

ELECTRICAL EQUIPMENT REFURBISHMENT BID PACKAGES

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April 03, 2019

HATCH

***The Global Leader in Building
Urban Infrastructures and
Economies***

Safety Moment

April is

Hands free vs hand held

- Myth
- Cognitive
Distraction

Numbers:

- 405k crashes
- 105k fatalities
- 3k disabilities



Distracted Driving Awareness Month



No one crashed while texting during dinner.

nsc.org/ddmonth

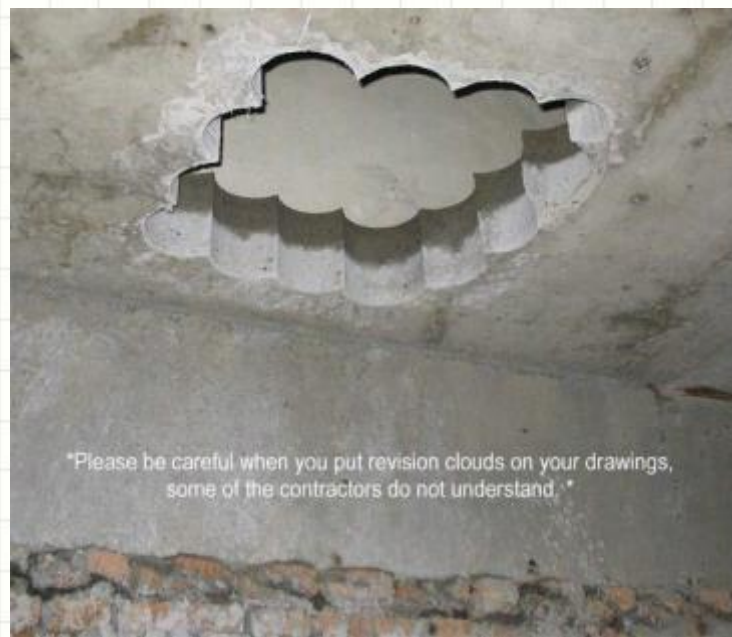


April is **DISTRACTED DRIVING**
AWARENESS MONTH

What is Refurbishment?

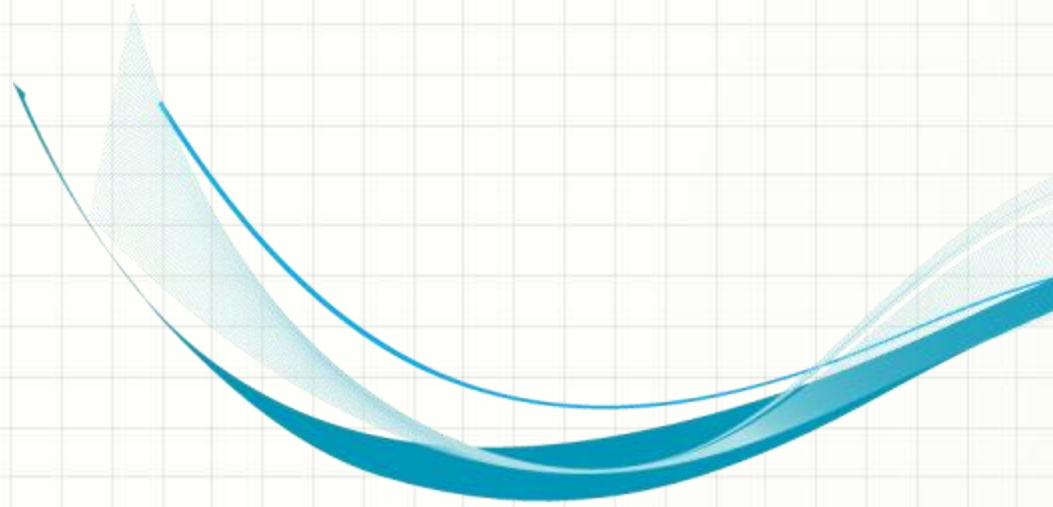
- New Paint?
- New Starters?
- New Breakers?
- New Buckets?
- New Busbars?
- New Insulators?
- New wiring?





How then do we develop Bid Packages for Electrical Rehab projects?

- Know the problems
- Know the Work
- Accurately convey the Work
- Clear Goals
 - Clearly specify the Work
 - Show the limits of the Work
- Minimize the Risk
- Pre-Bid testing
- Unit Pricing




Successful Bid Packages:

- Biddable
- Buildable
- Clear
- Concise

Know the Work





Accurately convey the Work:

- Clearly Specify the Work
- Clearly Show the Limits of the Work
 - Bid Forms (Volume I)
 - Project Specifications (Volumes II through ?)
 - Project Drawings

Know the Problems?



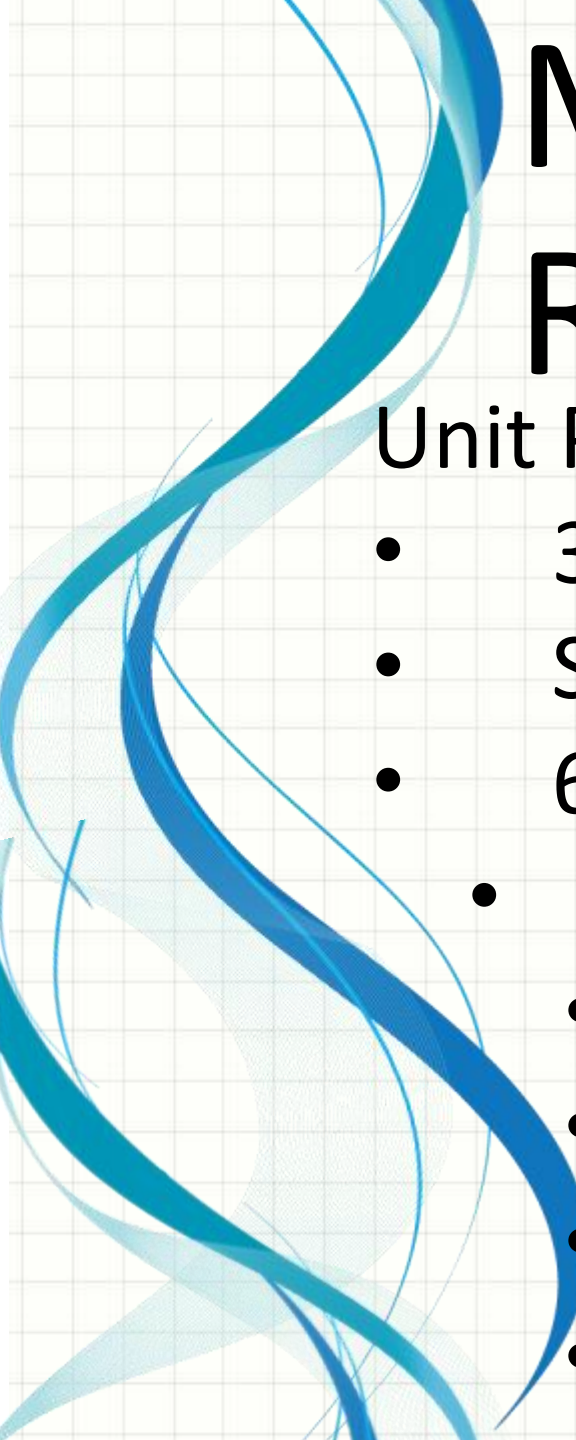
Minimize the Risk

JWWTTP GROUNDING - Table 1

Jackson Pike WWTP Buildings	Equipment	Ground Resistance Ohms	Ground Current Amperes	Arc Flash Labels (exception report)	Notes
CC2	LIGHTNING				NO LIGHTNING PROTECTION
CC2	CABLE TRAYS				BONDING OF SOME CABLE TRAYS FACE TO GROUND
CCB	LIGHTNING	05			INADEQUATE GROUNDING
EDB	MAIN 1	0.156	3.57		INVESTIGATE GROUND CURRENT
EDB	MAIN 2	0.149			
EDB	SWGR MAIN 1	1.463			
EDB	SWGR MAIN 2	0.961			
EDB	SUB GEN 1	0.045			
EDB	SUB GEN 2				NO ACCESS, OUTAGE REQUEST REQUIRED
EDB	ATS 1	0.57	1.72		
EPS	GATE FENCING				NOT GROUNDED FENCE (PARTIAL)
EPS	MEDIUM VOLT				NO LABELS
EPS	100A	0.548	3.08		LIGHTNING ARRESTERS APPEARED TO BE REMOVED; 4A SHIELD CURRENT; INVESTIGATE GROUND CURRENT

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Minimize the Risk

Unit Pricing

- 30 Amp Molded Case Breaker \$
- Size 1 Motor Starter Contacts \$
- 600 amp bus bar replacement \$
- Motor Control Center
 - Vertical Section
 - 42kA bracing
 - Bolted termination
 - Tin Plated



Case Studies:

Hartford, Connecticut Wastewater Treatment Plant

- 5 kV Distribution System
- Reconditioned 6 sections
- Purchase 4 reconditioned carts
- Upgraded protection
 - Air switches to Vacuum
 - Fuses to GE Multilin 750s
Saved \$1M



Case Studies:

Cincinnati, Ohio MSD WasteWater Treatment Plant

- 15 kV Distribution System
- Reconditioned 12 sections
- Reconditioned 8 carts
- Upgraded protection to GE Multilin 750s

Saved \$6M

Case Studies:

Rochester, NY FVL WasteWater Treatment Plant

- 15 kV Distribution System
- Reconditioned 12 carts



Saved
\$8M

Case Studies:

Rochester, NY FVL WasteWater Treatment Plant

- 480 v Motor Control Center
Reconditioning not feasible



Replace
\$1.1M

Summary

- Quality
 - Know what you have
 - Testing
 - Equipment Evaluations
 - Clear goals
 - Minimize risk
 - Bidable
 - Buildable
 - Clear
 - Unit Pricing



What the Customer Described.



What got budgeted.



What the Engineer Designed.



How Manufacturing Installed it.



What Marketing Advertised.



What got documented.



What the Customer finally received.



What the customer was billed for.



What the customer actually wanted.

QUESTIONS?



"We've decided to add forty floors."

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April 3, 2019

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