

DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY MEDICAL DEPARTMENT ACTIVITY
Fort Carson, Colorado 80913-4604

MEDDAC Regulation
No. 420-10

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Facilities Engineering
FACILITY SUPPORT SYSTEMS AND MAINTENANCE OF BUILDINGS AND GROUNDS
Supplement of this regulation is prohibited

History. This regulation supersedes MEDDAC Regulation 420-10, dated 15 October 2001.

Summary. This regulation outlines technical explanations of, and staff/maintenance emergency procedures for, the facility support systems and covers the responsibilities, objectives and procedures of the Facilities Management Branch pertaining to maintenance of Fort Carson MEDDAC buildings and grounds.

Applicability. The policies and procedures established in this regulation apply to all personnel assigned to the MEDDAC/DENTAC/VETCOM with duty assignment in any MEDDAC building, Fort Carson, Colorado.

Proponent and exception authority. The proponent of this regulation is the Facilities Management Branch (FMB), Logistics Division. The proponent has the authority to approve exceptions to this regulation that are consistent with controlling directives.

Army management control process. This regulation is not subject to the requirements of AR 11-2, as it contains no internal management control provisions.

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1. **PURPOSE:** This regulation outlines technical explanations of, and staff/maintenance emergency procedures for, the facility support systems and establishes the responsibilities, objectives and procedures for the maintenance, repair and new construction project work for all MEDDAC buildings and grounds. Facilities covered include the hospital and associated support buildings (7500, 7501, 7502), all Troop Medical Clinics (1007, 1150, 7490), all Dental Clinics (1227, 1855, 2356), the DENTAC HQ (815), the Veterinary Clinic (6001), the Preventive Medicine Careline (2059) and other MEDDAC facilities located at Fort Carson, CO.

Suggested improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Chief, Logistics Division, ATTN: MCXE-LOG-FM, Fort Carson, CO 80913-4604.

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2. **REFERENCE:** AR 420-10, Management of Installation Directorates of Public Works.

3. **SCOPE:** This regulation is applicable to all personnel assigned to the MEDDAC/DENTAC/VETCOM with duty in any MEDDAC building, Fort Carson, Colorado. Procedures set forth in this publication are not to conflict with those outlined within AR 420-10. Where such procedures do conflict, the above regulation will have priority and guidelines set forth therein will be followed.

4. **RESPONSIBILITIES:**

a. The Chief, Logistics Division has the ultimate responsibility for the maintenance, repair and project work for all MEDDAC buildings and grounds.

b. The medical facility maintenance contractor is responsible for maintenance, repair and project work for all MEDDAC buildings and grounds. However, the medical facility maintenance contractor is not responsible for building exteriors or roads at any MEDDAC facility with

the exception of the hospital and associated support buildings (7500, 7501, 7502) and TMC 10 (7490), hereafter referred to as the EACH Complex.

c. The FMB Chief is responsible for coordinating with the Directorate of Public Works (DPW) to ensure that work required on building exteriors and roads, other than the EACH Complex, is satisfactorily completed.

d. The DPW has the responsibility to review and approve all requests for project work.

5. DEFINITIONS:

a. Service Order: A request for emergency or minor repair which requires immediate attention and can be completed in a short period of time (i.e., leaky pipes, blown electrical breakers, clogged sinks and toilets) and Repair and Utility (R&U) items including, but not limited to hanging/securing items on interior walls and sign fabrication/installation.

b. Project Work: A request for work which requires planning and coordination by the FMB, including all equipment installation site support. Project work requires approval by the DPW. The FMB prepares and submits a DA Form 4283, Facility Engineering Work Request, for all project work.

c. Preventive Maintenance: Preventive Maintenance of all facility support systems is performed by the medical facility maintenance contractor in accordance with a Preventive Maintenance Plan/Schedule approved on a yearly basis by the MEDDAC Environment of Care Committee. All work is performed in accordance with the Performance Work Statement for the Hospital Maintenance Contract and the MEDDAC Utility Management Plan.

6. GENERAL POLICIES AND PROCEDURES:

a. Requests for Service (Repair) are called in to the medical facility maintenance contractor, ext 6-7699, 24-hours a day.

b. Requests for Service (other than repair work) are e-mailed or called in to FMB at ext 6-7864 during normal business hours.

c. Requests for Project Work will be submitted to the FMB Chief by memorandum routed through the Department and Careline Chiefs. A detailed description of the work requested and justification must be included. When appropriate, the request should be accompanied by a diagram or floor plan applicable to the requested work.

d. Building exteriors, to include exterior door operation/locking functions and exterior lighting, in MEDDAC buildings, other than the EACH Complex, are the responsibility of the DPW Post-wide maintenance contractor.

e. Ice and Snow Removal:

(1) The medical facility maintenance contractor is responsible for snow removal and ice control in all areas including sidewalks, streets and parking lots surrounding the EACH Complex.

(2) Personnel in MEDDAC facilities other than the EACH Complex are responsible for snow removal and ice control for entrances and sidewalks serving their facilities. Material required to accomplish ice control may be obtained by contacting the medical facility maintenance contractor.

(3) The DPW is responsible for snow removal and ice control in parking lots and roads serving all MEDDAC facilities other than the EACH Complex.

f. Grounds Maintenance: The medical facility maintenance contractor is responsible for grounds maintenance around all MEDDAC buildings.

7. FACILITY SUPPORT SYSTEMS EMERGENCY PROCEDURES:

a. An outage or emergency repair situation is usually discovered by either an EACH staff member or a medical facility maintenance contractor employee. Upon discovery, the following will occur:

(1) Hospital staff will notify the medical facility maintenance contractor repair order desk at ext 6-7699 for action 24-hours a day.

(2) Medical facility maintenance contractor employees will initiate immediate corrective action and/or request assistance, if needed, through the contractor repair order desk or the contractor on-call supervisor.

(3) During normal business hours, the contractor will notify the FMB Chief, the facilities engineer, the Logistics Division Chief, and the MEDDAC Safety Manager concerning all outages or emergencies, including locations of effected areas. After normal business hours the contractor will notify the Administrative Officer of the Day (AOD) concerning outages and emergencies.

(4) Refer to the Fort Carson MEDDAC Emergency Management Plan for additional guidance.

b. Electrical.

(1) Normal power outage of less than four (4) hours: Two 810KW standby emergency generators automatically pick up the emergency electrical circuits (Life Safety Branch, Critical Branch and Essential Equipment circuits). All ongoing critical cases should be completed on generator power and all new critical cases should be diverted to other facilities for their Health Care needs until normal power is restored. Where feasible, a decision will be made concerning the continuation of functions in the EACH Complex not powered by the emergency generator system and the disposition of staff and patients in these areas as applicable.

(2) Normal power outage of more than four (4) hours: The standby emergency generators will function as in 7.b(1) above. All ongoing critical cases should be completed on generator power and all new critical cases should be diverted to other facilities for their Health Care needs until normal power is restored. The remainder of the facility will be powered by an alternate electrical substation. If the alternate substation fails and the outage is projected to be in excess of 8 hours, alternate temporary electrical power supplies for EACH will be requested through the Directorate of Public Works (DPW) Base Operations Division by the FMB Chief or his designee. Possible sources include portable generators available at Fort Carson, Colorado Springs Utilities, or other US Army sources. Hospital command will be notified of the outage and the expected outage duration. The command will be apprised of the pertinent facts and a decision will be made to connect, or not to connect the generators to non essential circuits to keep the rest of the EACH Complex operational. If an alternate electrical power source is not available to provide service within a reasonable time, a decision will be required concerning the continuation of functions in the portion of the EACH Complex not powered by the emergency generator system and the disposition of staff and patients in these areas. In all cases when the standby generators are being used for limited prime power, the contractor will provide an around-the-clock operator in the powerhouse building where the emergency generators are located to monitor equipment operation.

(3) Normal Power Outage with One (1) Standby Emergency Generator Failure: The standby emergency generators will function as in b(1) above. All ongoing critical cases should be completed on the operational generator power available and all new critical cases should be diverted to other facilities for their Health Care needs until emergency power is restored. The contractor will provide an around-the-clock operator in the powerhouse building where they will manually load shed "non critical" essential emergency equipment circuits and monitor equipment operation. All critical and Life Safety power will be maintained. Critical equipment powered by essential emergency circuits such as medical gas compressors and pumps, plant management system, elevator service (Elevator 1-5: Staggered Operation) and critical area air handling equipment (AHU 3 & 4) will be maintained with available power. Alternate temporary electrical power supplies for EACH will be requested through the DPW Base Operations Division by the FMB Chief or his designee. Hospital command will be notified of the outage and the expected outage duration. The command will be apprised of the pertinent facts and a decision will be made to connect, or not to connect the generators to non critical and non essential circuits to keep the remainder of the EACH Complex operational. Further, if an alternate electrical power source is not available to supplement generator services within a reasonable time, a decision will be required concerning the continuation of functions in the portion of the EACH Complex not powered by the available emergency generator system and the disposition of staff and patients in these areas.

(4) Total Standby Emergency Generator System Failure with Normal Power: The hospital command will be notified of the outage including expected duration and other pertinent facts. All ongoing critical cases should be completed on normal power and all new critical cases should be diverted to other facilities for their Health Care needs until emergency power is restored. The FMB Chief or his designee will contact DPW Base Operations Division to request and coordinate delivery of temporary electrical generators. The alternate generators will be pre-positioned adjacent to the Power House (Building 7501) and made ready to support the electrical needs of the facility. This effort will not include attaching the generators to building power. FMB will lead the coordination effort between the facility, DPW and the Maintenance contractor to develop a plan outlining the equipment to be powered in the event of total power failure. This decision will be based on the time of the year, the condition of other assets in the community and other pertinent facts. In the event of total power failure, management should implement paragraph 7.b(5) below.

(5) Total Power Failure: The hospital command will be notified of the outage including expected duration and other pertinent facts. All patients will be diverted or relocated to other facilities for their health care needs until normal or generator power is restored, as determined by the Deputy Commander for Clinical Services. The FMB Chief or his designee will contact DPW Base Operations Division to request and coordinate delivery of temporary electrical generators. These assets will be used to maintain the building until permanent repairs can be made to either system. Because these assets are not tested or maintained to JCAHO standards, they will not be used to maintain patient care capabilities unless no other options exists.

c. Steam/Hot Water (Space Heat, Domestic Hot Water and Steam). High-pressure hot water (375°F) from an off-site heating plant is piped to heat exchangers and steam generators at EACH which produce heating water, domestic hot water and steam as needed.

(1) If a heat exchanger or steam generator fails, and demand is such that other units are unable to carry the load, load shedding will be initiated by the contractor.

(2) If the high pressure hot water source fails for periods exceeding two hours during the heating season, mobile environmental control heating units will be requested from the 10th CSH unit at Fort Carson for use as a temporary heat source. Where possible, heated air from the portable units will be piped directly into the air handlers to critical areas. Other units will be placed throughout EACH to provide as much heat as possible to keep operations going and to prevent a facility freeze-up. There is no alternate source for steam. As temperatures drop below acceptable levels in areas of the facility, functions will be closed and patients diverted to other health care facilities as needed. Other methods will be used for sterilization, cooking, dish washing, etc., as long as resources are available. As another alternate emergency source for both heating and domestic hot water during

outages projected for more than two working days, the Nationwide Boiler Company may be contacted by calling (800) 227-1966 to provide a portable hot water system. The system will be piped directly into the existing heating and domestic hot water systems to provide sufficient hot water supply to keep essential services operational.

d. Air Conditioning and Ventilation. Air handlers for critical functions are powered by equipment circuit of the emergency power system so that these areas will stay active during a power outage. Parts of the Operating Room area as well as some of the patient wards are served by different air handling units so that if one unit fails patients can be moved around for continued treatment. The main frame computer center is served by a stand alone air conditioning system that is repaired on a high priority when a failure occurs.

(1) If one of the two water chillers fails, load shedding will be initiated by the medical facility maintenance contractor if demand for chilled water exceeds the capabilities of the remaining chiller.

(2) If both water chillers fail during the cooling season for lengthy time periods, functions will be closed and patients diverted to other health care facilities as temperatures exceed acceptable levels. If the chillers are projected to be out of service for more than two days, the situation will be discussed with the U.S. Army Health Facilities Planning Agency (HFPA) and a plan will be developed utilizing a rental equipment contractor to provide a portable chiller plant to provide cooling water. During the non-cooling season, limited cooling can be provided by outside air through the ventilation system; however, the Operating Room function and other high heat producing areas will be closed and patients diverted if temperatures exceed acceptable levels. A flat plate heat exchanger is in operation that has the capability of providing sufficient chilled water to cool the hospital when outside temperatures are below approximately 45°F. The heat exchanger capability will provide additional options when chillers fail, providing minimal outside air temperature conditions are met.

(3) If all general ventilation systems fail, portable fans will be used to provide air movement where feasible. If sufficient fans are not available, additional fans will be purchased on a priority basis by the MEDDAC Logistics Property Management Section.

e. Domestic Water. Domestic water for the facility is provided simultaneously from two Fort Carson water storage sources. If one fails, water will continue to be provided from the other source. If both sources fail bottled water will be provided by the Logistics Division for drinking and other essential needs requiring potable water and portable toilets will be provided for sanitary needs. As with the loss of other critical systems and utilities, functions will be closed when they cannot operate without water and patients will be diverted to other health care facilities.

f. Vertical Transport. Five independent elevators serve the hospital nursing tower which includes all critical care areas. In the event of a power failure, all elevators return to the ground floor automatically, one at a time, and the doors open for egress. Elevators will continue to operate powered by the essential equipment circuit of the standby generator power system with elevators 1 through 4 alternating one at a time and elevator 5 operating continuously as needed. If all five elevators fail, an additional elevator is available for limited use in the clinic area. Stairs are available to all areas for emergency use.

g. Medical Gases, Air and Vacuum. Both the Medical Air and Vacuum system are served by triplex compressors and pumps. Each of the three units in each system is sized to handle 40% of the total design load. If an electrical power outage occurs all components of the systems are powered by the equipment circuit of the emergency power system. If all compressors or pumps fail the hospital will use portable equipment. All other medical gases including oxygen, nitrogen and nitrous oxide are fed from storage tanks/bottles and are centrally piped throughout the facility. If the distribution system fails, portable equipment available in areas served, or through Equipment Management, Medical Maintenance Section, will be used.

h. Sanitary Sewer. The sanitary sewer is gravity fed to the Fort Carson central system. Any lengthy failure with this system will result in a shut down of all functions dependent on the system. Portable toilets will be provided for sanitary needs.

i. Fire Alarm. The Fire Alarm system is operated by a computer with a 100% backup and automatic switching capability. The system has a battery backup and is also served by the standby generator system. If both systems fail, the medical facility maintenance contractor will notify the Fort Carson Fire Department, the MEDDAC Safety Manager, the FMB Chief, the facilities engineer, the Logistics Division Chief and, after normal business hours, the AOD. Arrangements will be made as needed for general notification and a fire watch.

j. Public Address. Problems with the public address system are reported to the medical facility maintenance contractor at ext 6-7699. In the event of a long term failure, telephone, personal contact or computer network are used to communicate. In extreme cases where Life Safety is degraded by the lack of a traditional public address system and time is of the essence, the fire alarm system has a built in fire page public address system that can be used for general communication.

k. Nurse Call. Problems with the nurse call system are reported to the medical facility maintenance contractor repair order desk at ext 6-7699 for action. In the event of a long term failure of the system personal contact with patients will be used.

l. Emergency Shutdown. The emergency shutdown of critical facility support systems and utilities is the responsibility of the medical facility maintenance

contractor. All critical valves and electric panels and breakers are marked. All maintenance technicians are trained in the proper procedures and sequences required to shut off and/or isolate utilities and systems as needed. Any notifications to start shutdown procedures will be initiated as outlined in paragraph 7.a.

m. Scheduled and unscheduled outages of critical utilities as defined in this regulation will be reported by the

FMB Chief at the next regularly scheduled meeting of the Environment of Care Committee. Scheduled outages will be coordinated with key staff members and planned such that patient and staff life and fire safety provisions will not be compromised. During unscheduled outages FMB will keep the MEDDAC Safety Manager and the command briefed on the current situation to aid in making operational decisions concerning the outage situation.