CAPITOL COMPLEX MASTER PLAN

FINDINGS & RECOMMENDATIONS (F & R) NEEDS ASSESSMENT

1881 PIERCE BUILDING, 1881 PIERCE STREET (LAKEWOOD)

NOVEMBER 2014

RNL

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November 2014

TABLE OF CONTENTS

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TABLE OF CONTENTS (CONTINUED)

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EXECUTIVE SUMMARY

The purpose of this report is to provide a Findings & Recommendations (F&R) Needs Assessment of the 1881 Pierce Building at 1881 Pierce Street in Lakewood, Colorado. The report includes a description and evaluation of the existing conditions, recommendations, and cost estimates for the recommended work from the following focus areas: architecture (RNL), structural (Martin/Martin Consulting Engineers), civil (Martin/Martin Consulting Engineers), mechanical/electrical/plumbing (RMH Group), voice and data (Shen Milsom Wilke), security (Shen Milsom Wilke), and cost estimating (CBRE, Inc.). The project team, led by RNL, reviewed existing building documentation, drawings, and audit reports provided by the Owner, and conducted a site visit to identify and document the observable existing conditions of the building and its code and life safety issues.

In general the building is in fair condition. A fair condition rating refers to the fact that the 1881 Pierce Building is usable but in serious need of repairs to address life safety and loss of use/reliability issues.

Although all recommendations presented in this report should be considered for implementation, the following are the top five priorities due to their impact on life safety (LS), loss of use/reliability (LOU), finishes (F), and overall energy efficiency:

1. Modify fire sprinkler system throughout the First Floor. This recommendation encompasses life safety issues and is due to egress and fire protection code issues.

   High Level Cost Estimate: $949,488

2. Accessibility upgrades. This recommendation encompasses life safety issues and is due to a number of non-accessible drinking fountains and other non-accessible features found throughout the restrooms and break rooms.

   High Level Cost Estimate: $328,957

3. Repair/replace site paving. This recommendation encompasses life safety issues and loss of use/reliability issues and is due to the overall deterioration of the site pavement which is creating a potential tripping hazard.

   High Level Cost Estimate: $2,830,816

4. Asbestos assessment and abatement. This recommendation encompasses life safety issues.

   High Level Cost Estimate: $634,119

5. Replace HVAC system. This recommendation encompasses loss of use/reliability issues and overall energy efficiency issues and is due to the age and condition of the HVAC system and the inability to maintain a consistent comfortable working temperature within the building.

   High Level Cost Estimate: $542,650

If all recommendations in this report are implemented as a single project, including the top 5 priorities, the high level cost estimate is:

$9,583,603

If all recommendations in this report are implemented system by system as multiple projects, including the top 5 priorities (systems), the high level cost estimate is:

$9,724,003

1.0 OVERVIEW

1.0-A ARCHITECTURE OVERVIEW

The 1881 Pierce Building was constructed in 1972 and is located in Lakewood, Colorado on the southwest corner of West 20th Avenue and Pierce Street. The State of Colorado acquired the building in 1983 and constructed the south wing in the same year. The building currently serves as government office space for the State of Colorado's Department of Revenue, including the Division of Motor Vehicles and the Enforcement Division. The 1881 Pierce Building, consisting of a concrete structural system clad in precast aggregate panels, is a one-story building with a basement and grosses 122,542 square feet of space.

The architectural assessment of the 1881 Pierce Building at 1881 Pierce Street included reviews of the existing building documentation, drawings, and audit reports provided by the Owner, and a site visit to survey and document the existing conditions of the building and its code and life safety issues. During the site survey on October 8, 2013, building maintenance personnel provided building history and information on the layout, finishes, maintenance routines, systems, and the dates of repairs and upgrades. In general, the building is in fair condition. There are issues related to interior and exterior finish materials, building systems, code compliance, accessibility, asbestos, and other items that require attention in the near term. One of the main concerns is related to the age and condition of the roof. Other concerns include the need for accessibility upgrades and the presence of asbestos throughout the building. These concerns encompass life safety and loss of use/reliability issues. These findings, along with recommendations for repairs, are detailed in the body of this report.

1.0-B STRUCTURAL OVERVIEW

Martin/Martin conducted a building condition assessment on October 8, 2013 of the Department of Revenue offices located at 1881 Pierce Street in Lakewood, Colorado. The purpose of our condition assessment was to identify structural defects, damage and deterioration.

The north wing of the Department of Revenue office building was constructed in 1972 with a south wing added in 1983. The structural framing for the north wing consists of a concrete cast-in-place roof beams and joists and a cast-in-place waffle slab supported by concrete columns. The south wing structural framing consists of precast concrete double-tees spanning to concrete inverted-tees and concrete columns. The foundation system is unknown and construction drawings were not available.

The structural framing that was readily observable is in good condition. Many cracks were observed in the partition walls of the north wing indicating movement is occurring throughout the building. This movement may occur from foundations or slab-on-grade along with transient loads on the roof framing.

The exposed aggregate spandrel beams located at the east and west entrances are cracked and do not appear to be adequately supported. These panels should be removed and replaced to prevent injuries due to failure.

Parapets along the roof edge were found to be of inadequate height. A fall protection system should be provided for access near exposed edges to meet current safety codes.

1.O-C CIVIL OVERVIEW

The Colorado Department of Revenue Building site is approximately 17.50 acres and is located at 1881 Pierce Street in Lakewood, Colorado. The existing site consists of the building, a large parking lot, site landscaping and street right-of-way including sidewalk and landscaping. The site is accessed from Pierce Street on the east side of the building but the main public entrance is on the west side of the building. The site surrounding the building is consistent with a building approximately 35 years old.

The site exterior is generally in poor condition. There are numerous locations around the building with broken and cracked asphalt and concrete in need of repair or replacement. Broken concrete in walking paths is a tripping hazard and a high safety concern. The main concern regarding the Colorado Department of Revenue Building site is the condition of the site paving and drainage. The site needs to be re-surfaced with new asphalt immediately to prevent further deterioration and ensure pedestrian safety. Drainage is a concern as ponding was observed. Improvements such as the installation of a curb cut, storm inlet, or re-paving to provide positive drainage may need to occur at the location of ponding to prevent standing water or icing and site deterioration. While the existing building functions in its current state, improvements can be made to maintain the existing site, correct safety hazards, and improve aesthetics.

1.0-D MECHANICAL, ELECTRICAL, AND PLUMBING OVERVIEW

The 1881 Peirce St. building was built during the 1970's. The building is a single story structure with a basement. The building was constructed in two phases: the north portion of the building was constructed first and then the south portion was added later. The electrical and mechanical assessment of the building included review of the existing building documentation, drawings, and audit reports provided by the Owner. A site survey for the facility was performed to observe the existing electrical and mechanical equipment installation, code, and building energy efficiency issues. During the site survey, building maintenance personnel provided building history and information on the electrical and mechanical systems conditions, maintenance routines, and installation dates.

The main concerns with this building are the age of the main electrical gear, panelboards and the lighting system.

There is no sprinkler system on the first floor. It is recommended to provide sprinkler coverage for first floor to improve life safety. All flammable material stored in the basement rooms should be removed to improve life safety. Storage in the rooms should not increase the design fire load for the basement sprinkler system.

Energy Conservation

To conserve energy in this building a lighting control system that provides automatic daylight dimming and occupancy sensor shutoff will provide energy savings. Also, following the most up-to-date energy codes regarding how much light is used (watts per square feet) will reduce the number of fixtures required for each space. Supplemental task lighting can be used on the desk or in the cubicles to ensure occupants are able to perform their work effectively.

Replacing the HVAC units serving first floor north side and providing heat in the units serving south side will improve the comfort conditions in the spaces and also save heating and cooling energy costs. The unit serving the basement is also at end of its useful life and should also be replaced. The new unit will be more efficient thereby saving energy costs. Verifying the capacity of VAV boxes and providing boxes sized to meet space load will improve comfort conditions and also save energy by delivering required amount of air to the space. Upgrading the controls to full Direct Digital

Controls will also improve the comfort conditions and energy savings by reducing the heating and cooling energy costs.

Implementing other recommendations like providing missing insulation on pipes will also help in reducing the losses and thereby saving energy costs.

1.0-E VOICE AND DATA OVERVIEW

The Voice and Data IT/Telecommunications Infrastructure assessment and findings report provides recommendations for the design and construction of the IT/Telecommunications Infrastructure required to support Voice/ Data and other technology systems within the 1881 Pierce building. It has been found that much of the building's existing IT/Telecommunications infrastructure is not compliant with current industry standards and best practice installation methods. As well, the current infrastructure is such that it may not properly support many newer technology IP devices which are now considered to be standard in the industry such as VoIP phones and PoE type security cameras. Existing Cat5e cabling has bandwidth limitations as compared to that of more robust, industry standard Cat6/6A cable plant specifications. The complete IT systems infrastructure not only includes the cabling, but the cabling pathways and the spaces (or rooms) that support the network cabling. Technology spaces requiring to be properly outfitted in the building include the Main Distribution Facility (MDF) room, and distributed IDF rooms (minimum of one per floor). Backbone infrastructure shall include proper cabling pathways between MDF/IDF rooms, in order to support installation of both fiber and copper backbone cabling. Singlemode and laser optimized multimode fiber optic cables, along with Category 3 copper backbone cables should be installed from the MDF room to each IDF room to support the technology systems. Category 6 UTP cable shall be installed from the telecom outlets and IP field devices to termination hardware in the IDF rooms using the conduit and cable tray horizontal pathways. A proper grounding and bonding system must be provisioned for, and will provide a uniform ground within the telecommunications rooms, to ensure safe and reliable operation of the communications and low-voltage equipment and systems. These recommendations may be used for IT/Telecom Infrastructure program development, space planning, and budgeting of these systems at a conceptual design level. Industry standard and best practice design methods must be applied, including BICSI and TIA/EIA design and construction guidelines. For renovation projects, any applicable State Office of Information Technology (OIT) design criteria documents should be should be followed.

The following list prioritizes voice/data infrastructure upgrades required:

1. Necessary: Retrofit facility with proper MDF/IDF room distribution, which meets industry standard for telecommunication structured cabling system.
2. Necessary: Replace horizontal copper station cabling with Cat 6 network cabling.

3. Necessary: Replace vertical and network backbone cabling with appropriate copper and fiber optic cabling.
4. Necessary: Provide voice/data infrastructure to support wireless access points (WAPs), for wireless network coverage throughout facility.

1.0-F SECURITY SYSTEMS OVERVIEW

The security systems design guidelines outline electronic security systems infrastructure which will enhance security operations and provide a safe and secure environment for persons and assets within the 1881 Pierce Building. The security systems should be planned and designed to allow the security personnel the operational flexibility to provide various levels of security based on the threat level at a given time. Security systems should be designed such that they may be monitored remotely from centralized security monitoring locations. Best practice security design methodology should be applied, including crime prevention through environmental design (CPTED), layered security, integrated design, and concentric circles of protection. Additionally it is recommended that the following document be used a guideline for developing specific security design criteria for renovations: ASIS Facilities Physical Security Measures, IESNA G-1-03 Guideline for Security Lighting, Unified Facilities Criteria UFC 4-010-01.

For renovation projects, applicable State construction standards and design guidelines must be followed. Electronic security systems to be considered for implementation or upgrade include access control, intrusion detection, duress alarm, intercom, video surveillance, and emergency call system. The access control system (ACS) will be an expansion of the existing campus wide system currently installed throughout other State buildings. The ACS shall also serve as the primary security management system for monitoring intrusion alarms. The video surveillance system (VSS) should be comprised of IP digital cameras integrated with the existing VSS. The State's existing wireless duress alarm system infrastructure should be expanded where needed to support new locations of wireless duress buttons.

Existing security systems in State facilities are generally controlled and monitored centrally from Colorado State Patrol's Central Command Center (CCC), located in Denver CO.

Within the building, new head-end security control equipment is to be located in IDF or technology rooms, as coordinated with State IT technical staff. Equipment may include ACS control panels, power supplies, duress alarm panels, network video recorders, and UPS units.

All critical electronic security equipment should be backed-up with emergency power circuits or UPS units. State security personnel and other authorized staff may remotely monitor access control events, system alarms, and security video through network connected client workstations.

For the 1881 Pierce Building renovation work, requirements for security device additions/upgrades and specific security system functionality are to be coordinated with State security personnel during design and construction phases.

The following list prioritizes security system upgrades required:

NOTE: Consideration should be given to the investigation of a site security plan.

1. Necessary: Replace/Repair existing Hirsch Access Control card readers.
2. Necessary: Replace analog security cameras with IP PoE minimum 1.2MP cameras.
3. Necessary: Replace existing coaxial CCTV cabling with CAT 6 network cabling, required to support item 1 & 2 above.
4. Necessary: Verify functionality of access control devices and perimeter door alarms, replace if defective. Provide door sensor alarm on all perimeter doors.
5. Necessary: Verify functionality of wireless duress alarms. Provide duress alarms for all public interface counters and cash handling areas.
6. Recommended: Install IP security camera within main entrance/lobby.
7. Recommended: Install intercom station at facility main entrance door exterior. Must be intercom-over-IP (IoIP) based PoE intercom stations. Install IP camera to view intercom.

Consideration should be given in regards to the Installation and mounting details for any security related renovations. Due to the uniqueness of the buildings under consideration, design plans must be cognizant of maintaining the historical attributes of the buildings.

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2.0 OVERALL BUILDING ASSESSMENT FINDINGS AND RECOMMENDATIONS

2.1 ARCHITECTURE

2.1-A EXTERIOR BUILDING ENVELOPE/SITE

General

The 1881 Pierce Building is a one-story tall building, supported by a concrete structural frame. The facade is clad in precast aggregate panels with continuous ribbon windows along the first floor of the south wing and with windows spanning between the precast aggregate columns along the first floor of the north wing. There are two public building entrances located on the west side of the building which are labeled as Entrance A and Entrance B. Entrance A is located near the middle of the overall west elevation and is set back from the front edge of the building, creating a covered entryway. Entrance B is raised above grade level and is located near the middle of the west side of the north wing. There are two additional employee entrances which require keypad entry. One of the employee entrances is located near the middle of the east side of the north wing and the other is located on the south side of the building. The public entrances are paved in concrete and continue to a concrete sidewalk running the length of the east, west, and south sides of the building and serving the surrounding parking lot. The roof over the north wing contains a one-story elevator penthouse located on the east side and set back from the elevations of the building. The roof over the south wing contains a one-story elevator penthouse set back from the elevations of the building.

It was reported that asbestos is known to exist at the air handlers and interior portion of the roof drain piping.

The building envelope is in fair condition overall. Various elements are showing the effects of deferred maintenance, others are simply damaged or worn out. Some damage has resulted from poor expansion and control joint detailing.

West Elevation of the south wing of the1881 Pierce Building standing at the northern side of the south wing and looking southeast.

West Elevation of the south wing of the 1881 Pierce Building standing at the southwest corner and looking northeast.

West Elevation of the north wing of the 1881 Pierce Building standing at the northwest corner and looking southeast.

North Elevation of the 1881 Pierce Building

East Elevation of the north wing of the 1881 Pierce Building

East Elevation of the south wing of the 1881 Pierce Building

South Elevation of the 1881 Pierce Building

Cladding

The precast aggregate panels cladding the majority of the building are in fair condition overall. Areas of deterioration and spalling were noted during the site survey visit (see Fig. 2.1.A.1 and Fig. 2.1.A.2), including at the North Penthouse (see Fig. 2.1.A.3). One of the precast panels appears to be moving out of plumb at the South Penthouse (see Fig. 2.1.A.4). A few of the panels around the building were noted to have cracks that were readily apparent from the ground (see Fig. 2.1.A.5).

The panels are generally soiled around the building, including the lower areas between the windows and the ground (see Fig. 2.1.A.6 through Fig. 2.1.A.11), the precast cladding around the North Penthouse (see Fig. 2.1.A.12 and Fig. 2.1.A.13) and the precast cladding around the South Penthouse (see Fig. 2.1.A.14). There is also an area that has been stained due to the corrosion of a fire department sprinkler standpipe connection (see Fig. 2.1.A.15). The exterior porch on the east side of the building, outfitted with fixed tables and benches, has an exposed empty electrical outlet box that should be covered (see Fig. 2.1.A.16). The low precast aggregate retaining wall along the outside edge of the space has large cracks (see Fig. 2.1.A.17), deteriorating sealant, and areas that are soiled (see Fig. 2.1.A.18). The sealant between the joints is generally deteriorated and is creating access points by which water can penetrate the building envelope (see Fig. 2.1.A.19 through Fig. 2.1.A.24), including at the two Penthouses on the roof (see Fig. 2.1.A.25). The condition of the building system behind the panels is unknown and should be regularly monitored for any damage.

Fig. 2.1.A.1 Areas of spalling noted at the precast aggregate panels.

Fig. 2.1.A.2 Damaged areas of the precast aggregate panels noted around the building.

Fig. 2.1.A.3 Spalling noted at the North Penthouse.

Fig. 2.1.A.4 Precast panel appears to be moving out of flush at the South Penthouse.

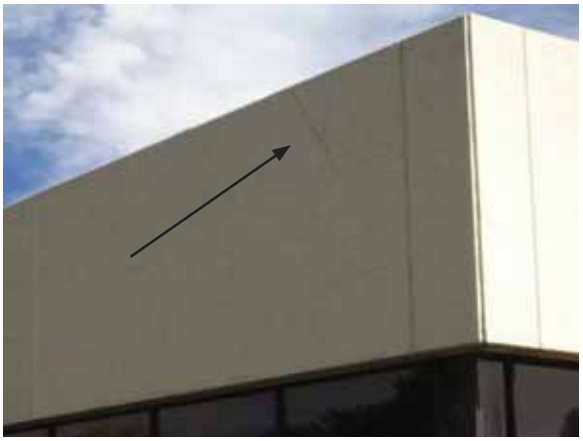

Fig. 2.1.A.5 Cracked areas of the precast aggregate panels noted around the building.

Fig. 2.1.A.6 Soiled precast aggregate panels noted around the building.

Fig. 2.1.A.7 Soiled precast aggregate panels noted around the building.

Fig. 2.1.A.8 Soiled precast aggregate panels noted around the building.

Fig. 2.1.A.9 Soiled precast aggregate panels noted around the building.

Fig. 2.1.A.10 Soiled precast aggregate panels along the bottom edge located above the windows.

Fig. 2.1.A.11 Soiled precast aggregate panels along the drip edge.

Fig. 2.1.A.12 Generally soiled precast aggregate panels at the North Penthouse.

Fig. 2.1.A.13 Precast aggregate panels at the North Penthouse soiled due to corrosion and cracked and spalling at the top and bottom corners.

Fig. 2.1.A.14 Generally soiled precast aggregate panels at the South Penthouse.

Fig. 2.1.A.15 Staining of a precast aggregate panel at a corroding fire department connection.

Fig. 2.1.A.16 Exposed empty electrical outlet box at the exterior porch on the east side of the building.

Fig. 2.1.A.17 Large cracking noted in the precast aggregate wall at the outside edge of the exterior porch.

Fig. 2.1.A.18 Soiled precast aggregate wall with deteriorating sealant at the outside edge of the exterior porch.

Fig. 2.1.A.19 Deterioration of the sealant between the precast panels.

Fig. 2.1.A.20 Deterioration of the sealant between the precast panels.

Fig. 2.1.A.21 Deterioration of the sealant between the precast panels.

Fig. 2.1.A.22 Deterioration of the sealant between the precast panels.

Fig. 2.1.A.23 Deterioration of the sealant along the window ledge.

Fig. 2.1.A.24 Deterioration of the sealant around the base of the precast columns.

Fig. 2.1.A.25 Typical deterioration of the sealant at the two Penthouses on the roof.

The precast concrete parapets around the roof are generally soiled (see Fig. 2.1.A.26) and are spalling and cracking in some areas (see Fig. 2.1.A.27). Additional deterioration was noted at points where metal fastened to the parapet is corroding (see Fig. 2.1.A.28 and Fig. 2.1.A.29). The painted coating sealing the parapet appears to be wearing off in a number of spots (see Fig. 2.1.A.30). The sealant is generally deteriorating around the parapet overall (see Fig. 2.1.A.31).

Fig. 2.1.A.26 Generally soiled and worn concrete parapets.

Fig. 2.1.A.27 Spalling and cracking areas of the parapet noted during the site visit.

Fig. 2.1.A.28 Deterioration of the concrete parapet around a corroding metal corner connection.

Fig. 2.1.A.29 Deterioration of the concrete parapet around a corroding metal plate.

Fig. 2.1.A.30 Areas where the protective coating sealing the concrete parapet is wearing off.

Fig. 2.1.A.31 Deteriorating sealant typical around the concrete parapets.

Recommendations:

- Clean soiled/stained precast panels around the building exterior including at the exterior porch walls on the east side, at the Penthouse level, and along the parapets at the roof.
- Repair or replace all cracked, spalling, or otherwise damaged precast aggregate panels around the building exterior and at the Penthouse level.

- Repair or replace cracked, spalling, or otherwise damaged sections of the concrete parapets at the roof level, including the damaged sections around the corroding metal plates and connectors noted above.
- Examine the precast panel at the South Penthouse that appears to be moving out of flush and repair or replace as necessary.
- Remove existing sealant around the exterior of the building including between precast panels, in control joints, along the window ledges, and along the roof parapet and replace with new sealant. Sealant, backup materials, and preformed joint fillers should be nonstaining.
- Recoat the concrete parapets, following industry standards for preparation and application, to provide a consistent seal around the perimeter of the roof where the existing coating is wearing off.

Glazing Systems and Doors

The windows appear original to the building and are in fair condition overall. It was reported that some of the windows are single-pane without thermal breaks and some of the windows are double-pane. In general, deteriorating sealant and weatherstripping, surrounding the windows, was noted around the building (see Fig. 2.1.A.32 through Fig. 2.1.A.35). The metal windows were noted to have some minor areas of corrosion around the building (see Fig. 2.1.A.36). There was an area where there appeared to be white spray paint on the frames of the windows (see Fig. 2.1.A.37). There were two areas of water damage noted at the top of the windows at the interior side of the building (see Fig. 2.1.A.38 and Fig. 2.1.A.39).

Fig. 2.1.A.32 General deterioration of the sealant and weatherstripping surrounding the windows.

Fig. 2.1.A.33 General deterioration of the weatherstripping surrounding the windows.

Fig. 2.1.A.34 General deterioration of the weatherstripping surrounding the windows.

Fig. 2.1.A.35 Typical deterioration of the sealant surrounding the windows.

Fig. 2.1.A.36 Typical areas of corrosion noted to the metal window frames.

Fig. 2.1.A.37 Window frames that appear to have spots that were spray painted with white paint.

Fig. 2.1.A.38 Water damage noted along the top of a window from the interior side of the building.

Fig. 2.1.A.39 Water damage noted along the top of a window from the interior side of the building.

It was reported that all of the exterior entrance doors around the building are scheduled to be replaced starting in November of 2013. The doors to the North Penthouse on the roof appear to be in fair condition while the frame around the door to the South Penthouse appears to be corroding (see Fig. 2.1.A.40).

Fig. 2.1.A.40 Corroding frame around the door to the South Penthouse.

Recommendations:

- Replace damaged and deteriorating weatherstripping of the exterior windows.
- Remove existing sealant surrounding the windows around the exterior of the building and replace with new sealant. Sealant, backup materials, and preformed joint fillers should be nonstaining.

- Replace single pane windows with new energy efficient windows and frames.
- Remove any corrosion or spray paint from the metal window frames around the building and repaint to match the existing frames.
- Repair or replace the corroding door frame to the South Penthouse on the Roof Level.
- Continue with the plan to replace the exterior entrance doors around the building. *Note: it was reported in April of 2014 that the project to replace the exterior entrance doors around the building has been completed since the date of the site survey visit.

Roof

There is a roof over the north wing and a roof over the south wing which are separated by a parapet roof. The roofs are both ballasted and in fair to poor condition overall. It was reported that the roof system overall was toward the end of its life in 2007. It was also reported that some portion of the roof may have been repaired or replaced in 2007. The exact age of the roof is unknown. There were large areas of pooling water observed at the north side of the roof, especially near the photovoltaic cells (see Fig. 2.1.A.41, Fig. 2.1.A.42 and Fig. 2.1.A.43). It was reported that the water is not flowing to the drains because the drains are blocked by panel brackets on the roof. There are areas of thin ballast that were noted around the roof (see Fig. 2.1.A.44). The waterproofing membrane appears to be deteriorating where it is exposed, especially along the sides of the parapets and penthouses (see Fig. 2.1.A.45, Fig. 2.1.A.46, and Fig. 2.1.A.47). Many of the drain covers were noted to have evidence of corrosion (see Fig. 2.1.A.48) and one drain cover is very close to a photovoltaic cell (see Fig. 2.1.A.49). There is also flashing that has been installed incorrectly across a control joint (see Fig. 2.1.A.50). The sealant is generally deteriorating around the roof and around the skylight located near the middle of the roof (see Fig. 2.1.A.51). Finally, it was noted that the paint on the louvers at the North Penthouse is peeling and exposing the metal to the elements (see Fig. 2.1.A.52).

Fig. 2.1.A.41 Areas of pooling water noted around the roof.

Fig. 2.1.A.42 Areas of pooling water noted around the roof.

Fig. 2.1.A.43 Areas of pooling water noted around the roof.

Fig. 2.1.A.44 Typical area of thin ballast.

Fig. 2.1.A.45 Deteriorating waterproofing membrane at the roof.

Fig. 2.1.A.46 Deteriorating waterproofing membrane at the roof.

Fig. 2.1.A.47 Deteriorating waterproofing membrane at the roof.

Fig. 2.1.A.48 Typical corroded drain cover, also filled in with ballast, noted at the roof.

Fig. 2.1.A.49 Photovoltaic cell located directly next to a roof drain cover.

Fig. 2.1.A.50 Flashing incorrectly installed across a control joint.

Fig. 2.1.A.51 Deteriorating sealant at the skylight near the middle of the roof.

Fig. 2.1.A.52 Paint deteriorating and peeling off the louvers at the North Penthouse.

Recommendations:

- Test the air handlers and interior portion of the roof drain piping for asbestos. Determine if asbestos is present in any other locations.
- Abate all asbestos throughout.
- Verify the age of the roof to determine if any warranty exists. Replace the existing roof with a new roofing system, including a new membrane, ballast, roof drains, flashing at the skylight and around the perimeter of the Penthouse and the parapet, and drainage system, paying particular attention to the areas with standing water near the photovoltaic cells.
- Remove any flashing incorrectly installed across control joints and reinstall correctly to allow for the movement of the control joints.
- Move any photovoltaic cells placed directly next to roof drain covers or other projecting elements.
- Remove peeling paint and corrosion from the louvers at the North Penthouse and repaint.

Entrance Canopies

The exterior canopies around the building appear to be in fair condition overall. Some minor soiling was noted overall (see Fig. 2.1.A.53). There was a brown substance observed to be leaking out from behind a precast panel covering the front edge of the canopy at Entrance A (see Fig. 2.1.A.54). A few minor areas of spalling were also noted to the precast panels covering the front edges of the canopies (see Fig. 2.1.A.55).

Fig. 2.1.A.53 Typical soiling noted at the exterior canopies.

Fig. 2.1.A.54 Brown substance leaking out from behind a precast panel covering the front edge of the canopy at Entrance A.

Fig. 2.1.A.55 Areas of minor spalling noted at the precast panels covering the front edges of the entrance canopies.

Recommendations:

- Clean soiled/stained precast panels at the building's exterior canopies.
- Repair or replace cracked, spalling, or otherwise damaged precast panels at the building's entrance canopies.

Site Elements

Major issues were noted at the raised entrance platforms at Entrance B on the west side of the building, the East Employee Entrance, and the South Employee Entrance. The aggregate beams supporting the raised entrance platforms at Entrance B and the East Employee Entrance are cracked, spalling, and appear to be pulling away from the rest of the platform (see Fig. 2.1.A.56 through Fig. 2.1.A.61). There appear to be serious life and safety hazards at these locations that should be addressed immediately. The concrete pavers and stairs leading up to the platforms are also deteriorating, with numerous areas that are spalling and cracked, creating a potential tripping hazard (see Fig. 2.1.A.62, Fig. 2.1.A.63, Fig. 2.1.A.64). Various garbage, including disposable razors and beer cans, was also noted under and around the raised platform at Entrance B, suggesting transient activity occurring around the building.

The concrete at the exterior stairway and ramp to the South Employee Entrance was noted to be deteriorating. There are spots that are spalling and cracked (see Fig. 2.1.A.65 and Fig. 2.1.A.66), creating a potential tripping hazard, and causing the guardrail posts to become loose along the sides of the ramp (see Fig. 2.1.A.67 through Fig. 2.1.A.70). The guardrails along the stairway and ramp were noted to be generally corroding and in poor condition overall. The sealant between the joints of the concrete slabs at the ramp was noted to be deteriorating and creating points where water could penetrate between the slabs (see Fig. 2.1.A.71).

Fig. 2.1.A.56 Cracked aggregate beam and aggregate beams pulling away from the north side of the raised platform at Entrance B.

Fig. 2.1.A.57 Close up of the aggregate beams pulling away from the north side of the platform at Entrance B.

Fig. 2.1.A.58 Cracked aggregate beam and aggregate beams pulling away from the south side of the raised platform at Entrance B.

Fig. 2.1.A.59 Cracked aggregate beam at the raised platform at the East Employee Entrance.

Fig. 2.1.A.60 Spalling aggregate beam at the raised platform at the East Employee Entrance.

Fig. 2.1.A.61 Aggregate beam that appears to be pulling away from the platform at the East Employee Entrance.

Fig. 2.1.A.62 Minor spalling and deterioration of the concrete pavers at Entrance B on the west side of the building.

Fig. 2.1.A.63 Spalling and cracking of the concrete stairs at the East Employee Entrance.

Fig. 2.1.A.64 Spalling and cracking of the concrete pavers at the East Employee Entrance.

Fig. 2.1.A.65 Minor spalling of the concrete stairs and holes left in the concrete surface where guardrail posts were previously removed at the South Employee Entrance.

Fig. 2.1.A.66 Spalling and cracked concrete at the exterior stairway to the South Employee Entrance.

Fig. 2.1.A.67 Cracked concrete causing the corroding guardrail posts to become loose along the ramp to the South Employee Entrance.

Fig. 2.1.A.68 Spalling and cracked concrete causing the guardrail posts to become loose along the ramp to the South Employee Entrance.

Fig. 2.1.A.69 Cracked concrete causing the corroding guardrail posts to become loose along the ramp to the South Employee Entrance.

Fig. 2.1.A.70 Spalling concrete causing the corroding guardrail posts to become loose along the ramp to the South Employee Entrance.

Fig. 2.1.A.71 Deteriorating sealant between the concrete slabs at the ramp to the South Employee Entrance.

The retaining wall along the northern side of the building was noted to be generally soiled and deteriorating in spots with spalling and cracking noted (see Fig. 2.1.A.72, Fig. 2.1.A.73, and Fig. 2.1.A.74). The capping piece of precast aggregate at the north retaining wall to the east of the building is moving out of place and has deteriorating sealant, allowing water to penetrate the wall (see Fig. 2.1.A.75).

Fig. 2.1.A.72 Typical soiling of the concrete retaining wall on the north side of the building.

Fig. 2.1.A.73 Soiled, cracking, and spalling concrete retaining wall on the north side of the building.

Fig. 2.1.A.74 Soiled, cracking, and spalling concrete retaining wall on the north side of the building.

Fig. 2.1.A.75 Capping piece of the north retaining wall on the east side of the building moving out of place and with deteriorating sealant.

There were cracks in the low concrete window well and landscaping walls noted around the exterior of the building, especially on the northwest side (see Fig. 2.1.A.76 and Fig. 2.1.A.77). There is moss and/or mold growing on the low concrete window well wall just to the south of the East Employee Entrance (see Fig. 2.1.A.78).

Fig. 2.1.A.76 Cracked concrete at a low window well wall.

Fig. 2.1.A.77 Cracked concrete at a low landscaping wall.

Fig. 2.1.A.78 Moss and/or mold growing on the low concrete window well wall south of the East Employee Entrance.

Recommendations:

- Remove existing aggregate beams at the raised entrance platforms on the east and west sides of the building and replace with new beams. Further investigate the structures as a whole and replace additional elements as necessary.
- Repair or replace damaged concrete paving and stairs at the all exterior entrances.
- Replace the corroded guardrails at the South Employee Entrance. Repair or replace the damaged concrete paving, stairs, and ramp, ensuring that the new guardrail posts are securely attached to the concrete per code requirements.
- Remove existing sealant at the South Employee Entrance ramp and replace with new sealant. Sealant, backup materials, and preformed joint fillers should be nonstaining.

- Clean soiled/stained precast concrete retaining walls around the building's exterior.
- Repair or replace cracked, spalling, or otherwise damaged precast concrete retaining walls, window well walls, and landscaping walls around the building's exterior.
- Repair or replace any concrete retaining wall capping pieces that are pulling out of position.

2.1-B CODE ISSUES

Applicable Codes

The following approved building codes and standards adopted by State Buildings Programs (SBP) and other state agencies are identified as the minimum requirements to be applied to all state-owned buildings and physical facilities including capitol construction and controlled maintenance construction projects, as revised 7/2013.

The 2012 edition of the International Building Code (IBC)

(as adopted by the Colorado State Buildings Program as follows: Chapter 1 as amended, Chapters 2-35 and Appendices C and I)

The 2012 edition of the International Energy Conservation Code (IECC)

(as adopted by the Colorado State Buildings Program)

The National Fire Protection Association Standards (NFPA)

(as adopted by the Department of Public Safety/Division of Fire Safety as follows with editions shown in parentheses: NFPA-1 (2006), 11 (2005), 12 (2005), 12A (2004), 13 (2002), 13D (2002), 13R (2002), 14 (2003), 15 (2001), 16 (2003), 17 (2002), 17A (2002), 20 (2003), 22 (2003), 24 (2002), 25 (2002), 72 (2002), 409 (2004), 423 (2004), 750 (2003), and 2001 (2004))

The 2007 edition of ASME A17.1 Safety Code for Elevators and Escalators

(as adopted by the Department of Labor and Employment/Conveyance Section and as amended by ASME International)

The 2005 edition of ASME A17.3 Safety Code for Existing Elevators and Escalators

(as adopted by the Department of Labor and Employment/Conveyance Section and as amended by ASME International)

The 2003 edition of ICC/ANSI A117.1, Accessible and Usable Buildings and Facilities

(as adopted by the Colorado General Assembly as follows: CRS 9-5-101, as amended, for accessible housing)

Note: It is anticipated that compliance with the federal Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG) and Colorado Revised Statutes Section 9-5-101 will be met by compliance with the 2012 International Building Code and ICC/ANSI A117.1. However, each project may have unique aspects that may require individual attention to these legislated mandates.

Building Construction Type

The building is one story tall, including a basement, and has a total floor area of 122,542 square feet. If this building was built today, it would be classified as Occupancy Group B (primary use as a Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts) according to IBC's Table 503 and the building would be classified as Construction Type IB, which allows for 11 stories and 160 feet in height, and unlimited floor area. Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum height is increased by 20 feet and the maximum number of stories is increased by one.

There is a room in the northeast corner of the Basement which is labeled for hazardous materials (see Fig. 2.1.B.1). It appears that there are flammable materials being stored on open shelves in this area instead of within approved flammable and chemical storage cabinets (see Fig. 2.1.B.2). There is an alcohol storage room located in the northwest corner of the Basement that was not included in the site visit. There was also an area in the northwest corner of the Basement near the alcohol storage room that was labeled "EMISSIONS" that was not included in the site visit. Compliance with International Building Code, International Fire Code, and any applicable Life Safety Code requirements for storage of hazardous materials should be verified regardless of any future renovation plans.

Fig. 2.1.B.1 Area in the northeast corner of the Basement labeled for hazardous materials.

Fig. 2.1.B.2 Area in the northeast corner of the Basement with flammable materials being stored on open shelves.

Egress Issues

Alterations, repairs, additions, and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the current provisions for alterations, repairs, additions and changes of occupancy or relocation. As an existing building, the 1881 Pierce Building is exempt from current code requirements for new construction as long as minimal renovation is

done. If the building undergoes extensive renovation, the following issues may need to be addressed per current code requirements.

According to Table 1014.3 of the IBC (2012), the common path of egress travel for a building without a sprinkler system in a B-type occupancy is 100 feet with an occupant load less than or equal to 30 and is 75 feet with an occupant load greater than 30. The length of the common path of egress travel would increase to 100 feet for an occupant load greater than 30 if the building were equipped with an approved automatic sprinkler system. This building has an occupant load greater than 30 people. The Basement Floor is equipped with a sprinkler system but the First Floor is not. The plans provided by the Owner appear to indicate that the common paths of egress travel throughout the building, as it currently exists, do comply at the Basement Floor but do not comply with this code requirement at the First Floor. The length of the longest common path of egress travel on the First Floor appears to be approximately 118 feet. The length of the longest common path of egress travel and the occupancy loads of each floor should be verified as part of any future renovation plan.

According to Table 1016.2 of the IBC (2012), the exit access travel distance in a B-type occupancy without a sprinkler system is 200 feet. The approximate greatest distance of travel that exists from the most remote point on the First Floor of the 1881 Pierce Building's floor plans to an exit stairway or exit to a public way is 267 feet according to the plans provided by the Owner, which is over the 200 feet allowed. If the First Floor were equipped with an approved fully automatic sprinkler system, the exit access travel distance allowed would increase to 300 feet. The approximate greatest distance of travel that exists from the most remote point of the Basement Floor appears to comply with the code requirements for a B-type occupancy with a sprinkler system. The length of the greatest distance of travel and the occupancy loads of each floor should be verified as part of any future renovation plan.

According to Table 1018.1 of the IBC (2012), the required fire-resistance rating for the First Floor corridors, which are in a B-type occupancy without a sprinkler system, is 1 hour, and according to Table 716.5, the minimum fire door and fire shutter assembly rating for a 1-hour required corridor, is 20 minutes. It appears that the doors along the First Floor corridors have a minimum fire resistance rating of 20 minutes. However, some of the labels were painted over and the ratings of the doors should be verified to determine compliance with fire code requirements.

Recommendations:

- Verify the fire-resistance ratings of the existing interior doors along the First Floor corridors and upgrade as necessary if an approved automatic sprinkler system is not installed throughout. This recommendation is unnecessary if the First Floor is equipped with an approved automatic sprinkler system. According to Table 1018.1 of the IBC (2012), the required fire-resistance rating throughout the corridors in a Business Occupancy is zero with an approved sprinkler system.

Fire Suppression Systems

There is a fully automatic sprinkler system throughout the Basement Floor of the building. The First Floor does not have a sprinkler system.

Recommendations:

- Install a fully automatic sprinkler system throughout the First Floor per the International Building Code (2012) and the National Fire Protection Association Standards requirements.

Stairs and Ramps

In general, the exit stairs comply with the code requirements for stairs, with the exception of the stairway railing system. The current handrail system exceeds guardrail opening limitations, easily allowing passage of a sphere 4 inches in diameter (see Fig. 2.1.B.3, Fig. 2.1.B.4, and Fig. 2.1.B.5). According to Section 1013.4 of the IBC (2012), required guardrails shall not have openings which allow passage of a sphere 4 inches in diameter.

Fig. 2.1.B.3 The spacing between the guardrails in the west stairway exceeds the code-maximum of four inches.

Fig. 2.1.B.4 The spacing between the guardrails along the walkway in the east stairway exceeds the code-maximum of four inches.

Fig. 2.1.B.5 The spacing between the guardrails in the east stairway exceeds the code-maximum of four inches.

Recommendations:

- Replace the existing stairway railing and guardrail systems with new railing systems that complies with the code requirements.

Doors

The majority of the interior doors observed throughout the building are equipped with level-style door handles although doors equipped with knob-style door handles were noted in a few locations (see Fig. 2.1.B.6). According to Section 309.4 of the 2003 edition of ICC/ANSI A117.1, the knob-style handles do not meet the requirement that: operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Section 309.4 further states that the force required to activate operable parts shall be 5.0 pounds (22.2 N) maximum.

Fig. 2.1.B.6 Typical knob-style door handle found in a few locations throughout the building.

Recommendations:

- Replace any knob-style handles on the interior doors with lever-style handles.

Security

Entrance A, located near the middle of the west side of the building, has a check-in area for the Driver License Division. Entrance B, located on the north end of the west side of the building, can be accessed by the public during business hours and has no reception desk or check-in area. Entrance B requires key-code entry in order to gain access outside of normal business hours. The two employee entrances located on the south side of the building and on the north end of the east side of the building both require key-code entry at all times.

2.1-C GENERAL ACCESSIBILITY ISSUES

The restrooms throughout the building appear to generally comply with accessibility standards with the exception of the non-accessible First Floor restrooms located along the east side of the north wing and off of the break room on the northeast side of the south wing.

It was noted that the majority of the generally accessible restrooms throughout provide one ambulatory accessible toilet compartment per restroom and do not provide a wheelchair accessible toilet compartment. There are three restrooms throughout the building which do provide a wheelchair accessible toilet compartment. These restrooms are all located on the First Floor and include the Women's Restroom on the west side of the north wing and the two Men's Restrooms located near the center of the south wing. These same two Men's Restrooms also provide the only accessible urinals in the building. The Men's First Floor Restroom on the west side of the north wing has a toilet compartment which would be wheelchair accessible if not for the grab bar that was installed in the middle of the clear floor space (see Fig. 2.1.C.1). Further, the only urinal provided in this restroom does not meet accessible guidelines (see Fig. 2.1.C.2). The approximate height of the rim above the floor appears to be greater than 20 inches. According to Section 605.2 of ICC/ANSI A117.1-2003, urinals shall be of the stall type or shall be of the wall hung type with the rim at 17-inches maximum above the floor. The urinal alcove is approximately 32 inches in width and the depth of the alcove exceeds 24 inches. According to Section 305.7.2 of ICC/ANSI A117.1-2003, where the clear floor space is positioned for a forward approach, the alcove shall be 36 inches minimum in width where the depth exceeds 24 inches. According to Section 1109.2 of the IBC (2012), where no more than one urinal is provided in a toilet room or bathing room, the urinal is not required to be accessible. If additional urinal fixtures are installed in the future in any of the men's restrooms, currently with a total of one urinal, a minimum of one urinal will be required to comply with accessibility requirements.

Other non-accessible issues were noted in the otherwise generally accessible restrooms during the site survey visit. Both of the lavatories in the Women's Restroom on the Basement Floor have non-accessible knob-style faucet controls and do not have insulation wrapped around the pipes (see Fig. 2.1.C.3). According to Section 309.4 of ICC/ANSI A117.1-2003, operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist and the force required to activate operable parts shall be 5.0 pounds maximum. Many of the accessible lavatory pipes throughout the building were not wrapped with insulation

(see Fig. 2.1.C.4). According to Section 606.6 of ICC/ANSI A117.1-2003, water supply and drainpipes under accessible lavatories and sinks shall be insulated or otherwise configured to protect against contact.

Fig. 2.1.C.1 Grab bar installed in the clear floor space of the otherwise wheelchair accessible toilet compartment in the Men's First Floor Restroom located on the west side of the north wing.

Fig. 2.1.C.2 Non-accessible urinal in the Men's First Floor Restroom located on the west side of the north wing.

Fig. 2.1.C.3 Lavatories with knob-style faucet controls and without insulation wrapped around the pipes in the Women's Restroom on the Basement Floor.

Fig. 2.1.C.4 Typical instance of an accessible lavatory without insulation wrapped around the pipes.

There are both generally accessible and non-accessible drinking fountains throughout the building (see Fig. 2.1.C.5).

The sinks in the Break Rooms throughout the building are typically non-accessible (see Fig. 2.1.C.6).

Fig. 2.1.C.5 Typical instance of a non-accessible drinking fountain observed during the site visit.

Fig. 2.1.C.6 Typical non-accessible sink found in the Break Rooms throughout.

Recommendations:

- Reconfigure non-accessible restrooms, where possible, to include required wheelchair maneuvering clearances and to provide a minimum of one wheelchair accessible toilet stall and one accessible lavatory per restroom.
- Remove the grab bar installed in the clear floor space of the otherwise wheelchair accessible toilet compartment in the Men's First Floor Restroom located on the west side of the north wing. Install a fixed horizontal grab bar on the wall behind the toilet fixture per accessibility guidelines.
- Reconfigure restrooms with ambulatory toilet compartments, where possible, to provide a minimum of one wheelchair accessible toilet compartment per restroom.
- Reconfigure or reinstall urinal fixtures and alcoves to comply with accessibility guidelines to provide a minimum of one accessible urinal per restroom for men.
- Replace any knob-style lavatory faucet controls on accessible lavatories with accessible lever-style faucet controls where not provided.
- Install insulation around accessible lavatory pipes where not provided.
- Replace non-accessible drinking fountains with accessible drinking fountains where possible.
- Install accessible sinks in the Break Rooms throughout where possible.

2.1-D ELEVATORS

The age of the elevator cabs and equipment is unknown. It was reported that the north elevator needs to be refurbished due to the ongoing maintenance efforts to repair the elevator and the amount of time the elevator has been unavailable for use during those repairs. It was also reported that rehabilitation of the elevators is on the Capitol Complex list of controlled maintenance projects that need to be addressed.

Recommendations:

- Verify the age and condition of the elevator cabs, electrical, and mechanical equipment to determine if any warranty is still in effect and to develop a timeline for upgrading the system.

2.1-E ENVIRONMENTAL

It was reported that asbestos is present in the building. It was also reported that the known asbestos exists in the mastic of the flooring finishes throughout the north wing and that some of the asbestos has been abated. It was further reported that there is vinyl asbestos tile (VAT) in the building in storage areas, some of which is covered by carpet and that some of the mastic is known to be an asbestos-containing material (ACM). It was also reported that the storage areas are being damaged due to the use of forklifts and heavy carts in these areas. It is unknown whether asbestos is present in the south wing which was constructed in 1983 or in other building materials throughout. There was an on-going project to abate the asbestos throughout the main corridor floors on the Basement Floor during the site survey visit. It was also reported that there is asbestos known to exist on most of the piping elbows, T's, and valves in the ceilings. It was further reported that there is asbestos known to exist at the air handlers and the interior portion of the roof drain piping.

Based on the construction date of the building, it is possible that surfaces are painted with paint containing lead.

Recommendations:

- Determine whether asbestos is present in the south wing of the building constructed in 1983 or any other areas of the property, other than the presently known locations.
- Abate all asbestos throughout.
- Sampling for lead paint must be completed if any painted surfaces will be sanded.

2.1-F PLANNED AND ON-GOING PROJECTS

There was an on-going project taking place on the day of the site survey visit that involved abating the asbestos in the flooring mastic, installing new flooring, and repainting the walls throughout the main corridors of the Basement Floor.

It was reported that all of the exterior entrance doors around the building are scheduled to be replaced starting in November of 2013.

2.2 STRUCTURAL

2.2-A EXTERIOR BUILDING ENVELOPE

The building's exterior is in good condition with a few exceptions. Spalls and cracks were observed in the precast concrete panel walls at the penthouse (Fig. 2.2.A.1 and Fig. 2.2.A.2). Cracks should be sealed and the spalls repaired to prevent water from penetrating the concrete and causing additional deterioration.

Fig. 2.2.A.1

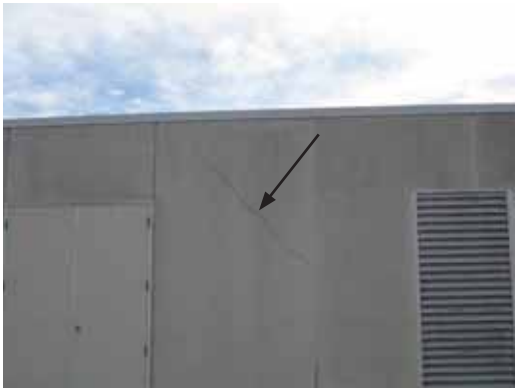

Fig. 2.2.A.2

The exposed aggregate spandrel beams located at the east and west entraces are cracked and do not appear to be adequately supported (Fig. 2.2.A.3). The panels are in areas that are easily accessible to the public and present a danger if one fails. The panels should be removed and replaced and their structural supports to the main structure be investigated further.

Fig. 2.2.A.3

Spalls were observed on the concrete ramp at the south employee entrance (Fig. 2.2.A.4). The spalled concrete and corroded guardrails likely will not be able to resist the code required design loading. It appears the guardrail was installed some time after the ramp was cast and the connections were not properly designed and detailed. The guardrail and concrete ramp should be repaired with properly detailed connections.

Fig. 2.2.A.4

Recommendations:

- Cracks should be sealed and the spalls repaired at the precast concrete wall panels on the penthouse to prevent water from penetrating the concrete and causing additional deterioration.
- The precast spandrel panels at the east and west entrances should be removed and replaced and their structural supports to the main structure investigated further.

- The guardrail and concrete ramp should be repaired with properly designed and detailed connections.

Items noted above do not pose any structural loading issues based on the current use. Repairs are to maintain performance and reduce further deterioration.

2.2-B BUILDING INTERIOR

The overall condition of the structural framing that was readily observable was good. Minor cracks were observed in the concrete slab between the joists on the first floor (fig. 2.2.B.1). The cracks are not a structural concern at this time.

Fig. 2.2.B.1

The interior metal stairs at the south west corner of the north wing are improperly attached to the concrete joists (fig. 2.2.B.2). The stringer is not framed tight to the concrete support and induces bending into the bolt that is not designed for this condition. The condition should be repaired to prevent failure of the bolt.

Fig. 2.2.B.2

A moderate vertical crack was observed on the concrete wall in the southeast corner of the basement (Fig. 2.2.B.3). The room with the crack appears to be added after original construction. The crack should be injected with a urethane grout to seal the joint.

Fig. 2.2.B.3

Many cracks were observed in the drywall partitions throughout the north wing (Fig. 2.2.B.4 and Fig 2.2.B.5). The cracks appear to be a reoccurring problem based number of drywall joints tooled in the walls. We observed that the interior partition walls were framed tight to the structural slab above. Deflection of the structural slab will cause additional cracking in the walls.

Fig. 2.2.B.4

Fig. 2.2.B.5

Recommendations:

- Monitor the cracks in the slab for additional movement. Notify structural engineer if crack worsens.
- Weld metal shims to the stair stringer to eliminate gap between the stringer and concrete joist.
- Inject the crack in the basement addition with a urethane grout to seal the joint and prevent water from causing further deterioration.
- Provide additional tooled joints in the partition walls where cracking occurs or provide slip joints where the partition walls frame tight to the structural slab above.

Items noted above do not pose any structural loading issues based on the current use. Repairs are to maintain performance and reduce further deterioration.

2.2-C FALL PROTECTION

Inadequate parapet heights were observed at the roof level (Fig. 2.2.C.1). Parapets should be at least 42 inches tall or fall protection provided for access near the exposed edges to meet current safety codes.

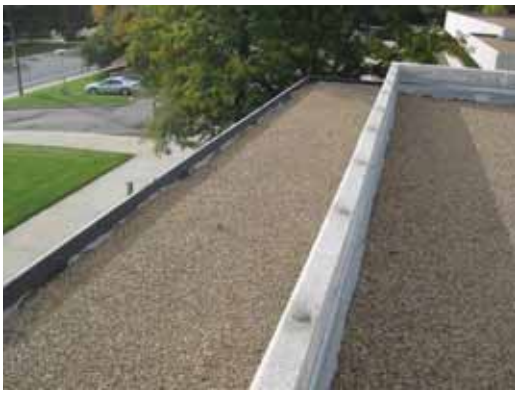

Fig. 2.2.C.1

Recommendations:

- Design and install fall protection systems for safe access near exposed edges.

2.2-D PLANNED AND ON-GOING PROJECTS

N/A

2.3 CIVIL

2.3-A EXTERIOR BUILDING ENVELOPE/SITE

General

The Colorado Department of Revenue Building is located at the southwest corner of West 20th Avenue and Pierce Street with an address of 1881 Pierce Street in Lakewood, Colorado. The building is bordered by a park and multi-family residences to the west, Jefferson High School to the north, office buildings and multi-family residential complexes to the east, and residential housing to the south. The Colorado Department of Revenue site is approximately 17.50 acres. The existing site consists of the building, a large parking lot, site landscaping and street right-of-way including sidewalk and landscaping. The site is accessed from Pierce Street on the east side of the building (Fig. 2.3.A.1) but the main public entrance is on the west side of the building. The site surrounding the building is consistent with a building approximately 35 years old.

NOTE: Descriptions of existing infrastructure contained herein are based on public utility information provided by the City of Lakewood. Unless noted otherwise, no detailed survey information was reviewed as part of this site analysis. Estimates of drainage patterns, site grades, and slopes are based upon visual observation or information provided by others, ie. Google Earth.

Figure 2.3.A.1 – Colorado Department of Revenue Building Exterior

Grading and Drainage

The site slopes generally from southwest to northeast. The high point of the site at the southwest corner in the site open area at the intersection of Reed Street and West 17th Avenue. There is approximately 30-feet of fall across

the 17.5 acre site. Runoff is collected by parking lot inlets and conveyed northerly by storm sewer.

The main entrance to the building is located on the west side and is accessed via a concrete walkway (Fig. 2.3.A.2). There are multiple other entrances around the site. The perimeter of the building features landscaped areas including trees and grass, and rock skirts.

No settling was observed around the perimeter of the building. The foundation of the building appears to be stable.

Figure 2.3.A.2 – West Entrance Concrete Walkway

Figure 2.3.A.3 – Exterior Landscaping

Figure 2.3.A.4 Building Perimeter

Previous drainage studies are not available for this site at this time. It is assumed that drainage facilities and conveyances are designed for the 5-year and the 100-year rainfall events, per the City of Lakewood Drainage Criteria. The site appears to ultimately discharge to Sloan Lake.

The effective Flood Insurance Rate Map (FIRM Map Number 08059C0302E, effective date June, 17, 2003) shows the property lies within Zone X, areas designated as outside of the 500-year floodplain. To our knowledge, there are no known existing flood control problems or drainage issues.

Utility Services

The building utility demands are unknown at this time. The building service line appears to connect to an 8 inch water main to the west located in Reed Street. The site is served by Consolidated Mutual Water Company. There are two fire hydrants located on site. Both are south of the building, one to the southwest and the other to the southeast.

The building is served by an 8-inch sanitary sewer line located in West 20th Avenue. Sanitary sewer is routed easterly towards Harlan Street. There are no known sanitary sewer capacity problems at this time.

Existing storm sewer collects site runoff from two observed locations. The entire parking area drains south via overland flow and pans. Runoff is collected by a curb inlet located in the southern portion of the site near the open space (Fig. 2.3.A.5). A second inlet was observed to the north of the site north of the within the fenced parking area (Fig. 2.3.A.6). It is assumed that storm sewer routes runoff northerly to West 20th Avenue. Inlets were noted to be clogged by leaves, rocks and debris. It is recommended that inlets be cleaned regularly to maintain functionality.

Figure 2.3.A.5 – Parking Lot Inlet

Figure 2.3.A.6 – Site Inlet

Existing dry and regulated utilities (electric and telecommunications) are assumed to be located in West 20th Avenue and/or Pierce Street.

Recommendations:

- Clean storm sewer inlets regularly.

Site Paving

Numerous locations of broken concrete and concrete cracking were observed (Figs. 2.3.A.7-2.3.A.13). Repair or replace broken or cracked concrete.

Figure 2.3.A.7 Site Concrete Crack, Recommended for Replacement

Figure 2.3.A.8 Site Concrete Crack, Recommended for Replacement

Figure 2.3.A.9 Site Concrete Crack, Recommended for Replacement

Figure 2.3.A.10 Site Concrete Crack, Recommended for Replacement

Figure 2.3.A.11 Site Concrete Crack, Recommended for Replacement

Figure 2.3.A.12 Broken Site Concrete, Recommended for Replacement

Figure 2.3.A.13 Broken Site Concrete, Recommended for Replacement

The site asphalt was noted to be in very poor condition (Fig. 2.3.A.14 through Fig. 2.3.A.20). Rutting, potholes, and cracking was observed. It is recommended that the entire site be re-paved due to the level of asphalt deterioration noted.

Figure 2.3.A.14 Poor Site Asphalt Condition

Figure 2.3.A.15 Poor Site Asphalt Condition

Figure 2.3.A.16 Poor Site Asphalt Condition

Figure 2.3.A.17 Poor Site Asphalt Condition

Figure 2.3.A.18 Poor Site Asphalt Condition

Figure 2.3.A.19 Poor Site Asphalt Condition

Figure 2.3.A.20 Poor Site Asphalt Condition

Recommendations:

- Concrete cracks approximately 1/8 inch wide or smaller showing no differential movement can be sealed using an approved joint sealant. Cracks should be routed and cleaned per an approved industry method prior to sealing.
- Concrete panels showing numerous excessive cracking and/or differential movement should be replaced.
- Replacement of concrete shall be completed in full stone segments, i.e. to the nearest joint location. Repair the subgrade materials and place new curb & gutter or sidewalk. Replace backfill materials and repair/replace any landscaping/paving disturbed during repair operations.
- Re-pave asphalt on entire site. Re-grade as necessary to provide positive drainage and even slopes.

2.3-B CODE ISSUES

The site exterior was analyzed for general conformance with ADA; however a complete accessibility audit is not included in the scope of services. The site appears to comply with current standards.

Site slopes were analyzed by visual inspection and topography was evaluated using Google Earth. The landscaped areas surrounding the building are generally flat. Current geotechnical recommendations and standard practice for slopes away from the building are 10:1 for 10 feet and

2% in hardscape areas. The building does not appear to have these slopes but no adverse effects to the building were noted. If building movement is observed, the building perimeter and site landscaping should be evaluated and re-graded.

Major ponding was observed at the south end of the parking lot (Figs. 2.3.B.1-2.3.B.3). Ponding was observed to be up to 2-4 inches in depth. The water has overtaken the curb and grass has grown over in this area. The ability to park at this location (estimated to be up to 8 spaces) has been removed. Ponding at this location is a concern and causes a safety hazard. Stagnant water provides an opportunity for mold and mildew growth, which is slippery in a walking path. Standing water also creates an attraction for mosquitoes. In the winter, the water will freeze and become ice. The standing water will also create more opportunity for asphalt cracking and deterioration. It is recommended that this area be modified for drainage. The area may need to be re-graded and asphalt and curb and gutter replaced. A curb cut or inlet may need to be installed to allow for proper drainage.

Figure 2.3.B.1 Ponding Water

Figure 2.3.B.2 Ponding Water Depth

Figure 2.3.B.3 Curb Overtopping

Signage was observed to not be in compliance with current regulations (Fig. 2.3.B.4 and Fig. 2.3.B.5). Sign lettering is unreadable and causes a traffic safety concern. Signage should be replaced.

Figure 2.3.B.4 Site Signage

Figure 2.3.B.5 Site Signage

Recommendations:

- Re-grade parking area experiencing ponding. Replace asphalt and curb and gutter and install a drainage device such as an inlet or curb cut as necessary.
- Re-grade landscaped areas at the building perimeter to current geotechnical recommendations for slopes away from the building.
- Install area drains where proper slopes away from the building cannot be met.
- Replace existing signage with new signs meeting current standards for size, color and lettering.

2.3-C PLANNED AND ON-GOING PROJECTS

There are no known site planned and on-going projects at this time.

2.4 MECHANICAL, ELECTRICAL, AND PLUMBING

2.4-A OVERVIEW OF EXISTING SYSTEMS

ELECTRICAL SYSTEMS

There have been several interior remodels for this building completed throughout the years with some updates to the electrical systems. The electrical systems are a combination of original and newer equipment. The 13.2kV feeders come into the medium voltage transformer from Xcel energy. The kVA rating of the transformer has worn off; however, it appears to be a 1500kVA transformer. The transformer feeds the 480/277V, 2000 amp switchgear (see Fig. 2.4.A.1) that then feeds the rest of the building, including 208/120V loads located in the main electrical room. Each area of the building has an electrical closet that contains 208/120V panelboards to serve the area (see Fig. 2.4.A.3 and Fig. 2.4.A.4). There are a few larger electrical rooms with larger distribution panels. The backup generator for some of the loads in the building has been removed. There are panels and circuits throughout the building still containing red labels indicating they are backed up by a generator. The 1881 Peirce St. building has solar panels on the roof feeding approximately 100kW of power tying directly into the utility grid (see Fig. 2.4.A.2). It was reported that the MCC is in poor condition and many of the components are not working. Also, the parts are difficult to obtain because of the age of the gear.

Fig. 2.4.A.1 – Main electrical gear

Fig. 2.4.A.2 – PV on the roof

Fig. 2.4.A.3 – Panels in the wall

Fig. 2.4.A.4 – Panels in the electrical closets

Recommendations:

- The main electrical gear in this building is in poor working condition. There is an opening in one of the bucket sections and tape is keeping two of the bucket sections closed. This gear needs to be replaced with new gear or fully refurbished. Also, the other old electrical distribution panels, transformers, MCCs, and disconnect switches in the main electrical room need replaced. It is difficult to find parts for this equipment when it breaks and that can extend an outage longer than is necessary. To prevent a failure at an inconvenient time, schedule a replacement.
- Remove all storage items from the electrical panelboards dedicated clearance space.

Lighting

In the office, hallways, and other areas the lighting is provided by fluorescent T8 or compact fluorescent luminaires (see Fig. 2.4.A.5 and Fig. 2.4.A.6). Most of these luminaires are in fair repair. The parking lot and exterior luminaires are old and have a lot of debris in their enclosures (see Fig. 2.4.A.7). The lens on the bollard luminaires have faded over time due to sun exposure which has reduced the lighting output dramatically (see Fig. 2.4.A.8). Most of the luminaires are controlled by local switching; some of the areas have dual level switching and some have occupancy sensor switches. Controls are inconsistent throughout the building. There were not many automatic occupancy controls observed.

Emergency lighting is provided by a combination of emergency squares and battery ballast in the luminaires (see Fig. 2.4.A.9). These luminaires have a red dot on them indicating they have emergency ballast. Twin-head wall packs are located in the stair wells. The building's exit signs appear to be in good condition (see Fig. 2.4.A.10).

Fig. 2.4.A.5 – Hallway luminaires

Fig. 2.4.A.6 – Office luminaires

Fig 2.4.A.7 – Parking lot luminaires

Fig. 2.4.A.8 – Bollard luminaires

Fig. 2.4.A.9 – Emergency square

Fig. 2.4.A.10 – Exit sign

Recommendations:

- The lighting in this building is in fair condition. Automatic controls are recommended throughout the building. This would conserve energy in the offices, storage, hallways, break, and conference rooms. When the spaces are remodeled with new paint and carpet, the luminaires are typically reused. Some of the older luminaires could be updated. We recommend replacing the fluorescent luminaires with LED luminaires as project budgets allow. LED luminaires have more control options such as dimming, individual controls, and daylighting. LED luminaires also reduce maintenance cost.

Fire Alarm

The fire alarm system appears to be a newer Notifier system with full detection, pull stations, elevator recall, and duct smoke detection (see Fig. 2.4. A.11, Fig. 2.4. A.12, and Fig. 2.4. A.13). The devices look new and in good working condition.

Fig. 2.4.A.11 – Fire alarm control panel

Fig. 2.4.A.12 – Smoke detector

Fig. 2.4.A.13 – Duct smoke detector

General Power

Receptacles in the building appear to be in good condition. There are a few old receptacles throughout the building but most have been updated with remodel projects (see Fig. 2.4. A.14). All of the water fountains and some of the break rooms are in need of GFI receptacles (see Fig. 2.4. A.15 and Fig. 2.4. A.16). It was reported that some of the circuits in the building are overloaded causing localized outages when the breaker trips.

Fig. 2.4.A.14 – Updated receptacle

Fig. 2.4.A.15 – No GFI receptacle

Fig. 2.4.A.16 – No GFI receptacle

Recommendations:

- Replace all receptacles in the bathrooms with GFI receptacles. Replace all receptacles within three feet of a water source in the building with GFI receptacles.
- Provide additional circuits where the exiting circuits are overloaded.

Emergency Power

Since the emergency generator has been removed, the life safety lighting and fire alarm systems are backed up by batteries. In the event of a power outage, these systems will continue to operate so that the building can be evacuated in the case of an emergency.

MECHANICAL SYSTEMS

The north building penthouse has two Trane supply Air Handling Units (AHUs), and two Trane return AHUs. The units appear to be at the end of their useful life. These units will need to be replaced within the next few years (see Fig. 2.4.A.19). The units serve the office spaces on the first floor of the north building. The units have chilled water cooling and hot water heating. Also located within the penthouse are two Marley cooling towers. Scaling on the cooling tower fin material was observed (see Fig. 2.4.A.22). Outside air for the tower is introduced through wall mounted louvers. There is no heat provided in the room hence the tower sump is drained during winter (see Fig. 2.4.A.23).

The south building penthouses have two Trane supply AHUs and two Trane return AHUs and serve offices on the first floor of the south building. These units appear to be in better condition than the north building's units. These units have only chilled water cooling. Hot water heating appears to be disconnected (see Fig. 2.4.A.20).

The air distribution in the spaces on the first floor is via cooling only VAV boxes. These boxes appear to be not sized for the space load. Baseboard hot water heating is provided for all perimeter offices and spaces.

The basement mechanical room consists of three Benchmark-2 high efficiency boilers, two York Screw Chillers, one flat plate heat exchanger for free cooling, two hot water pumps, and two chilled water pumps. Also located in the boiler room are two domestic water heaters. The chiller room is provided with refrigerant exhaust system. The flat plate heat exchanger is not being used. The existing steam to hot water heat exchanger has been abandoned in place. Across the corridor from the chiller room is an AHU room consisting of two new Trane air handling units, which serve the basement. The units have chilled water cooling and hot water heating. The return fan for the unit is located in the chiller room. The return fan appears to be at the end of its useful life and needs replacement (see Fig. 2.4.A.24). The grille supplying air to the basement mechanical room is closed hence no air being supplied to electrical room (see Fig. 2.4.A.26). The domestic hot water piping in the basement mechanical room does not have insulation

(see Fig 2.4.A.33). This increases the heat loss from the pipes. The flexible connectors for the hot water pump are cracked and water leaks through the flexible connectors (see Fig 2.4.A.34).

A new Trane roof top unit (RTU) is installed on the south building roof, which serves recently renovated office spaces on the first floor. The foot print on new unit is bigger than the existing curb and the unit is directly supported on roof (see Fig. 2.4.A.25).

The server rooms in the north and south building are air-conditioned by a Liebert CRAC unit; the condensing units for this are located on the roof outside the penthouse. These units are rusted and insulation for the refrigerant piping is missing (see Fig. 2.4.A.18).

The building has separate fire and domestic water entry. Only the basement area is equipped with sprinklers. The building has Siemens Direct Digital Controls. The controls are mix of pneumatic and electronics. Devices like damper actuators are pneumatic (see Fig. 2.4.A.21).

The room beside the elevator machine room is used to store flammable material (see Fig. 2.4.A.27 and 28). This is a fire hazard and all storage material should be removed since sprinkler system is not designed for such load. Other basement rooms are also used as storage spaces which is a fire hazard (see Fig. 2.4.A.29 and 30). The ductwork serving the basement storage room exhaust fan is cut open. This makes exhaust ventilation ineffective as fan discharges the room air in the same room (see Fig 2.4.A.31 and 32).

Most of the building's motors have VFDs, which help with energy efficiency (see Fig. 2.4.A.17).

Fig. 2.4.A.17 – VFDs for motors

Fig. 2.4.A.18 – Missing insulation on refrigerant piping

Fig. 2.4.A.19 – North building Trane units

Fig. 2.4.A.20 – South building units with no heating

Fig. 2.4.A.21 – Pneumatic actuator

Fig. 2.4.A.22 – Cooling tower fill material

Fig. 2.4.A.23 – Outside air dampers for cooling tower

Fig. 2.4.A.24 – Basement AHU -Return Air Fan

Fig. 2.4.A.25 – New Trane unit installation

Fig. 2.4.A.26 – Transfer air grille

Fig. 2.4.A.27 – Material stored is a fire hazard

Fig. 2.4.A.28 – Packaging material

Fig. 2.4.A.29 – Material in storage area

Fig. 2.4.A.30 – Material in storage area

Fig. 2.4.A.31 - Exhaust duct cut open

Fig. 2.4.A.32 – Exhaust fan

Fig. 2.4.A.33 – Missing insulation on hot water piping

Fig. 2.4.A.34 – Pump flexible connection

Recommendations:

- Provide insulation on refrigerant piping serving the CRAC unit condensing units.
- Replace the air handling units located in the north building penthouse with new, more efficient units. These units are old and their condition appears to be at the end of useful life.
- There is no heating provided at the air handling units located in the south building penthouse. It appears heating connection has been disconnected. Consider providing hot water heating for these units. This will help in reducing the occupant complaints of space getting cold.
- Some devices, such as damper actuators, are pneumatic. Replace these actuators with electric actuators.

- There is scaling on the cooling tower fill material. Arrange for a cleaning of the fill material. This will improve tower performance. Ensure tower operation is as per manufacturer recommended sequence of operation.
- There is no heat provided in the cooling tower room therefore the tower is being drained during the winter. Provide heat in the room and provide sump heaters for the towers. Also, provide low leakage dampers on the outside intake louvers to close the outside air intake when the towers are not in use. This will prevent having to drain the tower in the winter and might promote cost savings for water and chemicals.
- The return air fan serving the new Trane AHU in the basement is at the end of its useful life. Replace the fan unit with a new energy efficient unit which has smaller dimensions. There is not enough space around the unit for maintenance. Create required minimum space around the unit for maintenance.
- Verify installation of the new Trane Roof top Unit. The unit footprint is bigger than the existing roof curb and the cantilever support provided does not appear to meet the code requirements for wind load.
- The transfer air grille serving the electrical room in the Tax division basement is closed. Open the transfer grille to allow air circulation in the electrical room.
- The room outside of the basement elevator machine room is being used for storage for polyurethane foam packaging material which can be a fire hazard. Remove the material from the room.
- There is too much material stored in the basement storage rooms. Ensure fire-protection is provided as per the space usage.
- The ductwork serving the basement storage room exhaust fan is cut open. Patch the ductwork and put the exhaust fan in operation.
- There is insulation missing on certain portions of the domestic hot water piping. Provide insulation on the piping; this will conserve energy.
- Verify capacity of VAV boxes and provide boxes sized to the space load.
- The conference room on the first floor of the south building has no thermostat. This room has been formed in the open office space

by adding glass walls and a door. The space is not served with a dedicated VAV box. Ventilation appears problematic because there is no air supply and return in the room. The minimum outside air requirement for the space may not be satisfied.

- The hot water pump flexible connectors are cracked and leaking. Replace flexible connectors.
- Provide sprinkler system on the first floor to improve life safety.

2.4-B CODE ISSUES

ELECTRICAL CODE ISSUES

The National Electrical Code requires GFI protection for all receptacles within six feet of an open water source. The receptacles for the water fountains, as well as some of the break rooms, do not appear to have this protection.

Ladders and other equipment are located in the clearance of the panelboards. The National Electrical Code requires dedicated clearance in front of this equipment.

In the alcohol enforcement area, the server rack is located in the clearance area of the panelboards in this electrical closet. The National Electrical Code requires dedicated clearance in front of this equipment. As piping and wire has been installed throughout the years, the penetrations through the walls have not been properly sealed (see Fig. 2.4.B.5). This violates the fire code because in the instance of a fire, the penetrations will allow fire and smoke to travel through the building.

The electrical bus in the main electrical gear is exposed (see Fig. 2.4.A.6). This is a dangerous condition for life safety.

Fig. 2.4.B.1– GFI required

Fig. 2.4.B.2 – GFI required

Fig. 2.4.B.3 – Ladders within panelboard and transformer clearance

Fig. 2.4.B.4 – Server rack within panelboard clearance

Fig. 2.4.B.5 – Openings in fire rated wall

Fig. 2.4.B.6 – Open bus in main electrical gear

Recommendations:

- Provide GFI receptacle anywhere they are six feet from an open water source.
- Relocate ladders to a storage room or area.
- Relocate server rack out of the panelboards clearance.
- Ensure all interior fire rated walls have all penetrations sealed properly.
- Replace the main electrical gear.

MECHANICAL CODE ISSUES

It appears minimum outside air required for all spaces is not provided.

Fire evacuation plans are not posted in the corridor.

Recommendations:

- The building was originally designed for office and light manufacturing use. The present occupancy is office spaces. Verify the air distribution in the spaces and ensure minimum outside air required for each space is provided.
- Install fire evacuation plans on the corridor walls indicating nearest exit route. This will help occupants exit the building quickly in case of emergency.

2.4-C PLANNED AND ON-GOING PROJECTS

The HVAC system needs replacement, and the first floor sprinkler systems addition. No date has been established for this work at present.

2.5 VOICE AND DATA

2.5-A OVERVIEW OF EXISTING SYSTEMS

Findings

Note SMW was not scoped for this task, for this building or the remaining building assessments. SMW provided voice/data survey and assessment scope for the Capitol Annex Building (1375 Sherman Street) and the Centennial Building (1313 Sherman Street) only.

Recommendations:

The recommendations and guidelines within this section shall establish the Basis of Design for the IT Infrastructure portion of the renovation of the 1881 Pierce building.

The building should be provisioned with the following pathways, spaces and cable media.

Telecommunications Rooms (i.e. Spaces)

1. Main Equipment Room (MDF) / Entrance Facility Room (EF)

- One consolidated Main Equipment Room (MDF) / Entrance Facility Room (EF) shall be installed within the building.
- This main MDF room will include both the Building Entrance Facility for supporting outside plant cabling and raceways and will be the main equipment room for installation of the low voltage and communications systems' (also referred to as the Technology systems) head end equipment.
- The MDF room shall be a minimum of 12' x 16' in size, capable of supporting the installation of one row of racks, with approximately six (6) equipment racks / cabinets.
- The MDF room shall be installed on the first floor of the building. Avoid the basement due to potential flooding.

2. Telecommunications Rooms (IDFs)

- A minimum of one (1) telecommunications room (i.e. IDF rooms) will

need to be installed on each floor and should be vertically stacked, floor-to-floor. Buildings with larger floor plates may require a 2nd IDF room on each floor, vertically stacked as a 2nd riser within the building.

- The IDF rooms shall be a minimum of 10' x 12' in size, capable of supporting the installation of one row of four (4) equipment racks.

3. Telecommunications Room Locations

- The TIA Standards requires one IDF room per floor and it shall be located as close as possible to the center of the area being served, preferably in the core area.
- Additional IDF rooms are required per floor when the floor area served exceeds 10,000 square feet or the horizontal distribution distance to the field device or telecom outlet exceeds 295 feet (or 90 meters).
- Telecommunications rooms should not share a common wall with an electrical room due to potential electromagnetic interference (EMI) issues. If it is imperative due to constraints to place both of these rooms adjacent, then a double wall with a 1 foot internal separation should be considered or the layout of the electrical room should preclude mounting of equipment on the common wall.

Telecommunications Pathways (i.e. Conduit/Raceways)

1. Backbone Pathways

- Telecommunications pathways will need to be installed from the MDF room to each IDF room within the building.
- Provide a minimum of three (3) 4 inch conduits from the MDF room to each IDF riser within the building.
- Provide a minimum of three (3) 4 inch conduit sleeves vertically between stacked IDF rooms.
- Provide a telecommunications pathway up to the roof of the building to support future satellite antennas.

2. Horizontal Pathways

- Telecommunications pathways will need to be installed from telecom outlets and IP field devices to the IDF room serving the floor.
- Provide cable tray on each floor within the accessible ceiling spaces

of the main corridors as the primary pathways from IDF rooms to telecommunications outlets and field devices.

- Cable tray shall be ladder type aluminum tray with a 9” rung spacing and a width of 18 inches in main corridors and 12 inches in secondary cable tray segments. Cable trays shall be 4 inches in depth.
- For facilities designated as historic buildings, alternate cable routing may require the use of surface mounted conduit and wireways, to comply with historic preservation codes. In these cases, the cable installation design must be coordinated with the State prior to construction.
- At the telecom outlet locations, provide 4” square back boxes that are 2-1/8” deep with a 1” conduit installed within the wall to the nearest accessible ceiling space, for routing cabling to cable tray.
- If outlets need to be surface mounted then provide 1” surface mounted raceway from the back box to the main telecom distribution pathways.

Telecommunications Cabling

1. Telecommunications Backbone Cables

- Furnish and install a 24-strand singlemode fiber cable and a 24-strand multimode fiber cable from the MDF room to each IDF room in the building. The multimode fiber cable will be OM4 50 micron laser optimized optical fiber.
- Install fiber optic cable in a 1-1/4” innerduct end to end.
- Furnish and install a 50-pair or 100-pair copper backbone cable from the MDF room to each IDF room in the building.

2. Telecommunications Horizontal Cabling

- Furnish and install a Category 6 unshielded, twisted pair (UTP) horizontal cable from telecom outlets and IP field devices to termination hardware in the IDF rooms.

3. Cabling within Single Occupancy Offices

- Provide a minimum of two telecommunications outlets, located on opposite walls, each with two data jacks. Install two Category 6 horizontal cables to each outlet from the IDF room serving the area.

4. Wireless Access Points (WAPs)

- For ceiling mounted WAPs, install two Category 6 horizontal cables to each WAP from the IDF room serving the area.
- Provide WAPs at 20- 45 foot spacing or approximately 25-foot centers on each floor, mounted in accessible ceilings.

2.5-B CODE ISSUES

Findings

It is our understanding there are currently no code issues in the building related to the existing voice/data IT/Telecommunications Infrastructure.

Recommendations:

For new renovation work, codes which would be applicable would include buy may not be limited to:

- International Code Council (ICC)
- National Electrical Code (NEC)
- Telecommunications Industry Association (TIA)
- Electronic Industries Alliance (EIA)
- Institute of Electrical and Electronics Engineers (IEEE)
- American National Standards Institute (ANSI)
- Underwriters Laboratories (UL)
- State/Local Governing Authorities Having Jurisdiction

2.5-C PLANNED AND ON-GOING PROJECTS

It is our understanding there are no known planned and/or on-going IT/ Telecommunications Infrastructure projects for the 1881 Pierce building currently.

2.6 SECURITY SYSTEMS

2.6-A OVERVIEW OF EXISTING SYSTEMS

Findings

Note: SMW not scoped for this task, did not provide survey work for Security.

It was reported that Hirsch access control card readers need to be upgraded.

For general security findings, see 2.1-B Code Issues: Security.

Recommendations:

The security systems design guidelines outline electronic security systems infrastructure which would enhance security operations and provide a safe and secure environment for persons and assets within the 1881 Pierce building. The purpose of this recommendations report is to provide a description of electronic security system parameters which would provide a safe and secure environment for all those persons and assets within the facilities. It is intended to provide valuable information to both technical and non-technical readers for ongoing coordination with security program requirements.

The security systems should be planned and designed to allow the security personnel the operational flexibility to provide various levels of security based on the threat level at a given time. The systems must further provide capability to deliver the highest quality technology today and in the future for system expansion and change. Security system design shall employ various security technologies. Integrated security systems must be capable to function independently if required, as well as be monitored and controlled from CSP Central Command Center.

Recommended electronic security systems to be considered for implementation and/or upgrade include access control, intrusion detection, duress alarm, intercom, video surveillance, and emergency call system. These applications make it possible for security personnel to view activity both inside and outside the facilities from a central monitoring location or a network-connected security workstation at another location, so they can provide an appropriate response. Care shall be taken to ensure that

interior and exterior common circulation areas accessible to both staff and public will be properly monitored. Electronic security control and monitoring applications shall be implemented as appropriate to provide a safe and secure environment to the facility as a whole. This report is not designed as a specification, but rather as an outline to provide information on recommended security systems technology and design criteria.

The following security design methodologies, criteria and guidelines should be considered and used in development of the security program and physical/electronic security design for the building:

- Industry Standard / Best Practice Design
- Crime Prevention through Environmental Design (CPTED)
- Layered Security / Concentric Circles of Protection
- Integrated Design – Physical/Electronic/Operational
- ASIS Facilities Physical Security Measures
- IESNA G-1-03 Guideline for Security Lighting
- Unified Facilities Criteria UFC 4-010-01
- State of Colorado Design Standards, as applicable

The access control system (ACS) will be an expansion of the existing campus wide system currently installed throughout other State buildings, and utilize similar ACS door controllers and peripheral equipment. New proximity type card readers shall operate with the existing proximity card credentials. Door devices are to wire through a consolidation junction box above door, and be routed to nearest IDF room where door controllers and power supplies are located. ACS door controllers installed in telecommunications IDF rooms will connect to the buildings LAN for communication with the ACS server. New security equipment to be located within IDF rooms must be coordinated with State IT technical staff. Each access controlled door should be equipped with card reader, electrified lock, door position switch, and request to-exit-motion device (or hardware integral request-to-exit switch). All doors described as a card reader controlled access door will be outfitted with the standard equipment listed, unless specifically defined elsewhere to vary from this configuration. It is recommended that for new controlled doors, magnetic locks and electronic strikes not be used. Electrified lever sets and panic hardware should be equipped with request-to-exit switch in exit hardware. Specific

door hardware requirements for each controlled door location are to be coordinated with the State. The ACS shall also serve as the primary security management system for monitoring intrusion alarms. Intrusion alarms such as door status and motion detection alarms are to be integrated with and monitored through the access control security management system. Alarm device additions and modifications shall be coordinated with State during the design phase. Security personnel shall be able to monitor security system alarm notification devices through network connected client workstations, where authorized.

The video surveillance system (VSS) will implement IP digital HD type cameras integrated with the existing VSS. Where analog head-end equipment is located, IP camera digital signals are to be decoded to analog video signal. This will allow for future migration from any older analog equipment to an IP based network video solution. IP security video shall be managed by the existing server/recorders, and new network video recorders are to be installed where required to support the addition of new cameras. It is recommended for renovation work that older technology analog camera be replaced with IP digital security camera, connected to the VSS via building LAN. Security cameras may be made up of both fixed field of view and pan-tilt-zoom (PTZ) type, and should be IP, minimum HD quality, and be Power-over-Ethernet (PoE) devices. Camera network cabling shall pull to nearest IDF room, providing connectivity to the building LAN. IP camera network cabling shall terminate to building PoE network switches. Security personnel shall be able to monitor the security video surveillance system through network connected client workstations, where authorized.

Fixed point duress buttons may be located at designated points within the building, for staff use in emergency situations. Duress alarm buttons should be provided where appropriate, typically at public interface counters and other locations as designated. Duress alarm buttons may be interfaced to the security alarm management system, or intrusion alarm system, and report to a central monitoring station if required.

An Intercom Communication System (ICS) should be implemented to enhance security operations in the facility, for security personnel, staff and visitors. It is strongly recommended that an Intercom over IP (IoIP) Communications solution be used for this application. And IoIP system would provide superior audio quality utilizing the latest digital technology, and provide much greater flexibility for locating both master and sub-stations anywhere on the local area network via IP communications. Security personnel in CSP CCC would be provided with two-way audio communications to any remote building IP intercom sub-station.

Within the building, new head-end security control equipment is to be located in IDF or technology rooms, as coordinated with State IT technical staff. Equipment may include ACS control panels, power supplies, duress alarm panels, network video recorders, and UPS units. All critical electronic security equipment must be backed-up with emergency power circuits or UPS units. State security personnel and other authorized staff may remotely monitor access control events, system alarms, and security video through network connected client workstations. For building renovation work, requirements for security device additions/upgrades and specific security system functionality are to be coordinated with State security personnel during design and construction phases.

The security systems described above are generally controlled and monitored centrally, primarily from Colorado State Patrol's Central Command Center (CCC), located in Denver CO. This should be confirmed for this facility prior to programming security criteria. The above listed security applications must be evaluated during renovation project schematic design phases to confirm applicability to the most current State electronic security systems standards. For any renovation work, security contractors should be pre-qualified prior to bidding, and will be required to work very closely with State security personnel during installation, commissioning and testing phases. All security installation work, construction standards, and operation requirements are to be closely coordinated with the State by the electronic security integrator.

Electronic security systems provided for the 1881 Pierce building shall be an extension of existing State facility security system infrastructure, as described earlier in the report. It is generally recommended that the building be provided with electronic security applications and equipment as listed below:

Access controlled doors:

- Main entry
- Suite entries on each floor
- IDF rooms, recommended
- Sensitive spaces

Intrusion alarms:

- Access controlled doors

- Emergency egress only doors
- Perimeter doors

Intercom stations:

- Main entry, recommended
- Receiving dock door, recommended

Duress alarms:

- Public interface counters
- Cash handling locations
- Loading docks

Video surveillance cameras:

- Perimeter entry/exit doors
- Entry lobby/reception
- Elevator lobbies
- Emergency exit doors
- Loading docks
- Building exteriors

Security system cabling should generally share cable routes with that of the building structured network cabling system. The network cabling paths and riser locations generally provides the most direct route through a facility, and typically contain sufficient space for security cabling requirements. For facilities designated as historic buildings, alternate cable routing may require the use of surface mounted conduit and wireways, to comply with historic preservation codes. In these cases, the cable installation design must be coordinated with the State prior to construction. Data cabling required for IP security cameras should be provided and installed by the Telecommunications Contractor. This is the recommended design and construction method for provisioning of the IP camera network cabling to support the VSS cabling infrastructure. State IT construction standards

for network and security cabling types and jacket color must be adhered to. Security cabling should never be exposed and should be contained in protective conduit wherever cable is accessible to vandalism, accidental damage, or where it traverses any unsecured space. Security cabling shall be plenum rated where required by codes.

The security conduit pathway system should be coordinated with the electrical distribution system in order to maintain separation from motors or transformers, separation between parallel runs of telecommunications and electrical cabling, and separation from fluorescent lights.

Basic Security Conduit requirements:

- All security cabling located in in-accessible spaces shall be installed in conduit.
- All exposed security system cabling and shall be installed in conduit.
- All security system conduits shall be minimum ¾" unless otherwise required.
- All penetrations of rated walls shall be fire-stopped in an approved manner to prevent the passage of flame, smoke, and gas.

Head-end security control equipment shall generally be located in Intermediate Distribution Frame (IDF) rooms, or other technology rooms. Security equipment locations within IDF rooms must be coordinated with State IT technical staff during design phase. This equipment may include access control panels, duress alarm equipment, power supplies, network video recorders, and UPS units. Specific requirements and locations within the rooms will be determined during the design phase. Security cabling within IDF rooms shall be piped to wire gutters and or security equipment panels. Within IDF rooms, it is anticipated a 4'x8' section of wall space shall be reserved for security equipment, and supplied with fire treated plywood backboard. All security equipment in the room should be located away from potential sources of electro-mechanical interference (EMI) and water infiltration. Rack mounted security equipment may share space in telecommunication equipment racks, where appropriate, and as coordinated State IT personnel. One dedicated 120VAC 20A power circuit shall generally be required at each security wall board location and at each security equipment rack. In the event of loss of building power, all mission critical electronic security equipment requiring continuous 120VAC power shall be provided with back-up UPS units. All UPS units shall be stand-

alone units dedicated for security, and shall be sized accordingly based on required run time.

2.6-B CODE ISSUES

Findings

It is our understanding there are currently no code issues in the building related to existing electronic security systems.

Recommendations:

For new renovation work, codes which would be applicable would include but may not be limited to:

- International Code Council (ICC)
- Americans with Disabilities Act (ADA)
- National Fire Alarm and Signaling Code (NFPA 72)
- National Fire Protection Association Life Safety Code (NFPA 101)
- National Electrical Code (NEC)
- Telecommunications Industry Association (TIA)
- Electronic Industries Alliance (EIA)
- American National Standards Institute (ANSI)
- Underwriters Laboratories (UL)
- State/Local Governing Authorities Having Jurisdiction

2.6-C PLANNED AND ON-GOING PROJECTS

It is our understanding there are no known planned and/or on-going Security System projects for the 1881 Pierce building currently.

3.0 FLOOR-BY-FLOOR ASSESSMENT FINDINGS AND RECOMMENDATIONS

3.0-A CODE ISSUES

See 2.1-B Code Issues

3.0-B GENERAL ACCESSIBILITY ISSUES

See 2.1-C General Accessibility Issues

3.0-C ARCHITECTURAL FINISHES AND INTERIOR COMPONENTS

General Architecture Findings

It was reported that some of the finishes in areas of the north wing have been updated over the past few years. The Division of Motor Vehicles: Director's Office, in Room 118, was remodeled with new carpet and paint this past year. The 2x4 acoustic ceiling was not updated. The Department of Revenue Hearing Section, in Room 106, was remodeled within the past 3 to 4 months, although the ceiling was also not included in the updates.

It was reported that the restrooms have areas of damage and wear-and-tear related to public traffic and vandalism.

It was reported that asbestos is known to exist throughout the north wing of the building in the flooring mastic. It was further reported that there is vinyl asbestos tile (VAT) in the building in storage areas, some of which is covered by carpet and that some of the mastic is known to be an asbestos-containing material (ACM). It was also reported that the storage areas are being damaged due to the use of forklifts and heavy carts in these areas. See 2.1-E Environmental for more information related to asbestos in the building. The main corridors on the Basement Floor are currently being abated to remove the asbestos that exists in the original flooring mastic. The walls are being patched and repainted and new flooring is subsequently going to be installed once the abatement process is complete.

Ceiling Finishes

The 2x2 and 2x4 acoustic ceiling tiles throughout the building, including the main corridors, entrance lobbies, office spaces, some of the break rooms, and other spaces included in the site survey visit, appear to be in generally fair to poor condition with signs of deterioration and soiling noted throughout (see Fig. 3.0.C.1 through Fig. 3.0.C.4). The acoustic ceilings did not appear to have been updated or replaced during previous interior remodeling efforts that were pointed out during the site survey (see Fig. 3.0.C.5). A few areas were noted to have 1x1 acoustic tiles glued to the ceiling in generally fair condition.

The painted gypsum board ceilings in the entrance vestibules were observed to be in fair to poor condition throughout. Water damage was observed at the gypsum board ceiling around the ceiling panel in the vestibule space of Entrance B and in the vestibule space of the East Employee Entrance (see Fig. 3.0.C.6 and Fig. 3.0.C.7). The painted gypsum board ceilings in the restrooms throughout and in the break rooms with gypsum board ceilings were noted to be in generally fair condition with the exception of water damage noted in the Women's First Floor Restroom on the west side of the north wing (see Fig. 3.0.C.8 and Fig. 3.0.C.9).

The open ceilings in areas throughout the Basement Floor appear to be in fair condition throughout with some cracking and minor spalling of the concrete noted.

Fig. 3.0.C.1 General deterioration and poor condition of the acoustic ceilings throughout.

Fig. 3.0.C.2 Typical instance of deterioration of the acoustic ceiling tiles.

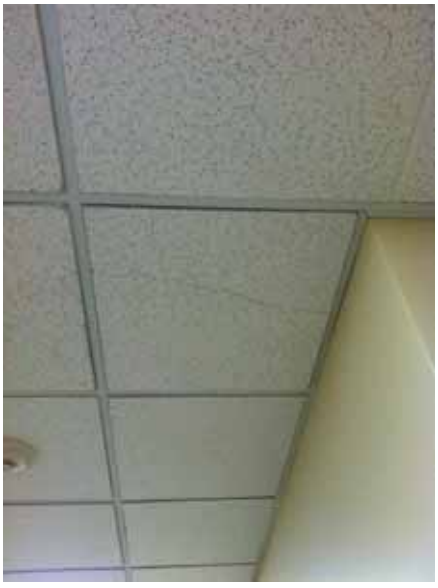

Fig. 3.0.C.3 Typical instance of damaged and cracked acoustic ceiling tiles.

Fig. 3.0.C.4 Typical instance of soiled acoustic ceiling tiles.

Fig. 3.0.C.5 Acoustic ceiling tiles do not appear to have been updated or replaced during the recent remodeling of Room 118 or in other remodeled spaces included in the site survey.

Fig. 3.0.C.6 Water damage at the gypsum board ceiling around the ceiling panel in the vestibule of Entrance B.

Fig. 3.0.C.7 Water damage at the gypsum board ceiling around the ceiling panel in the vestibule of the East Employee Entrance.

Fig. 3.0.C.8 Water damage at the gypsum board ceiling in the Women's First Floor Restroom on the west side of the north wing.

Fig. 3.0.C.9 Water damage at the gypsum board ceiling in the Women's First Floor Restroom on the west side of the north wing.

Wall Finishes

The gypsum board walls throughout the building, including the main corridors, entrance lobbies, office spaces, break rooms, restrooms, and other spaces included in the site survey visit, appear to be in generally fair condition. Many of the walls throughout the First Floor of the north wing appear to have a newer coat of paint. There were numerous cracks noted in the gypsum board walls throughout the north wing (see Fig. 3.0.C.10 and Fig. 3.0.C.11). General wear and tear was noted at the gypsum board walls in the entry vestibules (see Fig. 3.0.C.12).

The 1x2 foot tile wainscoting and one-foot square wall tile in the Men's First Floor Restrooms near the center of the south wing appear to be newer and are in good condition overall. The four-inch square wall tile in many of the restrooms is in fair condition overall with areas of discoloration, soiling, and damage noted in a few spots (see Fig. 3.0.C.13 and Fig. 3.0.C.14). There were areas that have been repaired with new four-inch square wall tile that does not match the color of the original wall tile (see Fig. 3.0.C.15). There was a section of four-inch square wall tile missing in the Women's First Floor Restroom on the west side of the south wing (see Fig. 3.0.C.16). The Men's and Women's Restrooms off of the break room at the northeast corner of the south wing both have a large hole that was left in the wall from a former toilet paper dispenser (see Fig. 3.0.C.17).

The concrete block walls observed during the site survey throughout the Basement Floor appear to be in fair condition overall. There was an area in the southwest corner of the basement where a black substance appeared to be dripping down onto the concrete wall from the floor above (see Fig. 3.0.C.18). There was also a large crack noted in another of the concrete walls within the same area (see Fig. 3.0.C.19).

The vinyl baseboard was in generally fair condition throughout with the exception of an area missing from the wall in the east stairway (see Fig. 3.0.C.20). Water damage was noted at a gypsum board wall in the west stairway (see Fig. 3.0.C.21).

Fig. 3.0.C.10 Cracking in the gypsum board walls noted throughout the north wing.

Fig. 3.0.C.11 Cracking in the gypsum board walls noted throughout the north wing.

Fig. 3.0.C.12 General wear and tear noted at the gypsum board walls in the entry vestibules.

Fig. 3.0.C.13 Typical instance of discolored, soiled, and damaged four-inch square wall tile observed in the restrooms throughout the north wing.

Fig. 3.0.C.14 Typical instance of soiled four-inch square wall tile observed in the restrooms.

Fig. 3.0.C.15 Areas that were repaired with four-inch square wall tile that does not match the original wall tile.

Fig. 3.0.C.16 Missing four-inch square wall tile from the Women's First Floor Restroom on the west side of the south wing.

Fig. 3.0.C.17 Unrepaired hole from a former toilet paper dispenser in the Men's and Women's Restrooms at the northeast corner of the south wing.

Fig. 3.0.C.18 Black substance dripping down a concrete wall in the southwest portion of the basement.


Fig. 3.0.C.19 Large crack in the concrete wall noted in the southwest portion of the basement.

Fig. 3.0.C.20 Vinyl baseboard missing from a wall in the east stairway.

Fig. 3.0.C.21 Water damage noted at the gypsum board in the west stairway.

Floor Finishes

There are areas of flooring finishes that appear to be newer. These areas include the two-inch square tile in the two Men's First Floor Restrooms near the center of the south wing, the 1x2 foot tile flooring throughout the lobbies of Entrance A and Entrance B, and the one-foot square tile flooring throughout the lobby of the Employee Entrance on the east side of the north wing.

The majority of the building has carpet flooring. Some of the carpet appears to be newer and is in good condition. The carpet that appears to be original to the building is in generally poor condition throughout with areas of deterioration due to age and areas that are soiled (see Fig. 3.0.C.22 through Fig. 3.0.C.26). There were also areas noted where the carpet is pulling loose along the seams and is creating a potential tripping hazard (see Fig. 3.0.C.27). It was reported that the original carpet that remains throughout the north wing has asbestos in the mastic. Building occupants have placed tape over damaged areas of this carpet in an attempt to cover any exposed areas of the mastic (see Fig. 3.0.C.28). It was reported that installing new carpet throughout the entire building is on the Capitol Complex list of controlled maintenance projects that need to be replaced.

The linoleum tile flooring throughout parts of the Basement Floor, along the stairway landings, in the First Floor Men's and Women's Restrooms in the northeast corner of the south wing, and throughout some of the break rooms was in generally fair condition with damage noted in a few locations (see Fig. 3.0.C.29 and Fig. 3.0.C.30). It was reported that the former linoleum tile throughout the Basement Floor corridors had asbestos in the mastic. The mastic with asbestos throughout the basement corridors had been abated as of the date of the site survey visit (see Fig. 3.0.C.31). It was further reported that linoleum flooring with asbestos in the mastic was still known to exist in the north wing.

The one-inch square tile flooring throughout the majority of the restrooms on the First Floor appears to be original and is in fair condition overall. The two-inch square tile flooring throughout the restrooms on the Basement Floor appears to be in fair condition as well.

There was an area in the equipment room on the east side of the Basement Floor where water was observed to be pooling on the concrete floor (see Fig. 3.0.C.32).

Fig. 3.0.C.22 Typical instance of worn and soiled carpet noted on the First Floor of the north wing.

Fig. 3.0.C.23 Typical instance of worn and soiled carpet noted on the First Floor of the south wing.

Fig. 3.0.C.24 Typical instance of worn and soiled carpet noted on the Basement Floor of the north wing.

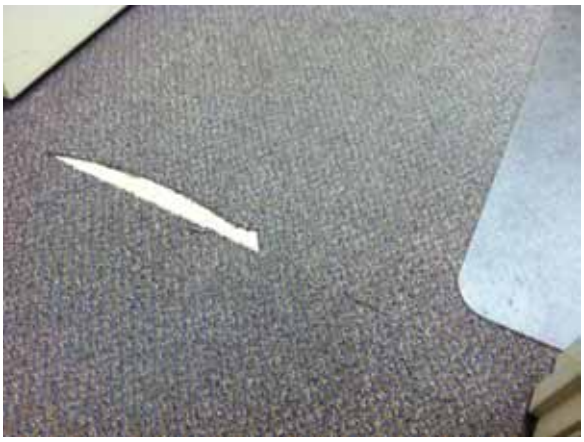

Fig. 3.0.C.25 Instance of worn and deteriorating carpet noted during the site survey visit.

Fig. 3.0.C.26 Instance of worn and deteriorating carpet noted during the site survey visit.

Fig. 3.0.C.27 Typical instance of carpet pulling loose along a seam and creating a potential tripping hazard.

Fig. 3.0.C.28 Typical instance of tape placed over damaged portions of the original carpet in the north wing known to have asbestos in the mastic. This is also creating a potential tripping hazard.

Fig. 3.0.C.29 Damaged linoleum flooring noted in the Women's First Floor Restroom at the northeast corner of the south wing.

Fig. 3.0.C.30 Damaged and soiled linoleum flooring noted on the Basement Floor.

Fig. 3.0.C.31 Flooring mastic with asbestos throughout the basement corridors was abated as of the date of the site survey visit.

Fig. 3.0.C.32 Water pooling on the concrete floor in the equipment room on the east side of the Basement Floor.

Other Finishes

A small amount of general wear and tear was noted at a few of the doors throughout the building (see Fig. 3.0.C.33). It was reported that the interior door at the dock vestibule needs new hardware and locking devices on the large 12 foot doors. It was also reported that the interior door at Room 87 also needs new hardware and locking devices.

Damage and general wear and tear was noted to some of the cabinets in the break rooms throughout the building (see Fig. 3.0.C.34).

Fig. 3.0.C.33 Typical instance of minor wear and tear noted at a few of the doors throughout the building.

Fig. 3.0.C.34 Damage and wear and tear noted to this particular style of cabinets in the break rooms throughout the building.

Recommendations:

- It was reported that asbestos is present in the original flooring mastic throughout the north wing. It is unknown if asbestos exists elsewhere in the building. The extent of any asbestos remaining in the building should be determined. All existing asbestos should be abated.
- Replace acoustic ceiling tiles throughout the building where soiled, damaged, and deteriorating.
- Repair or replace the gypsum board ceilings or walls throughout with water damage or general wear and tear. Determine the cause of the water damage to prevent further issues.
- Repair any areas of cracked or spalling concrete throughout the open ceilings on the Basement Floor to prevent further deterioration.
- The gypsum board walls throughout the north wing appear to be cracking due to stresses from the structure. Further investigation should occur to determine ways to resolve the problem and prevent further issues.
- Clean, repair, or replace any soiled, damaged, or deteriorating wall tile throughout the restrooms.
- Repair the holes from former toilet paper dispensers left in the walls of the Men's and Women's First Floor Restrooms at the northeast corner of the south wing.
- Clean the black substance off of the concrete walls in the southwest corner of the basement and determine the cause to prevent further issues.

- Repair the large crack running along the height of the concrete wall in the southwest corner of the basement and determine the cause to prevent further issues.
- Repair or replace any damaged or deteriorating vinyl baseboard throughout, paying particular attention to the east stairway.
- Replace all soiled, damaged, and deteriorating carpet throughout. Test for asbestos prior to replacement and abate as necessary.
- Clean, repair, or replace any soiled, damaged, and deteriorating linoleum and vinyl flooring throughout. Test for asbestos prior to replacement and abate as necessary.
- Determine the cause of water pooling on the floor of the equipment room on the east side of the north wing on the Basement Floor and repair as necessary.
- Repair or replace any damaged cabinets in the break rooms with the particular style of cabinet as shown in Fig. 3.0.C.34.
- Repair or replace any finishes in the restrooms that have been damaged or worn due to public traffic, vandalism, or any other reason.
- Clean and refurbish any interior doors and door frames with general wear and tear and replace any knob-style door handles with lever-style door handles. Replace door hardware and locking devices as necessary.

MARTIN / MARTIN
CONSULTING ENGINEERS

3.0-D STRUCTURAL

No structural concerns were noted on the First Floor or on the Basement Floor. See section 2.2 for structural observations and recommendations for all floors.

3.1-E VOICE AND DATA

Refer to Section 2.5-A for IT/Telecom Infrastructure general recommendations, as applicable to each floor.

3.1-F SECURITY SYSTEMS

Refer to Section 2.6-A for Security System general recommendations, as applicable to each floor.

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4.0 LEVELS OF RENOVATION NEEDED

Building: 1881 Pierce Building, 1881 Pierce Street (Lakewood)

Priority	Main System	Sub System	Level of Renovation Needed		
			Minimal	Moderate	Extensive
1	Exterior Enclosure	Roof			√
1	Exterior Enclosure	Fall Protection (roof)			√
1	Exterior Enclosure	Sealant / Grout			√
1	Infrastructure	Power			√
1	Infrastructure	Tele/Com			√
1	Interior	Finishes - Flooring			√
1	Interior	ADA-Restrooms			√
1	Interior	ADA-Sinks (Break Rooms)			√
1	Interior	Finishes Ceiling			√
1	Interior	Finishes - Wall			√
1	Site	Drainage			√
1	Site	Pavement			√
1	Site	Lighting			√
1	Infrastructure	Fire Sprinkler			√
1	Infrastructure	HVAC		√	
2	Code	Exit Stairways		√	
2	Exterior Enclosure	Penthouse		√	
2	Exterior Enclosure	Walls		√	
2	Infrastructure	Lighting		√	
2	Infrastructure	Elevator(s)		√	
2	Infrastructure	Security Access/IDS		√	
2	Infrastructure	Security Video		√	
3	Exterior Enclosure	Windows	√		
3	Exterior Enclosure	Doors (Penthouse only)	√		
3	Infrastructure	Fire Alarm	√		
3	Infrastructure	Structural Framing	√		
3	Interior	ADA-Drinking Fountains	√		
3	Interior	ADA-Door Levers	√		
3	Interior	Doors	√		
3	Site	Utilities	√		
	Environmental	Asbestos	(present, per Owner)		
	Code	Exits			
	Code	Dead End Corridors			
	Exterior Enclosure	Signage			

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5.0 COST ESTIMATES

SUMMARY OF SUMMARIES

Item No.	Description	SF	Total	$/SF
1	Construction Cost	122,542	8,479,798	69.20
2	Contingency on Above		w/ Above	
	Base Price Subtotal:	**122,542**	**8,479,798**	**69**
3A	IT \ Teledata (Relocate Exstg Only)	122,542	309,110	2.52
3B	Public Art	122,542	84,798	0.69
4	Contingency on Above		Excluded	
	FF&E Subtotal:		**393,908**	**3**
	Base Price \ FF&ESubtotal:		**8,873,706**	**72**
5	Escalation - 6.75% per year		Excluded	
6	Contingency on Above		Excluded	
	Escalation Subtotal:		**Excluded**	
	Systems \ Equipment \ Art Subtotal:		**8,873,706**	**72**
7	Design Fees at 8% per State of CO Direction		709,896	5.79
8	Contingency on Above		Excluded	
	Design Fee Subtotal:		**709,896**	**5.79**
	Base Price \ Equipment & Art \ Design Fee Subtotal:		**9,583,603**	**78**

PROJECTED COST AT TIME OF CONSTRUCTION	9,583,603	78

ADD ALTERNATE				
9	FF&E (FF&E SF & $25\SF Allowance per Architect)	79,035	1,975,875	25.00
10	Move Management	122,542	148,359	1.21
11	Flex Space		Excluded	
12	Escalation - 6.75% per year (to March 2017)		Excluded	
13	Contingency on Above		Excluded	
	Move Management Subtotal:		**2,124,234**	
	Add Alternate Subtotal:		**2,124,234**	**17.33**

SYSTEM BY SYSTEM SUMMARY

Item No.	Description	SF	Total	$/SF
1A	Add Fire Sprinkler System to Floor 1	122,542	949,488	7.75
1B	Escalation		Excluded	
	System 1 Add Fire Sprinkler to Floor 1 Subtotal:		**949,488**	**8**
2A	ADA Upgrades	122,542	328,957	2.68
2B	Escalation		Excluded	
	System 2 ADA Upgrades Subtotal:		**328,957**	**3**
3A	Asbestos Abatement	122,542	634,119	5.17
3B	Escalation		Excluded	
	System 3 w/ Escalation Subtotal:		**634,119**	**5**
4A	Replace HVAC Systems	122,542	542,650	4.43
4B	Escalation		Excluded	
	System 4 w/ Escalation Subtotal:		**542,650**	**4**
5A	Repair / Replace Site Paving	122,542	2,830,816	23.10
5B	Escalation		Excluded	
	System 5 w/ Escalation Subtotal:		**2,830,816**	**23**
6A	Balance of Project Scope	122,542	3,323,768	27.12
6B	Escalation		Excluded	
	System 6 w/ Escalation Subtotal:		**3,323,768**	**27**
	System by System w/ Escalation Subtotal:		**8,609,798**	**70**
7	IT \ Teledata (Relocate Exstg Only)	122,542	309,110	2.52
8	Public Art	122,542	84,798	0.69
9	Contingency on Above		Excluded	
	Equipment \ Art Subtotal:		**393,908**	**3**
	Systems \ Equipment \ Art Subtotal:		**9,003,706**	**73**
10	Design Fees at 8% per State of CO Direction		720,296	5.88
11	Contingency on Above		Excluded	
	Design Fee Subtotal:		**720,296**	**6**
	Base Price \ Equipment & Art \ Design Fee Subtotal:		**9,724,003**	**79**

PROJECTED COST AT TIME OF CONSTRUCTION	**9,724,003**	**79**

ADD ALTERNATE				
12	FF&E (FF&E SF & $25\SF Allowance per Architect)	79,035	1,975,875	25.00
13	Move Management	122,542	148,359	1.21
14	Flex Space		Excluded	
15	Escalation - 6.75% per year (to March 2017)		Excluded	
16	Contingency on Above		Excluded	
	Move Management Subtotal:		**2,124,234**	
	Add Alternate Subtotal:		**2,124,234**	**17.33**

FF&E DETAILED ESTIMATE - BASE

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
01 50 00	**Temporary Facilities and Controls**					Excluded	
	Flex Space for Multiple Moves and\or Tenant Holdover				Excluded Per Owner		
	General Condtions & General Requirements Subtotal					Excluded	
11 90 00	**Owner Furnished Equipment**					Excluded	
11 99 00	**A\V & IT Equipment**					177,745	
	AV / IT @ Large Conference Rooms	-	EA	5,230.00	Excluded		
	VOIP Telephone System	490	EA	280.00	137,247		
	New PC Computer Workstations	50	EA	810.00	40,498		
	State of CO Servers, Routers, Wireless Access and IT Equipment not w/Above				Excluded		
	Equipment Subtotal					177,745	
12 99 00	**Furnishings**					1,975,875	
	New Employee Workstations	79,035	SF	25.00	1,975,875		
	Minor Repair to Existing Employee Workstations	-	EA	160.00	Excluded		
	Furnishings @ Large Conference Rooms	-	EA	4,150.00	Excluded		
	Furnishings @ Medium Conference Rooms	-	EA	2,905.00	Excluded		
	Furnishings @ Small Conference Rooms	-	EA	1,260.00	Excluded		
12 99 99	**Art**					84,798	
	Art in Public Places @ 1.0% of Construction Cost	1	LS	84,797.98	84,798		
	Furnishings Subtotal					2,060,673	
13 49 00	**Radiation Protection**					Excluded	
	Special Construction Subtotal					Excluded	
27 10 00	**Structured Cabling**					131,365	
	Teledata Cabling System Conduit & Wire Upgrades				w/Const Cost		
	Teledata Cabling Terminations, Testing & Tone-Out	490	EA	268.00	131,365		
27 41 00	**Audio-Visual Systems**					Excluded	
27 53 00	**Distributed Systems**					Excluded	
	Communications Subtotal					131,365	
34 99 99	**Move Management**					148,359	
	Moving Labor, Material, Equipment & Supervision	490	EA	243.00	119,111		
	Relocate Existing PC Computer Workstations	450	EA	65.00	29,248		
	Transportation Subtotal					148,359	
	Total FF&E, IT, & Move Management					5,036,284	

DETAILED ESTIMATE - SUMMARY

CSI Division	Description		Project GSF	122,542
		$/GSF	Section Totals	Total w/Burdens
02	Existing Conditions	3.42	419,665	589,119
03	Concrete	1.49	182,198	255,767
04	Masonry		Excluded	
05	Metals	3.83	469,063	658,464
06	Woods & Plastics	0.74	90,842	127,522
07	Thermal & Moisture	0.44	54,409	76,378
08	Doors & Glazing	4.13	506,356	710,814
09	Finishes	4.19	513,719	721,151
10	Specialties	0.56	68,804	96,587
11	Equipment		Excluded	
12	Furnishings	0.02	2,010	2,822
13	Special Construction		Excluded	
14	Conveying Systems		Excluded	
21	Fire Supression	3.22	394,585	553,913
22	Plumbing	0.36	43,564	61,154
23	HVAC	3.07	375,877	527,650
26	Electrical	4.09	500,706	702,883
27	Communications	2.88	352,921	495,425
28	Security		w/26000	
31	Earthwork		67,200	94,334
32	Exterior Improvements	16.31	1,998,752	2,805,816
33	Utilities		Excluded	
34	Transportation		Excluded	
	SUBTOTAL: CONSTRUCTION COST DETAIL	**49.29**	**6,040,671**	**8,479,798.38**
	General Conditions (GC's Onsite Overhead)	9.80%	591,986	
	Materials Testing	0.10%	6,633	
	Design & Preconstruction Contingency	10.00%	663,929	
	Owner's Construction Contingency (after NTP)	5.00%	365,161	
	Permits	1.90%	145,699	
	SUBTOTAL: DIRECT CONSTRUCTION COSTS	**63.77**	**7,814,078**	
	General\Professional Liability Insurance	0.90%	70,327	
	Builder's Risk Insurance	1.50%	118,266	
	Performance & Payment Bond	1.10%	88,029	
	Bid Bond	0.20%	16,181	
	Tap Fees & Other Owner Soft Costs		Excluded	
	GC's Offsite Overhead & Profit (Fee)	4.60%	372,917	
	Escalation\Year (to Mid-Point of Construction)	6.75%	ject Summary	
	SUBTOTAL: DIRECT & INDIRECT CONSTRUCTION COSTS	**69.20**	**8,479,798**	

DETAILED ESTIMATE

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
01 45 00	Quality Control					By Owner	
01 50 00	Temporary Facilities and Controls					w/General Conditions	
01 50 20	Temporary Parking and Staging Yard					w/General Conditions	
01 50 30	Weather Protection and Conditions					w/General Conditions	
01 60 00	Mock-Ups (Physical & Digital)					w/General Conditions	
01 62 00	Crane Service					w/Trades	
01 74 00	Cleaning					w/General Conditions	
	General Condtions & General Requirements Subtotal					**w/Summary**	
02 10 00	Hazardous Material Removal					275,720	
	Hazardous Material Testing & Removal (Assume 10% Asbestos)	61,271	SF	4.50	275,720		
02 25 00	Building Shoring					w/051200	
	Shoring @ Existing Building during Demolition (if any)				w/Below		
02 41 13	Selective Site Demolition					143,946	
	Selective Demoliton @ Existing Site (Allowance)	63,976	SF	2.25	143,946		
02 41 19	Structure Demolition					w/051200	
	Existing Conditions Subtotal					**419,665**	
03 07 00	Drilled Piers (Caissons)					Excluded	
03 07 10	Helical Pier / Screw Pile					Excluded	
03 20 00	Concrete Reinforcing Steel					Excluded	
	Reinforcing at CIP Concrete				w/03300		
	Reinforcing at CMU Walls				w/04200		
03 30 00	Cast-in-Place Concrete					Excluded	
	Concrete Patching @ Existing Building -Medium Repairs (Allowance)				Excluded		
03 35 00	Concrete Finishes					Excluded	
03 60 00	Precast Concrete					182,198	
	Repair Precast Structure	15,318	SF	6.98	106,918		
	Repair @ Existing Precast @ Exterior Skin	8,254	SF	9.12	75,280		

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
	Replace Existing Precast @ Exterior Skin				Excluded		
	Concrete Subtotal					182,198	
04 20 00	**Masonry**					Excluded	
04 40 00	**Stone**					Excluded	
	Masonry Subtotal					Excluded	
05 12 00	**Structural Steel**					407,881	
	Structural Upgrades @ Existing Building - Minor Repairs (Allowance)				Excluded		
	Structural Upgrades @ Existing Building -Medium Repairs (Allowance)	30,636	SF	13.31	407,881		
	Structural Upgrades @ Existing Building -Major Repairs (Allowance)				Excluded		
	Steel Joists					w/051200	
	Steel Joists (if any)				w/Above		
05 30 00	**Metal Deck**					w/051200	
	Metal Declk (if any)				w/Above		
05 34 00	**Acoustical Metal Decking**					Excluded	
05 40 00	**Cold-Formed Metal Framing**					Excluded	
05 44 00	**Cold-Formed Metal Trusses**					Excluded	
05 45 23	**Metal Supports - Unistrut**					Excluded	
05 50 00	**Miscellaneous Metal Fabrications**				-	Excluded	
05 52 00	**Metal Railings**					61,182	
	Repair Existing Metal Railings	4,595	SF	13.31	61,182		
05 58 50	**Equipment Screens**				-	Excluded	
05 59 00	**Entrance Canopy**				-	Excluded	
05 80 00	**Expansion Control**				-	Excluded	
	Metals Subtotal					469,063	
06 10 00	**Rough Carpentry**					62,496	
	Blocking & Backing at Interior Reno (Allowance)	122,542	SF	0.51	62,496		
06 15 00	**Wood Decking**					Excluded	
06 22 00	**Millwork / Finish Carpentry**					28,345	
	New Reception Desk (Allowance)	1	LS	10,000.00	10,000		
	Millwork at New Large Conf Rooms (Allowance)				Excluded		

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
	Millwork at New Medium Conf Rooms (Allowance)				Excluded		
	Millwork at New Small Conf Rooms (Allowance)				Excluded		
	Millwork at New Large Break Rooms (Allowance)				Excluded		
	Millwork at New Small Break Rooms (Allowance)				Excluded		
	Solid Surface Countertops @ New Restrooms	250	SF	55.00	13,750		
	Additional Millwork not w/Above @ Full Reno + 25% of Med Reno (Allowance)	3,064	SF	1.50	4,595		
06 60 00	**FRP Panels**					**Excluded**	
	FRP Panels @ New Janitor's Closets	-	SF	5.33	Excluded		
	Woods & Plastics Subtotal					**90,842**	
07 11 00	**Dampproofing**					**Excluded**	
07 13 00	**Waterproofing**					**Excluded**	
07 18 00	**Traffic Coatings**					**Excluded**	
07 21 00	**Building Insulation**					**Excluded**	
07 24 00	**EIFS**					**Excluded**	
07 32 00	**Tile Roof**				-	**Excluded**	
07 41 00	**Metal Wall Panels**					**Excluded**	
07 41 50	**Metal Roof Panels**					**Excluded**	
07 50 00	**Membrane Roofing**					**Excluded**	
	Caulking & Minor Roof Repair @ Existing Roof Membrane				Excluded		
	Patching @ Existing Roof Membrane				Excluded		
	New Roofing Membrane @ Existing Roof to be Replaced	-	SF	9.89	Excluded		
07 60 00	**Flashing and Sheetmetal**					**Excluded**	
	Flashing @ Roofing System				w/074150		
07 72 00	**Roof Accessories**					**Excluded**	
	Roof Access Hatch\Ladder				Excluded		
	Roof Access Ladders				Excluded		
	Roof Curbs @ RTUs				Excluded		
07 76 00	**Roof Pavers**					**Excluded**	
	2'-0"x 2'-0" Roof Access Pavers				Excluded		
	Conc Paver\Pedestal System				Excluded		
07 81 00	**Spray on Fireproofing**					**Excluded**	
07 81 10	**Intumescent Fireproofing**					**Excluded**	

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
07 84 00	**Firestopping**					**6,617**	
	Firestopping	122,542	SF	0.05	6,617		
07 90 00	**Joint Sealants**					**47,791**	
	Joint Sealants	122,542	SF	0.39	47,791		
	Thermal & Moisture Subtotal					**54,409**	
08 10 00	**Steel Doors and Frames**					**55,090**	
	HM Doors						
	3'-0"x 7'-0" HM Exterior Door				Excluded		
	3'-0"x 7'-0" HM Interior Door				Excluded		
	PR 3'-0"x 7'-0" HM Interior Doors				Excluded		
	HM Frames						
	3'-0"x 7'-0" HM Door Frame	245	EA	211.33	51,794		
	6'-0"x 7'-0" HM Door Frame	12	EA	274.73	3,297		
	Add for HM Frames @ Masonry Openings				Excluded		
	Add for Sidelites & Transoms				Excluded		
	HM Glazing Frames				Excluded		
08 20 00	**Wood Doors**				-	**91,454**	
	3'-0"x 7'-0" SC WO Wood Door	245	EA	339.87	83,297		
	PR 3'-0"x 7'-0" SC WO Wood Doors	12	EA	679.74	8,157		
	Add for Vision Lites & Transoms				Excluded		
08 31 00	**Access Doors**					**Excluded**	
	Access Doors @ Ceilings & Walls				w/091120		
08 33 00	**Coiling Doors and Grilles**					**Excluded**	
	Fire Shutter @ South Lobby (Allowance)				Excluded		
08 36 00	**Overhead Doors**					**Excluded**	
	8'-0"x 10'-0" OH Door				Excluded		
	Electric Operator @ Above				Excluded		
08 43 00	**Entrances & Storefronts**					**151,728**	
	Cleaning & Caulking @ Storefront & Punch Window Glazing at Exterior Skin				Excluded		
	Repair @ Existing Storefront & Punch Window Glazing to Match @ Exterior Skin	8,131	SF	18.66	151,728		
	Replace Existing Storefront & Punch Window Glazing to Match @ Exterior Skin				Excluded		
08 44 00	**Curtain Wall Assemblies**					**Excluded**	
	Cleaning & Caulking @ Storefront & Punch Window Glazing at Exterior Skin				Excluded		
	Repair @ Existing Storefront & Punch Window Glazing to Match @ Exterior Skin				Excluded		
	Replace Existing Storefront & Punch Window Glazing to Match @ Exterior Skin				Excluded		
08 45 00	**Translucent Wall and Roof Assemblies**					**Excluded**	
08 46 00	**Automatic Entrances**					**Excluded**	
08 62 00	**Unit Skylights**					**Excluded**	
					Excluded		
08 62 50	**Tubular Daylighting Devices**					**Excluded**	

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
08 70 00	**Door Hardware**					199,787	
	Hardware @ Single Leaf Exterior Door				Excluded		
	Hardware @ PR of Exterior Doors				Excluded		
	Hardware @ Single Leaf Interior Door	245	EA	462.71	113,403		
	Hardware @ PR of Interior Doors	12	EA	925.42	11,105		
	Hardware @ Storefront Doors				Excluded		
	Add for Card Key Access Hardware	3	EA	647.88	1,944		
	Add for ADA Door Operator @ Single Leaf	12	EA	1,341.22	16,095		
	Add for ADA Door Operator @ PR of Doors	3	EA	1,711.56	5,135		
	Add for Panic Hardware @ Single Leaf	18	EA	896.33	16,134		
	Add for Panic Hardware @ Pair of Doors	4		1,792.66	7,171		
	Add for Kickplates, etc. @ Restroom Doors	10	EA	322.47	3,225		
	Add for Closers, etc. @ Single Leafs	36	EA	621.77	22,384		
	Add for Closers, Astral, etc. @ PR of Doors	3	EA	1,064.23	3,193		
08 81 00	**Interior Glass Walls, Partitions & Glazing**					8,297	
	Interior Storefront Glazing						
	Interior Storefront Glazing @ Renovation	46	SF	43.48	1,998		
	PR 3'-0"x 7'-0" Storefront Doors @ Interior				Excluded		
	3'-0"x 7'-0" Storefront Door @ Interior				Excluded		
	Interior Glass						
	0'-6"x 2'-0" Std Vision Lites @ Interior Doors	61	EA	23.56	1,444		
	0'-6"x 2'-0" Wire Glass Lites @ Fire-rated Doors	36	EA	63.28	2,278		
	2'-0"x 2'-0" Std Vision Lites @ Interior Doors	25	EA	52.72	1,292		
	2'-0'x 2'-0" Wire Glass Lites @ Fire-rated Doors	12	EA	104.88	1,285		
	FireLite Glazing				Excluded		
08 90 00	**Louvers and Vents**					w/233000	
	Louvers & Vents @ HVAC				w/Below		
	Doors & Glazing Subtotal					506,356	
09 21 00	**Plaster**					w/072400	
	3 Coat Cementituous Stucco System @ Exterior				w/Above		
09 25 00	**Gypsum Board**					81,294	
	25 GA Mtl Stds w/Gyp BD (2) Sides @ Interior	2,987	SF	6.14	18,340		
	25 GA Mtl Stds w/Gyp BD (2) Sides + STC 60 Batt @ Interior	1,608	SF	7.17	11,532		
	25 GA Furring w/Gyp BD (1) Side + STC 60 Batt	230	SF	5.94	1,365		
	Add for Impact Resistant Gyp Bd	92	SF	0.67	62		
	Add for Water Resistant Gyp Bd @ Restroom Walls	4,932	SF	0.61	3,009		
	Add for Water Resistant Gyp Bd @ Restroom Ceilings	600	SF	0.61	366		
	CH Stud System @ HVAC Duct Chases (Allowance)				Excluded		
	Gyp Bd (1) Side @ Int of 18 GA Exterior Wall Framing	24,640	SF	1.26	31,046		
	Suspended Gyp Bd Ceilings (Allowance)	1,213	SF	7.21	8,744		
	Gyp Bd Closure Wall Systems @ Soffits & Ceiling Ht Changes (Allowance)	43	LF	23.16	998		
	Gyp Bd Column Wraps @ Interior Columns (4 Sides)	108	LF	14.33	1,548		
	Gyp Bd Column Wraps @ Exterior Columns (3 Sides)	15	LF	11.33	174		
	Gyp Bd Perimeter Beam Wraps & Window\Skylight Reveals	39	LF	6.23	240		
	Gyp Bd Detailing not w/Above	1	LS	3,871.16	3,871		
09 31 00	**Ceramic Tile**					28,621	
	2"x 2" Ceramic Floor Tile @ Restrooms	600	SF	12.44	7,464		

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
	24"x 24" Porcelain Floor Tile @ Lobby				Excluded		
	24"x24" Porcelain Floor Tile @ Stair Treads				Excluded		
	18"x 18" Porcelain Floor Tile @ Rest Rooms				Excluded		
	18"x 18" Porcelain Floor Tile @ Toilet Rms				Excluded		
	18"x 18" Porcelain Wall Tile @ Rest Rooms to 5'-0"H	1,541	SF	10.63	16,385		
	Add for Porcelain Wall Tile Above 5'-0"H @ Wet Walls @ Restrooms	270	SF	10.63	2,867		
	Shower Pans & Curbs				Excluded		
	Tile Cove Base @ Rest Rooms	308	LF	6.18	1,905		
09 50 00	**Acoustical Ceilings**					**31,404**	
	New 2'x4' Armstrong Dune Second Look ACT (or Equal)	10,429	SF	2.89	30,139		
	New 2' x 2' Premium ACT (Allowance)	368	SF	3.44	1,265		
09 64 00	**Wood Flooring**					**Excluded**	
	Wood Flooring				Excluded		
09 65 00	**Resilient Flooring**					**2,662**	
	Sheet Vinyl w/Heat Welded Seams				Excluded		
	3MM Linoleum w/Heat Welded Seams @ Breakrooms				Excluded		
	Standard Rubber Base	2,114	LF	1.21	2,558		
	VCT - Simple Random Pattern	-	SF	1.66	Excluded		
	24"x 24" Std Rubber Tile Flooring				Excluded		
	Rubber Tile Flooring @ Integral Tread & Riser				Excluded		
	Resilient Transition Strips	30	LF	3.44	103		
09 65 66	**Rubber Sports Flooring**					**Excluded**	
09 67 00	**Fluid Applied Flooring**					**Excluded**	
	Epoxy Sealer @ Conc Flr @ Janitor's Closet & Mech\Elec\IT Rooms				Excluded		
09 68 00	**Carpet**					**278,253**	
	28 oz Direct Glue Carpet	85,179	SF	3.11	265,003		
	Add for Waste at Above (Assume 5%)	4,259	SF	3.11	13,250		
	Carpet Tile				Excluded		
	Add for Waste at Above (Assume 5%)				Excluded		
09 84 00	**Acoustical Wall Panels**					**Excluded**	
	Acoustic Panels @ Large Conf Rooms (Allowance)				Excluded		
09 90 00	**Paint & Wallcovering**					**36,894**	
	Paint Existing Stairs, Landings and Railings				Excluded		
	Paint Existing Steel Ladders				Excluded		
	Paint 3'-0"x 7'-0" HM Frame	245	EA	48.33	11,845		
	Paint 6'-0"x 7'-0" HM Frame	12	EA	51.29	615		
	Stain & Seal 3'-0"x 7'-0" SD Wood Door (SC Doors Prefinished)				Excluded		
	Paint Interior CMU Partitions				Excluded		
	Paint Gyp Bd @ Partitions & Exterior Wall	34,060	SF	0.53	18,052		
	Dryerase Paint @ One Wall\Conf Room				Excluded		
	Paint Exposed Structure @ Janitor's Closet & Mech\Elec\IT Rooms				Excluded		
	Paint Suspended Gyp Bd Ceiling @ Restrooms w/Epoxy	600	SF	2.86	1,716		
	Paint Suspended Gyp Bd Ceiling @ w/Latex	613	SF	0.83	509		
	Paint Gyp Bd Closure Wall System	43	LF	3.44	148		
	Gyp Bd Column Wraps @ Interior Columns (4 Sides)	108	LF	4.72	510		
	Gyp Bd Column Wraps @ Exterior Columns (3 Sides)	15	LF	3.54	55		

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
	Gyp Bd Perimeter Beam Wraps & Window\Skylight Reveals	39	LF	2.36	91		
	Paint Breaks @ Accent Walls				w/Above		
	Painting @ Gyp Bd not w/Above (Allowance)	1	LS	3,354	3,354		
09 95 00	**Finishes Protection / Punchlist / Cleanup**					**4,591**	
	Existing Finishes Protection, Punchlist, Tenant MACs & Final Clean (Allowance)	1	LS	4,591	4,591		
09 90 00	**Architectural Theming & Enhancements**					**50,000**	
	Interior Finishes Upgrades not w/Above (Allowance)	1.0	LS	50,000.00	50,000		
	Finishes Subtotal					**513,719**	
10 11 00	**Visual Display Surfaces**					**Excluded**	
	Whiteboards				Excluded		
	Cork\Bulletin Boards				Excluded		
	Magnetic Surfaces				Excluded		
10 12 00	**Display Cases**					**Excluded**	
	Sports Trophy & Award & Other Display Cases				Excluded		
10 14 00	**Signage**					**18,112**	
	Code Required ID Signage	321	EA	56.36	18,112		
	Wayfinding Signage (Allowance)				Excluded		
	Brushed Aluminum Building ID Letters w/Pin Mounts @ Ext & Int (Allowance)				Excluded		
	Logo @ Building ID - Interior & Exterior (Allowance)				Excluded		
10 21 13	**Toilet Compartments**					**28,374**	
	Ceiling Mtd Std Phenolic Std Toilet Partition	18	EA	1,266.33	22,794		
	Ceiling Mtd ADA Phenolic Toilet Partition	2	EA	1,524.89	3,050		
	Phenolic Urinal Partition	7	EA	361.48	2,530		
10 22 13	**Wire Mesh Partitions**					**Excluded**	
	Wire Mesh Partitions @ Storage & Other Locations				Excluded		
10 22 39	**Operable Partitions**					**Excluded**	
	Operable Partitions				Excluded		
10 26 00	**Wall & Corner Guards**					**Excluded**	
	2"x 2'x 4'-0" Vinyl Corner Guard w/Aluminum Retainer				Excluded		
	2"x 2'x 4'-0" Stainless Steel Corner Guards				Excluded		
10 28 00	**Toilet Accessories**				-	**21,495**	
	SS Soap Dispenser	15	EA	77.63	1,164		
	SS Recessed Paper Towel Dispenser\Waste Receptacle	13	EA	192.09	2,497		
	SS Recessed Seat Cover Dispenser	13	EA	86.33	1,122		
	SS Toilet Paper Dispenser - Multiroll	10	EA	85.62	856		
	SS Toilet Paper Dispenser - Single Roll				Excluded		
	SS Sanitary Napkin Dispenser	5	EA	234.23	1,171		
	SS Sanitary Napkin Disposer	12	EA	64.18	770		
	36" Grab Bar - Cncld Mnting w/ Snap Flange @ ADA Units	2	EA	71.90	144		
	42" Grab Bar - Cncld Mnting w/ Snap Flange @ ADA Units	2	EA	98.63	197		
	2'-0"x 4'-0" SS Frame & Mirror @ Toilet Rooms	15	EA	101.77	1,527		
	Electric Hand Dryers	10	EA	664.71	6,647		
	Baby Changing Station	13	EA	415.31	5,399		
10 43 00	**Emergency Aid Specialties**					**824**	

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
	Defibrilator & Cabinet	1	EA	823.64	824		
10 44 00	**Fire Extinguishers**					**Excluded**	
	Fully Recessed Fire Extinguisher & Cabinet				Excluded		
10 51 13	**Metal Lockers**					**Excluded**	
	New Metal Lockers				Excluded		
10 51 26	**Phenolic Lockers**					**Excluded**	
	New Phenolic Lockers				Excluded		
10 51 53	**Locker Room Benches**					**Excluded**	
	New Phenolic Locker Room Benches				Excluded		
10 56 00	**Storage Assemblies**					**Excluded**	
	12"D Prefinished Melamine Shelving @ Janitor's Closets (5 EA\LF)				Excluded		
	12"D Prefinished Melamine Storage Closet				Excluded		
	Mop Holder & Shelf @ Janitor's Closets				Excluded		
10 71 13	**Exterior Sun Control Devices**					**Excluded**	
	Prefinished Aluminum Sun Shades @ Exterior Glazing				Excluded		
10 73 43	**Transportation Stop Shelters**					**Excluded**	
					Excluded		
	Specialties Subtotal					**68,804**	
11 14 00	**Pedestrian Control Equipment**					**Excluded**	
11 17 00	**Automatic Banking Systems**					**Excluded**	
11 21 23	**Vending Equipment**					**Excluded**	
11 23 26	**Commercial Washers & Dryers**					**Excluded**	
11 40 00	**Food Service Equipment**					**Excluded**	
11 45 00	**Residential Appliances**					**Excluded**	
	Residential Refrigerator\Freezer				Excluded		
	Residential Microwave w/Direct Vent Hood				Excluded		
	Residential Microwave w/o Vent Hood				Excluded		
	Residential Range\Oven				Excluded		
	Residential Undercounter Oven\Warming Drawer				Excluded		
	Residential Dishwasher				Excluded		
11 52 13	**Projection Screens**					**Excluded**	
					Excluded		
11 52 23	**Audio-Visual Equipment Supports**					**w/066000**	
11 53 00	**Laboratory Equipment**					**Excluded**	

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
					Excluded		
11 66 13	**Exercise Equipment**					Excluded	
					Excluded		
11 66 23	**Gymnasium Equipment**					Excluded	
11 66 43	**Scoreboards**					Excluded	
11 70 00	**Healthcare Equipment**					Excluded	
11 82 00	**Solid Waste Handling Equipment**					Excluded	
11 90 00	**Owner Furnished Equipment**					Excluded	
11 99 00	**A\V & IT Equipment**					w/Summary	
	Equipment Subtotal					Excluded	
12 21 00	**Window Coverings**					2,010	
	Mechoshades @ Exterior Glazing (Electrically Operated)	203	SF	9.89	2,010		
12 48 00	**Floor Mats**					Excluded	
	Recessed Aluminum Entrance Grid				Excluded		
12 60 00	**Multiple Seating**					Excluded	
12 99 00	**Furnishings**					w/Summary	
	Furnishings Subtotal					2,010	
13 49 00	**Radiation Protection**					Excluded	
	Special Construction Subtotal					Excluded	
14 20 00	**Elevators**					Excluded	
	Elevator Upgrades				Excluded		
	Conveying Systems Subtotal					Excluded	
21 13 00	**Fire Protection**					394,585	
	Fire Sprinker System (Minimal Upgrade)				Excluded		
	Fire Sprinker System (Medium Upgrade)				Excluded		
	Fire Sprinker System (Replacement)	122,542	SF	3.22	394,585		
	Fire Supression Subtotal					394,585	
22 40 00	**Plumbing**					43,564	
	Plumbing (Minimal Upgrade)				Excluded		

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
	Plumbing (Medium Upgrade)				Excluded		
	Plumbing (Replacement)	6,127	SF	7.11	43,564		
	Plumbing Subtotal					**43,564**	
23 30 00	**HVAC**					**375,877**	
	HVAC System (Minimal Upgrade)				Excluded		
	HVAC System (Medium Upgrade)				Excluded		
	HVAC System (Replacement)	12,254	SF	29.33	359,416		
	Connections/Demoltion at Existing HVAC System	12,254	SF	0.89	10,906		
	Systems Commissioning	1	LS	5,554.83	5,555		
	HVAC Subtotal					**375,877**	
26 00 00	**Electrical**					**500,706**	
	Lighting System (Minimal Upgrade)	122,542	SF	1.44	176,460		
	Lighting System (Medium Upgrade)				Excluded		
	Lighting System (Replacement)				Excluded		
	One-line\Distribution & Branch Power System (Minimal Upgrade)				Excluded		
	One-line\Distribution & Branch Power System (Medium Upgrade)	49,017	SF	1.56	76,466		
	One-line\Distribution & Branch Power System (Replacement)				Excluded		
	Special Systems (Paging, Security, etc.) System (Minimal Upgrade)				Excluded		
	Special Systems (Paging, Security, etc.) System (Medium Upgrade)	49,017	SF	0.97	47,546		
	Special Systems (Paging, Security, etc.) System (Replacement)				Excluded		
	Fire Alarm System (Minimal Upgrade)				Excluded		
	Fire Alarm System (Medium Upgrade)				Excluded		
	Fire Alarm System (Replacement)	122,542	SF	1.12	137,247		
	Connections/Demoltion at Existing Electrical Systems	122,542	SF	0.47	57,595		
	Mech Equipment Connections	1	LS	5,391.24	5,391		
26 31 00	**Photovoltaic Collectors**					**Excluded**	
26 41 00	**Lightning Protection**					**Excluded**	
	Electrical Subtotal					**500,706**	
27 10 00	**Structured Cabling**					**352,921**	
	Teledata Cabling System (Minimal Upgrade)				Excluded		
	Teledata Cabling System (Medium Upgrade)				Excluded		
	Teledata Cabling System (Replacement)	122,542	SF	2.88	352,921		
	Teledata Cabling Terminations, Testing & Tone-Out @ Above				w/FF&E		
	New Cable Tray/Raceways at Above Cabling				Excluded		
27 41 00	**Audio-Visual Systems**					**Excluded**	
27 52 00	**Healthcare Communications and Monitoring Systems**					**Excluded**	
27 53 00	**Distributed Systems**					**Excluded**	
	Communications Subtotal					**352,921**	
28 70 00	**Security Systems**					**w/26000**	

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
	Security Subtotal					w/26000	
30 04 70	**Construction Surveying**					w/General Conditions	
31 23 19	**Dewatering**					Excluded	
31 30 00	**Earthwork**					67,200	
	Site Earthwork - Blended Crew\Equipment Rate (Allowance)	56	HR	1,200.00	67,200		
	Excavate for Continuous Footings & Stemwalls				Excluded		
	Backfill @ Footings				Excluded		
	Export Spoils (Assume 1 Hour Truck RT)				Excluded		
	Import & Place 4" Structural Fill Under SOG				Excluded		
	Rock Excavation				Excluded		
31 31 20	**Temporary Erosion Control**					Excluded	
	Temporary Erosion Control Measures				Excluded		
31 40 00	**Shoring System**					Excluded	
	Shoring @ Site				Excluded		
31 48 00	**Underpinning**					Excluded	
	Underpinning @ Existing Building				Excluded		
	Earthwork Subtotal					67,200	
32 12 16	**Asphaltic Concrete Paving**					Excluded	
32 13 00	**Rigid Paving**					Excluded	
32 14 00	**Unit Pavers**					Excluded	
32 16 00	**Curb & Gutter**					Excluded	
32 16 23	**Sidewalks**					981,709	
	Hardscape at Existing Site (Allowance)	95,964	SF	10.23	981,709		
32 17 00	**Lightpole Bases**					Excluded	
32 17 23	**Pavement Markings**					Excluded	
32 31 00	**Fences and Gates**					Excluded	
32 31 17	**Site Enclosures**					Excluded	
32 32 13	**CIP Retaining Walls**					Excluded	

CSI Section	Description	Quantity	Unit	Unit Cost	Total Project		Comments
					Amount	CSI Sec. Total	
32 32 23	Modular Retaining Walls					Excluded	
32 32 50	Stone Retaining Walls					Excluded	
32 39 00	Site Furnishings					10,000	
	New Site Furnishings Allowance	1	LS	10,000.00	10,000		
32 39 13	Site Signage					Excluded	
32 90 00	Landscaping					1,007,043	
	Native Seed (Allowance)				Excluded		
	Softscape & Irrigation (Allowance)	211,120	SF	4.77	1,007,043		
	Exterior Improvements Subtotal					1,998,752	
33 10 00	Site Utilities					Excluded	
	New Wet\Dry Utilities (Allowance)				Excluded		
33 30 00	Sanitary Sewerage Utilities					Excluded	
33 40 00	Storm Drainage Utilities					Excluded	
33 46 00	Foundation Drain System					Excluded	
33 47 00	Detention Ponds					Excluded	
	Utilities Subtotal					Excluded	
34 41 00	Traffic Signals					Excluded	
	Transportation Subtotal					Excluded	
	SUBTOTAL: DIRECT CONSTRUCTION COST ONLY					6,040,671	
	General Conditions					w/Summary	
	GC's Offiste Overhead & Profit					w/Summary	
	Other GC & Owner Soft Costs					w/Summary	
	CONSTRUCTION TOTAL COST					w/Summary	