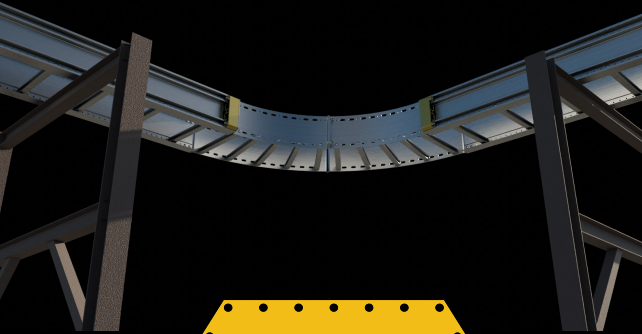
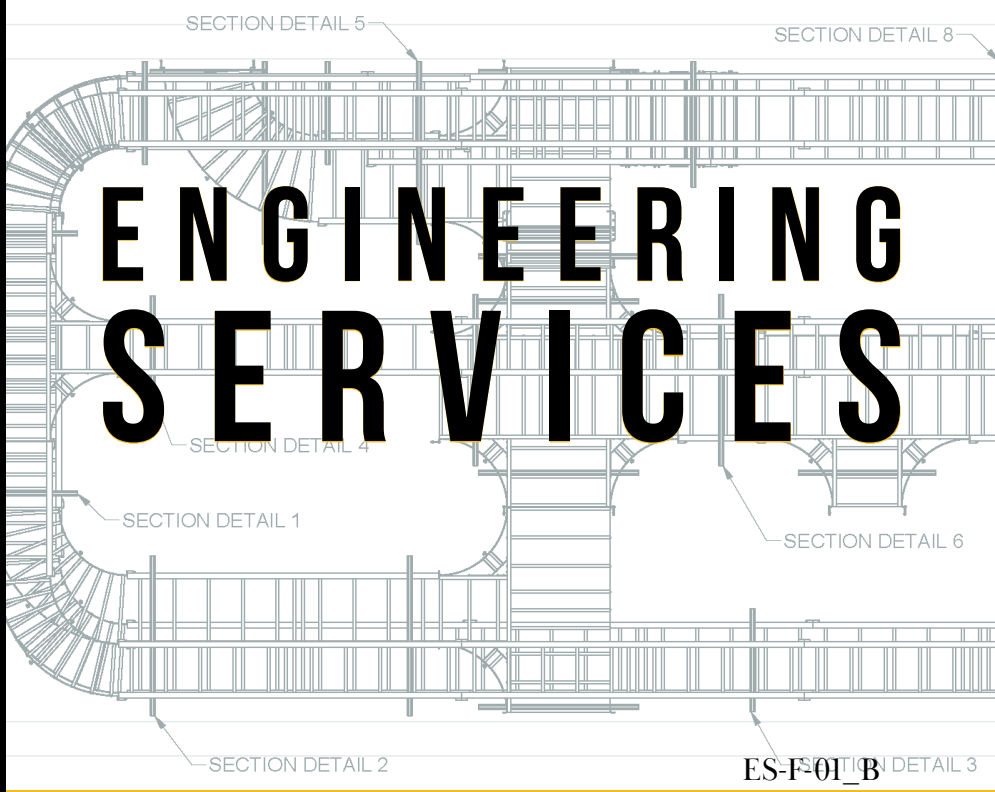


ENGINEERING SERVICES

**LEAVE NO  
SERVICE  
LEFT  
UNTURNED**



**CT INNOVATIONS**



# ENGINEERING SERVICES

## SUBJECT MATTER EXPERTS



**HIGHLY RESPONSIVE**



**TURN KEY ELECTRICAL DESIGN**



**TURN KEY MECHANICAL DESIGN**



**TURN KEY DYNAMIC DESIGN**



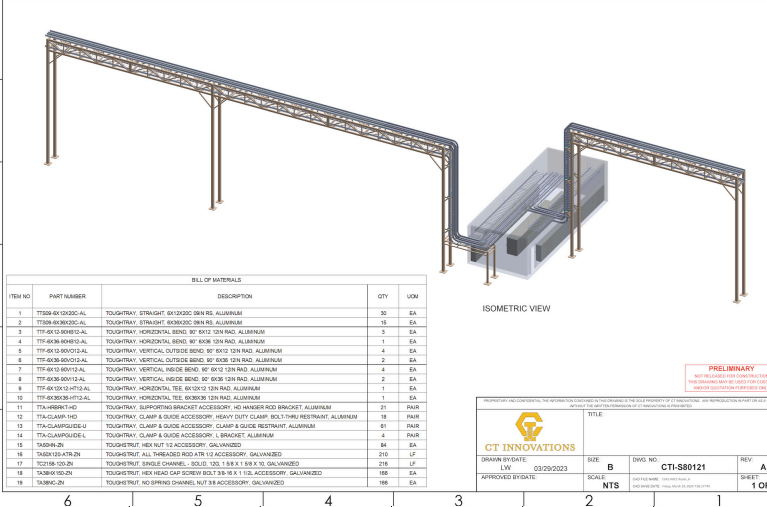
**OPTIMIZED APPLICATION DESIGN**

**INDUSTRIAL | COMMERCIAL | DATA CENTERS**

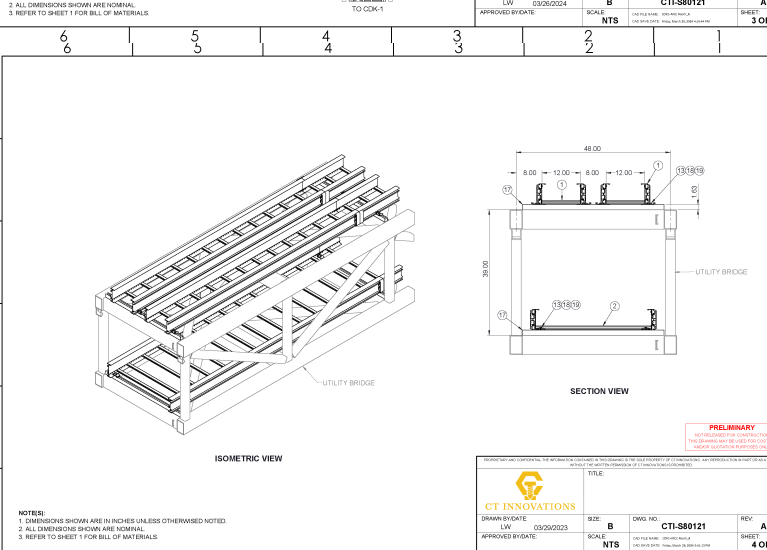
**WWW.TOUGHINNOVATIONS.COM**

Your Cable Management Solutions

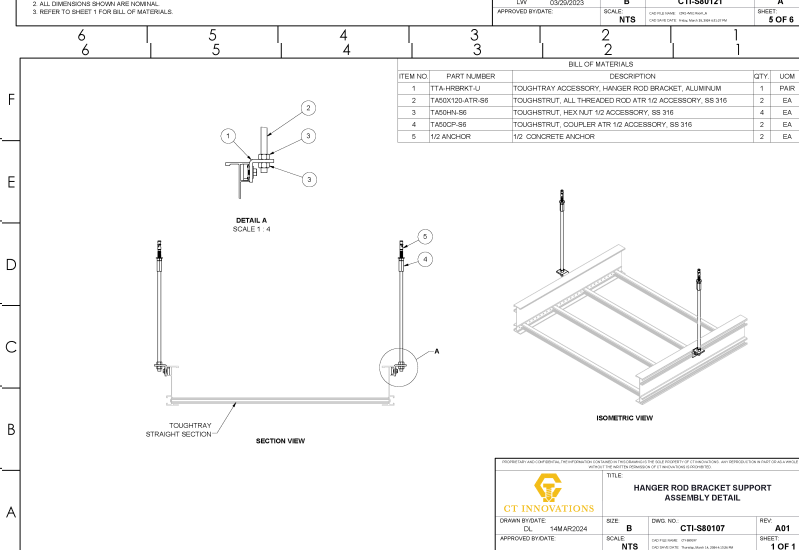
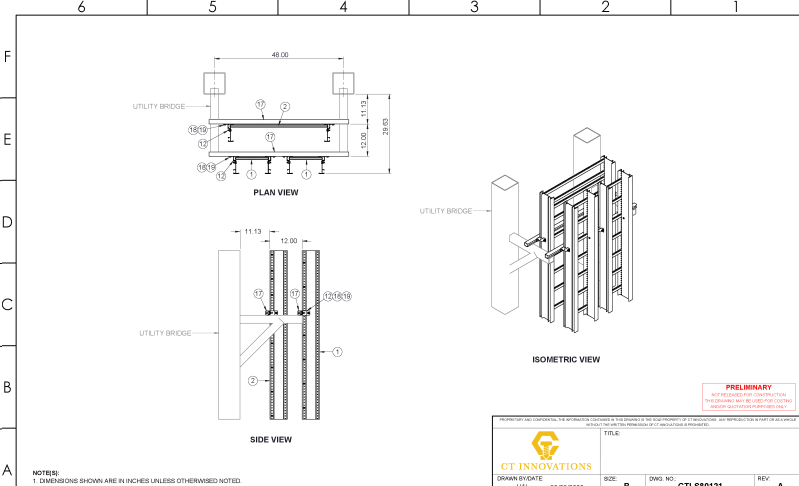
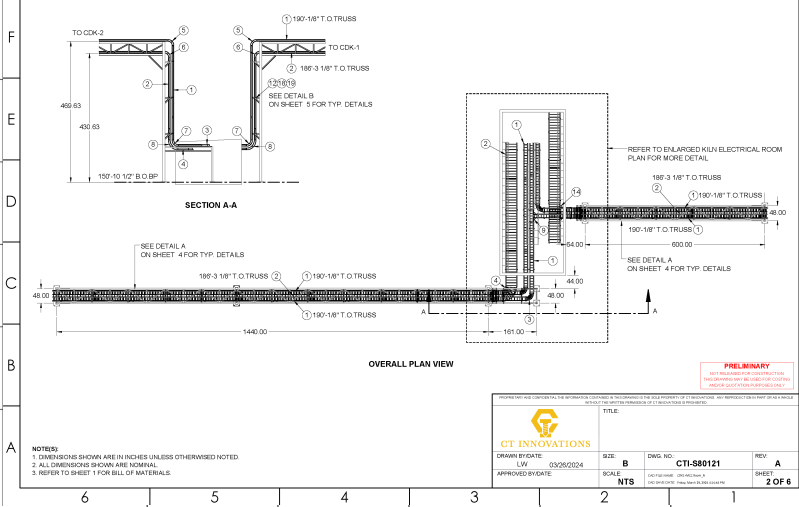




ITEM NO	PART NUMBER	DESCRIPTION	QTY	UOM
1	TT08-6X10-300-AL	TOUGHTRAY STRAIGHT 6X10X300 30 IN ALUMINUM	30	EA
2	TT08-6X10-300-AL	TOUGHTRAY STRAIGHT 6X10X300 30 IN ALUMINUM	1	EA
3	TT08-6X10-300-AL	TOUGHTRAY HORIZONTAL BEND 6X10 120 IN RAD ALUMINUM	2	EA
4	TT08-6X10-300-AL	TOUGHTRAY HORIZONTAL BEND 6X10 120 IN RAD ALUMINUM	1	EA
5	TT08-6X10-300-AL	TOUGHTRAY VERTICAL OUTSIDE BEND 6X10 120 IN RAD ALUMINUM	4	EA
6	TT08-6X10-300-AL	TOUGHTRAY VERTICAL OUTSIDE BEND 6X10 120 IN RAD ALUMINUM	2	EA
7	TT08-6X10-300-AL	TOUGHTRAY VERTICAL INSIDE BEND 6X10 120 IN RAD ALUMINUM	4	EA
8	TT08-6X10-300-AL	TOUGHTRAY VERTICAL INSIDE BEND 6X10 120 IN RAD ALUMINUM	2	EA
9	TT08-6X10-300-AL	TOUGHTRAY HORIZONTAL TEE 6X10X120 120 IN RAD ALUMINUM	1	EA
10	TT08-6X10-300-AL	TOUGHTRAY HORIZONTAL TEE 6X10X120 120 IN RAD ALUMINUM	1	EA
11	TTA-HBRKT-L	TOUGHTRAY HANGER ROD BRACKET ACCESSORY HEAVY HANGER ROD BRACKET ALUMINUM	21	PAIR
12	TTA-CLAMP-HD	TOUGHTRAY CLAMP & BUSH ACCESSORY HEAVY DUTY CLAMP BOLT 3/8 IN DIA RESTRAINT ALUMINUM	18	PAIR
13	TTA-CLAMP-SD	TOUGHTRAY CLAMP & BUSH ACCESSORY CLAMP BUSH RESTRAINT ALUMINUM	63	PAIR
14	TTA-CLAMP-SD-L	TOUGHTRAY CLAMP & BUSH ACCESSORY L BRACKET ALUMINUM	4	PAIR
15	TAB-2IN-2N	TOUGHTRAY NUT TO ACCESSORY GALVANIZED	84	EA
16	TAB-2IN-2N-2N	TOUGHTRAY ALL THREADED ROD 1/2 ACCESSORY GALVANIZED	210	LF
17	TAB-2IN-2N-2N	TOUGHTRAY SINGLE CHANNEL, SOLID 120 X 18 X 1.75 GALVANIZED	216	LF
18	TAB-2IN-2N-2N	TOUGHTRAY HD SPRING CHANNEL NUT 3/8 X 1.75 ACCESSORY GALVANIZED	180	EA
19	TAB-2IN-2N	TOUGHTRAY HD SPRING CHANNEL NUT 3/8 ACCESSORY GALVANIZED	180	EA



ITEM NO	PART NUMBER	DESCRIPTION	QTY	UOM
1	TTA-HBRKT-L	TOUGHTRAY ACCESSORY HANGER ROD BRACKET ALUMINUM	1	PAIR
2	TAS00120-ATR-SS	TOUGHSTRUT ALL THREADED ROD ATR 1/2 ACCESSORY SS 316	2	EA
3	TAS0014-SS	TOUGHSTRUT HEX NUT 1/2 ACCESSORY SS 316	4	EA
4	TAS001-SS	TOUGHSTRUT COUPLER ATR 1/2 ACCESSORY SS 316	2	EA
5	1/2 ANCHOR	1/2 CONCRETE ANCHOR	2	EA



ITEM NO	PART NUMBER	DESCRIPTION	QTY	UOM
1	TTA-HBRKT-L	TOUGHTRAY ACCESSORY HANGER ROD BRACKET ALUMINUM	1	PAIR
2	TAS00120-ATR-SS	TOUGHSTRUT ALL THREADED ROD ATR 1/2 ACCESSORY SS 316	2	EA
3	TAS0014-SS	TOUGHSTRUT HEX NUT 1/2 ACCESSORY SS 316	4	EA
4	TAS001-SS	TOUGHSTRUT COUPLER ATR 1/2 ACCESSORY SS 316	2	EA
5	1/2 ANCHOR	1/2 CONCRETE ANCHOR	2	EA

# Structural - Electrical - Mechanical & Application Services

- Dynamic Loads
- Static Loads
- Support Optimization
- Shop Drawings
- Installation Details
- BOM Take-Off
- Plan Drawings

- Cable Tray Layout
- Tray Fill Calculation
- Project Review
- Specification Review
- Site Support
- PE Stamps
- BIM



- Pipe Rack Design
- HVAC Rack Design
- ETO Product Design
- Application Design
- Certification Review
- MEP Rack Design
- VAVE Design

- Factory Acceptance Tests
- NEMA Load Tests
- IEC Load Test
- Pull Load Tests
- Slip Load Tests
- Salt Spray Tests
- Wind / Dynamic Tests



BOM

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Resources