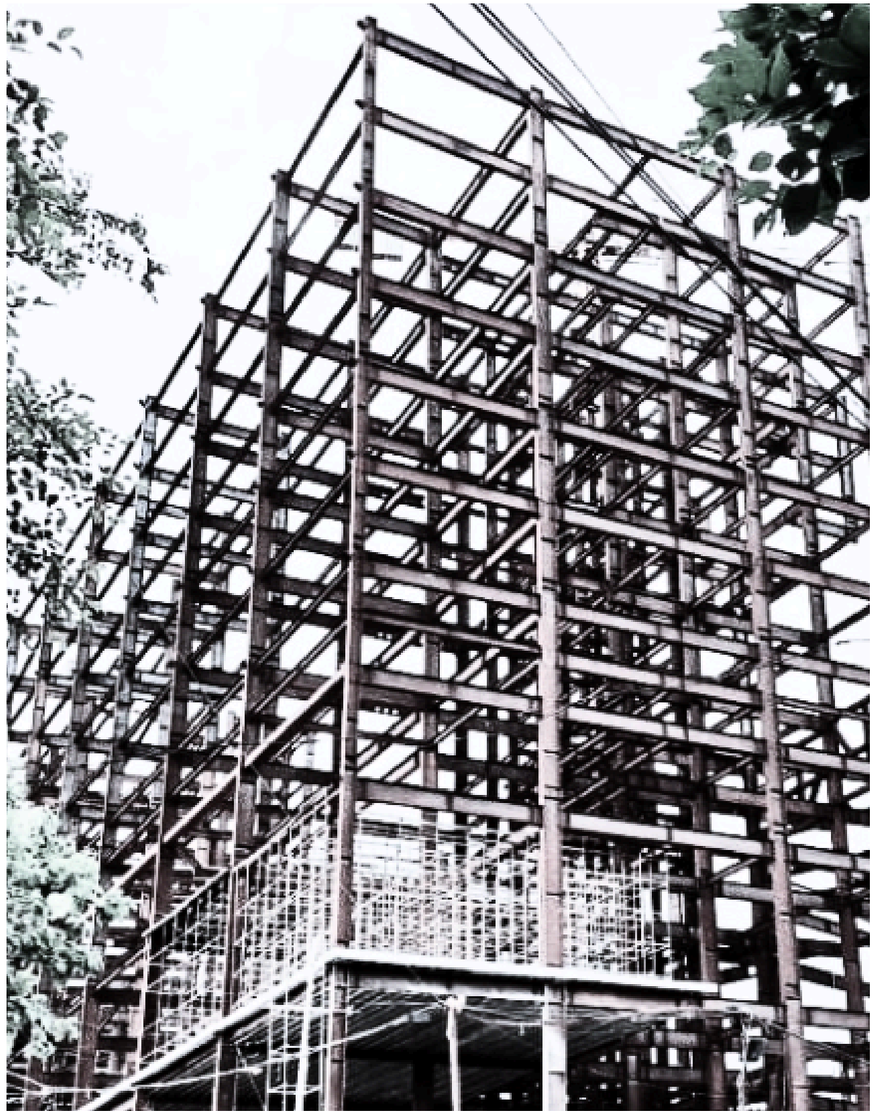


REDEFING STEEL CONSTRUCTION

VERTICAL PERFORMANCE STRUCTURES

AI & INNOVATION DRIVEN STEEL STRUCTURES

We offer one of the world’s most efficient patented generative structural design and construction system in steel.

OUR LOGIC

OPTIMIZED STRUCTURE = LESSER RESOURCE = LIGHTER STRUCTURE = **LESSER COST.**

VERTICAL PERFORMANCE STRUCTURES

BRIEF BACKGROUND

Our patented tech was devloped in 2016 and tested till 2020. VPS was incorporated in 2020.So far, we have sucessfully **built over 1 million sqft and optmized 5 million sqft in various projects, using our technology**.
We have worked on 5 star hotels, mutistory warehouses, bridges, commercial and instutional buildings, mutistory parking lots, Industrial buildings and many more.

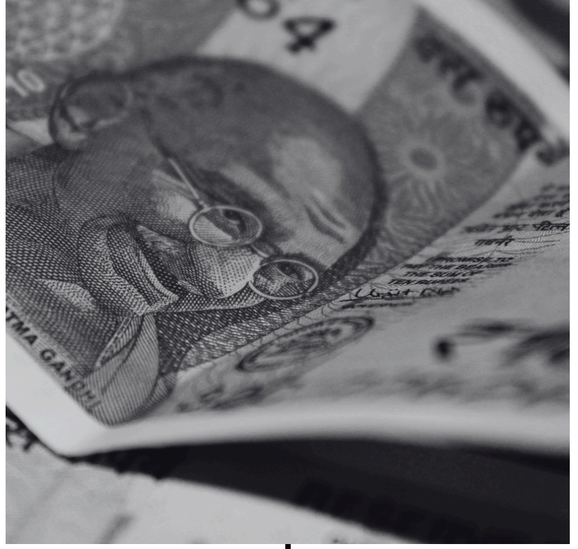
Our paitented technolgy has been vetted by :

- **Dept of Civil Engineering Indian Institute of Science, Bangalore, India.**
- **Dept. of Civil Engineering Herriot Watt University, Edinburgh, UK.**
- **Tata Steel Engineering department.**
- **Colliers International**

OUR PROJECT ADVANTAGE

LEAN

Our structures uses 40% - 50% lesser steel in comparison to existing steel construction system.



ECONOMICAL

Cheaper by upto 30% in comparison to grade A RCC construction. We Use 70% lesser labour.

EFFICENT

Faster complition by 30% as compared to RCC construction, with industrial perfection and better structural performance.

OUR DESIGN ADVANTAGE

FLEXIBILITY

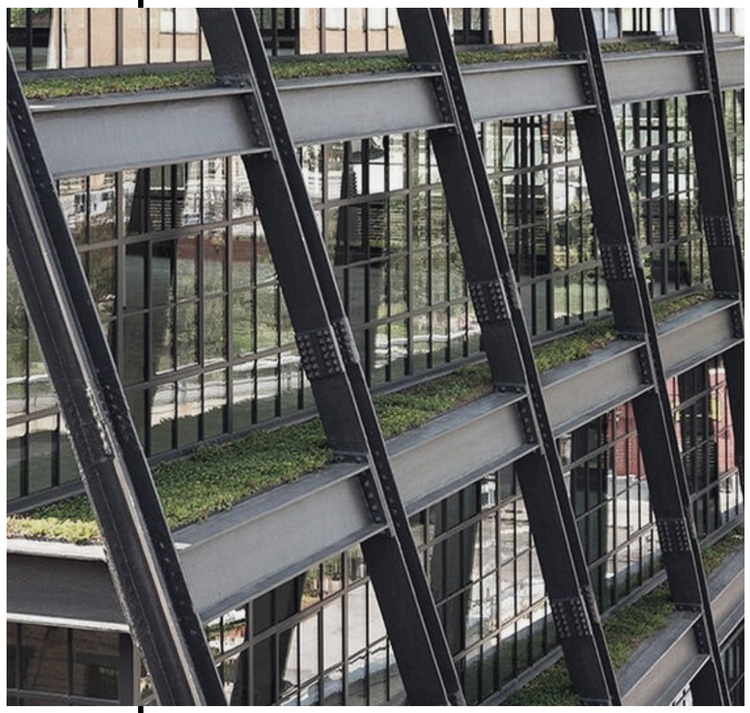
Column free spaces and bracing free elevations with spans upto 16mtrs. Flexible to changes and design intent.

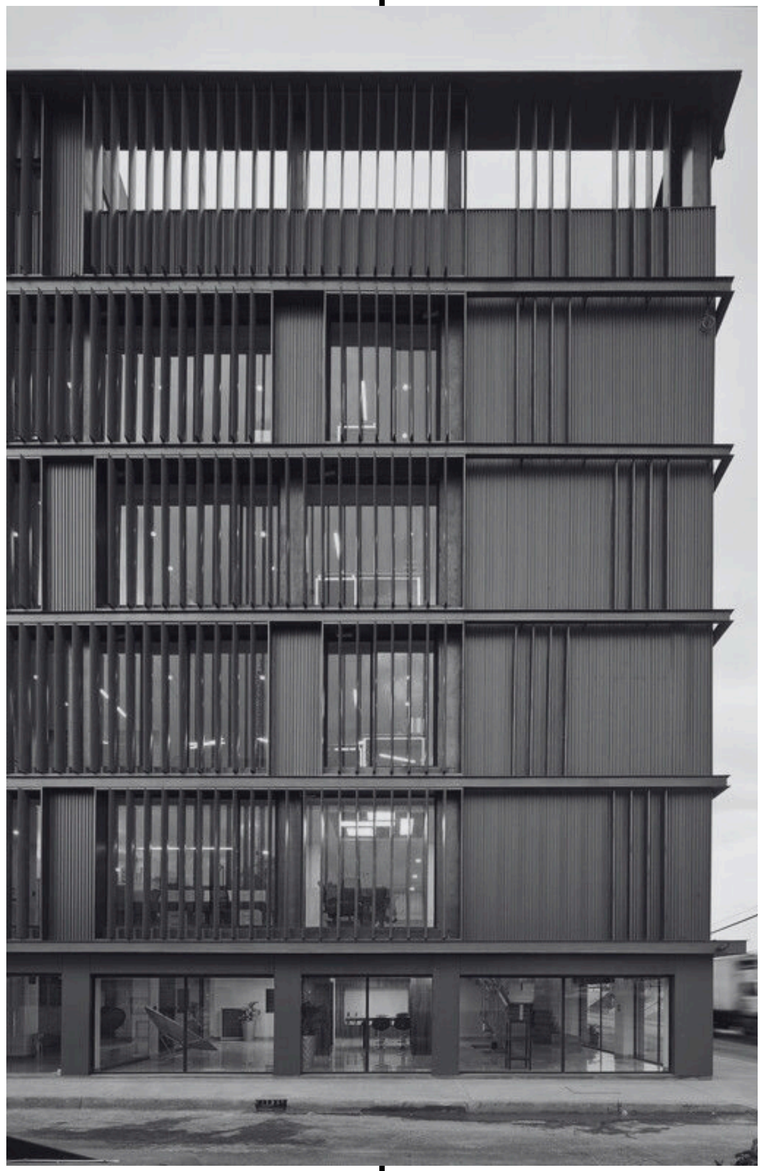
RELIABILITY

Designed in compliance to Indian , British and American standard codes for steel structures.
Easy to check using any leading structural design software.

PERFORMANCE

Our structural performance is better in all prameters as compared to conventional steel structures





CREATE AND NEW LANGUAGE OF ARCHITECTURE

with simple, lean, clean yet bold vocabulary.

5 THINGS THAT SETS US APART

FOCUS ON PRE ENGINEERED STRUCTURAL STEEL CONSTUCTION

which allows for better recource management, precise calculations, better efficiency and QC.

PATENTED A.I BASED GENERATIVE STRUCTURE DESIGN

which helps optmize our structures leading to superior efficiency.

PATENTED SLAB SYSTEM

Which improves our structuctural stablity and helps cut min 20% cost.

PATENTED STRUCTURAL JIONTS DESIGN

Which improves our structuctural performace and allows leaner / cleaner structures.

IP PROTECT PROCESS MANUALS

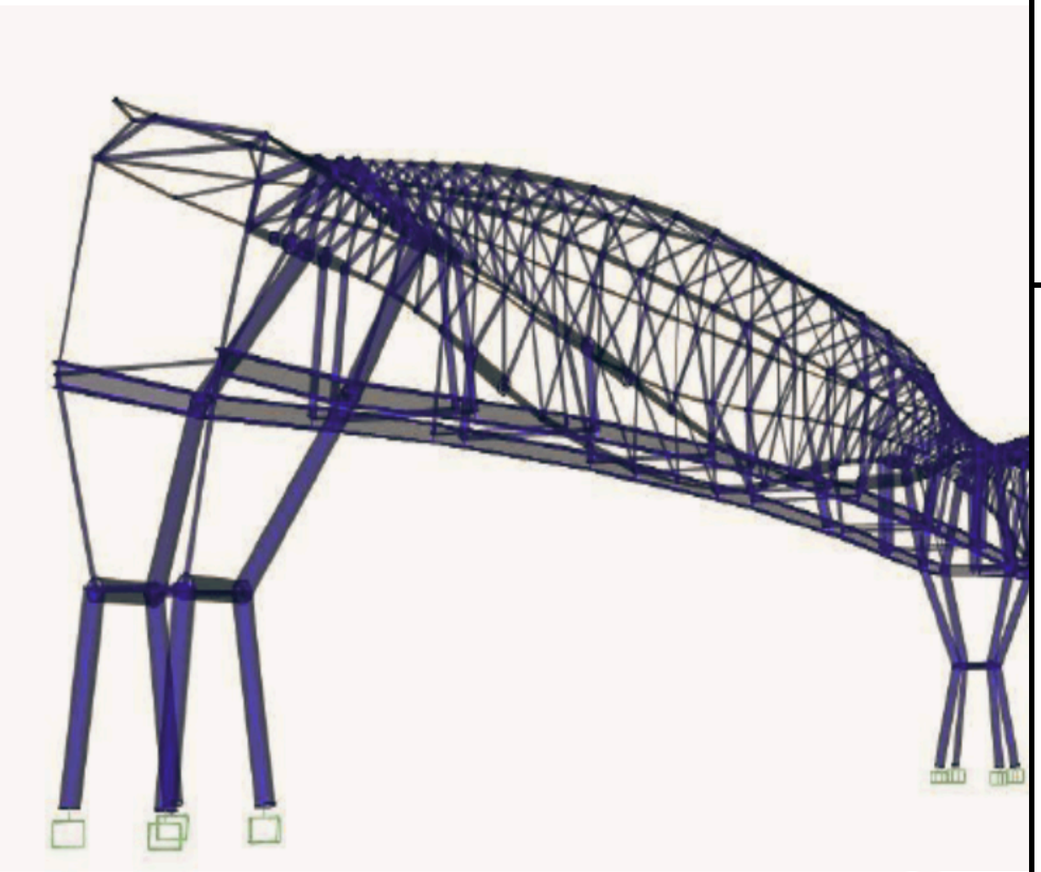
Detailed SOP’s and OLA’s for the entire construction journey to bring efficincy and quality.

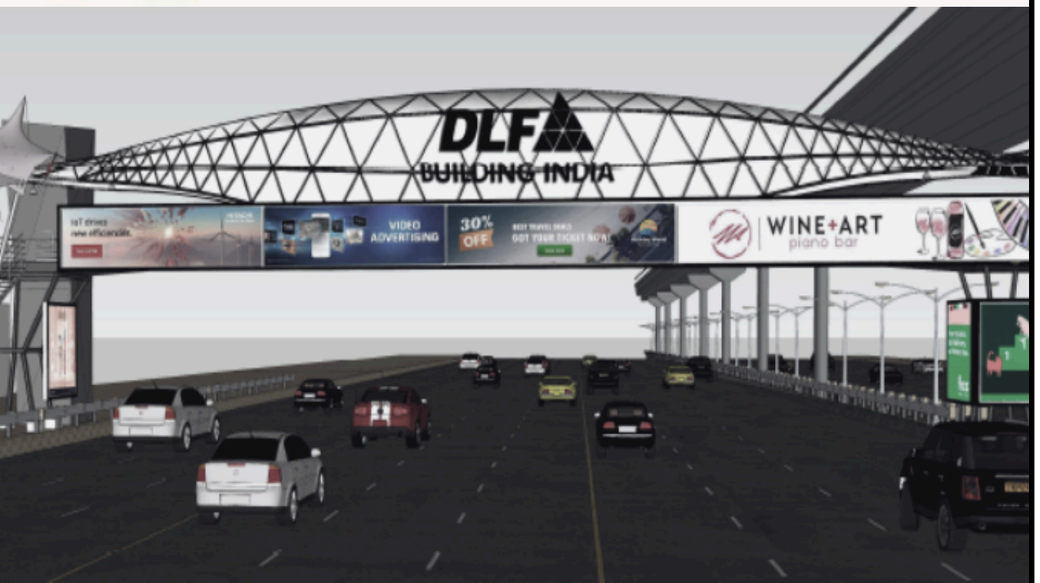
PRE ENGINEERED STRUCTURAL STEEL CONSTUCTION

We belive Structural steel construction is the only way ahead for grade A construction because ...

- As devlopment becomes vertical the viabiliy and acceptance of structural steel buildings increase. Supported with a steady 15% YOY growth of fabrication support.
- With precise computation custom design and build of PEB section allows for use of stronger grade of steel and better resouce management.
- Being 100% recyclable, structural steel becomes much more sustainabe overe the product lifecycle and also negates on-site pollution.
- Parallel offsite fabrication allows for agility in construction and hence makes it 30-40% faster than conventional RCC.

We have pan Inda network of audited PEB fabrication partners.





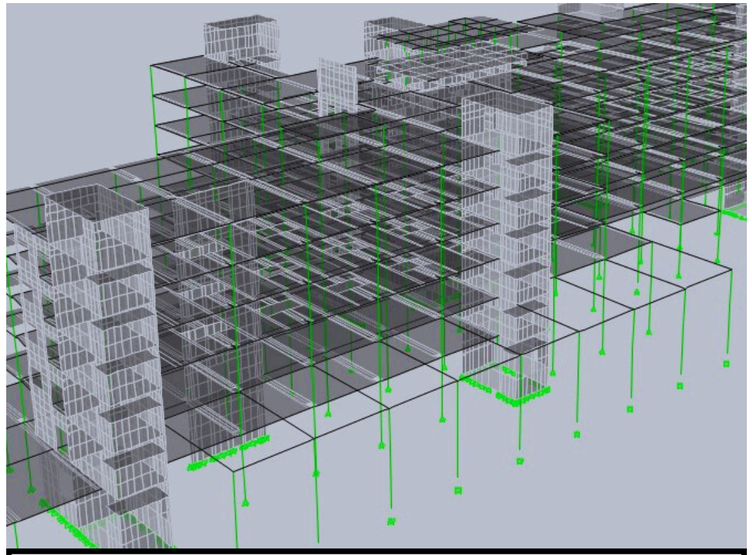
D.S.P.M- OUR PATENTED A.I BASED GENERATIVE STRUCTURAL DESIGN ALGORITHM.

DIRECT STRESS PATH MAPPING (DSPM) is an Ai driven, first of its kind in the world patented algorithm that designs the most optimized structure, aligned to most optimized stress path for load transfer.

It can be customized as per the architectural intent and functional needs. It follows the Indian and American standard codes for design and is compliant with EU norms.

The output can be reviewed or vetted using existing software like ETABS, SAP2000, STAAD.

A DSPM generated design of a foot over bridge (135 m span) , that reduces the material consumption by 50% over the conventional FOB design.



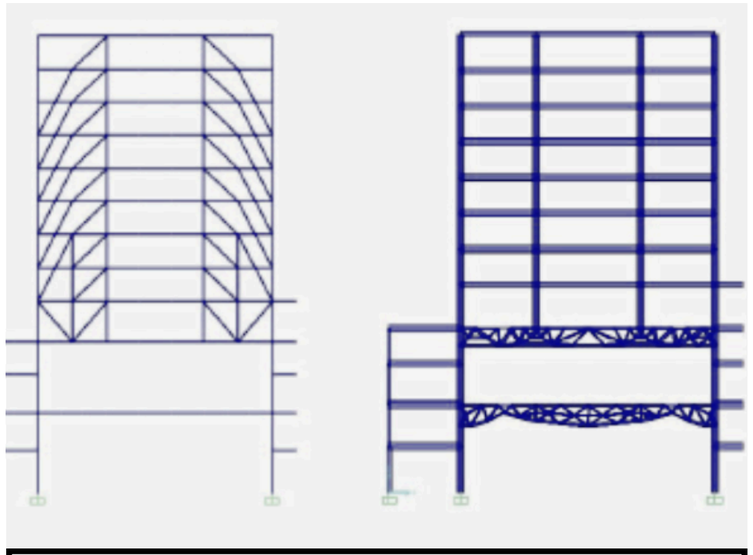
OPTMIZING GRID LOCATION

Testing over 4000 combinations and structural configurations in minutes, DSPM helped optimize the structural design of 2million sqft office space for L&T constructions. Reducing the over all cost by 35%.(200 mm displacement of 2 columns keeping the architectural intent intact led to a saving of 150 tones of steel)

.

OPTMIZING THE SHAPE OF COLUMN

Inclined columns along calculated stress paths provide better stress distribution. Further, by varying the flange thickness on the tension and compression sides (6mm and 8 mm) of the specially designed column DSPM helped reduce the material consumption of the steel in the Aurinko School by 50%.



REIMAGINING THE SKELETAL FRAMEWORK

Unique Organic bracing systems suggested by DSPM in the wall help bring down the dead load stress on the ball room slab of Proposed Hilton, Jaipur .
Bring the beam thickness down from 1500 to 600 mm giving 30% material saving over the entire project

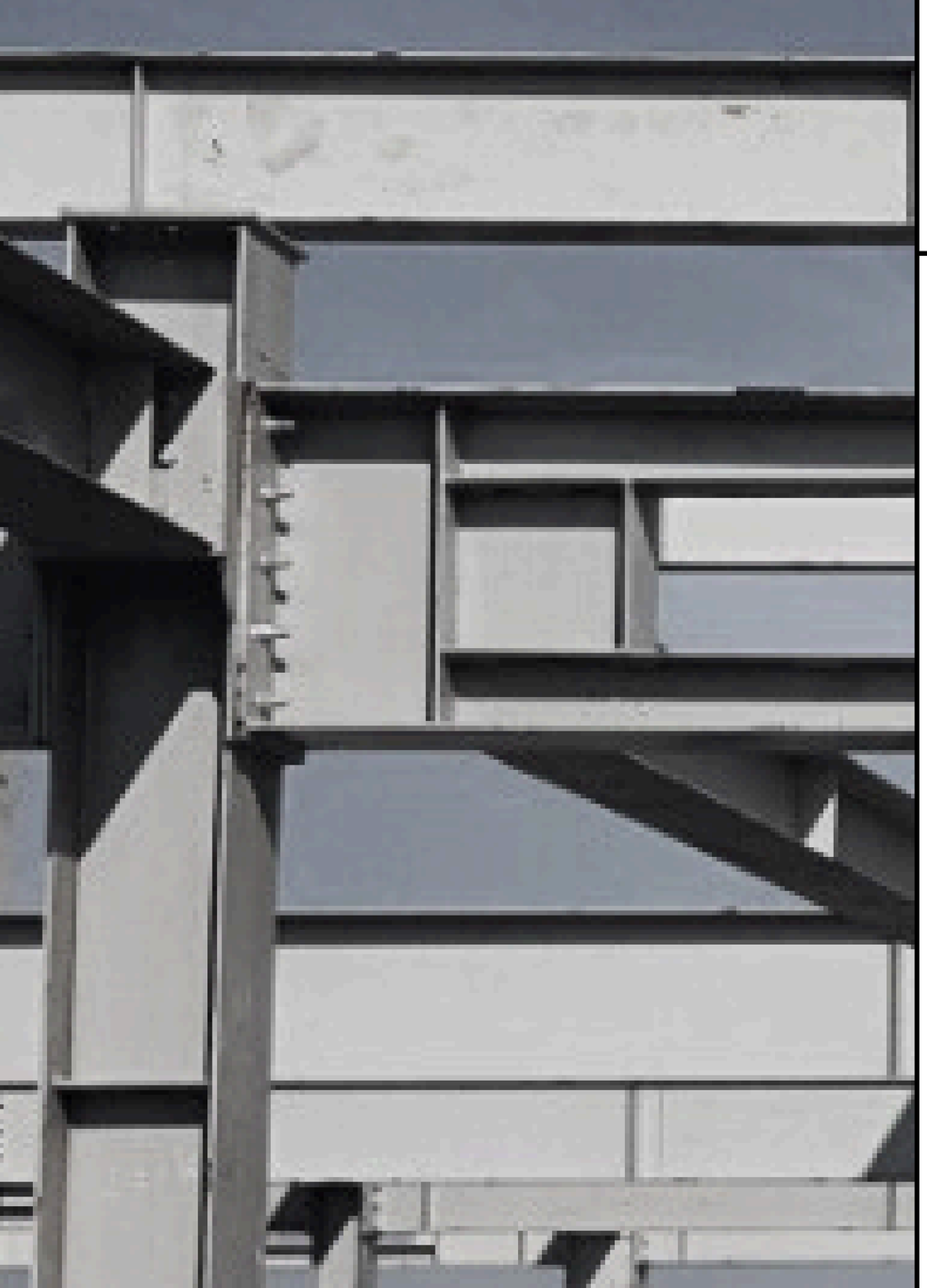
PATENTED DEEP RIBBED SLAB SYSTEM

DSPM utilises a trapezoidal deep deck profiled ribbed slab. Spans without intermediate supports upto 16 m are possible.

Designed as a continuous 215 mm thick Ribbed Slab, with sacrificial shuttering. It participates in the structural stability and reduces vibrations.

While consuming 25% lesser concrete than convential RCC slab of similar thickness. It removes the need of using any secondary structural member which is commonly used in conventional steel buildings.

It has better tolerance to design changes like wall ppsitioning changes and core cutting. The sacrificial corrigated shuttering also allows for aesthetically pleasing open ceiling .

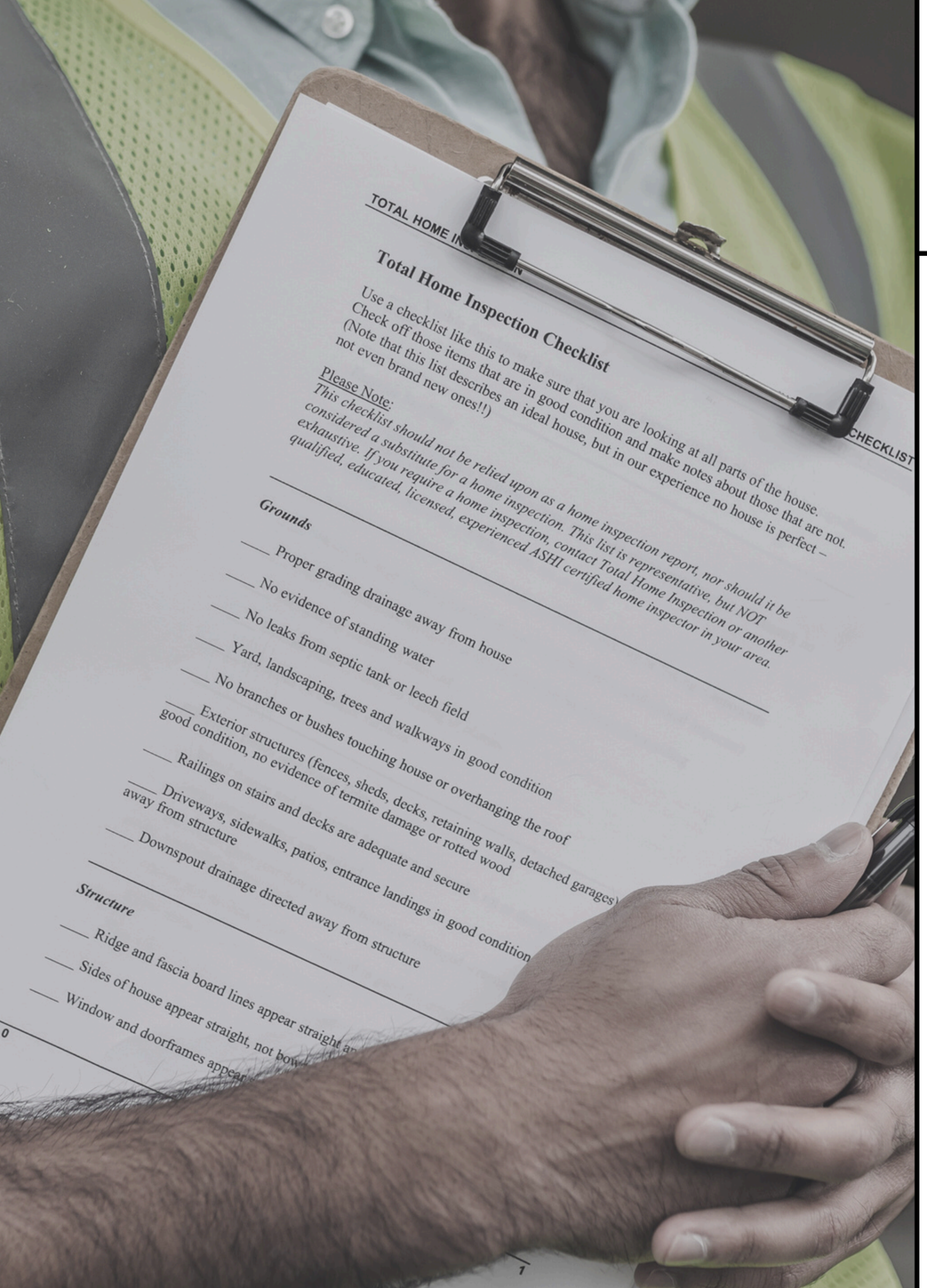


PATENTED STRUCTURAL JIONTS DESIGN

The patented DSPM bolted joint design, using doubler plate follows continuous stress path across all joints to ensure ductility of joints to improve wind / earthquake / cyclic loading resistance

Negates the need for ugly elevational bracings and allows for services openings within beam upto (400 x1200 mm) in a 600 mm thick beam. Giving a little extra space free of services below the beam.

To ensure no deterioration along the joints, the surfaces participating in the joints are coated with a molten Aluminium spray.



IP PROTECT PROCESS MANUALS

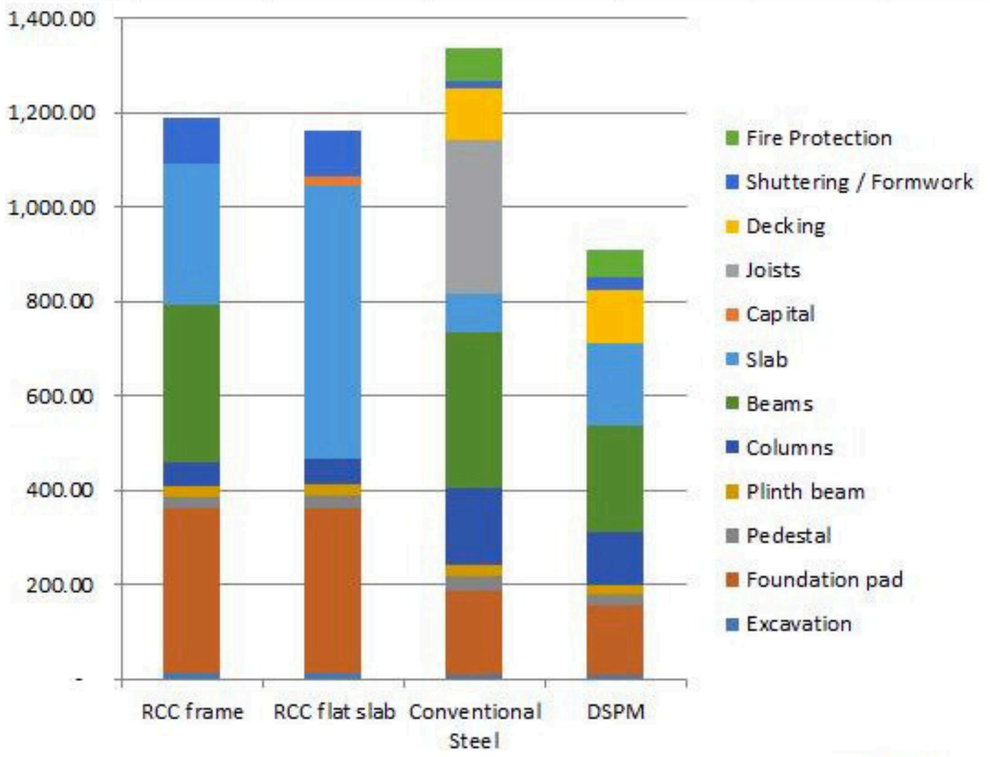
Process design and operation manual. The first of its kind for PEB structural steel buildings.

Process designed, using design thinking and TQM driven user centric approach to mitigate issues of design, procurement, co-ordination, fabrication and on-site erection. It is designed keeping quality, efficiency and safety in mind.

We ensure the production quality though audited, trained and onboarded vendor network across India.

COMPARITIVE PERFORMANCE

Construction cost comparisons for earthquake zone 2, DSPM buildings use an average of 4.5 KG/ SFT of steel for the civil structure



Key savings in foundations and cost of joists (secondary members)

	UNIT	RCC FRAME	RCC FLAT SLAB	CONVENTIO -NAL STEEL	VPS USING DSPM
Cost of construction (earthquake zone 2)	Rs/ Sqft	1150	1135	1125	**850**
Time of construction (avg)	days	250	250	130	**150**
Economical span	m	5-7	7-10	5-7	**8-14**
Slab thickness	mm	225	225	225	**225**
Optimum live load	kN/sqm	1.5 – 5.0	1.5 – 5.0	1.5 – 5.0	**1.5 – 5.0**
Hight loss due to beam depth	mm	500	100	300	**100**
Flexibility of moving walls		Poor	Average	Good	**Very good**
Earthquake resistance		Good	Average	Good	**Very good**
Fire safety		Good	Very good	Poor	**Good**
Vibration resistance		Very good	Very good	Poor	**Very good**
Stress distribution		Good	Good	Very Good	**Very good**

DESIGN TO FINISH IN 5 MONTHS

L&T technology services - 50000 sqft office in Mysore was finished in record time and cost .

OUR SERVICE OFFERINGS

LEAN OPTMIZED STRUCTRAL DESIGN

LEAN optmized Structral design using Patented DSPM algorithym.

TURN KEY DSPM STRUCTURAL SOLUTIONS

End to end design and exicution of structures designed by us.

QUALITY CONTROL

Quality control and process management of the entire project journey using the VPS manual.

SUPPLY OF DSPM DECKING SHEET

Ony we manufature and supply the patented decking sheets used in the DSPM patented slab system.

OUR PROJECT JOURNEY

1

PROJECT ALLIGNMENT

Collection of architectural layouts,and intent structural loading requirements, soil test reports, codes and by laws applicable. Collection of assesment fee.

2

BASIC OPTMIZED STRUCTURAL DESIGN

Using DSPM optmization. delivery of DBR, basic BOQ and estimation, financial cashflow analysis. Signoff and collection of advance fee

3

PEER REVIVEW

Sharing of the structural model

4

DETAILED DESIGN

Collection of architectural layouts,and intent structural loading requirements, soil test reports, codes and by laws applicable. Collection of assesment fee.

5

FABRICATOR & CONTRACTOR ONBARDING

Collection of architectural layouts,and intent structural loading requirements, soil test reports, codes and by laws applicable. Collection of assesment fee.

6

RELEASE OF GOOD FOR CONSTRUCTION DRAWING

Collection of architectural layouts,and intent structural loading requirements, soil test reports, codes and by laws applicable. Collection of assesment fee.

7

PRODUCTION MANAGEMENT

Collection of architectural layouts,and intent structural loading requirements, soil test reports, codes and by laws applicable. Collection of assesment fee.

8

ERECTION MANAGEMENT

Collection of architectural layouts,and intent structural loading requirements, soil test reports, codes and by laws applicable. Collection of assesment fee.

9

HANDOVER

Collection of architectural layouts,and intent structural loading requirements, soil test reports, codes and by laws applicable. Collection of assesment fee.

AMAZON INDIA

L&T

ITC

DLF

J.W MARRIOT

BROOKFIELD PROPERTIES

AURINKO ACADEMY

BLUEPRINT PROJECTS (USA)

DN HOMES

MARUTI UDYOG

STARTS CORPORATION (JAPAN)

L&T TECHNOLOGY SERVICES

SUMADHURA CONSTRUCTIONS

VARSHA CABLES

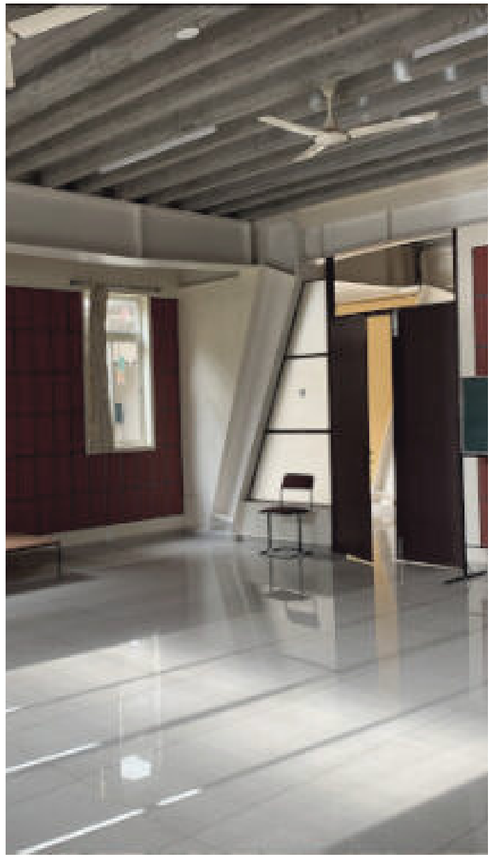
JSW - MOS

FEW CASES

A QUICK OFFICE BUILDING

AREA	**55,400 sft**
FLOORS	4 floors (G+3)
HEIGHT	14.9 m
LOADING	4 kN/sqm
SEISMIC ZONE	ZONE II
OPTIMIZATION VS COMPETETION	**255 MT Vs 350 Mt**
ECONOMY	**Rs 915/sqft (saving Rs 1.1 Cr)**

Turn key project completed in 5 months (with interiors in 8 months).



A DISMANTLABLE SCHOOL

AREA	**24,000 sft**
FLOORS	3 floors (G+2)
HEIGHT	10.8 mtrs
LOADING	3, 4 kN/sqm
SEISMIC ZONE	ZONE II
OPTIMIZATION VS COMPETETION	75 mt vs 140 mt
ECONOMY	**Rs 810/sqft (saving Rs 45 lakhs)**

First DSPM designed project with bent steel colums and pre cast slabs. The entire structure including fundatons are designed to be be dismantalable.

A HEAVY DUTY MULTI LEVEL WORKSHOP	
AREA	**30,000 sft**
FLOORS	3 floors (G+2)
HEIGHT	15 m
LOADING	**7.5, 10 kN/sqm**
SEISMIC ZONE	ZONE II
OPTIMIZATION VS COMPETETION	156 MT vs 225MT
ECONOMY	**Rs 980/ sqft (saving 60 lakhs)**

DSPM designed multifloorautomotive works ware house

A COMPLEX 5 STAR HOTEL	
AREA	**3,50,000 sft**
FLOORS	14 fllors (@basements + G+11)
HEIGHT	59.4 m
LOADING	15,5,2.5 kN/sqm
SEISMIC ZONE	ZONE III
YEAR OF COMPLETION	WIP -2023
OPTIMIZATION VS COMPETETION	2200 MT Vs 4200 MT
ECONOMY	**Rs 1187 / sqft (Saving Rs 18 Cr)**

A complex structure with large cantilever, roof top pools, triple height ball rooms and a an added floor.

KIRAN KAKDE

Structural engineer/ architect / innovator - Team principal

He has held several positions as Design Director and head of Planning and Integration, with 25+ years of experince working in India, Europe and middle east .

Kiran is a keen innovator who is driving key researches at has several published academic papers to his credit (including the core program that became the base for SAP200 and Etabs).

NIMESH PILLA

Architect / innovation coach / strategist - Sn Advisor

In the last 18 + years Nimesh has lead Design strategy and Innovation practice for various national and multinational firms like KPM, IBM, Godrej Properties and Future Group.

vertical
PERFORMANCE STRUCTURES
a change state innovation

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