substrate cure time from 28 to 7 days, allowing for earlier installation and guicker site access to other trades.
- Static control supports a secure working environment for employees and sensitive components.

<sup>\*</sup>The characteristics of FIRETEX® FX9502 expedite the shop application process but may also be applied on site over properly prepared surfaces.



# **FV RATTERY**

MANUFACTURING		NMP (	Chemical Resistance	Combined With	Anti-Slip And Enhan	ced Cleanability		Static Control Decorative System	Decorative System	Polished
		High N	IMP Chemical Resist	tance 14	Moderate	e NMP Chemical Resi	stance	System	Resuflor™ DSS EV (epoxy based system with urethane topcoa	Concrete
FACILITY COATING GUIDELINES FOR FLOORING		Resuflor™ Screed TG46 Advanced NMP Performance EV (epoxy based mortar system with urethane coats)	Hybri-Flex Advanced NMP Performance EV (urethane concrete based system with urethane topcoats)	Resuflor™ Advanced NMP Performance EV (epoxy based system with urethane topcoats)	Resuflor™ Screed TG46 EV (epoxy based mortar system with urethane topcoat)	Hybri-Flex NMP Performance EV (urethane concrete based system with urethane topcoat)	Resuflor™ NMP Performance EV (epoxy based system with urethane topcoat)	Resuflor™ SDU EV (ESD epoxy based system with urethane topcoat)	EV (epoxy based system with	Cemlack™ Hydro Polish System
	QUICK SELECTION CRITERIA	HEAVIEST DUTY WITH COMPRESSIVE STRENGTH UP TO 15,000 PSI RESURFACE OR LEVEL FLOOR	HEAVY DUTY WITH COMPRESSIVE STRENGTH UP TO 6,926 PSI HIGH TOLERANCE TO SALT CONTENT IN THE CONCRETE CAN INSTALL FROM AS LOW AS 40°F	FASTEST INSTALLATION	HEAVIEST DUTY WITH COMPRESSIVE STRENGTH UP TO 15,000 PSI RESURFACE OR LEVEL FLOOR	HEAVY DUTY WITH COMPRESSIVE STRENGTH UP TO 6,926 PSI HIGH TOLERANCE TO SALT CONTENT IN THE CONCRETE CAN INSTALL FROM A LOW AS 40°F	FASTEST INSTALLATION	STATIC CONTROL WITH MOISTURE VAPOR BARRIER		POLISHED CONCRETE
Chemical Resistance	High NMP chemical resistance featuring Sherwin-Williams proven NMP protective coating	×	×	×						
T. Coloration	Moderate NMP chemical resistance				×	×	×	×	×	
Extended Durability and	Ultra heavy-duty: Extends service life with additional durability With compressive strength of up to 15,000 PSI for heavy-load traffic and high-wear areas especially heavy automotive/forklift/AGV traffic	×			×					
Service Life	Heavy-duty: Extends service life with additional durability. With compressive strength of up to 6,926 PSI for heavy-load traffic and high-wear areas		×			×				
	Can be applied to green concrete reducing the required substrate cure time from 28 days to 7 days	×	×	×	×	×	×	×	×	×
Moisture Vapor Tolerance	Standard moisture vapor barrier coating	×		×	×		×	×	×	
	Specialty reservoir system with high tolerance to salt content in the concrete and to osmostic blistering		×			×				
Installation	Mitigates thermal shock, allows floor system to be Installed from 40°F and rising		×			×				
	Fastest installation			×			×			
	Mortar system that can resurface or level a floor	×			×					
	Enhanced slip resistance/abrasion resistance/ easy clean	×	×	×	×	×	×	×	×	
Additional Benefits	Surface resistance, ESD Assoc., ANSI/ESD 7.1-2005: $1x10^5~\Omega$ to $<1x10^9~\Omega$							×		
	Seamless	×	×	×	×	×	×	×	×	
	Natural quartz appearance								×	
	Stain- and odor- resistant								×	

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# ASTM D1308 14-Day Systems for High NMP Chemical Resistance

featuring Sherwin-Williams proven NMP protective coatings (HPS+HTS)

#### SHARED BENEFITS FOR 14-DAY SYSTEMS INCLUDE:

- ✓ High NMP Resistance (Tested to ASTM D1308 for up to 14 days under glass)
- ✓ Slip resistant and easy to clean due to our unique fine aggregate topcoat
- ✓ Industry-leading abrasion resistance that is 4-6X greater than standard epoxy topcoats (11.7mg lost, tested to ASTM 4060)
- ✓ Can be applied to green concrete which can reduce the required substrate cure time from 28 days to 7 days
- ✓ Moisture tolerant systems
- ✓ Cathode area operating environment

#### Sherwin-Williams Resuflor™ Screed TG46 Advanced NMP Performance EV System (epoxy mortar based system with urethane topcoats)

- Our most heavy-duty system extends service life especially for areas with heavy automotive/forklift/ AGV traffic with compressive strength up to 15,000 PSI
- Mortar system that can resurface or level a floor
- Testing: ASTM D1308 14-days under glass; dynamic slip coefficient of .72 vs.42 industry standard to ANSI A326.3; abrasion resistance of ASTM 4060 4-6X greater than standard epoxy topcoats
- Moisture vapor barrier

Application Steps	Product Name	Application Thickness mils [mm]	Coverage Rate ft²/gal [m2/3.78 L]	
Green Concrete Moisture Vapor Barrier Coat	Resuprime™ MVB	22 [0.56]	72 [6.69]	
Primer	Resuflor™ MPE	8 [0.20]	200 [18.58]	
Power-Troweled 1/4" Mortar Coat	Resuflor™ PT 1/4"	1/4" [0.18]	56 sq. ft. per kit [16.7]	
Grout Coat	Resuflor™ PT 250	8 [0.20]	200 [18.58]	
Grout Coat (eliminates orange peel finish)	Resuflor™ MPE	8 [0.20]	200 [18.58]	
NMP Protective Urethane Coat (Neat)	Resutile™ HPS	3 [0.13]	500 [37.16]	
Topcoat	Resutile™ HTS 100	3 [0.13]	500 [37.16]	

## Sherwin-Williams Hybri-Flex NMP Performance EV System (urethane concrete based system with urethane topcoats)

- · Heavy-duty system extends service life with compressive strength of up to 6,926 PSI for heavy-load traffic and high-wear areas
- Specialty reservoir system with high tolerance to salt content in the concrete and to osmostic blistering
- Mitigates thermal shock, allows floor system to be installed from 40°F and rising
- Testing: ASTM D1308 14-days under glass; dynamic slip coefficient of .72 vs.42 industry standard to ANSI A326.3; abrasion resistance of ASTM 4060 4-6X greater than standard epoxy topcoats

Application Steps	Product Name	Application Thickness mils [mm]	Coverage Rate ft²/gal [m2/3.78 L]
Green Concrete Moisture Tolerant Build Coat	FasTop® Multi SL45	3/16"	32-35 [1.97-3.25]
Broadcast	5310 Dry Silica (20/40 mesh) into wet slurry to rejection	After broadcast nominal thickness will be 1/4"	Approximately 500 lbs. per 1000 sq.ft.
Grout Coat (eliminates orange peel finish)	Resuflor™ MPE	16 [0.40]	100 [9.29]
NMP Protective Urethane Coat (Neat)	Resutile™ HPS	3 [0.13]	500 [46.45]
Urethane Topcoat (Slip Resistant)	Resutile™ HTS 100	3 [0.13]	500 [46.45]

## Sherwin-Williams Resuflor™ Advanced NMP Performance EV System (epoxy based system with urethane topcoats)

- Fastest installation
- Testing: ASTM D1308 14-days under glass; dynamic slip coefficient of .72 vs.42 industry standard to ANSI A326.3; abrasion resistance of ASTM 4060 4-6X greater than standard epoxy topcoats
- Moisture vapor barrier

Application Steps	Product Name	Application Thickness mils [mm]	Coverage Rate ft²/gal [m2/3.78 L]
Green Concrete Moisture Vapor Barrier Coat	Resuprime™ MVB	22 [0.56]	72 [6.69]
Build Coat	Resuflor™ MPE	15 [0.35]	114 [10.6]
NMP Protective Urethane Coat (Neat)	Resutile™ HPS	3 [0.13]	500 [46.45]
Urethane Topcoat (Slip Resistant)	Resutile™ HTS 100	3 [0.13]	500 [46.45]

# ASTM D1308 7-Day Systems for Moderate NMP Chemical Resistance

Sherwin-Williams FasTop® NMP

Performance EV System

#### SHARED BENEFITS FOR 7-DAY SYSTEMS INCLUDE:

✓ Moderate NMP Resistance (tested to ASTM D1308 for up to 7 days under glass)

Sherwin-Williams Resuflor™

Screed TG46 EV System

- ✓ Slip resistant and easy to clean due to our unique fine aggregate topcoat
- ✓ Industry-leading abrasion resistance that is 4-6X greater than standard epoxy topcoats (11.7mg lost, tested to ASTM 4060)
- ✓ Can be applied to green concrete which can reduce the required substrate cure time from 28 days to 7
- ✓ Moisture tolerant systems
- ✓ Anode area operating environment

## Sherwin-Williams Resuflor™ Screed TG46 EV System (epoxy mortar based system with urethane topcoat)

- Our most heavy-duty system extends service life especially for areas with heavy automotive/forklift/ AGV traffic with compressive strength up to
- · Mortar system that can resurface or level a floor
- Testing: ASTM D1308 7-days under glass; dynamic slip coefficient of .72 vs.42 industry standard to ANSI A326.3; abrasion resistance of ASTM 4060 4-6X greater than standard epoxy topcoats
- Moisture vapor barrier

Application Steps	Product Name	Application Thickness mils [mm]	Coverage Rate ft²/gal [m2/3.78 L]
Green Concrete Moisture Vapor Barrier Coat	Resuprime™ MVB	22 [0.56]	72 [6.69]
Primer	Resuflor™ MPE	8 [0.20]	200 [18.58]
Power-Troweled 1/4" Mortar Coat	Resuflor™ PT 1/4"	1/4" [0.18]	56 sq. ft. per kit [16.7]
Grout Coat	Resuflor™ PT 250 Topcoat	8 [0.20]	200 [18.58]
Grout Coat (eliminates orange peel finish)	Resuflor™ MPE	8 [0.20]	200 [18.58]
Topcoat	Resutile™ HTS 100	3 [0.13]	500 [46.45]

#### Sherwin-Williams Hybri-Flex NMP Performance EV System (urethane concrete based system with urethane topcoat)

- Heavy-duty system extends service life with compressive strength of up to 6,926 PSI for heavy-load traffic and high-wear areas
- Specialty reservoir system with high tolerance to salt content in the concrete and to osmostic blistering
- Mitigates thermal shock, allows floor system to be installed from 40°F and rising
- Testing: ASTM D1308 7-days under glass; dynamic slip coefficient of .72 vs.42 industry standard to ANSI A326.3; abrasion resistance of ASTM 4060 4-6X greater than standard epoxy topcoats

Application Steps Product Name		Application Thickness mils [mm]	Coverage Rate ft²/gal [m2/3.78 L]	
Green Concrete Moisture Tolerant Build Coat	FasTop® RT Multi SL45	3/16"	32-35 [2.97-3.25]	
Broadcast	5310 Dry Silica (20/40 mesh) into wet slurry to rejection	After broadcast nominal thickness will be 1/4"	Approximately 500 lbs. per 1000 sq.ft.	
Grout Coat (eliminates orange peel finish)	Resuflor™ MPE	16 [0.40]	100 [9.29]	
Topcoat (Smooth Urethane)	Resutile™ HTS 100	3 [0.13]	500 [46.45]	

### Sherwin-Williams Resuflor™ NMP Performance EV System (epoxy based system with urethane topcoat)

- Fastest installation
- Testing: ASTM D1308 7-days under glass; dynamic slip coefficient of .72 vs.42 industry standard to ANSI A326.3; abrasion resistance of ASTM 4060 4-6X greater than standard epoxy topcoats
- Moisture vapor barrier

Application Steps	Product Name	Application Thickness mils [mm]	Coverage Rate ft²/gal [m2/3.78 L]
Green Concrete Moisture Vapor Barrier Coat	Resuprime™ MVB	22 [0.56]	72 [6.69]
Build Coat	Resuflor™ MPE	15 [0.35]	106 [9.84]
Topcoat (Slip Resistant)	Resutile™ HTS 100	3-6 [0.13]	500 [46.45]

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# Additional ASTM D1308 7-Day Systems

featuring shared benefits for 7-Day systems with moderate NMP chemical resistance

# **Static Dissipative and Moisture Control System**

Sherwin-Williams Resuflor™ SDU EV System (ESD epoxy based system with urethane topcoat)

- Surface resistance, Point-to-Point/Point-to-Ground, ESD Assoc., ANSI/ESD 7.1-2005: 1x10<sup>5</sup> Ω to <1x10<sup>9</sup> Ω
- Fastest installation
- Cleanroom and dry room operating environments
- Testing: ASTM D1308 7-days under glass; dynamic slip coefficient of .72 vs.42 industry standard to ANSI A326.3; abrasion resistance of ASTM 4060 2-3X greater than standard epoxy topcoats, protection from  $1\times10^5$   $\Omega$  to  $1\times10^9$   $\Omega$  to ANSI/ESD STM 7.1-2013, Body Voltage Generation ANSI/ESD STM 97.2 (ANSI/ESD S20.20 Method 2) 12 volts with ESD shoes; 32 volts with heel straps
- Moisture vapor barrier

Application Steps	Product Name	Application Thickness mils [mm]	Coverage Rate ft²/gal [m2/3.78 L]
Green Concrete Moisture Vapor Barrier Coat	Resuprime™ MVB	22 [0.56]	72 [6.68]
Build Coat	Resuflor™ MPE	15 [0.2]	105 [9.75]
Topcoat	Resutile™ SDS	3 [0.13]	600 [55.7]

Alternative moisture tolerant systems, Resuflor Screed TG46 EV Epoxy Mortar and FasTop Urethane Concrete, are available based on environment and specific facility requirements. If surface resistance 2.5X10 $^4$   $\Omega$  to 1X10 $^6$   $\Omega$  (ANSI/ESD STM7.1-2020) is needed, we offer conductive flooring systems. Consult a flooring expert for guidance.

# **Bathroom Environments and Decorative System**

Sherwin-Williams Resuflor™ DSS EV System (epoxy based system with urethane topcoat)

- Fastest installation
- Seamless decorative stone slurry flooring system for when stain and odor resistance and decorative aesthetics is required
- Testing: ASTM D1308 7-days under glass; dynamic slip coefficient of .72 vs.42 industry standard to ANSI A326.3; abrasion resistance of ASTM 4060 4-6X greater than standard epoxy topcoats
- Moisture vapor barrier

Application Steps	Product Name	Application Thickness mils [mm]	Coverage Rate ft²/gal [m2/3.78 L]	
Green Concrete Moisture Vapor Barrier Coat	Resuprime™ MVB	22 [0.56]	72 [6.68]	
Primer	Resuflor™ DSP	8-10	160-200	
Build Coat	Resuflor™ DSS Decorative Stone Slurry	60-80 [2.79]	18-24 [10.6-12.4]	
Topcoat	Resutile™ HTS 100	3 [0.13]	500 [46.45]	
Optional Cove Base	Resuflor™ DSS Cove	62.5 mils	4" high cove: 225 lin ft/kit 6" high cove: 150 lin ft/kit	

Cemlack™ Hydro Polish System

# **Polished Concrete**

**Concrete Polishing - Cemlack™ Hydro Polish System** 

The Cemlack™ Hydro Polishing System utilizes cutting-edge polishing technology—a combination of specialized chemicals and tooling to achieve one of three finishes: Cream Polish, Salt & Pepper, or Large Aggregate.

Flooring System	Cemlack™ Hydro Polishing Chemically Resistant Concrete Polishing system EV Battery Floors			
Surface Prep	N/A N/A			
	Tools / Product	Application Means and Methods		
Step 1	Cemlack™ Hydrogrind SM	Apply concrete cutting product		
Step 2/3	SP 400	Grind with 400 grit metal		
Step 4	Cemlack™ Densifier	Apply concrete densifier product		
Step 5	PHN800	Polish with 800 grit resin		
Step 6	Cemlack™ Guard	Apply guard and burnish		

# **EV Battery Manufacturing Facility Coating Guidelines FOR STEEL PROTECTION**

You rely on coatings that are easy to apply, dry fast and maintain durability during the loading, transportation, unloading, storage, and erection processes. We offer both shop-applied fireproof protection steel coatings and standard steel protection coatings to meet megaproject requirements. Our product portfolio is versatile by design, with coatings to meet the specific surface preparation, application, production and/or service requirements.

	Firetex* FX9502 Epoxy Intumescent	Steel Spec 4013 Primer-Finish (standard)	Steel Spec 4012 Primer-Finish (low VOC)	Steel Spec 2103
Testing/	ASTM E119	SSPC Paint 15	SSPC Paint 15	SSPC Paint 15
Standards/ Certifications	CAN-ULC-S101-certified	SSPC Paint 25	SSPC Paint 25	
Certifications	ASTM E84: meets the requirements for class A for flame spread and smoke development			
	Meets UL 2431 durability requirements for cyclic weathering, impact, vibration, salt spray resistance and other key environmental factors     Explosion tested – blast resistant			
Fire Rating	Beams up to 3.5 hours; columns up to 4 hours	N/A	N/A	N/A
Universal Primer	N/A	X	X	X
Volume Solids	100%	x 64%	x 60%	x 59%
VOC	0 g/L	<340 g/L	<250 g/L	<340 g/L
HAPs Free	No HAPS	2.59 LB/Gal	Low HAPS: .66 LB/Gal	No HAPS
Dryfilm Thickness	Best-in-class film thickness, higher per coat film build which allows for fewer coats to achieve fire protection rating			
Direct to Metal Capability	Fire tested and certified direct to metal per Intertek Design No. SWC/IF 240-03	SSPC-SP2 or SSPC-SP3	SSPC-SP2 or SSPC-SP3	SSPC-SP2 or SSPC-SP3
Easy Cleanability	Finish coats are optional and are used to achieve a desired color, gloss, or to achieve a high-chemical resistance requirement	X	X	
Finish (Reflectivity)	Semi-gloss	low sheen	low sheen	flat
Durability	UL2431 I-A (outdoor, heavy industrial)			
	Blast tested up to 4 bar			
	ASTM D695 >2,900 PSI Compressive Strength			
Chemical Resistance	Moderate*			
Maintenance	Low to no maintenance for the life of the facility, or until exposed to a fire			
Architecturally Exposed Structural Steel (AESS)	No finish coat required	primer/finish, can be tinted to light pastel colors	primer/finish, can be tinted to light pastel colors	N/A
Corrosion Resistant	ISO 12944 CX Certification			
Weldable AWS D1.1	N/A	X	X	
MPI 79	N/A	X	X	
Color	Pale Blue	White Medium Gray Gray Red Oxide	White Gray	White Dark Gray Light Gray Red Oxide
Dry to Touch	4 hours**	15 minutes***	20 minutes***	20 minutes****
Dry to Handle	12 hours**	45 minutes***	1 hour***	1 hour****
To Coat	4 hours**	Itself: 1 hour, epoxy: 3 hours, urethane: 3 hours	alkyds: 1 hour, urethane: 4 hours, epoxy: 4 hours	Itself, alkyds, acrylics: 1 hour, epoxies, ure- thanes: 4 hours

\*Can achieve high chemical resistance with Sherloxane 800 topcoat

<sup>\*\*</sup>Drying Schedule @ 200 mils/5mm @ 73°F/23°C

<sup>\*\*\*</sup>Drying Schedule @ 4.0 mils wet @ 50% RH @ 77°F/25°C

<sup>\*\*\*\*\*</sup>Drying Schedule @ 6.0 mils wet @ 50% RH @ 77°F/25°C

# CONSTRUCTION SOLUTIONS EV BATTERY

# FACILITY GUIDE

# LET SHERWIN-WILLIAMS PUT 150 YEARS OF EXPERIENCE TO WORK FOR YOU.

# Sherwin-Williams is your ideal early-design partner.

We can deliver expert construction insights and recommended solutions. Sherwin-Williams is dedicated to giving you the answers you need and the personalized service you deserve — providing the most extensive distribution platform in the industry and products and services that help maximize performance and aesthetics, control costs, and improve application efficiencies. As your single-source supplier for coatings, supplies, flooring and wallcoverings, Sherwin-Williams helps ensure that deadlines, budgets and expectations are met. On-site delivery and in-stock reliability will help you get the job done faster.

# THE SHERWIN-WILLIAMS DIFFERENCE

Sherwin-Williams Protective & Marine delivers world-class industry subject matter expertise, unparalleled technical and specification service, and unmatched regional commercial team support to our customers around the globe. Our broad portfolio of high-performance coatings and systems - including protective liquid and powder, fire protection and resinous flooring - excel at combating corrosion and help customers achieve smarter, time-tested asset protection. We serve a wide array of markets across our rapidly growing international distribution footprint, including Bridge & Highway, Energy, High Value Infrastructure, Manufacturing & Processing, Marine, Rail, Power and Water & Wastewater.



