CFSEI STUDENT COMPETITION

CALL FOR ENTRIES

2024 – STUDENT COMPETITION

AWARD ENTRY SUBMITTED BY TEAM LEADER

NAME: _____

COLLEGE: _____

MAJOR (IF APPLICABLE) : _____

E-MAIL : _____

ADDRESS: _____

CITY|STATE|ZIP: _____

AREA CODE| PHONE NUMBER: _____

ARE YOU A CFSEI MEMBER? YES NO

PROJECT TEAM

TEAM MEMBER

NAME: _____

COLLEGE: _____

MAJOR: _____

E-MAIL: _____

AREA CODE| PHONE NUMBER: _____

ARE YOU A CFSEI MEMBER? YES NO

TEAM MEMBER

NAME: _____

COLLEGE: _____

MAJOR: _____

E-MAIL: _____

AREA CODE| PHONE NUMBER: _____

ARE YOU A CFSEI MEMBER? YES NO

TEAM MEMBER

NAME: _____

COLLEGE: _____

MAJOR: _____

E-MAIL: _____

AREA CODE| PHONE NUMBER: _____

ARE YOU A CFSEI MEMBER? YES NO

TEAM MEMBER

NAME: _____

COLLEGE: _____

MAJOR: _____

E-MAIL: _____

AREA CODE| PHONE NUMBER: _____

ARE YOU A CFSEI MEMBER? YES NO

PLEASE PROVIDE A LIST OF ADDITIONAL TEAM MEMBERS ON A SEPARATE PAGE IF NEEDED

COMPETITION PROCEDURE

NOTE: STUDENT MENTORS WILL BE ASSIGNED ONCE APPLICATION IS RECEIVED

Learning Objectives

- *Gain exposure to designing with cold-formed steel (CFS)*
- *Communicate designs through technical drawings and reports*
- *Utilize CFS to address real-world societal problems*
- *Foster excitement about CFS design*

Problem Statement

Nashville University located in Nashville, Tennessee has encountered a 10% increase in enrollment this year, presenting a dilemma regarding student housing. To address this issue, the university is actively seeking extra space within the existing dormitories to accommodate the surge in new students. Thankfully, the dean has pinpointed a potential remedy. The 19th floor of Building ABC boasts vacant space above the current units that can be repurposed for expansion.

The university requires a non-combustible material for this addition, making cold-formed steel (CFS) a great option. The task has been delegated to CFSEI, with their aim being to convert the existing 2-bed units into 3-bed units by integrating a sleeping loft, consequently augmenting the total square footage available.

Design Considerations & Challenges

- *Existing building drawings will be provided once design intent document is submitted. Design criteria will be included on those drawings.*
- *The design should allow visibility from the loft to the lower floor, requiring considerations such as handrails or partial height walls.*
- *It would benefit construction if most material were suitable for transportation via the freight elevator, with a maximum length of 9'-0".*
- *Design layout must include means of access to loft. Design not required.*
- *Overall lateral stability design is by others. Comment on required lateral stability. Choose diaphragm assembly (plywood, metal deck, concrete subfloor panel) and comment on why.*
- *Support members and attachment clips must all use the material cold-formed steel. Students can use proprietary products provided by manufacturers such as clips and members, or they can design custom shapes or clips of their own.*
- *It can be assumed that the existing structure can support the loading imposed by the loft.*
- *Maintain lower level useable square footage.*

Deliverables

1) *Email 'Intent to Participate' document (last page) to info@cfsei.org. Drawings will be provided and a mentor assigned. Deadline for submitting: November 1st, 2024.*

2) *Competition Submission. Send to info@cfsei.org no later than January 17th, 2025.*
    a. *Submit 2D shop drawings to include*
        i. *loft plan showing members and connections*

ii. *wall sections showing loft framing and connections*
iii. *illustrate access type and location (design by others)*

b. *3D model of unit illustrating loft design a plus.*
c. *Submit calculation package showing complete loft design. Calculations should illustrate loft load path to existing structure. Design software such as RISA/SAP/RSG, etc. may be used. One hand calculation must be done utilizing the information provided in SFIA/SSMA manuals, AISI excerpts, and CFSEI tech notes.*

Student Membership

Students are encouraged to obtain a free complimentary CFSEI membership to gain access to a wide range of benefits uniquely tailored for cold-formed steel engineers. To learn more about these benefits, please visit the link below.

- *https://www.cfsei.org/membership*

Reference Documents

- *CFSEI students only section*
  https://www.cfsei.org/students-only
- *How cold-formed steel is used in building construction:*
  https://cfsei.memberclicks.net/assets/docs/technotes/tn-beginners/TechNote%20-%20B002-20-How%20ColdFormed%20Steel%20is%20Used%20in%20Building%20Construction-WEBFINAL.pdf
- *Introduction to Cold-Formed Steel Standards:*
  https://www.cfsei.org/assets/docs/technotes/tn-beginners/TechNote%20-%20B004-20-Introduction-to-framing-standards-WEBFINAL.pdf
- *AISI Standards*
  https://www.cfsei.org/free-aisi-standards
- *Cold-formed steel floor joist design tech note:*
  https://www.cfsei.org/assets/docs/technotes/TechNote-J100-23SEC.pdf
- *Screws for cold-formed steel-to-wood and wood-to-cold-formed steel attachment*
  https://www.cfsei.org/assets/docs/technotes/TechNote-F101-24Sec.pdf
- *Chase the loads: Load path considerations for cold-formed steel light-frame construction*
  https://www.cfsei.org/assets/docs/technotes/TechNote-G200-21.pdf
- *Design for splicing of cold-formed steel wall studs*
  https://www.cfsei.org/assets/docs/technotes/TechNote-W106-23SEC.pdf
- *All tech notes*
  https://www.cfsei.org/technical-notes
- *Other References*
  https://www.steelframing.org/
  https://ssma.com/

Judging Criteria

- *Technical correctness*
- *Constructability*
- *Presentation*
- *Attention to detail*

Awards

- *1st place student will receive a $2,000 USD monetary award and an award plaque.*
- *2nd place student will receive a $1,500 USD monetary award and an award plaque.*
- *3rd place student will receive a $1,000 USD monetary award and an award plaque.*

Provide a summary outlining your design and some of the design challenges. (Use the space below)

INTENT TO PARTICIPATE - (Email this sheet to info@cfsei.org)

NAME: _____

UNIVERSITY: _____

EMAIL: _____

PHONE NUMBER: _____