REQUEST FOR PROPOSAL:
Research to Update Anthropometric Data and Movement Speeds

Award Amount: up to $40,000 (USD)

Available to: Open to All

Timeline: 6 months from project initiation

Project Contact: SFPE Foundation Liaison – Victoria Valentine

General Description:

The SFPE Educational and Scientific Foundation (the "Foundation") is supporting a research grant with a view to modernizing the available data to support egress analysis. Human behavior and egress have been identified by the Foundation as a target area needing further research. For this Project, it is desired to expand current knowledge addressing the movement of large populations with and without emergency conditions.

It is recognized that the world population is increasing and buildings are expanding in size and complexity with urban densification. When an evacuation is needed, whether due to fire, natural disasters, or other events, the building egress systems must be designed to efficiently allow people to move from their initial position to a location of safety. The formulas and calculation methods that are commonly used to predict movement speeds are based on older data primarily for people in major metropolitan areas in the northeastern part of North America.

It is anticipated that many members already have unpublished data that that could be studied to better inform the profession. Examples of data would be video capture of large assembly applications such as stadiums, arenas, airports, transit facilities, passenger terminals, concert halls etc.

Output from Research

Given the increasing age of the average population today and considerations for potentially changing anthropometry of the human form, the successful candidate or team will consolidate data and/or supplement research and literature information to achieve some or all of the desirably outputs. These include:

1. Variations in human anthropometry considering height, weight and form and geographical differences by appropriate population center and compared with legacy knowledge as summarized in the SFPE Handbook.

2. Establishing population density, movement speeds and flow rates for

     a. elevators/lifts,
     b. moving walks,
     c. escalators,
     d. ramps, and
     e.   stairs.

The work should be completed for general populations moving in the upward and downward directions, and considerations for special occupancies where handbags or luggage may be a factor.

3. Considerations for variability in speeds as a function of different population distributions, addressing age and mobility limitations and modern considerations such as walking with cell phones.

4. New, expanded or confirmation of approaches to establishing population distributions (e.g. by age, movement restriction etc.) appropriate for egress analysis in different building types/uses/occupancies.

5. It is preferable to see output in the form of Tables and compared with legacy data, and summarized in a manner that it can readily be extracted into SFPE publications such as the SFPE Handbook and other SFPE guides and standards, as well as in a context that could be used for egress model calibration or verification.

Deliverables

1. Interim Project Update at 3 months from project initiation in the form of an online presentation and verbal summary.

2. Presentation of findings in a report, accompanied with a PowerPoint presentation on SFPE template for inclusion in a future database of SFPE materials. The report should be sufficiently detailed to substantiate all findings and make recommendation for additional research initiatives.

3. If accepted, presentation of findings at a future SFPE Conference.

Intellectual Property

The SFPE Foundation will retain rights to the project report which will be published on the Foundation website and/or the SFPE website.

How to Respond & Award

Proponents should submit a maximum 6-page letter proposal (not including attachments) outlining:

1. Qualifications and past experience of team studying human behaviour and people movement.

2. Defined work program on data acquisition and quantification,
3. Research methodology,

4. Value of output and application to FPE industry needs (e.g. egress analysis, simulations, crowd management).
5. Requested award amount.

Direct inquiries to Victoria Valentine, valentine@sfpe.org. Responses for queries received up to May 3, 2019 will be posted to https://www.sfpe.org/mpage/FoundationProposalRequest.

The submission must be received by 5 PM Eastern Time on May 10, 2019 and delivered in PDF format to valentine@sfpe.org.

The award of up to USD $40,000 will be ranked equally based on the five points above and determined by the SFPE Foundation Board of Governors based on greatest inclusion of the above data, outputs, quality of the research program and qualifications of the submitting members.

The award will proceed only on receipt of a proposal deemed acceptable to the Foundation. The Foundation reserves the right to negotiate with one or multiple parties and may subdivide the project and funding.