

# Pulling Profits

## Maximize Efficiency in Cable Pulling


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- Attend 90% of this presentation
- Fill out the online evaluation for this session



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### 130 Buildings Daily: Think We Can Do It?

**NEW DEMAND**

10B PEOPLE  
By 2050

ADDITIONAL  
INFRASTRUCTURE

13% USA

**1,000**

Buildings / day  
Globally

**NEW TREND**

DATA  
CENTERS

MANUFACTURING  
PLANTS

EXSITING  
INFRASTRUCTURE

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**LIMITED  
RESOURCE**

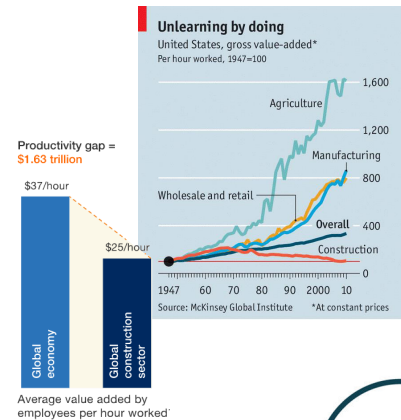
**LOW  
PRODUCTIVIT  
Y**

**LABOR  
SHORTAGE**

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Lagging construction productivity costs the global economy  
**\$1.63 trillion**  
 per year



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## Ergonomics: Enhancing Worker Safety and Productivity

Ergonomics is designing a job to fit the **worker** so the work is safer and more efficient. Implementing ergonomic solutions can make **employees** more comfortable and increase productivity.

### Benefits

- Higher productivity
- Reduce risk of injury
- Reduced absenteeism
- Increased moral

### Risks

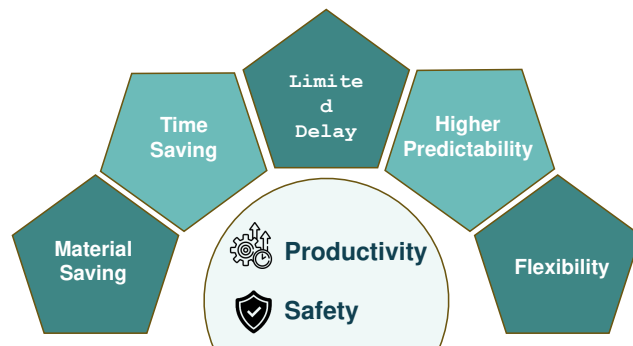
- | Direct Impact  | Indirect Impact  |
|--|--|
| <ul style="list-style-type: none"> <li>Worker's compensation claims</li> <li>Short skilled labor</li> <li>Worker shortage</li> </ul> | <ul style="list-style-type: none"> <li>Project delay</li> <li>Poor quality of work</li> <li>High waste cost</li> <li>Low margin</li> </ul> |

www.ossha.org

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## Maximize Impact by Focusing on the Essentials



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## The Cable Pulling Process

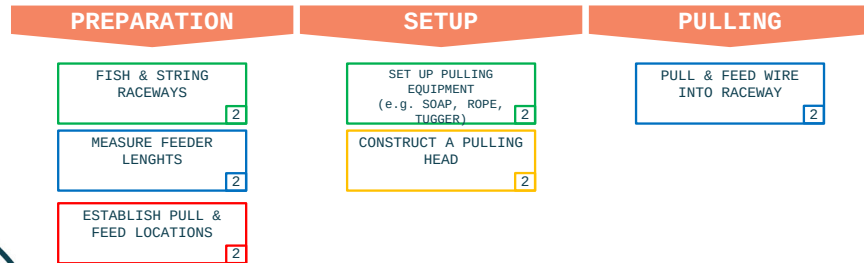
1st Year	PREPARE WIRE PULL AREA 5	GATHER WIRE PULL TOOLS (e.g. SOAP, ROPE, TUGGER) 5	FISH & STRING RACEWAYS 2	SET UP PULLING EQUIPMENT (e.g. SOAP, ROPE, TUGGER) 2
2nd Year	MEASURE FEEDER LENGTHS 2	PULL & FEED WIRE INTO RACEWAY 2	PHASE/LABEL CONDUCTORS 5	UTILIZE MANDREL EQUIPMENT 5
3rd Year	DETERMINE & EXECUTE KNOT TYPE 3	CONSTRUCT A PULLING HEAD 2		
4th Year	ESTABLISH PULL & FEED LOCATIONS 2	IDENTIFY WIRE PULL TYPE 3	CONFIRM CONDUCTOR SIZE & QUANTITY 3	

DACUM Chart for Side Wireman, Training Alliance 2019

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## Where in the cable pulling process needs improving?

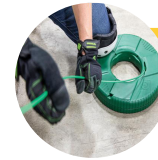


DACUM Chart for Side Wireman, Training Alliance 2019

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## Choose the Right Solution



Manual

Automated



### Fish Tapes

- No setup needed
- Speed vary by individuals
- Limited to 240'
- Relatively low price

### Vac System

- Require setup
- Fast to fishing time
- Able to fish over 500'
- Relatively higher price

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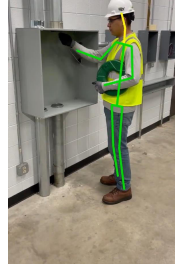
## Double the Efficiency by Reducing Fatigue



Traditional



New Way



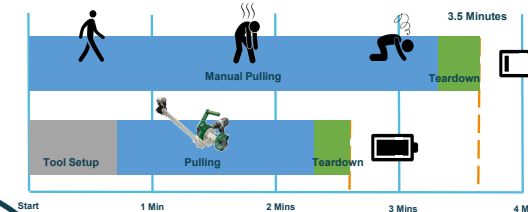
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## Efficiently Fishing & String Raceways

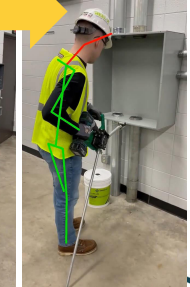


### Manual Pulling vs. Light Duty Tugger



Manual

Automated



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### Communication Is The #1 Safety Concern During A Pull

Concern	Percentage
Communication while feeding & pulling	~75%
Space limitations for operator	~15%
Others	~10%

Safety

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### Minimizing Risk with Communication

- Quickly stops operation from both sides
- Protects operators during a pull
- Reduces expensive rework due to damaged cable

Safety

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### Mastering Pull Force Calculation: Enhancing Cable Pulling Efficiency

#### Step 1

Find the Max Pull Force Pull Calculator

**PullCalc App (Free)**

- Enter Wire Information
- Input Insulation Type
- Add Conduit Run Design

#### Step 2

Select the Right Cable Puller and Rope

Productivity

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### Maximizing Efficiency Through the Right Equipment Setup

	Boom Mount	Floor Mount	Chain Mount
Install Anchor	No	Yes	No
Quick Setup	Yes	No	Yes
One Person Setup	Yes	Yes	No
Tail Length	Up to 20'	Adaptable	Limited

Productivity

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## Selecting an Efficient Puller Can Save Money



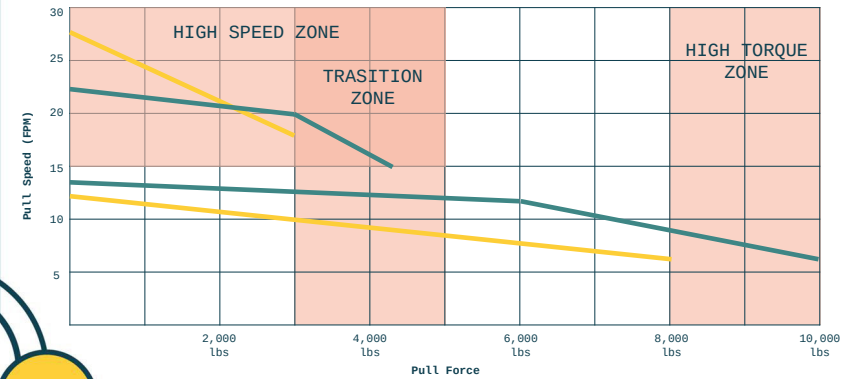
	Puller A	Tugger B
Rate	10,000 Lbs	10,000 Lbs
Motor	2 Speed	2 Speed
No-load Speed	27 fpm	22 fpm
Force Indicator	✓	✓
Boom Mount	✓	✓
Chain Mount	✓	✓
Floor Mount	✓	✓

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## How to Select the Right Tugger



## Online Tools Can Help You Buy Correct Puller

Find out how the fastest GX10 Tugger® can save you money.\*

# OF CABLE PULLS PER YEAR (limited to one puller)  
35

Labor Rate Per Pull

# OF FOREMEN	HOURLY LABOR RATE
1	\$ 38
# OF JOURNEYMEN ELECTRICIANS	HOURLY LABOR RATE
3	\$ 32
# OF APPRENTICES	HOURLY LABOR RATE
2	\$ 23

**CALCULATE >**

Your Savings

OPPORTUNITY TO DO MORE

## Please Complete the Online Evaluation



<https://www.surveymonkey.com/r/NECA2024SanDiegoConvention>

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## Labor Gaps on the Horizon

- Due to the age, attrition rate, and new entrant rate, the existing electrical workforce of 770,000 electricians and 110,000 line workers is projected to shrink by 28% by 2050
- The difference between the projected electrical workforce and the electrical workforce need will exceed 251,000 workers (25%) by 2030, and 462,000 workers (45%) by 2050

