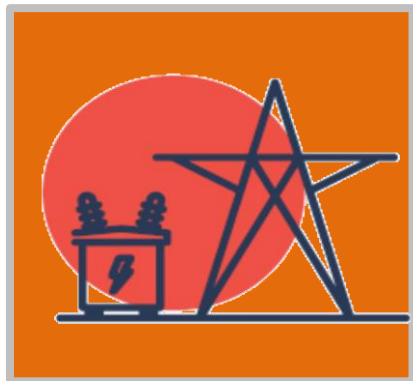


KEC International Limited

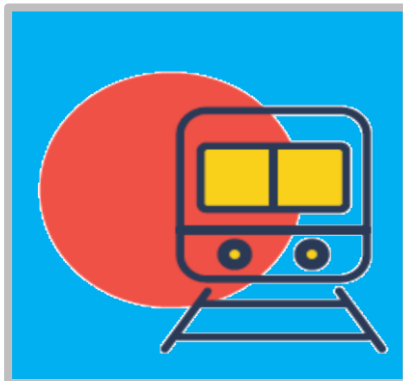
Team Members : Vijay Anand, Santosh Patil, Sumanta Sahu

Kaizen Theme:

Use of Mortar Spreader Tool to maintain uniform thickness of Blockwork mortar joint & reducing wastage of mortar



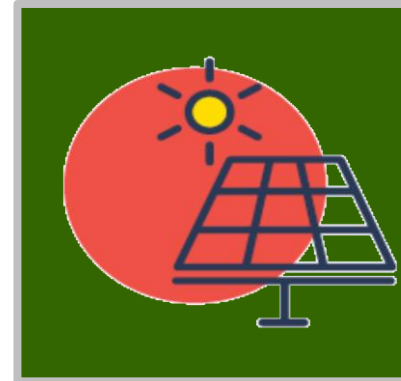
Power T & D



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Civil



Solar



Smart Infra



Cables



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RPG Group : Powered by Passion, Driven by Ethics

Founded by Shri RP Goenka in 1979

Turnover in excess of USD 4 billion

Footprint in 100+ countries

One of India's fastest growing conglomerates

20,000+ employees

KEC acquired by RPG Group in 1982



Late Shri R. P. Goenka
Chairman Emeritus
(RPG Enterprises)



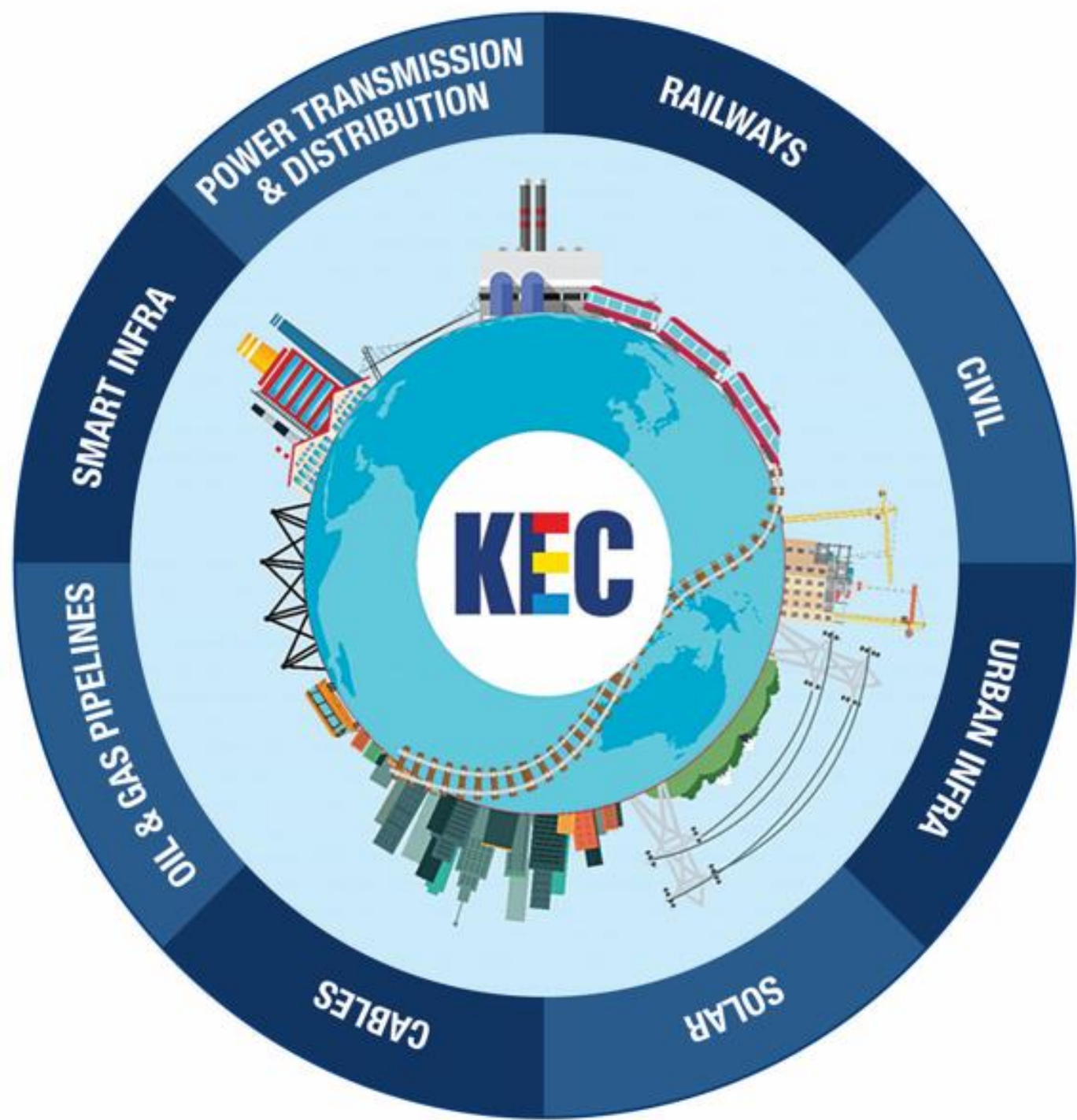
About Company : KEC International Limited

7+ **DECADES**
OF EXPERIENCE
& EXPERTISE

9000+
EMPLOYEES
35+ **DIVERSE**
NATIONALITIES

FOOTPRINT IN
105+
COUNTRIES

ONGOING
PROJECTS IN
30+
COUNTRIES



\$1.8
BILLION
GLOBAL EPC MAJOR

40%+
BUSINESS
OVERSEAS

Kai-Zen Introduction

Kai-Zen Theme

Use of Mortar Spreader Tool to maintain uniform thickness of Blockwork joint & reducing wastage

Presenters:

Mr. Vijay Anand



Mr. Santosh Patil



Mr. Sumanta Sahu



Kai-Zen Journey

Problem Faced:

Unable to maintain uniform thickness of Block jointing mortar in Blockwork by conventional method



Galaxy F62....Md Nasib

What is the need to take this Kaizen?

Laying Block jointing mortar by Conventional Method:

- leads to Un-uniform thickness of mortar joint
- Inferior product quality due to mortar thickness variation
- Increased mortar wastage
- Increased time consumption to do the activity

Kai-Zen Journey- WHY WHY Analysis and logical Reasoning

Problem: Unable to maintain uniform thickness of Blockwork jointing mortar

WHY

Conventional Method for mortar joint laying

WHY

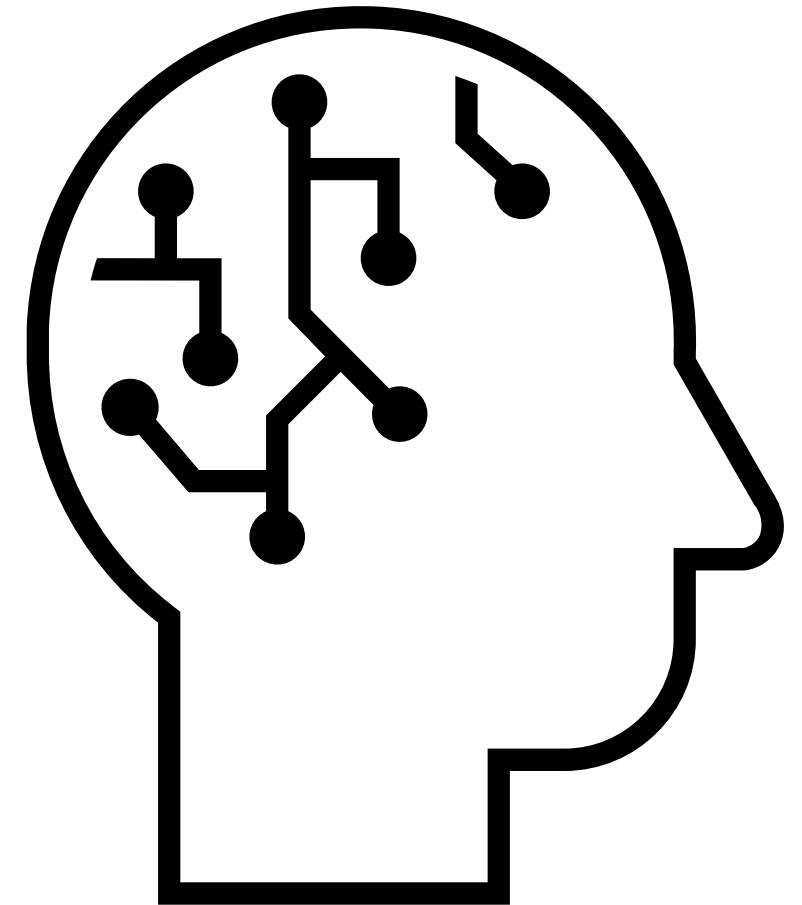
More wastage of jointing mortar

WHY

More time consumed in conventional method of mortar laying

WHY

Inferior Product Quality due to non uniform thickness of mortar joint

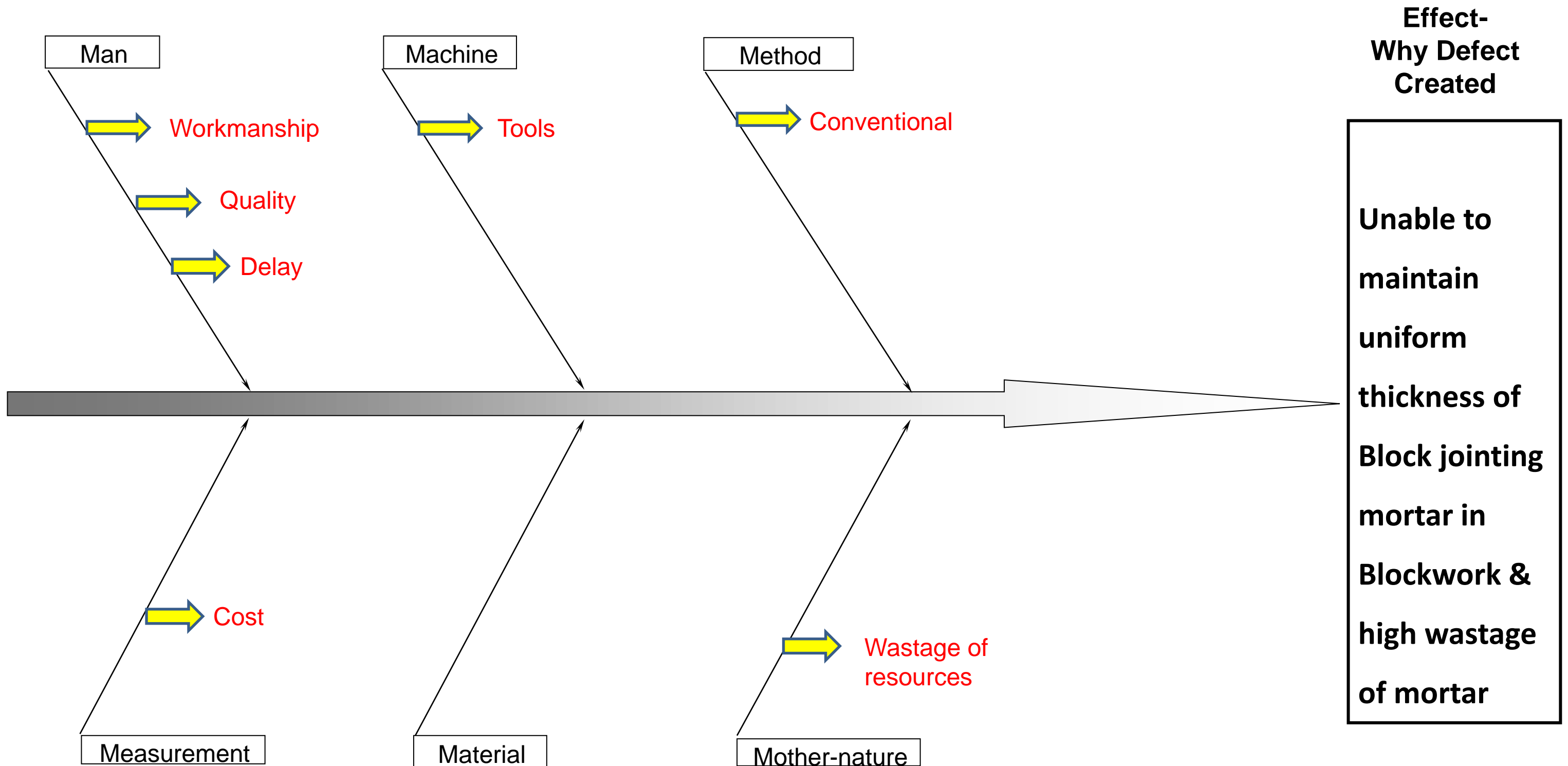


ROOT CAUSE

Conventional laying method leads to Un-uniform thickness in blockwork mortar joint & more mortar wastage

Kai-Zen Journey- Fish Bone Diagram

Cause- Why Problem Occurred



Kai-Zen Journey- Idea Generation

Idea Generation:

- Discussed with Project team to resolve Un-uniform thickness of Blockwork jointing mortar.
- Did brainstorming session for improvement in existing process involving Sub-contractors & Execution engineers.

Following ideas were generated:

Idea 1:
Mortar laying by conventional method & measuring thickness for the stretch

Uniform thickness maintained but

1. More time consumption
2. Skilled workmen required
3. More supervision required

Discarded

Idea 2:
Mortar spreader tool developed

1. Uniform mortar joint thickness
2. Less consumption of mortar
3. Increased productivity
4. Good Product quality

Developed

Kai-Zen Journey - Kaizen Development

Pre-Improvement:

- Un-uniform mortar joint thickness
- More wastage of mortar
- Less productivity



Post Improvement:

- Mortar Spreader tool developed to maintain uniform thickness of mortar joint ie.3-4mm
- Tool is made by site available materials such as cut pieces of shuttering plywood, Wooden runner, shuttering nails and mason hand tool.



Implementation of Mortar Spreader Tool - 3mm Thick



[Click Here](#)

Kai-Zen Journey- Results & Benefits

Results:

1. **Safety** : No Safety issues observed during the activity
2. **Productivity** : **25% mortar savings by using tool**
3. **Quality** : Product Quality enhanced due to uniform thickness of mortar by using tool
4. **Cost**: Cost saving **125452 Rs**
5. **Morale** : New method of mortar laying by tool developed

Benefits of using Mortar Spreader tool:

1. Uniform mortar joint thickness in blockwork maintained
2. 25% Mortar wastage minimized
3. Increased productivity in work
4. Good product quality
5. Easy to operate
6. No Re-work

Kai-Zen Journey-Saving of mortar in Project

Sr No	Description	Mortar cost per kg (in Rs)	Conventional Method Mortar consumption	Mortar Spreader tool Mortar consumption
			(Kg/sqm)	(kg/sqm)
1	Consumption of mortar	10.625	5.96	4.77

Conventional Method mortar consumption (Kg/sqm) = 5.96

Mortar spreader tool mortar consumption (Kg/sqm) = 4.77

$$\text{Saving of mortar consumption by using tool} = \frac{5.96 - 4.77}{4.77} \times 100$$

Therefore savings in mortar of 24.94% \approx 25% while using mortar spreader tool

Kai-Zen Journey- Cost Reduction in Project

- **Conventional Method:**

❑ Mortar cost per sqm (in Rs) = 63.32

- **Mortar spreader tool:**

❑ Mortar cost per sqm (in Rs) = 50.68

❑ Cost saving per sqm (in Rs) = $63.32 - 50.68 = 12.64$

Total Masonry Quantity executed in Project (sqm)	9925
Total Cost Savings in Project (Rs) (9925 X 12.64)	125452

Kai-Zen Journey- Horizontal Deployment and Sustenance Plan

Horizontal Deployment :

Implemented in other projects





- Prestige project
- Philips carbon black project
- Brigade project

Sustenance Plan :

Use of mortar spreader tool has been standardized and mapped with new projects kick off meeting.

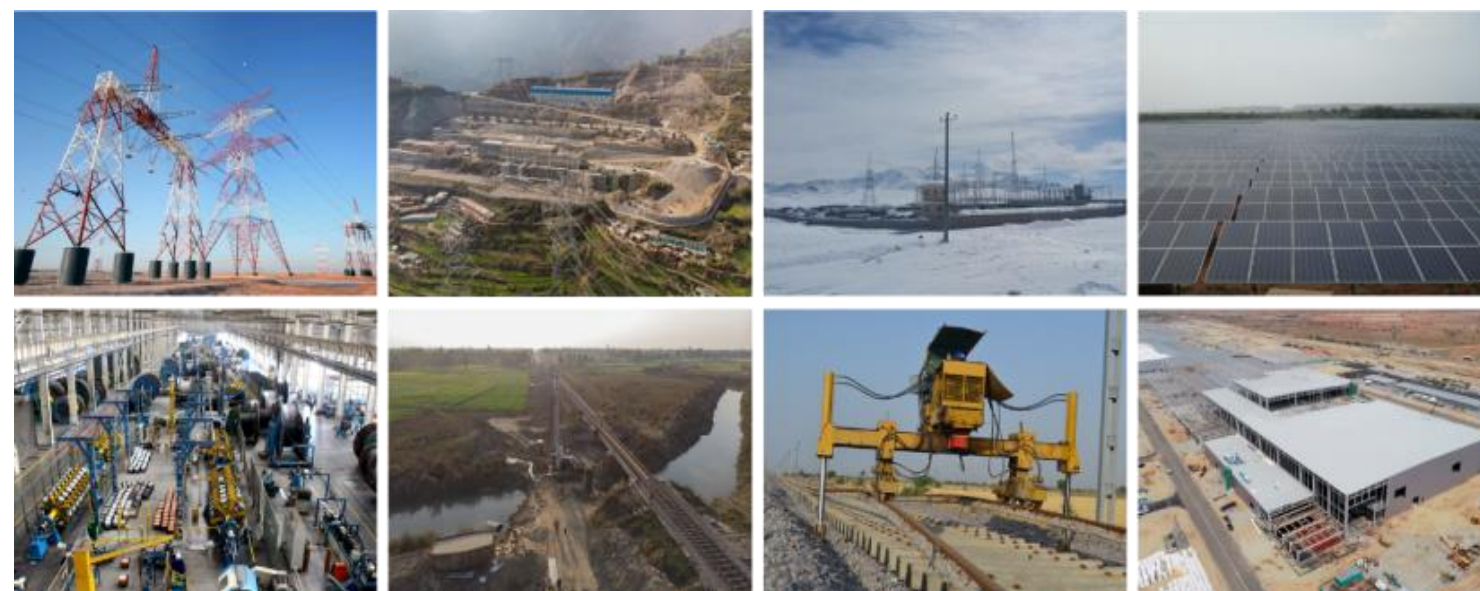


Kai-Zen Sheet

 14th Edition of 3M Competition-2023 Confederation of Indian Industry INSTITUTE of QUALITY	<u>3M KAIZEN IDEA</u>		Activity (Please select any)	Muda	Mura			Muri			 KEC International Ltd				
	Muda/Mura/Muri				✓										
	Tick wherever necessary		Benefit Area	P	Q	C	D	S	M						
Plant : KEC International Ltd Civil SBU		Area/Line/Machine : Blockwork Activity													
Kaizen Theme :		Idea (Logical correlation with root cause) :													
Use of Mortar Spreader Tool to maintain uniform thickness of Blockwork joint & reducing wastage		Mortar spreader tool was developed to maintain uniform thickness of mortar joint,time saving,cost saving and wastage control													
Problem/Present Status :		Countermeasure (Engineering solution):				Base Data									
(In words)		Before :		After :		Target									
Unable to maintain uniform thickness in Block jointing mortar.		1.More wastage 2. Un-uniform thickness of jointing mortar attract inferior quality 3 More time for activity Inferior Quality		1.Maintained uniform thickness of mortar layer & got good coverage. - Minimum wastages - Save time of working as compared to manual working as well as manpower. - Improves Quality of work		Kaizen Start		30-10-2022							
						Kaizen Finish		10-11-2022							
						<u>Team Members</u> 1. Vijay Anand 2.Santhosh Patil 2.Mr Sumanta Sahu									
(Illustration with sketch)		 Before condition :		 After condition :		Benefits: (P,Q,C,D,S,M) 1.Productivity:Saving of mortar adhesive by 34% 2.Quality:Uniform thickness of block joint maintained 3.Morale: New method of Block joint mortar laying developed									
Analysis why - why analysis :		Results :				Sustenance: Use of mortar spreader tool has been standardized and mapped with new projects kick off meeting.									
Problem Phenomena :		1.Uniform thickness of mortar maintaineed 2.Wastage of mortar minimized 3. Time Saving 4. Cost Saving				Scope & Plan for Horizontal Deployment									
Why 1 : Unable to maintain uniform thickness in block mortar joint						SN		Area		Target date		Responsibility		Status	
Why 2 : More wastage observed on block jointing mortar/adhesive						I		1.8 lakhs mtr2		15-02-2023		Navin Kumar		Applied and good result	
Why 3 : Time consumption is more as compared to conventional working method															
Why 4 : Inferior Product Quality due to non uniform thickness of moratr joint															
Root Cause : Un-uniform thickness observed in blockwork mortar joint by hand laying		(Illustration with line chart)													

Q & A

THANK YOU



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