

Announcement for NACS (C) 2025

NATIONAL AWARD SCHEME FOR CIVIL/STRUCTURAL ENGINEERING STUDENTS FOR BEST INNOVATIVE STRUCTURAL STEEL DESIGN

THEME: Cost Effective & Innovative Steel Roof Structure of a Land Port Building

THE INSTITUTE

The Institute for Steel Development and Growth (INSDAG) is a not for profit, member-based organization, promoted and established at Kolkata by the Ministry of Steel, Government of India and the main steel producers of the country. Some of the major roles of the Institute are: awareness about benefits of steel and steel usage; preparing guidebooks, handbooks to facilitate cost effective design and construction by professionals; upgrading competence and skills of professionals by organizing refresher courses / training; communicating the benefits of steel vis-à-vis other competitive materials through life cycle cost studies etc.; regular interaction with Bureau of Indian Standards, Indian Road Congress and RDSO (Railways) for expediting revision in steel related codes for efficiency and cost effectiveness; providing requisite thrust to increased usage of steel and a host of other activities.

To work in unison
with all the
stakeholders
in the Steel Industry
so as to evolve
ways & means for
more efficient
use of steel
and provide
optimum value o the
customer

THE COMPETITION

This National Level “Competition for Civil / Structural Engineering Students for Best Innovative Structural Steel Design” organized by INSDAG is entering into **25th** consecutive year. This Competition aims at enkindling the thoughts and skills of the students to come with efficient designs reiterating the multifarious advantages of steel intensive construction such as flexibility in design, economic and ecological benefits, speedy construction, cost effectiveness, life cycle cost benefit etc.

Owing to the keen interest generated among the students, INSDAG is pursuing the task of arranging an interesting and challenging competition every year for the students of Civil / Structural Engineering studying in the Colleges all over India with a view to recognize, appreciate and finally reward the talents of would-be Civil / Structural Engineers for “Excellence in Structural Steel Design”.

THE BRIEF

The **Brief** about the Competition is available in this brochure along with the **Announcement**.

THE PRIZE

1st Prize (1 no.)	:	Rs. 75,000/- + Certificate
2nd Prize (2 nos.)	:	Each Rs. 50,000/- + Certificate
3rd Prize (2 nos.)	:	Each Rs. 30,000/- + Certificate

Participation certificates will be provided to all the eligible participants.

ELIGIBILITY Full Time Undergraduate & PostGraduate Degree Courses.

UG: Final year / pre-final year) - Team of maximum 4 (four) students in the team

PG: 2 PG / 1(one) PG + maxm. 3(three) UG students

THE SELECTION

Four Zonal Selection Committees (one each from the East, West, North and South Zones) consisting of renowned academics and professional engineers are entrusted with the task of preliminary screening of the entries received in each zone. In this **Initial Round**, 16 (sixteen) best entries will be selected (preferably four from each zone) based on overall merit of the proposals, in accordance with the criteria formulated by the Committees.

Sixteen individuals/groups of the short-listed entries will be invited to Kolkata to display and present important aspects of their entry before the **Central Selection Committee** during the **Final Round** of Competition expected to be held around February- March 2025. The top five proposals will receive the **Prizes**.

ENTRY / APPLICATION

Last date to submit Expression of Interest (EOI): **25th September 2025.**

Submit Final Entry for the Zonal Round: **15th November 2025.**

Registration / EoI submission Link: <https://forms.gle/DKdDvMVn3UtQhY5p9>

Final design report shall be mailed to competitions@insdag.com.

The Zonal Coordinators

NORTH ZONE (J&K, Punjab, NCR, Haryana, UP, MP, Uttarakhand, HP)

Dr. Pabitra Ranjan Maiti, Professor

Civil Engineering Department

Indian Institute of Technology, BHU

Varanasi, UP - 221005

Email : pramaiti.civ@iitbhu.ac.in

SOUTH ZONE (Kerala, TN, AP, Karnataka)

Dr. M V Anil Kumar, Associate Professor & HoD,

Civil Engineering Department

Indian Institute of Technology Palakkad

Ahalia Integrated Campus, Kozhippara

P. O.- Palakkad Kerala - 678557

Email: anil@iitpkd.ac.in

EAST ZONE (WB, Bihar, Jharkhand, Odisha, Assam, Chhattisgarh, Tripura)

Dr. Avik Samanta, Associate Professor

Civil Engineering Department

Indian Institute of Technology Patna

Patna, Bihar - 801106

Email: asamanta@iitp.ac.in

WEST ZONE (Rajasthan, Gujarat, Maharashtra, Goa)

Dr. Tekcham Gishan Singh, Assistant Professor

Civil & Infrastructure Engineering Department

Indian Institute of Technology Jodhpur

NH 62, Surpura Bypass Rd,

Karwar, Rajasthan 342030

Email: tekcham@iitj.ac.in

EOI submission through google link in EOI form

Final Design report should be sent to the following

email: competitions@insdag.com

NO HARDCOPY required

Contact : Nibedita Dey (098305 66354)

SUBMISSION

The participants are advised to send their entries / applications containing the following:

1. General Arrangement and Design drawings showing Plan, Elevation and Sectional views highlighting the structural systems of the proposed structure. (Recommended scale for detail views should not be less than 1: 10). **Submission both in PDF and AutoCAD.**
2. Detail drawing(s) showing Structural Steel details: truss members, beams, column, bracings, claddings, etc. in accordance with 'Design Scope'. All drawings should be drawn in AutoCAD or similar software.
3. Drawing sizes should be **A3** only and should be presented in soft copies (**PDF & AUTOCAD**).

4. Design calculations (A4 size paper) should be complete in all respects and neatly presented, with suitable justification/assumptions as per Indian Standards. The use of standard analysis software like STAAD, SAP etc. is desirable. **Design checks for the selected sections (atleast one from each type) shall be presented manually preferably in Excel spreadsheets.** Analysis of at least one frame/truss must be done in 2D in case of plane framed structure. Connection design, typical detail of important junction, splice detail and detail sketches must be submitted.
5. All computer input and output files are to be submitted in soft form only.
6. The student team shall ensure that all submitted files, including CAD drawing, STAAD or SAP files, and Excel spreadsheet are functional and free of errors at the time of submission.
7. A brief write-up (Max. 2000 words, duly typed on A4 size paper) on the work (consisting of considerations / assumptions, description of the proposal, highlights / special features, etc.) duly authenticated by HOD / Principal shall be submitted.
8. Preparations of Perspective views, walkthroughs (videos) are not required and **will not carry any marks.**
9. A brief resume of the student(s) / applicant(s) containing name, address, phone / fax / e-mail, name of University / College, year of study and registration / roll number of the participant(s), and **recent passport-size** photographs (for each participant) should be submitted in **soft copy** only.
10. A certification from the Principal / HOD / Registrar of his / her Institute on office pad declaring bonafides under office seal / stamp should also be submitted.

OTHER RULES

1. **To be eligible for participation in the Competition it is essential for each student to enroll himself / herself as a student member of INSDAG before submitting application/entry to the respective Zonal Coordinators.**
2. Originality of work is essential, and the application will be disqualified, if found otherwise.
3. The decision of the Expert Committees will be final and binding. Canvassing in any form will lead to disqualification.
4. Family members and relatives of Expert / Selection Committee and INSDAG Employees are debarred from taking part in this Competition.
5. All the entries / proposals received by INSDAG at all stages of the above Competition will be treated as property of INSDAG and will not be returned to the participants. Moreover, INSDAG will not take any responsibility in case of missing any documents / communications from any side while in transit.

BRIEF OF NACS (C) 2025

INTRODUCTION

The landport building serves as an organized entry and exit point for people and goods moving across land borders between countries. It acts as a customs and immigration checkpoint and supports cross-border trade, security, and improves travel efficiency. India currently has 11 operational land ports (also known as Integrated Check Posts or ICPs), managed by the Land Ports Authority of India (LPAI).

APPOINTMENT AS CONSULTANT

Land Port Authority of India (LPAI) proposes to ramp up the land port infrastructures to facilitate smooth efficient handling of passengers, all required facilities like waiting areas, dedicated immigrant check counter, duty free shops, eating areas, currency exchange counters, belt conveyors, offices, hostels and other amenities for the passengers.

INSDAG wishes to provide most economical and aesthetically pleasing schemes and all relevant design and drawing thereof to LPAI. Considering that you have been appointed as a structural consultant for this project to Design a **Cost Effective & Innovative Steel Roof Structure of a Land Port Building** in upcoming Integrated Check Post at **Jaigaon, West Bengal in 87.5 acres' open area.**

1. Development of an Economical and Aesthetic structural scheme within the specified requirement.
2. Structural design engineering and Detail drawings for the developed structural scheme.
3. Bill of materials.

FACILITIES

The client has specified the following requirements for the proposed project:

1.	Site Location	:	JAIGAON, WEST BENGAL
2.	Dimension - Length x Width	:	72 M x 50 M
3.	Height	:	As shown in sketch
4.	Minimum spacing of column along the length of the building	:	12 M
5.	Clear Height, FFL to Bottom Chord	:	As shown in sketch (25 m at centre of the frame)
6.	Gable End	:	OPEN
7.	Long Sides	:	Fully covered with Colour Coated Steel Sheet
8.	Bracings (Allowed at Long sides only)	:	At end bays
9.	Roof Structure -	:	To be covered with Colour Coated Steel Sheet with 5 % translucent sheets
10.	Shape of Structure	:	Circular/Semi-Circular/any other suitable shape maintaining the clear height and dimensions

MATERIALS FOR CONSTRUCTION

1.	Structural members like columns, beams, members and bracing systems	:	Structural steel of mild steel (grade E250BR or higher grade as required and applicable)
2.	Roof & Cladding	:	Standard Colour Coated Steel Sheet (Galvalume)
3.	Foundation System	:	R.C.C. of minimum grade M25

STANDARD SHAPE OF THE STRUCTURE

While considering the shape and arrangement of the Structure, aesthetics, economy as well as structural integrity of the entire system has to be considered.

DESIGN LOADS

1. Dead Load:

Dead load will be the weight of the structure itself along with all permanent weight carried by it.

2. Live Load:

Live load on Roof - as per IS: 875 Part 2 latest version

3. Wind Load:

- a. Basic wind speed to be considered for the specified location as per IS: 875 Part 3 latest version

4. Seismic Load:

- a. Seismic Zone for the mentioned location as per IS: 1893 latest version

5. Other Loads:

Temperature variation of 15°C must be considered. Please consult relevant specifications for other specific loads and action points.

GUIDELINES

The following guidelines should be taken into consideration:

1. Items designed in accordance with design scope should be checked for axial, bending, shear, bearing stress etc. as applicable. Equivalent stresses and any other stresses necessitated by the relevant codes should also be calculated.
2. Deflection calculated should be within stipulations given in relevant IS code.
3. For designing Base Plates and Anchor Bolts, grade of concrete to be considered as mentioned above.
4. While selecting the steel sections for use, please refer to the INSDAG website or any manufacturer's website for availability.

DESIGN SCOPE

Design the Superstructure of the Land Port Building.

For designing the building, the following scope of work needs to be undertaken:

1. Sectional views should show the arrangement facilities provided.
 - a. Beams & Columns: Sections, such as NPB/ WPB/MB/MB/MC [refer IS 808], built-up sections, Tubular Sections [refer IS 1161 and IS 4923]. - latest version to be used
 - b. Truss members: IS 808, IS 1161 and IS 4923 - latest versions to be used
2. Connections: All connections shall be either welded connection or bolted connection using mild steel or high tensile black bolts, turned bolts or HSFG bolts.
3. The design and detailing of the following items shall be done:
 - a. Analysis of the structure in 2D or 3D as applicable.
 - b. All Columns / Girders / Beams
 - c. All Truss members / Arch members, Posts, Purlins and Girts
 - d. All Bracings, Struts and cables / steel ropes.
 - e. Connection designs
 - f. Any other members conceived in the scheme.
4. Bill of Materials: A bill of materials (in A4 sheet) should be prepared for all items under design scope to determine the quantity of materials required.

EXCLUSIONS

No need to design

Structural bearings for support,

Foundation System

and all allied services like electrical fittings are not in design scope

DESIGN STANDARDS

1. Design

- Steel design - As per IS: 800 -2007 & NBC 2016 (for latest revision)
- Concrete design - As per IS: 456 -2000 NBC 2016 (for latest revision)
- Live load - As per IS: 875 Part 2 -1987
- Wind load - As per IS: 875 Part 3-2015
- Seismic load - As per IS: 1893 -2016

2. Material

- Rolled sections and plates - As per IS: 2062 – 2011
- SHS/RHS - As per IS: 4923 – 2018
- CHS - As per IS: 1161 – 2014

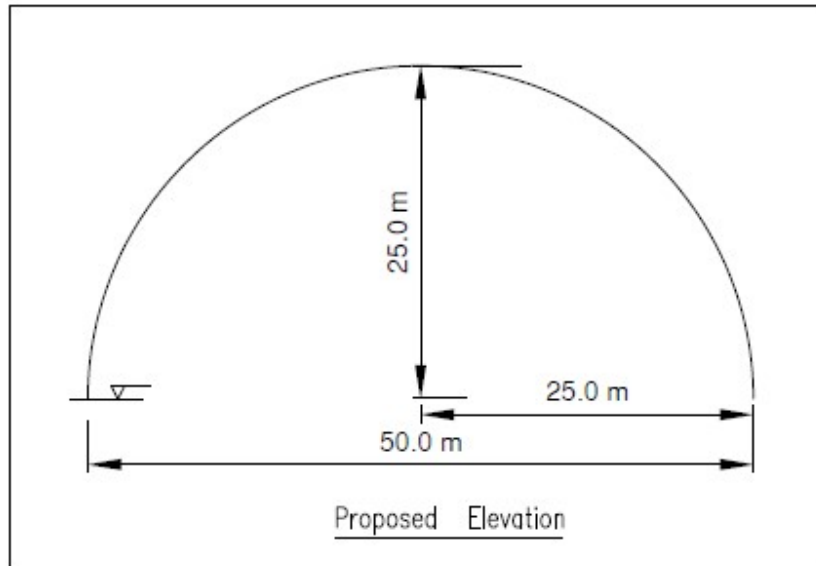
3. Welding

- Symbols for welding - As per IS: 813(Part 1) – 2018
- Weld joint details - As per IS: 9595 – 1996

4. Fasteners

- High strength structural bolts - As per IS: 3757 – 1985 (Reaffirmed 2019) & IS: 4000 – 1992 (Reaffirmed 2017)
- Hexagon Head Bolt -As per IS: 1363 (Part 1)– 2019
- Foundation bolts - As per IS: 5624 – 1993

Schematic Cross Section for Land Port Building



CHECKLIST FOR SUBMISSION

Sl. No	Description
1	Content page for report and all submissions
2	All pages and drawings are to be numbered
3	All soft copies of drawings (AUTOCAD &PDF), input and output files of analysis, excel spreadsheets for design checks etc.
4	Bonafide certificate
5	Student details along with photos in soft copy

Visit us at www.insdag.com

The Announcement and the Brief of this year's Competition can be downloaded from INSDAG


EXPRESSION OF INTEREST FOR PARTICIPATION

(To be submitted by **September 25, 2025**)

NATIONAL AWARD COMPETITION FOR STUDENTS OF CIVIL/STRUCTURAL ENGINEERING YEAR 2025

For participation, please fill in all the details and attach documents (Student ID, payment receipt etc.) in the google link given: <https://forms.gle/DKdDvMVn3UtQhY5p9>

Account Details for Payment: (Online)

NEFT / RTGS / IMPS	QR CODE	UPI
INSTITUTE FOR STEEL DEVELOPMENT & GROWTH, BANK: UCO, Kasba, Branch – Kolkata SB a/c No – 08370100004683, IFSC : UCBA0002081		8334815444@ucobank

Consolidated Payment for whole group is allowed.

Please send an intimation mail and soft copy design report to competitions@insdag.com

Contact: Nibedita Dey
Sr. Manager (C &S) & Coordinator
Phone: 9830566354
Website: www.insdag.com

IMPORTANT INFORMATION

Student membership of INSDAG (onetime payment of Rs. 1000/- for EACH STUDENT) to participate in this National Level Competition along with benefits like attractive discount in fees of different upcoming training programs and publications & many more...

Last Date for Receiving 'EOI' – September 25, 2025

Last Date for 'Final Report' Submission – November 15, 2025

This is your turn. Go for it!!!

COMPETITION TOPIC:

COST EFFECTIVE & INNOVATIVE STEEL ROOF STRUCTURE OF A LAND PORT BUILDING

JUDGING CRITERIA

Sl. No.	Stage of Evaluation	Evaluation Committee	Marks Allotted	Selection
1	Stage I	Respective zonal committee	150	4 Best ranking entries qualify for Stage II
2.	Stage II	Other 3 zonal committees	450 (150 marks each zonal committee)	-
3.	Stage III (Presentation round)	Central selection committee, Kolkata	400	-
4.	Final selection	- do-	Total marks 1000 (Sl. No. 1 to 3)	Prizes to best 5 entries

PRIZE WINNING COLLEGES IN THE PREVIOUS THREE YEARS

Year 2024

1st	Indian Institute of Technology Mandi, Himachal Pradesh
2nd-A	Meghnad Saha Institute of Technology, Kolkata, West Bengal
2nd-B	Institute of Technology, Nirma University, Ahmedabad, Gujarat
3rd-A	Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha
3rd-B	L. D. College of Engineering, Ahmedabad, Gujarat

Year 2023

1st	Indian Institute of Technology Roorkee, Uttarakhand
2nd-A	G.H Rasoni College of Engineering, Nagpur, Maharashtra
2nd-B	L. D. College of Engineering, Ahmedabad, Gujarat
3rd-A	L. D. College of Engineering, Ahmedabad, Gujarat
3rd-B	M H Sabbo Siddik College of Engineering, Mumbai

Year 2022

1st	L. D. College of Engineering, Ahmedabad, Gujarat
2nd-A	L. D. College of Engineering, Ahmedabad, Gujarat
2nd-B	Indian Institute of Technology Roorkee, Uttarakhand
3rd-A	L. D. College of Engineering, Ahmedabad, Gujarat
3rd-B	Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha