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Influence of Fire on Steel Reinforcement in R.C.C Structure

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Abstract: ***From last two decades, the construction industries had become not as effective including having traditional projects deliverance systems such as IPD, DB, DBB & CMR. Volume of wastes (human, funds, materials, as well as including time) in constructions activities are not suitably reduced due to the complication of infrastructure project. For wastes reducing proper optimize solutions and interdisciplinary teams are needed. The aim of Integrated-projects delivery (IPD) is to improve projects outcome with the help of collaborate approach by ahead concerned of all party, while Lean-constructions refer to the adjusting of the concept along with principle of the Lean-productions systems to construction for broaden values along with reduction into wastes material. So, Lean Integrated-Projects Delivery (LIPD) is the finest options as a combined collaboration alliances and malty parties agreements of IPD for accomplish combined projects aim and Wastes reducing strategy of lean for customers satisfactions. such work are act like experiments to develop wastes generation models of construction-waste for LIPD in infrastructure project of Gujarat. Sum of more than 75success factor are relate to wastes generation were identify in eight various part from the review of relate literature and interviews with field expert. The questionnairy are design based on factor identified and requirements of LIPD which are fill by 40 expert of an infrastructure-projects. AHP study is use for extracting 15 most censorious factor from sum of number of factor which were responsible of wastes generations. Factors study is use for the cross verification of result of AHP study. Interpretive-Structural-Modeling (ISM) is used for development of hierarchy based models in references of depend on and driving powers of 15 Most censorious factor. This would act as a design making support tools of projects teams of wastes reductions using LIPD. Key words: AHP, ISM, LIPD, Wastes Generations, Construction Activity, Wastes Reductions.***

I. INTRODUCTION

We fight fires in every sort of building: people‘s homes, in high rise office buildings, factories, shops, schools, restaurants, hotels, electrical substations, sporting facilities, scout halls and museums. In all building fires, the priority is to save lives. Firefighters are trained to search a burning building, wearing breathing apparatus to protect themselves from the smoke, and rescue any occupants. In homes, this includes searching in and under beds, in cupboards or behind furniture or anywhere else where someone may have fallen or hidden. In high rise buildings and commercial premises like factories and shopping centers, firefighters work with the building fire wardens and use the fire safety systems to protect and evacuate the occupants as well as conducting search and rescue.
The second priority is to save property. We aim to stop the fire spreading and then put it out as fast as possible, minimizing the damage to property. In 2001/02 we confined 65% of building fires to the object or room of origin. Once the fire is out, we assist the building owners and occupiers by salvaging furniture or other items from the damaged area, protecting them from further smoke or water damage, making sure that nothing is left smoldering and all safety hazards are identified and the premises are secure.

II. NEED OF STUDY

Concrete being the commonly and widely used material in construction, research on resistance to fire has come to light as fire is one of the serious potential risk to integrity of a structure. All over the world researchers have done research on this. With increase in temperature mechanical properties of all building materials start degrading. The behavior of reinforced concrete structure depends on its constituent materials, concrete and steel and their properties at high temperatures. Both materials showcase considerable change in physical properties, strength and stiffness after exposure to heat and some of the changes are permanent in nature.
So it becomes necessary for steel member in a structure to be safe, economical and easily applicable and not get damaged or collapsed in case of a fire incident. The yield strength of steel degrades as it is exposed to heat and is 1/3 of the strength at room temperature what it is at 600^{o} C, to prevent this a fire resistant coating is applied which keeps steel member at lower temperature than the temperature in the structure during fire. This also depends on the distance of the steel member from centre of fire and ventilation also helps in keeping the temperature of the member at low point.
Due to increase in temperature of composite steel concrete element its yield stress, young’s modulus and ultimate compressive strength are decreased which results in decrease in load bearing strength. Due to constant and prolonged exposure to fire load bearing resistance can decrease to the level that structure is collapsed.

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III. OBJECTIVES

To identify and rank the factor for Lean-Integrated Projects Delivery (LIPD) to reduce wastes generations.
To develop ISM model for wastes generation in Lean Integrated Project Delivery (LIPD).

IV. SCOPE OF WORK

The scope of this work is restricted to infrastructure projects of Gujarat.

V. RESEARCH PLAN

No.	Activities	Time Line 2017-18									
		Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.
1	Projects Finalization										
2	Literature review										
3	Data-collection (Interview)										
4	Data-collection (Questionnaire)										
5	Data Study & Development of Models										
6	Conclusions										
7	Final-Report Preparations										
8	Reports Submissions										

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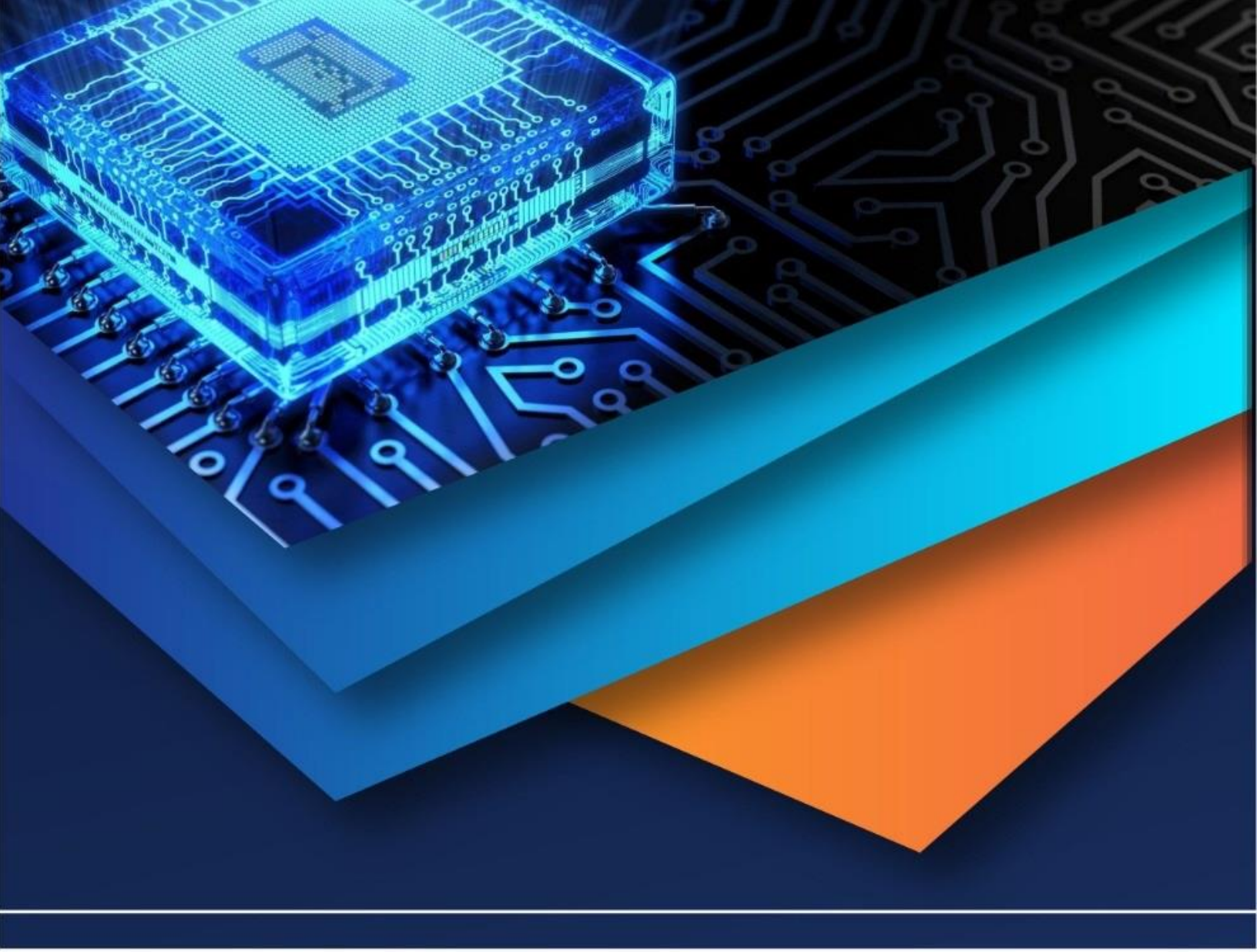

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