DEPARTMENT OF ADMINISTRATION
REAL ESTATE & CONSTRUCTION

# COMPREHENSIVE STUDY OF BUILDING #35 MCF – MOOSE LAKE

## MINNESOTA DEPARTMENT OF CORRECTIONS

**MN RECS Project No. 78ML0085**

## 1000 Lake Shore Drive
## MOOSE LAKE, MINNESOTA 55787

**PREPARED BY:**
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**FINAL REPORT:**
June 26, 2019

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# ACKNOWLEDGEMENT OF TEAM

## STATE OF MINNESOTA PARTICIPANTS

The following provides a list of state officials that have participated in one or more meetings and email from the initial kick-off meeting to final team meeting.

Benjamin Kitograd, State of Minnesota Project Manager
David Wisnewski, Department of Corrections
Daniel Hattenberger, Department of Corrections

## FACILITY CONDITION ASSESSEMENT DESIGN TEAM

William B. Scalzo, CCS, CSI, MN Registration No. 18130
Scalzo Architects, Ltd – Architecture

John Woodworth, PE, MN Registration No. 15643
Northland Consulting Engineers, LLP – Structural & Forensic Engineering

Charles Jacobs, PE, MN Registration No. 22089
Obermiller Nelson Engineering – Mechanical, Plumbing, Fire Protection Engineering

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Obermiller Nelson Engineering – Electrical Engineering

# PURPOSE AND SCOPE

***Purpose:*** Scalzo Architects, Ltd. together with consultants Northland Consulting Engineers, LLP for Forensic and Structural Engineering and Obermiller Nelson Engineering for MEPFS was retained by Minnesota Department of Administration Real Estate & Construction to perform a Comprehensive Study of Building #35 at Minnesota Correction Facility in Moose Lake, Minnesota. The objective of the Comprehensive Study of Building #35 at Moose Lake Correction Facility in Moose Lake Minnesota is to provide information to Department of Correction Leadership to make an informed decision on whether to pursue renovation or replacement of Building #35.

***Scope:*** The first part of the study is to provide a building analysis of existing conditions including overall costs for the renovation of Building #35, which will include, but not limited to: hazardous material abatement, roof replacement, window replacement, HVAC, brick tuck pointing, code upgrades, etc. The second part of the study is putting together a cost of construction for an "In-Kind" replacement of Building 35, which would include hazardous material abatement, demolition of Building #35, site analysis, infrastructure, preliminary design, etc. for overall project costs. The study is not to include predesign as part of the scope for this project.

***On-Site Investigation / Interview / Follow-up:*** The Architectural, Structural & MEPFS Building Site Tour occurred on April 24, 2019; the visit included a meeting with facility staff to discuss operational problems to identify current and past deficiencies. The Existing Condition Survey Reports were presented to the State of Minnesota representatives at a meeting held at the facility on May 22, 2019. Supplemental communication through email was directed to those representatives not in attendance to obtain responses to questions or confirmation of the State's intent. A draft of the Comprehensive Study was email to State representatives for a 5 day comment period on June 19, 2019.

***Documentation Reviewed:*** Prior to the building site tour all relevant documentation was requested that could aid in the knowledge of the building's original construction; physical improvements, extent and type of use, and assist in identifying material discrepancies between reported information and observed conditions. Drawings were made available and picked up at the facility on May 3, 2019.

The following provides the specific documents reviewed and obtained:

- Dormitory for Nursing Personnel, Moose Lake State Hospital, Moose Lake, Minnesota Prepared by Jyring & Jurenes Architects & Engineers, Hibbing Minnesota Dated June 1950.
- Dormitory Renovation AutoCAD Plans Prepared by Foster Jacobs & Johnsons Engineers, Duluth, Minnesota Dated 1998

***Opinions of Probable Cost:*** Cost estimates were prepared for each major work item and are considered an opinion of probable costs. Cost estimates were formulated from a variety of resources including: 2017 R.S. Means Cost Data Books; experience with past costs for similar properties/projects; assumptions regarding future economic conditions. These cost estimates would be valid for one year beyond which an escalation rate needs to be applied.

# CODE ANALYSIS AND ACCESSIBILITY

***Code Summary:***

| | |
|---|---|
| Occupancy | 1-3 |
| Construction | Type IIA |
| Allowable Area | 30,000 sq. ft. |
| Actual Area | 18,200 sq. ft. |
| Allowable Height | 3 story |
| Actual Height | 3 story |
| Mixed Occupancy | Not Applicable |
| Sprinkler | Provided throughout |
| Shaft Enclosure | 2 hour |

***Existing Building Conservation Code*:**

| | |
|---|---|
| Classification | Alteration Level 3 |
| Accessibility | Per 2015 State Accessibility Code |
| Energy | Per 2015 State Energy Conservation Code |

***Accessibility Code:*** There is no accessible route into the building; the main entrance is two steps above the adjacent grade and leads to the lower portion of the first floor level where the Control/Security Office, Staff Office, Telephone Room; and Day Room are located. The basement, upper portion of the first floor, and the second floor are accessed by stair only.

Accessibility for Existing Buildings, Section 3411, requires a facility that is altered to comply with Chapter 11 of the IBC. Accessible dwelling or sleeping units for Group I-3 where dwelling or sleeping units are being altered or added, the requirements of Section 1107 for accessible units apply only to the quantity of spaces being altered.

In detention and correctional facilities, common use areas that are used only by inmates or detainees and security personnel, and that do not serve holding cells or housing cells required to be accessible, are not required to be accessible or to be served by an accessible route. Levels that do not contain accessible elements or other spaces as determined by Section 1107 or Section 1108 are not required to be served by an accessible route from an accessible level.

In Group I-3 occupancies at least 2 percent, but not less than one, of the dwelling units and sleeping units shall be accessible units. Each toilet room and bathing room shall be accessible when located on a floor level served by an accessible route.

***Energy Code:*** Additions, alterations, and repairs to existing buildings shall comply with ASHRE 90.1 Section 5.1.3 Envelope Alterations. Alterations to the building envelop shall comply with the requirements of Section 5 for insulation, air leakage, and fenestration applicable to those specific portions of the building being altered.

# EXISTING BUILDING ACCESSMENT

The facility is a two-story walk-up with a partial basement connection to the utility tunnel at the east end of the building. The building is not accessible as the main floor is at one-half level above grade. The medium security dormitory building has 88 beds and includes: toilet, shower and laundry facilities; day room spaces, and control office. There are no kitchen facilities.

| Physical Condition Summary | Good | Fair | Poor |
|---|---|---|---|
| | | | |
| **Code Compliance and Accessibility** | | | |
| Accessibility | | | ✓ |
| Egress / Life Safety | ✓ | | |
| Energy | | | ✓ |
| **Architectural Condition Survey** | | | |
| Building Envelope Analysis | | ✓ | |
| Building Interior Analysis | | ✓ | |
| **Structural Condition Survey** | | | |
| Structural Load Capacity | ✓ | | |
| Roof Structure | ✓ | | |
| Exterior Walls / Facade | ✓ | | |
| Foundations | ✓ | | |
| Structural Frame | ✓ | | |
| **Mechanical & Electrical Condition Survey** | | | |
| Building Heating, Ventilating, and Air-Conditioning | | | ✓ |
| Fire Protection | ✓ | | |
| Building Plumbing and Domestic Water/Hot Water | | ✓ | |
| Building Mechanical | | ✓ | |
| Building Electrical | ✓ | | |
| Communications | | ✓ | |
| Life Safety | | ✓ | |

Conditions noted in the Physical Condition Summary Table are representative of the overall conditions of the building. There may be more detail on specific assessment of the Condition Survey Reports in the Appendix therefore the Physical Condition Summary Table should not be used as a standalone document.

For this purpose of this summary the physical condition of building components are identified as being in one of three categories: Good, Fair, and Poor. The following definitions are used:

Good - Satisfactory as-is. Requires only routine maintenance during the assessment period. Repair or replacement may be required due to a system's estimated useful life.

Fair – Satisfactory as-is. Repair or replacement is required due to current physical condition and/or estimated remaining useful life.

Poor – Immediate repair, replacement, or significant maintenance is required.

## RENOVATION - SUMMARY OF WORK

Building renovation will be accomplished by relocating the offenders to eliminate phased construction; this will also accommodate modification of the security perimeter fence to isolate the construction zone from the secured area.

***Environmental:*** Hazardous materials abatement is anticipated to include lead based paint and asbestos insulation on concealed stem piping.

***Site / Utilities:*** Site work to provide an accessible route to the main building entrance. Utilities are routed to the building via tunnel connecting campus building to central heating plant.

***Architectural:*** Exterior envelope improvement to include: repair and point mortar joints for brick masonry and glass block masonry; brick repair and tuck pointing from window and door openings; brick repair and tuck pointing for the main entry; install new wood clad energy efficient windows; install new main entry door system; and install roofing system, polyisocyanurate insulation, built-up roofing and pre-finished metal flashings.

The existing building configuration provides significant obstacles to accomplish an appropriate mechanical renovation. The floor to floor heights and the shallow structural frame are not conducive to the installation of upgrades for energy efficient ventilation and heating systems. Interior renovation will need to include removal of the existing ceilings to accommodate installation of ventilation system along with demolition of interior of the exterior walls to facilitate the installation of an upgraded heating system. The remodel required for the interior spaces to accommodate the mechanical work will result in lower ceilings, soffits and bulkheads and reduced floor space. The interior face of the exterior walls will be furred, insulated and provided with impact resistant gypsum board. Interior finishes are to be refreshed for all interior spaces.

Accessibility improvements to include installation of a three stop vertical platform lift to provide access from the main entry level to the basement level below and to the first floor above. One of the offender rooms are remodeled to provide accessible accommodations and accessible sanitation facilities and provided on the first floor level.

Energy code building envelope improvements include window replacement; building entrance system replacement; interior furring and insulation, and roofing insulation. Upgraded mechanical and electrical systems will comply with the current energy code requirements designed to meet the State of Minnesota Sustainable Building Guidelines (B3 Guidelines)

***Mechanical:*** Renovation will include replacement of all sanitary and storm drain, waste and vent piping including underground. Installation of mechanical ventilation system with outside air, heat recovery, and exhaust. Perimeter heat will be replaced entirely with new piping and terminal heating devices in either steam or hot water. Fire protection will be replaced entirely to accommodate partition and ceiling work.

***Electrical:*** Upgrades for electrical will include replacement of receptacles, light fixtures, lighting controls and service upgrades to accommodate new mechanical equipment. Communication systems (surveillance and door access) and the fire alarm system will also be upgraded. The paging system and phone system are not in need of being replaced.

# RENOVATION - COST ESTIMATE

| Work Item | Estimated Cost |
|---|---|
| Environmental<br>Demolition / Hazardous Material Abatement | $ 300,341 |
| Site Work | $ 11,000 |
| Architectural<br>Building Envelope<br>Accessibility Code Upgrade<br>Interior Refresh<br>Interior Related to MEP Upgrade | <br>$ 249,720<br>$ 52,000<br>$ 105,600<br>$ 350,072 |
| Mechanical, Electrical & Plumbing<br>Plumbing / Fire Protection<br>Heating<br>Ventilation<br>Electrical | <br>$ 521,000<br>$ 400,000<br>$ 479,000<br>$ 750,000 |
| Sub-Total | $3,218,733 |
| General Conditions – 30% | $ 965,620 |
| Sub-Total | $4,184,353 |
| Bond / OHP – 10% | $ 418,435 |
| Sub-Total | $4,602,788 |
| Contingency – 20% | $ 920,558 |
| Sub-Total | $5,523,346 |
| A/E Design Fees - 8% | $ 441,868 |
| Total Project Cost | $5,965,214 |

| | | |
|---|---|---|
| Air Condition Alternate | (Add) | $ 166,795 |

## REPLACEMENT - SCOPE OF WORK

The “In-Kind” building replacement to be accomplished by relocating offenders; demolition of the existing building and construction of the new building to remain connected to the campus utility tunnel. The scope of work to provide modification of the security fencing is to isolate the construction zone for the secured perimeter.

The replacement cost estimate is based on an 18,000 sq. ft. building designed to meet the Minnesota Sustainable Building 2030 (SB2030) Energy Standards. A new building will be constructed with appropriate floor to floor heights and framing depths to accommodate state of the art HVAC systems without compromising interior living spaces.

## REPLACEMENT - COST ESTIMATE

| Work Item | Estimated Cost |
|---|---|
| Environmental<br>Demolition / Hazardous Material Abatement | $ 137,700 |
| Site / Utilities | $ 75,000 |
| Architectural<br>Site / Utilities General Construction | $3,738,000 |
| Mechanical, Electrical & Plumbing<br>Plumbing / Fire Protection<br>HVAC<br>Electrical | <br>$1,351,680<br>$ 422,400<br>$ 337,920 |
| Sub-Total | $6,062,700 |
| A/E Design Fees - 7% | $ 424,389 |
| Total Project Cost | $6,487,089 |

# BUILDING 35 Architectural Condition Survey
## MCF – Moose Lake
## Minnesota Department of Corrections
## RES Project No. 78ML0085

Building Name: Building 35

Year Built: 1950

Dated of Inspection: April 24, 2019

Drawings Available: Yes

Inspection By: William Scalzo

Number of Levels: 3

Location: Moose Lake, MN

*Building History:* The building, constructed in 1950, is designed served as a Nurse's Dormitory for the State Hospital at Moose Lake. The design professionals of record are Jyring and Jurenes Architects and Engineers. Complete set of the original construction documents are available for review.

*Building Description:* The building is a 3 story brick masonry structure with a foot print of 167'-8" long x 40'-0" wide. The first floor, located approximately 6'- 6" below grade, is a partial story for the eastern 111"-0" of the building, the remainder is crawl space. The first level provides a connection to the campus utility tunnel and includes dayroom, laundry and exercise space for the inmates. The second level, located approximately 3'-4" above grade, includes control office; staff offices, inmate rooms, sanitation and shower facilities; telephone and day room space. The second floor, located approximately 13'-4" above grade, includes inmate rooms, sanitation and shower facilities, and common space.

The original construction included an enclosed stair at the east end of the building; and an open stair from the main building entrance, and an exterior stair fire escape on the west end of the building. The exterior stair was subsequently replace by an enclosed stair constructed at the west end of the building. The original floor plans are not significantly altered by the conversion to the Minnesota Department of Corrections.

The floor to floor height basement to first floor is 9'-11"; lower portion of first floor to second floor is 12'-5"; first floor to second floor is 9'-6"; and second floor to the roof deck is 9'-6". Exterior walls are brick masonry with clay tile backup furring and plaster interior finish. Interior partitions are plaster with clay tile backup. Ceilings are solid material; plaster or gypsum board attached to the underside of joists. Roof joists are 8 inches in depth; floor joists are 8 inches and 12 inches in depth.

*Building Envelope Analysis:* The exterior brick masonry is in good condition; walls are plumb and straight. Mortar joints are deteriorated at the window openings head, jamb, and especially at the sill. The steel lintels for window and door openings are in good condition, no excess rust is observed. Deteriorated mortar joints are observed at the building entry, including the wall adjacent to the stair and the base of the column supporting the flat roof canopy.

The existing exterior wood double hung windows, original to the building construction, are severely deteriorated allowing air infiltration into the living space and water infiltration into the masonry wall. The building entrances, hollow metal doors, frames and sidelights are in good condition. The main entrance being hollow metal door with sidelight and transom frame installed in brick masonry opening. The stair egress doors are hollow metal door and frame installed in glass block masonry opening. Both of the original stair locations have two-story exterior glass block unit panels.

The existing roofing is EPDM membrane with rock ballast and metal flashings approximately 15-20 years old. There is two roof drains with insulation tapered for drainage. Roof penetrations include ventilation exhaust fans and plumbing vent pipes.

*Building Interior Analysis:* The configuration of rooms is not significantly changed from the original design for the dormitory environment. The west portion of the first floor has been remodeled for a control and security office and staff offices. The original private bathrooms and the common bath and shower rooms were remodeled to accommodate the current use.

Interior finishes are hard durable surfaces, relatively well maintained; although dated and showing wear. The finish of the exterior walls is metal lath and plaster directly applied to the block back-up; there is no existing interior furring or insulation. Interior partitions are full height clay tile with plaster finish on each face. Ceiling heights in general are 8’-6”; with a suspended ceiling at 10’-0” for the western portion of the first floor. Interior doors are 3’-0” x 6’-8” for stairs and 2’-8” x 6’-8” for inmate rooms and in general.

# Building 35 Structural Condition Survey
# Moose Lake Campus
# Minnesota Department of Corrections
# NCE Job # 19-194

**Building Name: Building 35**

Year Built: 1950, Approx.

Building ID#: 35

Drawings Available: Yes X No__

Date of Inspection: April 24, 2019

Critical Deficiency Notices: Yes No X

Inspection By: JW, Bill Scalzo

Number of Levels: 3

Condition Assessment: 8

*Building History*: The building was constructed in the early 1950's for a nursing dormitory as part of the Moose Lake State Hospital. The facility became part of the Department of Corrections in 1949. Jyring and Jurenes Architects and Engineers are the professionals of record.

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*Building Description:* The structure is three level brick masonry structure. The plan dimensions of the building are 168' by 40' approximately. The long dimension extends east-west.

The basement level is partially below grade making the first and second levels above grade. The main entrance is located near the westerly end of the structure with a set of stairs up to the first level and down to the basement from the entry vestibule. The stairs continue to the second level. A full height stairwell from original construction is located at the east end. A third full height stairwell was added to the west end of the building. The building can also be accessed by an underground utility tunnel extending from the administration building.

The easterly portion of the Level 1 and the entire Level 2 are dormitory room space. The easterly portion of the Basement and the westerly portion of Level 2 are public spaces. The westerly portion of the Basement level is crawlspace (not accessible during my visit) beneath the Level 1 public space.

Perimeter foundation walls are cast-in-place concrete. Interior framing columns are supported by concrete spread footings. Exterior walls are brick masonry with a concrete masonry and clay tile back up material. Interior partitions are concrete

masonry and clay tile. Interior finishes are plaster (original) and gypsum (recent remodeling). Floors are tile and terrazzo.

Structural floor framing in the dormitory areas typically consists of steel bar joists (12" and 8" depth) supporting a 2 ½" concrete floor on Steeltex lath. The joists span in a north-south direction between exterior walls and a centrally located steel beam and column framing line that extends from the basement level to the roof.

Structural floor framing in the public areas at the west end of the building are steel bar joists (10" and 12" depth). The plans do not indicate the floor but it could be the same as found in the dormitory. The joists span in a east-west direction between exterior and interior bearing walls and a centrally located steel beam and column framing line that extends from the basement level to the roof.

Roof framing is 12" and 8" steel bar joists supporting a 1 ½" steel deck with rigid insulation and a original pitch and gravel roof. This original membrane was replaced with a ballasted EPDM membrane. The joists are supported by the exterior walls and the steel beam and column lines carrying the floor framing.

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*Structural Load Capacity:* Design loads are not furnished on the construction documents. Based on the members sizes and dimensions featured in the construction documents we checked the allowable snow load for the typical roof joist framing in the dormitory area (using the current ballasted roof membrane in our calculations) and the typical floor joist framing in the dormitory area for live load capacity

Based on our structural analysis the allowable live load capacity of dormitory area is approximately 100 pounds per square foot (psf). This meets the Minnesota State Building Code requirements for public spaces and exit ways.

Based on our structural analysis the snow load capacity of the roof is approximately 50 psf. This exceeds the current Minnesota State Building Code requirement of 42 psf for snow load.

Our analysis should be considered as preliminary only. It's purpose is to identify a structure with gross under design problems; which this structure does not appear to have. A more complete analysis should be done prior to any actual design changes or changes of usage to 1) confirm the results of our preliminary analysis are universal to the structure and 2) confirm that design changes have not altered the current load capacities significantly.

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***Summary of Findings: Long term wear masonry deterioration beneath windows and exterior entry. Long term moisture penetration into masonry at north wall main entry***

***Recommendations and Conclusions:*** **The building is in good to very good condition without evidence of significant structural problems. No major renovation is needed at this time to correct structural deficiencies.**

**Items requiring maintenance or monitoring are as follows:**

**Replace all windows, caulk around openings, tuck point all sills and restore masonry as needed below sills.**

**Restore masonry at north wall entry door stairs.**

**A complete analysis of structural systems should be made prior to change or usage, remodeling or improvements to the building.**

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*Critical Deficiency Notices:* None

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Roof

Membrane and deck: Ballasted EPDM Condition: 8
Roof Structure: Steel joists and deck Condition : 8

The roof membrane is a ballasted EPDM of maximum twenty five year age. Drainage to internal drains is provided by two internal drains.

Leakage areas were not reported and interior ceiling damage from leakage on the second level was not observed.

Minor efflorescence stains were noted on the upward areas of masonry in localized areas. This is typically evidence of edge flashing leakage at some point in the building's history.

Localized wind scour of ballast was found in the easterly section of the roof near the east roof drain.

No snow drift potential occurs on the roof. The roof is single level and there are no parapets.

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Exterior Wall/Façade

Wall Construction: Brick Masonry Condition: 7

I did not observe evidence of brick fractures from settlement (foundation, window lintels), thermal changes or long term growth of the walls.

The lines of masonry are good. Walls are straight and do not lean or bulge.

Tuckpointing is good except at window sills where moderately to heavy loss as occurred due to window leakage. Masonry deterioration at the windows has extended into the wall beneath the openings on some windows.

The wood frame windows are in poor condition with heavy decay on sills and lower portions of the jams.

Steel window lintels appear in good condition. Rust layering due to long term corrosion was not observed to a great degree.

Long term moisture entry has occurred at the stairwell leading to the north wall entry. This has resulting in efflorescence, vegetation growth, and displacement of bricks.

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Foundations

Exterior Foundation Wall Construction: Concrete Condition: 8
Interior Foundation Construction: Concrete Condition: 8

Exterior foundations could only be viewed in relatively few locations. Interior foundation lines could not be seen . (A crawl space located beneath a public space in the west end of the building could not be accessed due to a stuck entry door). I did not see evidence of settlement in the exterior or interior finishes that would indicate settlement of foundations.

The concrete slab on grade is in excellent condition. Evidence of overload or settlement of the slab was not found. Shrinkage or other cracks of consequence were not observed in slabs throughout the building.

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Structural Frame: Steel joists, beams, columns Condition: 8

The structural steel is not visible in any areas except stairwells. In the original stairwells the framework is reinforced concrete. In the added stairwell added to the west end of the building the framing is steel. In the remainder of the building framing is concealed by finishes.

Regardless the surfaces of the wall and floors due not show evidence of framing irregularities or structural problems. Finishes are generally not cracked from deflection or overload, expansion and contraction. Lines are good. Floors do not bounce or noticeably slope.

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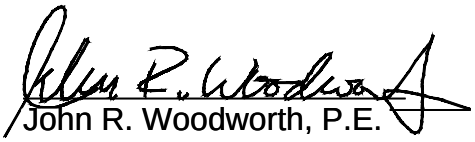
**Professional Certification:**
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.



5/8/2019
John R. Woodworth, P.E. Date
MN Reg. No. 15643

| CODE | Superstructure Condition Description |
|---|---|
| 9 | **Excellent Condition**: Superstructure is in new condition (recently constructed). |
| 8 | **Very Good Condition**: Superstructure has very minor (and isolated) deterioration. |
| 7 | **Good Condition**: Superstructure has minor (or isolated) deterioration.<br>- Steel: minor corrosion, little or no section loss.<br>- Concrete: minor scaling or non-scaling cracking (isolated delamination or spalling).<br>- Timber: minor weathering or splitting (no decay or crushing).<br>- Masonry: minor weathering or cracking (joints have little or no deterioration). |
| 6 | **Satisfactory Condition**: Superstructure has minor to moderate deterioration. Members may be slightly bent or misaligned –connections may have minor distress.<br>- Steel: moderate corrosion (section loss or fatigue cracks in non-critical areas).<br>- Concrete: moderate scaling or non-structural cracking (minor delamination or spalling.<br>- Timber: moderate weathering or splitting (minor decay or crushing).<br>- Masonry: moderate weathering or cracking (joints may have minor deterioration). |
| 5 | **Fair Condition**: Superstructure has moderate deterioration. Embers may be bent, bowed or misaligned. Bolts, rivets, or connectors, may be loose or missing, but connections remain intact.<br>- Steel: extensive corrosion (initial section loss in critical stress areas). Fatigue cracks (if present) have been arrested or are not likely to propagate into critical stress areas.<br>-Concrete: extensive scaling or cracking (structural cracks may be present), moderate spalling or delamination (reinforcement may have some section loss).<br>-Timber: extensive weathering or splitting (moderate decay or crushing).<br>- Masonry: extensive weathering or splitting (joints may have slight separation or offset). |
| 4 | **Poor Condition**: Superstructure has advanced deterioration. Members may be significantly bent or misaligned. Connection failure may be imminent.<br>-Steel: significant section loss in critical stress areas. Un-arrested fatigue cracks exist that may likely propagate into critical stress areas.<br>-Concrete: advanced scaling, cracking, or spalling (significant structural cracks may be present-exposed reinforcement may have significant structural cracks may be present--exposed reinforcement may have significant section loss).<br>-Timber: advanced splitting (extensive decay or significant crushing).<br>-Masonry: advanced weathering or cracking (joints may have separation or offset). |
| 3 | **Serious Condition**: Superstructure has severe deterioration – immediate repairs or structural evaluation may be required. Members may be severely bent or misaligned – connections or bearings may have failed.<br>- Steel: severe section loss or fatigue cracks in critical stress areas.<br>-Concrete: severe structural cracking or spalling.<br>-Timber: severe spitting, decay, or crushing.<br>-Masonry: severe cracking, offset or misalignment. |
| 2 | **Critical Condition:** Superstructure has critical deterioration- primary structural elements may have failed (severed, detached or critically misaligned). Immediate repairs may be required to prevent collapse or closure. |
| 1 | "**Imminent "Failure Condition**: superstructure is no longer stable (corrective action might return the structure to restricted service). |
| 0 | **Failed Condition**: Superstructure is beyond the point of corrective action. |

# RECS Project No. 78ML0085
# Building 35, MCF – Moose Lake
# Mechanical & Electrical Condition Survey
# Minnesota Department of Corrections

Building Name: Building 35 Year Built: 1950

Date Inspected 4/24/2019 Drawings Available: Yes

Inspection By: C. Jacobs, N. Eisenbarth Number of Levels: 3

Location: Moose Lake, MN, Carlton County

*Building History:* Construction of the campus began in 1936 with Moose Lake State Hospital opening in 1938. Building 35 was constructed in 1950 as a dormitory for hospital staff. In 1995, the hospital closed and was transferred to the Minnesota Department of Corrections. In 1998, a major renovation was undertaken as part of the conversion from its hospital function to corrections. It has been used to house inmates for the past 20 years.

*Building Description:* The structure is a three-level brick masonry structure. Plan dimensions indicate an overall footprint of 168'x40' extending east/west. The building consists primarily of a double loaded corridor with sleeping rooms on each side plus bath rooms as well as laundry and common space on portions of the lowest level and second (ground floors).

*Mechanical Summary:* Much of the mechanical systems are now approaching 70 years of age, particularly the piping. This piping is operating at beyond is recommended usable life and should be replaced. Plumbing fixtures have been updated but many are now 20 years old and in need up updating. Ventilation is minimal and dependent on operable windows or window leakage. Exhaust is limited to toilet rooms or other utility functions. Heating systems are need of replacement due to radiation and piping age as well as a need for updated zone controls for improved energy efficiency.

*Division 21 – Fire Protection:* The fire protection system consists of a wet sprinkler system installed under the 1998 renovation. The building is fed from a 6" main located in the connecting utility tunnel. Each floor is fed via a supervised zone valve with flow detector, monitored by the fire alarm system. The building does not have any standpipes. Sprinkler heads are standard type and not correction or anti-ligature style.

*Division 22 – Plumbing*: The building domestic water and hot water utilities are fed via the connection utility tunnel from central plant. The 1998 renovation significantly reduced the number of plumbing fixtures in the building but added laundry on the lowest level. Existing (prior to 1998 remodel) piping was reused and connected to for the renovation that occurred in 1998. Risers serving lavatories in each room where abandoned in place and risers disconnected from mains located in the basement and crawl space. Waste and vent piping are predominantly

original from 1951. Sanitary and storm services run out of the building underground to nearby structures and on to campus sewers. Minor renovations have occurred in toilet rooms with reconfiguration and replacement of fixtures and minor piping modifications.

*Division 23 – Mechanical:* The building heat is derived from a central district heating plant. Low pressure steam is distributed via horizontal mains at the lowest level then vertically to room radiation. Condensate returns via gravity to a building condensate return pump. Heating elements on the lowest level were replaced in 1998 while much of the upper level radiation remains from 1951, but with control valves replaced in 1998 ( or more recently). Ventilation is limited to toilet room or utility/laundry room exhaust. Operable windows are the only source of outside air throughout the building.

*Division 26 – Electrical:*
Overall the electrical panels appear to be in good condition. The 120/208V 3ph LB panel was full and doesn't contain any spaces or spares. Most other panels had some spaces or spare breakers available. The existing mechanical room 012 was very warm, which could affect the life span of the transformers and IT data equipment in the space. There is a 277/480V emergency panel (EHB) which feeds some corridor lighting and a 120/208V panel (ELB). ELB powers some receptacles in the control Room, the Fire Alarm Panel, Autodome Cameras, Door Security and power for the data rack. Emergency power does not appear to originate in this building, according to as-built drawings it is coming from building 50.

The majority of the lighting is fluorescent T8's. Most fixtures appear to be some level of either vandal resistant, impact resistant or tamperproof. Exterior building mounted fixtures are High Pressure Sodium fixtures. Exit signs do not appear to have built in batteries, so most likely connected to an emergency power panel. Separate egress lighting was not present, so most likely corridor ceiling fixtures are connected to an emergency power panel. According to as-built drawings from 1999 this seems to be the case. Fixtures appeared to be in good cosmetic condition, actual condition of the lamps and ballasts is unknow.

Lighting controls consisted of manual switches, with automatic lighting controls in a couple bathrooms in the basement. The ability to adjust lighting levels did not seem to be present, such as dimming or inboard-outboard lamp switching. The basement Day Rooms were controlled from the switch panel in the control room, along with Corridor lights and Count lights.

*Division 27 – Communications:*
There is a distributed television network throughout the building, with TV hookups in all bed rooms and day rooms. Data and Analog Phone connections are located in the offices and control room, along with additional analog phone connections in the Telephone room. Condition and use of these systems are unknown at this point, further input from staff is needed. The main distribution for these systems is located in the Existing Mechanical Room 012 in the basement.

There doesn't appear to be a centralized clock system, clocks are wall hung in areas as they are needed.

A paging speaker system is present, condition and use is unknown and would require further input from staff. Ceiling mounted speakers appeared to be robust, potentially vandal resistant. Paging system head end is located in the Control Room.

*Division 28 – Life Safety:*
There is a mix of analog and digital surveillance cameras. It is unknown the video quality and resolution of the cameras.

More information needs to be gathered on the door access system, what it consists of and its condition.

Fire Alarm system is a Siemens FireFinder XLS System with the buildings main control panel located in the control room. Age of the system is unknown, it appears a new system was put in in 1999, which may be this same system. Located throughout the common spaces of the building are smoke detectors, manual pull stations, strobes and horn\strobe combinations. Fire Alarm devices are not present in Bed Rooms. Condition and functionality of the system and its devices is unknown. If routine testing is done on the system, those records would be useful.

Sincerely,

**Obermiller Nelson Engineering**

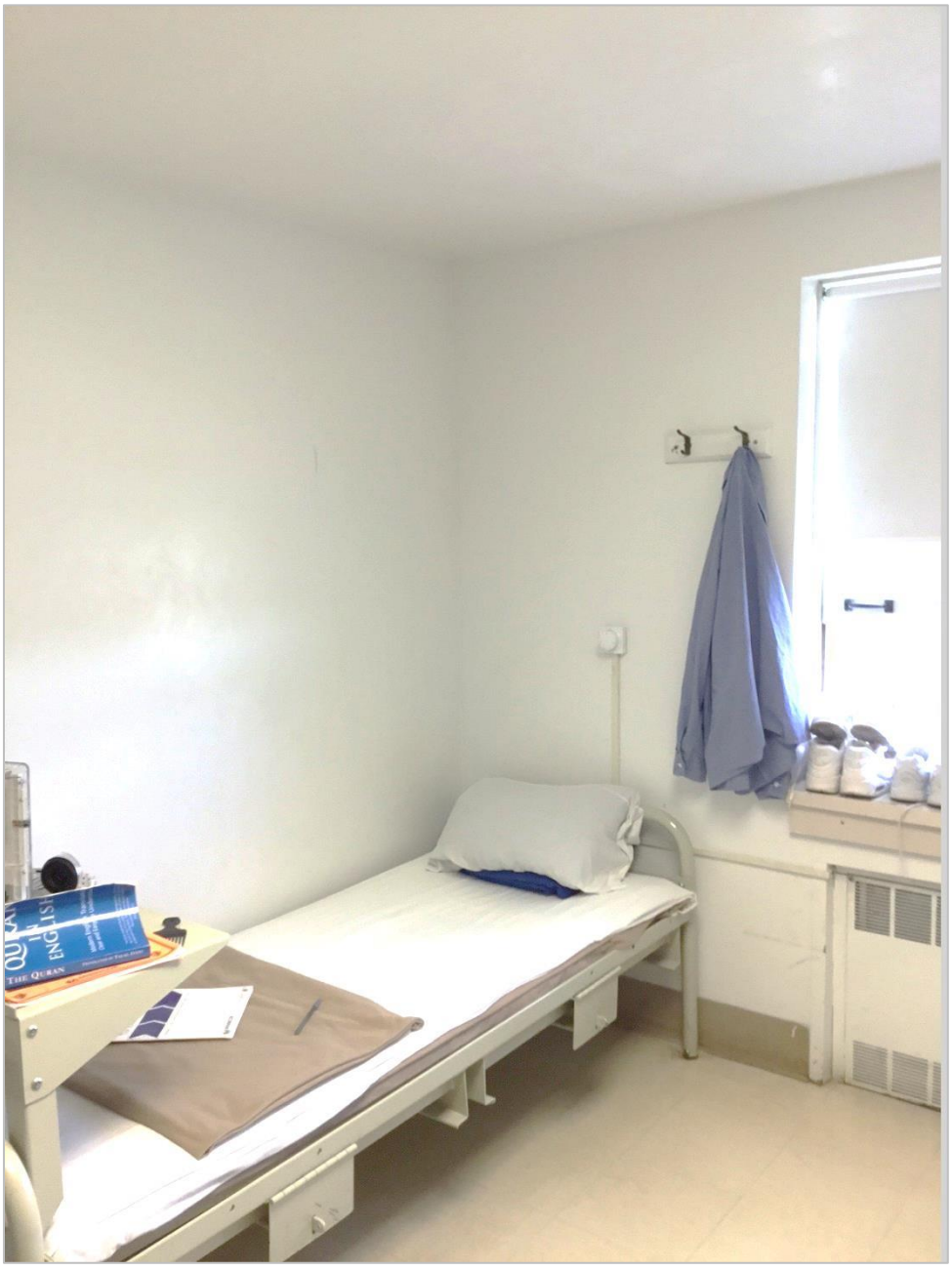
Charles Jacobs, P.E.

# BUILDING #35 MCF – MOOSE LAKE

## PHOTOGRAPHIC LOG

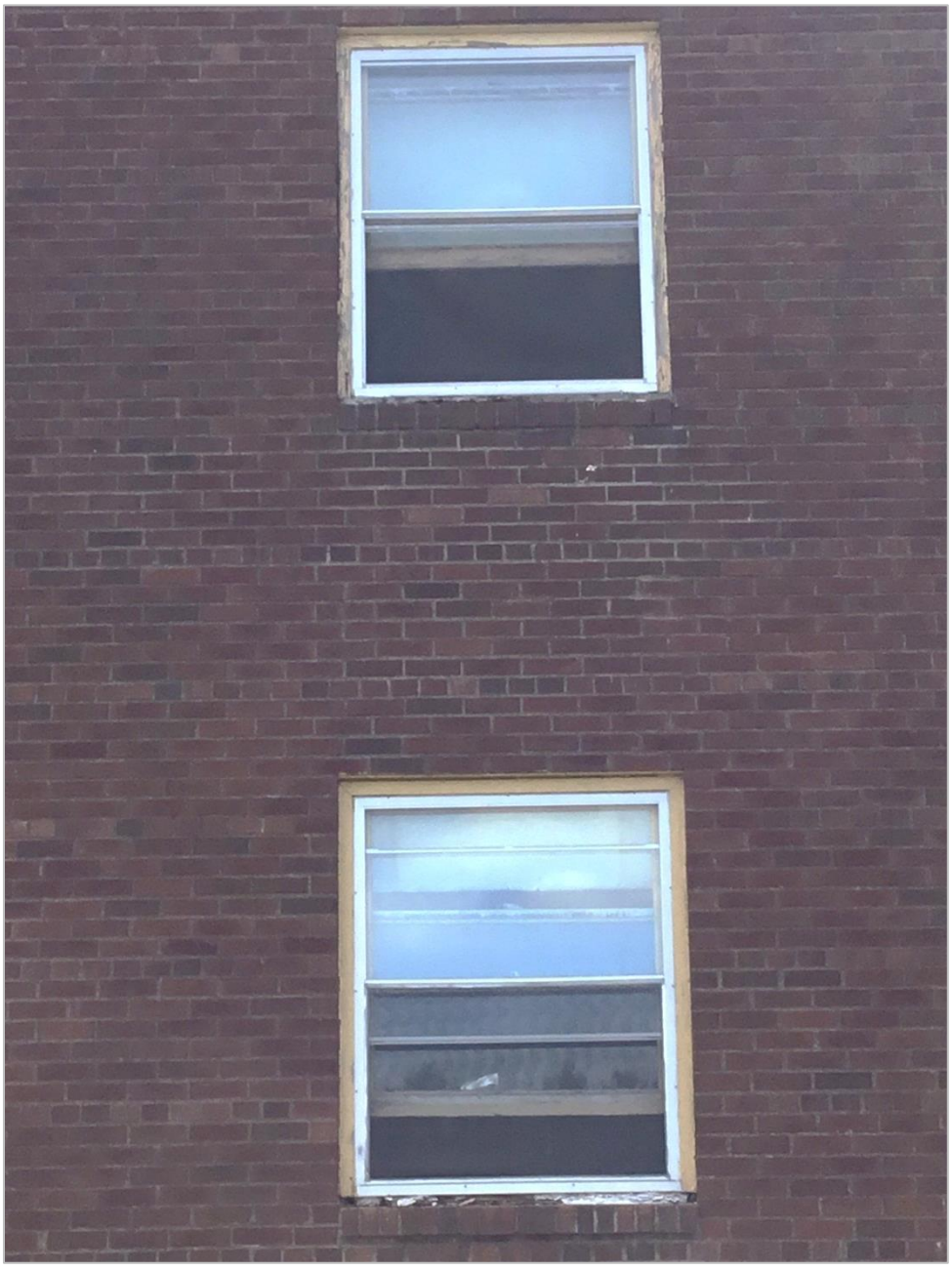

Main entry to the first floor


Basement Commons / Stair to 1st Floor




Typical Room


Main Entry Exterior

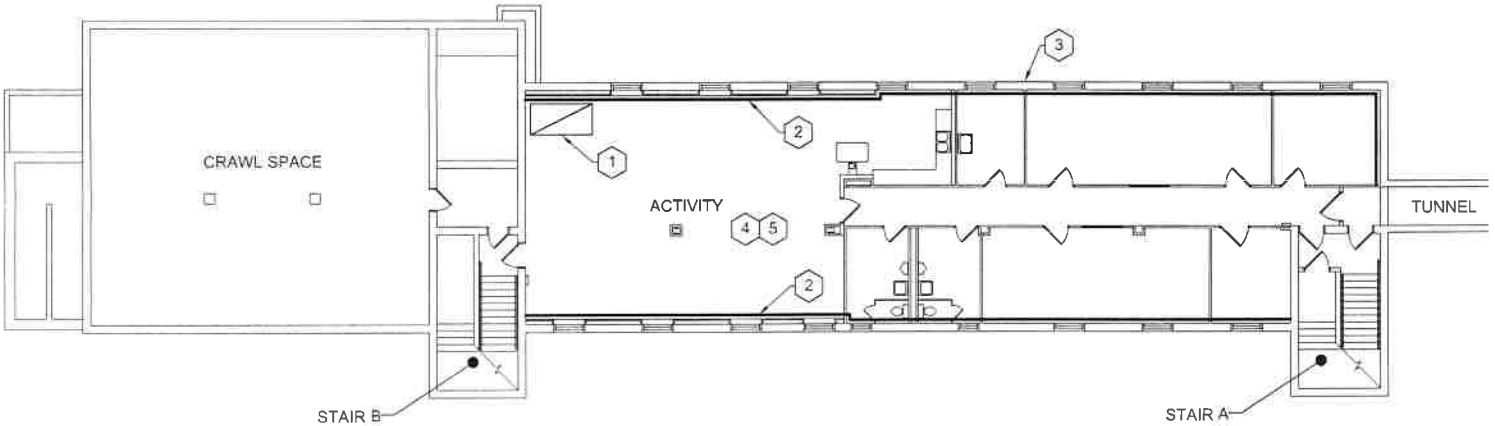


Exterior Windows

Exterior (South Elevation)

## KEYED NOTES:

1. VERTICAL PLATFORM LIFT
2. FURRING W/ INSULATION
3. REPLACE WINDOWS / REPAIR BRICK (TYP)
4. NEW CEILINGS / SOFFITS (TYP)
5. REFRESH FINISHES (TYP)




1 / A1 **BASEMENT PLAN**

1/16"=1'-0"

NORTH

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PROJECT:
**COMPREHENSIVE STUDY BUILDING 35**
MCF - MOOSE LAKE
1000 LAKE SHORE DRIVE
MOOSE LAKE, MN. 55787

BASEMENT PLAN

REVISIONS:

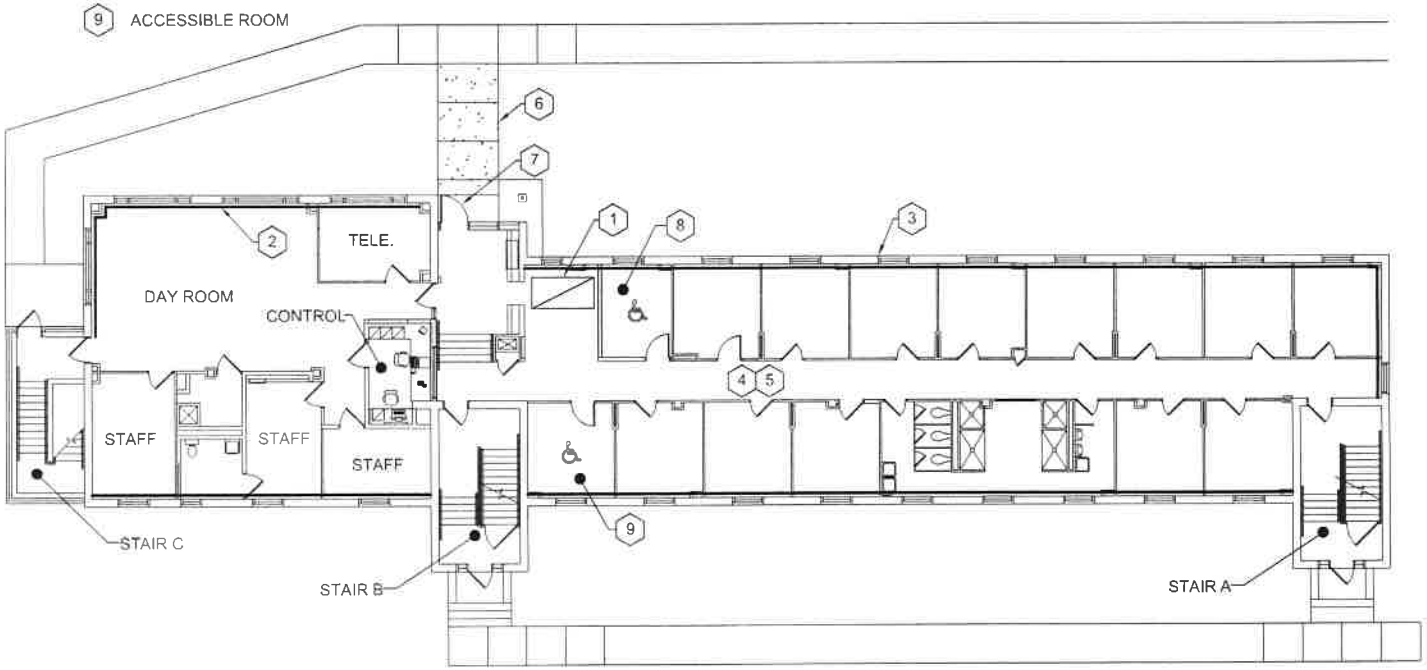
DATE: JUNE 26, 2018
DRAWN: SLR
CHECKED: WBS
PROJECT: 1915

0 1"
FULL SCALE

SHEET NO
**A1**

## KEYED NOTES:

1. VERTICAL PLATFORM LIFT
2. FURRING W/ INSULATION
3. REPLACE WINDOWS / REPAIR BRICK (TYP)
4. NEW CEILINGS / SOFFITS (TYP)
5. REFRESH FINISHES (TYP)
6. ACCESSIBLE RAMP
7. NEW ALUMINUM ENTRANCE
8. ACCESSIBLE TOILET / SHOWER
9. ACCESSIBLE ROOM




1 / A2 **FIRST FLOOR PLAN**

1/16"=1'-0"

NORTH

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PROJECT:
**COMPREHENSIVE STUDY BUILDING 35**
MCF - MOOSE LAKE
1000 LAKE SHORE DRIVE
MOOSE LAKE, MN, 55787

FIRST FLOOR PLAN

REVISIONS:

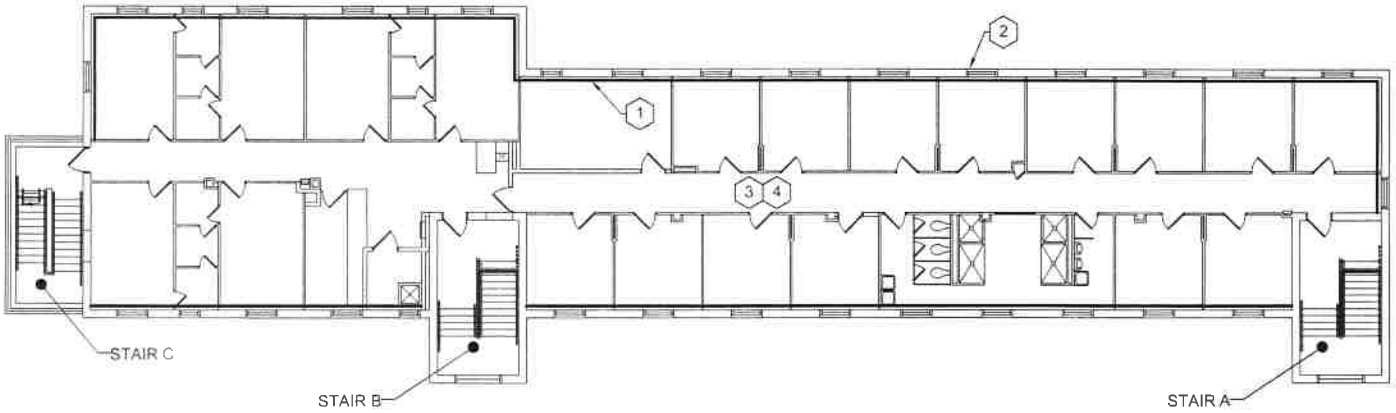
DATE JUNE 26, 2019
DRAWN: SLR
CHECKED: WBS
PROJECT 1915

0 1" FULL SCALE

SHEET NO **A2**

## KEYED NOTES:

1. FURRING W/ INSULATION
2. REPLACE WINDOWS / REPAIR BRICK (TYP)
3. NEW CEILINGS / SOFFITS (TYP)
4. REFRESH FINISHES (TYP)




1 / A3 **SECOND FLOOR PLAN**

1/16"=1'-0"

NORTH

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PROJECT:
**COMPREHENSIVE STUDY BUILDING 35**
MCF - MOOSE LAKE
1000 LAKE SHORE DRIVE
MOOSE LAKE, MN. 55787

SECOND FLOOR PLAN

REVISIONS:

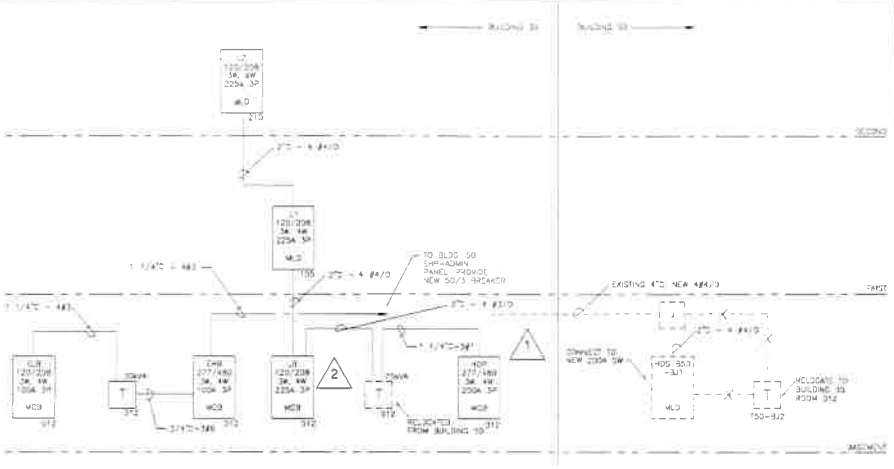
DATE: JUNE 26, 2019
DRAWN: SLR
CHECKED: WBS
PROJECT: 1915

0 1"
FULL SCALE

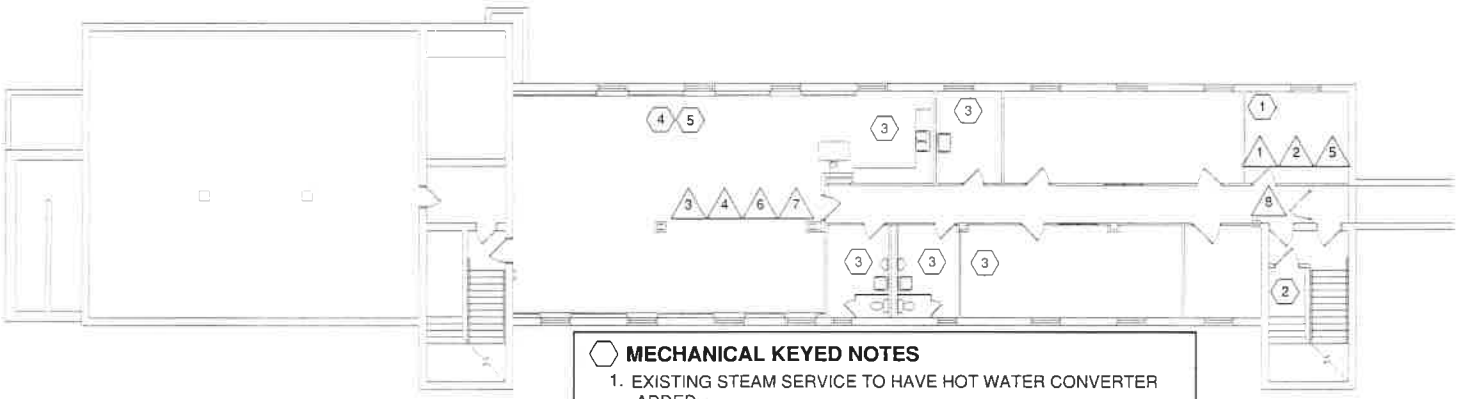
SHEET NO.
**A3**

## ELECTRICAL KEYED NOTES

1. TO ACCOMMODATE ADDITIONAL HVAC LOADS THE SERVICE TO THE BUILDING SHOULD BE UPGRADED. REPLACE EXISTING FEEDER, HDP PANEL AND SWITCH IN HDS PANEL IN B50.
2. PANEL LB HAS NO MORE CIRCUITS AVAILABLE. ADD ANOTHER 225A 120/208V 3PH PANEL AND 75KVA FED FROM NEW HDP.
3. REPLACE ALL NORMAL, EMERGENCY AND EXIT LIGHTING ON THIS FLOOR WITH LED PRISON GRADE FIXTURES.
4. REPLACE ALL LIGHTING CONTROLS AND CONVENIENCE RECEPTACLES ON THIS FLOOR.
5. NEW FIBER BACKBONE TO BUILDING. NEW CAMERA SYSTEM WILL BE IP BASED, ADDITIONAL BANDWIDTH NEEDED.
6. REPLACE ANALOG CAMERAS WITH IP BASED CAMERAS.
7. REPLACE FIRE ALARM SYSTEM, INCLUDING CONTROL PANEL AND DEVICES.
8. REPLACE DOOR ACCESS MONITORING SYSTEM TO FACILITY STANDARD.



2/1 EX. ELEC. RISER



1/1 BASEMENT PLAN

1/16"=1'-0"

NORTH

## MECHANICAL KEYED NOTES

1. EXISTING STEAM SERVICE TO HAVE HOT WATER CONVERTER ADDED.
2. REPLACE CONDENSATE RETURN PUMP
3. 70 YEAR OLD WASTE AND VENT PIPING TO BE REPLACED. 20 YEAR OLD FIXTURES TO BE REPLACED.
4. 70 YEAR OLD STEAM PIPING TO BE REPLACED THROUGHOUT. TERMINAL HEATING TO BE CHANGED TO HOT WATER
5. VENTILATION SYSTEM TO BE ADDED WITH COOLING - FIRE PROTECTION REMOVED/REPLACED

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PROJECT
**COMPREHENSIVE STUDY BUILDING 35**
MCF - MOOSE LAKE
1000 LAKE SHORE DRIVE
MOOSE LAKE, MN. 55787

BASEMENT

REVISIONS:

DATE 6/19/2019
DRAWN GBH
CHECKED NPE
PROJECT 2019105

0 1"
FULL SCALE

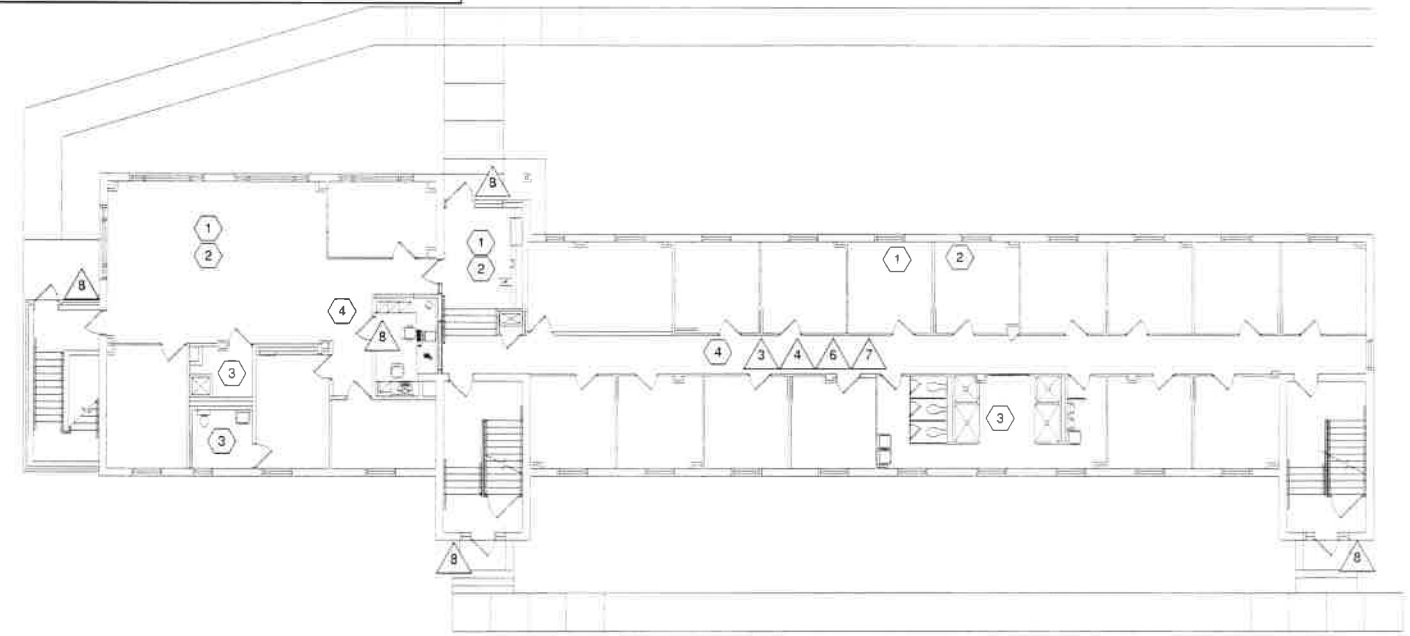
SHEET NO
**MEP-1**

## ELECTRICAL KEYED NOTES

1. NOT USED ON THIS SHEET.
2. NOT USED ON THIS SHEET.
3. REPLACE ALL NORMAL, EMERGENCY AND EXIT LIGHTING ON THIS FLOOR WITH LED PRISON GRADE FIXTURES.
4. REPLACE ALL LIGHTING CONTROLS AND CONVENIENCE RECEPTACLES ON THIS FLOOR.
5. NOT USED ON THIS SHEET.
6. REPLACE ANALOG CAMERAS WITH IP BASED CAMERAS.
7. REPLACE FIRE ALARM SYSTEM, INCLUDING CONTROL PANEL AND DEVICES.
8. REPLACE DOOR ACCESS MONITORING SYSTEM TO FACILITY STANDARD.

## MECHANICAL KEYED NOTES

1. REPLACE EXISTING HEATING SYSTEM IN ITS ENTIRITY
2. PROVIDE VENTILATION SYSTEM THROUGHOUT. PROVIDE EXHAUST FOR HUMIDITY AND ODOR CONTROL
3. REPLACE ALL PLUMBING PIPING INCLUDING STORM. REPLACE ALL PLUMBING FIXTURES.
4. PROVIDE IMPROVED ZONE CONTROL OF HEAT



1/2 **FIRST FLOOR**

1/16"=1'-0"

NORTH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ONE

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PROJECT
**COMPREHENSIVE STUDY BUILDING 35**
MCF - MOOSE LAKE
1000 LAKE SHORE DRIVE
MOOSE LAKE, MN 55787

FIRST FLOOR

REVISIONS:

DATE 6/19/2019
DRAWN GBH
CHECKED NPE
PROJECT 2019105

0 1"
FULL SCALE

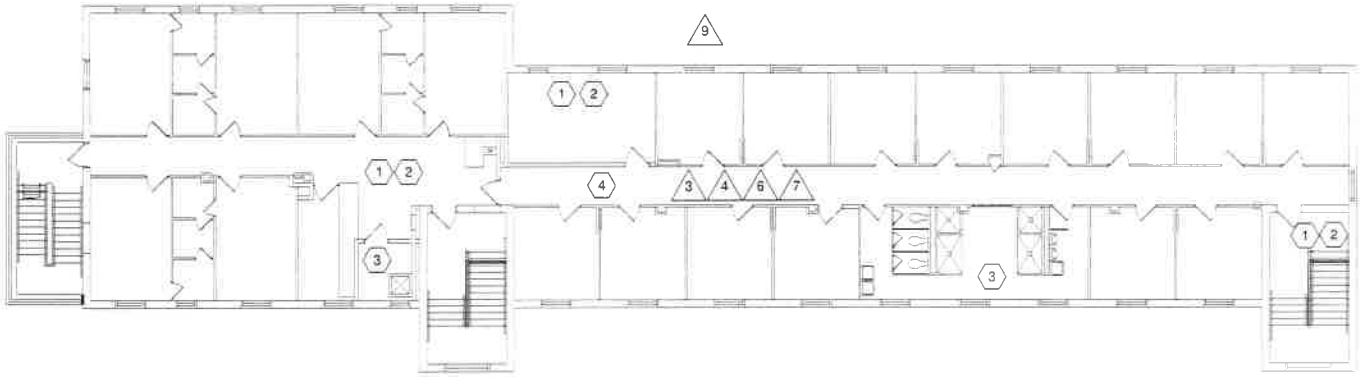
SHEET NO
**MEP-2**

## ELECTRICAL KEYED NOTES

1. NOT USED ON THIS SHEET.
2. NOT USED ON THIS SHEET.
3. REPLACE ALL NORMAL, EMERGENCY AND EXIT LIGHTING ON THIS FLOOR WITH LED PRISON GRADE FIXTURES.
4. REPLACE ALL LIGHTING CONTROLS AND CONVENIENCE RECEPTACLES ON THIS FLOOR.
5. NOT USED ON THIS SHEET.
6. REPLACE ANALOG CAMERAS WITH IP BASED CAMERAS.
7. REPLACE FIRE ALARM SYSTEM, INCLUDING CONTROL PANEL AND DEVICES.
8. NOT USED ON THIS SHEET.
9. REPLACE EXTERIOR BUILDING MOUNTED FIXTURES WITH LED FIXTURES.

## MECHANICAL KEYED NOTES

1. REPLACE EXISTING HEATING SYSTEM IN ITS ENTIRITY
2. PROVIDE VENTILATION SYSTEM THROUGHOUT. PROVIDE EXHAUST FOR HUMIDITY AND ODOR CONTROL
3. REPLACE ALL PLUMBING PIPING INCLUDING STORM. REPLACE ALL PLUMBING FIXTURES.
4. PROVIDE IMPROVED ZONE CONTROL OF HEAT




1/3 **SECOND FLOOR**

1/16"=1'-0"

NORTH

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ONE

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PROJECT

**COMPREHENSIVE STUDY BUILDING 35**

MCF - MOOSE LAKE
1000 LAKE SHORE DRIVE
MOOSE LAKE, MN 55767

SECOND FLOOR

REVISIONS:

DATE 6/19/2019
DRAWN GBH
CHECKED NPE
PROJECT 2019105

0 1"
FULL SCALE

SHEET NO

**MEP-3**

SCALZO architects

## Meeting Minutes

Date: April 24, 2019

Project: **Comprehensive Study – Building 35**
MCF-Moose Lake
RECS Project No. 78ML0085

Project No: 1915

Present: Ben Kitograd, ADM
David Wisnewski, DOC
Daniel Hattenberger, DOC
MCF staff
John Woodworth, NCE
Chip Jacobs, ONE
Nate Eisenbarth, ONE
Bill Scalzo, Scalzo Architects Ltd

Reported By: William B. Scalzo CCS, CSI

**Discussion Items:**

1. Prepare updated schedule showing the Major Milestones.
2. Primary function of Building 35 is housing; General Population.
3. Include allowance for Hazardous materials; potential asbestos insulation on concealed piping and lead-based paint.
4. Consider security equipment per staff recommendations.
5. Code compliance for Accessibility; new mechanical systems, and electrical.
6. Upgrade to DOC standards; 30 year life expectancy.
7. Building envelope issues; water intrusion and deteriorated wood windows.
8. The existing membrane roofing was installed in 2008.
9. Utilities are provided to Building 35 via tunnel connecting the campus.
10. There is no central chilled water system for the campus for providing air conditioning to the buildings.

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11. Ben Kitograd to coordinate Furniture, Fixtures, and Equipment costs.

12. To avoid phased renovation, the offenders with be relocated from the building.

13. The building location will be isolated from the secured perimeter of the correction facility; this will allow the construction process to be less restricted.

14. Concluded with a tour and documentation of the Building 35.

15. Requested photographs taken by Daniel Hattenberger.

16. The drawings for the original construction will be made available for use by the Team to evaluate Building 35.

**Next Meeting: To be determined**

The above notes constitute our understanding of this meeting. Comments, corrections, and additions should be directed to the author; voice 722-4319, fax 722-3535, or e-mail wscalzo@scalzoarchitects.com.

SCALZO architects

## Meeting Minutes

Date: May 22, 2019

Project: **Comprehensive Study – Building 35**
MCF-Moose Lake
RECS Project No. 78ML0085

Project No: 1915

Present: Ben Kitograd, ADM (via telephone)
Daniel Hattenberger, DOC
Chip Jacobs, ONE
Nate Eisenbarth, ONE
Bill Scalzo, Scalzo Architects Ltd

Reported By: William B. Scalzo CCS, CSI

**Discussion Items:**

1. Discuss the findings of the Building Assessment draft dated May 22,2019. Including the architectural assessment; structural condition survey; and mechanical/electrical condition survey.
2. No critical deficiencies noted regarding the existing building structure.
3. The scope of repairs/restoration for the building envelope is outlined and discussed
4. Reviewed code requirements related to egress, accessibility, and energy conservation.
5. The existing mechanical systems are original to the building construction; ventilation systems is non-existent.
6. The existing electrical systems are functional for the current us of the building.
7. There will be no change to the level of the offender housing for Building 35.
8. The final study to provide a tool to assist the DOC leadership to determine whether to renovate or replace Building 35.
9. Air conditioning is not in any of the housing buildings on the campus.
10. No central chilled water to provide air conditioning.

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11. The campus has a fiber loop serving the buildings

12. WIFI is available

13. Consider isolation of the building for the completion of the project,

**Next Meeting: To be determined**

The above notes constitute our understanding of this meeting. Comments, corrections, and additions should be directed to the author; voice 722-4319, fax 722-3535, or e-mail wscalzo@scalzoarchitects.com.

## William Scalzo

**From:** Hattenberger, Daniel (DOC) <daniel.hattenberger@state.mn.us>
**Sent:** Wednesday, May 29, 2019 2:05 PM
**To:** Wisnewski, David (DOC); William Scalzo
**Cc:** Kitograd, Benjamin (ADM); 'Chip Jacobs'; 'Nate Eisenbarth'
**Subject:** RE: bldg #35-mcf moose kake

One more note below as it will increase the costs slightly.

**From:** Wisnewski, David (DOC)
**Sent:** Wednesday, May 29, 2019 12:43 PM
**To:** William Scalzo <wscalzo@scalzoarchitects.com>
**Cc:** Hattenberger, Daniel (DOC) <daniel.hattenberger@state.mn.us>; Kitograd, Benjamin (ADM) <benjamin.kitograd@state.mn.us>; 'Chip Jacobs' <Chip.Jacobs@obernel.com>; 'Nate Eisenbarth' <Nate.Eisenbarth@obernel.com>
**Subject:** RE: bldg #35-mcf moose kake

Bill – Please see my responses in red to your questions.

Thanks

**From:** William Scalzo [mailto:wscalzo@scalzoarchitects.com]
**Sent:** Friday, May 24, 2019 7:28 AM
**To:** Wisnewski, David (DOC) <david.wisnewski@state.mn.us>
**Cc:** Hattenberger, Daniel (DOC) <daniel.hattenberger@state.mn.us>; Kitograd, Benjamin (ADM) <benjamin.kitograd@state.mn.us>; 'Chip Jacobs' <Chip.Jacobs@obernel.com>; 'Nate Eisenbarth' <Nate.Eisenbarth@obernel.com>
**Subject:** bldg #35-mcf moose kake

Dave,

Attached is the preliminary building assessment documents discussed with Dan Hattenberger and Ben Kitograd on Wednesday.

Discussion items.

The structural evaluation indicates no critical deficiencies for the existing structure. The overall condition is classified as an 8. Potential renovation will require additional structural evaluation; for example new roofing or roof top equipment

Architectural/General Building Condition

1. General masonry repair and tuck pointing is required especially focused at the window and door opening locations; estimate 20-25% of the façade in general.
2. The existing ballasted EPDM roofing membrane is near the end of use life; did not observe evidence of leaks at the interior of the second floor. Replacement at this time is recommended; a fully adhered system will will reduce the dead load for the roof structure to accommodate roof top equipment as necessary. This should be a hot (asphalt) roof to remain consistent with other roof systems DOC wide.
3. Replacement of the existing exterior wood windows is critical.

4. Interior finishes are serviceable and maintained; should the study consider updating interior finishes? **Yes, I think a 'refresh' is in order. My definition of 'refresh' would be: repaint all rooms and hard ceilings, new vinyl base to match existing and replace lay-in ceiling tile as needed (depends on the color differential between existing and new).**
5. The Existing Building Conservation Code does not the building to be upgraded to meet the current accessibility requirements except in the case of significant alterations to the plans. Are we to consider modifications to comply with current requirements? **There has been recent challenges regarding ADA compliance. Even though the Existing Building Conservation Code doesn't require it, does ADA compliance supercede it?**
6. The Existing Building Conservation Code does not require the existing building envelop to be upgraded to meet the compliance requirements except in thr case of alterations to the envelop. Are we to consider building modifications to upgrade the existing envelop to compliance with the 2015 requirements. For example currently ther is no insulation in the existing exterior walls; should the cost evaluation include adding insulation to meet the required r-values. Yes

Mechanical Systems.

7. The existing steam heating system is functional but at over 50 years old is beyond useful life expectancy. Are we to consider upgrade of the entire system including supply/condensate piping, controls and unit heaters? **Yes** To provide another 50 years of service.
8. There is minimal ventilation for the building; basically toilet/shower facilities only. Improvements would anticipate a mechanical ventilation system for the entire building with the potential to eliminate operable windows. Is air conditioning a consideration for improvements? **Yes, but would like to see this broken out separately in the estimate.**

Please note that the existing building conditions; floor to floor height and shallow structural elements provide difficulty and likely will required significant demolition and renovation of ceilings and partitions to install an updated ventilation system.

Electrical Systems

9. The existing electrical system is functional for the current use of the building. Upgrade of the mechanical systems will require evaluation and potential upgrade of the electrical service to accommodate the added loads.
10. Include upgrade of existing lighting to LED fixtures.
11. Include upgrade of low voltage system.
12. In general, door access to remain; the detainee rooms are secured by a key that they carry; consider upgrading staff areas to key code access or card access.

Chip and Nate please add any additional comments that I missed.

Dave let me know if you would like to schedule a telephone conference to discuss in greater detail; we are working toward a potential meeting in June to finalize the report for submittal at the end of June.

Thanks. Have a great week end!

Bill