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FLATIRONS EVENT CENTER

ASSESSMENT OF EXISTING BUILDING

EXECUTIVE SUMMARY

Executive summary

At the request of the City of Boulder Parks and Recreation Department, WORKSHOP8 and its team of subconsultants have performed a limited investigation and evaluation of the Event Center building at the Flatirons Golf Course in Boulder, Colorado. The investigation included observations of architectural, structural, mechanical, electrical and plumbing systems along with an assessment of the thermal performance and energy consumption of the structure and observation of civil (site) systems related to the structure and its immediate surroundings.

The investigation assesses current condition of the structure and its site and revisits and references conditions observed during an assessment completed in 2008. We note current conditions observed and any significant changes to systems that have occurred in the intervening five and one half years since the previous assessment.

The report attempts to provide an objective assessment of the condition of the building and its various systems based upon observations in 2008 and 2013. The report does not attempt to make value judgements other than to give an opinion of the conditions observed relative to our professional experience with other buildings of similar type, age and use.

In general we find a building at the end of its useful life, with out of date and deteriorated building systems, marginally adequate life safety systems, overwhelming accessibility shortcomings, extreme energy inefficiencies and substantial quantities of hazardous materials. A summary of our findings is as follows:

Building Systems

Several building systems: roofing, roof structure, mechanical and electrical systems are in extremely poor condition, functioning only marginally and with numerous code violations.

Roofing

- The roof membrane on the structure has been a source of problems for years and was the impetus for the original study of the structure in 2008. Conditions found in 2008 and persisting today include frequent water leaks that damage structural systems and interior finishes, inadequate slope for proper drainage resulting in standing water, poor or non-existent flashing of roof penetrations, repeated attempts at repair and reroofing without removal or correction of underlying problems.
- In 2008 the roof system was cored. Multiple layers of previous roof membranes and insulation systems were discovered including gravel ballast that was simply covered over by new roofing rather than being properly removed.
- Sources of leaks remain elusive and are so pervasive that the City of Boulder is paying a roofing contractor in excess of \$1000 per month (approximately 16% of the total revenue generated by the structure) to maintain the roof membrane.

Roof structure

- The roof materials were and are saturated with water. Water being held within the roofing materials adds dead load to a roof structure not designed to carry it.
- Poor design, inadequate roof slope and deflection of overloaded framing members results in standing water - in some places multiple inches in depth - that adds even more dead load to those same framing members.
- Repeated and persistent water intrusion through the roof continues to threaten the adequacy of the roof structure. In many places wood sheathing materials have deteriorated due to wood rot, causing deformation and delamination. It is only a matter of time before portions of this system begin to fail with serious life safety consequences for occupants of the building.

Mechanical

- Heating and cooling units serving the building range in age from two to twenty plus years. A single RTU serving a small portion of the building was replaced within the last two years. This unit, along with another small unit

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servicing the snack bar on the east end of the structure could have a useful operational life of ten or more years. All other mechanical units are at or beyond their useful life and need replacement.

- Other mechanical systems including the grease hood exhaust system, kitchen make up air and the gas-fired boiler are all advanced in age and in poor condition. All have current code violations and all are inefficient in their energy consumption. The boiler providing hot water for the hydronic heat system is extremely old and likely operating at less than 60% efficiency.
- Capital costs to be incurred within the next two to three years to replace aging mechanical equipment and non-code compliant conditions will likely exceed \$300,000.
- Distribution ductwork for virtually all of the structure is run above the roof. This does not meet current code and contributes to the building's poor energy performance. Correction of this single code violation will require the installation of an extremely costly variable refrigerant flow system or removal of the existing roof structure and reconstruction with a new roof structure with adequate depth to run ductwork within the insulated building envelope. The cost of remedying this one code violation alone is nearly \$400,000.

Electrical

- The electrical system is adequately sized but aging and finding replacement parts will be increasingly difficult. As a result any substantial change to the system will require replacement of costly electrical gear and distribution panels.
- Numerous cases of improper electrical distribution systems exist from improperly supported conduit to conduit laying in ponded water on the roof to exposed wiring. All are code violations and should be corrected to improve building safety.

General

- Maintenance costs for some of these systems are skyrocketing and threatening to overwhelm the limited revenue potential for the building. It appears that one result of this is the deferral of maintenance which in turn causes the systems to deteriorate faster. Some of these systems are approaching the point where they will become health and life safety risks to occupants of the structure.

Life Safety and Accessibility

Designed for a different use, the building has been repurposed with only minor renovation and replanning. The result is a building with barely adequate life safety exiting systems and wholly inadequate accessibility.

Life Safety

- Fire protection systems were upgraded in 2008 in response to shortcomings noted in the 2008 assessment. This system is in the best condition of any within the structure.
- Exiting systems contain multiple code violations that threaten occupant safety. Among the conditions noted are: exit paths blocked by equipment stored by the tenant, exit paths with non-compliant stair systems (constructed since the 2008 report) and an exit path containing a gas-fired appliance. Perhaps most egregious, since 2008 the tenant has moved an accessory structure on the west side of the building to a position that severely limits the available exit width and hence efficiency of the emergency egress system.
- Egress lighting is non-code compliant.

Accessibility

- Accessibility issues present in the structure are almost too numerous to note. They include among others:
 - inadequate clear width at exit paths and along paths of travel
 - inadequate clear floor area for turning within spaces
 - inadequate clear width at doors
 - inadequate clearances adjacent to doors
 - improper door hardware
 - improper clearance at plumbing fixtures
 - changes in floor level exceeding 1/4"
 - no warning devices for elements projecting from wall or hanging from ceilings
- Representative of the breadth of the issue:

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- virtually no door within the structure meets the requirements for width, clearances adjacent to the operable leaf, hardware operation and/or operating force. Simply making every door within the structure compliant will require an almost complete demolition of interior systems.
- limited clearances within the existing kitchen would require complete demolition and reconstruction in a space approximately 20% larger than current.

It is important to note that while accessibility requirements are being included in current building codes the primary means of enforcing accessibility compliance is through the Americans with Disabilities Act. This law allows citizens to bring litigation against building owners whose structures do not meet ADA standards. Although most of the Events Center was constructed prior to the passage of the ADA, recent renovations of restroom facilities (since 2008) still contain several violations that may expose the city to a potential lawsuit.

Energy

As part of the current assessment we have also investigated energy consumption in the structure. An outdated and uninsulated building envelope combined with aging and inefficient mechanical systems, inadequate space within the thermal envelope for mechanical distribution systems and inefficient lighting systems result in utility costs that are extreme.

- Existing uninsulated masonry walls lose over 600% more energy than and typical wall designed to meet the energy code.
- Electric and natural gas use at the Flatirons Event Center that is more than 500% of the national average for structures of similar use and size.

Achieving energy code compliance will require a comprehensive renovation of virtually every building system including: roof structure, building envelope insulation and air infiltration barriers, windows, doors, water heating, HVAC, ventilation and energy recovery and lighting.

Hazardous Materials

The structure contains a significant quantity of hazardous materials.

Asbestos

Asbestos containing materials in particular are prevalent throughout the building.

- Materials within the structure that have tested positive for asbestos include: flooring, window glazing, ceiling texture.
- Materials not tested but assumed to contain asbestos include: roof felts and tar, transite ceiling panels. The ceiling texture and the transite panels are considered to be highly friable and pose a significant health risk.

The structure contains more than 3,000 s.f. of highly friable transite panels, more than 4,000 s.f. of highly friable acoustical ceiling texture and approximately 3,000 s.f of asbestos vinyl floor tile. In addition the cmu walls throughout the structure have been coated with a block filler that contains a trace of asbestos.

These substances pose a direct threat to the health of occupants and the general health and viability of the structure. Because they occur in so many locations and systems it will be difficult to maintain the structure without disturbing them and placing occupants at risk.

Mold

- Immediately after the flooding in September 2013 the structure tested high for airborne mold spores. Removal of all material that had been wetted during the event and ventilation of spaces did eventually bring mold levels down to approximately those occurring naturally outside the structure.
- Mold has been present in the structure since prior to the time of the 2008 assessment. At that time mold was observed on saturated roof sheathing and framing members. Those surfaces have been cleaned and covered by a coat of paint to entomb any remaining mold spores. The paint may however hasten the deterioration of the roof sheathing by not allowing moisture within the saturated roof systems to dry by evaporating to interior spaces.

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Flood Hazards

In addition to assessing the current condition of building systems generally we have noted specific damage resulting from the September 2013 flood. Our investigation also addresses the ongoing flood risk for the structure and its site and delineates a scope of work to “dry flood proof” the building in compliance with FEMA/NFIP requirements.

The structure sits within the South Boulder Creek floodplain. Its site is nearly flat with inadequate slope to allow for proper drainage. The grade adjacent to an outdoor terrace on the south side of the structure creates a sump condition which relies on mechanical pumps to move water away from the structure. Long sustained rain events like that of September 2013 or even short intense storms typical in spring and early summer can overwhelm the system and have lead to repeated flooding of the structure.

The damage incurred by the structure in 2013 appears not to have been caused by floodwaters from South Boulder Creek but from sump pumps on the south side of the structure becoming overwhelmed or simply losing power during the storm. Should a flash flood occur creating flows across the golf course that rise to the Base Flood Elevation anticipated in current flood mapping the damage to the structure will be far greater than that of 2013 based simply upon water adjacent to and within the structure at depths several times the 1” - 2” depth that occurred last September.

Flood proofing of the structure will require one of two alternatives:

- construction of a flood proof exterior envelope including flood proof doors and revised finish systems both interior and exterior that limit flood damage to the structure
- demolition of the structure, elevating a portion of the site to support a new structure, elevating a portion of the site to support new parking for proper accessibility of the structure, potential reconfiguration of adjacent golf course areas to insure that increased flows adjacent to the elevated structure and parking do not adversely affect adjacent properties.

The first alternative is intended solely to limit property losses. The second alternative both limits property losses and life safety hazards.

Capital Costs

The report concludes with a series of defined scenarios for the future of the structure. Within each scenario we define the scope of work necessary and develop a construction cost estimate to complete the work. As expected, with each successive level of repair/renovation/replacement total capital costs increase.

1	Scenario A	Repair to pre-flood condition (repairs finishes and systems damaged by water in September 2013)	\$213,555
2	Scenario B	Flood proofing of the structure (includes revisions to the structure only - no revisions to parking or the site are included - and includes scope of work outlined in Scenario A above.)	\$519,374
3	Scenario C	Renovation of the structure to full code compliance relative to current City of Boulder requirements (includes repair of finishes (Scenario A) and flood proofing of structure (Scenario B above.)	\$2,912,725
4	Scenario D	Demolition of the existing Event Center, repair of the snack bar for ongoing use by the golf course and construction of a new restroom facility for golf patrons	\$609,550

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5	Scenario E	demolition of the entire structure and construction of a new golf clubhouse and restaurant (includes revisions to the parking lot and approach road and includes modifications to the golf course and driving range as outlined in the 2010 Dye Design Business Plan.)	\$3,359,881
6	Scenario F	demolition of the entire structure and construction of a new event center with integrated restaurant and golf clubhouse (includes revisions to the parking lot and approach road and includes modifications to the golf course and driving range as outlined in the 2010 Dye Design Business Plan.)	\$6,751,049

Of note, existing systems within the structure are in such poor condition that renovation of the building to code compliance results in a cost in excess of \$2.9M which translates into a unit cost of \$171/s.f. This cost, which very nearly equals the cost for an entirely new structure, only provides for code compliance of current systems. It does not include the redesign of the structure to better fit the needs and function of the current use or any opportunities for a better designed, more appealing and valuable building.

Conclusion

Clearly, the existing structure is in poor condition and is in need of a huge capital infusion just to keep it marginally functional. In addition the structure possesses many immediate and near term hazards, resulting in considerable risk exposure for the city. In return for carrying this risk the city receives \$6,000 per month in revenue from the structure. Renovation to bring the structure into code compliance and minimize the municipality's risk will require capital investment equal to nearly forty years worth of current revenues.

It will be up to city staff and elected officials to determine whether the revenue generated by the structure represents an acceptable return given the risks and investment necessary or whether some other form of investment in the property is necessary for the site to continue in service to the community.

Our investigation does not make a recommendation for any one scenario over the others except to note that action is required. The building continues to deteriorate and may soon start to experience failures in several systems. Continued inaction will only increase the city's exposure to litigation arising from health and life safety issues.

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We appreciate being given the opportunity to undertake the assessment of the Flatirons Events Center. We are available to respond to questions and/or comments from city staff and elected officials as needed and are willing to provide our professional expertise and opinion in support of the City of Boulder's analysis and determination of the future of the structure.