CHAMPION FIBERGLASS®

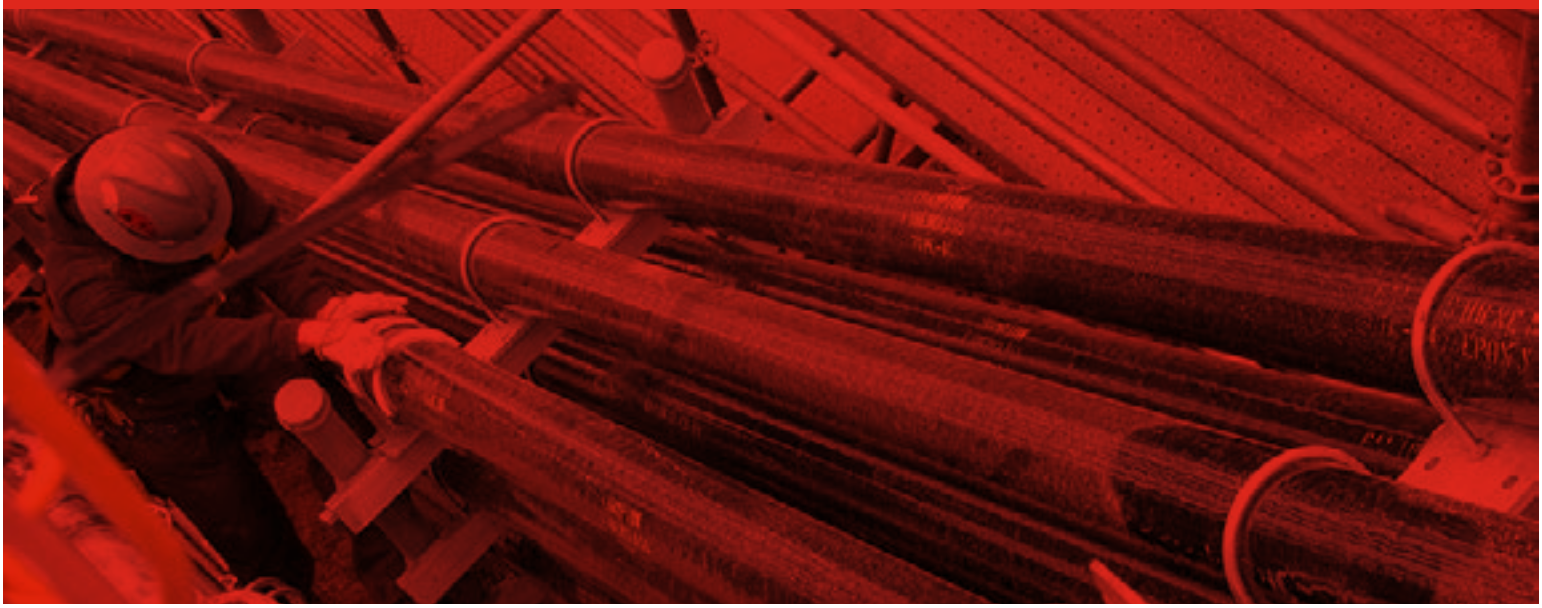
THE DEFINITIVE GUIDE TO

ELECTRICAL CONDUIT COST SAVINGS FOR ELECTRICAL ENGINEERS AND CONTRACTORS

Optimize Project Planning and Specifying for Ease and Better ROI Today

According to *Electrical Wholesaling's* Electrical Market Forecast & Analysis, in 2019 the electroindustry experienced respectable growth across the country with sales forecasts up approximately 6% by region. The hottest segments include airport, rail and data center projects. It remains to be seen whether 2020 will bring the same sustained growth; opinion remains cautiously optimistic.

When specifying electrical conduit for a project there are many considerations and options. Fiberglass conduit is successfully used in many applications including **transportation**, petrochemical plants, **data centers** and **coastal environments**. Project owners have found success with fiberglass conduit not only for its strength but its light weight. The lightweight yet durable nature of Champion Fiberglass conduit is the key to extensive cost savings from initial materials through installation.



How Lightweight Fiberglass Conduit Promotes Project Savings

FASTER INSTALLATION

In a side-by-side comparison of 4" diameter conduit, a 100' run of fiberglass conduit weighs 72 lbs., a fraction of heavier conduits like galvanized rigid steel, which weighs in at 1030 lbs. for the same 100' run. Lighter conduit is more portable in the field and promotes faster installation.

		EPOXY FIBERGLASS	PVC SCH 40	PVC SCH 80	GALVANIZED RIGID STEEL	PVC-COATED STEEL	ALUMINUM
Weight Comparison	3/4"	**17***	22	29	109	112	36
(SW IPS – lbs/per 100 ft)	1"	**19***	33	41	161	174	54
Fiberglass conduit offers the lowest	1-1/4"	**23***	44	59	218	237	72
weight and is still very rigid.	1-1/2"	**33***	53	73	263	281	89
	2"	**38***	75	99	350	358	119
	2-1/2"	**46***	119	152	559	593	187
	3"	**60***	161	202	727	772	246
	4"	**72***	231	302	1,030	1,089	350
*SW	5"	**120****	313	433	1,400	1,488	479
**MW	6"	**142****	407	595	1,840	1,993	630

Savings are realized because fiberglass conduit does not require the special equipment of heavier conduits, and installations are completed in less time.

See for yourself. Per the NECA Manual of Labor Units, the same 100' run of 4" diameter fiberglass conduit installs in 8.3 hours compared to PVC coated steel which installs in 38 hours and galvanized rigid steel which installs in 30 hours.

		EPOXY FIBERGLASS	PVC SCH 40	PVC SCH 80	GALVANIZED RIGID STEEL	PVC-COATED STEEL	ALUMINUM
NECA Labor Installation Rates	3/4"	**5.5**	4.5	5.4	6.0	8.0	5.5
(Normal installation man/hours per/100 ft)	1"	**5.8**	5.3	6.3	7.0	10.0	6.0
(REF: NECA 2017-2018 NECA Manual of	1-1/4"	**6.0***	6.0	7.2	8.0	12.0	6.5
Labor Units)	1-1/2"	**6.4***	7.0	8.4	9.0	15.0	7.0
* Reduce labor units by 10% for 20-foot lengths	2"	**6.8***	8.0	9.6	11.0	18.0	8.0
	2-1/2"	**7.1***	9.0	10.8	15.0	21.0	10.0
	3"	**7.5***	10.0	12.0	20.0	26.0	12.0
	3-1/2"	**7.9***	12.0	N/A	25.0	32.0	15.0
	4"	**8.3***	14.0	16.8	30.0	38.0	19.0
	5"	**8.6***	18.0	21.6	38.0	45.0	24.0
	6"	**9.0***	24.0	28.8	48.0	60.0	30.0

✔ Check out the Electrical Conduit Project Planning Checklist at the end of this eBook.

FEWER MATERIALS REQUIRED

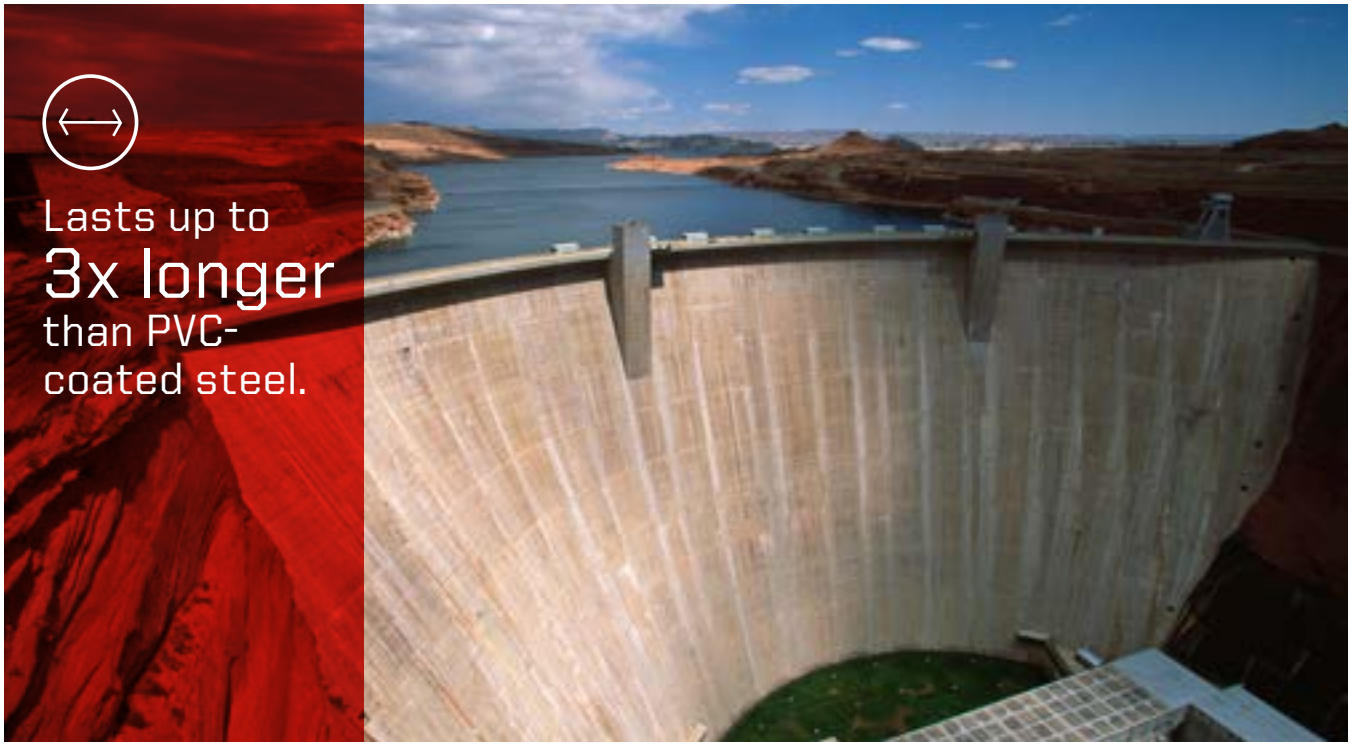
Projects using fiberglass conduit necessitate fewer supports which translates into fewer materials and cost savings from the outset. In 2016, Champion Fiberglass worked closely with Underwriters Laboratories (UL) to clarify requirements and update the code around longer support spacing distances for Champion Fiberglass conduit. The result was longer support spacing distances for Champion Haz Duct® conduit in 2016; Champion Duct® Standard Wall (SW), Medium Wall (MW) and Heavy Wall (HW) conduit followed suit in 2017. Champion Fiberglass conduit's UL Listed support spacing distances have doubled (and in some cases, tripled) for many conduit diameters.

		CURRENT PVC AND RTRC SPACING PER NEC	CHAMPION FIBERGLASS UL-LISTED SUPPORT SPANS			CHAMPION FIBERGLASS UL-LISTED – XW SUPPORT SPANS	GRC, PVC-COATED AND ALUMINUM SPACING
			SW	MW	HW		
Support Spans Champion Fiberglass support spans are UL listed. Conduit listed for support spacing other than shown in NEC Table 355 shall be permitted to be installed in accordance with the UL Listing.	3/4"	3 ft	**10 ft**	–	–	**10 ft**	10 ft
	1"	3 ft	**10 ft**	–	–	**10 ft**	12 ft
	1-1/4"	3 ft	**10 ft**	–	–	**15 ft**	14 ft
	1-1/2"	3 ft	**10 ft**	–	–	**15 ft**	14 ft
	2"	3 ft	**12 ft**	–	–	**15 ft**	16 ft
	2-1/2"	3 ft	**12 ft**	–	–	**15 ft**	16 ft
	3"	3 ft	**12 ft**	–	–	**17 ft**	20 ft
	4"	3 ft	**12 ft**	–	**14 ft**	**17 ft**	20 ft
	5"	3 ft	–	**13 ft**	**14 ft**	**17 ft**	20 ft
	6"	3 ft	–	**13 ft**	**14 ft**	**17 ft**	20 ft

DURABLE CONDUIT LASTS LONGER

The strong, durable nature of fiberglass conduit creates savings in the long run. Unlike galvanized rigid steel elbows which will eventually rust, fiberglass conduit has been successfully tested against 70+ chemicals. Qualities like excellent corrosion resistance, zero burn-through and fault resistance mean the product is durable and long-lasting, so replacement costs are minimal. Additionally, fiberglass conduit offers vibration resistance, impact resistance, compression resistance and can flex back into its original shape without affecting the conduit.

	EPOXY FIBERGLASS	PVC SCH 40	PVC SCH 80	GALVANIZED RIGID STEEL	PVC-COATED STEEL	ALUMINUM
Burn-through (Cable Pull) Fiberglass conduit is an excellent material for avoiding "burn-through" when pulling cable.	**No**	Yes	Yes	No	No	No
Ultraviolet Stable (Sunlight Resistance) (Per UL 2515 and CSA C22.2 No. 211.3-96)	**Good**	Poor	Poor	Excellent	Poor	Excellent
Cable Fault Fiberglass conduit will not melt or weld the wire to the inside of the conduit under fault conditions as can happen with PVC, steel and aluminum conduit.	**Not Affected**	Melt/ Fuse	Melt/ Fuse	Weld	Weld	Weld



SAFETY IN THE FIELD

Not only does fiberglass conduit's portability promote smooth installation, it also enhances project safety. Its light weight contributes to fewer accidents in the field, saving project time and money.

	EPOXY FIBERGLASS	PVC SCH 40	PVC SCH 80	GALVANIZED RIGID STEEL	PVC-COATED STEEL	ALUMINUM
Field Handling Due to its light weight, ease of cutting and integral bell, fiberglass conduit is very easy to install.	**Excellent**	Good	Good	Very Poor	Very Poor	Poor

You might think the high quality of fiberglass conduit comes at a price. However, low starting costs will launch your project in the right direction from the beginning.

CASE IN POINT: TEXAS A&M UNIVERSITY'S KYLE FIELD

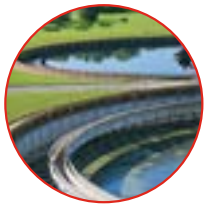
Let's examine how fiberglass conduit performs in a specific application. A project upgrading electrical circuits at Texas A&M University's Kyle Field was running up against deadlines and increased manpower with rigid metal conduit. In the end, by specifying Champion Fiberglass conduit, the project was completed with a smaller crew, on time and with 10% savings. Learn more in the full case study.

CASE STUDY:

Texas A&M University

CHAMPION FIBERGLASS PRODUCT(S):
Champion HazDuct® XW

- Completed in less than 2 months
- ~10% material cost savings
- Only required an 8-person crew and required less installation equipment


WASTEWATER TREATMENT


INDUSTRIAL/ COMMERCIAL


CHEMICAL PLANTS


UTILITIES


MINING

SPECIFYING MADE EASY

Fiberglass conduit offers solutions with documented success across many industries including wastewater treatment, industrial/commercial, chemical, utilities and mining.

When planning a project, you can compare and contrast conduit types with a suite of tools to make project organization and specifying easier.

CHECK OUT OUR:

- **Comparison Chart** where you can see how fiberglass conduit stands up against PVC SCH 40 and 80, galvanized rigid steel, PVC-coated steel and aluminum conduits.
- **Applications Photos and Videos** to see project photos of Champion Fiberglass conduit by industry.
- **Data Sheets and Specifications** to get in-depth, detailed information by product line.
- **Installation Guide** that features all the important details about installation, including how-to videos.
- **Conduit Calculator** where you can input actual project information to get cost estimates and see how fiberglass conduit compares to PVC-coated steel, GRC, aluminum and stainless steel conduits in materials and installation.

GET IN TOUCH

Contact the knowledgeable team at Champion Fiberglass for assistance with project planning and specifying to help make your endeavors successful.

Got more questions? Give us a call.

ELECTRICAL CONDUIT

PROJECT PLANNING CONSIDERATIONS

- ☐ What is the application for the project?
- ☐ What corrosion, like uv sunlight or chemicals, will occur in the project environment?
- ☐ Are there elbow burn-through issues?
- ☐ What are conduit weight concerns?
- ☐ Is cable fault a concern?
- ☐ What supports will be required for the project?
- ☐ Will the conduit be direct buried, encased buried or installed above ground?
- ☐ Are there any unique installation challenges due to the project environment?
- ☐ Are there any concerns necessitating efficient installation due to labor shortages and manpower?
- ☐ What is the project deadline?
- ☐ What is the project budget?

CHAMPION FIBERGLASS
6400 Spring Steubner Rd // Spring, TX 77389
P 281.655.8900 // F 281.257.2523
info@championfiberglass.com // championfiberglass.com