Special Systems

Provision is to be made to install oxygen and acetylene piping and cylinder storage areas for shops, oxygen supply for each infirmary room, sterilizing equipment, refrigerating gear for good storage, special drains and process piping, as dictated by conditions as may exist in particular buildings.

Water Distribution System

Distributing water mains will loop around the entire complex, and will be cross connected to provide maximum pressure at all points and to facilitate continued water service to all points on the premises in the event of a break in the main at any point.

Proper sectionalizing valves will be installed and completion of the distributing system requires proper valved connections to each building or group of buildings.

Fire Hydrants will be installed at convenient points, available to any mobile pump unit and at points where any building may be served, in the event of fire emergency.

The resulting grid work of water main supplies fire protection, service to plumbing fixtures, drinking water, water for cooking and laundry, as well as for steam generation.

Steam Distribution

High Pressure Steam (150) pounds per square inch guage will be generated from boilers within the Power House located outside the complex area.

Steam is conducted to each building according to individual load demands from the Power House.
Distribution piping will be laid underground in insulated conduit and wherever practical, condensate return lines will parallel the steam lines, in order to effect maximum economy.

Expansion loops, guides and anchors will be provided to allow piping to expand or contract due to temperature changes, without injury or damage in order to avoid unnecessary maintenance repairs.

Branch connections are to be within concrete manholes and connections will be equipped with isolating valves, condensate traps where required, and other specialties as may be necessary.

Sanitary Drainage

Sanitary drain piping will be installed and will be of such size and capacity to accommodate all of the contemplated buildings.

Sanitary drainage from the buildings will collect into the existing city system and be conveyed to the city Disposal Plant for treatment.

Storm Drainage

There is a natural run-off of storm water, but each building, however, will be provided with rain water conductors connected to a simple storm sewer and terminating at and outfall to low land not far from the complex.

Fire Protection

Fire hydrants are to be installed and located within 6 feet of roadways for pumper connections, and within 300 feet of buildings. Hydrants will conform to the requirements
of the National Fire Protection Association for National Hose Threads for fire fighting equipment.

Hydrants will be equipped with suitable valves opening counter-clockwise.

Extinguishers of the proper type will be installed inside of buildings together with standpipes and fire hose connections in accordance with the National Board of Fire Underwriters and the State Fire Marshal's requirements.

Waste Disposal

Garbage will be collected by private firm or by the city.

Central Power House

In addition to housing high voltage switchgear, the Central Power House (located outside of the fenced area in order to isolate operative equipment from the populace) will also house the required high pressure boilers, stokers, coal bunkers, ash handling conveyance and necessary pumps, feed water equipment, etc., required for a complete operating system.

Heating, Ventilating and Air Conditioning Systems

Buildings requiring hot water as a heating media will be provided with a steam-to-water convertor in each building equipment area, for heating water. The hot water circulating system will be complete with necessary pumps, accessories, temperature regulation, convectors etc. required for a satisfactory heating arrangement.
Buildings requiring steam as a heating media will be supplied with high pressure steam from the underground distributing system, reduced in pressure if desired, and the system equipped with all necessary accessories; piping, temperature regulation etc., for a complete steam system as may be dictated by individual building needs.

Buildings requiring warm air as a heating media will be provided with air handling equipment comprised of centrifugal fans, heating coils, air filters, and a system of air ducts for distribution and proper temperature control. Mixing changers, grilles and deflectors, adjusting dampers, temperature regulation, and fresh air connections will all be a part of such systems.

Buildings requiring air conditioning will be provided with all the refrigerating mechanisms, condensing equipment, cooling coils, piping, valves, regulating controls, gauges and thermometers etc., necessary for an economical and satisfactory operating system. Air handling systems generally, will be employed for conducting conditioned air to localized areas. Filters will be a renewable type.

Exhaust ventilation will be provided for all areas where inside air conditions may be contaminated or otherwise laboratories, meeting rooms, etc.
ELECTRICAL SERVICE

General:

Electrical service having a capacity of approximately 5,000 KVA will be required to accommodate the general complex and will include the following:

69 KV Substation Modification to bring Service up to required capacity.

General Lighting
Primary High Voltage Distribution to all buildings within the area.

Low voltage Distribution within all buildings.

Emergency Electrical Distribution High and Low Voltage

General Power

Security Lighting

Communications

High Voltage Distribution and Service:

A 5,000 KVA substation will be required to supply current at 4160 volts through a series of appropriate switchgear for distribution underground throughout the complex.

At various points, local transformers will supply current to individual buildings at 120-208 volts for power and lighting within each building.

Low Voltage Distribution System

Indoor type transformer power centers will be used inside of the buildings. Transformers will be dry-type with primary air filled switch and fuses on the high voltage side and low voltage air circuit breakers or molded case circuit
breakers on the secondary side. Note: if interrupting duty is excessive, current limiting type fuses should be used ahead of equipment which is not rated to interrupting duty available.

Lighting and distribution panels shall be of the dead front type totally enclosed with doors and locks, all locks to be keyed alike, and using molded case circuit breaker protective devices.

All buildings will utilize 120/208 volt, 3 phase, 4 wire distribution system. All motors in these areas will be wound for 208 volt operation.

Emergency Electric Power

Emergency electric power will be supplied by one or more diesel driven engine generator sets which will be located in the power house.

Automatic switchover gear will start the generator in operation and change the current over to all emergency equipment including local emergency transformers at the local points.

Lighting

In general, fluorescent type lighting will be used in all office areas, clerical work areas, corridors, school classrooms, etc. Type of fixtures used will be adjunct to obtain proper intensities in accordance with the latest lighting practices. In general, fluorescent tubes will be rapid start type cool white.
Incandescent lighting will be used in dining or eating areas, in small store rooms, closets and certain other areas, particularly where small vapor type fixtures may be required such as outside lighting for entrances and exits.

Special lighting is proposed in the following areas:

In the gym it is proposed to use "power groove" fluorescent fixtures of industrial type with wire guards and arranged to be switched to obtain two levels of lighting such as 30 foot candles and 60 foot candles and to be served at 265 volts.

Industrial shops would be fluorescent industrial type fixtures mounted on a trolley duct system which permits complete flexibility and movability of lighting in any work area. The system would be 100 per cent salvageable utilizing standard trolley bus sections and electrical plug-in connectors and similar devices.

In each maximum security housing cell, wall mounted incandescent fixtures with back access from the service tunnel and utilizing high stress lenses and tamper-proof hardware within the cell area, are proposed.

Emergency lighting will be provided (and exit lighting where required) for all corridors, stairways, guards' stations, control points and similar strategic areas. Where emergency generator source is not provided it is proposed to use a small local direct current system for emergency and exit lighting.
Security Lighting

The security lighting system will consist of a series of mercury vapor luminaries installed on standards around the perimeter fence. Each luminary will contain an incandescent lighting unit for emergency use. Additional security lighting will be provided by perimeter lighting around the dormitories and maximum security buildings. The Security lighting system will be connected to the emergency lighting system.

Communication System

A complete overall communication and signaling system is proposed and shall consist of a complete internal private automatic dial telephone system in conjunction with an electronic intercom system. The automatic telephone system constitutes the major intercommunication facility and the intercom system is to supplement the telephone system, particularly in areas which the telephone system would be installed for a 4-digit system and wired for possibly 200 lines and equipped for an initial 150 lines.

The telephone system would provide the following security functions:

Guard reporting
Fire emergency alarm which takes precedence over all other calls.
"No Dial" alarm which constitutes an emergency measure such as telephoning off the hook, either deliberately or accidentally and sounds an alarm.

Executive right of way which facilitates either silent break-in, which would provide undetected monitoring, or obvious break-in as required.

Annoyance trap which permits holding the source of the call to trace annoyances or harassing calls.

Conference service.

A complete visual annunciator panel will be used for visual call supervision of every line in the system.

The intercom system would provide for:

- Three channel radio to all residential areas
- Monitoring of strategic areas for central control
- Paging and announcements
- Emergency signals
- Time signals
- Master clock system

The three channel radio system will be used in each room through a flush wall speaker with facilities for the inmate to listen to either of the two channels. There would be no volume control external, to prevent inmates from disturbing others with high level sound, but volume control would be adjustable internally.

Monitoring will be provided from central control by speakers located in strategic areas which would serve as microphones for pick up of disturbances or similar noises and used interchangeably for announcements and paging.
All shop areas, corridors, special work areas, etc., will be provided with paging speakers which can also be used for background music should it be desired.

A 130 station monitoring control unit will be provided in each of the dormitory control rooms, this unit capable of selecting any one or any group of 10 rooms in the dormitory area. This system will permit the dormitory control operator to monitor various rooms in his dormitory. In addition, the dormitory control unit will be able to call into any room irrespective of the three channel radio selector switch setting. This feature will enable the operator to call any prisoner from his room or monitor a suspect room, as desired. Additional units will be provided for the day room areas, toilet and shower rooms to permit the dormitory control to monitor these areas in addition to the dormitory rooms.

Announcements

The main control unit or the Superintendent's office, assistant superintendent's office, and any other designated area could make announcements into any dormitory individually, in groups, or all at one time. If desired, the system can be so arranged that these same announcements would go into other areas such as kitchen, cafeteria, store rooms, shop training shops, etc., selectively or all at one time.

Emergency Signals

Emergency signals such as fire, air raid, or other types of trouble signals will be instantly sounded in all areas equipped with a loudspeaker.
Time Signals

The system will be provided with a master programming machine which would sound a signal note in various dormitories or work areas, as desired. This master program machine may be equipped with either a 6 or 12 channel patch board to offer maximum flexibility of signalling. These signals could be utilized for awakening inmates in the morning, signals for meal time, work time, or any other type of schedule which is maintained an a fully daily routine. The program machine may be equipped witha calendar for silencing signals on Sunday or be provided with a special holiday or Sunday schedule.

Master Clock System

In addition to the sound and program facilities offered in the above outlined system, a considerable savings an can be made by installing a master time clock in the Administration Building which would automatically correct all secondary clocks in the prison by utilizing the same raceway and cabling provided for the sound equipment. This system utilizes synchronous type secondary clocks with hourly and 12 hour correction. In addition, the master clock may be provided with 12 or 24 hour reserve power which could correct secondary clocks in the event of power failure. In special work areas, intercoms in the form of master intercom stations with staff stations working off these masters would be used for the convenience of the local operation. This
would provide the necessary extensions of the communication system in the areas where the automatic telephone would not be utilized, such as class rooms, council rooms, etc. At each master station a staff station from central control would be used in such a manner that the central control would call in direct and at no time would receive a busy signal. A call in switch in conjunction with the staff control in case of emergencies, such as telephone line being out of order.
MECHANICAL SYSTEMS IN BUILDINGS

**General:**

In all buildings to which high pressure steam is distributed, hot water for cleaning and washing will be generated by means of steam-to-water convertors with adequate storage facilities for maintaining sufficient hot water at all times.

Isolated buildings outside of the fenced area, will be equipped with electric water heaters.

All buildings will be provided with anti-freeze hose bibs connected to the cold water system for lawn sprinkling.

Each building will be provided with the necessary network of cold water, hot water, drain and ventilation piping, all connected to the desired arrangement of plumbing fixtures with proper sealing traps, isolating valves and intercepting basins for the service intended, in accordance with various codes and as generally practiced within the state of Indiana.

**Administration, Custody Administration and Treatment**

Conditions of comfort and efficiency will be maintained to the utmost degree. Slow moving air at exact desired temperatures will circulate throughout all areas. Such direct radiation as may be required during the heating season will be employed in addition to clean, filtered, heated air,
Since temperature requirements vary from room to room, suitable instrumentation will be devised to result in desired conditions.

Exhaust ventilation for purposes of removing foul air and relieving the volume of air from buildings at such times as larger quantities or fresh air are introduced will be employed according to the best practice available.

Buildings will contain modern and up-to-date heating, ventilating and plumbing equipment. Piping, valves and incidental accessories will be the best of their kind, providing long life and minimum maintenance.

**Infirmary**

Heating, ventilating and plumbing facilities will be designed and installed according to the best hospital practices.

The surgical suite will require 100% fresh air and will be designed to prevent the infiltration of ether to any other part of the building. 100% air will also be exhausted from this suite.

Steam will be required for sterilizing equipment, oxygen will be supplied to each room, hot water provided in abundance, and air conditioning supplied throughout, in order to provide expert medical care for patients.

**School Building**

Each class room will be heated by means of air handling equipment utilizing hot water. Proper temperatures will
be maintained in each room at all times, in order to facilitate utmost efficiency in learning.

Air will be changed, filtered and circulated at regular intervals to maintain a clean and healthful atmosphere.

**Library:**

The Library, equipped for advanced learning and research, will be heated and air conditioned.

**Chapel:**

Offices and Library of the Chapel will be provided with air conditioning; Naves will be heated with clean, filtered, circulated air. Direct radiation will be applied in Toilet Rooms and other areas where it is not practical to supply heated air.

**Gymnasium:**

The Gymnasium will be heated with warm air supplied by a fan, filter and coil unit located in the Mechanical Equipment Room. Fresh air will be supplied in various quantities dependent upon the particular activity at the time. Exhausting of air will be provided as to maintain fresh conditions in the building, regardless of occupancy or activity.

Dressing Room will be heated by means of direct radiation with adequate exhaust ventilation.

**Dining Room:**

The Dining Room will be heated by means of ducted warm air supplied by its air handling system. Air will be exhausted.
Through the various exhaust systems provided for the Kitchen, a manual switch will cut off fresh air and change the operation of the heating equipment so it will function as a Unit Heater while the area is unoccupied, with sufficient make-up air for that amount of Kitchen exhaust being utilized.

**Kitchen Area:**

The kitchen area, having various complicated processes due to numerous services necessary for the complete functional capacity of the operation, will be equipped with all necessary items for baking, frying, broiling, refrigeration, preparation, storage and disposal of waste. All of the best equipment available will be included in this installation together with processes necessary for the function of equipment.

High pressure steam, medium and low pressure steam, condensate return, hot water, extra hot water, cold water, drainage, grease interception, localized exhaust ventilation, make-up supply air, and electricity are all a part of the proper operation of a kitchen installation. These facilities will be the best of their kind.

**Cold Storage**

To properly preserve perishables and other foods, cold storage and refrigeration equipment will be provided. Deep freezing, holding refrigeration, cold storage and vegetable refrigeration will be part of the operation required to keep foods palatable and fresh over a period of time.
Commissary

The Commissary Building will be completely air conditioned and heated by means of duct cooled or warm air supplied by an air handling unit of the same general type and description used in other buildings.

Refrigeration for certain foods such as ice cream will be a requirement in this building, as well as some specialized plumbing facilities for fountain equipment.

Shops and Industry Buildings

Generally, these buildings will be heated by means of Unit Heaters supplied with steam or hot water.

Exhaust ventilation will be a necessity for the purpose of relieving the area of contaminated air.

Special exhaust systems will be provided for small engines used in instruction corners.

Acetylene storage and supply lines to welding stations will also be provided.
SITE ANALYSIS
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The site is located on the southeast side of Fort Wayne, Indiana, and is zoned I-4 Industrial. The site consists of a 2,400 acre tract of land, which is broken up into several farms.

The site is basically flat and cleared for farming. There are, however, some sparse treed areas consisting of oak, sycamore, and shagbark hickory. It is also crossed and dissected by a small stream and several drainage ditches.

The site is bisected north and south by a series of high voltage towers and northwest to southeast by the Penn Central Railroad. It is bounded by Meyer Road on the west, Paulding Road on the south, Center Road on the east, and Seiler Road on the north.
SCHEMATIC DESIGN
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In reviewing the basic methods of previous prison design, I found two basic approaches. They are the campus plan and the linear or telephone plan. I reviewed both sets of findings and found good and bad aspects of each, and decided to go to a very high density, concentrated environment.

Given this premise I proceeded to develop several schematic approaches and then determined their weaknesses and strong points. I eventually decided upon a vertical approach with the inmate housing above the educational spaces and service below. However, I moved service to one side in order to lower the overall height of the building. Also, it was decided to create a large central community space. This was later eliminated and the spine straightened and shortened to better allow maximum contact with all spaces.

The elevating of the living units was done to create a feeling of openness and to simplify security. Although security is not normally a problem, it was felt that all possibilities should be thought about.
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DESIGN DEVELOPMENT
FINAL DESIGN SUBMISSION