CANADIAN INSTITUTE OF STEEL CONSTRUCTION
INSTITUT CANADIEN DE LA CONSTRUCTION EN ACIER

Research Grants

for Academic Year 2020-2021

RESEARCH GRANTS

Full-time faculty of engineering or engineering technology programs of Canadian universities and colleges are invited to apply for research grants offered by the Canadian Institute of Steel Construction. Grants are awarded for research during the 2020-2021 academic year on subjects judged to be of value in advancing the use of steel in construction. Grants to a total value of up to $100,000 will be announced by June 1, 2020. Each grant is awarded for a one year period. Grants are awarded at the discretion of the CISC Research Committee on the merits of the applications received. In addition, the principal researcher of the highest ranked proposal will receive the H. A. Krentz Research Award. The recipient
will be invited as a guest of the CISC to accept the H.A.Krentz Research Award at the CISC Canadian Steel Conference which will be held in Winnipeg, MB on September 28-30, 2020.

Applications shall be received no later than Wednesday April 1, 2020 and should be submitted electronically in PDF format to:

Research Submissions
Canadian Institute of Steel Construction
research@cisc-icca.ca

Late submissions and submissions exceeding the maximum page limit will not be accepted.

Descriptions of some suggested research topics and conditions pertaining to the award of grants are given herewith.

All applications will be given equal consideration and no advantage is given to topics from the list.

SOME SUGGESTED TOPICS (NOT PRIORITIZED)

More than one research proposal may be suggested by some of the listed topics.

1) CONNECTIONS SUBJECT TO COMBINED LOADING
Design guidelines, verified by experimental testing, are needed in CSA S16 for determining the resistance of various connections subject to combined loading. This work would consolidate and build on experimental results from past Canadian and US research programs.

2) CONNECTIONS FOR CONVENTIONAL CONSTRUCTION IN MODERATE AND HIGH SEISMICITY APPLICATIONS
Research is required to establish minimum ductility design criteria for connections in low rise buildings in Conventional Construction category of seismic force resisting systems in moderate and high seismic applications.

3) ASSEMBLIES THROUGH THERMAL BREAKS
Research is required to determine the structural performance of steel assemblies involving thermal breaks. This work would extend and build on the recent US research programs.

4) ECONOMICAL INNOVATIVE LOW-STOREY HEIGHT SOLUTIONS
Research is required to develop innovative steel floor solutions to minimize storey height. Consideration should be given to constructability and fabrication requirements.

5) SFRSS FOR REGIONS OF LOW AND MODERATE SEISMICITY
There is an ongoing need for innovative Seismic Force Resisting Systems that will keep steel competitive with all other framing materials in regions of low and moderate seismicity. Consideration should be given to simplified design rules, fabrication requirements, handling and erection.

6) MODULAR STEEL CONSTRUCTION
There is a need for research on innovative, generic modular structural steel systems that will keep steel competitive. Consideration should be given to constructability, fabrication requirements, handling and erection.

7) GALVANIZED STEEL IN SEISMIC APPLICATIONS
Research is required to determine the effects of galvanizing on structural steel material properties and their impact on ductility for seismic applications.

8) APPLICATION OF ARTIFICIAL INTELLIGENCE (AI) IN THE FIELD OF STEEL STRUCTURES
Engineering and construction (E&C) sector is seeking to optimize the process to help bridge the technology gap from design to preconstruction to construction. Research is required to investigate the use and application of artificial intelligence (AI) in the design process of various aspects of steel structures designs such as connection, analytical geometry, analysis, and construction.

9) INNOVATION IN CORE SYSTEM: HOW TO SPEED UP STEEL CONSTRUCTION
There is a need for innovative research on structural steel core systems that will keep steel competitive and fast to construct. Consideration should be given to design, constructability, fabrication requirements, handling and erection.

CONDITIONS PERTAINING TO THE AWARD OF CISC RESEARCH GRANTS (Revised January 2020)

1. In keeping with the CISC's mandate to support the development of expertise, knowledge and innovation in steel design and construction while maximizing the benefits to the steel industry as a whole, CISC Research Grants shall not be used for the development of patentable products or systems.
2. CISC Research Grants may not be used to leverage funding from other granting organizations without full disclosure of the project's goals and objectives and full participation in the Partnership and Intellectual Property Agreements. CISC will not consider partnering on projects that aim primarily to benefit the partners instead of the steel industry as a whole.
3. Funds will be paid to the University or College, to be held in trust. Upon receipt of a signed Acknowledgement of the Conditions Pertaining to the Award of CISC Research Grants and unless otherwise agreed upon, payment will be made in equal quarterly installments commencing September 15, 2020. The 2nd, 3rd and 4th payments will be made upon receipt of the progress report from the previous quarter (see Item 6). **No payments will be made after April 30, 2022**. It is assumed that a portion of the grant normally will be used for a research fellowship for a post-graduate student and, as such, the CISC does not entertain inclusion of overhead charges in applications for Research Grants.
4. Acceptance of an award constitutes an agreement to undertake and complete the research project described in the application. Unless otherwise agreed upon, the CISC is not obliged to provide supplementary funds nor to donate material and/or supply equipment.
5. The CISC shall appoint a Project Coordinator for each project to provide liaison between the Project Director (Grant Recipient) and the Committee, and to assist the Project Director when necessary.
6. During the course of the work, the CISC shall be provided with progress reports in PDF format covering the first, second and third quarters of the period in which the research is underway. Progress reports normally will be submitted December 15, March 15 and June 15. It is expected that the first progress report will include an evaluation of the existing literature. The progress reports shall be sent to the Project Coordinator.
7. Unless otherwise agreed to by CISC in advance, a final, detailed report shall be provided by September 15, 2021 in PDF format suitable for publication on the CISC website. The detailed report shall be sent to the Project Coordinator.
8. Where commercial software is developed or enhanced as a major part of a CISC-sponsored project; the CISC shall be supplied access to the software and a license to operate the software in perpetuity. The CISC shall also be supplied with sufficient documentation to allow easy use of the software including a sample problem with printed output.
9. Grants are awarded for a period of one year only. Award of grants in succeeding years for additional phases of projects will be subject to approval each year. Projects intended as one phase of a larger project extending over a period of more than one year shall be so identified in the application. Grant(s) may not be accumulated, deferred or re-purposed without the written consent of the CISC.
10. Unless otherwise agreed to by CISC in advance, the Grant Recipient shall prepare a paper, or papers, based on his research and submit same for publication in an appropriate engineering journal (e.g. Canadian Journal of Civil Engineering) or equivalent publication. Should a paper not be prepared within six months of receipt of the final report, the CISC may, at its option, request the recipient prepare a paper suitable for publication. A copy of all theses related to the project shall be submitted in PDF format and will be made available on the CISC website.
11. The Grant Recipient shall provide a 500 word summary of the final report suitable for publication in CISC's Advantage Steel Magazine. In addition, the Grant Recipient may be asked to write an article about their research for publication in CISC's Advantage Steel Magazine.
12. Research grant applications, progress and final reports, may be shared with other national and international steel construction organizations.
13. The following information shall be included in the application (**maximum 4 pages**, not including References and Curriculum Vitae, strictly enforced):
    * Name of Applicant (Project Director).
    * Name of university/college and relevant faculty, department, etc.
    * Position of applicant.
    * Title, Scope and Objectives of proposed research project.
    * Description of how the proposed research advances the use of steel in construction and the potential benefits to the steel industry.
    * Brief description of general procedure to be followed, including personnel, equipment, specimens, etc., likely to be required.
    * Proposed time schedule.
    * Funds to be provided by other sponsors, if any. In particular, applicants are encouraged to indicate how the CISC Research Grant and possible in-kind Contributions provided by others in the steel industry might be used to partner additional funding from federal or provincial granting agencies.
    * Amount of money requested, with a brief statement of anticipated disbursements.
    * A statement signifying that the conditions pertaining to award of CISC research grants (as stated herein) are acceptable to the applicant.
    * Curriculum Vitae of applicant, as an Appendix to the application. (NSERC-format CV is acceptable).