MENDOCINO COAST DISTRICT HOSPITAL
PHYSICAL FACILITY ASSESSMENT

ORIGINAL HOSPITAL BUILDING & EMERGENCY SERVICES ADDITION

ARCHITECTURAL SYSTEMS

FIRE RATED ASSEMBLIES

Constructed in 1969, the Original Hospital Building will require an upgrade for the corridor, wall, and roof fire rated assemblies as a portion of any future remodel projects. OSHPD will require that we provide documentation supporting the existing California Building Code (CBC) and UL rating of all existing rated construction assemblies. Given the program changes associated with the renovation of the acute care facility, the components affected will include corridor walls and ceilings, rated walls forming area or occupancy separations or smoke compartment boundaries and the non-rated roof/ceiling assembly in the original hospital building. The following are some specific areas of concern in the Original Hospital Building.

When the Original Hospital Building was built in 1969, the suspended acoustical ceilings with rock wool insulation had a one-hour rating, but is no longer a recognized one-hour rated assembly. This has already surfaced as a problem with the recently completed Nuclear Medicine remodel project. All future remodels inside the Original Hospital Building will require a new gypsum board ceiling be retrofitted throughout the area of the remodel or two layers of gypsum board be applied to the underside of the existing roof framing members to create an OSHPD approved one-hour rated roof/ceiling assembly.

There are two major two-hour rated area separation walls in the main facility, and two smoke compartments. The construction of these walls is unknown, and may not meet current acceptable assemblies.

Also, unprotected openings may not be nearer than 5'-0" to the two-hour wall. This is not the case in several instances, and will become an issue when the area in question is remodeled. Doors in the two-hour rated area separation walls need to be 90-minute rated, and with a mechanical closer.

EXITING

The existing Hospital is classified as an "I" division 1.1 occupancy. The corridor protection needs to be one hour, exit enclosures need to be one hour, and the roof assembly also needs to be one hour protected. Thus, the problem of rated assembly protection (i.e. rated wall deficiency) will be an issue with the corridors serving each planned remodel.

DISABLED ACCESSIBILITY REQUIREMENTS FOR PATIENT ROOMS

Ten percent (10%) of Patient Rooms in the Med-Surg Area must be accessible. This means that the restrooms in at least 5 Patient Rooms have to be

rebuilt in order to meet the minimum handicap accessibility standards. Also the doors and other features of the rooms must meet CBC requirements. Fifty Percent (50%) of the Patient Rooms in swing beds (Skilled Nursing Facility) need to meet these requirements.

The toilet rooms serving the X-ray Rooms will need to be made A.D.A. compliant when the X-ray equipment is replaced.

DISABLED ACCESS TO PUBLIC SPACES

Toilet rooms in public use/ common use areas are not handicap accessible. OSHPD will require these to be brought into compliance with the disabled access provisions of the California Building Code as remodels are submitted for review. These toilet rooms are not currently compliant, and are too small to be made compliant as currently configured.

Accessible paths of travel from the nearest disabled parking space to the remodeled area and availability of handicap accessible public accommodations (drinking fountains, toilet rooms and public telephones) along that route will need to be established for each remodel submitted for OSHPD review. Where existing facilities and public accommodations are not accessible, modifications to meet accessibility standards will be required as a condition of obtaining an OSHPD permit. Door hardware will also need to be changed to lever type handles throughout the areas to be remodeled.

Aside from the CBC requirements for accessibility, the Americans with Disabilities Act (ADA) required that all commercial facilities, including hospitals remove architectural barriers that prohibit or impede the movement of disabled people be removed by January 26, 1992 where such removal is "readily achievable". What is readily achievable is a matter of legal interpretation. However, based on our understanding of the case law established in civil rights litigation involving hospitals, Mendocino Coast District Hospital is not in compliance with ADA and at-risk of a civil rights action.

WINDOWS

The existing windows in the original acute care building are rusting and need replacement. They are 30+/- years old, metal framed, single pane windows. Their life has been prolonged by frequent maintenance, but they are at the end of their useful life. When the walls are opened to install new windows, slight to moderate dry rot damage to framing members may be discovered, though there is no visible evidence of this now.

FINISHES

The walls are in good condition, with plaster or drywall covering. The corridors have painted vinyl wall covering to 7'-0" above the floor. The t-grid ceiling is in fair condition. Ceiling insulation is paper-faced rock wool. While this insulation layer is generally continuous, there are small areas where it has been removed or disturbed, creating gaps in the integrity of the assembly. There is no vapor barrier in the ceiling or in the slab. This can cause leaching of acid or areas of excess humidity. Further destructive investigation is required to determine whether the exterior walls are insulated. There is asphalt felt paper under the exterior plaster.

The modular building housing EKG/ EEG has plywood siding and needs to be painted.

Flooring is generally carpet in the main facility, welded-seam vinyl in critical care areas. The flooring in the emergency services wing is welded-seam vinyl. Flooring is in good condition.

Wall guards and corner guards are in good condition.

ROOFING

The roofing is a hot mopped, built-up roof with gravel ballast. Mansards have fiberglass shingles. They have been recently re-roofed and are in good condition. The ballast aggregate is small and the ballast layer is a minimal thickness. There are few walk pads, so maintenance traffic on the roof is walking on the aggregate.

We recommend installing walk pads to and around HVAC equipment in high-traffic areas, to prevent ware on the roof membrane. The existing roof should remain serviceable for another 10 years.

CONDITION OF MAIN CAMPUS STRUCTURAL SYSTEMS

The Mendocino Coast District Hospital (MCDH) consists of four wood framed single-story structures. The Original Hospital and Maintenance Building were constructed in 1969. A major expansion that contains Surgical Services, the Clinical Laboratory and the Emergency Department was completed in 1994. The most recent building added to the campus is the X-Ray File Storage Building now nearing completion. The overall condition of the framing is good with the exception of some exterior wall sections that have suffered some dry rot and deterioration due to leakage around some parapet cap flashings. This damage is not believed to have progressed to the point of creating an unsafe condition and may be corrected as a maintenance project. An insect infestation that affected some roof framing members on the west side of the original hospital building was treated two years ago without any sign of re-infestation. No serious damage was done.

The results of the SB 1953 Seismic Evaluation recently submitted to OSHPD show the original facility can continue to house acute care patient care until 2030 due to the exemptions granted to single story wood framed structures. The campus was evaluated as four individual buildings, which include the original hospital building, the emergency addition, the x-ray file storage and the maintenance building. The Original Hospital and Maintenance buildings are non-conforming. They evaluate as SPC 1, but meet the requirements of Code Application Notice (CAN) 1648B to be placed in SPC 2. OSHPD released this CAN recognizing that single story wood framed building do not pose a significant collapse hazard. There are a number of deficiencies in the lateral systems of these buildings, but no retrofit of the structures is required and the buildings may remain in use until January 1, 2030. To get beyond that date, major retrofit of the structures will be required. For an in-depth explanation of the deficiencies, see the Building Summaries section of the SB 1953 Seismic Evaluation. The Emergency Addition is a conforming building and is classified as a SPC Four. This means it may be used in an acute care capacity until January 1, 2030 and beyond. The X-Ray File Storage building, when completed, will be classified as an SPC 5. It may also be used until January 1, 2030 and beyond.

The only gray area involved in obtaining final OSHPD approval of the SB 1953 Seismic Evaluation and the SPC classifications of the existing buildings is

the liquefaction potential at the site. Liquefaction is a sudden loss of the on-site soils ability to support the building caused by severe ground shaking. Our conversations with OSHPD indicate that because we meet the criteria of Code Application Notice (CAN) 1648B, we will not have to mitigate the liquefaction potential at the site. However, OSHPD's requirements pertaining to liquefaction mitigation are not specifically addressed in Code Application Notice (CAN) 1648B, and there is no guarantee the code interpretation we have received from OSHPD will not be overturned. We think this is unlikely, however should liquefaction mitigation be required to continue to provide acute care services in the existing buildings beyond 2008, the cost of mitigation could easily exceed a million dollars.

ADAPTABILITY OF THE MAIN CAMPUS STRUCTURAL SYSTEM FOR FUTURE USES

The existing roof framing relies upon multiple interior bearing walls for support. The presence of these interior lines of support makes reconfiguring interior walls more difficult and costly. Although the flexibility of the clinical spaces is somewhat compromised by the interior lines of roof support, relocating interior bearing walls is possible and building's structural system should not be viewed as an obstruction for future planning.

REMAINING USEFUL LIFE OF STRUCTURAL SYSTEMS

Unless there are revisions to the current SB 1953 Legislation, the remaining useful life of the Original Hospital Building is through the year 2030. The Maintenance Building has a similar remaining useful life, but the code-required modifications to extend its life are much more easily accomplished than the balance of the Original Hospital Building. From a structural systems perspective, the 1994 Emergency Services addition and the X-Ray File Storage Building have a remaining useful life of 50 years or more.

CONDITION OF MAIN CAMPUS HEATING, VENTILATION AND AIR CONDITIONING (HVAC) SYSTEM

Many components of the HVAC system are beyond their useful lives and are in immediate need of repair or replacement. The major components are the building heat boilers and hot water piping system, the chilled water system, make-up air units (MAU's) and fan coil units. Each of these components is discussed below.

The building heat boilers are the most immediate concern. Critical replacement parts are no longer manufactured and the availability of remanufactured parts cannot be relied upon. Building heat boiler replacement should be made a top budget priority. It should be noted that installation of a cogeneration plant at MCDH would effectively replace the building heat boilers as the cogen units would become the source for building hot water.

The hot water piping system and circulation pumps are in good shape. A corrosion problem at the metering valves due to electrolytic action between dissimilar metals is occurring. This problem was corrected at the recently replaced fan coil units by installing new brass metering valves with dielectric unions. This practice should be repeated with all future fan coil replacements.

The existing 60-ton chilled water system is in fair to poor condition. The chilled water piping itself appears to be sound and performing satisfactorily. The chiller is in need of replacement. Several key components have failed or are in the process of failing. The evaporator is only fifty percent functional and the condenser fan needs replacement. The existing chiller uses R-22 refrigerant that will not be produced after 2015 and is extremely inefficient from an energy use standpoint compared to newer units. The chilled water recirculating pumps are 50% undersized at present.

The Kitchen MAU's were replaced in 1996 and are functioning adequately. No evidence of problems with these units was encountered.

Distribution of conditioned air throughout the facility is accomplished with approximately seventy fan coil units located in the attic space. As mentioned earlier, thirteen of these units have been recently replaced. The remaining units are original equipment and are well beyond their useful lives. Their performance, efficiency and cost of operation are poor compared to the recently replaced units. Replacement of these units should be a priority in order to ensure a reliable source of conditioned air throughout the facility. As the remaining fan coils are replaced, the flexduct runs that have been added to the original duct system should be replaced with rigid ductwork. This will improve the air delivery and allow the supply and return air volume to be balanced. The inability to obtain the required balancing has been problematic on recent projects. OSHPD requires an

air balance report as a condition of project closeout. Replacement of the fan coil units would also allow MCDH to move into compliance with current California Mechanical Code air filtration requirements. Another minor system correction that should be done when the existing fan coils replaced is to replace the PVC condensate lines with copper. PVC lines are not permitted by the California Mechanical Code.

ADAPTABILITY OF THE MAIN CAMPUS HVAC SYSTEM FOR FUTURE USES

The existing HVAC system is not capable of supporting a major expansion of the facility. Interior remodels, like those envisioned as part of Measure "I", will require substantial replacement of HVAC system components in order to meet current mechanical code requirements. This is a problem that is shared by many other acute care hospitals.

The existing system cannot support the proposed Outpatient Center without replacement of the building heat boilers (or installation of a cogeneration plant) and chiller. In our opinion, the most efficient way to heat and cool the Outpatient Center is through hot and chilled water supplied by the existing Central Plant. Since the existing major pieces of equipment are at or near the end of their useful lives, the incremental cost of increasing the capacity of the replacement equipment to meet the needs of the Outpatient Center is more economical than providing a new stand alone air-to-air system for the following reasons:

1. The amount of mechanical space necessary in the Outpatient Center is minimized thereby allowing us to minimize construction of non-revenue producing space.
2. An efficient hot and chilled water based system would be more responsive and flexible than an air-to-air stand alone system.
3. A hot and chilled water based system for the Outpatient Center would be more economical to operate than a stand alone air-to-air system.
4. Including the incremental cost of upsizing the major equipment required for the continued operation of the acute care buildings, the hot and chilled water based system would be more economical from an initial cost standpoint.

REMAINING USEFUL LIFE OF HVAC SYSTEM

The remaining useful life of the HVAC system should be considered as nil and replacement of the failed or failing major components should be considered a top priority. To this end, identification of system alternatives, including cogeneration, and their affect on budget, operational expenses, patient and staff comfort and other factors will be studied in detail during the balance of the Measure "I" Projects Predesign process.

CONDITION OF MAIN CAMPUS DOMESTIC PLUMBING SYSTEM

Many components of the domestic plumbing system are beyond their useful lives and are in immediate need of repair or replacement. The major components are the domestic hot water boilers and domestic hot water piping system, the domestic cold water piping system and the domestic waste system. Each of these components is discussed below.

The domestic hot water boilers are well beyond their useful lives, are in poor condition and in need of replacement. The hot water recirculating pumps were replaced or re-built in 1998 and are adequate to meet current and projected future demands. Both the domestic hot and cold water piping systems are areas of concern. There have been numerous leaks in the recent past that indicate an on-going deterioration process is taking place within the copper piping.

The cast iron domestic waste pipes throughout the facility are corroding. Some pipe segments that have recently been replaced are the Main Kitchen line, the Dish Room drain line and the Obstetrics Department shower drain line. Earth was discovered in these lines during attempts to unclog them with a plumbing "snake". Since these lines are all located beneath the concrete slab-on-grade, repairs were expensive and very disruptive to hospital operations.

REMAINING USEFUL LIFE OF DOMESTIC PLUMBING SYSTEMS

The remaining useful life of the domestic hot water boilers should be considered as nil. These units should be budgeted for replacement in the near future.

Failure of the copper piping within the facility is puzzling. Copper water pipes located within a building envelope should be serviceable much longer than the attained age of these pipes. We recommend testing samples of the piping to attempt to determine the cause of the deterioration. If it is linked to a chemical property of the local water supply or a galvanic reaction, it may be possible to determine the cause and stop the process before it progresses further.

The cast iron waste piping is nearing the end of its useful life. We recommend a fiber optic examination of the waste lines to try and assess the extent of the deterioration and locate any areas which have completely failed or are in the process of failing. Fiber optic evaluations we have conducted recently were fairly inexpensive (less than $3,000.00) and gave an excellent look at the condition of the pipe. The maximum range of a typical camera is 100 feet from the point of entry into the system, so the entire waste system could be mapped and evaluated from existing cleanouts without the need to tear up any concrete. A fiber optic evaluation is the only way to accurately assess the condition of the existing pipes.

CONDITION OF MAIN CAMPUS MEDICAL GAS SYSTEM

The medical gas systems, overall are in reasonably good repair and have the capacity to support clinical operations for the foreseeable future. A brief synopsis of each system component is presented below.

The oxygen system and exterior storage tank were reworked in 1993 under an OSHPD permit and are in good working order. The vaporizer, piping, manifold system and alarm system are in good working order. Expansion of the system within the facility is possible but would require modifications to or replacement of the zone control valves and alarms in order to meet current codes. The oxygen ports within the original hospital building are becoming increasingly difficult to purchase. Conversion of these ports to a more modern readily available unit should be made a part of all future remodel projects that contain a medical gas component.

The vacuum system was replaced in 1997. The new system is in good operating repair and capable of supporting the renovations proposed.

The nitrous oxide bottled gas manifold system was rebuilt in 1993. The new system is in good operating repair and capable of supporting the renovations proposed.

The compressed medical air system is in poor repair and nearing the end of its useful life. The refrigerated drying element is not removing moisture from the air to the degree required.

REMAINING USEFUL LIFE OF MEDICAL GAS SYSTEMS

All elements, other than the compressed medical air system, are recently purchased or renovated and in good working order. These systems should be serviceable for the next 10 to 15 years with regular maintenance.

ELECTRICAL

Original Hospital Building Overview

The Original Hospital Building has a 3000A, 208V, 3-phase, 4 wire main service. A single transfer switch connects the emergency power circuits to a 250kW new emergency generator, which is in good working order. Emergency Lighting, Emergency Equipment and Emergency Circuit panels (EL, EE and EC panels respectively) are not completely segregated as required by the California Electric Code. These panels are located in one-hour utility closets without room for expansion or additional panels. The OSHPD emergency panel segregation requirement may require the existing emergency power circuits to be replaced as a portion of upcoming remodel projects.

1994 Emergency Services Addition Overview

The existing Emergency Services Addition has a 600A, 208 V, 3-phase, 4 wire main service and properly segregated distribution system that is in good condition and substantially complies with current codes.

EMERGENCY POWER SYSTEMS

The main acute care facility has a 250 kW Energy Dynamics emergency generator with a Cummins diesel engine, located in the mechanical building. This piece of equipment is fairly new, being installed in 1994. This generator is connected to the original emergency power system with a single 800 amp automatic transfer switch. This switch is 30 years old and probably should be replaced. Maintenance is performed on the switch annually. The Original Hospital Building does not have a completely segregated emergency power system. Upgrading the emergency power system will require significant rewiring. The cogen project may cause OSHPD to require this upgrade. Also, the emergency circuitry needs to be expanded to include more fixtures and outlets, particularly in the patient rooms and for some critical equipment not now connected to emergency power. Currently, only about 30% of the generator's capacity is being used.

The Emergency Services Wing is served by a 180 kW Kohler diesel emergency generator located in a separate building at the south end of the property. It is also fairly new and in good condition. It is equipped with a single automatic transfer switch. The three emergency power circuits, EE, El and EC, are segregated. The load on this generator is about 25% of its capacity. The emergency circuitry has good coverage within the Emergency Services Wing.

MAIN SWITCH GEAR

The Original Hospital Building has a 3000 Amp, 208 volt, 3-phase main breaker. At the time of the Smith-Seckman-Reid Report, only about 1250 amps were being used. This indicates there is plenty of expansion capabilities within the existing service. The only concern with the existing switchgear is its age. The Emergency Services Wing is served by a 1200 Amp, 208 volt, 3-phase service. This circuit is divided into two 600 amp legs. One leg serves for non-emergency power and the other leg goes through the automatic transfer switch to the circuits covered by the emergency generator.

Power for the CT Scanner and a portable diagnostic services staging area is sent through a step-up transformer to boost it to 480 volt/ 3-phase.

DISTRIBUTION PANELS/ WIRING

The existing distribution panels are functioning properly, and spare parts are still available. One electrical engineer familiar with MCDH recommended hiring a testing company to trip-test the breakers and check panels for hot spots. This service would cost in the ballpark of $10,000.

Additional electrical outlets are needed throughout the Original Hospital Building. Typically, there is only one duplex outlet connected to emergency power and two non-emergency outlets at the head of each bed in the patient rooms. With the proliferation of bio-medical devices in use today, more power outlets are desirable. Many of the offices are using multiple-outlet power strips to power their computers and other equipment. This is an undesirable situation. Increasing the number of outlets throughout the facility will require additional distribution panels. The original wiring installed in 1970 does not meet current electrical code insulation requirements.

The electrical distribution system needs to be audited and a comprehensive, up-to-date set of as-built electrical drawings developed. This will save time in maintenance and prevent change orders in remodeling projects.

LIGHTING

Some of the fluorescent lighting in the facility has been upgraded with energy-efficient ballasts. Replacing the remaining fixtures should be considered. A substantial rebate is available for the upgrade, as well as the savings in electrical usage. This could be accomplished as an ongoing maintenance project.

ALUMINUM WIRING

The feeder lines from the main switch gear to the distribution panels in the original building are aluminum. The consensus from two electrical engineers is that this wiring need not be replaced as long as it is tested regularly for hot spots with infrared equipment, and checked for wire integrity with a megohm meter.

FIRE ALARM

100% replacement of the fire alarm system is a top priority. The Silent Knight and Firelite FACP and systems do not meet current codes. OSHPD requires only one control panel. The current system is a "patchwork." of panel boards and circuits that are not addressable. Moreover, there is insufficient coverage throughout. Primary deficiencies in coverage include lack of strobes, audible alarms, smoke detectors and duct detectors. The lack of an addressable system creates inadequate notification. New fire alarm implementation phasing will be an issue for each planned remodel. A parallel system will be required during construction. Tie in of the Kitchen Hood Ansul System to the fire alarm is under way and to be completed by May 1, 2001.

Smoke detectors must be located in patient sleeping rooms of the hospital and activation of such detectors shall cause a visual display on the corridor side of the room in which the detector is located and shall cause an audible and visual alarm at the respective nurse's station.

AJ Gray and Caring for Women buildings detection and notification should be upgraded to allow annunciation at the main FACP in the acute care hospital from smoke and heat sensors located in these ancillary buildings.

NURSE CALL

The Nurse Call system was replaced in 1998 with a Fischer Berkeley/ Hill Rom HB-2- Viseplex Pager system. This system is functioning normally and in good repair. It is no longer being manufactured, but Hill Rom will support it for eight more years after which it will require after market parts.

A Cumula System was installed in 1994 for coverage of the Outpatient Recovery Suite/ Lab Blood Draw Rooms and ER treatment beds. This system reports to a monitoring station located at the ER Nurse Station. This system is also functioning normally and in good repair.

Problems with this system appear to be with use protocol or user training and not with the equipment.

PAGING SYSTEM

The Definity G3 I Phone Switch handles paging. The system is in good working order.

TELEPHONE/ VOICE MAIL

The Definity G3 I Phone Switch needs to be expanded. Expansion room is available and the cost for expansion will be included with the capital budget for fiscal year ending 2002. The Audix (voice mail) system incorporated into this system is working well. It also has expansion capabilities.

A proposal for conversion of the hospital phone system to a Centrex system has been reviewed.

MENDOCINO COAST DISTRICT HOSPITAL
PHYSICAL FACILITY ASSESSMENT

'CARING FOR WOMEN' BUILDING

ARCHITECTURAL

FIRE RATED ASSEMBLIES

This wood frame building with a concrete floor is in good condition. It has an open-beam vaulted ceiling in the waiting area. The balance of the ceiling is at +8'-0". The fire rating of the walls and ceiling are unknown. The south wall is within 6'-0" of the property line. Windows on this side of the building are wire-glass.

EXITING

The two exits are adequate for the occupancy.

DISABLED ACCESS

Entry to the building is handicap accessible. One restroom is equipped as a handicap accessible unisex toilet, but it does not meet all of the A.D.A. required clearances, and is not large enough to be made to comply. This room could be expanded into an existing closet in order to make room. The grab bars at the toilet are not compliant and need to be replaced.

FINISHES

The finishes are wood siding and brick veneer outside, wood paneling and vinyl wall covering over drywall inside. They are in good condition. The flooring is carpet and is also in good condition.

ROOFING

The wood shake roof is in good condition. The skylights are in good condition. The gutter is pvc, residential type gutter, but is in good condition.

WINDOWS

Windows, other than the wire glass windows, are dual glazed aluminum horizontal sliders.

STRUCTURAL

There are no visible structural problems.

MECHANICAL

Currently the only heat source in the building is 240VAC radiant wall heaters on the walls about 7'-0" above the floor. These heaters are very inefficient and consideration should be given to replacing them with a forced air unit, powered by a heat pump or propane F.A.U.

ELECTRICAL

The service is underground, 400 amp main breaker and panel with its own meter.

There is need for permanent data and telephone wiring/ raceways.

The fire alarm consists of 120VAC smoke detectors. The system is in good condition and is adequate to the use. As with the A.J. Grey building, it would be advantageous if these smoke detectors reported to the fire alarm system in the acute care facility.

Two of the exit signs at corridor corners are temporary. Lighted exit signs with battery backup should be installed.

A.J. GREY BUILDING

ARCHITECTURAL

The building is a Pacific Frontiers post and beam "kit", with an exposed beam ceiling. This ceiling is still visible in some of the North offices, but the remainder of the building has a hard drop ceiling at +8'-0".One hallway has a suspended ceiling. A conventionally framed addition has been added to the South side.

FIRE RATED ASSEMBLIES

Fire rating of assemblies are unknown, but the current use does not require the construction of the building to be fire rated.

EXITING

There are four exits to the building, adequate for the office/ administrative function. One corridor is less than 3'-0" wide. This is too narrow both from an egress and an accessibility standpoint.

DISABLED ACCESS

The one unisex toilet room in each building is handicap accessible. The doors do not have lever hardware.

FINISHES

Wall and floor finishes are generally in good condition.

STRUCTURAL

The floor is uneven and is apparently over-spanned.

MECHANICAL

Two Amana gas furnaces supply heat for the building. One supplies the original building and the other the added Neva Cannon Room. These appear to be adequate for a heat source for both buildings.

ELECTRICAL

The service is underground, 200 amp main breaker and panel with its own meter.

There is a need for more electrical outlets, given the planned conversion to billing/ office use. Also, the telephone and data cabling is temporary, run from equipment to equipment around the floor. Data cabling under the floor is lying on the ground. There is need for permanent data and telephone wiring/ raceways.

The fire alarm consists of battery operated residential smoke detectors. At minimum, these need to be replaced with 120VAC smoke detectors, wired together so that if one is triggered they all alarm. It would also be advantageous if these smoke detectors reported to the fire alarm system in the acute care facility.

Exit signs are paper signs on the walls. These should be replaced with lighted exit signs with battery backup.

MENDOCINO COAST DISTRICT HOSPITAL
PHYSICAL FACILITY ASSESSMENT

PRIORITIZATION OF INFASTRUCTURE PROBLEMS

Infrastructure problems were evaluated using the five criteria listed below. The evaluation criteria are listed in descending order of importance. (Number one being judged most important and number five being least important evaluation criteria)

1. Does the problem or deficiency create the possibility of a system failure or another type of risk? This test assesses the impact failure of a component or system that is at or beyond its useful life would have on the facility. A catastrophic failure can take place suddenly as in the sudden loss of ability to heat or cool the facility for example. A catastrophic failure can also take place over an extended period of time as in the slow deterioration of a roof structure due to dry rot caused by a leaky roof.
2. Does the problem create a non-compliant, unsafe or potentially unhealthy condition? This test is applied to determine if the health and safety of patients and staff would be enhanced to a measurable degree by the improving the infrastructure item. Risks associated with non-compliance with current CBC or DHS Title 22 regulations include reduced Medi-Care reimbursements or litigation (such as an ADA suit) which could impose significant financial hardship.
3. Does the problem or deficiency prevent expansion or renovation of the facility? This test is applied to determine if correcting the problem or deficiency is mandatory for obtaining an OSHPD permit for the Measure I Projects.
4. Will correcting the problem or deficiency improve patient care and/or comfort? This test is applied to determine if patient satisfaction with their overall experience at MCDH would likely be increased as a result of the proposed improvement.
5. Will operating and maintenance costs be reduced as a result of correcting the problem or deficiency? This test is applied to access the direct fiscal impact of the proposed improvement. Reduced utility costs, maintenance expense and reduction of non-chargeable staff hours are the primary benchmarks for this test.

The severity of each deficiency or problem identified in a system was ranked for each of the evaluation criteria above. (A severity ranking of one indicates the most severe problem or deficiency with two being the next most severe, etc.) In the attached *Summary of Infrastructure Improvement Priorities*, the problematic conditions were assigned priority points based on their severity ranking and the relative importance of the evaluation criteria. The higher the *Combined Priority Point Total* (far right-hand column) the more critical the need for system improvement. An explanation of the rankings follows.

Architectural Systems

The four basic areas of concern with the architectural systems are lack of fire rated assemblies, lack of accessible patient rooms, lack of accessible public accommodations and rusting exterior windows.

The lack of approved fire rated construction assemblies throughout the Original Hospital Building is a problem on two basic levels. In the remote case of a fire, the life safety system intended to allow persons to exit safely is somewhat compromised. The more immediate and certain problem is OSHPD will require us to document compliance of the fire resistive assemblies in the areas we intend to remodel and to incorporate correcting any deficiencies. For these reasons, repair of the fire resistive assemblies is the top architectural system priority from the standpoints of correcting code and safety deficiencies and getting an OSHPD permit for the planned renovations.

Second to the correction of fire resistive assemblies, bringing the existing facility into compliance with the CBC disabled access requirements is the next highest architectural systems priority from the standpoint of getting an OSHPD permit for the planned renovations. Creating accessible public accommodations ranks first among architectural systems in the category of eliminating risk. Currently MCDH is not compliant with ADA. Should a disabled individual with an "ax to grind" visit the facility an expensive bout of litigation could result.

Accessible Patient Rooms is the least critical architectural system overall. OSHPD seems to be less concerned with patient room accessibility than public accommodation accessibility. Renovations to a nursing unit will trigger the need to upgrade patient rooms to meet the minimum percentages specified in the CBC however.

Replacement of the original windows is the highest priority from the standpoint of improving the hospital environment and reducing operating expenses.

Structural System

The only stand alone structural project is the SB 1973 seismic bracing required for non-structural systems. The work required to meet the requirements of SB 1973 is fairly minor. Please reference the SB 1953 Seismic Evaluation of Mendocino Coast District Hospital for a detailed list of non-structural elements requiring bracing. Structural modifications will be a part of the planned remodels with the Original Hospital Building. These modifications are driven by the need to create more modern functional clinical spaces and not by any structural deficiency.

HVAC Systems

The four components of the HVAC system that are in need of replacement and are barriers to facility expansion are the building heat boilers, the Original Hospital Building fan coil units, the existing 60-ton chiller and the chilled water system pumps.

These pieces of equipment make up three interdependent systems, so prioritizing them for replacement is difficult. The three "systems" can be thought of as the heating system, the cooling system and the air distribution system. The boilers are the heart of the heating system. The chiller and the chilled water pumps are the heart of the cooling system, and the fan coils are the heart of air distribution system. If the boilers fail, the ability to heat the buildings is lost. If the chiller fails the ability to cool the building is lost. If a fan coil fails, the ability to heat or cool the area that it serves is lost. Failure of an individual fan coil unit does not create a facility-wide problem. For this reason fan coil replacement is judged as less critical from the standpoint of elimination of a catastrophic failure risk.

Assuming any new expansions to the campus will be conditioned using replaced and upsized equipment in the existing central plant, replacement of the boilers, the chiller and the chilled water pumps is essential. Therefore replacement of the chiller and boilers rank as a highest priority for eliminating barriers to expansion.

Correcting any imbalances in the airflow or temperatures outside the range of human comfort would involve duct modifications and replacement of the fan coil unit serving that area. For this reason, fan coil replacement ranks highest in the improving the environment. Fan coil replacement also ranks highest in turns of correcting code violations as this would bring MCDH into compliance with current California Mechanical Code requirements.

Plumbing Systems

The domestic hot water boilers are the only existing plumbing component that has any impact on future expansion potential. Drain line clogs and back ups are detrimental to operations and are not conducive to a sterile environment. The domestic hot and cold water plumbing is a maintenance issue that is best resolved over time as renovations occur.

Medical Gas Systems

The medical gas systems have been largely rebuilt in the recent past. The only component that is not currently performing satisfactorily is the medical air compressor. Since there are no major acute care expansions planned for the near term, the medical gas systems should be adequate for the foreseeable

future. Expansions or reconfigurations of the systems will require replacement of the zone control valves however.

Electrical, Fire Alarm and Communication Systems

The three major issues with the Original Hospital Building power and signal system are the lack of segregated emergency power system panels, the age of the main switch gear and transfer switch and the lack of adequate normal and emergency power distribution. Older inefficient light fixtures is also a concern but can be mitigated without permits or a significant capital expense. The aluminum distribution wiring should be eliminated over time but is not considered to be a threat to safety or operations so long as it is routinely evaluated and maintained.

The problems with the emergency power system rank as most pressing from a code compliance standpoint. The age and condition of the transfer switch and the main switch gear are most critical from the standpoint of avoiding a catastrophic system failure. Lighting replacement is the most beneficial from the standpoint of reducing operating expenses and additional electrical power distribution would probably have the biggest positive impact from an environmental viewpoint.

The existing nurse call, overhead paging and telephone systems are relatively new, are expandable and are functioning adequately.

The existing fire alarm system is not code compliant and its capacity for expansion is nil. Replacement of this system is a prerequisite for any remodel or expansion of the existing facilities.

Defining the Most Critical Infrastructure Improvement Required

The final section of the attached *Summary of Infrastructure Improvement Priorities* attempts to define the most needed improvements. The items from each system group (architectural, HVAC, plumbing, etc.) deemed most critical were compared to rank the most important facility infrastructure needs overall. Ties in the rankings were settled using the "Necessary for Facility Expansion" criteria as a tie-breaker. The mechanical and electrical infrastructure needs are judged to be most important for two main reasons; (1) Catastrophic failures of these systems would place the most hardship on the hospital; and (2) these systems are barriers to expansion due to lack of code compliance and physical limitations of the systems themselves.

MENDOCINO COAST DISTRICT HOSPITAL
PHYSICAL FACILITY ASSESSMENT

SUMMARY OF INFRASTRUCTURE IMPROVEMENT PRIORITIES

IDENTIFIED INFRASTURE PROBLEM OR DEFICIENCY	CRITERIA FOR PRIORITIZATION OF IDENTIFIED INFRASTRUCTURE NEEDS					
	ELIMINATES RISK OF CATASTROPHIC FAILURE	CORRECTS CODE AND/OR SAFETY PROBLEM	NECESSARY FOR RENOVATION OR EXPANSION	IMPROVES ENVIRONMENT FOR PATIETNS & STAFF	OPERATING & MAINTENANCE COSTS REDUCED	TOTAL COMBINED PRIORITY POINT VALUE
ARCHITECTURAL SYSTEMS						
Lack of Fire Rated Assemblies	3	1	1	4	4	94
Lack of Accessible Patient Rooms	4	3	3	4	3	44
Lack of Accessible Public Accommodations	1	2	2	2	2	100
Rusting Exterior Windows	2	4	4	1	1	73
HVAC SYSTEMS						
Failing Building Heat Boilers	1	4	2	2	3	88
Aging Fan Coil Units	4	1	4	1	2	85
Failing 60-ton Chiller	2	3	1	3	1	85
Undersized Chilled Water Pumps	3	2	3	4	4	54
PLUMBING SYSTEMS						
Aging Domestic Hot Water Boilers	1	1	1	2	1	140
Failing Cast Iron Waste Lines	2	2	2	1	2	85
Leaking Domestic Water Piping	3	3	3	3	3	50

MENDOCINO COAST DISTRICT HOSPITAL
PHYSICAL FACILITY ASSESSMENT

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IDENTIFIED INFRASTURE PROBLEM OR DEFICIENCY	CRITERIA FOR PRIORITIZATION OF IDENTIFIED INFRASTRUCTURE NEEDS					
	ELIMINATES RISK OF CATASTROPHIC FAILURE	CORRECTS CODE AND/OR SAFETY PROBLEM	NECESSARY FOR RENOVATION OR EXPANSION	IMPROVES ENVIRONMENT FOR PATIETNS & STAFF	OPERATING & MAINTENANCE COSTS REDUCED	TOTAL COMBINED PRIORITY POINT VALUE
MEDICAL GAS SYSTEM						
Failing Medical Air Compressor	1	2	2	1	1	115
Non-compliant Zone Control Valves	3	1	1	3	2	98
Oxygen Ports No Longer Manufactured	2	3	3	2	3	62
ELECTRICAL, FIRE ALARM AND COMMUNICATION SYSTEMS						
Lack of Segregated Emergency Power	2	3	2	6	4	59
Aging Transfer Switch & Switch Gear	1	2	3	3	2	92
Inefficient Light Fixtures	6	4	5	2	1	44
Aluminum Distribution Wiring	5	5	6	5	6	29
Lack of Adequate Power Distribution	3	6	4	1	3	54
Non-compliant Fire Alarm System	4	1	1	4	5	90

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IDENTIFIED INFRASTURE PROBLEM OR DEFICIENCY	CRITERIA FOR PRIORITIZATION OF IDENTIFIED INFRASTRUCTURE NEEDS					
	ELIMINATES RISK OF CATASTROPHIC FAILURE	CORRECTS CODE AND/OR SAFETY PROBLEM	NECESSARY FOR RENOVATION OR EXPANSION	IMPROVES ENVIRONMENT FOR PATIETNS & STAFF	OPERATING & MAINTENANCE COSTS REDUCED	TOTAL COMBINED PRIORITY POINT VALUE
ALL SYSTEMS						
Lack of Accessible Public Accommodations	6	4	5	8	10	28
Rusting Exterior Windows	8	10	10	2	1	33
Failing Building Heat Boilers	1	7	4	4	4	71
Aging Fan Coil Units	10	3	9	1	3	45
Failing 60-ton Chiller	3	6	2	6	2	47
Aging Domestic Hot Water Boilers	4	8	6	5	5	29
Failing Cast Iron Waste Lines	7	9	7	7	6	20
Failing Medical Air Compressor	9	5	8	3	8	25
Aging Transfer Switch & Switch Gear	2	2	3	10	7	58
Non-compliant Fire Alarm System	5	1	1	9	9	83