

Fire Safety Design & Technology

Safety Design in Buildings, Riyadh 16th April 2018

John Noone BSc (Hons) CEng MIEI MSFPE
Co-founder | Principal – Joule Group
johnnoone@joule-group.com

Safety Design in Buildings

Riyadh Conference



April 16, 2018, Holiday Inn Izdihar - Riyadh



Course Description

The presenter discusses holistic fire safety design, with particular emphasis on sustainable design by integration of operational and end user requirements into the fire strategy design process. All too often designs are purely driven to satisfy code requirements or to obtain approval and ultimately may not meet operator or end user requirements. Many new technologies are now available to support operators manage fire safety in their buildings which can be considered during the design process. The launching of a new operational facility involves complex interactions of people, process, technology and environment - the presenter gives an outline of the technology that can facilitate a greater level of fire safety awareness and implementation.

Presenter

John Noone

Co-founder / Principal – Joule Group

- John is the co-founder of Joule Group, a boutique Fire Engineering Practice based in Dubai. A Chartered Fire Safety Engineer he holds a BSc Hons in Fire Safety Engineering.
- John has gained a wide range of experience in fire engineering in the Middle East, Africa and Europe.
- John is a visiting lecturer at Trinity College Dublin on the fundamentals of fire safety science and fire dynamics.
- John's passion is for advancing the field of fire engineering in its application into the design and operation of the built environment. He represents Joule Group and the industry in promoting this message on fire safety at targeted fire safety seminars and conferences.

Learning Objectives

1. How digital is changing our industry
2. BIM Plugins / Automating Core work processes
3. Integrated Fire Safety Engineering Tools
4. Animated Fire Strategies
5. Fire safety risk mapping at a city wide level

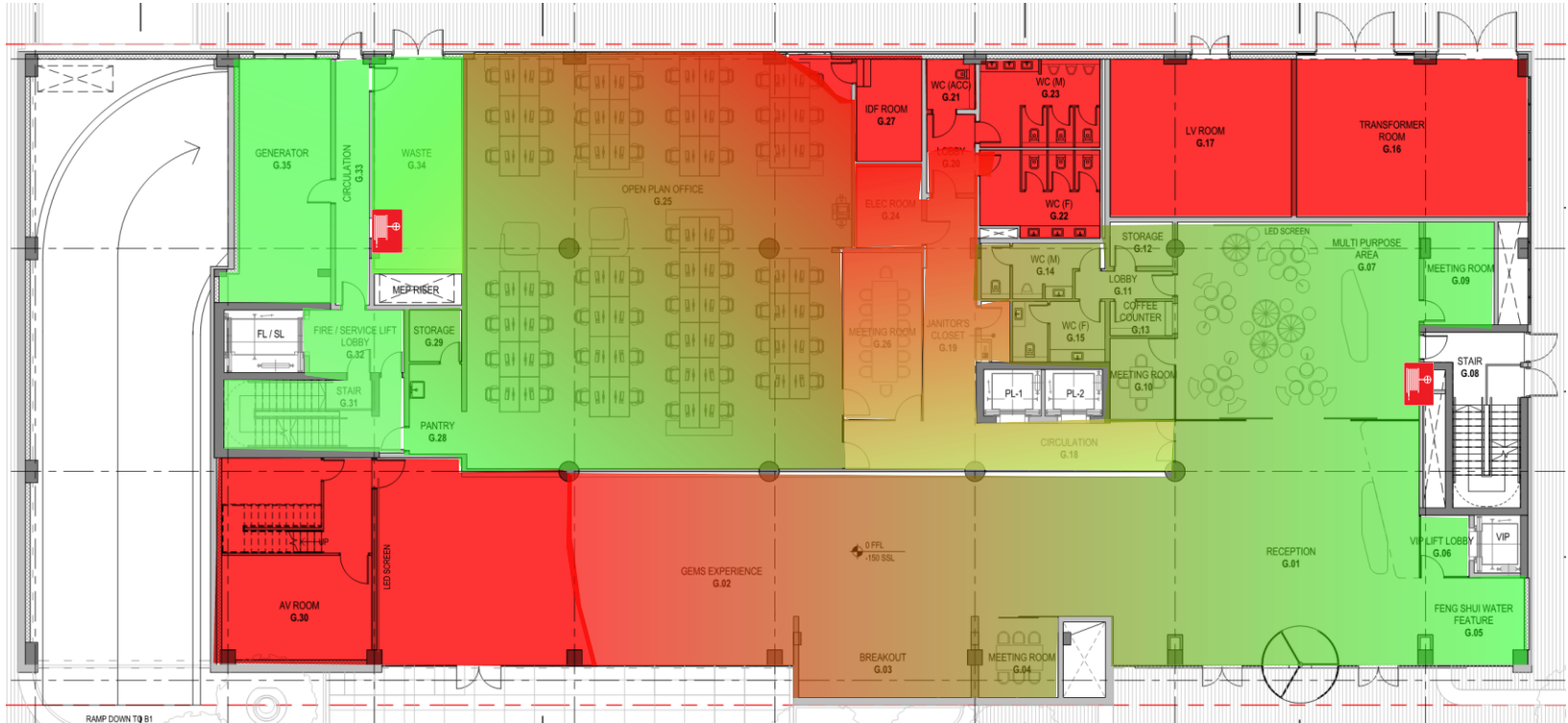
Digital Revolution

Our industry is changing

Automating **our core work processes** (travel distance assessments, occupancy loading) through BIM plug in's

With automation we can focus on better outcomes to **improve** the **quality** of our **advice** and the **solutions we deliver**



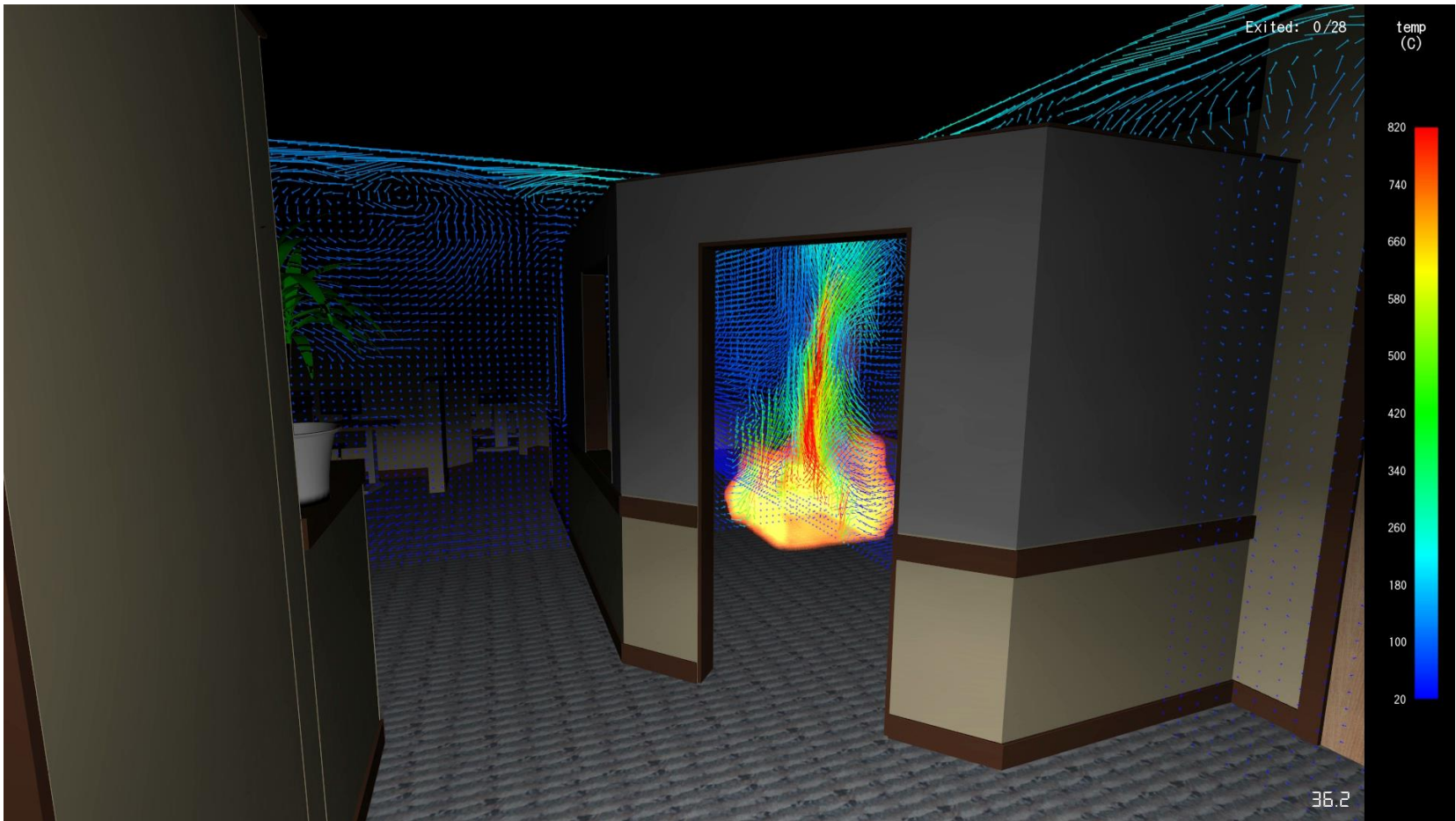


Distance Heat Mapping - Hose reels



Critical thinking and alternative fire engineering design will become more important (automation to cover core fire strategy code compliance)

Integration of tools such as
evacuation, radiation and smoke
control software



Evacuation / CFD Model Visualisation (Courtesy of Thunderhead Engineering)



Evacuation / CFD Model Visualisation (Courtesy of Thunderhead Engineering)

Digital Fire Strategies Animation

Occupancy
Type

Dead End Limit (m)

Maximum Dead End
Distance Measured (m)

Business

15

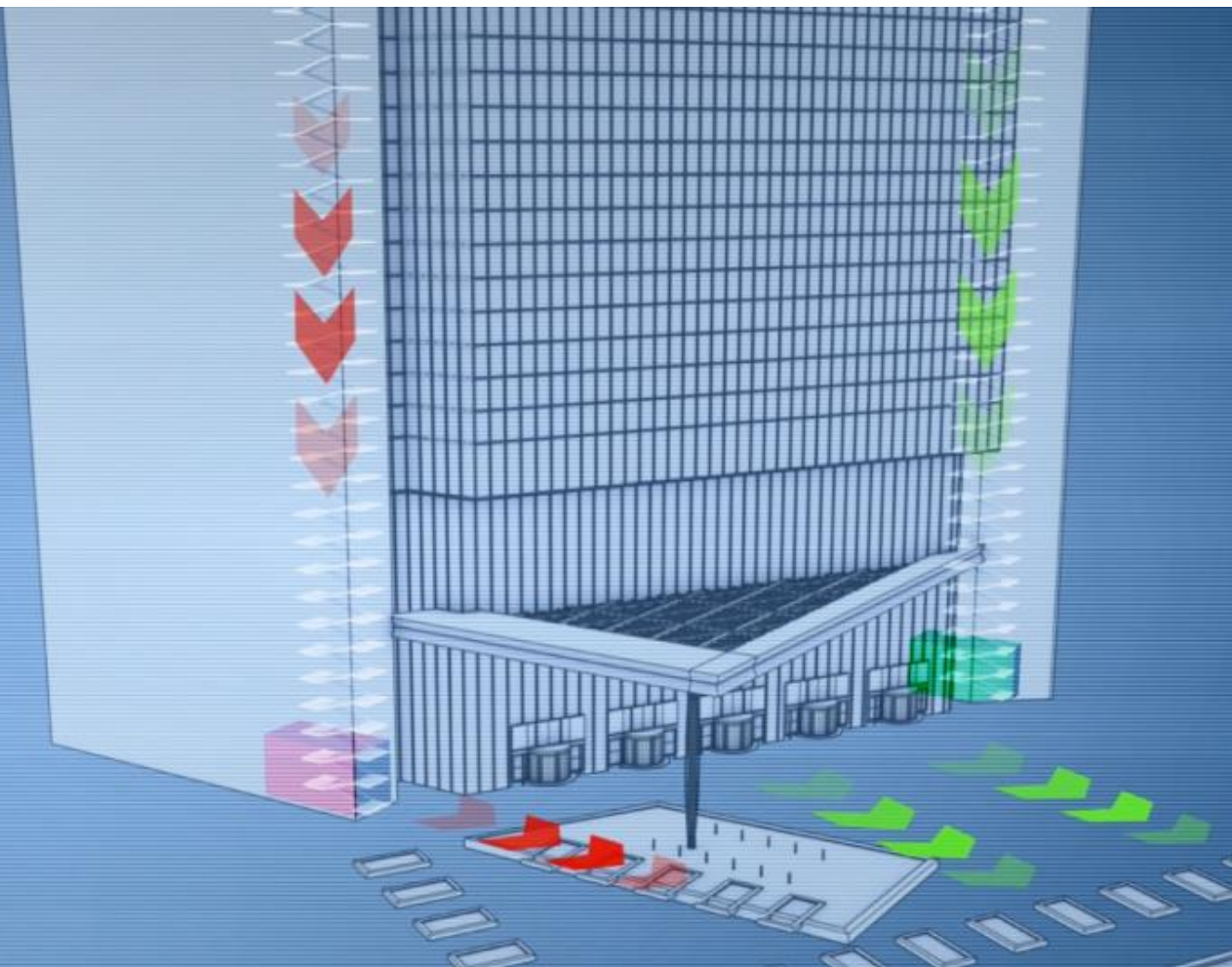
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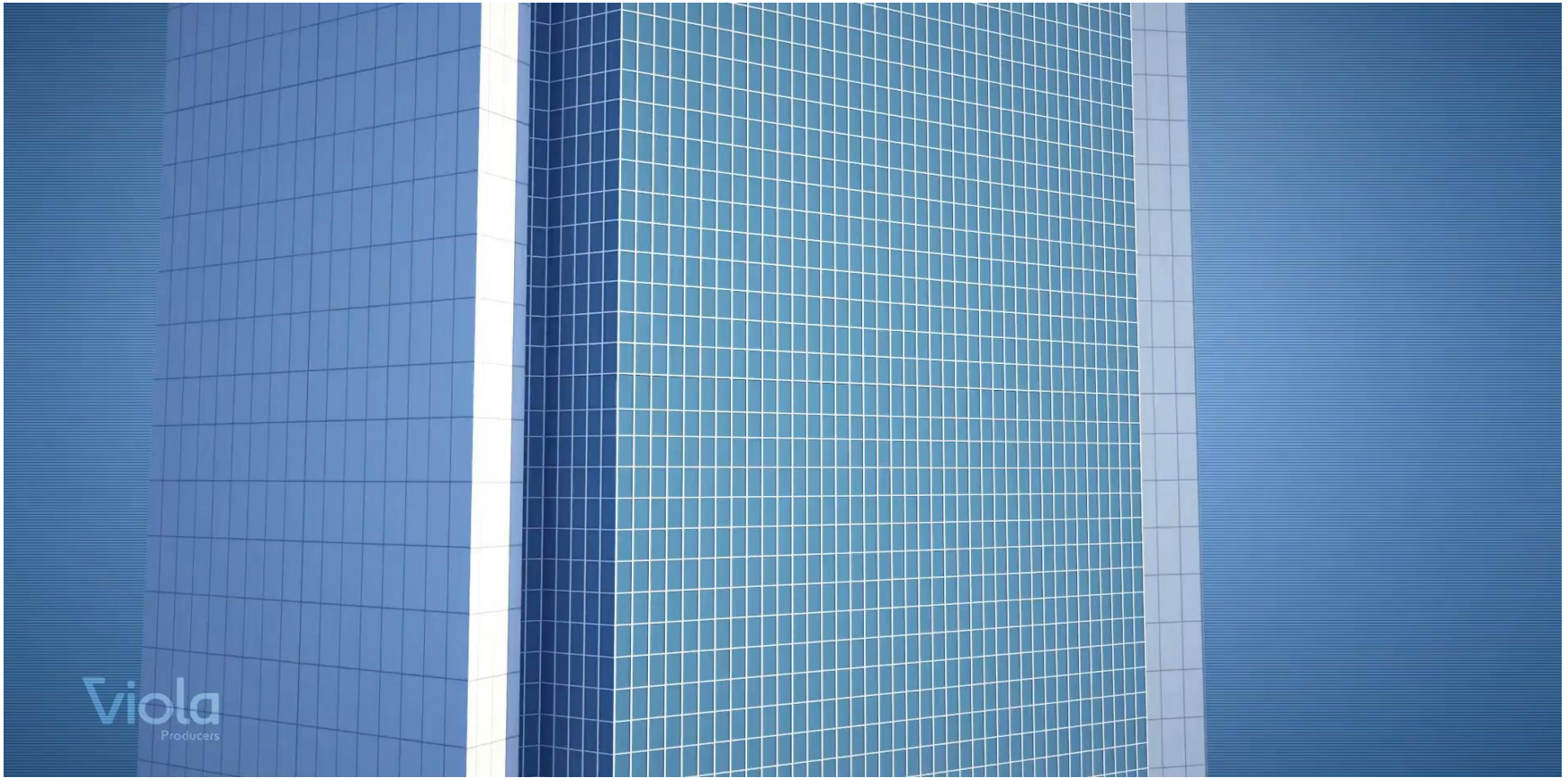
Dead End Corridors



Exit Discharge

- Exit stair that discharges into the building Path.
- Exit stair that discharges directly outside the building.





Representation of Digital Fire Strategy



Stronger visuals and Animation

- Consolidated Summary to aid Civil Defence approvals
- End user operations
- Training & Trials
- Fire Safety Management
- Effective Record of Fire Safety Strategy

Augmented reality to test designs (i.e. evacuation route planning and placement of exit signs), present to Civil Defence for approvals, for operational readiness trials etc.

City Scale Global Issues

Exterior Facade Fires

Exterior Facade Fires

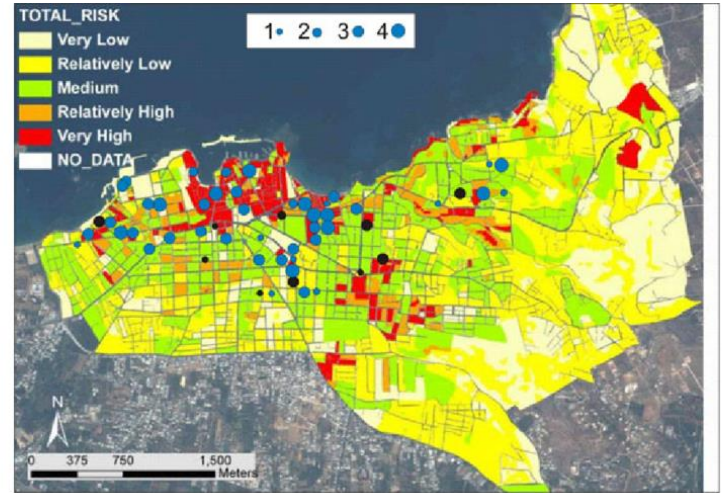
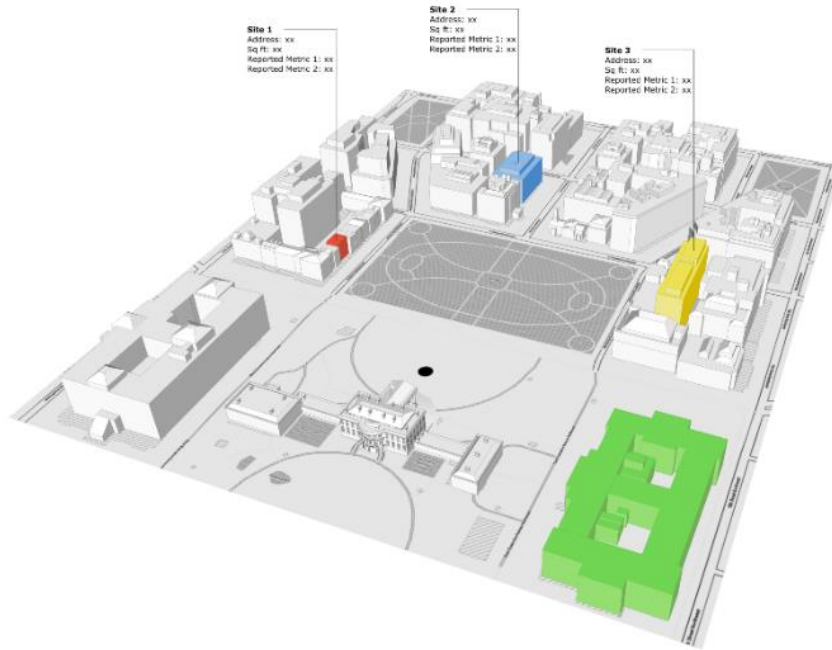
NFPA Risk Assessment Tool

NFPA's EFFECT™

<https://www.nfpaeffect.com/signup>

Smart Cities

Develop and build on individual building assessments using **data and analytics** and **map risk at a city wide level**



Concluding Remarks

- Embrace the technologies that are available
- Use these tools for better design and co-ordination
- Use these tools for better illustration and record of the Fire Strategy Design
- Automation – efficiency and cost effectiveness

Thank You

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