ALTERNATIVE TO THE

STATE PRISON OF SOUTHERN MICHIGAN

COURT ORDERED

IMPROVEMENT PLAN FOR

EGELER CELL BLOCKS 1,2,3, AND 7 AND

PARNALL CELL BLOCK 8

PREPARED FOR:
MICHIGAN DEPARTMENT OF MANAGEMENT & BUDGET
LANSING, MICHIGAN

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PROJECT NO. G03383AL

Fishbeck, Thompson, Carr & Huber, Inc. Engineers • Scientists • Architects • Constructors
1515 Arboretum Drive, SE, Grand Rapids, MI 49546 Telephone: 616-575-3824

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INTRODUCTION

The report entitled State Prison of Southern Michigan Court Ordered Improvement Plan for Egeler Cell Blocks 1, 2, 3, and 7 and Parnall Cell Block 8 dated January 20, 2006, described court ordered improvements for each of the five cell blocks. This report describes alternative fire safety and egress improvements to the cell blocks and improvements to Housing Units A and B.

This report includes a summary describing the alternative fire safety and egress improvements, a detailed description of the improvements, schematic drawings, cost estimate, and a construction schedule.

SUMMARY

The following summary describes the proposed improvements to Housing Units A and B, plans for Parnall Cell Block 8, and life safety and egress improvements to Egeler Cell Blocks 7, and 1, 2, and 3.

Housing Units A and B

Housing Units A and B are currently vacant. Some renovation work will occur at the buildings to improve the mechanical systems, and lighting, and to provide the number of code required plumbing fixtures and life safety features. The improvements at both Units A and B include removal and replacement of the existing boiler, increasing the ventilation to provide the code-required amount of ventilation, cleaning the existing light fixtures, and adding one new shower stall to each of the four restrooms for a total of four new showers in each building. A dry pipe fire protection system will be added throughout the occupied spaces of the building. This will significantly improve the life safety of the building occupants.

Parnall Cell Block 8

The Department of Corrections has determined that Parnall Cell Block 8 will be vacated and all cell block occupants will be relocated to other facilities.

Egeler Cell Block 7 Alternative Improvements

The proposed alternative improvements to fire safety and egress at Egeler Cell Block 7 include the construction of two new exit stair towers similar to the proposed alternative at Cell Block 1, 2, and 3. The existing interior stairs at the midpoint on each side of the cell block will be removed. This space will be used as an exit corridor that will provide access to the new exterior exit stair. (See the schematic drawings.) A new exit door with panic hardware connected to the building's fire alarm system will be installed at the entrance to this corridor to prevent inmates from lingering in the exit corridor. The hardware on these doors will be connected to the building's alarm system and will include a delay alarm to notify staff that the door hardware has been activated and to prevent inmates from reaching the exit corridor unsupervised. All building utilities including mechanical, electrical, lighting, and fire protection will be extended into the exterior stairs and exit access corridor.

The new exit stair towers will be constructed with block walls and create a fire rated exit enclosure that will provide access to an exit from each tier of the cell block. Constructing the exit stair on each side and

at the midpoint of the block will further increase life safety by reducing the exit travel distance and time to exit the cell block. Adding the new exit stair will reduce the maximum exit travel distance from the highest tier of cells to less than 150 feet.

Egeler Cell Blocks 1, 2, and 3

The proposed alternative fire safety and egress improvements at Egeler Cell Blocks 1, 2, and 3 include the construction of two new enclosed, exterior exit stair towers. Two exit stair towers will be added; one on each side of the cell block at approximately the mid-point of the block. (See the schematic drawings.) The exit stair towers will be accessed from each elevated tier of cells by a new elevated walkway that will extend from the existing walkway in front of the cells, across the open gallery, to the exterior wall. All existing utility systems including mechanical, electrical, lighting and fire protection will be extended into the new stair towers. Adding a new exit stair tower at the midpoint on each side of the cell block will significantly improve the life safety of all building occupants.

The new exit stair towers will be constructed with block walls and create a fire rated exit enclosure that will provide access to an exit from each tier of the cell block. Constructing the exit stair on each side and at the midpoint of the block will further increase life safety by reducing the exit travel distance and time to exit the cell block. Adding the new exit stair will reduce the maximum exit travel distance from the highest tier of cells to less than 150 feet.

The proposed schedule for the proposed alternative improvements identified in this report is approximately two years, five months. The estimated construction cost for these improvements is $7,804,294.

In addition to the construction cost, there are costs for moving prisoners during construction and for additional staff. The estimated cost for these construction administration services during construction is $1,329,366. (See Appendix 1)

The total estimate including construction administration is $9,133,660.

DETAILED DESCRIPTION OF ALTERNATIVE IMPROVEMENTS

Housing Units A and B

The mechanical systems in Units A and B consist of a hot water heating system, fan induced draft ventilation system and standard plumbing equipment. Mechanically, the only difference between Units A and B is that Unit B has had direct expansion cooling added to the "common" rooms because this facility was once used as office space.

The existing hot water heating system consists of a boiler, zone pumps, finned tube radiation, unit ventilators and forced flow convection heaters. The finned tube radiation serves the exterior perimeter of each housing unit, interior offices and restrooms. The unit ventilators provide heat and ventilation to the activities areas and the forced flow convection heaters offset heat loss at the exit doors.

The existing ventilating system draws air from the outside, into the attic space and out to the occupied space from the ceiling mounted grills with filters. The air is then exhausted out of the space via separate exhaust fans serving the dormitory, activity and rest room areas.

The heating plant equipment, which includes the boiler, pumps & trim were installed in 1986 and have been drained and left open to atmospheric conditions for quite some time. The age and exposure to atmospheric conditions for an extended period of time renders the heating plant equipment unfit for reuse. Therefore the entire heating plant must be replaced with new equipment capable of producing heating hot water of the same capacity and flow rates as the existing equipment.

The finned tube radiation has also been exposed to atmospheric conditions for an extended period of time. This exposure has caused scale build up on the inside of the piping which must be chemically "shocked" to break its bond with the piping. The scale and chemical must then be flushed out of the system before it can be refilled with fluid. Several interior sections of finned tube radiation need to be replaced due to freeze and physical damage.

The existing ventilation system currently has the capability to deliver ASHRAE recommended 20 CFM per person of outdoor air. However, the existing ventilation set up is not configured to provide outdoor air in the winter months. In order to provide ventilation air during winter, the ceiling mounted supply air grills must be retrofitted with heating coils. The heating coils are required to deliver the ventilation air into the Housing Units at or near the winter space temperature setpoint of 68°F.

The existing temperature control system in the Housing Units A and B lacks the flexibility to control the proposed heating and ventilating equipment. A new DDC based temperature control system is required to be installed to effectively control the heating hot water circuits, boilers, outdoor air tempering coils and exhaust fans.

Currently Housing Units A and B do not have automatic fire suppression installed. To meet current Department of Corrections standards and to improve life safety, automatic fire suppression must be installed. Exposed piping cannot be run below the gypsum ceiling for security reasons; it must be run in the attic space. The attic space is wood truss construction so automatic fire suppression heads must be located above and below the ceiling. Since the automatic fire suppression system must be run in the unconditioned attic space, a dry pipe style system must be installed.

The existing plumbing systems in Housing Units A and B appear to be in overall good shape. The plumbing systems have been shut down and drained to avoid freezing. As a result of the shutdown, the piping has been exposed to atmospheric conditions for an extended period of time. To effectively bring the plumbing piping back into working order the piping must be chemically cleaned and disinfected.

The existing water heaters are relatively new, are in good working order and do not require replacement. The existing water service to the building is via groundwater well. The groundwater is extremely hard and must be run through a water softener system to avoid scale build up in the piping systems. The existing water softener systems have sat idle too long at atmospheric conditions and are no longer in good working order. The water softener systems will require replacement with performance to match existing equipment.

The existing hot water tempering valves are dated and at the end of their useful life. The tempering valves are required to be replaced with modern pressure balanced models.

Current Department of Correction standards dictate that shower facilities be provided at the rate of one shower per 15 occupants. There are currently not enough showers provided. To meet current standards one urinal in each restroom must be demolished and a new shower shall be constructed in its place for a total of four new showers.

The existing lighting systems in Housing Units A and B are aged and require replacement to new technology. Existing light fixtures are to be replaced with energy efficient T-8 bulbs and electronic ballasts. Personal light fixtures located at the head of each bed location are dated and a significant

number no longer work. Each personal light fixture requires replacement with a modern model consisting of T-8 lamps, electronic ballast, high & low modes and two receptacle outlets per fixture.

Contractors will require access to the site during the construction phase. A gate is required to be installed in the security fence adjacent to Cooper Street. The gate will be welded shut at the completion of the construction phase.

Two wood guard towers are located outside of the security fence surrounding Housing Units A and B. The guard towers will require new floor decking and miscellaneous repairs before they can be occupied to supervise the occupancy of Housing Units A and B.

Egeler Cell Block 7

The proposed alternative fire safety and egress improvements at Egeler Cell Block 7 include the construction of two new exit stair towers. (See the schematic drawings.) The new exterior exit stair enclosures will be similar to the exit stair towers added on to cell blocks 11 and 12. The exterior walls of the exit stair tower will be stained, split-face block construction. The exterior walls will include minimal amounts of windows to provide natural lighting into the stair towers. The design of the exit stairs will comply with all current codes and correctional standards for exit width. The stair construction will include concrete landings and concrete filled metal pan tread and risers. The railings will be wall-mounted steel railings and steel guardrails at open areas. The stair tower will be accessed by a new corridor that will connect the existing walkway in front of each elevated level of the cells to the new stair tower. The new corridor will be at the location of the existing stair at the midpoint of the cell block.

The corridor will be accessed by a new rated steel door. The door will be provided with panic hardware connected to the cell block's alarm system. The panic hardware will also have a delayed opening device to prevent inmates from accessing the corridor unsupervised. This delay system will prevent access to the stair for a short period of time and will notify staff that an occupant is attempting to enter the corridor.

The addition of the exterior exit stair at the midpoint of the cell block on each side will significantly decrease the time required to exit the building and provide a new safe means of egress for all building occupants.

The existing radiation heat system and fire protection system will be extended into the new stair towers. Each exit stair will be provided with new lighting and emergency exit lights and signs.

The proposed exit stair locations for Cell Block 7 will interfere with the existing mechanical and electrical systems. The exit stair can be constructed in the proposed location with modifications to the existing mechanical and electrical systems. The systems requiring alteration for the stair location are hot water heating piping, automatic fire suppression system, exhaust air ductwork, electrical conduit and switches / junction boxes. Each modification required is typical of two sides of each cell block.

The heating hot water piping will be cut at the stair location, run along the perimeter of the stair well and tied back into the existing piping on the other side. This modification will be required at each tier.

The main riser for the automatic fire suppression system will need to be relocated approximately 5 to 8 feet from the current location from the ground floor up to the upper tier. All associated branch and sprinkler head piping will need to be relocated to provide head room for the new stair at each tier. Existing sprinkler heads in the current stair area will need to be relocated based on new security door layout at each tier. The Siamese fire department connection located at the ground level is required to be relocated to avoid interference with the proposed egress stair location.

Existing electrical conduit, junction boxes and light switches will need to be relocated approximately 6 to 8 feet from their current location at each tier.

Some of the security fencing at the base of the stair towers will need to be relocated or modified to accommodate the exit stairs and maintain security.

Egeler Cell Blocks 1, 2, and 3

The proposed alternative fire safety and egress improvements at Egeler Cell Blocks 1, 2, and 3 include the construction of two new exit stair towers at each of the three cell blocks. (See the schematic drawings.) The new exterior exit stair enclosures will be similar to the exit stair towers added on to cell blocks 11 and 12. The exterior walls of the exit stair tower will be stained, split-face block construction. The exterior walls will include minimal amounts of windows to provide natural lighting into the stair towers. The design of the exit stairs will comply with all current codes and correctional standards for exit width. The stair construction will include concrete landings and concrete filled metal pan tread and risers. The railings will be wall-mounted steel railings and steel guardrails at open areas. The stair tower will be accessed by a new walkway that will connect the existing walkway in front of each elevated level of the cells to the new stair tower. This walkway will span from the walkway at the front of the cells to the exterior wall and connect to the stair tower. The walkway will be provided with a guardrail that will match the height of the newly improved guardrail at the front of the cell walkway. The width of the new walkway will be sufficient to provide safe egress based on the cell block occupant load.

At the end of the new walkway, the stair will be accessed by a new rated steel door. The door will be provided with panic hardware connected to the cell block's alarm system. The panic hardware will also have a delayed opening device to prevent inmates from accessing the exit stair tower unsupervised. This delay system will prevent access to the stair for a short period of time and will notify staff that an occupant is attempting to enter the stair tower.

The addition of the exterior exit stair at the midpoint of the cell block on each side will significantly decrease the time required to exit the building and provide a new safe means of egress for all building occupants.

The existing radiation heat system and fire protection system will be extended into the new stair towers. Each exit stair will be provided with new lighting and emergency exit lights and signs.

Some of the security fencing at the base of the stair towers will need to be relocated or modified to accommodate the exit stairs and maintain security.

SCHEMATIC DRAWINGS

COST ESTIMATE

FTC&H has prepared the following cost estimate for the work required for the proposed alternatives to the court ordered improvements in each cell block and at Housing Units A and B. The cost estimate includes such items as general conditions and fees, an adjustment for working within a secured prison environment, and a construction contingency. Builder's Risk Insurance will be provided by the State.

The total construction cost estimate for the proposed alternatives for Cell Blocks 1, 2, 3, and 7 and Units A and B is $7,804,294.

In addition to the construction cost, there are costs for moving prisoners during construction and for additional staff. The estimated cost for these construction administration services during construction is $1,329,366. (See Appendix 1)

The total estimate including construction administration is $9,133,660.

CONSTRUCTION SCHEDULE

FTC&H has prepared a construction schedule for the work required to implement the proposed alternative fire safety and egress improvements. The construction schedule assumes the cell blocks will be completely vacated for accessibility by the contractors and that one cell block will be renovated at a time, one after the other. The total time for renovating Cell Blocks 1, 2, 3, and 7 and Units A and B is approximately two years, five months, including design time.

MICHIGAN DEPARTMENT OF CORRECTIONS

"Expecting Excellence Every Day"

MEMORANDUM

(Sent 2/1/06 via email)

DATE: February 1, 2006

TO: Jeff Baumann, Administrator
Office of Audit, Internal Affairs and Litigation

FROM: Thomas J. Faussett, Manager *Thomas J. Faussett*
Physical Plant Division, BFM

SUBJECT: Alternative to the Court Ordered Improvement Plan for Egeler (RGC) 1, 2, 3 and 7 and Parnall Cellblock 8

The proposed alternative fire safety egress improvements plan for Egeler Cellblocks 1, 2, 3 and 7 and Parnall Cellblock 8 consists of the following scope of work:

1. Remodeling of Housing Units A and B and moving the Level I prisoners from 8-Block to those housing units.

2. Construction of new enclosed exterior stair towers to Housing Units 1, 2, 3 and 7-Blocks.

Based on the alternative plan, the additional operational costs which are over and above the construction costs for operating a secure prison for the time period covered by the construction are identified below. Because the alternative fire safety egress plan reduces the construction time frame from 42 months to 22 months, additional staffing time shown in the "Heavy Industry" plan has also been reduced from 42 to 22 months. This reduces the construction administration costs to the Department by $993,264 in salary and wages versus the "Heavy Industry" plan.

In addition, with the enclosed exterior stair towers being constructed versus the mid-cellblock dividing walls, ongoing extra-staffing operational costs are eliminated because current staffing will be sufficient. The alternative plan reduces the Department's additional custody staff costs by $11,682,036 annually after five years versus the "Heavy Industry" plan. The alternative plan, with exception of the five officer positions, two maintenance mechanic positions, and one licensed electrician required for construction will not require the Department to add additional staff after construction is complete.

Construction administration costs describe the costs that will be incurred when prisoners are moved one block at a time to adjacent housing units and double bunked in the lower levels of

the adjacent housing units. For example, when Housing Unit 1 is vacated, those prisoners will be moved to Housing Units 2 and 3, thus double bunking the lower two floors in each unit.

Once A and B-Blocks are remodeled, the prisoners in 8-Block will be moved there, and 8-Bblock will be permanently closed down.

Construction Administration:

Furnishings:

380 Bunk beds @ $325 each	$123,500.00
380 wall lockers @ $190 each	72,200.00
10 Ice Machines @ $3,500.00 each	35,000.00
10 Additional Radios @ $600.00 each	6,000.00

Total Furnishings = $236,700.00

Custody Officer Coverage for Construction:

5 - Custody Officers @ $30,000 per month X 22 months = $660,000.00

Maintenance Coverage for Assembly and Disassembly of Furnishings:

2 - Maintenance Mechanics E10 @ $12,832 per month X 22 months = $282,304.00
1 - Licensed 11 Master Electrician @ $6,833 per month X 22 months = $150,362.00

Total Construction Administration Additional Staff Coverage = $1,092,666.00

Construction Administration Total = $1,329,366.00