Purpose Current versions of floor plans and facility drawings present a major limitation for facility managers in carrying out operations and maintenance activities in today's complex facilities. Leite[1] carried out three case studies during reactive maintenance activities in a major US university and identified that paper-based information systems present a challenge for timely responding to reactive maintenance activities, such as pipe bursts or power outages. Moreover, various regular and reactive maintenance activities require querying facility information, such as identifying all the firewalls that need to be repaired or identifying all the emergency exits during a building emergency. Execution of such queries on paper-based systems is entirely manual and hence this process is time-consuming and the accuracy and completeness of the retrieved information depends upon the capability of the maintenance personnel. **Method** Building information models (BIM)[2] and geographic information systems (GIS) are IT-based information systems that can represent vast amount of facility and geospatial information in 3D. BIM is increasingly being used during design and construction phases of a facility and GIS has been widely used for spatial information management by various government agencies and corporations. Currently, there is little understanding of what information and what level of detail should be represented in either BIM or GIS to support facility management activities. In this research paper, the authors have identified information and functional requirements for a platform based on BIM and GIS to support facility management activities by reviewing building codes, regulations, and specifications. Information requirements are comprised of critical assets and their corresponding information; functional requirements are comprised of critical queries required for carrying out facility management activities. The authors modeled the identified assets and corresponding information in a BIM of an academic facility and implemented the queries in a prototype. The authors carried out a workshop with facility managers of a university and a major hospital to identify important assets and corresponding information. **Results & Discussion** The results have been summarized in a table containing the assets and corresponding information, % of clauses in codes, regulations or specifications that refer to these assets, and whether these assets are requested by facility managers or not.

References

1. Leite F. An Automated Approach towards Supporting First Responders in Vulnerability Assessment and Identification of Rectification Opportunities in Buildings Emergencies. PhD Dissertation. Pittsburgh: Carnegie Mellon University; 2009
2. Eastman CM, Teicholz P, Sacks R, Liston K. BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers, and Contractors. Hoboken: John Wiley; 2008

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Table 1: Identified assets through workshops with facility managers (FM)

Asset	% of clauses	Type of building	Requested by FM
Fire-rated doors	25	Hospital	Yes
Fire-rated walls	16	Hospital	Yes
Sprinkler system	4	Hospital, Commercial, Residential	Yes
Exits	4	Hospital, Commercial, Residential	Yes
Smoke barriers	3	Hospital	No