CAPITOL COMPLEX MASTER PLAN

FINDINGS & RECOMMENDATIONS (F & R) NEEDS ASSESSMENT

NORTH CAMPUS EAST BUILDING, 6221 NORTH DOWNING STREET (DENVER)

NOVEMBER 2014

RNL

FINDINGS & RECOMMENDATIONS (F&R) NEEDS ASSESSMENT

NORTH CAMPUS EAST BUILDING
6221 NORTH DOWNING STREET (DENVER)

November 2014

TABLE OF CONTENTS

This page left intentionally blank.

TABLE OF CONTENTS (CONTINUED)

This page left intentionally blank.

EXECUTIVE SUMMARY

The purpose of this report is to provide a Findings & Recommendations (F&R) Needs Assessment of the North Campus East Building at 6221 North Downing Street in Denver, Colorado (Adams County). 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 poor condition. A poor condition rating refers to the fact that the North Campus East Building is in urgent 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. Demolish the building structure and rebuild as necessary to suit current needs. This recommendation encompasses life safety, loss of use/reliability, finishes, and overall energy efficiency issues and is related to the age and condition of the building, which was constructed as a temporary prefabricated metal building in 1968.

OR, if the building cannot be demolished and must remain in use, the following are the top five priorities:

1. Replace roof and add fall protection. This recommendation encompasses life safety and loss of use/reliability issues and is due to the age and condition of the roof and the fact that no fall protection is provided.

High Level Cost Estimate: $551,571

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

   High Level Cost Estimate: $37,954

3. Add lighting controls. This recommendation encompasses loss of use/ reliability and overall energy efficiency issues and is due to the need for automatic occupancy controls.

   High Level Cost Estimate: $51,644

4. Repair/replace sealant. This recommendation encompasses loss of use/reliability issues and is due to the overall deterioration of the sealant which is creating access points by which water can penetrate the building envelope.

   High Level Cost Estimate: $64,028

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

   High Level Cost Estimate: $467,733

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

$2,126,672

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:

$2,373,976

1.0 OVERVIEW

1.0-A ARCHITECTURE OVERVIEW

The North Campus site, located in Denver, Colorado in Adams County, contains three buildings originally constructed as temporary buildings. The North Campus East Building was constructed in 1968. The building is on the northwest corner of East 62nd Avenue and Downing Street. It was reported that the building was originally used by the Community College of Denver for classroom and office space. The building is currently vacant and is being used as storage space. There do not appear to be any restrooms in the building. The North Campus East Building is a pre-engineered metal building on a concrete foundation with areas of brick infill walls surrounding the entrance areas. The building also has an interior masonry wall through the center of the building separating the building into two distinct spaces. This one-story building grosses 39,195 square feet of space.

The architectural assessment of the North Campus East Building at 6221 North Downing Street included reviews of the existing building documentation, drawings, and audit reports provided by the Owner, and a site visit to survey and document the existing conditions of the building and its code and life safety issues. During the site survey on October 22, 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 poor condition. There are issues related to interior and exterior finish materials, building systems, code compliance, and other items that require attention in the near term. One of the main concerns is the overall age and condition of the building as a whole. Other concerns include the age and condition of the roof and windows and code issues related to the exit stairways and ramps. These concerns encompass life safety, loss of use/reliability, finishes, and overall energy efficiency issues. These findings, along with recommendations for repairs, are detailed in the body of this report.

1.0-B STRUCTURAL OVERVIEW

Martin/Martin conducted a building condition assessment on October 22, 2013 of the east building of the north campus, 1001 East 72nd Avenue in Denver, Colorado. The purpose of our condition assessment was to identify structural defects, damage, and deterioration.

The buildings at the north campus are all engineered metal buildings. The typical structural system for the east building is metal panels at the walls and roof spanning between cold-formed steel girts or purlins, with the girts and purlins supported by heavier gage steel frames. The building has a membrane roof overlaying the metal panels. Some areas of exterior wall panel are interrupted by brick or masonry infill.

The structural framing that was readily observable is in good condition. The north exit ramp is showing signs of settling and weathering and should be repaired.

The roof of the building was sloped and no fall protection was provided. A fall protection system should be installed along the roof to meet current safety codes.

1.0-C CIVIL OVERVIEW

The State of Colorado North Campus contains three buildings originally considered “temporary” buildings; the west, north and east buildings. This assessment report covers the east building. The east building of the State of Colorado North Campus site is approximately 1.71 acres and is located at 6221 North Downing Street in Adams County, Colorado. The existing site consists of the building, parking lot and street right-of-way including sidewalk. The main building entrance is accessed from the parking lot on the west side. The condition of the site surrounding the building is consistent with an estimated age of 30+ years.

The site exterior is generally in poor condition. The main concern regarding the site is drainage and the condition of the asphalt in the parking lot. There are numerous locations around the site with broken, deteriorated and cracked asphalt in need of repair or replacement. Broken surfaces in walking paths are a tripping hazard and safety concern. Surface cracks and broken pavement surfaces also increase the risk of further site deterioration. Localized ponding was observed along with indicators of improper drainage. It is recommended that the entire site be re-graded and re-paved to improve the surface drainage and maintain the site posterity. While the existing building functions in its current state, improvements can be made to improve drainage, comply with regulations and enhance aesthetics.

1.0-D MECHANICAL, ELECTRICAL, AND PLUMBING OVERVIEW

The electrical and mechanical assessment of the North Campus East Building 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, electrical and mechanical systems conditions, maintenance routines, and installation dates was provided. The North Campus East Building is a metal prefab structure. The building is primarily used as a storage space for printing paper, PVC mail collection trays, storage cardboard boxes containing official documents for records, and furniture (see Fig. 1.0.D.1).

Fig. 1.0.D.1 – Open cold storage

The main concern with this building is automatic lighting controls. Automatic lighting controls would ensure no energy is wasted by the lights being left on with the manual switches.

The main concerns regarding mechanical system are providing minimum ventilation and ensuring materials stored do not exceed design fire load. It also recommended to have nitrogen system for the dry sprinkler system to increase the life expectancy of the system.

Energy Conservation

To conserve energy in this building a lighting control system that provides automatic daylight dimming and occupancy sensor shutoff will provide energy savings. Also, following the most up-to-date energy codes regarding how much light is used (watts per square feet) will reduce the number of fixtures required for each space.

1.0-E VOICE AND DATA OVERVIEW

The Voice and Data IT/Telecommunications Infrastructure assessment report provides recommendations for the design and construction of the IT/Telecommunications Infrastructure required to support Voice/Data and other technology systems within the East building for renovation projects. Much of the building's existing IT/Telecommunications infrastructure may not be consistent with current industry standards and best practice installation methods. The current IT infrastructure may not properly support many newer technology IP devices which are now considered to be standard in the industry such as VoIP phones and PoE type security cameras. Existing network cabling may have bandwidth limitations as compared to that of more robust, industry standard Cat6 or Cat6A cable plant specifications. It should be noted where referenced, that 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 may include the Main Distribution Facility (MDF) room, and distributed IDF rooms (minimum of one per floor). Backbone infrastructure shall include proper cabling pathways between MDF/IDF rooms, in order to support installation of both fiber and copper backbone cabling. Singlemode and laser optimized multimode fiber optic cables, along with Category 3 copper backbone cables should be installed from the MDF room to each IDF room to support the technology systems. Hardwired network connectivity should be provided for users, and distributed appropriately throughout all areas of the facility. Category 6, at minimum, UTP cable shall be installed from the telecom outlets and IP field devices to termination hardware in the IDF rooms using conduit and/or cable tray horizontal pathways. A proper grounding and bonding system must be provisioned for, and will provide a uniform ground within the telecommunications rooms, to ensure safe and reliable operation of the communications and low-voltage equipment and systems. These recommendations may be used for IT/Telecom Infrastructure program development, space planning, and budgeting of these systems at a conceptual design level. Industry standard and best practice design methodology shall be applied, including BICSI and TIA/EIA design and construction guidelines. For telecommunications infrastructure renovation projects within the facility, any applicable Governor's Office of Information Technology (OIT) design criteria documents should be complied with.

The following list prioritizes voice/data infrastructure upgrades required:

1. Necessary: Retrofit facility with proper MDF/IDF room distribution, which meets industry standard for telecommunication structured cabling system.

2. Necessary: Replace horizontal copper station cabling with Cat 6 network cabling.
3. Necessary: Replace vertical and network backbone cabling with appropriate copper and fiber optic cabling.
4. Necessary: Provide voice/data infrastructure to support wireless access points (WAPs), for wireless network coverage throughout facility.

1.0-F SECURITY SYSTEMS OVERVIEW

The security systems design guidelines outline electronic security systems infrastructure which will enhance security operations and provide a safe and secure environment for persons and assets within the North Campus East 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 North Campus East Building renovation work, requirements for security device additions/upgrades and specific security system functionality are to be coordinated with State security personnel during design and construction phases.

The following list prioritizes security system upgrades required:

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

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

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

2.0 OVERALL BUILDING ASSESSMENT FINDINGS AND RECOMMENDATIONS

2.1 ARCHITECTURE

2.1-A EXTERIOR BUILDING ENVELOPE/SITE

General

The North Campus East Building is a one-story tall metal building constructed in 1968 on a concrete foundation with areas of brick infill walls on either side of the building entrances with double-doors. The windows are single pane with metal frames and appear original to the building. There are multiple entrances located around the exterior of the building. The main entrance appears to be located along Downing Street near the center of the east side of the building. There is a rubber membrane roof along the entire length of the building.

The building envelope is in fair to poor condition overall. Various elements are showing the effects of deferred maintenance, others are simply damaged or worn out.

Front/East Elevation of the North Campus East Building

Side/North Elevation of the North Campus East Building

Back/West Elevation of the North Campus East Building, North End

Back/West Elevation of the North Campus East Building, South End

Side/South Elevation of the North Campus East Building

Cladding

The metal panels on the walls around the exterior of the building are in fair to poor condition overall with areas of deterioration and areas of unrepaired holes left in the panels noted during the site survey visit (see Fig. 2.1.A.1 and Fig. 2.1.A.2). Bent and damaged areas of the metal wall panels were observed especially near parking areas around the building (see Fig. 2.1.A.3, Fig. 2.1.A.4, and Fig. 2.1.A.5). The damage is likely from vehicles running into the building. It was noted that there are no concrete guard posts/bollards placed around the original building to protect the structure from vehicle damage in and around the parking areas.

The areas of brick infill walls around the exterior of the building are in fair to poor condition overall with spots of cracking and deterioration noted, especially on the north side of the building (see Fig. 2.1.A.6).

The concrete foundation was observed to be cracking and spalling in areas around the exterior of the building (see Fig. 2.1.A.7).

Fig. 2.1.A.1 Typical deterioration noted at the metal panels in areas around the exterior of the building.

Fig. 2.1.A.2 Unrepaired holes leaving the building envelope vulnerable to water penetration observed in areas around the exterior of the building.

Fig. 2.1.A.3 Damaged metal panels observed along parking areas around the exterior of the building.

Fig. 2.1.A.4 Damaged metal panels observed along parking areas around the exterior of the building.

Fig. 2.1.A.5 Extensive damage to the metal panels noted during the site survey visit.

Fig. 2.1.A.6 Cracking and deterioration of a brick infill wall noted on the north side of the building.

Fig. 2.1.A.7 Cracked concrete observed along the building's foundation.

Recommendations:

- Demolish the building structure and rebuild as necessary to suit current needs.

OR, if the building cannot be demolished and must remain in use:

- Repair or replace any damaged, deteriorating, or corroding metal wall panels around the exterior of the building.
- Repair any holes that have been left unaddressed around the exterior of the building to prevent any further damage to the building envelope.
- Install concrete guard posts/bollards along parking areas around the exterior of the building to protect the structure and stairways from future vehicular damage.
- Repair or replace any damaged or deteriorating brick infill walls around the exterior of the building.
- Repair or replace any spalling or otherwise damaged areas of the concrete foundation around the exterior of the building.

Glazing Systems and Doors

The windows are single pane with metal frames and appear original to the building. The windows are in generally fair condition overall with deterioration and evidence of corrosion of the frames noted (see Fig. 2.1.A.8 and Fig. 2.1.A.9). Evidence of water intrusion was observed at a few of the windows during the site survey visit. The sealant around the windows is in generally poor condition with deterioration noted (see Fig. 2.1.A.10). It was reported that replacement of the windows is on the Capitol Complex list of projects that need to be addressed.

Fig. 2.1.A.8 Evidence of deterioration and water intrusion noted at the windows around the exterior of the building.

Fig. 2.1.A.9 Evidence of corrosion noted at the window frames around the exterior of the building.

Fig. 2.1.A.10 Typical instance of deteriorating sealant observed at the windows around the exterior of the building.

The entrance and exit doors around the exterior of the building are in fair condition overall with general wear-and-tear, deterioration of the weatherstripping, and corrosion noted (Fig. 2.1.A.11 and Fig. 2.1.A.12). Deterioration of the sealant was also noted around the perimeter of the door and sidelight assemblies (see Fig. 2.1.A.13).

Fig. 2.1.A.11 Deterioration of the weatherstripping along the base of a door noted to be creating an air gap.

Fig. 2.1.A.12 Deterioration of the weatherstripping and corrosion of the metal observed at the base of an exterior door on the east side of the building.

Fig. 2.1.A.13 General deterioration of the sealant noted at the doors around the exterior of the building.

Recommendations:

- Demolish the building structure and rebuild as necessary to suit current needs.

OR, if the building cannot be demolished and must remain in use:

- Replace existing windows around the exterior of the building with new energy efficient windows.
- Repair or replace any deteriorating or damaged doors and door frames around the exterior of the building. Remove any corrosion and refurbish doors and door frames to remain.
- Remove the sealant and weatherstripping around doors and sidelights to remain and replace with new sealant and weatherstripping.

Roof

The roof consists of a rubber membrane in fair to poor condition overall (see Fig. 2.1.A.14). The age of the roof is unknown. It was reported that the equipment on the roof has been abandoned in place and that the roof is known to leak in a few spots around ductwork. The rubber membrane was observed to have patches and seams with deteriorating sealant leaving the roof system vulnerable to water penetration (see Fig. 2.1.A.15, Fig. 2.1.A.16, and Fig. 2.1.A.17). It was noted that the thin plastic sheeting wrapped around the rooftop equipment is generally coming off and was observed to be collecting in the areas of the gutters (see Fig. 2.1.A.18 and Fig. 2.1.A.19). Evidence of corrosion was observed at the vent covers around the roof (see Fig. 2.1.A.20). Evidence of corrosion was observed at the ladder leading up to the roof on the west side of the building (see Fig. 2.1.A.21). Standing water was observed at areas of the roof, especially along the edge on the east and west sides (see Fig. 2.1.A.22). It was reported that replacement of the roof is on the Capitol Complex list of projects that need to be addressed.

Fig. 2.1.A.14 Rubber membrane roof in fair to poor condition overall.

Fig. 2.1.A.15 Typical instance of deteriorating sealant at patched areas of the rubber roofing membrane.

Fig. 2.1.A.16 Typical instance of deteriorating sealant along the seams of the rubber roofing membrane.

Fig. 2.1.A.17 Typical instance of sealant missing entirely along the seams of the rubber membrane and exposing the roof system to water penetration.

Fig. 2.1.A.18 Thin plastic sheeting wrapped around the rooftop equipment noted to be deteriorating.

Fig. 2.1.A.19 Thin plastic sheeting from around the rooftop equipment is collecting in areas of the gutters.

Fig. 2.1.A.20 Evidence of corrosion noted at a roof vent cover.

Fig. 2.1.A.21 Evidence of corrosion noted at the ladder leading up to the roof on the west side of the building.

Fig. 2.1.A.22 Areas of standing water observed during the site survey visit.

Recommendations:

- Demolish the building structure and rebuild as necessary to suit current needs.

OR, if the building cannot be demolished and must remain in use:

- Replace the existing roof with a new roofing system. Inspect the condition of the metal roof panels beneath the rubber membrane and replace as necessary.
- Remove the thin plastic sheeting wrapped around the rooftop equipment. Either remove the abandoned rooftop equipment or provide adequate protection with weatherproof tarps or equipment covers.
- Replace the damaged and corroding metal ladder leading up to the roof on the west side of the building.

Entrance Canopies

The metal canopy above the northernmost entrance on the west side of the building was noted to have evidence of corrosion (see Fig. 2.1.A.23). The canopy over the entrance on the south side of the building was noted to be generally soiled and to have evidence of corrosion at the metal frame (see Fig. 2.1.A.24).

Fig. 2.1.A.23 Evidence of corrosion noted at the metal canopy at the northern entrance on the west side of the building.

Fig. 2.1.A.24 Generally soiled canopy with a corroding metal frame observed at the entrance on the south side of the building.

Recommendations:

- Demolish the building structure and rebuild as necessary to suit current needs.

OR, if the building cannot be demolished and must remain in use:

- Repair or replace any corroding metal canopies around the exterior of the building.
- Clean and repair, or replace, the soiled canopy with the corroding metal frame at the entrance on the south side of the building.

Site Elements

The exterior concrete stairways and ramps along the north and east sides of the building were noted to be generally deteriorating with worn paint and spalling and cracking concrete observed (see Fig. 2.1.A.25). The metal railings were noted to have evidence of corrosion and to be coming loose at areas of the deteriorating concrete stairways and ramps. The metal railing on the west side of the stairway at the entrance on the west end of the north side of the building was noted to be bent and damaged (see Fig. 2.1.A.26). The damage is likely from a vehicle running into the railing.

The concrete slab at the northernmost entrance on the west side of the building was observed to be cracking and spalling, creating a potential tripping hazard (see Fig. 2.1.A.27). It was further noted that the cracking and spalling appears to carry through to the inside of the building.

Fig. 2.1.A.25 Typical instance of deteriorating paint and spalling and cracking concrete observed at the exterior stairways and ramps on the north and east sides of the building.

Fig. 2.1.A.26 Spalling and cracking of the concrete stairway and corroding and damaged metal railings observed at the entrance on the west end of the north side of the building.

Fig. 2.1.A.27 Deterioration of the concrete slab, observed at the northernmost entrance on the west side of the building, appears to carry through to the inside of the building.

Recommendations:

- Demolish the building structure and rebuild as necessary to suit current needs.

OR, if the building cannot be demolished and must remain in use:

- Repair or replace the spalling concrete at the exterior stairways and ramps along the north and east sides of the building. Securely reattach railing posts as necessary.
- Repaint the stairways and ramps where the protective coating is worn and deteriorating.
- Repair or replace the corroding or damaged metal railings at the stairways and ramps along the north and east sides of the building.
- Repair or replace any spalling or cracked concrete paving around the exterior of the building, including the concrete slab at the northernmost entrance on the west side of the building.

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 1 story tall and has a total floor area of 39,195 square feet. There is a masonry block wall that is separating the structure into two

distinct halves. It was reported that the building is currently used as cold storage for cardboard boxes housing documents from former court cases on the north side of the building (see Fig. 2.1.B.1 and Fig. 2.1.B.2) and for stacks of paper and various other items stored by the Department of Personnel & Administration's Integrated Document Solutions (IDS) Print Operations on the south side of the building (see Fig. 2.1.B.3 and Fig. 2.1.B.4). Furniture, wood pallets, and stacks of flat cardboard boxes were also noted during the site survey visit. It is assumed that the storage spaces throughout the North Campus East Building do not contain hazardous materials that would result in a high-hazard occupancy classification and that these areas would therefore be classified as Occupancy Group S-1 according to the IBC (primary use as a moderate-hazard storage Group S-1 occupancy includes, among others, the use of a building or structure, or a portion thereof, for storage that is not classified as a hazardous occupancy, including, but not limited to, the storage of books and paper in rolls or packs, furniture, cardboard and cardboard boxes, and lumber).

It was reported that a code compliance analysis is on the Capitol Complex list of controlled maintenance projects that need to be addressed.

Fig. 2.1.B.1 Stacks of cardboard boxes full of documents and rows of furniture being stored on the northeast side of the building.

Fig. 2.1.B.2 Storage shelves with cardboard boxes full of documents being stored on the northwest side of the building.

Fig. 2.1.B.3 Items stored in fenced-off areas and stacks of cardboard boxes being stored on the south side of the building.

Fig. 2.1.B.4 Wood pallets, stacks of flat cardboard boxes, and other items being stored on the south side of the building.

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 North Campus East 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 equipped throughout with an approved automatic

sprinkler system in an S-type occupancy is 100 feet. It appears that the floor plans, as they exist now, are different from the plans provided by the Owner. It is likely that the spaces throughout the North Campus East Building comply with these code requirements but the length of the longest common path of egress travel should be verified with existing conditions and as part of any future renovation plan.

According to Table 1016.2 of the IBC (2012), the exit access travel distance in a S-type occupancy equipped throughout with an approved automatic sprinkler system is 300 feet.

It appears that the floor plans, as they exist now, are different from the plans provided by the Owner. It is likely that the spaces throughout the North Campus East Building comply with these code requirements but the length of the greatest distance of travel should be verified with existing conditions and as part of any future renovation plan.

The aisles included in the site survey visit of the North Campus East Building appear to be greater than the 36 inches required by code (see Fig. 2.1.B.5). There were items observed in the middle of the aisles in a few locations throughout the building (see Fig. 2.1.B.6 and Fig. 2.1.B.7). According to Section 1017.1 of the IBC (2012), the required width of aisles shall be unobstructed.

There was a “No Smoking” sign observed strung with wire between the railings of the stairway and blocking the means of egress from the entrance on the west end of the north side of the building (see Fig. 2.1.B.8). According to Section 1027.5 of the IBC (2012), the exit discharge shall provide a direct and unobstructed access to a public way.

There were egress issues noted with the fenced and gated courtyard shared with the North Campus West Building on the west side of the North Campus East Building. There are two pairs of doors that lead out to the courtyard from the west side of the North Campus East Building. The northernmost pair of doors leading to the courtyard on the west side of the building requires the use of a key code entry system in order to reenter the building. The southernmost pair of doors leading to the courtyard on the west side of the building is an emergency exit only and does not allow reentry to the building from the courtyard. One of the two pairs of doors leading to the North Campus West Building is equipped with a key code entry system and the other does not allow entry to the building from the courtyard. Another issue with the courtyard is that the length of the longest common path of egress travel from the courtyard appears to be approximately 157 feet (without exit access at the north and south gates), which is greater than the

100 feet allowed by code requirements for the North Campus East Building or the 75 feet allowed by code requirements for the North Campus West Building. Further, the two courtyard gates, located on the north side and on the south side of the courtyard, did not appear to be easily operable from the inside of the courtyard, preventing egress to a public way (see Fig. 2.1.B.9 and Fig. 2.1.B.10). According to Section 1027.5 of the IBC (2012), the exit discharge shall provide a direct and unobstructed access to a public way. According to Section 1008.1.9 of the IBC (2012), egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort. Since the gates are part of the means of egress system from the building, they should be equipped with appropriate hardware to allow the gates to swing in the direction of egress travel.

Fig. 2.1.B.5 Aisles generally observed to be 36 inches or greater in the areas included in the site survey visit.

Fig. 2.1.B.6 Items observed in the middle of an aisle during the site survey visit.

Fig. 2.1.B.7 Items observed in the middle of an aisle during the site survey visit.

Fig. 2.1.B.8 A “No Smoking” sign strung with wire between the stairway railings and blocking the means of egress from the entrance on the west end of the north side of the building.

Fig. 2.1.B.9 Gate located on the north side of the west courtyard.

Fig. 2.1.B.10 Gate located on the south side of the west courtyard.

Recommendations:

- Demolish the building structure and rebuild as necessary to suit current needs.

OR, if the building cannot be demolished and must remain in use:

- Remove all items blocking any aisles or corridors throughout the building. Keep these areas clear at all times per code requirements.
- Remove the “No Smoking” sign strung with wire between the stairway railings and blocking the means of egress from the entrance on the west end of the north side of the building. Reinstall as necessary in a location that does not obstruct the exit discharge from the building.
- Install appropriate hardware on the courtyard gates to allow access to a public way.

Fire Suppression Systems

The North Campus East Building is equipped throughout with an automatic sprinkler system.

Stairs and Ramps

There are exterior concrete stairways at the building entrances located along the north and east sides of the building. The entrances located on the west end of the north side of the building and on the north end of the east side of the building are also equipped with concrete ramps. With the exception of the stairway at the entrance on the north end of the east side of the building and the stairway at the entrance on the west end of the north side of the building, it was noted that the stairways and ramps either have no railings or have railings on one side only (see Fig. 2.1.B.11 and Fig. 2.1.B.12). According to Section 1009.15 of the IBC (2012), stairways shall have handrails on each side and shall comply with Section 1012. According to Section 1010.9 of the IBC (2012), ramps with a rise greater than 6 inches shall have handrails on both sides and shall comply with Section 1012. The two entrances equipped with stairways and ramps and the entrance on the south end of the north side of the building appear to serve a change in level of greater than 30 inches and therefore require guards according to Section 1013.2 of the IBC (2012).

The concrete at the exterior stairways and ramps is in poor condition overall with spalling and cracking observed, creating a potential tripping hazard and causing the railings to become loose in a few locations (see Fig. 2.1.B.13, Fig. 2.1.B.14, and Section 2.1-A Exterior Building Envelope/ Site). According to Section 1009.9.1 of the IBC (2012), stairway treads and landings shall have a solid surface. According to Section 1012.1 of the IBC (2012), handrails for stairways and ramps shall be adequate in strength and attachment in accordance with Section 1607.8.

It was noted that the accessible route to and from the ramp at the entrance on the west end of the north side of the building is currently blocked by parked cars (see Fig. 2.1.B.15).

Fig. 2.1.B.11 A stairway on the east side of the building that is not equipped with handrails on both sides as required by code and with spalling and cracking concrete creating a potential tripping hazard.

Fig. 2.1.B.12 A stairway on the east side of the building that is not equipped with handrails as required by code and with spalling and cracking concrete creating a potential tripping hazard.

Fig. 2.1.B.13 Spalling and cracking concrete at railing posts observed at an exterior stairway on the north side of the building.

Fig. 2.1.B.14 Spalling and cracking concrete at railing posts observed at an exterior ramp on the north side of the building.

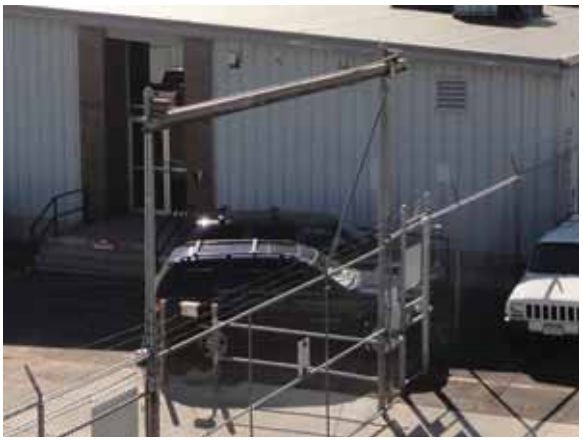

Fig. 2.1.B.15 The accessible route to and from the ramp at the entrance on the west end of the north side of the building is currently blocked by parked cars.

Recommendations:

- Demolish the building structure and rebuild as necessary to suit current needs.

OR, if the building cannot be demolished and must remain in use:

- Replace the exterior stairways and ramps with new stairways and ramps in compliance with current code requirements at the entrances along the north and east sides of the building. Install handrails on both sides of the stairways and ramps per code requirements. Install guardrails as required by code at stairways and ramps serving a change in level of greater than 30 inches.
- Remove the parking space adjacent to the ramp at the entrance on the west end of the north side of the building. Prohibit all future parking at this location to prevent the accessible route to and from the ramp from being blocked.

Doors

The interior doors observed throughout the building during the site survey visit are equipped with lever-style door handles or panic hardware.

Security

The west side of the North Campus East Building is secured by a gated fence with either barbed wire or razor wire along the top of the fence (see Fig. 2.1.B.16). The doors along the north, east, and south sides of the building remain locked at all times. A few of these entrances are equipped with key code entry systems (see Fig. 2.1.B.17). An RSI Total Security sign was observed in a few locations around the exterior of the building (see Fig. 2.1.B.18). A security device was observed at the entrance on the south side of the building (see Fig. 2.1.B.19). There was a sign observed on the south entrance stating that all visitors must report to the office (see Fig. 2.1.B.20). The windows around the exterior of the building are equipped with metal security grilles (see Fig. 2.1.B.21).

Fig. 2.1.B.16 Gated fencing controls access to the west side of the building and the majority of the North Campus site.

Fig. 2.1.B.17 Typical instance of a key code entry system observed at a few of the entrances along the north, east, and south sides of the building.

Fig. 2.1.B.18 RSI Total Security sign observed in a few locations around the exterior of the building.

Fig. 2.1.B.19 A security device observed at the entrance on the south side of the building.

Fig. 2.1.B.20 Visitors are directed to check-in with the office in order to gain access to the building.

Fig. 2.1.B.21 Typical instance of a metal security grille observed at the windows around the exterior of the building.

2.1-C GENERAL ACCESSIBILITY ISSUES

It is our understanding that there are no restrooms, drinking fountains, or break rooms throughout the North Campus East Building. There are a few generally accessible entrances that exist around the exterior of the building.

2.1-D ELEVATORS

It is our understanding that there are no elevators in the North Campus East Building.

2.1-E ENVIRONMENTAL

It is our understanding that there are no environmental issues with the North Campus East 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.

2.1-F PLANNED AND ON-GOING PROJECTS

There are no known planned and on-going architectural projects for the building currently.

2.2 STRUCTURAL

2.2-A EXTERIOR BUILDING ENVELOPE

Exterior downspouts were observed to empty within 1'-0 of the building line (Fig. 2.2.A.1).

Fig. 2.2.A.1

The concrete stair and ramp at the building's north exit appear to be settling away from the main building, and show signs of environmental spalling and cracking (Fig. 2.2.A.2).

Fig. 2.2.A.2

The infill brick at the west side of the north exit is partially supported on the concrete ramp. The settling of the ramp has caused an approximately 3/4" wide crack in the lower courses of the brick (Fig. 2.2.A.3).


Fig. 2.2.A.3

The anchorage points of the guardrail at the north exit stair and ramp have all failed (Fig. 2.2.A.4).


Fig. 2.2.A.4

The vertical guardrail post at the bottom of the west side of the exit stairs appears to have been struck with a horizontal force, causing a buckle and fracture failure of the steel section (Fig. 2.2.A.5).


Fig. 2.2.A.5

Sealants at the joint between the building cladding and brick or masonry infill appears to have failed in most locations that were observed (Fig. 2.2.A.6).

Fig. 2.2.A.6

Recommendations:

- Increase the length of downspouts such that they empty at least 3'-0 from the building line, or add splashblocks of equivalent length.
- The guardrail at the north exit ramp and stair should be removed and replaced.
- The brick at the north exit ramp should be resupported.
- Exterior sealants should be removed and replaced.

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

2.2-B BUILDING INTERIOR

The structural framing that was readily observable is in good condition.

One section of interior masonry partition framing is built tight to the metal building frame (Fig. 2.2.B.1). This intersection may be imparting loads into the masonry wall it was not intended to support. Additionally, the metal

building frame's design likely did not account for support from the masonry wall, which may result in buckling or other localized failures of the steel frame. This concern is exacerbated by the Metal Building Manufacturer's Association's (MBMA's) drift and deflection limits for most engineered metal buildings; the metal building frame is likely to deflect vertically and horizontally more than the masonry wall below.

Fig. 2.2.B.1

Multiple cracks were observed in the concrete slab of the building. The majority of the cracks are likely due to initial concrete shrinkage stress, and are not a structural concern.

The infill masonry at building entrances and exits in exterior walls was exposed on the back side. It is unknown at this time if the masonry was designed to span without structural backing, but a backing system did exist at the time the walls were constructed as evidenced by the "flat" areas of mortar observed in Fig. 2.2.B.2.

Fig. 2.2.B.2

Some anchor bolts at the metal building columns were either missing (Fig. 2.2.B.3) or damaged (Fig. 2.2.B.4). The missing bolts were likely a condition from the original construction. The damaged bolts may be a result of tenant activity since construction.

Fig. 2.2.B.3

Fig. 2.2.B.4

Recommendations:

- Revise the detail at intersection of the masonry partition wall to the metal building frame to allow sufficient deflection of the steel frame without fouling with the masonry below.
- Verify or re-support the masonry walls at building entrances.
- Verify the acceptability of the various anchor bolt issues mentioned in the report above.

Given the age of the buildings, the items noted above likely do not pose any structural loading issues based on the current use. The anchor rods in the building should be assessed before changes in occupancy occur.

Recommended repairs are intended to maintain performance and reduce further deterioration.

2.2-C FALL PROTECTION

The roof of the building was sloped and no fall protection was provided. A fall protection system should be installed along the roof to meet current safety codes.

2.2-D PLANNED AND ON-GOING PROJECTS

N/A

2.3 CIVIL

2.3-A EXTERIOR BUILDING ENVELOPE/SITE

General

The State of Colorado North Campus contains 3 buildings originally considered "temporary" buildings; the west, north and east buildings. This assessment report covers the east building. The east building of the State of Colorado North Campus site is located at the northwest corner of East 62nd Avenue and Downing Street with an address of 6221 North Downing Street in Adams County, Colorado (Fig. 2.3.A.1). The building is bordered by the west building of the North Campus to the west, the north building of the campus to the north and a variety of industrial development to the south, and west. The east building on the North Campus site is approximately 1.71 acres. The existing site consists of the building, parking lot and street right-of-way including sidewalk. The main building entrance is accessed from the east side (Fig. 2.3.A.2). The site surrounding the building is consistent with a building approximately 30 years old.

NOTE: Descriptions of existing infrastructure contained herein are based on public utility information provided by the North Washington Street Water and Sanitation District and Adams County. 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, i.e. Google Earth.

Figure 2.3.A.1 – East Building of North Campus Vicinity Map

Figure 2.3.A.2 –East Building, East Entrance

Grading and Drainage

The site slopes generally from west to east. The high point of the site is directly west of the west building on campus. Runoff on the west side drains overland to a series of pans and is collected by inlets north of the building. Storm sewer conveys collected runoff easterly and then northerly towards East 64th Avenue. Runoff on the east side of the building drains overland towards Downing Street.

The main entrance to the building is located on the east side facing Downing Street, and is accessed via stairs leading from the parking lot. There are three other entrances to the building, one on the south side and two more on the east side. The south entrance is at ground level and is accessed directly from the parking lot (Fig. 2.3.A.3). Of the two entrances on the east side, one is accessed via stairs and the other has an ADA accessible ramp (Fig. 2.3.A.4 and Fig. 2.3.A.5). It appears that two of the building entrances are ADA accessible, the south entrance and the ramped east entrance. The entire site surrounding the building is paved.

No obvious signs of building settlement were observed. The foundation of the building appears to be stable.

Figure 2.3.A.3 – South Entrance

Figure 2.3.A.4 – East Entrance

Figure 2.3.A.5 – East Entrance ADA Ramp

Previous drainage studies are not available for this site at this time. It is assumed that drainage facilities and conveyances are designed for the 5-year and the 100-year rainfall events, per Adams County Criteria. The site appears to ultimately discharge to the South Platte River.

The effective Flood Insurance Rate Map (FIRM Ma Number 08001C0611H, effective date March, 5, 2007) shows the property lies within Zone X, areas designated as outside of the 500-year floodplain. To our knowledge, there are no known existing flood control problems or drainage issues.

Utility Services

The building utility demands are unknown at this time. The building water service line appears to connect to a 6-inch water main located in East 62nd Avenue. The water main routes water easterly to Downing Street and then northerly towards East 64th Avenue. There is one fire hydrant located near the building. It is southeast of the building near the intersection of East 62nd Avenue and Downing Street. There are no known water pressure problems at this time.

The building is serviced by an 8-inch sanitary sewer line located in East 62nd Avenue. This line runs easterly to Downing Street and then northerly towards East 64th Avenue. There are no known sanitary sewer capacity problems at this time.

Existing storm sewer collects site runoff from two main inlets located on the northeast side of the site. These inlets collect site runoff from all three buildings on campus. The inlets route runoff northerly within Downing Street towards East 64th Avenue. There are no known storm sewer problems at this time.

Existing dry and regulated utilities (electric and telecommunications) are assumed to be located in Downing Street and/or East 62nd Avenue.

Site Paving

The site asphalt was noted to be in very poor condition (Fig. 2.3.A.6 to Fig. 2.3.A.8). Numerous locations of depressions and cracking were observed. It is recommended that the entire site be re-paved to improve the surface drainage and maintain the site posterity.

Figure 2.3.A.6 – Poor Site Asphalt Condition

Figure 2.3.A.7 – Poor Site Asphalt Condition

Figure 2.3.A.8 – Poor Site Asphalt Condition

Remove existing asphalt. Re-grade and re-surface the site with new asphalt for proper drainage.

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 for entrance accessibility.

Site slopes were analyzed by visual inspection and topography was evaluated using Google Earth. Current geotechnical recommendations and standard practice for slopes away from the building are 10:1 for 10 feet and 2% in hardscape areas. Since the site is all hardscape, the site generally meets these slopes (Fig. 2.3.B.1). Several areas were observed to the east of the building where it appears depressed and ponding may occur after rainfall events (Fig. 2.3.B.2 and Fig. 2.3.B.3). Ponding at these locations is a concern because it is a main walking path to the building 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. Ponding of water will also create more opportunity for asphalt cracking and deterioration. It is recommended that this area be re-graded and re-paved to provide positive drainage.

Figure 2.3.B.1 – Building Perimeter Slope

Figure 2.3.B.2 – Broken Asphalt at a location of depressed grade

Figure 2.3.B.3 – Broken, Depressed Asphalt

Recommendations:

- Re-grade and re-pave site to re-establish drainage paths.
- Install area drains at low points and where proper slopes cannot be met.

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

The power for this building is supplied through a set of three 167kVA transformers for a total of 500kVA provided by Xcel energy and these transformers feed a 480V, 1200amp switchboard that feeds the building (see Fig. 2.4.A.1, Fig. 2.4.A.2, and Fig. 2.4.A.3). The building has been converted to cold storage; therefore the load on this building is low; only powering the lights, receptacles, and the fire alarm system.

Fig. 2.4.A.1 – Utility transformers

Fig. 2.4.A.2 – Utility transformer

Fig. 2.4.A.3 – Electrical Service Entrance

Lighting

The lighting system throughout the building consists of linear fluorescent luminaires (see Fig. 2.4.A.4). The luminaires appear to be well maintained and are in good condition.

The lighting is controlled by local switching. No automatic occupancy controls were seen. The exterior lighting is in good condition. Emergency lighting is provided by twin-head wall packs with batteries mounted throughout the building. The exit signs appear to be in good condition.

Fig. 2.4.A.4 – Linear fluorescent luminaires

Recommendations:

- More automatic lighting controls are recommended throughout the building.

Fire Alarm

The fire alarm system appears to be a newer Notifier system with detection in the electrical rooms and pull stations by the exit doors (see Fig. 2.4.A.5). The devices are in good working order.

Fig. 2.4.A.5 – Fire alarm control panel

General Power

The receptacles appear to be in good working order.

MECHANICAL SYSTEMS

The HVAC system for the building has been taken out of service and the units are abandoned in place (see Fig. 2.4.A.6). There is no heat provided in the building except for fire command room which is heated via electric unit heater. Existing supply and return duct mains connected to the RTUs have been abandoned in place within the storage area and have been covered with plastic sheet to prevent outside air from entering the space. The storage material consists of boxed storage and furniture storage (see Fig. 2.4.A.8 and Fig. 2.4.A.9).

The main fire entry is in the fire command room. The dry valve, air compressor and controls are located in this room (see Fig. 2.4.A.10 and Fig. 2.4.A.11). There are no restrooms provided in the storage warehouse. The building space is fully sprinklered with a dry pipe system (see Fig. 2.4.A.7).

Fig. 2.4.A.6 – Decommissioned rooftop unit

Fig. 2.4.A.7 – Sprinkler system

Fig. 2.4.A.8 – Boxed storage

Fig. 2.4.A.9 – Furniture storage

Fig. 2.4.A.10 – Fire entry/dry valve

Fig. 2.4.A.11 – Air compressor for dry pipe sprinkler

Recommendations:

- Provide minimum heat to keep the space temperature above freezing and in the range of 50-55 degree F. This will provide better a better indoor environment for people in the warehouse. This temperature will allow storage of any temperature sensitive items.
- The sprinkler system provided in the warehouse is designed for a specific type of storage items. It may be helpful to have storage instructions posted in the warehouse. This will help to avoid exceeding the sprinkler design capacity.
- Remove the existing RTUs that are not being used and cap the duct openings in the roof with sheet metal and provide water proofing over it.
- Remove the supply and return duct stubs in the warehouse and provide missing roof insulation.

2.4-B CODE ISSUES

ELECTRICAL CODE ISSUES

No code issues were observed during the site survey.

MECHANICAL CODE ISSUES

Warehouses require a minimum ventilation of 0.06 cfm /sq. ft. Provide ventilation as required by code. This can be done by making a few existing RTUs operational and providing minimum outside heated air to the space.

2.4-C PLANNED AND ON-GOING PROJECTS

There are no known planned and on-going Mechanical, Electrical, and Plumbing projects for the building.

2.5 VOICE AND DATA

2.5-A OVERVIEW OF EXISTING SYSTEMS

Findings

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

Recommendations:

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

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

Telecommunications Rooms (i.e. Spaces)

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

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

2. Telecommunications Rooms (IDFs)

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

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

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

3. Telecommunications Room Locations

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

Telecommunications Pathways (i.e. Conduit/Raceways)

1. Backbone Pathways

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

2. Horizontal Pathways

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

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

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

Telecommunications Cabling

1. Telecommunications Backbone Cables

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

2. Telecommunications Horizontal Cabling

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

3. Cabling within Single Occupancy Offices

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

4. Wireless Access Points (WAPs)

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

2.5-B CODE ISSUES

Findings

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

Recommendations:

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

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

2.5-C PLANNED AND ON-GOING PROJECTS

It is our understanding there are no known planned and/or on-going IT/ Telecommunications Infrastructure projects for the East 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 consideration should be given to the investigation of a site security plan. 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 East building. The purpose of this recommendations report is to provide a description of electronic security system parameters which would provide a safe and secure environment for all those persons and assets within the facilities. It is intended to provide valuable information to both technical and non-technical readers for ongoing coordination with security program requirements.

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

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

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

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

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

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

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

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

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

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

Within the building, new head-end security control equipment is to be

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

The security systems described above are generally controlled and monitored centrally, primarily from Colorado State Patrol's Central Command Center (CCC), located in Denver CO. 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 East building shall be an extension of existing State facility security system infrastructure, as described earlier in the report. It is generally recommended that the building be provided with electronic security applications and equipment as listed below:

Access controlled doors:

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

Intrusion alarms:

- Access controlled doors
- Emergency egress only doors

- Perimeter doors

Intercom stations:

- Main entry, recommended
- Receiving dock door, recommended

Duress alarms:

- Public interface counters
- Cash handling locations
- Loading docks

Video surveillance cameras:

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

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

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

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

Basic Security Conduit requirements:

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

Head-end security control equipment shall generally be located in Intermediate Distribution Frame (IDF) rooms, or other technology rooms. Security equipment locations within IDF rooms must be coordinated with State IT technical staff during design phase. This equipment may include access control panels, duress 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 East building currently.

3.0 FLOOR-BY-FLOOR ASSESSMENT FINDINGS AND RECOMMENDATIONS

3.0-A CODE ISSUES

See 2.1-B Code Issues

3.0-B GENERAL ACCESSIBILITY ISSUES

See 2.1-C General Accessibility Issues

3.0-C ARCHITECTURAL FINISHES AND INTERIOR COMPONENTS

Ceiling Finishes

The ceilings throughout the North Campus East Building are open to the structure above and appear to be in fair condition overall. A portion of torn or loose insulation was noted in one location (see Fig. 3.0.C.1).

Fig. 3.0.C.1 Insulation observed hanging loose during the site survey visit..

Wall Finishes

The exterior walls are lined with what appears to be an insulated plastic covering around the inside of the building. The insulation appears to be fairly new.

There are a few gypsum board walls that appear to be in fair condition overall.

There is a masonry block wall separating the building in half that appears to be in fair condition overall. There were a number of holes observed in the wall (see Fig. 3.0.C.2). A few of the holes were observed to have pieces of pipes or tubes sticking out (see Fig. 3.0.C.3).

There were a few areas of unfinished walls observed during the site survey visit (see Fig. 3.0.C.4 and Fig. 3.0.C.5).

Fig. 3.0.C.2 Holes observed in the masonry block wall separating the building in half.

Fig. 3.0.C.3 Pieces of pipes or tubes sticking out of a few of the holes observed in the masonry block wall separating the building in half.

Fig. 3.0.C.4 Areas of unfinished walls observed during the site survey visit.

Fig. 3.0.C.5 Areas of unfinished walls observed during the site survey visit.

Floor Finishes

The concrete flooring throughout the building is in fair to poor condition overall with general deterioration, cracking, and spalling noted in a number of locations during the site survey visit (see Fig. 3.0.C.6, Fig. 3.0.C.7, and Fig. 3.0.C.8). An area of potential water damage was noted on the north side of the building (see Fig. 3.0.C.9).

Fig. 3.0.C.6 General deterioration of the concrete flooring observed during the site survey visit.

Fig. 3.0.C.7 Deterioration and spalling of the concrete flooring observed throughout the building.

Fig. 3.0.C.8 Cracking areas of the concrete flooring observed throughout the building.

Fig. 3.0.C.9 An area of potential water damage observed at the concrete flooring on the north side of the building.

Other

The doors throughout are in good to fair condition overall with minor wear-and-tear and soiling noted (see Fig. 3.0.C.10). It was reported that renovation/refinishing/replacements of the doors is on the Capitol Complex list of controlled maintenance projects that need to be addressed.

Fig. 3.0.C.10 Minor wear-and-tear and soiling observed at a few of the interior doors.

Recommendations:

- Demolish the building structure and rebuild as necessary to suit current needs.

OR, if the building cannot be demolished and must remain in use:

- Repair any areas of torn or otherwise deteriorating insulation along the ceilings throughout.
- Repair any holes in the masonry block wall separating the building in half. Either remove or cap any pipes or tubes left sticking out of the wall and repair the holes or seal the space around the capped pipes or tubes.
- Repair or replace any deteriorating or damaged areas of the concrete flooring throughout. Further investigate the potential water damage and repair as necessary.
- Clean any areas of soiling at the interior doors throughout. Replace doors as necessary.

MARTIN / MARTIN
CONSULTING ENGINEERS

3.0-D STRUCTURAL

See section 2.2 for structural observations and recommendations for all floors.

SM&W
SHEN MILSOM WILKE

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.

This page left intentionally blank.

4.0 LEVELS OF RENOVATION NEEDED

Building: North Campus: East Building, 6221 North Downing Street (Denver)					
Priority	Main System	Sub System	Level of Renovation Needed		
			Minimal	Moderate	Extensive
1	Code	Exit Stairways & Ramps			√
1	Exterior Enclosure	Windows			√
1	Exterior Enclosure	Roof			√
1	Exterior Enclosure	Fall Protection (roof)			√
1	Interior	Finishes - Flooring			√
1	Site	Drainage			√
1	Site	Pavement			√
1	Infrastructure	Tele/Com			√
1	Exterior Enclosure	Sealant / Grout		√	
1	Infrastructure	Lighting	√		
1	Code	Exits (courtyard gates)	√		
2	Exterior Enclosure	Doors		√	
2	Infrastructure	Security Access/IDS		√	
2	Infrastructure	Security Video		√	
3	Infrastructure	HVAC	√		
3	Infrastructure	Power	√		
3	Infrastructure	Fire Alarm	√		
3	Infrastructure	Fire Sprinkler	√		
3	Infrastructure	Structural Framing	√		
3	Interior	Finishes Ceiling	√		
3	Interior	Finishes - Wall	√		
3	Interior	Doors	√		
3	Site	Lighting	√		
	Code	Dead End Corridors			
	Exterior Enclosure	Penthouse			
	Exterior Enclosure	Walls			
	Exterior Enclosure	Signage			
	Infrastructure	Elevator(s)			
	Interior	ADA-Restrooms			
	Interior	ADA-Drinking Fountains			
	Interior	ADA-Door Levers			
	Interior	ADA-Sinks (Break Rooms)			
	Site	Utilities			

This page left intentionally blank.

5.0 COST ESTIMATES

SUMMARY OF SUMMARIES

Item No.	Description	SF	Total	$/SF
1	6321 Downing - North Campus East Bldg	39,195	1,936,983	49.42
2	Contingency on Above		w/ Above	
	Subtotals:	**39,195**	**1,936,983**	**49**
3A	IT \ Teledata (Relocate Exstg Only)	32,526	32,158	0.99
3B	Move Management		Excluded	
3C	Flex Space		Excluded	
3D	Public Art		Excluded	
4	Contingency on Above		Excluded	
	Equipment \ Art Subtotal:		**32,158**	**1**
	Base Price \ Equipment \ Art Subtotal:		**1,969,141**	**50**
5	Escalation - 6.75% per year		Excluded	
6	Contingency on Above		Excluded	
	Escalation Subtotal:		**Excluded**	
	Base Price \ Equipment \ Art Subtotal:		**1,969,141**	**50**
7	Design Fees at 8% per State of CO Direction		157,531	4.02
8	Contingency on Above		Excluded	
	Design Fee Subtotal:		**157,531**	**4.02**
	Base Price \ Equipment \ Art \ Design Fee Subtotal:		**2,126,672**	**54**

PROJECTED COST OF CONSTRUCTION IN 2014 DOLLARS	**2,126,672**	**54**

ADD-ALTERNATE				
9	FF&E (FF&E SF & $25\SF Allowance per Architect)	32,526	813,150	25.00
10	Move Management		Excluded	
11	Escalation - 6.75% per year		Excluded	
12	Contingency on Above		Excluded	
	Subtotals:		**Excluded**	
	ADD-ALTERNATE SUBTOTAL:		**813,150**	**25**

SYSTEM BY SYSTEM SUMMARY

Item No.	Description	SF	Total	$/SF
1A	Replace Roof	39,195	551,571	14.07
1B	Escalation		Excluded	
	System 1 Replace Roof Subtotal:		**551,571**	**14**
2A	Replace Windows	39,195	37,954	0.97
2B	Escalation		Excluded	
	System 2 Replace Windows Subtotal:		**37,954**	**1**
3A	Add Lighting Controls	39,195	51,644	1.32
3B	Escalation		Excluded	
	System 3 Add Lighting Controls Subtotal:		**51,644**	**1**
4A	Repair / Replace Sealant	39,195	64,028	1.63
4B	Escalation		Excluded	
	System 4 Repair/Replace Sealant Subtotal:		**64,028**	**2**
5A	Repair / Replace Site Paving	39,195	467,733	11.93
5B	Escalation		Excluded	
	System 5 Site Paving Subtotal:		**467,733**	**12**
6A	Balance of Project Scope	39,195	993,038	25.34
6B	Escalation		Excluded	
	System 6 Balance of Scope Subtotal:		**993,038**	**25**
	System by System Total Project 2014 Dollars Subtotal:		**2,165,968**	**55**
7	IT \ Teledata (Relocate Exstg Only)		32,158	0.82
8	Move Management		Excluded	
9	Flex Space		Excluded	
10	Public Art		Excluded	
11	Contingency on Above		Excluded	
	Equipment \ Art Subtotal:		**32,158**	**1**
	Systems \ Equipment \ Art Subtotal:		**2,198,125**	**56**
12	Design Fees at 8% per State of CO Direction		175,850	4.49
13	Contingency on Above		Excluded	
	Design Fee Subtotal:		**175,850**	**4**
	Base Price \ Equipment & Art \ Design Fee Subtotal:		**2,373,976**	**61**

PROJECTED COST OF CONSTRUCTION IN 2014 DOLLARS	**2,373,976**	**61**

DETAILED ESTIMATE - SUMMARY

				39,195
Item No.	**Description**	**$/SF**	**Total**	**Total w/Burdens**
DIV 2	EXISTING CONDITIONS	0.51	19,956	29,157
DIV 3	CONCRETE	2.40	94,068	137,441
DIV 4	STONE & MASONRY		32,500	
DIV 5	METALS	3.51	137,621	201,075
DIV 6	WOODS & PLASTICS	1.36	53,396	78,016
DIV 7	THERMAL PROTECTION	11.11	435,272	635,967
DIV 8	OPENINGS, DOORS, WINDOWS	0.97	38,200	55,813
DIV 9	FINISHES	0.67	26,355	38,506
DIV 10	SPECIALITIES		3,010	
DIV 11	EQUIPMENT		EXCLUDED	
DIV 12	FURNISHINGS		EXCLUDED	
DIV 13	SPECIAL CONSTRUCTION		EXCLUDED	
DIV 14	CONVEYING SYSTEMS		EXCLUDED	
DIV 21	FIRE SUPPRESSION		EXCLUDED	
DIV 22	PLUMBING		EXCLUDED	
DIV 23	HVAC	3.40	133,263	194,708
DIV 26	ELECTRICAL	1.90	74,471	108,807
DIV 27	COMMUNICATIONS	0.92	36,059	52,686
DIV 31	EARTHWORK		EXCLUDED	
DIV 32	EXTERIOR IMPROVEMENTS	6.16	241,550	352,924
DIV 33	UTILITIES		EXCLUDED	
DIV 34	TRANSPORTATION		EXCLUDED	
	Subtotal Direct Construction Costs	**33.82**	**1,325,721**	**1,936,983**
	Allowance for Historical / Memorial Markers		0	
	Direct Cost Subtotal with GFP	**33.82**	**1,325,721**	
	Material Testing	0.35%	4,640	
	Owner's Design & Preconstruction Contingency	10.00%	132,572	
	Owner's Construction Contingency (after NTP)	5.00%	66,286	
	Permits	1.90%	25,189	
	Total Direct Construction Costs	**39.66**	**1,554,408**	
	Standard General Conditions (GC's Onsite Overhead)		228,985	
	Subtotal NET Construction Cost	**45.50**	**1,783,393**	
	GC's Off-Site Overhead & Profit	4.60%	82,036	
	GC's General Liability Insurance	0.90%	16,051	
	Construction Cost w/o Bonds & Escalation	**48.00**	**1,881,479**	
	Builder's Risk Insurance	1.50%	28,222	
	Performance & Payment Bond	1.20%	22,578	
	Bid Bond	0.25%	4,704	
	Tap Fees		Excluded	
	Bidding Reserves		Excluded	
	Total Estimated Cost of Construction	**49.42**	**1,936,983**	

DETAILED ESTIMATE

Estimate By:	Kyle Hoiland
Date:	23-Apr-14
Reviewed By:	Chris Squadra
Date:	24-Apr-14

Building GSF: 39,195 **Total Cost:** $1,325,721

DIV 02	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	EXISTING CONDITIONS / BUILDING DEMOLITION				
	Remove Existing Metal Siding & Insulation	14,254	SF	1.40	19,956
	Asbestos Abatement or Other Hazardous Material (Allowance)				Excluded
	SUBTOTAL EXISTING CONDITIONS/DEMOLITION				**19,956**

DIV 03	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	CONCRETE / FOUNDATIONS				
	Repair Concrete Cracking & Spalling @ Foundation / Interior Slabs / Concrete Walls / Stairs	19,598	SF	4.80	94,068
	SUBTOTAL FOUNDATIONS				**94,068**

DIV 04	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	MASONRY				
	Exterior Brick Veneer Repair, where necessary	1	AL	10,000.00	10,000
	Repair Holes at Existing Interior Masonry Walls	1	AL	10,000.00	10,000
	Re-support Masonry at Entrances	1	AL	10,000.00	10,000
	Recaulk Exterior Stone Masonry	500	LF	5.00	2,500
	SUBTOTAL MASONRY				**32,500**

DIV 05	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	METALS				
	New Metal Siding	14,254	SF	4.80	68,421
	New Metal Bollards w/ Concrete	36	EA	950.00	34,200
	Repair & Repaint Corroded Steel Locations (Allowance)	1	AL	10,000.00	10,000
	Replace Existing Railings where Corroded (Allowance)	1	Al	10,000.00	10,000
	Replace Canopy @ Entry	1	AL	15,000.00	15,000
	SUBTOTAL METALS				**137,621**

DIV 06	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	WOODS				
	Rough Carpentry Wood Materials for Safety & Repairs	39,195	SF	0.75	29,396
	Rough Carpentry Labor	500	HRS	48.00	24,000
	**Time & materials for miscellaneous building shoring, safety railings/barricades, blocking, substrate repairs*				
	SUBTOTAL WOODS				**53,396**

DIV 07	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	THERMAL & MOISTURE PROTECTION				
	Remove & Replace Roof System	39,195	SF	9.60	376,272
	Fall Protection	8	EA	500.00	4,000
	Metal Siding, Fascia, Flashings, & Trims Repair (Allowance)	1	AL	10,000.00	10,000
	Scuppers, Gutters & Downspouts Repairs (Allowance)	1	AL	5,000.00	5,000
	Insulation Repairs @ Required Areas	1	AL	15,000.00	15,000
	Miscellaneous Caulking & Sealants @ Interior & Exterior	5,000	LF	5.00	25,000
	New Concrete Epoxy Sealer Throughout				Excluded
	SUBTOTAL THERMAL				**435,272**

DIV 08	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	OPENINGS				
	Clean Doors As Needed (Allowance)	10	EA	100.00	1,000
	Hardware Replacement at Doors & Gates As Needed (Allowance)	12	EA	1,000.00	12,000
	Windows Replacement As Needed (Allowance)	600	SF	42.00	25,200
	SUBTOTAL OPENINGS				**38,200**

DIV 09	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	INTERIOR FINISHES				
	Gyp Bd Wall Patching	5,879	SF	1.10	6,467
	Gyp Bd Ceiling Patching				Excluded
	ACT Ceiling Repair / Tile Replacement				Excluded
	Gyp Bd Detailing @ Int Soffits, Cols, etc.				Excluded
	Replace All Carpet				Excluded
	Clean/Repair Natural Stone/Tile Flooring				Excluded
	Repair/Replace VCT	1,200	SF	1.80	2,160
	Vinyl Base	2,500	LF	2.20	5,500
	Clean/Repair Masonry	500	SF	12.40	6,200
	Paint Gyp Bd Walls & Ceilings w/2 Coats Latex	5,879	SF	0.60	3,528
	Miscellaneous Accent Painting Allowance	1	LS	2,500.00	2,500
	ADA Compliance Modifications (Allowance)				Excluded
	SUBTOTAL INTERIOR FINISHES				**26,355**

DIV 10	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SPECIALITIES				
	Move Furnishings at Egress	40	HRS	35.00	1,400
	New Bath Hardware				Excluded
	Fire Extinguishers (2 per floor)				Excluded
	Corner Guards				Excluded
	Code Required Signage	2	EA	55.20	110
	Wayfinding Signage	1	AL	1,500.00	1,500
	Access Ladders				Excluded
	SUBTOTAL SPECIALTIES				**3,010**

DIV 11	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	EQUIPMENT				
	SUBTOTAL EQUIPMENT				EXCLUDED

DIV 12	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	FURNISHINGS				
	SUBTOTAL FURNISHINGS				EXCLUDED

DIV 13	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SPECIAL CONSTRUCTION				
	SUBTOTAL SPECIAL CONSTRUCTION				EXCLUDED

DIV 14	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	CONVEYING SYSTEMS				
	SUBTOTAL CONVEYING SYSTEMS				EXCLUDED

DIV 21	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	FIRE SUPPRESSION				
	Fire Sprinklers - Full Replacement				Excluded
	Backflow Prevention				Excluded
	FDC				Excluded
	Booster Pump (Allowance)				Excluded
	SUBTOTAL FIRE SUPPRESSION				EXCLUDED

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)				Excluded
	Insulation @ Lavatory & Mechanical Piping				Excluded
	SUBTOTAL PLUMBING				EXCLUDED

DIV 23	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	HVAC				
	HVAC - Remove Existing RTU's, Cap Ducting, Add Unit Heaters (minimal heating for cold storage), Add Minimal Ventilation	39,195	SF	3.40	133,263
	HVAC Controls				w/ Above
	SUBTOTAL HVAC				133,263

DIV 26	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	ELECTRICAL				
	Automated Lighting Controls/Sensors	39,195	SF	0.90	35,276
	Demo Existing Electrical Outlets & Replace				Excluded
	Replace Panels				Excluded
	New Electrical Wiring & Conduit @ HVAC Equipment	39,195	SF	1.00	39,195
	Remove Light Fixtures throughout Building				Excluded
	Replace Light Fixtures w/ LED				Excluded
	Replace Emergency GenSet				Excluded
	UPS System				Excluded
	Solar Photovoltaic System				Excluded
	Wind Turbine System				Excluded
	Replace Lightning Protection System				Excluded
	SUBTOTAL ELECTRICAL				**74,471**

DIV 27	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	DATA / COMMUNICATIONS				
	Fire Alarm System - New System				Excluded
	Data & Communications Conduit - Bring up to Code	39,195	SF	0.92	36,059
	Data & Communications Equipment				Excluded
	A/V Equipment				Excluded
	SUBTOTAL COMMUNICATIONS				**36,059**

DIV 032	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SITE IMPROVEMENTS				
	Paving				
	Minor Grading for New Paving	1	LS	45,000.00	45,000
	Remove & Replace Existing Asphalt Road around Bldg	40,000	SF	4.22	168,800
	Concrete Replacement at Sidewalks / Valley Pans	3,500	SF	6.50	22,750
	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				**241,550**

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 -					**1,325,721**
					34

This page left intentionally blank.