INTRODUCTION

Luxembourg has a wealth of experience in engineering and architecture through its schools, university, and industry. This locally-developed expertise has since been shared around the world.

As part of the "Humanitarian Luxembourg Hub" project, the Shelter Research Unit of the International Humanitarian Aid Department of the Luxembourg Red Cross is hosting a technical-scientific conference in Luxembourg City on October 27 2023 to provide an opportunity to develop innovative and sustainable solutions for a more efficient and respectful humanitarian habitat.

The technical-scientific event will be accompanied by a design competition to explore the complementarities between the various players and to encourage exchanges between Luxembourg's flourishing new high-tech sector and the humanitarian architecture sector. The aim is to create an innovative and environmentally friendly shelter prototype through a multidisciplinary workshop.

The competition is open to students wishing to develop and present a prototype shelter in collaboration with manufacturers and industry experts in Luxembourg. The three selected solutions will be exhibited in Luxembourg, and the winner will be tested on the field in one of the countries of action of the Luxembourg Red Cross.

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In Africa, the need for humanitarian shelter is systematically mentioned as one of the three most urgent needs to be met for populations affected by natural disasters or armed conflicts. However, construction methodologies, materials and architectural approaches are still underdeveloped to date.

The Humanitarian Aid department of the Luxembourg Red Cross works in several countries in sub-Saharan Africa, including Mali, Burkina Faso, Niger, and Chad, with shelter and settlement programmes.

In situations involving complex and protracted crises, it is necessary to develop intervention strategies that take into account local building cultures and social aspects, and pay particular attention to the environment, in order to respond effectively and sustainably to the needs of the most vulnerable households.

The project aims to respond to the need for humanitarian construction in Africa by bringing additional engineering and architectural expertise, as well as the technical and professional capacity available in the Luxembourgish market to meet this need.

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Stakeholder Engagement: Bringing together diverse stakeholders, including private sector companies, industry professionals, students, and humanitarian actors. Ensuring their active participation and engagement throughout the program requires effective communication, coordination, and collaboration through a collaborative platform.

Technical and Scientific Expertise: Developing a shelter prototype that meets the required criteria, such as energy efficiency, structural strength, and transportability, requires technical and scientific expertise.
Ensuring that the shelter model is innovative, creative, and feasible may require specialised knowledge and skills at a low cost.
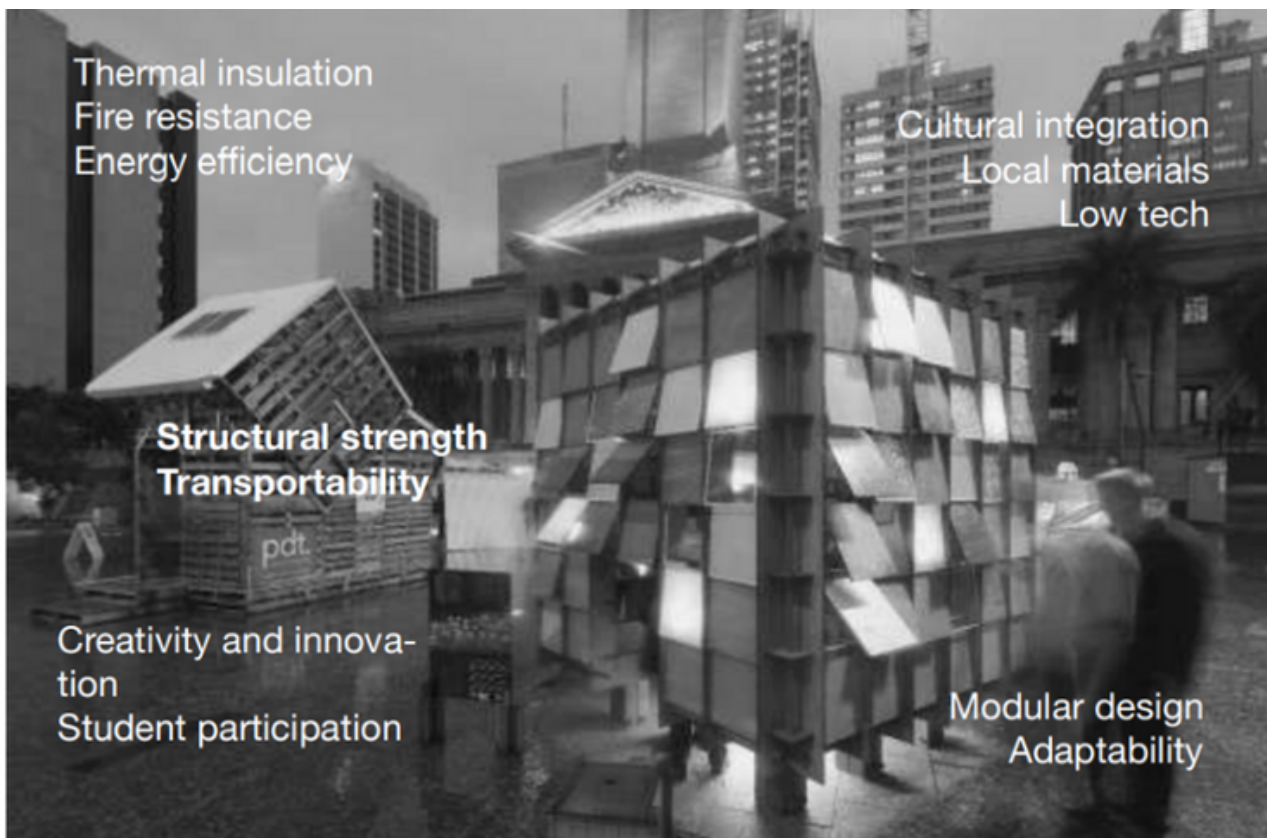
AXIS 1: Technical Innovation in Sustainable Humanitarian Habitat

- Innovative approaches to humanitarian shelter design and construction.
- The impact of technology on humanitarian shelter
- Affordable and clean energy
- Recycling and reuse technology and processes
- The valuation and protection of heritage
- The absorption capacity of humanitarian shelter sites
- Specific issues to be addressed in Sustainable Humanitarian Habitat

This axis focuses on the technical aspects of shelter provision in humanitarian contexts. It explores innovative solutions, sustainable building materials, 3D-printed housing, digital mapping, off-grid energy solutions, and other eco-friendly techniques. It also addresses the challenges of using technology in humanitarian contexts, such as finding affordable and clean energy solutions, and the lessons learned from previous crises.

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AXIS 2: Humanitarian architecture and engineering in Sustainable Humanitarian Habitat

- Humanitarian engineering and architecture
- The management of Sustainable Humanitarian Habitat
- Challenges and opportunities for the development of Sustainable Humanitarian Habitat
- The role of engineers and architects in humanitarian contexts, and the unique challenges they face when designing and building in difficult environments (site follow-up, design follow-up, teaching, finding the best solution, etc.)
- Case studies and best practices to integrate local knowledge and cultural sensitivity into design processes/construction

This axis emphasizes engineering and architectural issues in the design, construction, and management of the Sustainable Humanitarian Habitat. It explores the role of engineers and architects, the unique challenges they face when designing and building in difficult environments, and the importance of integrating local knowledge and cultural sensitivity into design processes.

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AXIS 3: Resilience, health, security, and Sustainability in Humanitarian Habitat

- Addressing health, resilience, inclusiveness, clean water, and sanitation needs in humanitarian shelter situations
- Psychological and social considerations in humanitarian shelter design and delivery
- Supporting livelihoods and economic empowerment in Sustainable Humanitarian Habitat
- Bridging the gap between humanitarian shelter and continuous development

This axis focuses on the long-term resilience and sustainability of shelter responses in humanitarian contexts. It explores the need for shelter solutions that are gender-sensitive and inclusive, addressing the specific needs and vulnerabilities of women, children, and marginalized groups. It also explores how shelter responses can be designed to support the economic empowerment and livelihoods of affected communities, and how they can be integrated into longer-term development goals. Furthermore, it also focuses on the psychological and social considerations in Sustainable Humanitarian Habitat.

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AXIS 4: Partnership, participation, and collaboration for effective humanitarian shelter response

- Partnerships and collaboration for effective humanitarian shelter response
- Exploring the importance of community engagement and participation in the humanitarian shelter process
- Exploring the methods for promoting ownership and sustainability
- Greenwashing and business ethics
- Sustainable Humanitarian Habitat and cooperation between stakeholders

This axis emphasizes the importance of partnerships and collaboration in effective humanitarian shelter responses. It explores how stakeholders can collaborate easily to ensure a swift and effective response to humanitarian needs. It also addresses the role of blockchain technology in improving supply chain management, tracking building materials, reducing risks and fraud, and ensuring transparency.

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Proposals should be submitted in the form of an extended abstract of no more than 2 to 3 pages, which should include:

- The title of the proposal
- The author(s) (with their email address(es))
- 5 keywords
- The research and/or practical challenges
- The conceptual and theoretical framework (if any)
- The used methodology
- The main achieved or targeted results
- The bibliography

All proposals must be written in English. If approved, the extended abstract should then be developed into a full paper of **no more than 6-8 pages**, including the same sections as the extended abstract.

Extended abstracts and full papers must be submitted to the following e-mail address: aide.Internationale@croix-rouge.lu respecting the deadlines set by the organisers (see the calendar below).

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SCIENTIFIC CONFERENCE CALENDAR FOR RESEARCHERS AND PHD STUDENTS

MAY
15 Call for extended abstracts

JUNE
1 Conference registration opens

SEPTEMBER
15 Deadline to submit full papers

OCTOBER
1 Conference registration closure

OCTOBER
2 Notification to the authors

OCTOBER
27 Conference

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All submissions are expected to follow the formatting guidelines above. If a submission does not follow these guidelines, the conference organizers reserve the right to reject it for publication in the conference proceedings.

All submissions will be checked for plagiarism. In case of plagiarism, the conference organizers reserve the right to reject the submission.
All submitted papers will be reviewed by at least two members of the Scientific Committee.

There are two possible evaluation decisions:

1. The extended abstract is accepted without conditions. The author(s) will be invited to submit a full paper
2. The extended abstract is rejected

The main evaluation criteria are:

- The relevance of the contribution to the conference theme.
- The quality of the description of the research context, the theoretical framework (if any), and the methodology
- The clarity of the paper's findings and perspectives

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Formatting requirements

All papers submitted must adhere to the following guidelines. Failure to do so may result in the conference organizers exercising their right to refuse publication of the paper at the conference.

- The first page should include the full name of each author, their position, and the title of the paper.
- The second page should include only the paper title, an executive summary in English, and four keywords.
- Manuscripts must be typed in Microsoft Word with margins of 2.5 cm, paper size A4, and font Times New Roman with a font size of 12 points.
- Parts should follow a simple numeration: 1, 1.1, 1.1.1, etc.
- Submissions should be made to the following e-mail address: aide.internationale@croixrouge.lu

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Title (Times New Roman 18 in bold)
Subtitle (Times New Roman 14)
Author's name (Times New Roman 14)

Abstract (Times New Roman 14 bold):

text (Times New Roman 12)

Keyword (Times New Roman 14 bold):

text (Times New Roman 12)

Introduction and conclusion: Times New Roman 14 bold

text (Times New Roman 12)

Title 1.: Times New Roman 14 bold

text (Times New Roman 12)

Titles 1.1.: Times New Roman 12 bold

text (Times New Roman 12)

Bibliography (Times New Roman 14 bold)

Book: author's name and initial of the surname, date of publication, the title of the book, Publisher, Place of publication (eg Mintzberg H. (1994), The Rise and Fall of Strategic Planning, Dunod, Paris,

Article: author's name and initial of the surname, date of publication "Article Title," Journal Title, Vol. x, No. x, p. xy, publication date (example: G. Koenig (1996), "Karl E. Weick," French Review of Management, No. 108, pp. 57-70, March-April-May).

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PROVISIONAL PROGRAMME

Friday 27th of October 2023

10h00- 10h15: Inauguration event
- Salle plénière

10h15- 10h30: Tour of the student-built prototypes
- Hall

10h30-12h30: Presentation of the papers and round table discussion
- First round table discussion - Salle plénière
- Presentation of the papers (Phase 1) - Lobby 1 and Lobby 2

12:30-13:30: Lunch, speed meetings, and presentation of students' projects
- Hall

13:30-15h30: Presentations of the papers and round table discussion
- Second round table discussion - Salle plénière
- Presentation of the papers (Phase 2) - Lobby and Lobby 2

15h30-16h00: Awards and drinks
- Salle plénière

PROGRAMME UPDATED ON THE 02.08.23, PLEASE CHECK FOR UPDATES.

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📍 **Neumünster Abbey**

Main venue for the event
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Organisation Committee

- Anna Carvajal, Project Assistant, Humanitarian Aid Department, Luxembourg Red Cross
- Elie Daher, Architect, Urban Planner Consultant, PhD, South Korea
- Rémi Fabbri, Director of the Humanitarian Aid Department, Luxembourg Red Cross
- Marie Gallais, Head of Research Group, LIST
- Daniel Ledesma, Project Manager - Technical Coordinator, Humanitarian Aid Department, Luxembourg Red Cross

Contact: aide.internationale@croix-rouge.lu

Scientific Committee

1. Arch. Grace Aaraj, OEA Beirut and MRAIC Canada
2. Dr Arch. Hind Al-Shoubaki, University of Applied Sciences and Arts FHNW, Switzerland
3. Dr Calin Boje, LIST, Luxembourg
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Learn more about the Shelter Research Unit:

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