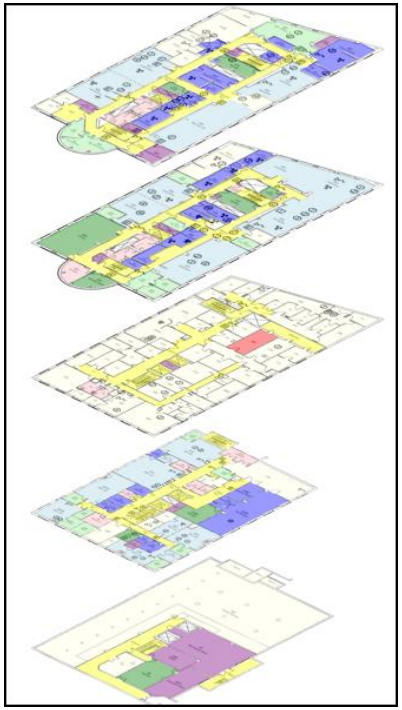
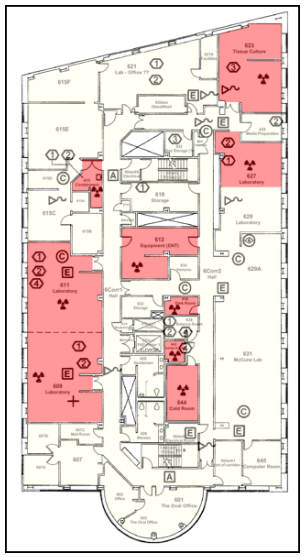
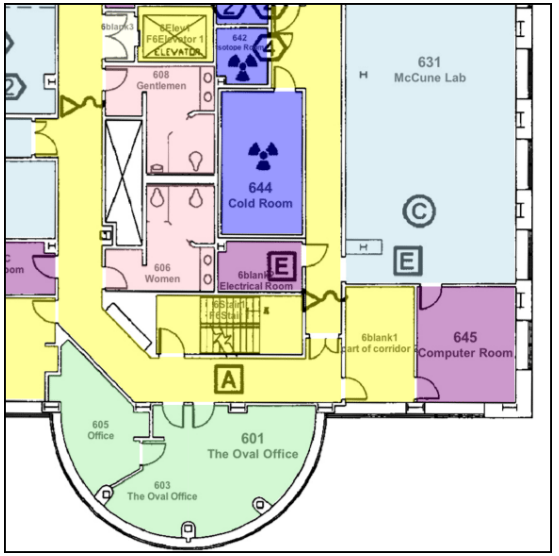
OFPD/X
Open Floor Plan
Display & eXchange

Progress Update October 2009

Simple, Lightweight File Format





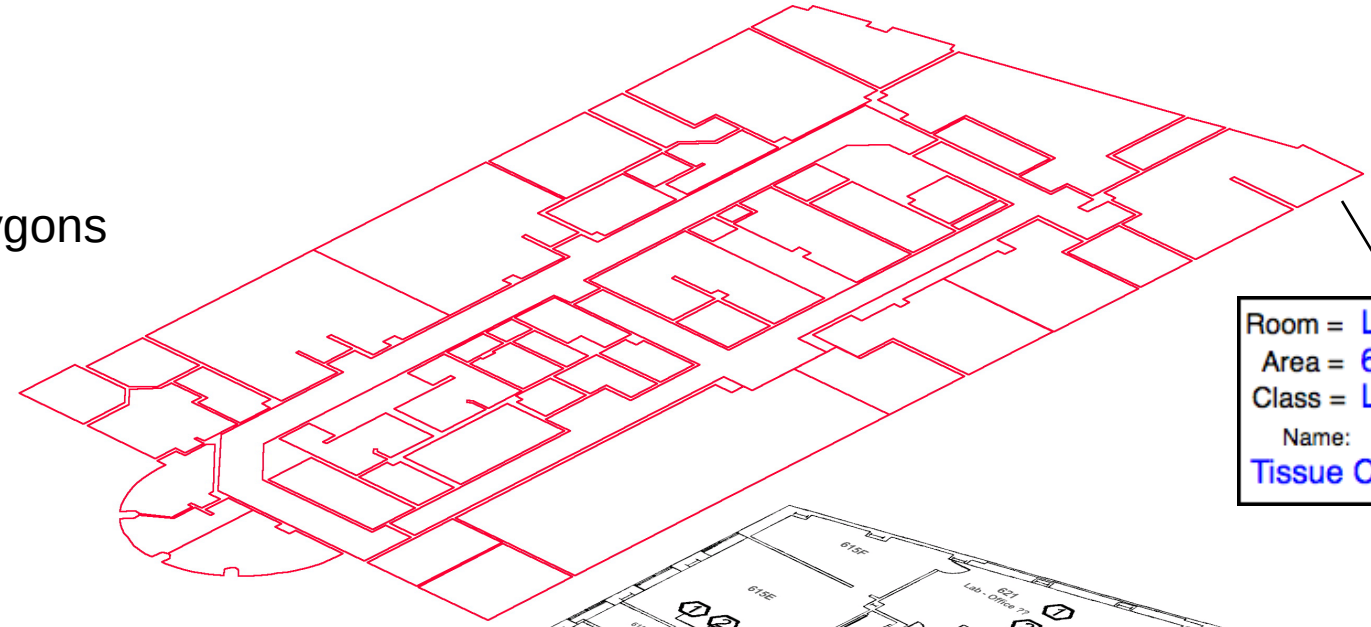


B3F6.svg

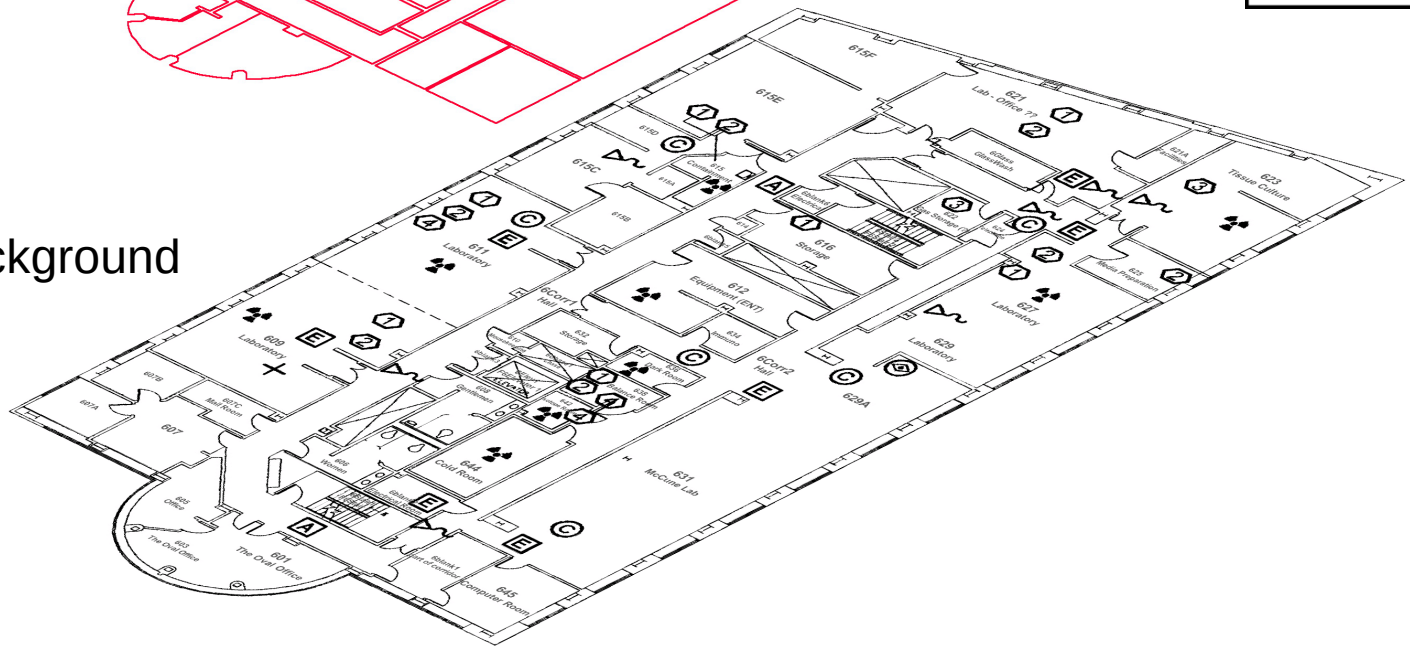
Building Information Display

Basic Layer Composition

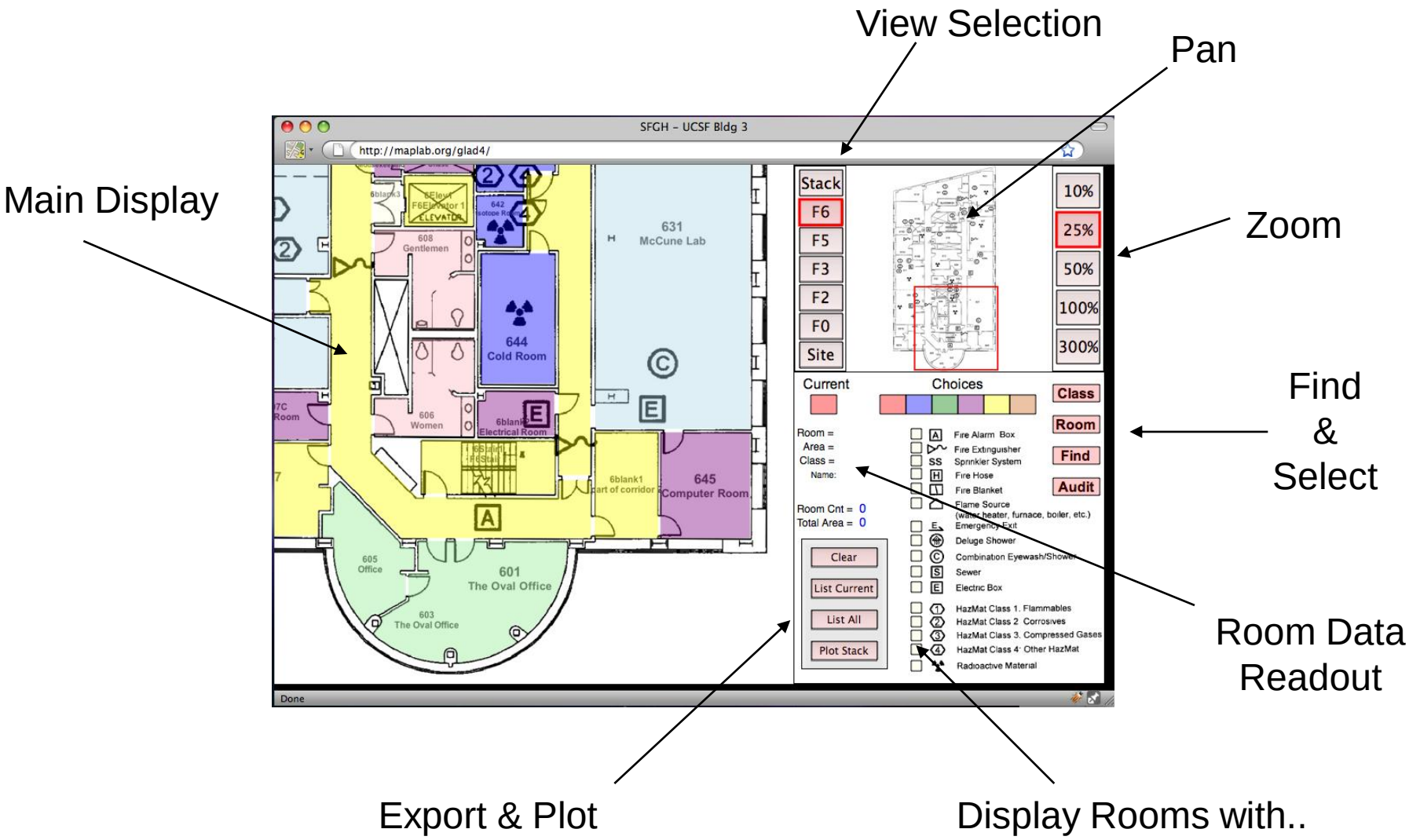
Vector Polygons

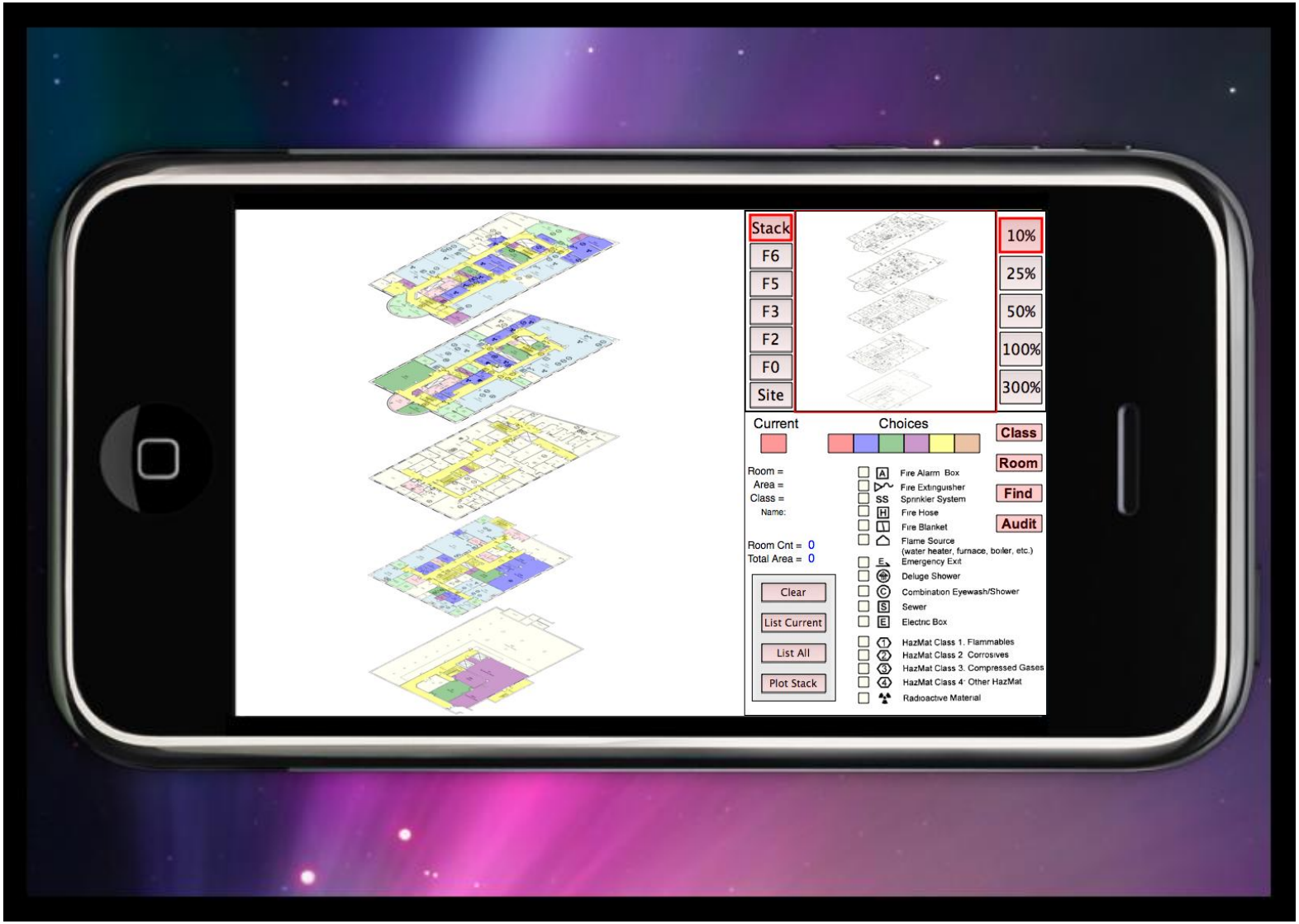


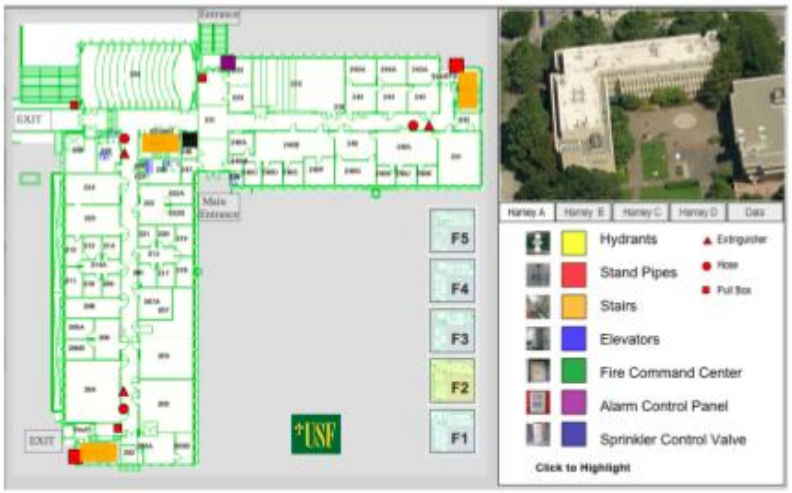
Raster Background



Simple Functionality




Stack
F6
F5
F3
F2
F0
Site
10%
25%
50%
100%
300%
Current
Choices
Class
Room
Find
Audit
Room =
Area =
Class =
Name:
Room Cnt = 0
Total Area = 0
Clear
List Current
List All
Plot Stack
Fire Alarm Box
Fire Extinguisher
Sprinkler System
Fire Hose
Fire Blanket
Flame Source
(water heater, furnace, boiler, etc.)
Emergency Exit
Deluge Shower
Combination Eyewash/Shower
Sewer
Electric Box
HazMat Class 1. Flammables
HazMat Class 2. Corrosives
HazMat Class 3. Compressed Gases
HazMat Class 4. Other HazMat
Radioactive Material



Open Floor Plan Display

Project Prospectus

Presented by

SFC MapLab Project

Golden Gate Safety Network

and

Building Service Performance Project

Ontolog Forum

February 2009

Progress Since April

Organization

- Forming an expanded informal consortium with Golden Gate Safety Network, Carnegie Mellon, NASA, plus additional developers and emergency response practitioners

- Seeking a sponsor for funding

Progress Since April

Ontology creation and standardization

- Creating a new OASIS Technical Committee
- Working with the EDXL and NIEM emergency management groups to provide a compatible open floor plan model
- Began formalizing and augmenting the current Open Floor Plan Display syntax into an ontology

Plans

- First major prototype will be OFPD for FireFighter Tracking (with CMU & NASA)
- Looking for the right opportunity to demonstrate OFPD/X for Energy Analysis
- We expect to have a stable ontology completed by summer 2010, for submission through OASIS and harmonized with NIEM

Indoor / Outdoor FireFighter Tracking

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Open Floor Plan Display
for
FireFighter Tracking

CMU is collaborating with the Golden Gate Safety Network to develop a format for displaying floor plan related building data for First Responders.

Major Benefits include:

- Interior Knowledge of a Complex and Dangerous Situation
- Ability to Plan the Best Route of Approach to Fire
- Quick Visibility of the Best Route to Exit
- Background for Real Time Tracking
- Powerful Tool For:
  - Training and Exercises
  - Damage Assessment
  - Search and Rescue

CMU Building 23 - "Milk Carton Model"

CMU B23 Floor 2 - Open Floor Plan Display

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Example: Ontology Requirement (Spatial Structure)

A “space” in a facility is where an event occurs.

Understanding and responding to an event requires knowledge of the space’s function, associated building elements, associated objects in or near the space, and relationship to other spaces within the facility with respect to the context of the event.

- Facility’s spatial structure elements
  - Identifiable
  - Classified by function and (optionally?) by form
  - Associated with building elements
  - Relationship to other spaces
  - …

Spatial Decomposition

- Thing
  - ObjectDefinition
    - Context
    - TypeObject
      - BuildingElementType
        - WallType
    - Object
      - VirtualElement
      - BuildingElement
        - Wall
      - SpatialElement
        - SpatialStructureElement
          - BuildingStorey
          - Building
          - Space
          - Site
        - SpatialZone
  - Relationship
    - RelAssociates
      - RelAssociatesClassification
    - RelDecomposes
      - RelAggregates
    - RelAssigns
    - RelConnects
      - RelContainedInSpatialStructure
      - RelSpaceBoundary

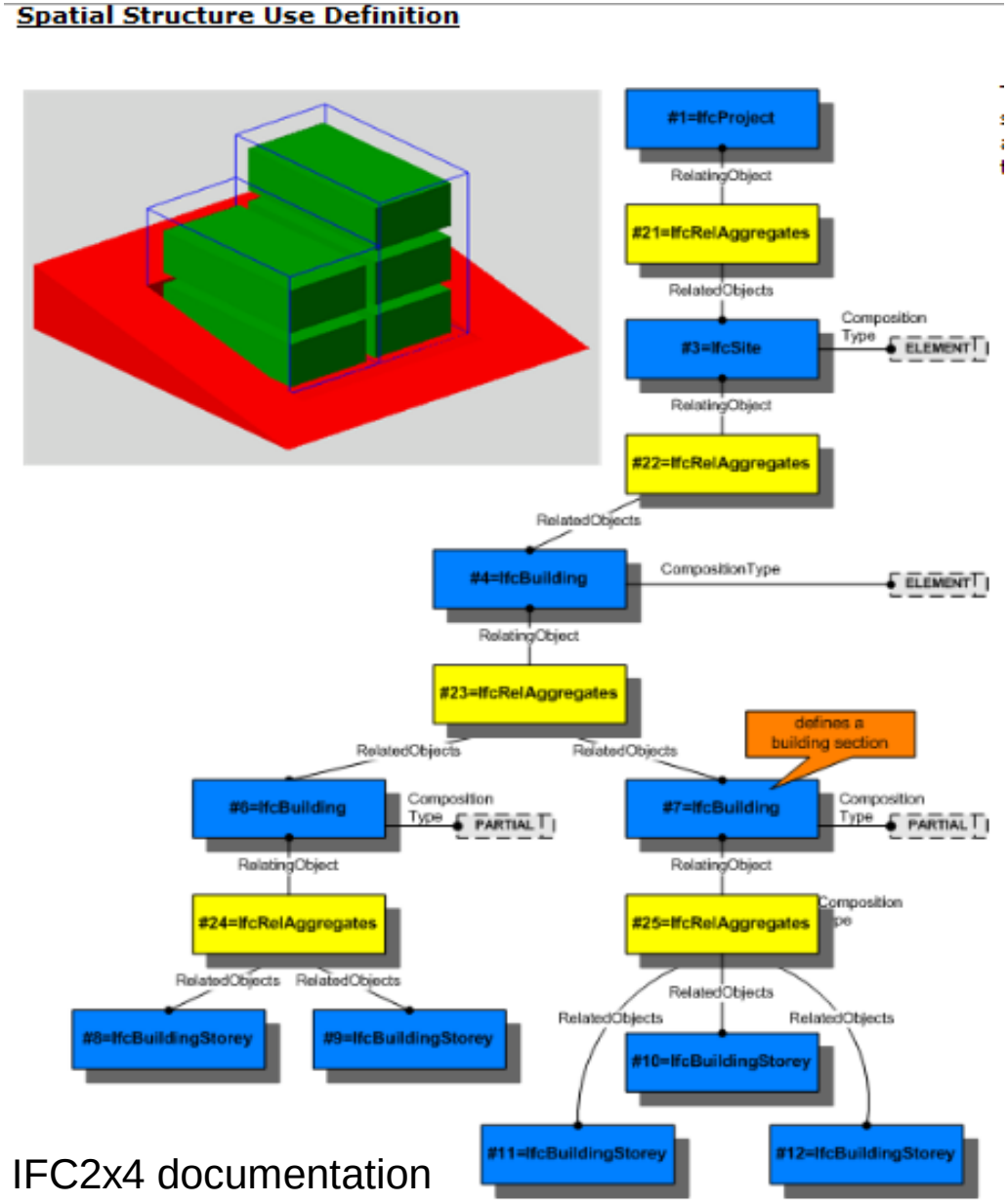

*Image from IFC2x4 documentation

Spatial Connection

- Thing
  - ObjectDefinition
    - Context
    - TypeObject
      - BuildingElementType
        - WallType
    - Object
      - VirtualElement
      - BuildingElement
        - Wall
      - SpatialElement
        - SpatialStructureElement
          - BuildingStorey
          - Building
          - Space
          - Site
        - SpatialZone
  - Relationship
    - RelAssociates
      - RelAssociatesClassification
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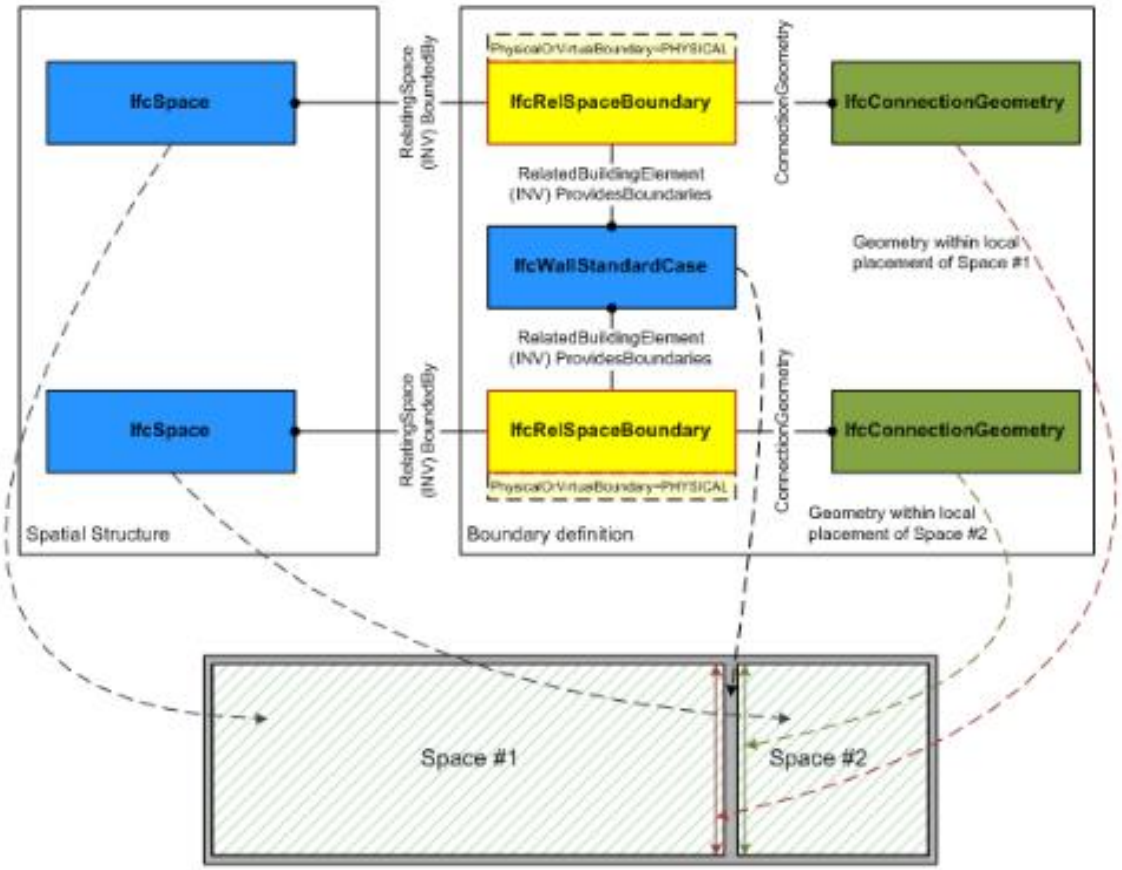
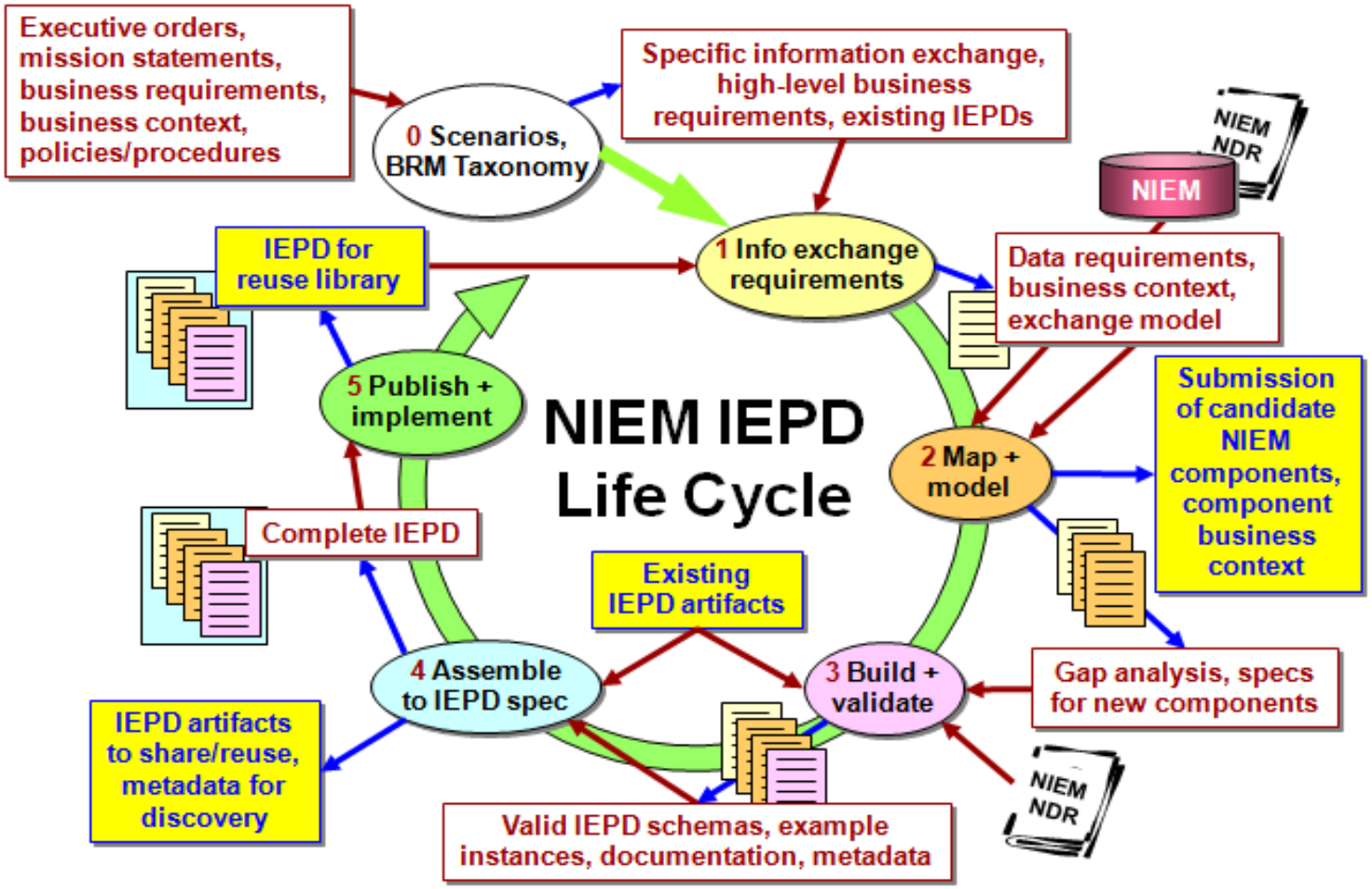


*Image from IFC2x4 documentation

Information Exchange Package Documentation Life Cycle



* http://www.niem.gov/pdf/HLTA-1_1.pdf


230
228
Lounge
Exit
Kitchen
217
215
214
225
223
213
216
218
220
222
224
Men's
Exit
205
Women's
211
212
210
208
206