

MIT FSILG Facility Assessments

June 18, 2018

Agenda

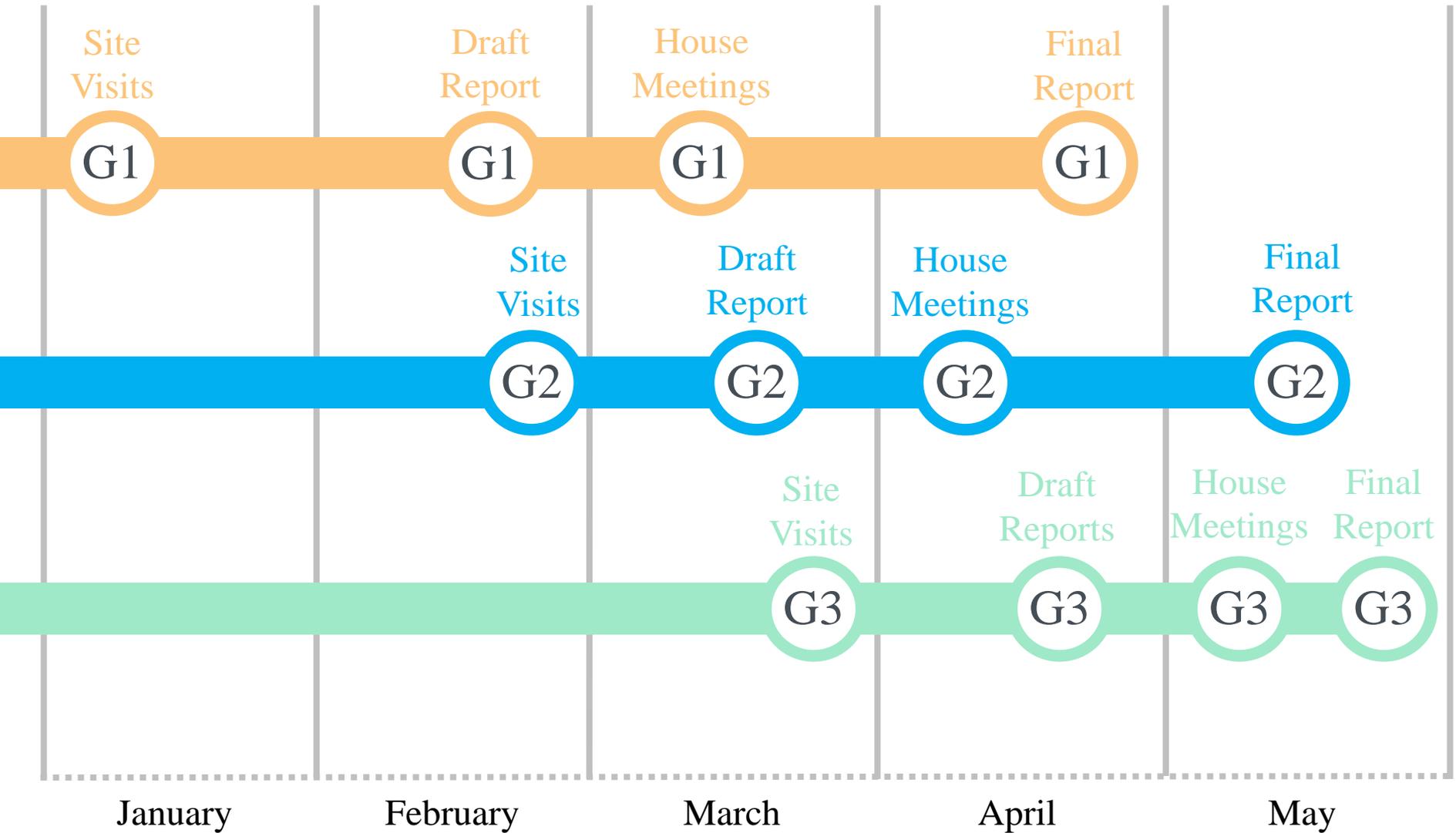
1. Project Introduction
2. Project Methodology
3. Common and Critical Deficiencies
 - Architecture
 - Building Systems
 - Egress
4. Conclusion

Project Introduction

Overview

- 34 houses reviewed
 - 2 to 4-hour site visits
- Systems reviewed:
 - Architecture
 - Structure
 - Mechanical, Electrical, Plumbing, Fire Protection
 - Life Safety / Egress
- Summary reports
- Meetings with house representatives

Schedule



Project Methodology

Project Methodology

- The scope of the facility condition assessments included:
 - Code compliance assessment
 - Systems condition assessment
 - Documentation of deficiencies and recommendations
 - Order-of-magnitude cost estimates
- Arup visually evaluated the conditions of the building structure, shell, interior, and services.
- Building deficiencies were categorized based on the recommended time frame to take action.

Priority Categories

Category 1	Due within 12 months	These recommendations are limited to immediate life safety risks or deficiencies that could cause major disruption to the use/function of the building and should be addressed as soon as possible.
Category 2	Due within 5 years	These recommendations include moderate deficiencies that could cause disruption to the use/function of the building and should be addressed within 5 years. Readily achievable items should be addressed as soon as possible.
Category 3	Due within 10 years	These recommendations include deficiencies that should be addressed but are not considered to require immediate action and may require long term planning and investment. Readily achievable items should be addressed as soon as possible.

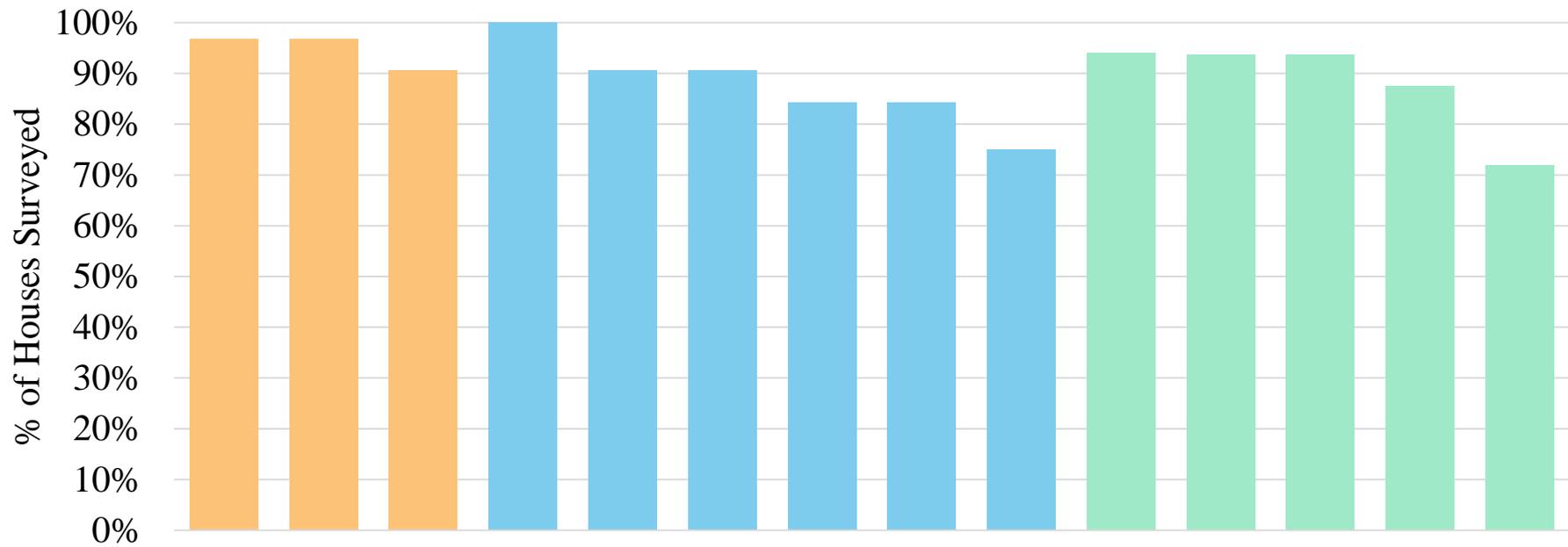
Applicable Codes

- Arup utilized the current edition of the MA Building Code to develop recommendations across all FSILG houses.
- NFPA 101, *Life Safety Code* is a nationally recognized code and was used as a reference for existing building requirements.
- The assessments include all code deficiencies, however, many deficiencies may require compliance only when major repairs or renovations occur.

Assessment Findings

Assessment Overview

- The overall conditions of the buildings vary.
- It is the nature of buildings of this age and occupancy type to require increased upkeep.
- There were many great examples of proactive building maintenance and improvements.
- Common themes:
 - Egress
 - System maintenance
 - Exterior building conditions
 - Housekeeping



Architecture



Building Systems



Egress

Architecture

- Architectural issues include:
 - Exterior façade
 - Windows/skylights
 - Exterior doors/door hardware
 - Roof and/or roof decking
- Routine inspection and repair plans should be developed.
- Limited instances of immediate structural concerns (less than 10% of houses).



Building Systems

- Electrical
 - Exposed wiring
 - Emergency lighting
- Fire Alarm
 - Audio/visual coverage
 - System smoke detectors in sleeping areas
- Fire Protection
 - Painted, corroded, and taped sprinklers
 - Inadequate coverage
 - Residential sprinklers



Building Systems

- Mechanical
 - Equipment life expectancy
 - Restroom ventilation
 - Occupant comfort
- Plumbing
 - Age of fixtures
 - Pipe insulation
- Interior finishes
 - Cosmetic issues



Egress

- Remove storage from stairways to avoid fire spread into egress path.
 - Example: storage closets in stairs
- Installing door closers on bedroom doors will help compartmentalize the building and keep egress paths clear.
 - Combination door closer/door hold-open devices

Hazards in Means of Egress



Number of Exits

- The MA Building Code requires each floor to have two exits and for the stairways to be properly enclosed and separated from each other.
- Due to impracticality of installing fully compliant stairways, Arup developed strategies that could be used as a potential basis for a compliance alternative.

Fire Escapes

- Floors with access to only one stair or exit could use a fire escape as a second means of egress.
- Stairs and fire escapes should discharge onto a public way to be considered an exit.
- Observed issues include:
 - Fire escape balconies
 - Fire escapes that do not discharge to grade



Stairways

- Efforts should be made to enclose stairways to prevent fire spread and maintain a safe egress path.
 - Fire rated doors
 - Draftstop curtain
- Many stairs do not contain compliant railings and guards.



Conclusions

Conclusions

- Based on current codes and best practices, improvements are possible in all evaluated houses
- Some houses have immediate life safety concerns
 - Hazards in means of egress
 - Number of exits
 - Access to exits
 - Exit discharge

Other Considerations

- Each house should:
 - regularly inspect and maintain systems in accordance with applicable codes and best practices.
 - manage general housekeeping practices to limit combustible materials in egress paths.
- Renovations could trigger the requirement to upgrade building/life safety systems and accessibility features.



In Closing

- Assessment recommendations are based on current industry best practices.
- In general, the building code is not retroactive.
 - Building official can identify hazards and force corrections at any time.
- Registered design professionals and/or licensed contractors should be engaged for repairs and renovations.
- In many cases, alternate means and methods may need to be considered in consultation with the authority having jurisdiction due to age, space limitations, historic considerations, etc.