27 JAN 1984

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
200 STOVALL STREET
ALEXANDRIA, VA 22332

IN REPLY REFER TO
04T7/RLJ
11012/16
23 JAN 1984

From: Commander, Naval Facilities Engineering Command
To: Commander, Atlantic Division, Naval Facilities Engineering Command

Subj: Post Occupancy Evaluation of the Naval Hospital Camp Lejuene, NC

Encl: (1) Listing of Deficiencies
(2) Checklist for Barrier-Free Design
(3) BUMED ltr dtd 15 Dec 1983
(4) Report Summary
(5) Key to Post Occupancy Evaluation Deficiency Report
(6) Deficiency Action Assignments

1. During the subject post occupancy evaluation, several deficiencies were identified and appropriate recommendations were made. Enclosure (1) provides a complete listing of the deficiencies.

2. LANTDIV should study the design deficiencies cited in enclosures (1), (2), and (3) for possible correction within available project funds and make specific recommendations with estimated costs no later than 15 March 1984. The question of A/E liability should also be examined.

3. LANTDIV should assure the construction deficiencies cited in enclosure (1) have been or will be corrected under the warranty provisions.

4. Enclosure (2) is discussed in enclosure (1). Enclosure (4) lists members of the evaluation team. Enclosure (5) provides a key to enclosure (3). Enclosure (6) provides a listing of deficiency action assignments.

5. Four additional copies of this report are enclosed for LANTDIV distribution to others as appropriate.

R. L. JOHNSON
By direction

Copy to:
NAVMEDCOM
Naval Hospital Camp Lejuene

Post Occupancy Evaluation of the Naval Hospital Camp Lejuene Listing of Deficiencies

I. Good Features

a. The overall building organization is considered to be excellent.

b. All major corridors are well defined and very clear.

c. There is an excellent orientation to the exterior.

d. The site design, the landscaping, and the architecture are well integrated. The interim design and graphics for the major spaces are considered to be excellent.

e. The dedicated Medical Construction Liasion Office (MCLO) Concept worked well on this project and should be utilized on all future medical facility projects.

f. The facility is being maintained at an excellent level of maintenance.

g. The 100% automatic fire sprinkler system and smoke control system are considered to be excellent features.

h. The roof is well constructed.

i. The lighting level in most rooms was not excessive.

j. The bumper rails used throughout the building are an excellent maintenance feature.

k. The ICU/CCU, Emergency Department, Laboratory, and Patient Bedrooms are extremely well designed.

l. There is a good separation of patient and staff traffic patterns.

m. The use of 100% moveable modular furniture/casework is considered excellent and cost effective. This concept should be used on all future medical facility designs.

n. The expandibility and flexibility features are outstanding.

II. Sponsors Planning Deficiencies

1. The criteria for pharmacy waiting does not generate adequate waiting area.

2. The admission office waiting area is too large.

3. Equipment nitch at nurse station should be provided for the crash cart etc. 30 S.F. in direct view. Also regular equipt. storerooms needed at 120 S.F.

4. Isolation room needs to be closer to nurse station for observation

5. American standard sink for child washing is not deep enough.

6. ENT. EQUIPT. & ORTHO EQUIP. should be stored were used. Provide store rooms.

7. Radiology - Storage required for Film, Chemicals, EQUIP. etc.

8. Privacy at Control Counters of ER and OB is a problem. Sound screen is required.

9. LAB - Do not need Gas, Air, & Vaccum outlets.

10. LAB - Dishwater & Sterilizer are not used. Glasswash area may not be needed.

11. LAB - General Storage area is needed.

12. Histology & Grossing area is too small. Should be about 30% to 50% Larger.

13. IV additive area in Pharmacy is too small. Should be 200 S.F. No Janitors closet was provided.

14. No place for Computer Terminal provided at Pharmacy "in" window. Walk-in refer is not required. Free standing refer is OK.

15. Pharmacy consulting area needs to be adjacent to out window.

16. Concept manuals were not provided to Dept. Heads, Approximately 50 are needed.

17. Library Control area is not required.

18. Daycare area is poorly designed.

19. Medical Repair is undersized and has no Equip. Storage area.

20. Hospital issue area for Medical Storage is not used. This a Management Problem.

21. CYBEX room was not programmed. Should be 140 S.F. in Physical Therapy.

22. Physical Therapy - No floor drains were provided in Hydrotherapy. Wall gases are not needed.

23. Psych Nursing - Numerous Safety Hazards - vision panels, vision bubbles. Locks on toilet doors, T.V. Brackets. Curtain track, Narrow hallway to television area. Everything should be recessed.

24. Psych Nursing and Clinic should be co-located if possible. Also exterior recreation area is preferred. Duty room was not provided. Nurse office is needed behind Control Area.

25. Psych Nursing - All 4 Bedrooms are preferred except for isolation room.

26. UROLOGY - Location for Anesthesia needs to have more room is CYSTO

27. Dentistry - Brushing Room should be deleted - Substitute OHTR Room.

28. Phyical Therapy - No arm Tank was provided. Area for CBEX Machine required at 140 S.F. 90% of population is outpatient.

29. Pediatrics - Waiting Room is to small. Appts. are 200 per day.

30. Dermatology - Lab & Treatment are not used. Should have been combined with internal medicine for flexibility and expansion.

31. OB-GYN waiting is too small. 30-40% of Husbands come with wives. Weights and measures is too small. Should be 140 S.F. vice 110 S.F. Operates like assembly line.

32. Nuclear Medicine - Oxygen and Vaccum not required in Tyroid uptake and patient holding.

33. NUC-MED exam rooms and viewing consult room not required.

34. Immunization - No patient observation area was provided.

35. Orthopedics - No cross corridor minor surgery or Equipt. Storage was provided.

36. Psych nursing - Medical spaces not needed in patient Rooms curtains/curtain tracks not needed also.

37. Psych Nursing - No break way curtain rod in/shower stall.

38. Lack of flag system for exam rooms. No way to determine if patient in room, has been seen, etc. No chart racks for exam rooms. Poor mounting of patient room plates for patient room occupant names.

39. OB-GYN Department too small. 160 new preg. per week Waiting too small for husbands, mothers, etc of preg. women no childred are allowed.

40. OB-GYN-Closer adacency of specimen collection and weights/measures needed.

41. OB-GYN - Poor layout of Exam Rooms. Foot of table faces door; poor privacy. Locate table parallel to door wall with foot end away from door. Locate sink, med gases, BP cuffs, etc; accordingly.

42. LAB - Glass Wash/Ster. Not needed becuase of high degree of disposables used.

43. LAB - Storage inadequate; true of all clinical specialties.

44. LAB - Blood Bank. Blood drives which are typical of all blood banks require much seating. In order: need type/temperature, wait, drawing, recovery.

45. Nuclear Medicine - Patient holding too small, should be designed to hold litter patient and ambulatory patients.

46. CMP - deionized water system improperly installed; germicidal lights and water quality meter not working.

47. CMP - Poor selection of sterilizers.

48. Collection Agency - Too small for 3 people. Not able to see safe from outside.

49. Outpatient record waiting - Too small poor layout.

50. Data Processing - Too small for UCA and Trimis Systems.

51. Cast Room 1. Needs Entrance from both sides.

52. Chaplin's area needs a closet for vestments.

III. Criteria Deficiencies

A. The Medical Facility Layout Plates should be revised as follows:

1. Medical gases should be deleted from the Laboratory.

IV. Design Deficiencies

a. Architectural

1. An acoustical blanket should have been provided over all lay-in ceilings.

2. Catwalks should have been provided to allow service to the boilers in accordance with OSHA requirements.

3. Glass mirrors should have been provided in all areas except the pyschiatric nursing unit. The stainless steel mirrors should be replaced.

4. A concrete pad should have been provided for the dumpster.

5. Bumper guards on corridor walls have returns to walls that are held in place by friction only. Joints are not tight, and the returns can be pulled apart.

6. Receiving Dock: Ramp down to receiving area of kitchen is slippery. Some silcon carbide pads have been added. More pads are needed as the area with the greatest slope has no pads.

7. Vestibule at emergency entrance should have a door operating switch within the vestibule.

8. The cart washer should have been pit mounted. The present ramp is very steep and dangerous. The ramp should be lengthened to two times its present length.

b. Interior Design

1. Metal Drapery in Dining Room is unnecessary. Does not function to provide privacy.

2. Table Lamps in waiting unnecessary. (None Lighted)

3. Textured wall coverings (Vinyl) are difficult to maintain.

4. Nylon upholstery in waiting rooms is vulnerable to soiling. (Use vinyl fabric in future).

5. Chairs damage walls. Consider chair rails/acrovyn strips/wall-saver at appropriate height.

6. No artwork/wall graphics. Some ordered for main public areas - but were deleted to stay within available funds. Package should be completed and funded at collateral by NAVFAC.

7. Lost opportunities to enhance quality of waiting rooms. Colors are too subtle. Use of wall covering accents not exploited.

8. Line between carpet and hard floor at control counters is maintenance problem. No correction possible.

9. Lack of privacy for counseling, etc. in open-offices (Use acoustical partitions, work stations).

10. C lockers damage walls (Use Bumper strip at bottom).

11. Dining room service and floor tile difficult to maintain sanitary condition. No correction.

12. Ceiling Battens at the nurse station in Psych ward can be removed and used as weapon.

13. Patient bedroom bath door doesn't need more than push plate/roller latch.

14. Stainless steel toilet mirrors poor - not necessary except psych.

15. Flammable plastic waste containers not acceptable (Use UL classified or metal).

16. Patient bedroom closet door/hardware is overdone. No correction needed.

17. Sign System not readily changeable by activity; no manual specified to guide activity in maintaining system; primary directional signs overall/mounted too low.

18. No floor number signs provided in stairwells. No raised/incised letters for handicapped. No sign/provided for labor/delivery area (provide missing items.

19. Some furnishing prices were unnecessary high:

Chapel Chairs	280.00 - 300.00
CDR Conf Rm Chair	1000.00
Knoll Counter Chair	308.00
Stevens Chair (counter)	400.00
Command Suite Desks	1000.00
Command Suite Credenza	900.00
Command Lounge Chairs	556.00

c. Mechanical

1. An air-curtain should have been provided at the emergency entrance.

2. A hose bibb should have been provided at the main entrance.

3. HVAC system is not balanced properly - Some areas are too cold and some are hot. Seems like the problem is with the local loop control system such as lack of calibration of controller, sensors, etc. Also testing & balancing report is not available.

4. Autoclave exhaust pipe on the North side of the building is installed too high. It should be lowered to ground level.

5. Noise carry-over problem from Pharmacy (I.V. room) to civilian personnel office, from material/handling room to man power dept. Consultation room to trashing room. Needs sound proofing blanket/isolation.

6. Flammable storage does not have curb and floor drain to contain spills.

7. A portion of the medical warehouse (drug storage area) needs to be air conditioned.

8. Exhaust hoods are not provided over sterilizer, washer doors. Heat gets into whole area.

9. Sink in unit dose area does not have hot water connected to it. At this location this sink is not needed and will be removed when Herman-Miller rearranges the layout.

10. Dental X-ray dark room does not enough exhaust ventilation and control switch room should be exhaused independently.

11. Anesthesia gas storage office in Operating Suite should have floor level exhaust in lieu of ceiling type.

12. Medical compressor should be outside the boiler room so that it can use fresh air in lieu of reused air. This is a violation of NFPA Criteria. As such it is not functioning.

13. Mech. equip. room (EF-33 location) is used for storage of lead and batteries. Hole around electrical conduit is not sealed. Acid runs off to ceiling space below. This room is not designed for battery shop function.

14. EF-135 needs balancing to avoid vibration.

15. Isolation room (Psychatric) #437 has diffusers, grillers, view mirror speaker system, sprinkler head access panel which are not temper-proof.

16. Tub-room on the fourth floor west does not have floor drain to drain spills.

17. Electrical closet (next to MER) on 4th floor does not require high volume air conditioning because there is no ceiling in the room.

18. One Mech. Equip. room door on the third floor does not open fully - piping interference.

19. Louvers have been provided in stairwell entrance lobby on third floor west. This a fire hazard. These louvers should be internally blocked.

20. Drinking fountains, and showers in patient rooms do not have enough water discharge pressure. Seems like isolation values/control valves are blocked.

21. Toilet rooms do not have enough ventilation. This may be solved when the ventilation system is balanced.

22. Proper type of ceiling access panel is not provided in the kitchenette area in CO's suite.

23. Morgue ventilation is not adequate.

24. EMCS. Electrical Demand Limiting Program is not implemented.

25. EMCS. Duty cycling program not implemented; however, it is recommended that this program not be used for hospital.

26. Heating cooling reset program has not been implemented on double deck single zone only.

27. Chiller Plant Optimization Program chiller water and condenser water temp reset has not been implemented.

28. Chiller management program is not fully implemented.

29. Run Time totalization not implemented. However Johnson Controls has initialized this program as of this date (11/17/83) and should be tracked for full compliance to EMCS contract requirements.

30. Optimal start - time program has not been implemented. Recommend only non-critical areas use this program.

31. Boiler Management program has not been implemented fully.

32. Valve and damper status is not provided. Will serve to trouble shoot systems from EMCS.

33. Dynamic electrical state calculation, predicator/corrector program, trending run/time maintenance report is not implemented. Maintenance report and preventive maintenance report will be provided by PW with computer other than EMCS.

34. Chiller profile is not implemented in EMCS.

35. Transducers interfacing with Johnson EMCS require calibration, calibration range tables or curves and certification. Flow metering and EMCS interface with local loop system not possible for implementation of EMCS programs.
Note: Johnson Service said that annubar used for flow metering produces unstable values could be design or construction deficiency.

36. Chillers are being operated at low loads. Need for hot-gas by-pass to prevent surging should be investigated. Also, adviseability to use chiller optimization program should be studied.

37. Loss of oil from Chiller no. 1 should be checked and corrected by manufacturer. This causes inefficient operation and loss of chiller capacity.

38. Excessive static pressure in duct has caused rupture of duct and flexible connectors to air terminals. Adequacy of static pressure control system as designed and installed should be investigated.

39. Water on ceiling panels due to condensate forming on insulated piping in ceiling.

40. Flexible duct connections to VAV boxes are not adequately secured.

41. Oil water separator cannot be checked or maintained for fill area.

42. No over-flow prevention was built into fuel tank filling system. Problem should be corrected by high fuel level indicator.

43. Return air grill filter should be replaced in operating rooms. An easily changeable filter should be provided.

44. Central vacuum system needs an overlow shut-off alarm and timer.

45. Wet vacuum outlets should have been provided in the sterile corridors of surgery.

46. Additional water shut-off valves are required in O.R. Suite to permit routine or emergency maintenance in suite.

47. The 90 degree bend in the plaster drain should be eliminated as it collects plaster.

48. Wrist blade faucets should have been provided in the dental clinics to prevent recontamination after washing.

49. The central material processing center should have been air conditioned.

50. Water pressure is too low due to installation of poor quality flow restrictors. Restrictors should be removed.

d. Electrical

1. The EMCS system is not fully operational. The cost effectiveness of the EMCS System should be evaluated. The POE team agrees it is not a cost-effective system. Before additional funds are spent to make the system fully operational, the cost effectiveness should be certified.

2. The specifications for the telephone system were not written properly to assure a satisfactory telephone installation. An additional contract is recommended to properly install the telephones at the telephone outlet boxes.

3. The exterior parking lighting is excessive. This prohibits the TV cameras from working at night because the point sources of light burn out the cameras. The wattage of the lights in the parking lots should be reduced and metal covers should be placed over the fixtures to eliminate the point source problem.

4. The roadway lighting is excessive, costs energy, and is dangerous. All roadway lighting should be removed and replaced with two high light fixtures at the two major roadway intersections.

5. Child-proof electrical receptacles were used throughout. These were not needed. They should be replaced as they break.

6. Emergency call buttons should have been provided in the outpatient toilet rooms.

7. A code-blue button should have been provided in the treadmill room.

8. Eye clinic requires dimmers on room lights.

9. Exterior lighting: Mercury vapor lighting at varous entrances, canopies and emergency vehicle shelter are relatively inefficent compared to fluorescent or high pressure sodium.

10. Night Lights: Night lights in patient rooms were provided both at the headwall unit and on the opposite wall. At most one night light is sufficient.

11. Keyed light switches: Keyed switches in corridors outside wheelchair showers and tub rooms are unnecessary.

12. Automatic lighting controls: There is a general lack of automatic lighting controls (EMCS, photocells, limit switches, motion detectors, etc) in this highly automated building.

13. Warehouse light fixtures: Fixtures should have guards to protect lamps.

14. Battery Lighting Units: An excessive number of battery units are provided for lighting. These units are only needed in very critical areas (OR, delivery, etc.) where lighting should not be interrupted for 10 seconds while generators are started.

15. Battery system for X-ray lighting is unnecessary and batteries are a safety and maintenance problem where installed.

16. Hospital grade, tamper-resistant receptacles: Provided throughout hospital when only required in anesthetizing areas. Tamper-resistant feature will not accept two-prong plugs found on most non-patient.

17. Ground fault interrupter receptacles were not provided in patient room toilets.

18. Isolated power systems: An excessive number of isolated power systems were provided. These systems are only required in anestheticing locations.

19. Telephone switch room: Miscellaneous water lines pass through telephone equipment room above digital switch creating a maintenance/reliability problem.

20. Lightning protection system: Installation on system conductors is not in accordance with specifications or criteria. Conductors are installed in rain down spouts, and through roof flashing.

21. Smoke dectectors in operating rooms: HVAC air flow will likely prevent smoke from ever reaching detectors in OR's.

e. Fire Protection

1. Dry pipe sprinkler systems are not provided with low air alarm pressure, switches and connection of switches to EMCS.

2. No fire alarm manual station provided in operating room area. Fire in O.B. area would necessitate sending personnel out of sterile area during critical period.

3. No fire alarm manual station provided at exit door in library (First Floor).

4. Release button on preation sprinkler system deluge valves are not guarded to preclude inadvertant actuation.

5. Doors 450A and 450 are not provided with closers. Closers are required since these doors compromise the smoke barrier located between them.

6. Sprinkler heads and associated piping located in stairway, west end of "G" area are subject to freezing due to louvers in exterior walls.

7. Main control valves for fire protection water distribution loop are located over 25 above boiler room floor. No means of access for operation and repair is provided.

8. No inspectors test valve is provided for dry pipe sprinkler system serving "E" section loading dock.

9. The hospital has not been provided with "as built" drawings of the sprinkler systems. These drawings are required by the sprinkler spec.

10. The diesel engine driven fire pump controller is not provided with a sequential timing device to preclude the diesel driven pump from starting concurrently with the electric motor driven pump.

11. An inadequate number of portable fire extinguishers suitable for Class C (Electrical) fires were provided in areas with a significant amount of electrical equipment e.g. x-ray machines. Additionally, recessed cabinets are required for many of these extinguishers.

12. No automatic sprinklers system (deluge type) provided for cooling tower. Tower has combustible fill and is critical to hospital operation.

13. Location and spacing of heat detectors in transformer room is deficient. Additional detectors are required.

f. Handicapped

1. Doors to toilet stalls in public spaces are 29 I/2" clear when open.

2. Water closets in public toilets (handicapped stall) 16" above floor.

3. Public telephones: Do not conform to 48" max height above floor. Coin slot in 54" above floor.

4. Elevator controls: Not suitable for use by the blind.

5. Doors(2) to pharmacy do not have space at side of door (lock side) for wheel chair patient to position chair to reach lock/handle.

6. Drinking fountain adjacent to reception/information counter is 37" to floor. Above finish floor (36" max.).

7. Soap dispensers in toilets are mounted on walls (55" to 62") above finish floor (40" max. allow.)

8. Min access doors and clinic access doors (8-pair) difficult for wheel chair use. Doors heavy and awkward. Tires on wheel chairs slip on the mats outside these doors and the mats between each two sets of doors forming the vestibule. (Test was made in dry weather - no moisture on mats.)

V. Construction Deficiencies

a. One of the boilers is vibrating excessively.

b. The ventilation in the prosthetic dental lab is inadequate.

c. The brick pavers in the main lobby were not installed properly. They need to be re-installed.

d. The elapsed time clocks are missing in the delivery rooms.

e. The brick on the exterior needs to be cleaned and sealed.

f. Erosion is occurring in the grass areas north of the hospital.

g. There is condensation on the chilled water lines.

h. All valves need to be tagged.

i. The asphalt at the loading dock is failing.

j. Numerous fire protection deficiencies as per previous fire protection report.

k. Expansion joint and cover missing in the ~~filters~~ FATHERS corridor of OB suite.

l. Air conditioning system not balanced properly.

m. Door sills were not provided on several penthouse doors.

n. Elevator controls are not working properly. Elevators skip floors.

o. Walls in the stairwells are leaking.

p. Two major areas of leaks have occurred along the first floor will over the galley.

q. The rubber treads on the interior stairs are peeling up.

r. The underside of the "fly over" for the outside stairs near the galley is not finished properly.

VI. High Cost Maintenance Deficiencies

1. Lights were left on throughout the building day and night.

2. Downsposts from upper roofs are washing gravel from lower roof. This will cause leaks. Downspout flow needs to be dispated not concentrated.

3. Plumbing above telephone equipment invites catastrophe. Plans have been added. Unit a/c have been added to telephone space and boiler room office - also drug storage in supply need a/c built in.

4. Non-skid paint on decks in various areas is peeling up. Deck not properly acid etched before painting.

5. No provision made for a trash compactor dumpster by food service.

6. Consult/treatment rooms at doorframe N450A defeat purpose of hallway smoke doors. These room doors require closures.

7. Various height carts, beds, gurneys, etc cause wall and door scoring problems. Local solution is to install plastic laminate strips and corners guards.

8. Extra wood panels at smoke door locations are a potential housekeeping/pest controls/fire hazard. Trash can accumulate in the percent behind this panel.

9. Various details in NP ward were not acceptable as built including: glass mirrors light housings, bathroom door locks patient viewing mirrors.

10. C lockers and the C lockers "Pallet Trucks" bang the bottoms of the walls. A laminate strip should be provided.

11. Access to cast room in ortopedics is extremely limited from one side.

12. Patient affairs needs larger entrance door to accommodate wheelchairs with ease.

13. Patient affairs records office needs dutch door to maintain control.

14. A large number of pressure gauges on a/c system are at or above range limit.

15. Laboratory equipment needs a number of dedicated electrical circuits.

16. Water and steam distribution systems are sparse on valves. Need more valves to limit utility outages to the smallest area.

17. Processing tanks in radiology and urology need to be mounted higher to prevent air bubbles in chemical lines.

18. Brick wall surface in child care center considered a safety hazard.

19. Lightning protection devices mounted on roof flashing will become a maintenance item. Should be mounted on brick.

20. Fan units under overhang Level 3 EF124 - fan blows rain up into brick siding; ergo, weepholes had to be sealed closed.

21. Expansion joints on roof edge - thin innertube material has cracked and torn. Improper joints in concrete. Lower level loading docks standard joints around and from columns and corners should be used to control cracking.

22. No flashing over door. Mechanical room M013 lower level food dock exterior wall. Doors on exterior walls, if not recessed should have flashing above to divert rain water.

23. Stairwell not fire exit level 1 room #M108A remove overhead exit sign change lable "Fire Exit keep Closed". There is no exterior exit.

24. List of all valves, description of use, tag number location and cross reference for emergency cut is desirable.

25. Additional pipe labels are necessary darker easier to read and more marking is needed yellow is inadequate. If color code is correct use yellow block background and black words.

26. Pipes in mechanical room W256 DE6 rear of dental clinic needs to be labled and space cleaned.

27. Mechanical rooms need to be cleaned. It is also recommended floors and equipment platforms be painted and sealed to reduce cement dust and make easier to clean.

28. PM shcedules are inadequate: (a) Fire Protection/Intercom checks thrown away, not used (b) Equipment not properly identified and grouped, (c) Insufficent detail such as number of fittings (d) Tape, floppy disk etc not supplied (e) should be reviewed by public works before finalized.

29. Master plan - Reproducable copy of system isometrics should be supplied to public works.

30. Require hospital maintenance person to be assigned to facility 6 to 12 months before start up. For training and familiarity and to assist in review of PM and maintenance documentation.

31. Steam trap maintenance not included in PM schedule.

32. O&M manuals received week of 11/15/83. Too much delay - hospital opened in February.

33. Schematics/cutoff valves not shown in EMCS. Usefull (especially in an emergency) information should be placed in memory banks. Also consider locating remote unit in Public Works or boiler room area.

VII. Medical Equipment Deficiencies

1. Cubicle certain tracks and cubicle certain glides do not junction well. Tracks are uneven. The glides or wheeled rollers hang up.

2. IV track and carriers do not function easily. They tend to get hung up when trying to slide on tracks.

3. Striker LP-1 beds do not function well. The cushion coners are ripping where straps are attached. Fifth wheel catches unexpectedly while moving (cause personal injury with lost time). Release mechanism is very difficult to get to and manipulate at the foot of the bed.

4. The CCU should have a raised platform where staff can look down on patients. Also, the raised wood work surrounding staff area should be lowered or eliminated.

5. Stretches were used for about three months with transfer feature. The transfer capability was found to be more trouble then it was worth.

6. No need for two urology x-ray units.

7. Sterilizers do not operate properly.

8. Hand washing/deep sink in newborn nursing is so high as to be unusable for shorter staff members.

9. The infant washing sink is inadequate. The sink should be larger with a smaller work surface. The edges should be higher to minimize splashing on floor.

10. Complaints about knee operated sink are two fold: (1) Knee operation is difficult and requires a high degress of maintenance. (2) The sink design does not prevent spilling of bitadine and water on floor.

11. Wall damage is being caused by "C" carts and or Gurney thoughout building. Also "L" wall storage units are damaging walls where no power rail exists.

12. Herman Miller "C" carts are poor substitutes for or case-carts and should not be programmed for such use in the future: Metal case carts should be provided.

13. Chairs with fabric covers should not be used in high traffic/patient waiting areas.

14. There is not enough room in the patient bedrooms to allow patient chairs to be placed along side patient beds.

15. The short time span from receipt to completion of purchase of collateral equipment is unacceptable. Problems, few as they were with procurement were caused directly by the lack of time to thoroughly review package before procurement.

16. When moving to the facility, there were no de-ionized $H2^{O}$ outlets at any of the sink sin laboratory. Installation was accompished by PW.

17. The ultra violet light fixture in the deionizing water tank room was never been properly installed.

18. Cart Washer. Wrong one installed, not installed @ ground level. Ramp, too steep, personnel hazard; has resulted in personal injury, steam exhaust at end of cycle inadequate.

19. The ultra violet light fixture in the dionized water tank room has never been properly installed. It is not functional at present time.

20. Delete the glassware washer and sterilize in substerile room.

21. Delete large bulk sterilizer in laboratory and incorporate a hazardous waste incinerator into facility design (possible JCAH recommendation).

VIII. Procedural Deficiencies

1. Process for change of specifications during construction. - Solution: Documentation by MCLO with copies to NAVMEDCOM, ROICC, EFD and NAVFAC - NAVFAC MEDICAL Design team liaison member for project to interface with MCLO.

2. Procurement of collateral equipment through activity supply services. - Solution: Central procurement for MCON outfitting --- possible use of DPSC for all medical equipment (OPN & O&MN).

3. Acceptance of "complete & useful facility" by who? ROICC versus Activity (user). - Phased acceptance creates never ending problems that undermine confidence of new facility. If ROICC accepts, must user?

4. Sensitivity to concepts or systems different from existing mades of operation that result in mark labor intense functious - possible contingent requirements.

5. Add-on systems contracts create more problems than benefits no matter what the circumstances. - Such as telephone, EMCS, nurse call.

WARREN REDFORD Ems (2)
LOUTDIU CODE 401C

CHECKLIST FOR BARRIER-FREE DESIGN

ANSI A117.1 1961(R1971)		YES	NO	COMMENTS
	1. SITE DEVELOPMENT			
	a. Passenger loading zone, adequate space?	___	___	___
4.3	**2. PARKING**			
4.3.1	a. Spaces identified for physically handicapped?	✓	___	___
4.3.1*	b. Spaces within 200' of facility?	✓	___	___
4.3.2				
4.3.3	c. Parking spaces open to one side (Min. 12' wide, level space)?	✓	___	___
4.3.4	d. Do handicapped individuals have to walk or wheel behind parked cars?	✓	✓	___
	e. Accessible to bldg. by walk or ramp?	✓	___	___
4.2	**3. WALKS**			
4.2.1	a. Min. 48" wide?	✓	___	___
4.2.1	b. Max. 5% grade?	✓	___	___
4.2.2	c. Continuous walk, no steps or abrupt changes in levels?	✓	___	___
4.2.3	d. Wherever, walks cross other walks, driveways, park'g lots, (curb cuts) do they blend into a common level?	✓	___	___
4.2.4 4.2.5	e. Level platforms at entrance door? (5x5 if door swings out; 3x5 if door swings in)	✓	___	___
4.2.4 4.2.5	f. Does platform extend min. 12" beyond door knob side of door?	✓	___	___
	g. Free of gratings, manholes, etc.?	✓	___	ONLY SMALL SLOTTED COVERS FOR AREA DRAINS ± 10"ϕ

* ANSI MODIFIED

			YES	NO	COMMENTS
5.1	4. RAMPS				
5.1.1	a.	Max. 8.33% grade? (1:12)			
5.1.2	b.	Handrails 32" high, extended 12" beyond?			
5.1.3	c.	Nonslip surface?			
5.1.4	d.	Level platform at door? (see 3.e and 3.f)			
5.1.5					
5.1.6	e.	Min. 6' straight clearance at bottom?			
5.1.7	f.	Level platforms at 30' intervals free of grates, manholes etc.:			
5.13.5	g.	Well illuminated? (Approx. 5 fc)			
5.2	5. ENTRANCES				
5.2.1	a.	Min. one primary entrance useable by individuals in wheelchairs?	✓		DIFFICULT TO OPERATE - CHAIR WHEELS SLIP ON MATS
5.2.2	b.	Min. one primary entrance accessible to elevators?	✓		
5.3	6. DOORS				
5.3.1	a.	Min. 32" wide clear opening?	✓		
5.3.1	b.	Operable by a single effort?	✓		
5.3.2	c.	Min. 5' level approach each side?	✓		
5.3.3	d.	Flush or bevel thresholds?	✓		MOSTLY FLUSH.
	e.	Kickplates 16" high?		✓	
	f.	Door closers with delayed action?		✓	
	g.	Handles max. 42" high?	✓		
	h.	Bottom of vision panels at 36" max. above floor?	✓		
	i.	Vestibules, 6'-6" min. bet. doors?	✓		
	7. CORRIDORS				
	a.	60" min. width?	✓		
	b.	Doors recessed when opening into corridor?	✓		
5.4	8. STAIRS				
5.4.1	a.	No square or abrupt nosing	✓		NOSINGS EXTEND 3/8" BEYOND RISER FACE
5.4.2	b.	Handrails 32" high, when measured from tread at face of riser?	✓		

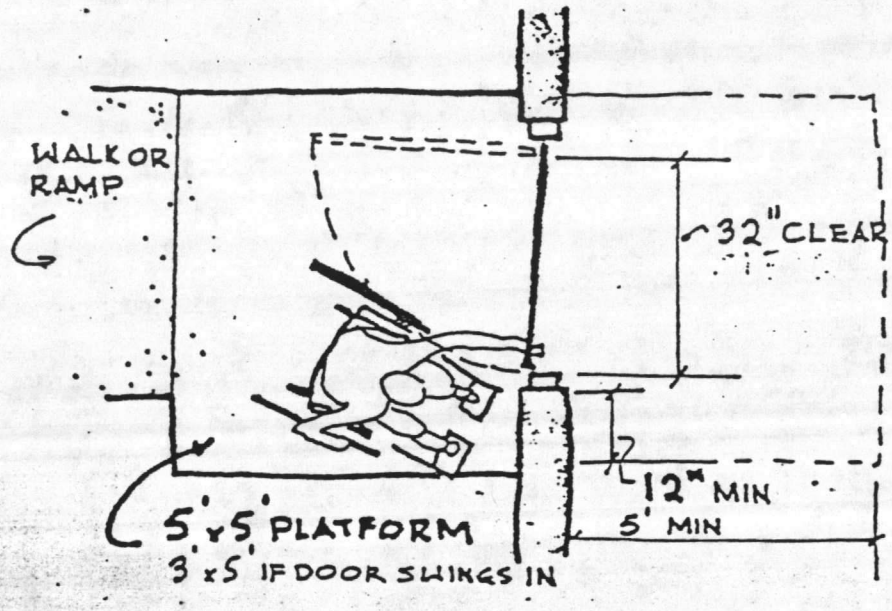
		YES	NO	COMMENTS
5.4.3	c. One handrail extends 18" beyond top and bottom of stairs?	✓		
5.4.4	d. Max. 7" riser?	✓		
	e. Nonslip treads?	✓		
5.5	9. FLOORS			
5.5.1	a. Nonslip surface? (Not-highly polished)	✓		
5.5.2	b. Floors on a given story-connected by a ramp? (see 4. Ramps)			N.A.
5.6	10. TOILETS			
5.6	a. Min. one per sex per floor? (or appropriate no. per floor)	✓		
5.6.1	b. Entrance clearance? (see 6 Doors)			
	c. Floor level with corridor?	✓		
5.6.2	d. Toilet stall min. 36" x 56" w/32" clear opening door?			NO
5.6.2	e. Handrails each side 33" high and parallel to floor?	✓		
5.6.2	f. W.C. 20" high?			16" IN PUBLIC TOILETS
5.6.3*	h. Lavatories w/narrow aprons? (29" cl. underneath)	✓		
5.6.3	i. Drains and hot water pipes insulated or enclosed?	✓		
	j. Faucets easily operated?	✓		
5.6.4	k. Mirrors and shelves max. 40" high?	✓		
5.6.5	l. Wall mounted urinals - OPG at basin 19" high?			
5.6.6	m. Towel, soap dispensers, etc. Max. 40" high?			SOAP DISPENSER 55 TO 62 ABOVE FINISH FLOOR IN PUBLIC TOILETS
5.7	11. DRINKING FOUNTAINS			
5.7.1	a. Min. one per floor?	✓		
	b. Hand or hand and foot operated?	✓		
5.7.1	c. Up front spout?	✓		
5.7.2	d. Wall mounted 30"-36" high?		✓	
5.7.2*	e. Alcove - 60" wide?		✓	
5.8	12. PUBLIC TELEPHONES			
5.8	a. Min. one accessible phone where phones are provided?	✓		
5.8.1	b. Dial, handset, coin slot max. 48"?			54" ABOVE FLOOR
5.8.2	c. One phone for hard of hearing?		NO	

* ANSI MODIFIED

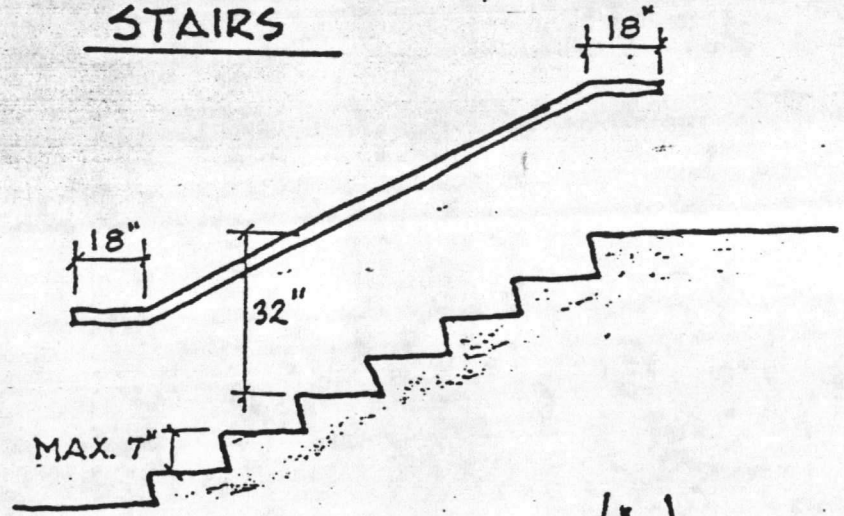
		YES	NO	COMMENTS
5.9	13. ELEVATORS (When Required)			
5.9.1	a. Accessible to each floor level?	✓		
5.9.2	b. Min. cab size 60" x 60" or 63" x 56"?	✓		
	c. Min. 32" door opening?	✓		
	d. Handrails 32" high?	✓		
	e. Controls mounting hgt 60" max.?	✓		
	f. Controls and signals usable by the blind?		✓	
	14. CONTROLS			
5.10	a. Alarms, heating, venting, light and etc. 48" high?			
	15. IDENTIFICATION			
5.11	a. Access symbol displayed? (parking, toilets) entrances and etc.)		✓	PARKING - ON PAVING ONLY TOILETS - ON DOORS
5.11.1*	b. Raised or incised letters for room identification?		✓	
5.11.2	c. (15b) mounted 54" to 66"?		✓	
5.11.3	d. Knurled door handles for dangerous areas?		✓	
	e. Abrasive floor strips at open dangerous areas?	✓		NEED ADDITIONAL STRIPS @ KITCHEN RECEIVING DOOR
	16. WARNING SIGNALS AND HARZARDS			
5.12.1 5.12.2	a. Warning signals both visible and audible for the deaf & blind?		✓	1 DEAF PERSON EMPLOYED IN KITCHEN - RELIES ON HAND SIGNALS
5.13.2	b. Access panels or manholes in use are barricades provided; warning signals (5.12.2)?			—
5.13.3	c. Low hanging door closers, within opening of doorway?		✓	
5.13.4	d. Low hanging or protruding sign, lights etc. min 7' high in corridors or traffic ways?		✓	
	MEETING ROOMS 17. AUDITORIUM OR THEATER SEATING			
	a. Area for wheel chair, near entrance or exit?	✓		
	b. Row of seats set back for people with leg braces?			MOVABLE SEATING

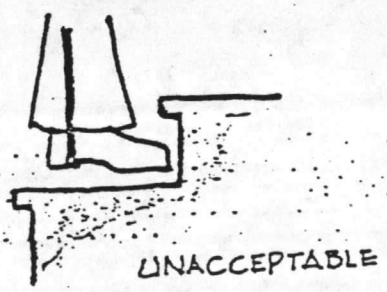
* ANSI MODIFIED

DOORS & DOOWAYS



STAIRS

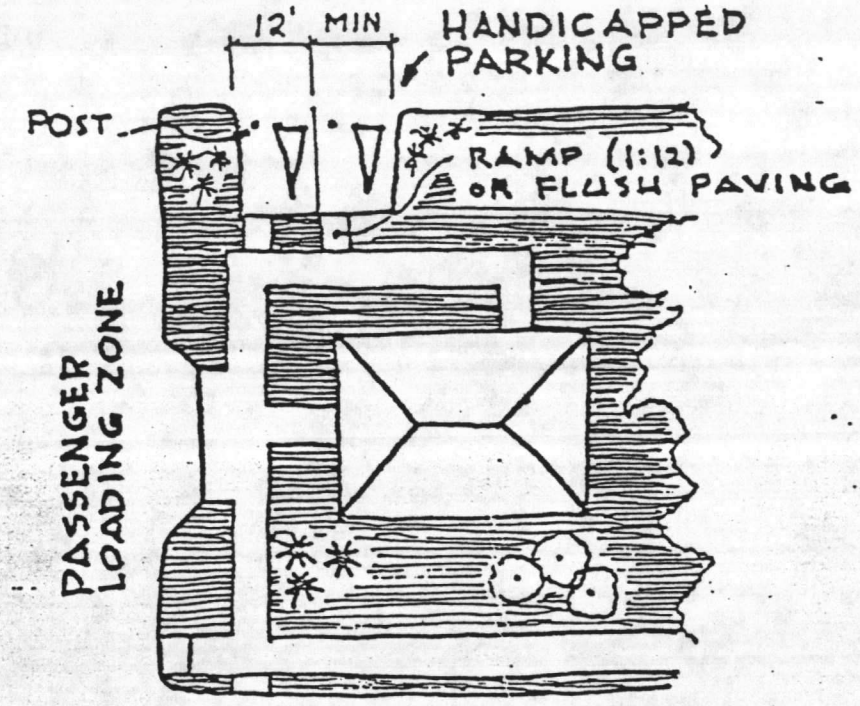




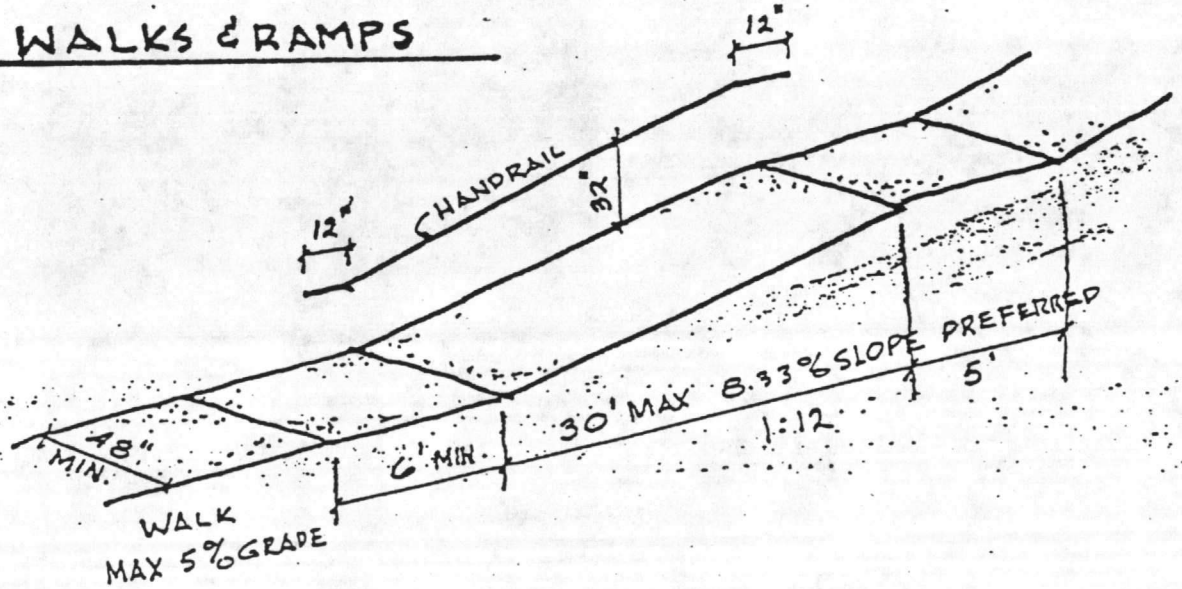
UNACCEPTABLE

ACCEPTABLE

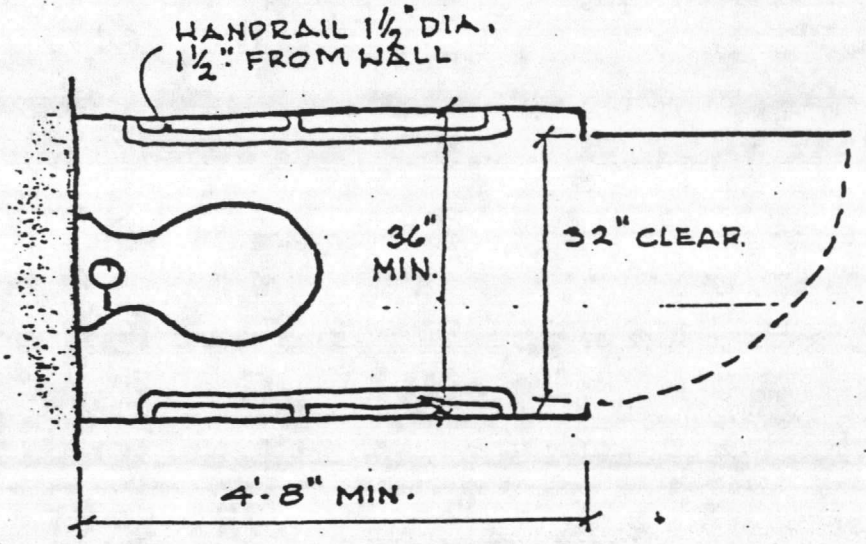
PARKING



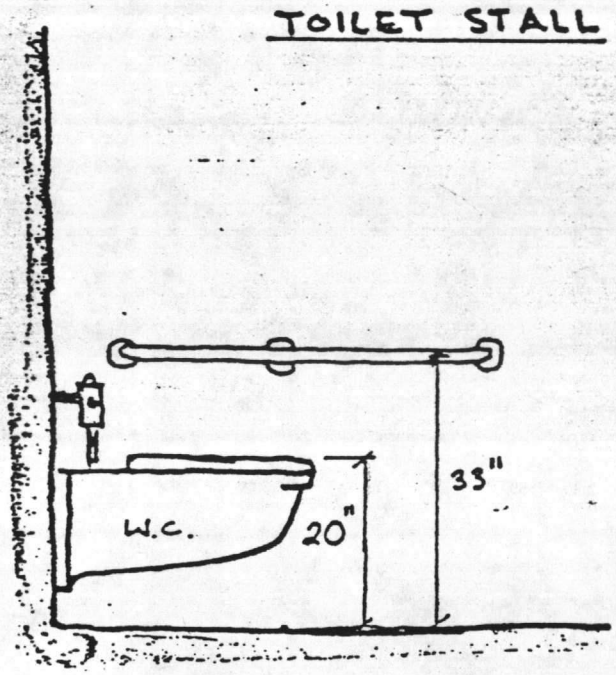
WALKS & RAMPS

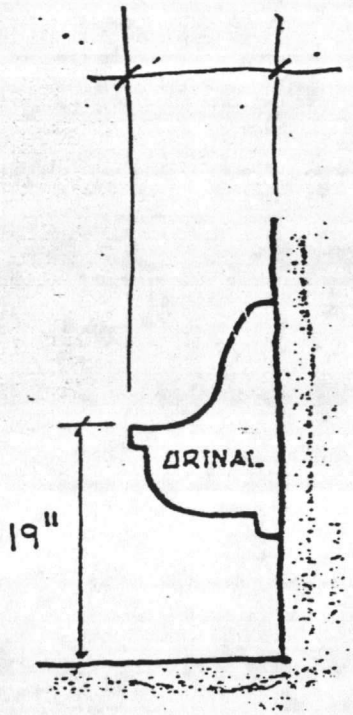


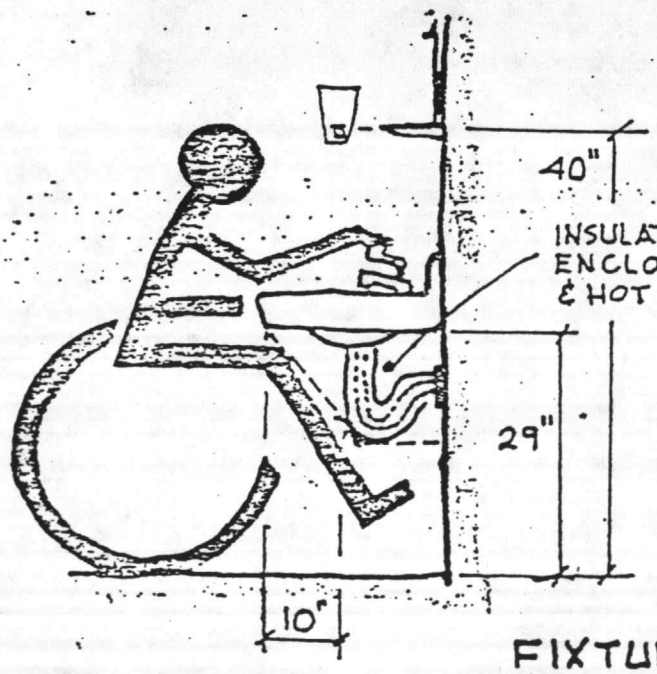
TOILET ROOMS

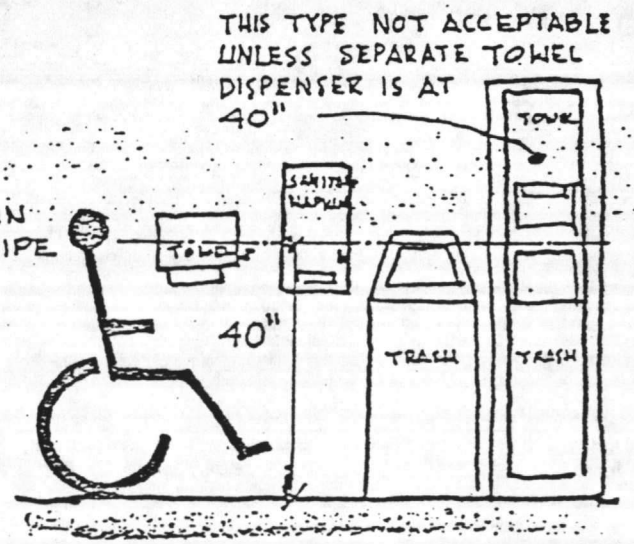


TOILET STALL

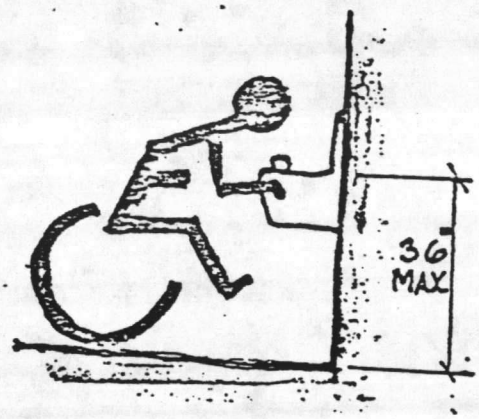


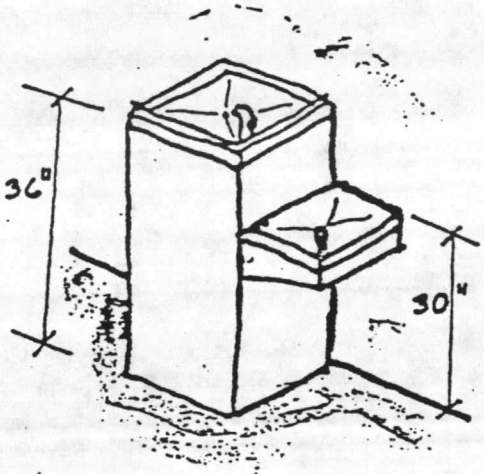






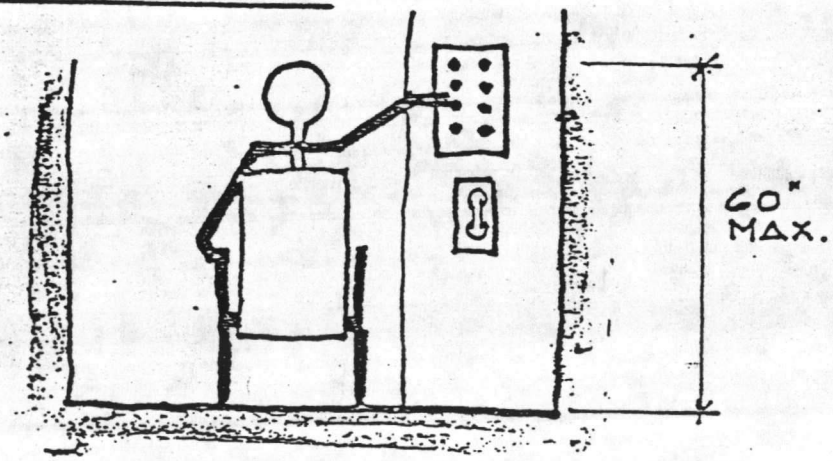
FIXTURE HEIGHTS



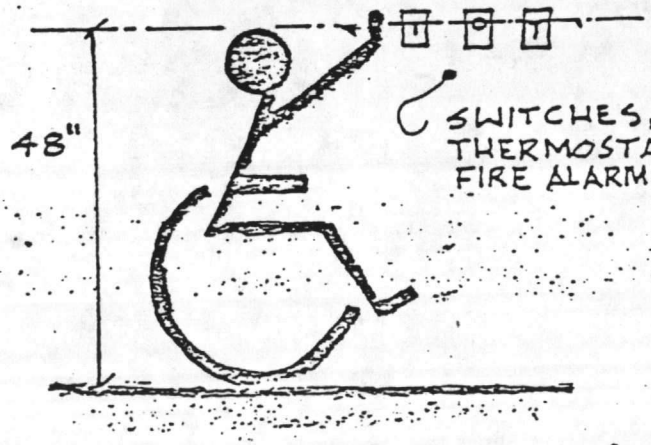


WATER FOUNTAINS

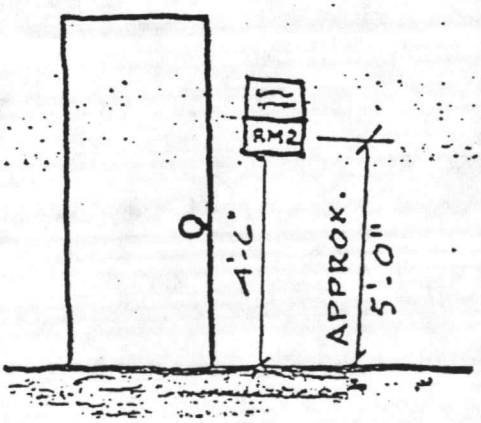
TELEPHONE



ELEVATOR

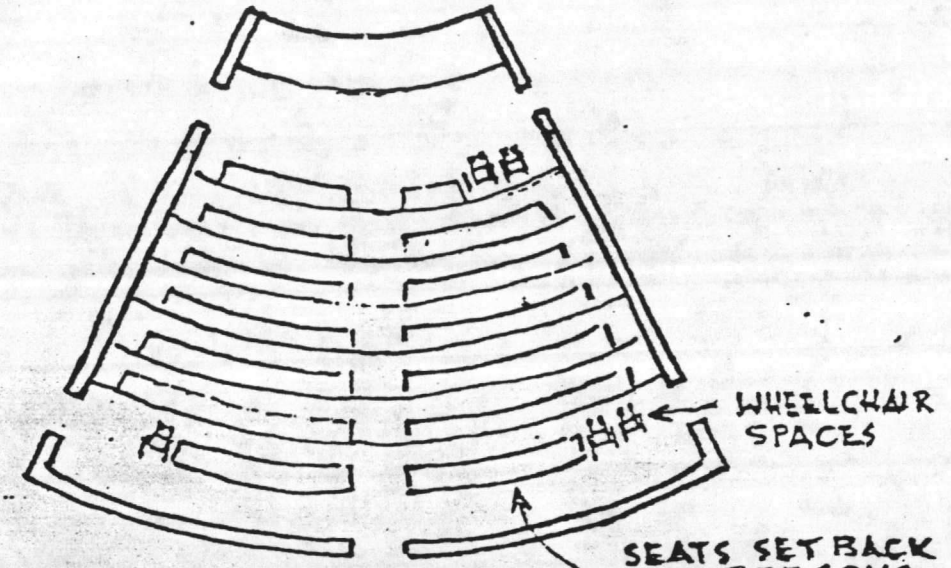


CONTROLS



IDENTIFICATION

AUDITORIUM OR THEATER SEATING



Encl(3)

DEPARTMENT OF THE NAVY
NAVAL MEDICAL COMMAND
WASHINGTON, D.C. 20372

IN REPLY REFER TO

MEDCOM-43B-kc
11010
Ser 31215403
15 December 1983

From: Commander, Naval Medical Command
To: Commander, Naval Facilities Engineering Command, Naval Facilities Engineering Command Headquarters (04T7)

Subj: Post-Occupancy Evaluation of Naval Hospital, Camp Lejeune, NC of 14-18 November 1983

Encl: (1) Detailed Remarks from Post-Occupancy Inspection of Dental Services

1. Enclosure (1), including comments pertaining to the dental service in the Camp Lejeune hospital, is forwarded for incorporation in the subject evaluation.

P. Oliver, Jr.

P. OLIVER, JR.
By direction

DETAILED REMARKS FROM POST-OCCUPANCY INSPECTION OF DENTAL SERVICES

General Comments

1. Sound-proofing of dental service is poor.

2. Oral Surgery Suite is too close to patient waiting area.

3. Insufficient lighting in front desk area.

4. No local control of selection and volume of music available to dental service.

5. No CSR in dental service resulting in:

   a. Poor service from hospital CSR (time)

   b. Lost instruments and equipment (cost)

   c. Packs not assembled properly (efficiency)

6. Air conditioning not balanced.

7. Medical repair staff installed equipment with assistance of local dental repair staff. The hospital's medical repair department provides outstanding service.

Individual Room Comments

1. Chief of Services, Admin Spaces

   a. No intercom, needs main control

2. Preventive Dentistry Room

   a. Stainless steel mirrors are not good enough to be used in a patient care space

3. DOR #1 (Exam)

   a. No mobile cabinetry

   b. Not enough stationary cabinetry

   c. No X-ray view box (large)

   d. No file space

   e. Sinks are too small (10" x 10" x 7" deep)

   f. Faucet has valves, needs single lever control

4. DOR #2 (Exam)

   a. No mobile cabinetry

   b. Not enough stationary cabinetry

   c. Sinks are too small (10" x 10" x 7" deep)

   e. Faucet has valves, needs single lever control

5. DOR #2 (Oper)

   a. No mobile cabinetry

   b. Not enough stationary cabinetry

   c. Sinks are too small (10" x 10" x 7" deep)

   d. Faucet has valves, needs single lever control

6. DOR #4 (Endo, Prophy)

   a. No mobile cabinetry

   b. Not enough stationary cabinetry

   c. Sinks are too small (10" x 10" x 7" deep)

   d. Faucet has valves, needs single lever control

7. DOR #5

   a. No mobile cabinetry

   b. Not enough stationary cabinetry

   c. Sinks are too small (10" x 10" x 7" deep)

   d. Faucet has valves, needs single lever control

   e. Equipment from old hospital (not functional)

      1. Adee 4000, Unit

      2. Dentalez US, Chair

      3. Pelton and Crane LF+, Light

8. Dental Officers Office (for two dentists)

a. No intercom

b. No X-ray view box for patient work-ups

9. X-ray Room

a. No built-in exposure station

b. Using old film safes and mobile X-ray protective screen. Appearance is horrible (old paint and dirty)

c. Using X-ray chair from old hospital

1. Wrong color, needs to be brown vice blue

10. X-ray Dark Room

a. Too big

b. Exposed PVC drain pipes for automatic processor

11. Prosthetic Laboratory

a. Technician work bench has no air supply valve

b. Not equipped properly

12. Oral Surgery Suite

a. No nitrous oxide supply

b. Located too close to patient waiting area

c. Insufficient sound proofing for patient privacy

d. Hole patched in wall very sloppy job

e. Why was there a utility center for a dental unit?

13. Scrub Room

a. Sink too small

b. No storage for surgical gowns

14. Oral Surgery Room (POT)

a. No nitrous oxide supply

b. Hole patched in wall very sloppy job

15. Recovery Room

a. OK

16. Supply Room

    a. Needs more storage cabinets

17. Female Locker Room

    a. No intercom available

    b. Why stainless steel mirrors?

18. Soiled Utility

    a. Outside clinic area (needs intercom)

    b. Needs ultrasonic instrument cleaner

19. Mech Room

    a. Has an extra central vacuum machine (water type)

20. Clean Supply

    a. Outside clinic area

21. Male Locker Room

    a. No intercom available

    b. Why stainless steel mirrors?

22. Staff Lounge

    a. OK

POST OCCUPANCY EVALUATION
REPORT SUMMARY

Facility: Naval Hospital Camp Lejuene

Location: Camp Lejuene, N.C.

Date of Inspection: 14 - 18 November 1983

Team Leader: Ronald Johnson - NAVFACENGCOMHQ - Code 04T7

Team Members:

ARCHITECTURAL	Mr. Warren Redford - LANTDIV
INTERIOR DESIGN	Mr. George Baer - NAVFAC
CIVIL/STRUCTURAL	Mr. T. Butts
MECHNICAL	Mr. Surinder Sharma
ELECTRICAL	Mr. Howard Stickley
FIRE PROTECTION	Mr. C. D. Pritchard
MAINTENANCE	Mr. Don Johnson
CONSTRUCTION	Mr. Al West
MEDICAL PLANNING	Mr. Fred Webb
MEDICAL EQUIPMENT	CDR Stephen Bolshazy

DEFICIENCY	
/ A /	52
/ B /	1
/ C /	120
/ D /	18
/ E /	23
/ F /	33
/ G /	5
/TOTAL/	252

CORRECTION	
/ A /	120
/ B /	33
/ C /	94
/ D /	5

FUTURE	
/ A /	52
/ B /	120
/ C /	1
/ D /	0
/ E /	0
/ F /	0
/ G /	99

KEY TO POST OCCUPANCY EVALUATION DEFICIENCY REPORT

DEFICIENCY: Deficiency should be categorized as one of the following:

A. Sponsor's Planning Deficiency
B. Criteria Deficiency

- B-1 Design Manuals
- B-2 Guide Specifications
- B-3 Definitive Drawings

C. Design Deficiency (Project Drawings or Specifications)
D. Construction Deficiency
E. Collateral Equipment (Loose and Portable) Deficiency
F. Maintenance Deficiency
G. Other (State of the Art Change, Etc.)

CORRECTION: Deficiency correction has been or should be accomplished by:

A. Appropraite Funds (MCON, urgent minor, O&M, ECIP)
B. Warranty
C. No Correction Needed or Possible
D. Other

FUTURE: In future projects, deficiency should be avoided by:

A. Revision to Sponsor's Planning Data
B. Better plans and specs
C. Revision to NAVFAC Criteria
D. Better Inspection
E. Better Coordination of Collateral Equipment
F. Better Preventive Maintenance
G. Not Applicable

POST OCCUPANCY EVALUATION

DEFICIENCY SHEET ACTION ASSIGNMENTS

DEFICIENCY SHEET	NAVFAC HEADQUATERS				EFD	NO ACTION REQUIRED
	04	05	10	20		
III A	X					
IV a1 - IV f8					X	
V a - V r					X	

Enclosure (6)

1. AIR CONDITIONING / VENTILATION PROBLEMS

a. WIS7/WIS7A EEG ROOM IN INTT. MEDICINE CLINIC. NOT ENOUGH AIR FLOW DUE TO SHIELDING AROUND ROOM.

b. ~~NARCOTICS~~ PHARMACEUTICALS STORAGE RM IN WAREHOUSE. NO A/C ONLY VENTILATION PROVIDED. SHOULD HAVE A/C FOR TEMPERATURE SENSITIVE DRUGS.

c. SIZE OF CHILLERS. CURRENTLY WE HAVE 2-400 TON AND 1-200 TON CHILLER. DURING THE PEAK OF THE COOLING SEASON, ALL 3 RAN AT 105% FOR SEVERAL DAYS.

d. CHILLED WATER LINES. DUE TO EITHER AMOUNT OF INSULATION OR POOR WORKMANSHIP, THE LINES THROUGHOUT THE BUILDING HAVE CONDENSATION PROBLEMS.

e. TELEPHONE RM DOES NOT HAVE A/C OTHER THAN WINDOW

2. STEAM POP OFF VALVES

15 VALVES ARE LOCATED OVER SUSPENDED CEILING

LIGHTING

a. IN SECURITY AREA (i.e MEDICAL RECORDS) OVERHEAD LIGHTING WAS NOT COORDINATED WITH FURNITURE LAYOUT.

b. PARKING LOT LIGHTS ARE NOT COMPATIBLE WITH THE SECURITY CAMERAS INSTALLED.

c. THE ACCESS ROAD LIGHTING IS POOR QUALITY AND OVERLY EXPENSIVE.

4. MEDICAL AIR SYSTEM

THE INTAKE FOR THE MEDICAL AIR COMPRESSOR IS LOCATED IN THE MAIN MECHANICAL ROOM AND IS NOT CERTIFIABLE FOR PATIENT USE.

5. FOOD SERVICE

a. THERE IS NO POT AND PAN WASHER.
b. THE SCULLERY WALLS ARE GYPSUM BOARD AND DO NOT HOLD UP WELL FOR THAT AREA.

6. NURSE CALL

THERE ARE NO NURSE CALL UNITS PROVIDED FOR PATIENT HEADS IN CLINIC OR ANCILLARY SERVICE AREAS. (TOTAL OF 43)

7. SIGNAGE

THE SIGNAGE SYSTEM IS INCOMPLETE. MORE COORDINATION SHOULD BE DONE WITH THE STAFF DURING DESIGN

8. FLOOR RECEPTACLES

THE FLOOR MOUNTED RECEPTACLES SHOULD NOT BE USED. THEY SHOULD BE ELIMINATED IN FAVOR OF POWER POLES OR UNDER CARPET CORDS.

9. VISION PANELS

CLINIC DOORS THAT HAVE TRAFFIC ON BOTH SIDES SHOULD HAVE VISION PANELS. 24 DOORS IN 14 CLINICS DO NOT HAVE WINDOWS.

10. FIRE EXTINGUISHERS

INADEQUATE PORTABLE FIRE EXTINGUISHER COVERAGE WAS PROVIDED. 36 ADDITIONAL CO_2 AND 10 ADDITIONAL H_2O EXTINGUISHERS HAVE BEEN ORDERED. ALSO OTHER FIRE SYSTEM DEFICIENCIES WERE IDENTIFIED BY LANTDIV LETTER 408: EPT:jmf;N62470-77-C-7526 DATED 25 JAN82.

11. NP WARD

THE NP WARD WAS NOT PROPERLY DESIGNED FOR THE TYPE PATIENTS HOUSED. COST OF MODIFICATIONS WAS $6,970.

12. DATA PROCESSING

THE DP SPACE WERE NOT DESIGNED FOR COMPUTERS. IT SHOULD HAVE A RAISED FLOOR AND MORE RECEPTACLES. ADDITIONAL RECEPTACLES HAVE BEEN INSTALLED AT A COST OF $945.

13. ELEVATOR IS #16

CANNOT CALL CLEAN ELEVATOR FROM O.R. OR DIRTY ELEVATORY FROM CMP.

14. PHYSICAL THERAPY

THE SITZ BATH ROOM HUBBARD TANK HAS NO FLOOR DRAIN.

15. CORNER GUARDS

THE CORNER GUARDS AND WALL PROTECTION WAS NOT EXTENSIVE ENOUGH. AN ADDITIONAL $11,109 WORTH OF GUARDS ARE REQUIRED.

16. WAREHOUSE LIGHT FIXTURES

THE LIGHTS DO NOT HAVE SAFETY COVERS TO PREVENT THE FLUORESCENT TUBES FROM BEING BROKEN.

17. EYE WASH STATIONS

AN ADDITIONAL 5 EYEWASH STATIONS ARE REQUIRED AT VARIOUS LOCATIONS AT A COST OF $1416.

18. TRAFFIC CONTROL SIGNS

THERE WERE NO TRAFFIC CONTROL SIGNS PROVIDED. THE COST OF THE SIGNS WAS $3,201.

19. MEDICAL GASES

THE SUPPLIERS FOR THE MEDICAL GAS PIPING IS MEDICAL GAS SYSTEMS INC OF POMPANO BEACH, FLA. THERE ARE NO ALTERNATE SUPPLIERS, AND PARTS LEAD TIME IS EXCESSIVE. A MORE UNIVERSALLY AVAILABLE SUPPLIER SHOULD BE USED.

20. CODE BLUE

THE TREADMILL ROOM IN INTERNAL MEDICINE IS NOT EQUIPPED WITH A CODE BLUE STATION. COST $1605.

21. BOILERS

A & E ESTIMATES SHOW THAT BOTH BOILERS WILL BE REQUIRED AT 80% FOR WINTER PEAK. THIS HAS NOT BEEN VERIFIED YET. IF IT IS CORRECT, A 3RD BOILER IS REQUIRED.

22. SPACE PLANNING

SOME AREAS WERE NOT GIVEN ADEQUATE SPACE FOR THEIR FUNCTIONS. i.e. MEDICAL REPAIR, SUPPLY WAREHOUSE.

Telephone

CART WASH

FUEL TANK ALARMS

TESTING OF ANASTHESIA GAS Systems

30 DAY TURNOVER TRIAL PERIOD

GROUT AROUND BRICKS ON FLOOR

TRAFFIC LAYOUT BANK OUTPATIENT RECORDS PHARMACY

PHARMACY LAYOUT & VENTILATION

FABRIC FURNITURE

DAY CARE NURSERY

FLOORS IN O.R.

?COLLECTION AGENT?

OB GYN LAYOUT & CLINIC ? EXAM RMS PER OFFICE

APTA READING - NOT FINDING BOXES

EMCS REPORTS

DE's OR [illegible]

[illegible]

ICI/HONEYWELL INTERFACE

CHILD FLOOR [illegible]

NAVAL HOSPITAL
CAMP LEJEUNE, NORTH CAROLINA 28542

114-jml
7 Sep 1983

MEMORANDUM

From: Head, Facilities Management Division
To: Director, Administrative Services
Via: Head, Management Operations Division

Subj: Problem Sheets

1. The attached problem sheets are forwarded for your information.

G. R. LONG

IV. SECURITY CAMERAS

1. Problem. The parking lot lights give off light in such a way as to render the security cameras useless at night. The lights face up with reflectors that spread the light out to the sides. Since the cameras face the lights from above and off to the side, the cameras "see" a bright spot the shape of the light fixture. Since the cameras do not pan or sweep, the effect of the bright spot is to burn the image of the fixture into the camera.

2. Discussion. The original design called for the cameras to be mounted on the light poles facing the Hospital. During the design review process someone (apparently NAVMEDCOM but it cannot be definitely traced) asked that the cameras be moved to the buliding so that the parking lot would also be under surveillance. It was initially thought that the problem could be solved by changing the lenses of the cameras. The lenses supplied with the cameras were of a fixed focal length which did not compensate for the ambient light level. Those were replaced with Auto-Iris lenses which adjust the focal length based on the ambient light level. This did nothing to solve the bright spot problem and, in fact, may have made it worse. Now the lenses open up fully at night and the spots appear all the brighter.

3. Action Taken. Atlantic Division, Naval Facilities Engineering Command is taking the lead on finding a solution. They have contacted RCA, and are working with them. There is no projected completion date at this time.

VI. NITROUS OXIDE SYSTEM

1. Problem. The nitrous oxide system has had several leaks in various parts of the system. Most of the leaks have been found in the operating rooms at the outlets.

2. Discussion. The medical gas piping and hardware was supplied by Medical Gas Systems, Inc. of Pompano Beach, Fl. The system consists mostly of one-of-a-kind parts that can only be supplied by the manufacturer; and those parts have to be machined individually with a long lead time. Parts ordered 9 Jun 83 on a priority 6 requisition have not been received yet. Several other manufacturers have been contacted and all were familiar with the problems with this company and said other Facilities had gone so far as to replace the entire system with another, more universally available brand. This would involve changing all medical gas piping including oxygen, nitrogen, medical air, etc., and would be extremely expensive.

3. Action Taken. The Nitrous Oxide pipe fittings from the tank manifold to the changeover box which controls which bank of tanks is on-line have all been replaced with a different type which is less susceptible to developing leaks. This eliminated the majority of leakage which had been found. The only other leak identified was in O. R. room 2. The outlet there had a part that was machined the wrong size. That part was re-manufactured and replaced and no more leakage has been detected. Safety seals have been ordered for all O. R. room outlets and will be installed as soon as they arrive. There are no known leaks in the Nitrous Oxide system at this time.

VII. CART WASH

1. Problem. The cart wash system has been the object of several user complaints and safety investigations. There have been 2 documented accidents and several near mishaps while using the cart wash.

2. Discussion. The automatic walk through cart wash model 7528 links the decontamination area with the clean work area. It's function is to sterilize the large carts in preparation for restocking. The unit was installed by the construction contractor and mounted on the floor. An alternative method of installation is to install the cart wash in a pit so that the door is flush with the floor. The current installation requires ramps up approximately 1 foot to the bottom of the door. Inside the cart wash there is a slight sideways slope to prevent standing water. The carts are wheeled up the ramp from the decontamination area, and into the cart wash. Inside the cart wash, the wheels of the cart ride along 2 solid tracks with open grating on both sides of and between the tracks. The wheels of the carts swivel to allow for maneuvering and this, combined with the sideways slope of the cart wash, has caused the safety problems. The cart has a tendency to run toward the low side, the wheels fall onto the grating, and the cart catches on the lip of the doorway, causing it to tip or fall.

3. Action Taken. The problem has been investigated by several people and from several different angles. Reinstalling and lowering the cart wash has been rejected as too costly. Installing rails on the floor of the cart wash to force the wheels to track straight was refected as posing a problem trapping water and catching the wheels on the edges. The solution adopted involves 3 parts. First, a rail was installed along the side of the cart wash about 10 inches from the floor to rub against the legs of the cart. This forces the cart to stay on the tracks and away from the edge of the doorway. This has been completed. Second, the wheels of the carts will be modified to allow the operators to lock them to prevent swiveling. A purchase order has been submitted for the manufacturer to do this. Third, the slope of the ramps will be changed to make it easier to push the carts into the cart wash unit. The ramps are made from stainless steel and a request will be submitted to Marine Corps Base to construct new ramps.

XI. FIRE EXTINGUISHERS

1. Problem. The number and type of portable Fire Extinguishers is inadequate.

2. Discussion. Various areas of the Hospital are equipped with portable Fire Extinguishers to augment the automatic Fire Sprinkler Systems. These Fire Extinguishers are either water or carbon dioxide (CO_2) and regular training is conducted on their use for all Hospital Personnel. These extinguishers are considered essential despite the sprinkler system and are required by JCAH.

3. Action Taken. The NRMC Safety Manager identified the problem and identified an initial idea of requirements in a memo dated 25 May 1983. Those requirements have since been reviewed by the Marine Corps Base Fire Marshall and Facilities Management. The total additional requirement is for 10 water and 34 CO_2 Fire Extinguishers. The total cost is approximately $10,000 for the extinguishers, cabinets, and installation. Exact locations and methods of mounting the extinguishers are now being determined. As soon as this is complete, the extinguishers will be purchased and installation will begin.

XII. AIR CONDITIONING

1. Problem. Certain spaces in the Hospital are heated and ventilated but not cooled. This is detrimental to staff comfort and storage of temperature sensitive medical supplies.

2. Discussion. The following areas are not cooled but current design criteria allow it: Central Sterile Supply, Staff Lounges, and spots in the Galley. NRMC CLNC ltr MCLO:HEP:gm P-600 dated 1 Oct 1982 identified these areas and requested NAVMEDCOM review the problem and forward to Naval Facilities Engineering Command. Naval Medical Command letter BUMED-16B-prp serial 21012016 dated 8 Nov 1982 endorsed the request and forwarded it. COMNAVFACENGCOM letter 0523A/HWW dated 20 April 1983 denied the request. Further discussions between NAVMEDCOM and Naval Hospital Facilities Management readdressed the issue. Subsequent discussions between NAVMEDCOM and NAVFACENGCOM resulted in NAVFAC concurrence that these areas be cooled. The results of these discussions is outlined in paragraph 3 of MEDCOM-43B-KC 11012 serial 21012016.B dated 20 May 1983.

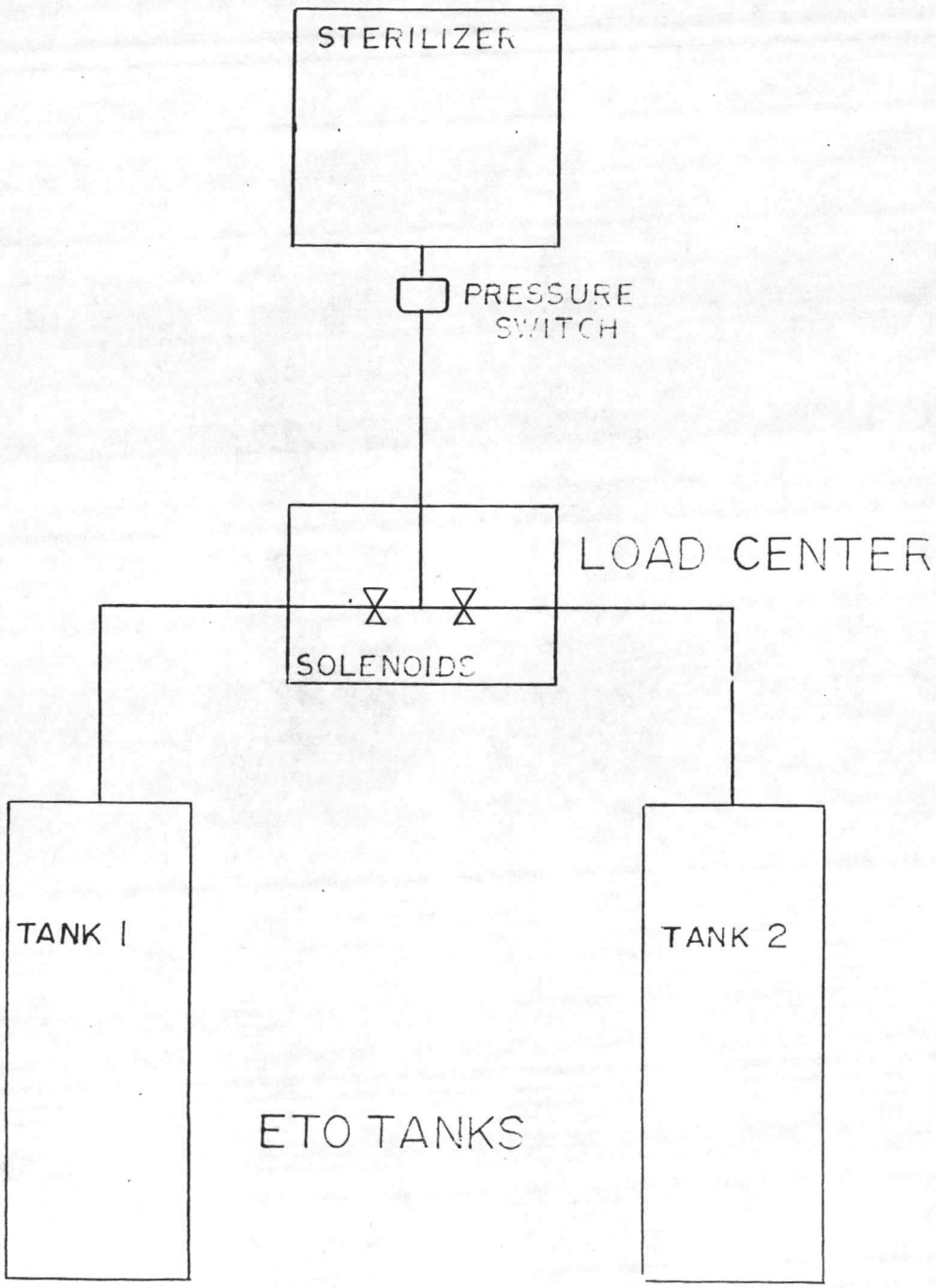
3. Action Taken. The required changes must be designed to incorporate cooling coils and additional duct work. The design work is being done by the Jacksonville area Resident Officer in Charge of Construction. Design completion is anticipated in first quarter FY84. A contract will be awarded at that time to accomplish the work.

I. ETHYLENE OXIDE SYSTEM

1. Problem. The Ethylene Oxide (ETO) system has been tested regularly by the Occupational and Preventive Medicine Department. The testing indicates that there are several persistent leaks in the system.

2. Discussion. The ETO system was supplied and installed by Castle. The attached drawing shows the basic components of the ETO system. Each tank contains ETO and freon and contains approximately 80 pounds per square inch (PSI) of pressure when full. Each tank supplies ETO to the load center at a constant pressure. The load center is essentiallly two on/off solenoids or switches controlled by the pressure switch located at the sterilizer. The switch "calls for" ETO intermittently so that only 8 - 10 PSI is maintained at the sterilizer. The load center uses one tank at a time and triggers an alarm when a tank drops below 10 PSI and starts using the other tank. This alarm prompts maintenance personnel to change the empty tank.

3. Action Taken. When the system was first energized, numerous leaks were found at various fittings throughout the system. The leaks were pinpointed by personnel from Occupational and Preventive Medicine and Facilities Management using leak testing solution and ETO sensing equipment. Those leaks have been corrected. A persistent leak has been identified at the load center. The solenoids are the most likely source of the leak. The Castle representive was contacted and the problem was referred to him for action. Follow-up testing by Occupational and Preventive Medicine indicate that the load center leak has been fixed. Discussion with the contractor also indicated that he would provide a 24 hour maximum response time on any future leaks found under the warranty period. The warranty is administered by Medical Repair.


STERILIZER
PRESSURE SWITCH
LOAD CENTER
SOLENOIDS
TANK 1
TANK 2
ETO TANKS

II. PESTICIDE FACILITY

1. Problem. There is no pesticide mixing or storage facility on the Hospital compound.

2. Discussion. The Facilities Management Division conducts Pest Control Operations for the Hospital Compound. The level of effort is approximately 800 - 1000 manhours per year. Currently, the bulk of the pesticides used are being stored at the old Hospital Compound. Small quantities are transported to NH 100 and stored in a small locker behind the temporary Maintenance shop. The pesticides are then mixed adjacent to the storage locker. There is running water but no eyewash or shower available.

3. Action Taken. A NAVOSH deficiency abatement project was submitted on 4 Jan. 1982 to construct an appropriate facility. The project was disapproved by Commander, Naval Facilities Engineering Command on 29 March 1982. It was then resubmitted for funding as a special project and is the priority 3 project for the command. Priorities 1 and 2 are UEPH fire deficiencies and airconditioning, respectively. The project has not been funded by Naval Medical Command as yet. Property disposal at Marine Corps Base has been contacted about a surplus storage shed or conex box which can be transported. If one is found, it will be set up behind the maintenance shop and temporary water connections will be made to provide for an eyewash station.

III. MEDICAL COMPRESSED AIR SYSTEM

1. Problem. The medical compressed air system is not certified and as such is not useable.

2. Discussion. The medical air compressor is located in the main mechanical equipment room in the basement. As such the air supply is subject to contamination from various sources in the mechanical room. The resident office in charge of construction (ROICC) for the Hospital identified the problem and referred it to Atlantic Division, Naval Facilities Engineering Command on 2 separate occasions. (See ROICC, CLNC letters RJD:jj, N62470-77-C-7526 dtd 11 March 1983 and RJD:jj, N62470-77-C7526 dtd 3 May 1983).

3. Action Taken. Atlantic Division and the ROICC have conferred and feel that the best solution is to relocate the compressor to the fourth floor of the nursing tower. The ROICC office is currently working on the design for the piping changes required to relocate the compressor. They have no projected completion date at this time.

V. EMERGENCY ROOM RAMP

1. Problem. The slope on the east side of the ramp leading to the emergency room has experienced several failures and small slides.

2. Discussion. The slope of the ramp was installed as designed at a 1.6 to 1 slope. This slope proved to be too steep and it failed several times during and after construction.

3. Action Taken. Since the problem was the design of the slope, the Architect - Engineer was contacted and redesigned the ramp. The redesign includes extending the retaining wall at the bottom of the slope to 5 feet. Then backfilling behind the wall to decrease the slope to 2.4 to 1. A request for proposal was sent to Trader Construction Co. on 30 Aug 83 for the modification. Trader is currently working on the construction of the Public Works Building and Heliport.

VIII. PUBLIC WORKS BUILDING AND HELIPAD

1. Problem. The Hospital is operating without a permanent Public Works Facility or Helicopter Landing Facility.

2. Discussion. The Public Works Facility and Helipad additive bid items to the basic contract for the replacement Hospital. They were dropped from the contract due to insufficient dollars. The base contract was awarded in March 1979. NRMC submitted two Milcon Project requests, P608, for the Public Works Building on 20 Feb 1980, and P609, for the Helipad on 21 Feb 1980. Atlantic Division, Naval Facilities Engineering Command on 28 Mar 80 stated that they would be provided under the original contract P600 and no seperate contracts would be required. In a 30 Oct 81 letter, BUMED stated that a seperate contract would be pursued and requested NRMC to submit the rest of the data required. This was done on 23 Nov 81. The contract for these facilities was awarded on 25 Apr 1983, more than 2 months after starting operation in the new Hospital.

3. Action Taken. BUMED provided special project funding to NRMC to purchase 2 temporary metal buildings from the contractor to use for Public Works Facilities. These were modified by Public Works Personnel during the move to the new Hospital. The buildings are still inadequate and lack important but expensive safety equipment such as a dust evacuation system for the power tools. The new facility should be complete by Fall 1984. For a temporary Helicopter Landing Zone, the loading dock parking lot has been designated and surrounding obstructions such as light poles have been removed. The permanent Helipad should be complete in Oct 83.

IX. PATIENT EXAM TABLES

1. Problem. Patient exam tables are supplied with power by running an electrical cord across the floor to an outlet on the wall. The tables are located in the center of the exam rooms and cannot be placed against a wall. This presents a potential trip hazard that would be intensified by any kind of emergency.

2. Discussion. There are 16 patient exam tables in treatment rooms with power supply cords. These tables were purchased to outfit the clinics and cannot be relocated to a wall due to the functions of the table. The tables are located in Dermatology (5), Surgical (5), Internal Medicine (1), OB-GYN (1), Dental (2), EENT (2). In order to hardwire the tables, the carpet would have to be lifted and a flat wire cable placed under the carpet. Then the cable hardwired to the table and receptacle circuit and the carpet patched. The cost is estimated at $750 - $800 per location.

3. Action Taken. The problem was identified at the Safety Policy Council Meeting of 23 Mar 1983. Discussion at that and subsequent meetings followed two lines; First, how to eliminate the hazard immediately; Second, what is the best long term solution. The immediate solution was to purchase cord covers which attach to the carpet with double sided tape. These have been installed on the tables. Long term, the tables need to be hardwired and this will be accomplished when funds are available.

X. POT AND PAN WASHER

1. Problem. There is no pot and pan washer in the galley. Pots and pans are currently being washed by hand. This poses a health hazard since the water temperature is not high enough to thoroughly sanitize the items washed.

2. Discussion. The galley is equipped with a steam scullery but it is only large enough for flatware, plates, etc. to be washed in it. The pot and pan washing station is equipped with a sink agitator or garbage disposal and a deep sink to wash in.

3. Action Taken. In order to thoroughly sanitize the large pots and pans satisfactorily a pot and pan washer must be installed. A sample unit, the Insinger model CA-2, NSN0705 00 144 4950, costs $8,190 to purchase and the required accesories cost an additional $2,500. This includes the steam booster, tank heater, and hold down grid. The total purchase cost is about $11,000. Installation has not been estimated yet but will involve very little other than running utility lines to the unit. Action has been deferred due to the high cost pending the post occupancy review to be conducted by Naval Facilities Engineering Command in November 1983.

XIII. ROOF LEAKS

1. Problem. When the Hospital first opened, there was a large number of leaks in various parts of the building during rainstorms.

2. Discussion. During the spring rains, an extremely large number of leaks was discovered in various areas. Most of the leaks were in expansion joints with windows and through-the-roof fittings running a close second. The contractor stated that these were the first serious rains that had occured since the roof was completed so there had been no opportunity to find and fix minor problem areas.

3. Action Taken. After each rain, a list was made of all leaks that were found. The contractor was contacted and he traced and fixed the leaks. By process of elimination, all known leaks have been fixed. Response and cooperation from Cardinal Contracting Co was excellent despite the number of calls.

	FOR	INT	DATE
RJC			
RJD			
JR	Act		
AY	Act		
JJ			

draft response

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

TELEPHONE NO.
444-9949
IN REPLY REFER TO:
408:EPT:jmf
N62470-77-C-7526
25 January 1983

From: Commander, Atlantic Division, Naval Facilities Engineering Command
To: Resident Officer in Charge of Construction, Naval Regional Medical Center Field Office, Camp Lejeune, North Carolina 28542

Subj: Contract N62470-77-C-7526, Naval Regional Medical Center, Camp Lejeune, North Carolina

1. An inspection and test of the fire protection systems installed under the subject contract was conducted during the period 10-19 January 1983. The following comments are offered:

a. Fire Pumps: Pumps ran and produced satisfactorily. Although the specification required the diesel engine-driven pump to be the lead pump, this was changed during the testing so that the electric-driven pump is now the lead pump, in conformance with Navy practice. Electric pump controller was changed during testing from automatic-start/automatic-stop to automatic-start/manual-stop as required by specifications.

(1) Each of the two fire pump controllers is required by NFPA-20 (Sections 7-5.2.4 and 9-5.2.4) to be provided with a sequential timing device to preclude the possibility of both pumps starting simultaneously. This has not been provided. Contractor's shop drawings (Transmittal No. 787-B and 788-A) were "Approved As Noted" on 6 August 1980, subject to the provision, among other items, of the sequential starting provision. Sequential timing devices must be provided.

b. Range Hood Extinguishing Systems: Although scheduled in advance for 0830 on 11 January 1983, these three systems were not ready for test by the completion of all other testing on 19 January 1983. Remote manual release stations, required by the specifications, had not been installed prior to the scheduled test date. These stations have now been provided.

(1) Provide permanently attached, engraved plastic identification signs on wall at each remote manual actuation station for the range hood extinguishing systems identifying the specific hood and type of system controlled by each system. Provide similar identification for each hood "wash-down" remote manual actuating station. Without such identification actuation of the wrong system in the wrong hood is inevitable in an emergency.

(2) Arrange for a future inspection and test of the three range hood extinguishing systems when these systems are fully complete in all respects. Advise the contractor that the test must cause all components of the system to function, except for actual discharge of the "Carbaloy" extinguishing agent. Compressed nitrogen shall be used in lieu of "Carbaloy" for test purposes.

c. Sprinkler System:

(1) Sprinkler coverage at the lowest level of each stair enclosure is deficient. Sprinkler protection at this level is required by NFPA-13. It is believed that one additional sprinkler head, properly located, in each such stair enclosure will provide adequate protection.

(2) Provide one sprinkler under the low ceiling area, next to stair entrance door, inside the west end stairway, 4th floor, Area "G". This sprinkler head is shown on approved shop drawings but is not in place.

(3) Provide an air pressure supervisory switch on each preaction sprinkler system. This switch must be located in each system above the rubber-faced air check valve and connected to the EMCS so that a loss of system air pressure will be registered by the EMCS. Required by Section 15514-4.4 of the specifications.

(4) Provide an air pressure supervisory switch on each dry pipe sprinkler system, set at 25± PSI, and connected to the EMCS as required by Section 15514-4.4 of the specifications. The purpose of this device is to give a warning, prior to the tripping of the dry pipe valve, of a loss of air pressure within the system.

(5) Correct the condition whereby the EMCS registers only a visual alarm on an unusual fire pump condition but does not register a pump running alarm. NFPA-20 in this instance requires:

(5.1) The electric pump shall signal the EMCS when the pump has operated into a running condition.

(5.2) The electric pump shall signal the EMCS when there is a loss of line power on the line side of the motor starter, in any phase.

(5.3) The diesel-driven pump shall signal the EMCS when the engine is running.

(5.4) The diesel pump shall signal the EMCS that controller main switch has been turned to "off" or "manual".

(5.5) The diesel pump shall signal the EMCS in the event of low oil pressure in the engine lubrication system; high engine jacket coolant temperature; failure of engine to start automatically; engine shut-down from overspeed; and battery failure. A common trouble signal can be used for these five trouble conditions.

NOTE: Comment by the Johnson Controls representative implied that the above circuits exist, at least in part, but are not functioning.

(6) Provide sprinklers under ducts over 48-inches in width, as is required by NFPA-13, in Mechanical Equipment Rooms. Examples are Room M-209, 2nd floor; under the long duct on the north wall of Lower Level Transformer Room; and Room 009 on Lower Level.

(7) Readjust the air maintenance device regulators on all preaction sprinkler systems to maintain system supervisory pressure at 20 to 30 PSI in lieu of present 60 PSI.

(8) Readjust the air maintenance device regulators on both dry pipe valves to maintain system air pressure at 40 PSI in lieu of present 60 PSI. Excessive air pressure will damage the valves.

(9) Provide an approved water pressure gage on the system side of each preaction valve as is required by NFPA-13.

(10) Provide an approved water pressure gage on the supply side of the preaction valve controlling third floor ICU, Area "H", as required by NFPA-13.

(11) Provide a drain valve or petcock in the alarm line of each of the two dry pipe valves, between the alarm pressure switch and the alarm line check valve, so that trapped pressure on the alarm switch can be relieved after each test or actuation.

(12) No Inspector's Test Valve is provided on the dry pipe system controlling the loading dock area along the northerly side of Area "E". It is recommended that the required inspector's test valve be provided at the end of the branch line adjacent to the Boiler Room, extended through the Boiler Room wall into the heated area and arranged to discharge into the existing drain sump within the Boiler Room.

(13) The Inspector's Test Valve on the dry pipe system in ME Room M-113, located just east of the Area "H" breezeway is approximately 12-feet above the floor. Relocate this valve to 6-feet above the floor as required by Section 15514-8. of the specifications, and properly anchor this line to prevent mechanical injury.

(14) In addition to the previous comment (Item c.(1)), no sprinklers have been provided on either level of Stair No. 9, Area "D" (Rooms M-108A and M-208A). Sprinklers are required by NFPA-13, Section 4-4.8.3.

(15) No sprinklers have been provided in the two EEG Testing Rooms (shielded rooms), first floor, Area "A", although shown on the approved shop drawings.

(16) Provide sprinklers (dry pendent type) in the walk-in freezer, north side of warehouse portion of Area "F", Level 1, as shown on approved shop drawings.

(17) The heat responsive device coverage in the transformer room on the lower level of Area "E" is greatly deficient, even though installed as shown on the contract drawings. Due to the high ceiling, the maze of conduit under the ceiling, and the fact that there is no necessity for this area to be protected by a preaction type of sprinkler system, it would appear to be simpler and less expensive to accomplish the following:

(17.1) Remove the preaction sprinkler valve and its associated 3-inch check valve from the riser (above the O.S. & Y valve) in Mechanical Room M-009, Lower Level, Area "D". Replace these items with a flanged spool-piece of proper length and provide a vane-type waterflow alarm device in the riser.

(17.2) Remove the deluge release panel associated with this preaction system and the electrical connection between this panel and the fire alarm panel associated with this preaction system.

(17.3) Disconnect the heat responsive device circuit from the HAD's in the ceiling and connect this circuit to the new waterflow alarm device. Leave the disconnected HAD's in place.

(17.4) Disconnect and cap the air supply line to the preaction valve.

d. Fire Alarm System:

(1) Properly identify and label, with permanently affixed engraved plastic labels, each zone on each fire alarm panel by area and/or device or system. Present system of zone numbering which requires reference to a data book is unsatisfactory.

(2) Provide an additional fire alarm manual station at the exit door at the rear of the library on first floor of Wing "G".

(3) Rewire the 2 smoke detectors on second floor of Area "D", adjacent to ME Room M-209, so that they are on the Area "D" zone. Smoke doors in this end of the corridor were relocated during construction resulting in these 2 detectors being in an incorrect zone.

(4) Add one detector in corridor ceiling, first floor of Area "B", north side, in front of Room W-140, where detectors are now 50-feet apart.

(5) Add one detector on ceiling of waiting room extension, where an office was relocated during construction, OB/GYN Clinic, adjacent to Room 126B, first floor, Area "B", south side.

408:EPT:jmf
N62470-77-C-7526
25 January 1983

(6) Provide a connection from the center terminal of the bottom terminal strip in the fire alarm master box, located in the main computer command center, to either a buried water pipe, or to a driven ground rod. Resistance to ground shall not exceed 10 ohms. This connection is absolutely essential for proper functioning of this fire alarm box.

2. A "smoking vestibule" is provided at the west end of Area "G" on the second, third and fourth floors. No heat is provided in these areas and the areas are protected by wet-pipe sprinkler systems. A large louvered opening, about 6'x12' is provided in the exterior (west) wall of each vestibule, exposing the sprinkler system to freezing. The replacement of the ordinary sprinklers by dry pendent types is not deemed an acceptable solution, and since it appears unlikely that patients will use these areas for their designed purpose, it is recommended that these louvered areas be insulated and permanently closed off.

3. While the above list may appear lengthy, considering the complexity of the subject building this is a short list, and is indicative of a very difficult task well done. It is not believed that correction of the listed items will either delay or preclude occupancy of this facility. Andy Young, Jim Rave, and the others who were involved should be commended for their efforts.

J. M. DAVIS
By direction

DEPARTMENT OF THE NAVY
RESIDENT OFFICER IN CHARGE OF CONSTRUCTION
NAVAL REGIONAL MEDICAL CENTER
FIELD OFFICE
CAMP LEJEUNE, NC 28542

TELEPHONE NO.
919-353-3455
IN REPLY REFER TO:
JR:jj
N62470-77-C-7526

FEB 07 1983

MEMORANDUM FOR THE MEDICAL CONSTRUCTION LIAISON OFFICER

Subj: Contract N62470-77-C-7526, 205 Bed Hospital

Encl: (1) LANTDIVNAVFACENGCOM ltr dtd 25 Jan 83

1. Enclosure (1) reports the successful completion of testing of the fire protection systesm in the new hospital. While several discrepancies are noted, no items of a serious nature which would preclude occupancy are contained in the report.

2. The contractor has been informed of all items which are his responsibility under the subject contract and he has indicated all items will be corrected within two (2) weeks.

3. The following items (refer to corresponding paragraph in enclosure (1)) are not within the scope of the construction contract. The ROICC, NRMC advises the indicated action be taken.

Para. #	Action
1.a.(1)	The contractor's submittal 787-D indicates that sequential starting of fire pumps will be handled by differential pressure settings on the pumps. This submittal was approved by LANTDIV. The ROICC, NRMC considers the installation of timing relays to be beyond the contract requirements. The ROICC, NRMC recommends that the PWO evaluate the potential benefits of added timing devices, and take necessary action to add them if desired.
1.c(1)	The ROICC, NRMC considers sprinkler protection in stair wells to be adequate. It is recommended that the PWO review the installation and accomplish such design changes as he determines to be necessary.
1.c(3)	The connection of additional devices to the EMCS is beyond the contract scope. As currently installed air pressure switches are wired to the FTC which in turn relays a trouble alarm to the EMCS. Adequate spare points are available for future EMCS connections if desired.
1.c(4)	Same as 1.c(3).
1.c(5)	Alarms are hard wired to panels in computer room and are considered adequate to meet code requirements.
1.c(7)	This is an operational matter. The ROICC, NRMC recommends the system be operated in accordance with manufacturers instructions.

Para. #	Action
1.c(8)	Same as 1.c(7).
1.c(12)	Installation of a test valve in this system is an operational consideration. The ROICC, NRMC does not advise such an installation unless due consideration is given to draining the system after testing.
1.c(15)	Installation of sprinklers in the shielded rooms is not possible without compromising the integrity of the room. The ROICC, NRMC recommends a fire extinguisher be permanently installed in the room.
1.c(17)	Redesign of the heat detection system in the transformer room is beyond the scope of the construction contract. It is recommended that PWO review the design in conjunction with the local fire department and make any necessary changes.
1.d(1)	Identification of individual zones in the FATC's has already been accomplished.
1.d(2)	Addition of more fire sensing devices is beyond the scope of the construction contract. The need for additional devices should be evaluated by the PWO.
1.d(4)	Same as 1.d(2).
1.d(5)	Same as 1.d(2)
2.0	The ROICC, NRMC recommends that sprinkler piping in the smoking vestibules be fitted with heat tapes if there is a possibility of pipes freezing. The ROICC, NRMC considers this possibility remote.

4. If you have any questions regarding this matter, please contact this office.

R. J. DEGON
CDR, CEC, USN
Deputy

Copy to:
LANTDIV (Code 05)

NAVAL REGIONAL MEDICAL CENTER
CAMP LEJEUNE, N.C. 28542

IN REPLY REFER TO
MCLO:HEP:gm
17 Feb 1983

MEMORANDUM FOR THE COMMANDING OFFICER

Subj: Results of Testing of the Fire Protection System in the new hospital

Encl: (1) ROICC memo N62470-77-C-7526 dtd 7 Feb 1983

1. Enclosure (1) contains the LANTNAVFACENGCOM report of their inspection of the fire protection system in the new hospital, and the ROICC's comments on discrepancies noted in the LANTDIV report. The most important element of the report is that no serious problems were noted, and none that would have precluded our occupancy of the building. With respect to the ROICC's advise concerning specific elements of the LANTDIV report, the following comments are offered:

1.a(1) It is felt that the differential pressure switches on the fire pump that were approved by LANTDIV are adequate, and that the adding of timing devices would be an unnecessary expense with little or no benefit to the hospital.

1.c(1) It is felt that this problem should be referred to the Post Occupancy Visit to the hospital by representatives of NAVFACENGCOM and NAVMEDCOM, as it falls into the area of design omission which could be corrected with other than medical department dollars.

1.c(3)
1.c(4) The current monitoring system through EMCS would indicate a trouble alarm should there be any loss of pressure in the system. This alarm would require investigation. It is felt that this system is adequate for supervision of the preaction sprinkler.

1.c(5) We concur with the ROICC's view that the existing alarm panel in the Communications Center meet the code requirements.

1.c(7)
1.c(8) These are operational problems that should be reviewed and addressed as required by the NRMC Public Works Officer.

1.c(12) The installation of a test valve in the dry pipe sprinkler system in the boiler room should be evaluated by the Public Works Officer. It is felt that the installation is not warranted, as the charging of the system would require draining of it after each inspection. Water left standing in the pipe creates a potential hazard to the high voltage in the area should a sprinkler head be accidently damaged.

MCLO:HEP:gm
17 Feb 1983

Subj: Results of Testing of the Fire Protection System in the new hospital

1.c(15) The installation of sprinklers in the RF room is not recommended as it would create significant problems in assuring the integrity of the room. It is felt a fire extinguisher is a much more reasonable manner to address this problem.

1.d(17) This problem should be reviewed by the Public Works Officer to determine the degree of concern. If not an immediate problem, it should be referred to the Post Occupancy Review as a design error for correction with other than medical department dollars.

1.d(2)
1.d(4)
1.d(5) It is recommended that these items be considered during the Post Occupancy Review as design errors that should be addressed with other than medical department dollars.

2.0 This problem can be referred to the NRMC Public Works Officer for action.

2. Should there be any questions with regard to the fire protection report, or these comments, please contact this office.

H. E. PHILLIPS
CDR, MSC, USN
Medical Construction Liaison Office

Copy to:
PWO