CAPITOL COMPLEX MASTER PLAN

FINDINGS & RECOMMENDATIONS (F & R) NEEDS ASSESSMENT

HUMAN SERVICES BUILDING, 1575 SHERMAN STREET (DENVER)

NOVEMBER 2014

RNL

FINDINGS & RECOMMENDATIONS (F&R) NEEDS ASSESSMENT

HUMAN SERVICES BUILDING
1575 SHERMAN STREET (DENVER)

November 2014

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EXECUTIVE SUMMARY

The purpose of this report is to provide a Findings & Recommendations (F&R) Needs Assessment of the Human Services Building at 1575 Sherman Street in Denver, 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 Human Services 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. Replace engine generator. This recommendation encompasses life safety issues due to the age of the generator which is used for emergency power.

   High Level Cost Estimate: $438,599

2. Replace electrical panels and receptacles. This recommendation encompasses life safety, loss of use/reliability, and overall energy efficiency issues and is due to the age of the panels and receptacles. Further, the receptacles may no longer prevent an electrical shock.

   High Level Cost Estimate: $3,848,536

3. Accessibility upgrades. This recommendation encompasses life safety issues and is due to non-accessible features found throughout the restrooms and break rooms.

   High Level Cost Estimate: $136,051

4. Replace roof. This recommendation encompasses loss of use/ reliability issues and is due to the age and condition of the roof.

   High Level Cost Estimate: $609,958

5. Light fixture and control upgrade. This recommendation encompasses loss of use/reliability issues and overall energy efficiency issues and is due to the age of the T8 fluorescent fixtures and controls.

   High Level Cost Estimate: $1,012,390

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

$15,146,974

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:

$16,503,123

1.0 OVERVIEW

1.0-A ARCHITECTURE OVERVIEW

The Human Services Building was constructed as the Farmers Union Building in 1952 and is located in Denver's North Capitol Hill Neighborhood on the southwest corner of Sherman Street and East 16th Avenue. The building was designed by S. Arthur Axtens as a Modernist design. The building was renovated in December of 1987. The building's historic function was to serve as office space for the Farmers Union. The State of Colorado acquired the property in 1964 and the building currently serves as government office space for the Department of Human Services.

The Human Services Building is a square-plan concrete construction. The exterior walls were cast monolithic with the floors in order to form a continuous deep girder around each floor of the building. This ten-story building, with an additional ground floor and basement, grosses 145,370 square feet of space.

The architectural assessment of the Human Services Building at 1575 Sherman 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 September 17, 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, considering its age. There are issues related to non-renovated interior finish materials, exterior finish materials, building systems, code compliance, accessibility, 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. Another concern includes the need for accessibility upgrades. 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 September 17, 2013 of the State Human Services Building located at 1575 Sherman Street in Denver, Colorado. The purpose of our condition assessment was to identify structural defects, damage, and deterioration.

The State Human Services Building was originally constructed in 1951. The structural framing consists of cast-in-place concrete pan joists and beams supported by cast-in-place concrete columns and walls. The foundation system is unknown and construction drawings were not available for our review.

The readily observable structural framing is in good condition.

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 State Human Services Building site is approximately 0.6 acres and is located at 1575 Sherman Street. The existing site consists of the building and street right-of-way including sidewalk and landscaping. The main building entrance is accessed from Sherman Street. The condition of the site surrounding the building is consistent with an estimated age of 55+ years.

The site exterior is generally in poor condition. The main concerns regarding the State Human Services site are the condition of the pavement and drainage. There are numerous locations around the building with broken and cracked concrete in need of repair or replacement. Broken concrete in walking paths can cause a tripping hazard, which is a high safety concern. Ponding water was observed on site. Locations of localized ponding include the access area and planters south of the site and the west flowline of Sherman Street. Proper site drainage is extremely important in the prevention of icing and settlement, public safety and site longevity concerns. Drainage improvements such as the installation of a trench drain, area drains, or re-paving to provide positive drainage need to be completed. 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 electrical and mechanical assessment of the Department of Human Services building at 1575 Sherman St. 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 and assess code and building energy efficiency issues. During the site survey, information about the building history and on the electrical and mechanical systems conditions, maintenance routines, and installation dates. The date the Department Human Services building was originally constructed was unknown at the time of the site survey; however, it was completely renovated in 1986.

The main concerns regarding the Department of Human Services Building are related to the generator, electrical panels and receptacles, and the lighting fixtures and controls. The electrical equipment that is past its useful life needs to be replaced to provide a reliable source of power for the building. Also it was reported that the generator is overloaded and past its useful life.

The emergency lighting is part of the life safety system that provides adequate light for the occupancies to exit the building.

Major renovations to the mechanical systems were completed in 1986. The main Air Handling Units distributing the air in the building appear to be in good condition. The air distribution system in the spaces is variable air volume system via VAV boxes. The boxes are not sized to meet the space loads. It is recommended to verify the VAV box sizes and provide new VAV boxes sized to meet the space heating and cooling loads. The existing controls system is not fully Direct Digital Control and needs to be upgraded to full DDC. There is no sir side energy recovery system installed in the building. The exhaust from the spaces like toilets, janitor closet, etc. is being exhausted directly to outside.

The life safety system in the building appears to be in good working condition. The building is fully sprinklered and have stairwell pressurization system. The systems are being tested regularly as per local AHJ requirements.

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.

Providing automatic occupancy sensor shutoff power strips for desk equipment that does not need to be on constantly, when a person is away from their desk, will help reduce energy usage.

Providing right size VAV boxes will save energy since only the required amount of air will be delivered to the spaces thereby saving air heating and cooling energy costs. Upgrading the controls to full DDC controls will ensure that the required amount of outside air is introduced into the system and delivered to the spaces. Also, controls sequences like supply air temperature reset, economizer system operation, hot water temperature reset etc. could be implemented to save HVAC operating costs. Providing exhaust air energy recovery to preheat or precool outside air will save outside air heating and cooling energy costs.

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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 Human Services 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 standard in the industry such as VoIP phones and PoE type security cameras. Existing Cat5e cabling has bandwidth limitations as compared to that of the 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 fiber optic cable, laser optimized multimode fiber optic cables, and Category 3 copper backbone cables should be installed from the MDF room to each IDF room to support the technology systems. New 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 will provide a uniform ground within the telecommunications rooms, to facilitate a 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 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 telecommunications 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), to allow for wireless network coverage throughout facility.

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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 Human Services 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 Human Services 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: Security considerations for this building should be of higher concern based on the services provided at this location accommodating HIPPA and Human Services programs.

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 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 RECOMENDATIONS

2.1 ARCHITECTURE

2.1-A EXTERIOR BUILDING ENVELOPE/SITE

General

The Human Services Building is a ten-story tall building supported by a concrete structural frame. The facade consists of a minimalist design with a regular grid of windows and is clad in stucco. The main building entrance is on the east side along Sherman Street and provides two sets of double doors placed side-by-side. The main entrance is paved in concrete and continues to a concrete sidewalk extending along the north and east sides of the building along East 16th Avenue and Sherman Street respectively. There is an emergency exit from the south side of the building at both the First Floor and the Ground Floor, with the First Floor exit leading to the parking area south of the structure and the Ground Floor exit leading to the building's loading dock area. The Ninth and Tenth Floors are set back from the elevations of the building, creating an exterior patio area at the Ninth Floor. The roof contains an elevator penthouse set back from the elevations of the building. There is a triangular, folded, decorative metal piece running around the top perimeter of the Penthouse parapet.

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 soiling of the stucco has occurred under the windows and metal banding around the building's exterior.

Front & Side/East & South Elevations of the Human Services Building

Main Sherman Street Entrance on the east side of the building.

Back/West Elevation of the Human Services Building

Side/North Elevation of the Human Services Building

Cladding

The stucco panels cladding the exterior of the building, including at the Penthouse on the roof, are in fair condition overall with some damage noted in spots, especially on the north side of the building. Readily observable spalling, cracking, and damage to the stucco were noted during the site survey visit (see Fig. 2.1.A.1 through Fig. 2.1.A.4). The majority of the cracking and spalling that was readily observable appears to be minor. However, where the cracking and spalling appears to be more significant, there is the potential for water penetration. There were also areas noted where the stucco panels are soiled (see Fig. 2.1.A.5 and Fig. 2.1.A.6). The metal capping pieces and strips of banding around the building are in fair condition overall, however some areas are beginning to show signs of corrosion (see Fig. 2.1.A.7). The corrosion is likely contributing to some of the soiling noted at the stucco panels. Spalling was also noted at the concrete pavers at the Ninth Floor patio, creating a potential tripping hazard (see Fig. 2.1.A.8). It was further noted that the sealant along the joints between the exterior walls and the concrete pavers at the Ninth Floor patio is generally deteriorating and creating points of potential water penetration (see Fig. 2.1.A.9).

It was reported that sealing water leaks from the old parking garage that used to be south of the building is on the Capitol Complex list of controlled maintenance projects that need to be addressed.

Fig. 2.1.A.1 Cracking of the stucco panels noted around the exterior of the building.

Fig. 2.1.A.2 Spalling of the stucco panels noted around the exterior of the building.

Fig. 2.1.A.3 Damaged, cracked, and soiled stucco noted around the exterior of the building.

Fig. 2.1.A.4 Cracked and worn stucco noted at the Penthouse on the roof.

Fig. 2.1.A.5 Soiled, cracked, and spalled stucco noted around the exterior of the building.

Fig. 2.1.A.6 Soiled stucco panels noted around the exterior of the building.

Fig. 2.1.A.7 Corroding metal capping pieces and strips of banding noted in spots around the exterior of the building.

Fig. 2.1.A.8 Spalling concrete pavers located at the Ninth Floor patio and creating a potential tripping hazard.

Fig. 2.1.A.9 Deteriorating sealant between the building's walls and the concrete pavers at the Ninth Floor patio.

Recommendations:

- Repair or replace cracked, spalling, or otherwise damaged stucco panels around the exterior of the building, including at the Penthouse.
- Clean soiled/stained stucco panels around the exterior of the building, including at the Penthouse.
- Replace corroding metal capping pieces and strips of banding around the building with new capping and banding to match the existing.
- Remove the concrete paving system at the Ninth Floor patio area. Examine the area for any damage due to water penetration and repair as necessary. Install a new concrete paving system, including a new waterproofing system and new drain covers.
- Remove any deteriorating sealant at joints between the building's

exterior walls and concrete pavers around the building and replace with new sealant. Examine these areas for any deterioration due to potential water penetration and repair as necessary before applying new sealant. New sealant, backup materials, and preformed joint fillers should be nonstaining.

- Seal the reported water leaks from the old parking garage that used to be south of the building as required to prevent water from penetrating the building envelope.

Glazing Systems and Doors

The windows are double pane and are labeled as having tempered safety glass. The windows that were readily observable during the site survey visit appeared to be in fair condition overall. There were some areas of minor corrosion to the metal frames noted. It was also noted that there are spots where gaps exist between the window frames and the building, exposing the building envelope to the elements. There are areas where the sealant is missing entirely and areas where the gaps are related to the deterioration of the existing sealant (see Fig. 2.1.A.10 and Fig. 2.1.A.11). There were instances noted where windows were previously repaired along the corner joints of the metal frames. The material used for the repairs appears to be generally deteriorating (see Fig. 2.1.A.12).

Fig. 2.1.A.10 Typical gaps observed due to deteriorating sealant at the bottom of a window frame, exposing the building envelope to the elements.

Fig. 2.1.A.11 Typical gaps observed at the bottom of a window frame, exposing the building envelope to the elements.

Fig. 2.1.A.12 The material used for previous repairs to the corner joints of the metal window frames appears to be deteriorating.

The doors located around the exterior of the building appear to be in fair condition overall with signs of minor wear and tear and corrosion noted (see Fig. 2.1.A.13). Some of the weatherstripping is beginning to deteriorate and should be replaced as needed around the building to prevent air leakage (see Fig. 2.1.A.14).

Fig. 2.1.A.13 Minor corrosion noted at the exterior doors.

Fig. 2.1.A.14 The weatherstripping at the exterior doors is starting to deteriorate around the building.

Recommendations:

- Remove any corrosion from the metal window frames or door frames around the exterior of the building and refinish to match the existing frames.
- Remove sealant around all windows and replace with new sealant. Examine the areas around the windows for any deterioration due to potential water penetration and repair as necessary before applying new sealant. New sealant, backup materials, and preformed joint fillers should be nonstaining.
- Repair or replace any damaged windows. If a window replacement is required, replace with new energy efficient windows to match existing.
- Repair or replace deteriorating weatherproofing between all exterior doors and their frames, where necessary, to prevent air leakage.

Roof

The Human Services Building has a main roof at the top of the building, a Penthouse roof, and a roof around the perimeter of the Ninth Floor which includes the outdoor patio area. It was reported that the roofing systems were last replaced when the building was renovated in 1987. The roofing systems are now approximately 27 years old and are in generally poor condition overall. The roofing membrane exhibits widespread deterioration

(see Fig. 2.1.A.15 and Fig. 2.1.A.16) and it was noted that the aggregate is generally separating from the membrane and is collecting along the edges of the roof (see Fig. 2.1.A.17). The roofing membrane has been patched in a number of locations and these patches are also showing signs of deterioration with cracking observed around the edges (see Fig. 2.1.A.18). The roofing membrane around the metal attachment clips securing the lightning protection cables to the roof is also deteriorating, leaving the system open to water penetration (see Fig. 2.1.A.19).

Corrosion was observed in several spots around the roof. The metal access hatch cover to the Penthouse roof is corroding overall (see Fig. 2.1.A.20). The concrete just inside of the access hatch was further noted to be spalling and appears to have been infiltrated with water previously (see Fig. 2.1.A.21). There were areas of corrosion noted around the metal flashing (see Fig. 2.1.A.22). There were also spots of corrosion and spots of deteriorating sealant observed around the triangular, folded, decorative metal piece installed around the top perimeter of the Penthouse parapet (see Fig. 2.1.A.23). The roof drain covers throughout are generally corroding (see Fig. 2.1.A.24). The Ninth Floor patio drain cover has evidence of corrosion and also has soil collecting nearby which is allowing the growth of weeds (see Fig. 2.1.A.25).

The sealant along the flashing, between the flashing joints, and over the fasteners anchoring the flashing around the perimeter of the roof parapets is in generally poor condition throughout (see Fig. 2.1.A.26 and Fig. 2.1.A.27).

Fig. 2.1.A.15 General deterioration of the roofing membrane noted overall.

Fig. 2.1.A.16 General deterioration of the roofing membrane noted overall.

Fig. 2.1.A.17 Piles of aggregate separating from the roofing membrane are collecting at the corners of the roof.

Fig. 2.1.A.18 Previous repairs to the roof membrane were noted to be generally deteriorating throughout.

Fig. 2.1.A.19 Deterioration around the metal attachment clips of the lightning protection cable.

Fig. 2.1.A.20 Corroding access hatch at the Penthouse roof.

Fig. 2.1.A.21 Spalling concrete and evidence of water infiltration noted just inside the access hatch to the Penthouse roof.

Fig. 2.1.A.22 Corrosion of the flashing noted during the site survey visit.

Fig. 2.1.A.23 Spots of corrosion and deteriorating sealant observed around the triangular, folded, decorative metal piece installed around the top perimeter of the Penthouse parapet.

Fig. 2.1.A.24 Typical corroding drain cover noted throughout the roofing areas.

Fig. 2.1.A.25 Corroding drain cover located at the Ninth Floor patio with soil collecting nearby and allowing the growth of weeds.

Fig. 2.1.A.26 Typical deterioration of the sealant noted at the flashing around the roof.

Fig. 2.1.A.27 Typical deterioration of the sealant over the fasteners anchoring the perimeter flashing at the roof parapets.

Recommendations:

- Replace the existing roofs at the top of the building, the Penthouse, and around the perimeter of the Ninth Floor with new roofing systems to include a new membrane, roof drain covers, and flashing around the perimeter of the Penthouse and the parapets.
- Repair or replace the corroding access hatch at the Penthouse roof. Also repair or replace the spalling concrete just inside of the access hatch.
- Repair or replace the corroded portions of the triangular, folded, decorative metal piece installed around the top perimeter of the Penthouse parapet. Also remove any existing sealant along the seams and replace with new, approved sealant.
- Remove any dirt and debris collecting at the Ninth Floor patio area to prevent the growth of weeds and deterioration of the concrete pavers.

Entrance Canopies

There is some minor spalling of the concrete under the main Sherman Street Entrance canopy along with evidence of water damage (see Fig. 2.1.A.28).

Fig. 2.1.A.28 Water damage and minor spalling of the concrete noted at the canopy of the main Sherman Street Entrance.

Recommendations:

- Determine the cause of the water damage at the main Sherman Street Entrance canopy and repair as necessary.
- Repair or replace spalling concrete at the main Sherman Street Entrance canopy.
- Clean soiled/stained concrete canopy at the main Sherman Street Entrance.

Site Elements

The low concrete retaining walls around the exterior of the building appear to be in fair to poor condition overall with general deterioration and wear-and-tear noted (see Fig. 2.1.A.29). The concrete coping pieces were cracked in a few locations (see Fig. 2.1.A.30). The coating was noted to be wearing off in a number of spots around the exterior (see Fig. 2.1.A.31). The top surface, of the low concrete retaining walls, appears to be flat and is likely allowing water to pool on the surface and cause damage to the walls. The readily observable portion of the south concrete retaining wall, viewed from the east end is spalling at the top around a corroding metal pipe and at the corner edge. The concrete paver below this portion of the retaining wall is spalling and there is an exposed portion of a corroding metal pipe extending up into the walking surface, both of which are creating a potential tripping hazard (see Fig. 2.1.A.32).

The concrete at the south loading dock was observed to be spalling and cracking and the railing along the side was observed to be corroding (see Fig. 2.1.A.33 and Fig. 2.1.A.34).

Fig. 2.1.A.29 Typical wear-and-tear and deterioration of the low concrete retaining walls around the exterior of the building.

Fig. 2.1.A.30 Cracked concrete coping noted in a few spots along the low retaining walls during the site survey visit.

Fig. 2.1.A.31 Typical instance of deteriorating coating noted at the low concrete retaining walls.

Fig. 2.1.A.32 Spalling and corrosion noted at the east end of the south concrete retaining wall and at the concrete paver located in front of the wall.

Fig. 2.1.A.33 Spalling and cracking concrete noted at the south loading dock.

Fig. 2.1.A.34 Spalling and cracking concrete and corroding guardrail noted at the south loading dock.

Recommendations:

- Repair or replace any damaged portions of the low concrete retaining walls around the exterior of the building.
- Install new concrete coping pieces along the top edge of the low concrete retaining walls around the building with a sloped surface that will prevent water from pooling.
- Remove the existing coating from the low concrete retaining walls around the exterior of the building and apply a new, approved exterior-grade coating to seal and protect the concrete.
- Repair or replace the spalling and corroded portion of the east end of the south concrete retaining wall.
- Repair or replace the spalled section of the concrete paver located in front of the east end of the south concrete retaining wall. Also remove

the portion of the corroding metal pipe extending above the walking surface.

- Repair or replace the spalling and cracking concrete at the south loading dock, including the concrete steps.
- Repair or replace the corroding railing at the south loading dock.

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 10 stories tall and has a total floor area of 145,370 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.

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 Human Services 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 with an approved sprinkler system in a B-type occupancy is 100 feet with an occupant load greater than 30. The plans provided by the Owner appear to indicate that the common paths of egress travel throughout the building, as it currently exists, comply with this code requirement. The floor plans for the Basement Floor were not provided. The greatest common path of egress travel and the greatest distance of travel that exists from the most remote point of the Basement Floor should be verified. 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 plans.

According to Table 1016.2 of the IBC (2012), the exit access travel distance in a B-type occupancy with a sprinkler system is 300 feet. The approximate greatest distance of travel that exists from the most remote point on any of the Human Services Building's floor plans to an exit stairway is 149 feet according to the plans provided by the Owner, which is well within the 300 feet allowed. Depending on the fire-resistance ratings of the interior exit stairways, the distance of travel through the stairways to a public way may be included in the greatest distance of travel calculation. If this is the case, then the approximate greatest distance of travel that exists from the northwest corner of the Tenth Floor to an exit discharge to a public way (traveling down through the southwest stairway to the First Floor and out through the south exit) is 416 feet. If the building undergoes extensive renovation, the fire rating of the exit stairways could result in the travel distance through the stairways being included in the exit access travel distance. Assuming the interior exit stairways meet required fire-resistance ratings, the greatest distance of travel would only be measured to the exit stairway door instead of to the public way, which is well within the 300 feet allowed by code. 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.

The fire rating of the doors to the interior exit stairways is unknown.

According to Section 1022.2 of the IBC (2012), enclosures for interior exit stairways and ramps shall be constructed as fire barriers in accordance with Section 707. The interior exit stairway and ramp enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the interior exit stairways or ramps shall include any basements, but not any mezzanines. Interior exit stairways and ramps shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours. The Human Services Building has 10 stories including a ground floor and a basement and must therefore provide a fire-resistance rating of not less than 2 hours at the interior exit stairways. Further, according to Table 716.5 of the IBC (2012), where fire walls and fire barriers have a required fire-resistance rating of 2 hours, the minimum fire door and fire shutter assembly rating is 1-1/2 hours. We assume that the interior exit stairways meet the code requirements but were unable to confirm the fire-resistance ratings.

It was noted throughout the building that there are locations where furniture has been placed within the aisles serving as a portion of the exit access in the means of egress system (see Fig. 2.1.B.1). According to Section 1017.3, aisles in a Group B Occupancy shall not be less than 36 inches. It appears that the furniture observed in these spaces may be intruding into the minimum required width and should be addressed immediately and regardless of any future renovation plans. The occupancy loads of each floor should be verified as part of any future renovation plans.

Fig. 2.1.B.1 Furniture that appears to be intruding into the minimum width of the aisle serving as a portion of the exit access.

Recommendations:

- Verify the fire-resistance ratings of the existing interior exit stairways and doors and upgrade as necessary.

- Remove any furniture intruding into the aisles serving as a portion of the exit access in the means of egress system throughout the building, as necessary, to provide the minimum required corridor widths per code requirements.

Fire Suppression Systems

There is a fully automatic sprinkler system throughout the building. The building is also equipped with a smoke evacuation fan located at the lower roof level. It was reported that the smoke evacuation system works by pressurizing the floors that are not on fire.

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 railing systems, including the railing system at the Ninth Floor patio, exceed guardrail opening limitations, easily allowing passage of a sphere 4 inches in diameter (see Fig. 2.1.B.2 and Fig. 2.1.B.3). 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.

There were issues noted with the stair dimensions and details, within the interior exit stairways, during the site visit. The stair treads are roughly 10-1/2 inches in depth (see Fig. 2.1.B.4). According to Section 1009.7.2 of the IBC (2012) and to Section 504.2 of the ICC/ANSI A117.1-2003, stair treads shall be 11 inches minimum in depth.

Fig. 2.1.B.2 The distance between the guardrail openings in the interior exit stairways exceeds 4 inches in diameter.

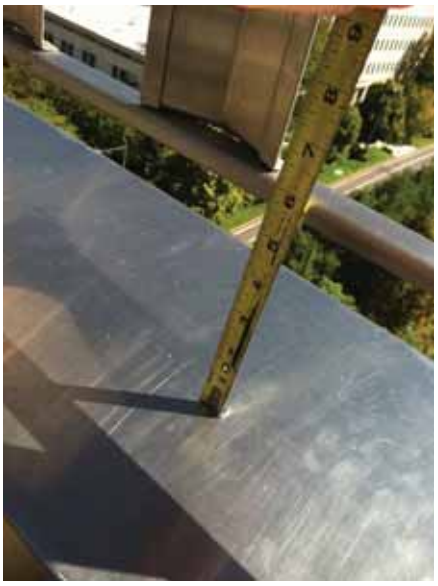

Fig. 2.1.B.3 The distance between the guardrail openings at the Ninth Floor patio exceeds 4 inches in diameter.

Fig. 2.1.B.4 Existing stair tread depths do not meet current code requirements.

Recommendations:

- Replace the existing interior exit stairway railing systems and the Ninth Floor patio railing system with new railing systems in compliance with code requirements.

Doors

The interior doors throughout the building appear to be to code with lever-style door handles noted throughout. It was reported that all of the stairway door hardware needs to be replaced with exit hardware.

Recommendations:

- Further investigation is recommended prior to replacing the stairway door hardware with exit hardware. Exit hardware that complies with code requirements should be installed as required.

Security

The Sherman Street Entrance on the east side of the building is the means of public access to the building. There is a guard stationed at a desk in the lobby of the Sherman Street Entrance and check-in with state-issued identification is required for all visitors (see Fig. 2.1.B.5). There is a security camera installed within the vestibule space of the Sherman Street Entrance. It was reported that the security requirements for this building are higher than normal due to the requirements of the Human Services programs and HIPPA.

Fig. 2.1.B.5 Guard station in the lobby of the Sherman Street Entrance with check-in required for visitors.

2.1-C GENERAL ACCESSIBILITY ISSUES

The restrooms throughout the building appear to generally comply with accessibility standards. The restrooms have signage indicating wheelchair accessibility, however only a few restrooms throughout the building provide a wheelchair accessible toilet compartment, with notable examples located on the First Floor (Women's Restroom), Fourth Floor (Men's Restroom), and the Tenth Floor. The remaining restrooms provide an ambulatory toilet compartment. Each of the Men's Restrooms appears to have a minimum of one accessible urinal. The restrooms on the Ninth Floor each include a shower, which does not appear to be accessible.

It was noted that a number of the otherwise accessible restroom lavatories throughout were not wrapped with insulation (see Fig. 2.1.C.1). The non-accessible lavatory pipes were noted to have been wrapped with insulation instead of the accessible lavatory pipes in the Women's Ground Floor Restroom (see Fig. 2.1.C.2). 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. It was also noted that the restrooms included in the site survey visit were not equipped with automatic door openers for accessible access to and from the space. It was reported that the restrooms need accessible operators with remote transmitters.

It was noted that the electrical receptacles located within 6 feet of the outside edges of the sinks throughout the restrooms were generally grounded but were not equipped with ground-fault circuit interrupters (GFCI) (see Fig. 2.1C.3). According to Section 210.8(B)(1) of the National Electrical Code (2011), GFCI protection is required in bathrooms. Further, according to Section 210.8(B)(5) of the National Electrical Code (2011), GFCI protection is required where receptacles are installed within 6 feet of the outside edge of a sink.

Fig. 2.1.C.1 Typical instance of an accessible lavatory without insulation wrapped around the pipes.

Fig. 2.1.C.2 The non-accessible lavatory in the Women's Ground Floor Restroom is wrapped with insulation around the pipes while the accessible lavatory has no insulation wrapped around the pipes.

Fig. 2.1.C.3 Typical instance of an electrical receptacle, not equipped with ground-fault circuit interrupter protection, located within 6 feet of the edge of a sink.

The drinking fountains throughout the building appear to comply with general accessibility requirements.

Both generally accessible sinks and non-accessible sinks (see Fig. 2.1.C.4) were observed in the Break Rooms throughout the building.

Fig. 2.1.C.4 Typical instance of a non-accessible sink found in a Break Room.

Recommendations:

- Reconfigure restrooms, without a wheelchair accessible toilet compartment, to provide a minimum of one wheelchair accessible toilet compartment per restroom where possible.
- If possible, install automatic door openers at the restrooms throughout to provide accessible entry and exit.
- Install insulation around accessible lavatory pipes where not provided.
- Install ground-fault circuit interrupter (GFCI) protection at all electrical receptacles required to be equipped with GFCI protection per the National Electrical Code (2011).
- Replace any non-accessible sinks in the Break Rooms throughout where possible.

2.1-D ELEVATORS

It was reported that a project to upgrade the elevators was in progress at the time of the site survey visit.

2.1-E ENVIRONMENTAL

It is our understanding that there are currently no known environmental issues with the Human Services Building. However, based on the construction date of the building, it is possible that surfaces are painted with paint containing lead.

Recommendations:

- Sampling for lead paint must be completed if any painted surfaces will be sanded.

- Based on the age of the building, determine if there are any environmental issues associated with the ceiling system throughout the Human Services Building and address any issues as necessary.

2.1-F PLANNED AND ON-GOING PROJECTS

It was reported that a project to upgrade the elevators was in progress at the time of the site survey visit.

2.2 STRUCTURAL

2.2-A EXTERIOR BUILDING

The exterior planters at the north and east sides of the building appeared to be undergoing some repairs to irrigation systems at the time of our observations.

The paint on the outside of the concrete planters is bubbling and peeling in multiple locations. These damaged locations could allow water to penetrate the concrete structure, possibly contributing to corrosion of reinforcing bars and subsequent spalling of the concrete (Fig. 2.2.A.1).

Fig. 2.2.A.1

At the north side of the building, one of the planters abuts a mechanical well. There appears to have been some differential movement across a joint in the concrete here, evidenced by differential height and failed sealant joint (Fig. 2.2.A.2).

Fig. 2.2.A.2

A downspout at the south side of the building empties directly at grade and at the building line (Fig. 2.2.A.3). It was reported that the dock wall in this location is deteriorating and should be repaired.

Fig. 2.2.A.3

Sealants at the joint between the sidewalk and building exterior have failed along the entire south side of the building (Fig. 2.2.A.4). Any drainage from the downspout noted above could result in water penetration below the sidewalk along this joint.

Fig. 2.2.A.4

The stucco finish accessible from the second high roof showed evidence of cracking and a potential for water penetration (Fig. 2.2.A.5).

Fig. 2.2.A.5

An existing patch through the concrete in the mechanical penthouse roof showed evidence of leakage (Fig. 2.2.A.6).

Fig. 2.2.A.6

The sealant at joints and over screws anchored through perimeter flashing at roof parapets has failed (Fig. 2.2.A.7).

Fig. 2.2.A.7

The exterior patio and terrace area at ninth floor showed evidence of concrete surface wear. It is possible that the existing drainage system has failed at this location, causing water damage and the visible spalling of concrete (Fig. 2.2.A.8).

Fig. 2.2.A.8

Recommendations:

- Coatings on the exterior planters should be removed. Future coatings, if desired, should be applied and maintained to avoid cracking or blistering.
- Sealants at the joints of concrete planters should be removed and replaced.
- The downspout at the south side of the building should be extended at least three feet beyond the building line or otherwise directed away from the building footprint.
- Sealant at the joint of sidewalk to the building's south side should be removed and replaced.
- Cracks in the stucco should be patched.
- The leak in the penthouse roof should be further investigated to determine the source.
- Remove and replace sealant at roof parapet flashing.

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

At direction of our escorts, we were unable to open ceiling tiles at this building. Consequently we were unable to view the majority of the building structure.

There was no immediately observable evidence of structural problems in finishes.

Some cracking and spalling was observed at the cast-in-place concrete at the penthouse and mechanical room roofs (Fig. 2.2.B.1). The cracks are minor, and spalls either appeared to be due to post-installed anchors in the majority of locations, or were not new conditions for the structure as evidenced by paint and lack of staining.

Fig. 2.2.B.1

There was also evidence of spalling at the building basement, again, mostly due to post-installed anchors or penetrations through the cast-in-place concrete structure (Fig. 2.2.B.2).

Fig. 2.2.B.2

Recommendations:

- Monitor the spalled areas of concrete for additional evidence of cracking (debris on the floor, water intrusion, etc.).

The item noted above does not pose any structural loading issues based on the current use. The stated repair is intended to maintain performance and reduce further deterioration.

2.2-C FALL PROTECTION

Parapets were minimal (approximately 12" high) along the edges of the two high roofs (Fig. 2.2.C.1 and Fig. 2.2.C.2), and no systems were provided for fall protection.

Fig. 2.2.C.1

Fig. 2.2.C.2

There were many regularly-spaced metal hoops anchored at the building exterior for the entire perimeter of the ninth floor patio and terrace area (Fig. 2.2.C.3). It was unclear what the intent of these hoops was, but if they are not to be used as window washing anchors or fall protection anchors (unlikely, as the roof edge at the ninth floor is protected by a full height guardrail) then they should be labeled as such.


Fig. 2.2.C.3

Parapets should be at least 42 inches tall or fall protection anchorage provided for access near the exposed edges to meet current safety codes.

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 State Human Services Building is located at the southwest corner of East 16th Avenue and Sherman Street with an address of 1575 Sherman Street in Denver, Colorado. The building is bordered by office buildings to the west and east, a parking lot to the north, and a secure parking facility and the State Services Building to the south. The State Human Services building site is approximately 0.6 acres. The existing site consists of the building and street right-of-way including sidewalk and landscaping. There is an alleyway located to the west of the building separating the building from an office building. The main building entrance is accessed from Sherman Street (Fig. 2.3.A.1). The site surrounding the building is consistent with a building approximately 55+ years old.

NOTE: Descriptions of existing infrastructure contained herein are based on public utility information provided by the City and County of Denver. 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, Denver GIS, etc.

Figure 2.3.A.1 – State Human Services Building Sherman Street Entrance

Grading and Drainage

The site slopes generally from east to west at grades ranging from 1-10%. The high point of the site is at the southeast corner of the building. The site slopes east towards Sherman Street at approximately 1-2%. The site slopes

away from the building towards East 16th Avenue with a large wall and 2% across the hardscape. East 16th Avenue slopes west at a steep slope of approximately 6-7%. Existing runoff is conveyed overland towards the streets. Runoff is collected by a street inlet and conveyed by storm sewer west within East 16th Avenue. Runoff within the alleyway to the west is collected by an area drain and conveyed westerly within East 16th Avenue.

The Sherman Street entrance is accessed via a concrete walkway (Fig. 2.3.A.2). The building is set back from the public sidewalk and treelawn (Fig. 2.3.A.3). Treelawns are generally flat containing grass and established trees. The perimeter of the building features landscaped areas contained within small concrete walls. These areas appear to be in the process of landscape improvements and at the time of the site assessment contained disturbed bare soil (Fig. 2.3.A.4 & 2.3.A.5).

The foundation of the building appears to be stable. No settlement was observed.

Figure 2.3.A.2 – Sherman Street Entrance Concrete Walkway

Figure 2.3.A.3 – Public Sidewalk and Treelawn on east side of Building, Looking North

Figure 2.3.A.4 Landscape Beds in the process of improvement

Figure 2.3.A.5 Landscape Beds at the building entrance in the process of improvement

The site is located in the Denver Storm Drainage Master Plan Basin 4600-01 (Central Business District). This basin consists of 2.67 square miles and conveys the 2, 5, and 100 year storm event via both storm sewer and roadway conveyance. Runoff from the major basin is conveyed westerly to Cherry Creek, ultimately discharging to the South Platte River. Within this basin, storm sewer facilities typically are designed to convey the 5-year rainfall event at a minimum and it is assumed the same for this area of the City.

The effective Flood Insurance Rate Map (FIRM Map Number 0800460201G, effective date November 17, 2005) 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. There are multiple utility lines located nearby within the public streets. The building service line appears to connect to an 8" water main within Sherman Street which is connected to a 12" main within East 16th Avenue. There is a fire hydrant located at the northeast corner of East 16th Avenue and Sherman Street. There are no known water pressure problems at this time.

The building is served by a sanitary sewer service line connecting to a 9" sanitary sewer main within the alleyway to the west. Sanitary sewer is routed northerly at an estimated slope between 0.5 and 0.75%. The 9" line within the alleyway is tributary to a larger 12" line within East 16th Avenue which flows westerly at a slope of 4%. There are no known sanitary sewer capacity problems at this time.

The existing storm sewer within East 16th Avenue is quite small at 12" in diameter. This line collects the site runoff from the inlet located near the northeast corner of the building at the Sherman Street and East 16th Avenue intersection. This storm is part of the West Colfax Avenue Outfall storm sewer that is planned to be upsized per the City and County of Denver Master Plan dated June 2009. The upsizing will provide 5-year capacity in the storm sewer. The line adjacent to the building is planned to be upsized to 18" but it is unknown when these improvements will be constructed. There is no storm sewer within Sherman Street.

Existing dry and regulated utilities (electric and telecommunications) are assumed to be located in East 16th Avenue.

It was reported that utility lines to this building are exposed to the elements in the parking pit since the parking garage was demolished. It is recommended that these utilities be insulated, protected or encased.

Recommendations:

- Insulate, protect or encase utilities exposed to the elements.

Site Paving

Numerous locations of broken concrete and concrete cracking were observed. Repair or replace broken or cracked concrete, especially at the loading dock and the steps to the loading dock.

Figure 2.3.A.6 Site Concrete Crack

Figure 2.3.A.7 Site Concrete Crack

Figure 2.3.A.8 Broken Concrete within ROW, Recommended for Replacement

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

Recommendations:

- Cracks approximately 1/8" 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 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.

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 however there is no ADA or public parking available on the street adjacent to the building entrance.

Site slopes were analyzed by visual inspection and topography provided by the City and County of Denver for drainage and ingress and egress. 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 appears to have these slopes. Major ponding was observed in two locations: along the west flowline of Sherman Street and in the area south of the building, adjacent to the gated parking area (Fig. 2.3.B.1, 2.3.B.2 and 2.3.B.3). Water is collecting along the landscaped wall at a depth of 2+ inches. The wall appears to have holes for drainage up to 4 inches above the bottom of the wall but these holes are not efficiently draining water. 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. In the winter, the water will freeze and become ice. The standing water will also create more opportunity for concrete cracking and deterioration. It is recommended that this area be corrected for drainage. A trench drain along the face of the wall, local area drains or more functional weep holes may need to be installed. The area may also need to be re-graded and concrete replaced.

Figure 2.3.B.1 Standing Water

Figure 2.3.B.2 Standing Water

Figure 2.3.B.3 Standing Water

The roadway curb surrounding the site is generally in poor condition and should be replaced with any building improvements. All improvements within the public right-of-way should comply with and be coordinated with the City and County of Denver.

Recommendations:

- Install handrails in ADA paths where slopes exceed 5%.
- Correct drainage in areas of standing water by installing drains or re-grading and replacing concrete.
- Replace roadway curb surrounding the site.

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

Feeding the building from the basement electrical medium voltage room is a 1500kVA transformer which takes the voltage from 13.2kV to 480V. The main gear is located in the main electrical room in the basement is a 25+ year old 480/277V, 2500A switchboard. New sections have been added to this switchboard. A 750kVA diesel generator located in the generator room provides emergency power to the building through an automatic transfer switch (ATS). The fuel tank for the generator is located in the adjacent room. There are multiple panelboards and transformers in the main electrical room and other rooms in the basement.

On floors, one through ten, the electrical room is located behind the elevators. Each electrical room has one 480/277V panelboard, one 75kVA transformer that steps down the voltage from 480V to 208/120V, and two 208/120V panelboards. This gear appears to be less than 25 years old and is in good condition.

Recommendations:

- The main gear sections that are 25+ years old need to be replaced.
- All panelboards past their useful life should be replaced including the wire feeding the panelboard for the main source.
- Replace all of the 25+ year old receptacles and wire from the associated panelboards.

Lightning Protection

Lightning protection equipment is located on the elevator machine room penthouse roof and the lower roof. It was observed that air terminals are lying on the roof and wire that is no longer supported properly (see Fig. 2.4.A.1).

Fig. 2.4.A.1 – Broken air terminals

Recommendations:

- The lightning protection system is in poor condition and needs to be repaired. The system will not perform as intended in the current condition.

Lighting

The lighting fixtures appear to be less than 20 years old and are T8 fluorescent type (see Fig. 2.4.A.2). The building is on a building management system that controls the time the lights are on in the open office spaces. There is an override button located by the entryway of every space. The elevator lobby areas and the main lobby have recessed can light fixtures with compact fluorescent bulbs. It was noticed that the stair well leading up to the penthouse was poorly lit (see Fig. 2.4.A.3). Also, it was reported that the exterior lighting is insufficient and should be replaced.

Fig. 2.4.A.2 – Recessed light fixture

Fig. 2.4.A.3 – Light fixture

Most of the emergency lighting appears to be frog eye type and exit signs are located throughout. It's unknown from the survey if these fixtures have battery backup or they are on the generator.

Recommendations:

- Upgrade all lighting to new LED light fixtures with more local switching, occupancy sensors, and daylight sensing. This can be accomplished as one big project or as spaces are remodeled. For the historical fixtures, LED replacement bulbs could be installed. This will reduce maintenance cost and save on energy.
- The lighting in the stair well on the 10th floor up to the penthouses is too dim. An average of five foot candles of normal lighting and one foot candle of emergency lighting is required.
- Update the existing exterior lighting with new.

Fire Alarm

The fire alarm system appears to be less than five years old and has full detection in the building with elevator recall (see Fig. 2.4.A.4). There are fire fighter phones throughout the building (see Fig. 2.4.A.5). The fire alarm system appears to be in general compliance with current codes.

Fig. 2.4.A.4 – Smoke detector and horn strobe

Fig. 2.4.A.5 – Fire fighter phone

General Power

Most of the receptacles in the building appear to be more than 20 years (see Fig. 2.4.A.6). These receptacles are past their useful life and need to be replaced since they may not work properly to prevent someone from an electrical shock. It was reported that many of the furniture whips have been abandon and require removal of the wiring back to the panelboard. Also the kitchens and break rooms need more circuits. Some of the circuits are overloaded.

Fig. 2.4.A.6 – Receptacle

Recommendations:

- Remove abandon furniture whips wiring back to the panelboard.
- Add circuits where the exiting circuits are overloaded.

Electrical for Mechanical System

At the time of our site visit, the elevator controls where being worked on (see Fig. 2.4.A.7). They appear to be at the end of their useful life and due for an upgrade.

Fig. 2.4.A.7 – Elevator machine controls

Emergency Power

The emergency power comes from a 750kVA diesel generator located in the basement generator room. It was reported that the generator was pass its useful life and the first floor data center requires additional power.

Recommendations:

- Replace the diesel generator with a new one sized for the current load and spare for future loads.

MECHANICAL SYSTEMS

Major renovations to the mechanical systems were completed in 1986. The building receives chilled water from a central power plant and uses steam for heating. The HVAC system consists of two Temtrol central Air Handling Units (AHUs) located in the basement. The AHUs have steam heating coils and chilled water cooling coils. The return air and outside air fans are also located in the basement. These units distribute air to all floors. The units appear to be in good working condition.

The heating hot water for the building is generated by steam in heat exchangers located in the basement. Two variable flow hot water pumps are used for hot water distribution to the terminal units. It was observed that insulation is missing on portions of hot water piping (see Fig. 2.4.A.9). The air distribution in the spaces is via overhead ductwork and VAV boxes. The spaces are heated by perimeter hot water baseboards interlocked with VAV boxes. The baseboards have wall mounted thermostats for temperature control. The chilled water and hot water distribution in the building is variable flow distribution. Stairwells and mechanical rooms are heated with hot water unit heaters. The toilet exhaust is via roof mounted exhaust fan.

The elevator machine room in the penthouse is air-conditioned by a dedicated Trane DX roof top unit (see Fig. 2.4.A.8).

The transformer room in the basement is providing cooling via the main AHU. Exhaust fans are used for cooling the electrical rooms. Toilets are exhausted via roof mounted central exhaust fan. There is not exhaust heat recovery provided for the toilet exhaust fan (see Fig. 2.4.A.10).

Most motors have VFD's which help with energy efficiency.

The building has sprinklers on all floors and standpipes are provided in the stair well. The fire service entry is in the basement and the fire pump is located in the basement. Smoke exhaust fans/stairwell pressurization fans are located in the lower penthouse.

The building has a separate domestic water line in the basement. A booster pump set is used for domestic cold water distribution in the building. Domestic hot water is generated by steam in a heat exchanger located in the basement. The hot and cold water mains don't have isolation valves. Also janitor closet and kitchen don't have clean outs for snaking the drains.

Fig. 2.4.A.8 – RTU serving elevator machine room

Fig. 2.4.A.9 – Missing insulation on pipes

Fig. 2.4.A.10 – Toilet exhaust fan

Recommendations:

- VAV boxes appear to be not sized to meet the zone heating and cooling loads. Verify the sizes of the VAV boxes and replace the oversized/undersized boxes with new VAV boxes sized to meet the load.
- Upgrade the existing Siemens controls to fully Direct Digital Controls system.
- Provide duct work for air distribution in the elevator machine room. Presently, air is being supplied at a single location, which creates hot spots in the space.
- Provide missing insulation on pipes. This will reduce heat loss. Investigate the possibility of providing heat recovery on the toilet exhaust to pre-condition outside air for AHUs/RTU. This will save cooling and heating energy for conditioning the outside air. Verify control sequences and ensure energy saving control sequences are employed, such as supply air temperature reset, economizer cycle operation, and hot water temperature reset.
- Investigate the possibility of providing dedicated condensing hot water boilers or connecting this building to the boiler plant in the 1525 Sherman Street building.
- Provide isolation valves on hot and cold water mains.
- Provide clean out for janitor closet and kitchen for snaking the drain pipes.

2.4-B CODE ISSUES

ELECTRICAL CODE ISSUES

Recommendations:

- Repair the lightning protection system (see Fig. 2.4.B.1).

- Install more light fixtures in the dim stairwells to provide an average of five foot candles of normal light and one foot candle of emergency lighting.

Fig. 2.4.B.1 – Broken air terminals and wire hanging

MECHANICAL CODE ISSUES

It appears that the amount of outside air delivered to each space may not be per code. There are missing fire dampers and unsealed openings in fire rated walls.

Recommendations:

- Verify code required minimum outside air is provided to each space.
- Verify fire dampers are provided at each duct penetration through fire rated construction. Verify all openings in the rated fire walls are sealed as required by code.

2.4-C PLANNED AND ON-GOING PROJECTS

No projects have been reported at this time.

2.5 VOICE AND DATA

2.5-A OVERVIEW OF EXISTING SYSTEMS

Findings

Note SMW provided voice/data survey and assessment scope for this building on March 25, 2014.

- This facility is complete as far as the data center consolidation process goes. There is only one rack remaining with active equipment in it.
- However, the room is full of surplus stuff. The surplus equipment is housed in an air-conditioned room and the equipment does not require this.
- There is 18 inches of floor space below the raised floor.
- Reportedly, there is no grounding bar in the data center.
- In recent history some users because of Zinc whiskers coming off equipment like galvanized racks and flooring components have vacated this facility.
- Cabling in the building runs through the elevator shaft.
- Reportedly, utility lines to this building are exposed to the elements in the parking pit since the parking garage was demolished.

Recommendations:

The recommendations and guidelines within this section shall establish the Basis of Design for the IT Infrastructure portion of the renovation of the Human Services 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 second IDF room on each floor, vertically stacked as a second 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 to 45 foot spacing or on 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 major 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 Human Services 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 security considerations for this building should be of higher concern based on the services provided at this location accommodating HIPPA and Human Services programs. It was also 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 Human Services 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.

The State's existing wireless duress alarm system infrastructure should be expanded where needed to support new locations of wireless duress buttons. CSP Central Command Center monitors a wide network of wireless duress buttons at multiple, local State facilities in Denver. This is accomplished using wireless mesh coverage by use of repeaters located on the State facilities. Fixed point wireless duress buttons may be located at designated points within the building, for staff use in emergency situations. The duress system will utilize wireless duress buttons, which transmit RF signals to an infrastructure of wireless RF receivers and repeaters. System repeaters will be provided where necessary to boost the strength of the wireless signals. Duress alarms in the building are to incorporate this technology, and duress alarms within the complex will be monitored by the existing CSP head-end system.

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. 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 Human Services 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

Wireless 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, wireless duress 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)
- City of Denver Access Control Code
- 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 Human Services building currently.

3.0 FLOOR-BY-FLOOR ASSESSMENT FINDINGS AND RECOMENDATIONS

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 the Human Services Building was renovated back to the structure in 1987. The office areas throughout the First Floor were reported to have been recently renovated with new carpet, freshly painted walls, and new cubicles. It was noted that the 2x2 acoustic ceiling tiles throughout this space are in fair to poor condition with signs of deterioration and do not appear to have been part of the renovation.

Ceiling Finishes

The gypsum board ceilings throughout the main Sherman Street Entrance, First Floor elevator lobby, restrooms, and stairways appear to be in fair condition overall. It was reported that the 2x2 and 2x4 acoustic ceiling tiles throughout the office spaces, central service corridors, and elevator lobbies were replaced a couple of years ago with the installation of a new fire alarm system. However, it was noted throughout that the 2x2 and 2x4 acoustic ceiling tiles are in fair to poor condition with damage, deterioration, sagging, and signs of water damage (see Fig. 3.0.C.1 through Fig. 3.0.C.5). It was reported that building occupants believe there may be hazardous materials present in the drop ceilings.

It was observed in a number of locations that the exit signs do not appear to be properly supported at the ceiling, with the acoustic ceiling tiles cracking in these locations, creating unsafe conditions for building occupants (see Fig. 3.0.C.6).

Fig. 3.0.C.1 Typical cracked acoustic ceiling tile noted during the site survey visit.

Fig. 3.0.C.2 Deteriorating ceiling tiles noted during the site survey visit.

Fig. 3.0.C.3 Deteriorating ceiling tiles noted during the site survey visit.

Fig. 3.0.C.4 Sagging ceiling tiles noted during the site survey visit.

Fig. 3.0.C.5 Water damage noted to acoustic ceiling tiles during the site survey visit.

Fig. 3.0.C.6 Typical instance of a cracked acoustic ceiling tile noted at an exit sign that does not appear to be properly secured to the ceiling, creating an unsafe working condition for building occupants.

Wall Finishes

The newly painted gypsum board walls throughout the renovated First Floor office spaces are in good condition throughout. The gypsum board walls throughout the entrance lobbies, elevator lobbies, corridors, office spaces, and stairways are in fair condition overall. Areas of minor wear-and-tear to the gypsum board were noted (see Fig. 3.0.C.7 and Fig. 3.0.C.8). There were also a few instances of cracked gypsum board noted, mainly along the exterior walls (see Fig. 3.0.C.9). The vinyl baseboard along the gypsum board walls is in fair condition overall, showing general signs of aging and wear-and-tear. There were a small number of instances noted where the baseboard was missing or peeling away from the wall (see Fig. 3.0.C.10). There was also an instance noted where a piece of mismatched baseboard was installed next to the existing baseboard (see Fig. 3.0.C.11).

The two-inch square wall tile throughout the restrooms is in fair to poor condition throughout. Pieces of the tile appear to be moving out and away from the wall (see Fig. 3.0.C.12), areas of the tile appear to be generally soiled (see Fig. 3.0.C.13), and instances of damaged or missing tile were noted during the site survey visit (see Fig. 3.0.C.14).

There was a data outlet observed to be unsecured to the wall and hanging loose in the Fourth Floor office area (see Fig. 3.0.C.15). There were cables observed coming out of an unfinished hole in the wall in the Tenth Floor office area (see Fig. 3.0.C.16).

Fig. 3.0.C.7 Typical instance of minor wear-and-tear noted to the gypsum board walls.

Fig. 3.0.C.8 Wear-and-tear noted to the low gypsum board walls on either side of the ramp to the Ninth Floor patio.

Fig. 3.0.C.9 Cracked gypsum board noted below a window.

Fig. 3.0.C.10 Instance of damaged vinyl baseboard missing and peeling away from the wall.

Fig. 3.0.C.11 Instance of mismatched vinyl baseboard noted during the site survey visit.

Fig. 3.0.C.12 Pieces of the two-inch square wall tile throughout the restrooms appear to be moving out and away from the wall.

Fig. 3.0.C.13 Generally soiled areas of the two-inch square wall tile noted throughout the restrooms during the site survey visit.

Fig. 3.0.C.14 Damaged and missing two-inch square wall tile noted throughout the restrooms during the site survey visit.

Fig. 3.0.C.15 Data outlet not secured to the wall observed in the Fourth Floor office area.

Fig. 3.0.C.16 Cables observed coming out of an unfinished hole in the wall in the Tenth Floor office area.

Floor Finishes

The new carpet flooring throughout the renovated office spaces, including the break area, on the First Floor is in good condition overall. The carpet flooring throughout the office spaces and break areas in the rest of the building is in generally fair to poor condition with areas of soiling, deterioration, and spots where the seams were pulling loose and creating a potential tripping hazard (see Fig. 3.0.C.17 and Fig. 3.0.C.18).

The 1x1 granite tile flooring throughout the Sherman Street Entrance lobby and First Floor elevator lobby appears to be in fair condition overall with some soiling noted (see Fig. 3.0.C.19).

The 1x1 linoleum tile flooring in the central corridors and elevator lobbies throughout the rest of the building is in fair to poor condition overall with areas of soiling, damage, and cracking (see Fig. 3.0.C.20, Fig. 3.0.C.21, Fig. 3.0.C.22, and Fig. 3.0.C.23).

The two-inch square floor tile throughout the restrooms is in fair to poor condition throughout with areas of damage and soiling noted, including a substance that appears to be mold (see Fig. 3.0.C.24 and Fig. 3.0.C.25).

The concrete flooring on the Basement Floor is in fair to poor condition overall with spalling, cracking, general signs of wear-and-tear, and signs of water damage noted during the site survey visit (see Fig. 3.0.C.26, Fig. 3.0.C.27, and Fig. 3.0.C.28). It was reported that sealing water leaks from the old parking garage that used to be south of the building is on the Capitol Complex list of controlled maintenance projects that need to be addressed.

Fig. 3.0.C.17 Soiled carpet with seams pulling loose and creating a potential tripping hazard.

Fig. 3.0.C.18 Worn carpet with seams pulling loose and creating a potential tripping hazard.

Fig. 3.0.C.19 Soiled granite tile flooring noted at the Sherman Street Entrance vestibule.

Fig. 3.0.C.20 An instance of soiled and damaged linoleum tile observed during the site survey visit.

Fig. 3.0.C.21 An instance of deteriorating and soiled linoleum along the edges of the tiles.

Fig. 3.0.C.22 An instance of cracked linoleum tile observed during the site survey visit.

Fig. 3.0.C.23 Deteriorating and damaged linoleum tile noted at the ramp leading to the Ninth Floor patio.

Fig. 3.0.C.24 Generally soiled 2-inch square floor tile noted in the restrooms throughout.

Fig. 3.0.C.25 Soiled floor tile with a mold-like substance noted in a few of the restrooms throughout.

Fig. 3.0.C.26 Generally worn and spalling concrete flooring with signs of water damage on the Basement Floor.

Fig. 3.0.C.27 Generally worn, cracking, and spalling concrete flooring with signs of water damage on the Basement Floor.

Fig. 3.0.C.28 Evidence of water damage noted on the Basement Floor.

Other

The doors throughout are in generally fair condition with areas of minor wear-and-tear, especially at the bottom half, noted during the site survey visit (see Fig. 3.0.C.29).

The restroom stall partitions are in generally fair condition throughout with areas of wear-and-tear noted throughout (see Fig. 3.0.C.30). The counters throughout the restrooms are also in generally fair condition with areas of wear-and-tear and deterioration due to aging (see Fig. 3.0.C.31).

The railings throughout the stairways were noted to have signs of minor corrosion (see Fig. 3.0.C.32).

Fig. 3.0.C.29 Minor wear-and-tear observed to some of the doors throughout the building.

Fig. 3.0.C.30 Instance of wear-and-tear noted to toilet stall partitions during the site survey visit.

Fig. 3.0.C.31 Typical wear-and-tear and deterioration due to aging of the restroom countertops.

Fig. 3.0.C.32 Minor corrosion noted to the railings throughout the stairways.

Recommendations:

- Replace the acoustic ceilings throughout with new acoustic ceiling systems. Prior to removal, determine if any hazardous conditions exist at the ceilings.
- Determine whether exit signs are securely attached to the structure above and reinstall as necessary.

- Repair any areas of worn or cracked gypsum board walls throughout, with the exception of the newly renovated walls throughout the First Floor office areas. Determine the cause of the cracked areas of gypsum board walls and repair as necessary.
- Secure any loose data outlets or electrical outlets to the gypsum board walls throughout and complete any areas with cables coming out of unfinished holes in the walls.
- Repaint the walls throughout, with the exception of the newly renovated walls throughout the First Floor office areas.
- Remove the existing vinyl baseboard throughout and install new vinyl baseboard, with the exception of the newly renovated walls throughout the First Floor office areas.
- Replace all carpet throughout with the exception of the newly renovated floors throughout the First Floor office areas.
- Clean and refinish the granite tile flooring throughout the Sherman Street Entrance and the First Floor elevator lobby.
- Remove all linoleum tile flooring throughout and replace with new flooring. Determine the cause of cracked linoleum and repair as necessary prior to replacement.
- Demo the restrooms and reconfigure the spaces to include a wheelchair accessible toilet compartment where not currently provided. Install new finishes and partitions throughout. As part of the restroom renovation process, determine the cause of any water damage and repair as necessary.
- Repair any spalling, cracking, or otherwise damaged concrete flooring throughout the Basement Floor. Refinish concrete flooring with an approved coating system. Determine the cause of water damage and repair as necessary. It was reported that some of the water damage may be due to leaks related to the old parking garage that used to be south of the building.
- Refurbish any interior doors with minor wear-and-tear, especially along the bottom half of the doors.
- Replace the existing interior exit stairway railing systems per Section 2.1B Code Issues.

3.0-D STRUCTURAL

No structural concerns were noted on the First Floor through the Tenth Floor or on the Ground Floor. At the Basement Floor, minor cracking was observed in the concrete ceiling at the southwest corner. Signs of water intrusion were present. The cracks are not a structural concern at this time. See section 2.2 for structural observations and recommendations for all floors.

3.0-E VOICE AND DATA

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

3.0-F SECURITY SYSTEMS

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

4.0 LEVELS OF RENOVATION NEEDED

Building: Human Services Building, 1575 Sherman Street (Denver)

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

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5.0 COST ESTIMATES

SUMMARY OF SUMMARIES

Item No.	Description	SF	Total	$/SF
1	1575 Sherman	145,370	13,433,785	92.41
2	Contingency on Above		w/ Above	
	Subtotals:	**145,370**	**13,433,785**	**92**
3A	IT \ Teledata (Relocate Exstg Only)	99,087	435,699	4.40
3B	Move Management		See Add Alternate	
3C	Flex Space		Excluded	
3D	Public Art	145,370	155,492	1.07
4	Contingency on Above		Excluded	
	Equipment \ Art Subtotal:		**591,191**	**4**
	Base Price \ Equipment \ Art Subtotal:		**14,024,976**	**96**
5	Escalation - 6.75% per year		Excluded	
6	Contingency on Above		Excluded	
	Escalation Subtotal:		**Excluded**	
	Base Price \ Equipment \ Art \ EscalationSubtotal:		**14,024,976**	**96**
7	Design Fees at 8% per State of CO Direction		1,121,998	7.72
8	Contingency on Above		Excluded	
	Design Fee Subtotal:		**1,121,998**	**7.72**
	Base Price \ Equipment \ Art \ Design Fee Subtotal:		**15,146,974**	**104**

PROJECTED COST OF CONSTRUCTION IN 2014 DOLLARS	**15,146,974**	**104**

ADD-ALTERNATE				
9	Move Management	145,370	207,298	1.43
10	FF&E (FF&E SF & $25\SF Allowance per Architect)	99,087	2,477,175	25.00
11	Escalation - 6.75% per year		Excluded	
12	Contingency on Above		Excluded	
	Subtotals:		**2,684,473**	
	ADD-ALTERNATE SUBTOTAL:		**2,684,473**	**18**

SYSTEM BY SYSTEM SUMMARY

Item No.	Description	SF	Total	$/SF
1A	Replace Emergency Generator	145,370	438,599	3.02
1B	Escalation		Excluded	
	System 1 Replace Generator Subtotal:		**438,599**	**3**
2A	Replace Electrical Panels & Receptacles	145,370	3,848,536	26.47
2B	Escalation		Excluded	
	System 2 Replace Electrical Subtotal:		**3,848,536**	**26**
3A	ADA Upgrades	145,370	136,051	0.94
3B	Escalation		Excluded	
	System 3 ADA Upgrades Subtotal:		**136,051**	**1**
4A	Replace Roof	145,370	609,958	4.20
4B	Escalation		Excluded	
	System 4 Replace Roof Subtotal:		**609,958**	**4**
5A	Light Fixture & Control Upgrade	145,370	1,012,390	6.96
5B	Escalation		Excluded	
	System 5 Replace Exterior Sealants Subtotal:		**1,012,390**	**7**
6A	Balance of Project Scope	145,370	8,643,945	59.46
6B	Escalation		Excluded	
	Balance of Scope Subtotal:		**8,643,945**	**59**
	System by System Subtotal:		**14,689,479**	**101**
7	IT \ Teledata (Relocate Exstg Only)		435,699	3.00
8	Flex Space		Excluded	
9	Public Art		155,492	1.07
10	Contingency on Above		Excluded	
	Equipment \ Art Subtotal:		**591,191**	**4**
	Systems \ Equipment \ Art Subtotal:		**15,280,670**	**105**
11	Design Fees at 8% per State of CO Direction		1,222,454	8.41
12	Contingency on Above		Excluded	
	Design Fee Subtotal:		**1,222,454**	**8**
	Base Price \ Equipment & Art \ Design Fee Subtotal:		**16,503,123**	**114**
	PROJECTED COST OF CONSTRUCTION IN 2014 DOLLARS		**16,503,123**	**114**

ADD ALTERNATE				
13	Move Management	145,370	207,298	1.43
14	FF&E (FF&E SF & $25\SF Allowance per Architect)	99,087	2,477,175	25.00
15	Escalation - 6.75% per year		Excluded	
16	Contingency on Above		Excluded	
	Move Management Subtotal:		**2,684,473**	
	Add Alternate Subtotal:		**2,684,473**	**18**

FF&E DETAILED ESTIMATE - BASE

Estimate By:	Kyle Hoiland
Date:	10-Apr-14
Reviewed By:	Chris Squadra
Date:	10-Apr-14
Total Cost:	$3,068,366

	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	FF&E				
	Employee Workstations (1 employee:250 sf) Minor Repair to Existing Only	99,087	SF	25.00	2,477,175
	Small Conference Rooms (1 small room:2,500 sf)				w/ Above
	Large Conference Rooms				w/ Above
	SUBTOTAL FF&E				**2,477,175**

	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	IT\Teledata				
	AV / IT @ Large Conference Rooms	8	EA	6,053.57	48,429
	VOIP Telephone System	611	EA	324.09	197,875
	PC Workstations (relocate existing only; see below)				Excluded
	CAT 6E Data Cabling	611	EA	310.20	189,395
	State of CO Servers, Routers, Wireless Access and IT Equipment not listed above				Excluded
	SUBTOTAL IT\TELEDATA				**435,699**

	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	Flex Space				
	Flex Space for Multiple Moves and\or Tenant Holdover (per floor)				Excluded
	SUBTOTAL MOVE LEASED SPACE				**Excluded**

	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	Public Art				
	Art in Public Spaces Allowance at 1.0% of Construction Cost	1	LS	155,492.09	155,492
	SUBTOTAL PUBLIC ART				**155,492**

TOTAL COST -					**3,068,366**
					21

	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	Move Management				
	Moving Labor, Material, Equipment & Supervision (1 Moves)	581	EA	281.27	163,550
	Relocate PC Workstations (1 Moves)	581	EA	75.24	43,748
	SUBTOTAL MOVE MANAGEMENT				**207,298**

DETAILED ESTIMATE - SUMMARY

Item No.	Description	$/SF	Total	Total w/Burdens
DIV 2	EXISTING CONDITIONS	3.38	490,775	702,578
DIV 3	CONCRETE	1.90	276,633	396,019
DIV 4	STONE & MASONRY	0.42	61,392	87,886
DIV 5	METALS	1.43	207,428	296,947
DIV 6	WOODS & PLASTICS	1.58	229,028	327,868
DIV 7	THERMAL PROTECTION	4.04	587,961	841,706
DIV 8	OPENINGS, DOORS, WINDOWS	0.52	75,000	107,368
DIV 9	FINISHES	21.91	3,185,182	4,559,803
DIV 10	SPECIALITIES		EXCLUDED	
DIV 11	EQUIPMENT		EXCLUDED	
DIV 12	FURNISHINGS		EXCLUDED	
DIV 13	SPECIAL CONSTRUCTION		EXCLUDED	
DIV 14	CONVEYING SYSTEMS		EXCLUDED	
DIV 21	FIRE SUPPRESSION	10.62	1,543,829	2,210,096
DIV 22	PLUMBING	0.69	100,000	143,157
DIV 23	HVAC	4.00	581,480	832,428
DIV 26	ELECTRICAL	13.14	1,910,140	2,734,494
DIV 27	COMMUNICATIONS	0.28	40,122	57,438
DIV 31	EARTHWORK		EXCLUDED	
DIV 32	EXTERIOR IMPROVEMENTS	0.65	95,000	135,999
DIV 33	UTILITIES		EXCLUDED	
DIV 34	TRANSPORTATION		EXCLUDED	
	Subtotal Direct Construction Costs	**64.55**	**9,383,971**	**13,433,785**
	Allowance for Historical / Memorial Markers		100,000	
	Direct Cost Subtotal with GFP	**65.24**	**9,483,971**	
	Material Testing	0.35%	33,194	
	Owner's Design & Preconstruction Contingency	10.00%	948,397	
	Owner's Construction Contingency (after NTP)	5.00%	474,199	
	Permits	1.90%	180,195	
	Total Direct Construction Costs	**76.49**	**11,119,955**	
	Standard General Conditions (GC's Onsite Overhead)		1,255,694	
	Subtotal NET Construction Cost	**85.13**	**12,375,649**	
	GC's Off-Site Overhead & Profit	4.60%	564,680	
	GC's General Liability Insurance	0.90%	111,381	
	Construction Cost w/o Bonds & Escalation	**89.78**	**13,051,710**	
	Builder's Risk Insurance	1.50%	194,276	
	Performance & Payment Bond	1.20%	155,421	
	Bid Bond	0.25%	32,379	
	Tap Fees		Excluded	
	Bidding Reserves		Excluded	
	Total Estimated Cost of Construction	**92.41**	**13,433,785**	

DETAILED ESTIMATE

Estimate By:	Kyle Hoiland
Date:	09-Apr-14
Reviewed By:	Chris Squadra
Date:	09-Apr-14

Building GSF: 145,370 **Total Cost:** $9,383,971

DIV 02	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	EXISTING CONDITIONS / BUILDING DEMOLITION				
	Concrete Sawcutting & Grinding	1,500	LF	5.00	7,500
	Remove Sections of Concrete Site Wall	250	LF	32.80	8,200
	Remove Concrete at 9th Floor Patio	1,982	SF	3.46	6,853
	Asbestos Abatement (Allowance)				Excluded
	Demo Building Interior as needed	47,972	SF	2.00	95,944
	Demolition Disposal & Dumping Fees	8,884	CY	3.40	30,205
	High Pressure Wash @ Exterior Building	73,573	SF	1.40	103,003
	Remove Existing Caulking at Exterior Building Joints	12,278	LF	2.50	30,696
	Remove Dirt & Debris @ Roof (Allowance)	1	AL	12,000.00	12,000
	Scaffolding (erect & dismantle)	736	CSF	198.95	146,374
	Move Furniture for Egress (Allowance)	1	AL	50,000.00	50,000
	SUBTOTAL EXISTING CONDITIONS/DEMOLITION				**490,775**

DIV 03	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	CONCRETE / FOUNDATIONS				
	New Concrete Site Wall Replacement	25	CY	458.85	11,471
	New Concrete Coping at Sitewall	250	LF	48.00	12,000
	New Concrete Topping @ 9th Floor Patio Area	1,982	SF	11.55	22,896
	Repair Concrete Cracking & Spalling @ Interior Slabs / Concrete Walls / Ceilings	47,972	SF	4.80	230,266
	SUBTOTAL FOUNDATIONS				**276,633**

DIV 04	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	MASONRY				
	Exterior Stone Repair, where necessary				Excluded
	Recaulk Exterior Cut Stone Masonry Panels	12,278	LF	5.00	61,392
	SUBTOTAL MASONRY				**61,392**

DIV 05	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	METALS				
	Replace Interior Stair & Patio Railing (code compliance)	1,540	LF	128.20	197,428
	Fall Protection Systems (Allowance)	1	AL	10,000.00	10,000
	SUBTOTAL METALS				**207,428**

DIV 06	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	WOODS				

	Rough Carpentry Wood Materials	145,370	SF	0.75	109,028
	Rough Carpentry Labor	2,500	HRS	48.00	120,000
	**Time & materials for miscellaneous building shoring, safety railings/barricades, blocking, substrate repairs*				
	SUBTOTAL WOODS				**229,028**

DIV 07	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	THERMAL & MOISTURE PROTECTION				
	Stucco Patching/Repair @ Exterior & Penthouse	7,357	SF	9.50	69,895
	New Coatings at Exterior Planters	2,000	SF	9.50	19,000
	Remove & Replace Roof System	15,859	SF	14.90	236,292
	Waterproof Repair @ 9th Floor Patio	1,982	SF	18.75	37,168
	Waterproof Repair @ Main Sherman St Entrance Canopy	2,500	SF	18.75	46,875
	Metal Fascia, Flashings, & Trims Repair (Allowance)	1	AL	75,000.00	75,000
	Scuppers, Gutters & Downspouts Repairs (Allowance)	1	AL	25,000.00	25,000
	Insulation Repairs @ Impacted Areas	1	AL	10,000.00	10,000
	Miscellaneous Caulking & Sealants @ Interior	13,506	LF	5.00	67,531
	Replace Hatch @ Penthouse	1	LS	1,200.00	1,200
	SUBTOTAL THERMAL				**587,961**

DIV 08	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	OPENINGS				
	Door Replacement As Needed (Allowance)	1	AL	25,000.00	25,000
	Windows Replacement As Needed (Allowance)	1	AL	50,000.00	50,000
	SUBTOTAL OPENINGS				**75,000**

DIV 09	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	INTERIOR FINISHES				
	Gyp Bd Wall Patching	159,907	SF	1.10	175,898
	Gyp Bd Ceiling Patching	47,972	SF	3.10	148,714
	ACT Ceiling Repair / Tile Replacement	109,028	SF	3.21	349,978
	Gyp Bd Detailing @ Int Soffits, Cols, etc.	1	LS	25,000.00	25,000
	Replace All Carpet	109,028	SF	3.28	357,610
	Clean/Repair Natural Stone/Tile Flooring	36,343	SF	20.00	726,850
	Repair/Replace VCT	661	SF	1.80	1,189
	Vinyl Base	22,762	LF	2.20	50,076
	Wall Coverings Repair / Replacement	52,769	SF	3.90	205,800
	Clean/Repair Natural Stone/Tile @ Walls	52,769	SF	12.40	654,339
	Paint Gyp Bd Walls & Ceilings w/2 Coats Latex	207,879	SF	0.60	124,727
	Miscellaneous Accent Painting Allowance	1	LS	25,000.00	25,000
	Remove & Repaint Corrosion @ Existing Windows (Allowance)	480	EA	500.00	240,000
	Upgrade Fire Resistance of Stairs & Doors (Allowance)	1	AL	100,000.00	100,000
	SUBTOTAL INTERIOR FINISHES				**3,185,182**

DIV 10	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SPECIALITIES				
	Movable Office Partitions System				Excluded
	New Bath Hardware		AL	50,000.00	Excluded

	Fire Extinguishers (2 per floor)		EA	175.00	Excluded
	Corner Guards		EA	8.20	Excluded
	Code Required Signage		EA	55.20	Excluded
	Wayfinding Signage		AL	25,000.00	Excluded
	Access Ladders		EA	500.00	Excluded
	SUBTOTAL SPECIALTIES				**EXCLUDED**

DIV 11	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	EQUIPMENT				
	Refrigerator				Excluded
	Gas Range				Excluded
	Dishwasher				Excluded
	Microwave				Excluded
	Food Disposal				Excluded
	Appliance Installation				Excluded
	Accordion Wall Partitions				Excluded
	Kitchen & Food Service Equipment				Excluded
	Other Office Equipment Not Listed				Excluded
	SUBTOTAL EQUIPMENT				**EXCLUDED**

DIV 12	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	FURNISHINGS				
	Entry Receptionist Desk Upgrade				Excluded
	Plastic Laminate Countertops Repairs				Excluded
	Solid Surface Countertops Repairs				Excluded
	Copy / Print / Mail Center Casework				Excluded
	Kitchen / Break Room Casework				Excluded
	Window Roller Blinds - no valances, installed				Excluded
	Display Cases				Excluded
	Marker Boards				Excluded
	Tackboards				Excluded
	Office Furnishings & Other Building FF & E				Excluded
	SUBTOTAL FURNISHINGS				**EXCLUDED**

DIV 13	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SPECIAL CONSTRUCTION				
	Alternative Energy Systems				Excluded
	Alternative Fuel Vehicle Fueling Stations				Excluded
	SUBTOTAL SPECIAL CONSTRUCTION				**EXCLUDED**

DIV 14	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	CONVEYING SYSTEMS				
	Elevator Service Call - Verify Current Condition & Maintenance Plan - IN PROGRESS, PER REPORT				Excluded
	SUBTOTAL CONVEYING SYSTEMS				**EXCLUDED**

				TOTALS

DIV 21	Description	Quantity	Unit	Cost/Unit	Total Cost
	FIRE SUPPRESSION				
	Fire Sprinklers - Full Replacement	145,370	SF	10.62	1,543,829
	Backflow Prevention				Excluded
	FDC				Excluded
	Booster Pump (Allowance)				Excluded
	SUBTOTAL FIRE SUPPRESSION				**1,543,829**

DIV 22	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	PLUMBING				
	Demo Existing Plumbing				Excluded
	Plumbing Systems - Full Replacement				Excluded
	Provide ADA Fixtures, where necessary (Allowance)	22	EA	2,500.00	55,000
	Insulation @ Lavatory & Mechanical Piping	1	AL	45,000.00	45,000
	SUBTOTAL PLUMBING				**100,000**

DIV 23	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	HVAC				
	HVAC - Service & Investigate Work Only	145,370	SF	1.00	145,370
	HVAC - Makeup Air & Add Fire Dampers	145,370	SF	3.00	436,110
	Upgrade HVAC Controls				Excluded
	SUBTOTAL HVAC				**581,480**

DIV 26	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	ELECTRICAL				
	Demo Existing Electrical Outlets & Replace	145,370	SF	1.00	145,370
	Replace Panels	145,370	SF	6.21	902,748
	New Electrical Wiring & Conduit @ New Lighting	14,537	SF	2.98	43,320
	Add Lighting @ Stairwells Only	14,537	SF	2.00	29,074
	Remove Light Fixtures throughout Building	145,370	SF	1.00	145,370
	Replace Light Fixtures w/ LED	145,370	SF	2.50	363,425
	Replace Emergency GenSet	1	LS	150,000.00	150,000
	UPS System				Excluded
	Solar Photovoltaic System				Excluded
	Wind Turbine System				Excluded
	Replace Lightning Protection System	145,370	SF	0.90	130,833
	SUBTOTAL ELECTRICAL				**1,910,140**

DIV 27	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	DATA / COMMUNICATIONS				
	Fire Alarm System - Minor Upgrades & Relocation from Impacted Areas	21,806	SF	0.92	20,061
	Data & Communications Conduit - Relocation at Impacted Areas	21,806	SF	0.92	20,061
	Data & Communications Equipment				Excluded

	A/V Equipment				Excluded
	SUBTOTAL COMMUNICATIONS				**40,122**

DIV 032	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SITE IMPROVEMENTS				
	Paving				
	Remove Soil & Backfill @ Sitewals	1	LS	25,000.00	25,000
	Replace Existing Asphalt Road around Bldg				Excluded
	Concrete Replacement at Sidewalks	10,000	SF	6.50	65,000
	Concrete Sidewalks - Seal Cracks	1	LS	5,000.00	5,000
	New 6" x 18" F.R. Concrete Curb & Gutter				Excluded
	New 4" Sidewalk				w/ Above
	Landscape				
	Fine Grade Topsoil				Excluded
	Sod Repair				Excluded
	Irrigation Repair				Excluded
	SUBTOTAL SITE IMPROVEMENTS				**95,000**

DIV 33	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SITE CIVIL/MECHANICAL UTILITIES				
	Secondary Utilities to Building				
	2" Copper Water Line (Incl. Valves, Connections, Trenching w/ Bedding)				Excluded
	6" Sewer Service				Excluded
	Gas Line Trenching				Excluded
	Electrical Service				Excluded
	Phone & Data Service Trenching				Excluded
	SUBTOTAL SITE CIVIL/MECHANICAL UTILITES				**EXCLUDED**

TOTAL COST -					**9,383,971**
					65

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