Combined Arms Center
and Fort Leavenworth
Regulation 385-1

Safety

Safety Program Requirements

Combined Arms Center
Fort Leavenworth, KS
13 May 2016

UNCLASSIFIED

Summary of Change

CAC & FT LVN Regulation 385-1
Safety Program Requirements

This revision dated 13 May 2016

Includes administrative changes throughout.

Includes formatting changes IAW AR 25-50 throughout.

Incorporates recordkeeping requirement to expand the list of severe work-related injuries that all employers must report to OSHA (chapter 6) – OSHA requirement

Incorporates the requirement for all newly assigned Soldiers, 26 years of age and younger, to complete the Intermediate Drivers Traffic Safety Training Course (chapter 7) – Army requirement

Incorporates time in days to abate or mitigate RAC 1, RAC 2 and RAC 3 safety, health and fire hazards to a lower risk level (chapter 9) – DoD requirement

Incorporates responsibilities to develop and/or maintain a hazard tracking system for hazards that cannot be mitigated within the designated time in days (chapter 9) – Army requirement

Incorporates elements of the Explosive Safety Management Program (chapter 20) – Army requirement

Further defines requirements for an electrical safety program (chapter 21) – Army requirement

Combined Arms Center
Fort Leavenworth, KS

*CAC & FTLVN Regulation 385-1

Safety

Safety Program Requirements

History. This printing publishes a revision of this regulation.

Summary. This regulation prescribes policies and procedures regarding the implementation of safety procedures across the Combined Arms Center and on Fort Leavenworth.

Applicability. This regulation applies to all military personnel, government civilians, agencies, organizations, tenant organizations, activities, and contractors assigned to CAC as well as National Guard, Reserve, and Reserve Officer Training Corps organizations operating on Fort Leavenworth.

Proponent and exception authority. The proponent of this regulation is the Combined Arms Center Safety Office. The proponent has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation. This authority may not be delegated.

Suggested improvements. Users are invited to submit comments and suggestions to the Combined Arms Center Safety Manager.

Distribution. This publication is available in electronic media only. Distribution and reproduction are unlimited.

* This regulation supersedes Combined Arms Center and Fort Leavenworth Regulation 385-1, dated 25 February 2014.

Contents (Listed by paragraph and page number)

Chapter 1
General

1-1. Purpose
This regulation is intended to prescribe policies, procedures, and responsibilities for the Combined Arms Center (CAC) and Fort Leavenworth Command Safety Program.

1-2. Scope
This regulation applies to all military personnel, civilian employees, unit organizations, tenant organizations, activities, and contractors assigned to CAC as well as any National Guard, Reserve, and Reserve Officer Training Corps organizations operating on Fort Leavenworth.

1-3. Responsibilities

a. Commanding General. The Commanding General of the Combined Arms Center and Fort Leavenworth is the safety officer and is responsible for the establishment and implementation of the safety program.

b. CAC Chief of Staff. The Chief of Staff is the executive agent for the implementation of the CAC and Fort Leavenworth safety program.

c. CAC Safety Manager and Garrison safety staff.

(1) Serve as principal staff advisers, technical consultants, and coordinators for the command and the staff, as applicable, in planning, organizing, directing, and evaluating all safety program elements across CAC and on Fort Leavenworth.

(2) Provide for the establishment and implementation of plans, policies, and procedures for conducting safety programs at all levels across CAC and on Fort Leavenworth.

(3) Provide technical and professional assistance to eliminate or control unsafe behavior and environments.

(4) Determine the need for, obtain, and distribute safety promotional and educational materials.

(5) Provide technical assistance in accident investigation and reporting to ensure accuracy and completeness.

(6) Collect, analyze, and disseminate data concerning the accident experience of the command and prepare progress reports of safety activities and conduct studies as required by higher authority.

(7) Review operating procedures, manuals, directives, and other instructions to ensure the incorporation of safe practices and safe physical standards.

(8) Review plans for proposed demonstrations and exhibits to ensure the safety of Army personnel, Family members and the public.

(9) Maintain close liaison with other staff agencies, military services, and federal civilian agencies in all relevant safety matters.

(10) Conduct surveys and inspections of activities to include review of accident prevention programs.

(11) Conduct a comprehensive annual Standard Army Safety and Occupational Health Evaluation of all worksites in accordance with areas of responsibility.

(12) Implement and manage all aspects of the Army Safety Program for this installation as outlined in Federal, DOD, and Army standards.

(13) Develop recommendations for corrective measures when warranted by adverse accident rates or trends, hazardous conditions or procedures, or other deficiencies.

(14) Provide accident prevention material and assist in providing quality training for civilian and military safety personnel at all levels.

(15) Coordinate with Preventive Medicine, to identify and abate existing or potential occupational health hazards in the workplace.

(16) Publicize all channels for reporting unsafe or unhealthful conditions.

d. Commanders and directors.

(1) Act as safety officers for their unit, directorate, and activity.

(2) Appoint an Additional Duty Safety Officer (ADSO) to accomplish assigned safety duties and responsibilities. Individuals will be appointed in writing as ADSOs and will have at least one year retainability in the position.

(3) Publicize all channels for reporting unsafe and unhealthful working conditions, emphasizing personal responsibility for making such reports.

(4) Establish procedures to ensure that personnel at all management and supervisory levels, who have safety related tasks, assignments and job standards, clearly reflect these responsibilities.

(5) Include safe practices and physical standards in all directives, safety plans, and training doctrine. Develop and implement a comprehensive accident prevention program and ensure it includes safety procedures for each operation (i. e., range operations, vehicle operations, welding, tire changing, use of simulators, privately owned vehicle operations, field training exercise operations as required, battery changing and storage, fuel storage and refueling operations, storage and handling of chemicals, communications and electronics, spray painting). Accident prevention program will detail safe operational procedures, emergency procedures, required training, and inspections as well as other applicable information. (See sample safety plans at Appendix C.)

(6) Establish specific written safety goals for their organization annually.

(7) Include safety objectives in civilian managers and supervisors performance appraisals, officer and noncommissioned officer (NCO) evaluation report system, as required. Suggested items for inclusion in performance standards are at Appendix D.

(8) Submit a copy of each unit, directorate, and activity correspondence implementing and supporting the safety program to the CAC or Garrison Safety Office, as applicable. Examples are:

(a) Accident prevention program signed by current commander or director.

(b) Orders appointing safety officers and safety committees.

(c) Minutes of safety committee meetings.

(d) Copies of monthly inspections (CAC and Fort Leavenworth Form 2027, Standard Army Safety and Occupational Health Inspection (SASOHI), checklist, and CAC and Fort Leavenworth Form 2027-1, Shop Safety Checklist).

(9) Identify and eliminate hazardous conditions, establish safe practices and procedures consistent with the mission, and motivate and instruct personnel in safe performance on and off duty.

(10) Ensure compliance with all appropriate provisions of this regulation and referenced safety regulations in Appendix A.

(11) Require all officers, NCOs, and supervisors to actively supervise performance of subordinates to ensure compliance with safety requirements. Require rigorous enforcement of the use of required personal protective clothing and equipment.

(12) Ensure that additional duty safety officers receive training and develop skills necessary to ensure competence.

(13) Report all non-routine maintenance or construction work to the Garrison Safety Office 10 workdays prior to start of work.

(14) Battalion-level commanders will initiate the Army Readiness Assessment Program (ARAP) within 90 days after assumption of command and again mid-point during assignment. Access to ARAP is available on the Combat Readiness Center (CRC) website at https://arap.safety.army.mil.

e. Provost Marshal.

(1) Ensure blotter extracts pertaining to traffic accidents reported to or investigated by the military police are forwarded to the CAC and Garrison Safety Offices.

(2) Upon request, provide accident information from DA Form 3946 (Military Police Traffic Accident Report) to the CAC or Garrison Safety Office on accidents, reported to or investigated by the military police which result in a fatality, personal injury, or estimated damage to government property or to a privately owned vehicle in excess of $5,000.

f. Commander, Munson Army Health Center (MAHC).

(1) The Preventive Medicine Officer maintains liaison with the CAC and Garrison Safety Offices on matters related to prevention of injury and occupational illness.

(2) Submit medical treatment reports to the CAC and Garrison Safety Offices routinely to assist with the identification of occupational injuries and illnesses.

(3) Work areas are evaluated for occupational health hazards (industrial hygiene) to include hearing conservation, vision protection, respiratory protection, and other hazard protection programs.

(4) Provide copies of workplace evaluation reports to the CAC and Garrison Safety Offices.

(5) Exposed workers are provided occupational health care per Occupational Safety and Health Act (OSHA), Department of the Army, and Health Services Command directives.

g. Logistics Readiness Command, Fort Leavenworth. Transportation Division Chief will ensure Financial Liability Investigation of Property Loss (DD Form 200) reports investigated by the Transportation Division Motor Pool resulting in government property damage of $5,000 or greater are forwarded to the CAC or Garrison Safety Offices.

h. Additional Duty Safety Officer. All ADSOs are appointed by the commander/director in writing. ADSOs and alternates will have a minimum grade of SSG or GS-07.

(1) Obtain the required material for safety training and safety promotions from the Garrison Safety Office.

(2) Be familiar with Federal, Army, and CAC and Fort Leavenworth safety regulations, safety requirements for the command, principles of accident prevention, and safety aspects included in Standard Operation Procedures (SOP), field manuals, technical manuals, etc.

(3) Assist in interpreting safety policies and procedures for the commander, directors, supervisors, and subordinate safety personnel.

(4) Supervise and conduct monthly safety inspections giving particular attention to recurring and serious hazards and to new or varied operations.

(5) Coordinate with supervisors to provide technical assistance to eliminate or control unsafe behavior.

(6) Provide prompt assistance with accident investigation and reporting. Review reports for completeness, accuracy, and evaluate the adequacy of corrective actions.

(7) Provide the activity commander or director with periodic safety progress reports and information concerning accident trends and analysis.

(8) Maintain safety records and analyze the unit's accident experience to determine accident patterns so preventive efforts may be effectively implemented.

(9) Provide assistance for commanders in conducting monthly briefings to Supervisors and NCOs regarding the objectives of the safety program, methods of attaining these objectives, and the degree of success expected in achieving these objectives.

i. Mission & Installation Contracting Command, Directorate of Contracting, Fort Leavenworth (MICC-DOC-L).

(1) Include safety provisions in commercial contracts when required by procurement directives.

(2) Ensure that construction contractors are advised during pre-performance conferences that all accidents involving construction contractor employees must be reported in a timely manner to the Garrison Safety Office, as well as to the Contracting Officer or his/her representative.

(3) Assist in the enforcement of construction contract safety requirements through close coordination with the Garrison Safety Office, as well as with the Contracting Officer or the designated representative.

(4) Incorporate into each solicitation, contract, delivery order, and purchase order Federal Acquisition Regulation (FAR) clause 52.223-3, Hazardous Material Identification and Material Safety Data. Contracting officer shall insert this clause when it is contemplated that the contract will require the delivery of hazardous materials. Safety Data Sheets (SDS) will be submitted by contractors at least five working days before delivery of the material and shall be handled in accordance with the government's rights in data as stated in the clause. The SDS shall be accessible to the Garrison Safety Office, as requested.

(5) Coordinate procedures with the Garrison Safety Office to ensure that copies of the safety data sheets are provided in a timely manner to the requiring agencies (i. e., contractor, contracting officer, DPW inspectors).

j. Directorate of Public Works.

(1) Ensure all design plans are reviewed by the Garrison Safety Office at each phase.

(2) Ensure contractor Accident Prevention Plans are reviewed by the Garrison Safety Office prior to the start of the construction project.

(3) Monitor contract safety requirements during on-site inspections, notify the contractor inspector when safety requirements are not being satisfied, and unless promptly corrected, report the contractor’s failure to comply with prescribed safety requirements to the responsible contracting officer.

(4) Ensure accidents involving construction contractor employees are promptly reported through the responsible contracting officer to the Garrison Safety Office.

(5) Ensure all work requirements involving the correction of safety hazards categorized as life threatening (risk assessment code 1), be given first priority and abated immediately after the notification to DPW. Permanent correction will be executed as soon as possible thereafter. This will include new work and repair requirements. Imminent danger (risk assessment code 2) repair projects will be abated within four days of notification to DPW. Permanent correction will be executed within 30 days thereafter. Commanders and directors are responsible for developing abatement plans for all safety hazards (risk assessment codes two and three) that are classified as new work, and should pursue these projects through the normal new work channels.

(6) Provide a status of abated safety work request(s) to the CAC or Garrison Safety Offices.

k. Individuals are responsible for their own safety, and for the safety of others who may be affected by their actions. It is the responsibility of individuals to comply with safety rules; correct or report unsafe acts or conditions; report accidents; use required protective clothing, equipment, and devices; and as appropriate, warn others of hazards or of failure to observe safety rules.

Chapter 2
Risk Management Program

2-1. Purpose
The purpose of the program is to establish policy, procedure, and responsibilities in the application of composite risk management throughout the command.

2-2. Policy
Risk Management (RM) will be implemented at every level. RM is a recurring process that continuously identifies and assesses hazards, develops and implements controls, and evaluates outcomes. Risk assessment will be applied to all operations, training exercises, doctrine systems designs, and operational procedures developed by this command. Directors and commanders will balance safety and risk prior to placing demands on lower echelons or supporting activities. Supervisors, emergency response personnel, task planners, equipment designers, procurement personnel, budget personnel and troops or workers will conduct risk assessment and act on risk estimates. The following are the CAC and Fort Leavenworth RM principles:

a. Do not accept unnecessary risk.

b. Review and approve risk decisions at the appropriate level.

c. Accept risk only when benefits outweigh the costs.

d. Integrate RM in phases of operations from planning through execution.

2-3. Responsibilities

a. Deputy Commandant, Command and General Staff College (CGSC).

(1) Ensure RM is integrated into all CGSC training operations and products.

(2) Review risk assessments for all high risk training conducted at CGSC.

b. CAC Chief of Staff.

(1) Ensure RM is integrated into all CAC and Fort Leavenworth training and operations.

(2) Review risk assessments for all extremely high risk operations and training and forward to commanding general.

c. CAC and Garrison Safety offices.

(1) Provide technical assistance, as applicable, in analysis and preparation of risk assessments as needed.

(2) Review and analyze risk assessments for all high risk operations and training and provide recommendations to commanders and directors to reduce risk.

(3) Provide training support for RM to activities as needed.

(4) Provide onsite training or operations inspection to ensure compliance with this regulation; report to commander or directors.

(5) Advise commandants, commanders, and directors in integration of RM in doctrine and lesson plans.

(6) Serve as CAC and Fort Leavenworth proponent for RM.

d. Commandants, commanders, and directors.

(1) Ensure RM is integrated in all Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facility (DOTMLPF) products developed and produced by their activity.

(2) Ensure risk assessments are completed in accordance with this regulation and inform CAC or Garrison Safety Office, as applicable, of those that are considered high risk.

(3) Ensure that risk assessments are reviewed and approved, as required, prior to the start of training and operations to ensure conditions have not changed and effective countermeasures are adhered throughout the training and operation.

(4) Ensure personnel are trained in RM techniques as required.

(5) Ensure RM safety plan is developed and implemented.

(6) Appoint activity RM coordinator.

e. Directorate of Plans, Training, Mobilization, and Security (DPTMS).

(1) Review risk assessments of all extremely high risk operations and training and forward through the Garrison Commander to the CAC Chief of Staff.

(2) Review unit and organization risk assessments as part of the installation training management program.

f. Supervisors.

(1) Complete written assessments prior to conducting training and operations for inherent risk of hazards.

(2) Conduct Job Hazard Analysis (JHA) in conjunction with employees.

(3) Develop written RM plan.

(4) Train subordinates in RM techniques.

(5) Review JHA with employee upon initial assignment and annually thereafter.

g. Activity RM coordinator.

(1) Serve as activity proponent for RM.

(2) Be familiar with RM techniques.

(3) Assist activity supervisors in training personnel in RM techniques.

2-4. Procedures

RM is a tool that helps leaders make sound decisions in a logical manner. RM enables leaders at all levels to do exactly what the term implies: manage risk. RM incorporates safety into training, enhances training realism, and mission effectiveness. The RM five step process and job hazard analysis are two systematic tools that will assist directors, commanders, and supervisors in integrating safety in their areas of responsibility. The five step process (DA Form 2977 Deliberate Risk Assessment Worksheet and Risk Assessment Matrix, see Appendix H) will be used to assess risk and incorporate controls into training, doctrine, community activities, tactical exercises, and operations. JHA (CAC & FT LVN Form 370-E, see Appendix A) will be used in integrating safety in the workplace. Leaders will involve chain of command in the risk decision process. Risk assessments will be conducted at every level in planning, preparation and execution phases.

a. Risk decision authority is as follows:

(1) Extremely high risk operations/training: CAC Commander.

(2) High risk operations/training: Colonel or equivalent in the chain of command of operations/training.

(3) Moderate risk operations/training: Lieutenant Colonel or equivalent in the chain of command of operations/training.

(4) Low risk operations/training: Major, Unit Commander, or equivalent in chain of command of operations/training.

b. Five step process.

(1) Step 1: Identify hazards. The hazards are the potential sources of danger that could be encountered while performing a task or mission (e.g., the cycling portion of the CGSC Triathlon: factors that determine hazards include road and weather conditions, length and nature of the route, and conditioning of the participants, or as in organized sports such as volleyball, anticipated injuries are ankle sprains and fractures. Factors that determine the hazard are unconditioned players and improper playing techniques).

(2) Step 2: Analyze the hazard. Each hazard is analyzed to determine probability and severity. Exercising judgment on how to eliminate or reduce hazards to lessen the overall risk is inherent in the risk assessment that describes the impact of the combined hazards. The result is a statement that quantifies the risk associated with the operation; extremely high, high, medium, and low.

(3) Step 3: Make risk decisions. Directors, managers, and supervisors should weigh the risk against the benefits of performing the operation.

(4) Step 4: Implement the controls. This is established as a result of steps one through three. Included in this step is leader action to reduce or eliminate hazards. Controls may be as substantial as writing risk management safety plan or implementing controls in doctrine (e.g., in the cycling scenario, the event organizer would brief his subordinates on specifics of what he or she has decided, or as in volleyball scenario, the coach or team organizer would implement a preconditioning program emphasizing the proper playing techniques).

(5) Supervision in this sense goes beyond ensuring that people do what is expected of them. It includes following up during and after an action to ensure that all went according to plan, reevaluating the plan or making adjustments as required to accommodate unforeseen issues, and incorporating lessons learned for future use.

c. Job hazard analysis (JHA). The JHA is an important accident prevention tool that works by eliminating or minimizing hazards before the job is performed. The procedure is used to assess how work is done, where work is done, changes in methods and environment, and the degree to which this creates hazards for the employee. The JHA can uncover hazards generated by equipment, materials, or the way in which the work is done. It can also reveal less obvious factors, such as worker attitude toward work procedures or required safety procedures, safety equipment, or personal protective equipment. The JHA is conducted as follows:

(1) Step 1: Break down the job. Break job down into a sequence of steps, each describing what is being done. Avoid the two errors: Making the breakdown so detailed that an unnecessarily large number of steps result or making the job breakdown so general that basic steps are not recorded. In recording the job steps, each should be completely described and the employee asked to verify the written job description. Possible deviations from the regular procedure should be recorded because it may be this irregular activity that leads to an accident.

(2) Step 2: Identify hazards and potential accidents. Identify all hazards, those produced by the environment, and those connected with the job procedure. Each step and the entire job must be made safer and more efficient. The following questions should be asked about each step in the job.

(a) Is there a danger of striking against, being struck by, or otherwise making contact with an object?

(b) Can the employee be caught in, by, or between objects?

(c) Is there a potential for a slip or trip? Can the employee fall on the same level or to another?

(d) Can the employee become strained by pushing, pulling, lifting, bending, or twisting?

(e) Is the environment hazardous to safety or health? For example, are there concentrations of toxic gas, vapor, mist, fume, dust, lead, or radiation? Include hazards that might result. Record the type of accident and the agent involved. To note that the employee might injure a foot by dropping a fire extinguisher, write "struck by extinguisher."

(3) Develop procedures. The final step in a job hazard analysis is to develop recommended job safety procedures to prevent occurrence of potential accidents. Each hazard identified in step two is examined, and a procedure is developed to prevent its occurrence. The principal solutions are:

(a) Find a new approach to execute the job.

(b) Change the physical conditions that create hazards.

(c) Change the work procedure.

(d) Substitute nonhazardous materials, if possible.

(e) Reduce the necessity to do the job or, at least, the frequency with which it must be done.

(f) Provide Personal Protective Equipment (PPE). When this is done, employees must be adequately trained in the hazard and how to properly use the equipment.

Chapter 3
Hazard Identification Program

3-1. Safety inspections
The identification of unsafe practices and unsafe physical conditions through safety inspections is essential to a successful accident prevention program. To properly direct efforts to eliminate the cause of accidental injuries and property damage, safety inspections must be conducted at all levels. Minimum requirements for safety inspections are as follows:

a. All personnel will, during the performance of their normal duties, survey their operations, activities, facilities, equipment, and procedures for safety hazards and initiate or recommend necessary action to eliminate any hazards.

b. Command safety and occupational health personnel will inspect work site facilities, as applicable, annually using the Standard Army Safety and Occupational Health Inspection procedures in AR 385-10, Chapter 17; DA PAM 385-10, Chapter 14; and 29 CFR 1960.26. Hazardous operation areas (see Appendix B) will be inspected annually with a periodic walk-through. The safety standards applied will include: Occupational Safety and Health Administration standards (Title 29 Code of Federal Regulations (CFR) Part 1910, 29 CFR 1960, 29 CFR 1926), National Fire Protection Associated Standards, National Electric Code, Department of Defense Standards, Military Standards, Army regulations, local regulations, and union agreements.

(1) Annual inspections will be conducted with prior notification to ensure the additional duty safety officer and a Department of the Army employee representative, is available to accompany the safety specialist during the evaluation. Garrison and activity commanders, directors, or their designated representative, may deny the right of accompaniment to any person who, in their judgment, will interfere with the inspection.

(2) A written report of deficiencies on DA Form 4754 (Violation Inventory Log) observed during the annual inspection will be provided to the commander or director of the activity inspected. These reports will cite hazard severity, safety management achievements and deficiencies, and recommend corrective action. The unit or activity inspected will be required to respond to the Command Safety Office, as applicable, in writing concerning corrective action taken on each cited deficiency, within the time frame indicated on the inspection report (usually 30 calendar days). All work requests that result from any inspection should be routed through the appropriate Safety Office for review, prioritization, and assignment of a risk assessment code. Follow-up procedures, to include a suspense file, should be established by the unit to ensure each deficiency is corrected. A record of uncorrected deficiencies should remain in an active file which should be reviewed periodically until all deficiencies are corrected.

(3) Annual safety and occupational health inspections will not be conducted in conjunction with any other visit or inspection.

c. Monthly evaluations shall be performed by the appointed additional duty safety officers. CAC & FT LVN Form 2027 and 2027-1 will be used for recording inspections and retained on file for one year (see Appendix A).

3-2. Reports of unsafe and unhealthful working conditions

a. Reports of unsafe or unhealthful working conditions by CAC and Fort Leavenworth personnel should be handled at the operational level whenever possible to ensure timely correction in the following order of priority.

(1) Oral reports directly to the supervisor.

(2) Reports through operational channels

(3) Garrison Safety Office hotline is 684-DASH (684-3274).

b. The Army Hazard Reporting System provides a route for personnel to bring complaints directly to the installation level, bypassing intermediate commands or supervisory elements.

(1) Reports of hazards may be submitted on DA Form 4755 (Employee Report of Alleged Unsafe or Unhealthful Working Conditions). Supervisors will ensure that copies of this form are readily available at the operating level. Hazardous conditions affecting the safety of aircraft or associated personnel and equipment will be submitted on DA Form 2696-R (Operational Hazard Report).

(2) Reports will be submitted directly to the CAC or Garrison Safety Office, as applicable.

(3) All reports must include the name of the employee making the report; however, the identity of persons requesting anonymity will not be revealed by the CAC or Garrison Safety staff. Anonymous reports will be investigated to the fullest extent possible.

(4) Reports of alleged unsafe and unhealthy working conditions which are not strictly within the purview of the safety office (i. e., Provost Marshal, DPW, Preventive Medicine, MAHC) will be forwarded to the appropriate organization for response. Responses will be furnished to the CAC or Garrison Safety Office, upon request as needed.

(5) All Department of the Army personnel, both military and civilian, will be protected from coercion, discrimination, or reprisals for participation in the Army Safety

and Occupational Health Program and exercising lawful occupational safety and health rights.

c. The Garrison Safety Office has established a hot line (684-DASH) to receive reports of safety hazards from personnel and family members. Calls are acted on immediately; contact with the caller will be made within one work day.

Chapter 4
Community Health Promotion Council and Safety Training

4-1. General
Training of personnel at all levels in concepts of accident prevention and risk reduction and coordination among individuals and activities for the purpose of devising means to prevent accidents and reduce high risk behaviors are key elements of the total accident prevention and risk reduction effort. This chapter establishes the CAC and Fort Leavenworth Community Health Promotion Council committee and safety training requirements for personnel at various levels.

4-2. Community Health Promotion Council

a. The Community Health Promotion Council is established as a result of the merger of three forums: CAC Safety Council, Suicide Prevention Council and the Installation Prevention Team. Council membership will consist of major subordinate organization commanders, directors, chief of major activities and representatives from special emphasis programs. The council will meet quarterly to review the accident and high risk behavior experience of the command and suggest countermeasures for implementation. The council meeting will be conducted by the CAC Commander or designated representative. The CAC Safety Manager in conjunction with the Director of Human Resources, Garrison, is responsible for planning meetings and providing the council members with appropriate information. Each member of the council will be notified of the time and date of the meeting. Special meetings should be called when critical and urgent matters dictate. A copy of the minutes of each meeting will be maintained by the CAC Safety Manager.

b. The purpose of the committee is to:

(1) Review the accident and high risk behavior of the command and of subordinate units and tenant activities.

(2) Develop and inform participants of special emphasis programs and of actions required to implement and to ensure effectiveness of these programs.

(3) Discuss significant problem areas and the recommended corrective actions. Discuss and develop solutions to specific issues of mutual interest.

(4) Inform participants of changes in the prevention programs, clarify accident prevention and risk reduction requirements, and provide guidance concerning program administration.

(5) Distribute and discuss new and proposed educational and promotional materials. Suggest methods for effective utilization of these materials.

4-3. Safety training requirements

Distance Learning safety training courses for Department of the Army personnel are available at https://safety.army.mil, as applicable, for Accident Avoidance Course, Composite Risk Management Basic Course, Employee Safety Course, Supervisor Safety Course, Manager Safety Course, Commander's Safety Course and the Additional Duty Safety Officer Course. This training will include information concerning part 29 CFR 1960, Occupational Safety and Health for Federal Employees, the current Executive Order, 12196, Occupational Safety and Health Programs for Federal Agencies, hazard reporting, accident reporting, hazard abatement, employee rights and responsibilities, and other appropriate topics.

a. All personnel.

(1) Newcomers Safety Briefing: Generalized Safety and Occupational Health education will be provided by the Garrison Safety Office at the Installation Newcomers Orientation. In addition, each activity will ensure that a newcomer safety briefing is provided at the unit/activity level.

(2) Army Accident Avoidance Course: All personnel who have a requirement to drive an Army motor vehicle will complete this course via Distance Learning upon initial assignment and every four years thereafter.

(3) Composite Risk Management Basic Course: All newly assigned personnel must complete this course via Distance Learning within 30 days of arrival at Fort Leavenworth.

b. Military personnel. Commander's Safety Course. Battalion Commanders, Company-level commanders, Sergeants Major and First Sergeants should complete this course via Distance Learning prior to assuming duties at Fort Leavenworth.

c. Civilian personnel.

(1) Employee Safety Course: Civilian employees must complete this course via Distance Learning within 30 days of arrival at Fort Leavenworth.

(2) Supervisor Safety Course: Civilian or military supervisors of civilian personnel will complete this course via Distance Learning within 30 days of appointment to a supervisory position.

(3) Manager Safety Course: Senior civilian managers (Assistant Director and above) will complete this course via Distance Learning within 30 days of appointment.

d. Additional Duty Safety Officers (ADSO). ADSOs are required for all organizations down to and including the Company or similar sized civilian organizations. ADSOs will be appointed on orders and must complete requisite training. A record of currently assigned additional duty safety officers will be maintained at each activity and a copy of the appointment order forward to the CAC or Garrison Safety Office, as applicable. ADSO training is completed in two phases. The first phase is the online Additional Duty Safety Officer Course via Distance Learning; the second phase is the Fort Leavenworth Additional Duty Safety Officer Course provided by the CAC or Garrison Safety Office. Both phases must be completed within 30 days of appointment. Contact the CAC Safety Office at 684-1742 or Garrison Safety Office, at 684-3274, as applicable, for phase two scheduling information.

e. Specialized training. Specialized training may be required for a particular job or specific operational process (examples are: forklift operations, hazardous chemical handling/storage, confined space entry, vehicle maintenance operations, etc.) This training will include, but not be limited to, precautions to prevent injuries from hazardous machinery and equipment, dangerous chemicals, and hazardous operations. Documentation of the training will be retained on file for one year.

f. Commanders and supervisors will present a safety briefing to all newly assigned personnel within five days of arrival. Material covered will include the individual's rights and responsibilities specified by the CAC and Fort Leavenworth Occupational Safety and Health Program and information on hazards in the area to include traffic, fire, water, firearms, ranges, hearing conservation, and heat and cold injury prevention.

g. DD Form 2272 will be posted in each workplace. DD Form 2272, (DOD Occupational Safety and Health Protection Program Poster), is an electronic form and is available online at, http://www.dtic.mil/whs/directives/infomgt/forms/eforms/dd2272.pdf and will be posted in each location where personnel notices are usually placed. This poster explains employee rights and responsibilities delineated by Public Law 91-596.

h. Safety officer meetings. Quarterly meetings with safety officers and key personnel will be conducted by major organizations to provide safety officers at the next lower command with current safety guidance and information, safety criteria and standards, and areas of concern. Meetings conducted by major subordinate unit safety officers will be documented and readily accessible upon request. Internal elements of major subordinate units will conduct and document similar quarterly meetings within the organization.

i. Holiday safety requirements. Special safety orientations and seminars will be conducted by commanders prior to holiday periods. Safety orientations and seminars will include as appropriate, identification of seasonal hazards associated with holiday driving, recreational activities, fatigue, the over consumption of alcohol, the effects of

prescription medication and over-the-counter drugs, and dissemination of severe weather warnings and reports. Assistance and holiday briefing guides are available through the Garrison Safety Office.

4-4. Bulletin board and safety literature

Each company, directorate, activity, and branch will devote a portion of their bulletin board to prominently display safety and health materials. In addition to accident material being posted, safety posters will be strategically placed throughout the area. Posters designed by members of the unit and oriented toward unit needs are normally more effective than stock posters and should be used whenever possible. Posters lose their effectiveness rapidly and should be removed or replaced frequently. Each unit will maintain a reading file of available safety literature. This file will include items such as operator manuals and training circulars for assigned equipment. Others examples include *KNOWLEDGE* publication, safety releases and Command safety messages

Chapter 5
Safety Awards

5-1. General

The CAC and Fort Leavenworth Safety Awards program is to recognize and reward CAC and Fort Leavenworth activities and personnel for meeting goals and making significant contributions to the Fort Leavenworth accident prevention effort. The program is designed to instill a sense of pride and accomplishment in promoting safety.

5-2. Safety awards and criteria

a. *Commander's Safety Award*. Selectees are chosen at the end of the fiscal year by the CAC and Garrison Safety Offices. The CAC CG or his designated representative will present the award. In order to qualify for this award, activities must:

(1) Be part of CAC or a tenant activity under the United States Army Garrison at Fort Leavenworth. Base operations (BASOPS) will be considered collectively.

(2) Show the highest accident reduction rate on Fort Leavenworth. Activities that have maintained a zero accident rate in previous years will also be given consideration.

(3) Report all accidents in a timely manner.

(4) Have an active awards program.

(5) Show the highest reduction in safety deficiencies.

(6) Promote a safe workplace.

(7) Conduct monthly activity safety meetings.

(8) Ensure completion of the online Accident Avoidance Course and attendance at the Motorcycle/Moped Safety Course by affected personnel.

(9) Ensure the current ADSO is trained.

(10) Effective use of safety materials (posters, signs, safety alerts, and safety releases).

b. Unit Safety Award. All units on Fort Leavenworth are eligible. Selectees are chosen at the end of the fiscal year by the CAC and Garrison Safety Offices. The CAC Chief of Staff or his designated representative will present the award. In order to qualify for this award, units must:

(1) Report all accidents in a timely manner.

(2) Have an active awards program.

(3) Receive a rating of excellence on Annual Safety and Occupational Health Program.

(4) Maintain a zero military lost time injury rate.

(5) Effectively promote of safety (i.e., bulletin boards, briefings, meetings, etc.).

c. Best Improved Safety Award. All activities on Fort Leavenworth are eligible. Selectees are chosen at the end of the fiscal year by the CAC and Garrison Safety Offices. The CAC Chief of Staff or his designated representative will present the award. In order to qualify for this award, activities must show significant improvement in all categories in subparagraphs *a* and *b* above, which exceeds improvements in activities at the same echelon.

d. Safety Award of Excellence. All activities on Fort Leavenworth are eligible. The CAC Chief of Staff or his designated representative will present the award. In order to receive this award, activities must achieve a rating of “excellence: on the Annual Safety and Occupational Health Evaluation and maintain a zero accident rate.

e. Supervisor and ADSO Awards. Commanders or directors on Fort Leavenworth may recommend any supervisor or ADSO for this award, presented by the Deputy to the Commanding General, the CAC Chief of Staff, or the activity commander or director, based on performance within the below criteria:

(1) Ensure accident reports are submitted in a timely manner.

(2) Conduct safety meetings with employees.

(3) Promote safety in the workplace.

(4) Ensure completion of the online Accident Avoidance Course and attendance at the Motorcycle/Moped Safety Course by affected personnel.

(5) Provide protective equipment for employees.

(6) Follow-up on work orders concerning safety.

f. US Army Certificate of Achievement in Safety. Commanders or directors on Fort Leavenworth, or the CAC or Garrison Safety Office may recommend any individual for this award, presented by the Deputy to the Commanding General, the CAC Chief of Staff, or the activity commander or director, based on performance within the below criteria:

(1) Report hazards in the workplace to responsible personnel.

(2) Take continuous action to correct safety deficiencies in the workplace.

(3) Promote safety in the workplace.

(4) Develop suggestions that contribute to significant reductions in accidents in the activity.

g. Civilian Safe Driver Award. Supervisors of CAC and Fort Leavenworth civilians may recommend individuals for this award, presented by the activity commander or director based on the below criteria:

(1) Possess a valid DA motor vehicle operators permit (trucks) and a valid state driver's license (sedans).

(2) Operate a government vehicle (truck or sedan) for 12 consecutive months or longer without an accident.

(3) Operate a government vehicle (truck or sedan) as their primary function or major part of their employment.

h. US Army Motor Vehicle Driver Safety Award. Supervisors of CAC and Fort Leavenworth military personnel may recommend individuals for this award (via memorandum to the CAC or Garrison Safety Office), presented by the activity commander or director based on the below criteria:

(1) Be a military employee at Fort Leavenworth.

(2) Operate a government vehicle (truck or sedan) for 12 consecutive months or longer without an accident.

(3) Operate a government vehicle (truck or sedan) as their primary function of major part of their employment.

Chapter 6
Accident Reporting and Investigation

6-1. General
All CAC and Fort Leavenworth accidents will be investigated, reported, and recorded per AR 385-10, Chapter 3. Class A ground accidents as defined in AR 385-10, paragraph 3-4*a* involving military on duty and other categories of accidents as determined by the parent command safety office will be investigated by a Centralized Accident Investigation Ground (CAIG) board (see Appendix F). Investigation and reporting of aircraft accidents will be in accordance with DA Pam 385-40, Chapter 3.

6-2. Responsibilities

a. CAC and Garrison Safety staff.

(1) Assist commanders, directors, and supervisors in ensuring that accidents are investigated and analyzed to the extent needed to identify causation factors and deficiencies and to develop countermeasures to prevent the recurrence of similar accidents.

(2) Review and maintain copies of all military and civilian accident reports.

(3) Maintain a separate but equivalent safety and occupational health program injury and illness log for military and civilians.

(4) Forward all recordable military accidents to the US Army Combat Readiness Center/Safety Center within 30 days after accident date.

(5) Forward a copy of all Class A and Class B accidents to TRADOC Command Safety Office, Combat Readiness Center (CRC) /Safety Center and Installation Management Command Region Safety Office, as appropriate, within 30 days after the accident date.

(6) Analyze accident data to determine trends and problem areas.

(7) Publish trends and analyze accident reports quarterly.

(8) Provide an annual summary of civilian work-related injury and illnesses.

b. Commanders and directors.

(1) Ensure that all accidents are reported and investigated per AR 385-10, Chapter 3.

(2) Accidents are investigated and analyzed to the extent needed to identify causation factors and deficiencies and to develop countermeasures to prevent the recurrence of similar accidents.

(3) All Class A through Class C accidents are reported, telephonically or via email, to the CAC or Garrison Safety Office, as applicable, within 24 hours of accident.

(4) Appropriate accident reporting form (DA Form 285-AB, Abbreviated Ground Accident Report) or on-line accident reporting tool is completed per AR 385-10, paragraph 3-8b and forwarded to the CAC/Garrison Safety Office within five work days of accident.

(5) Corrective actions are taken for all at-fault accidents.

(6) Required support is given to accident investigation boards.

(7) Review quarterly accident trends and analysis report to determine problem areas.

c. Supervisors.

(1) Investigate and analyze accidents to the extent needed to identify causation factors and deficiencies and to develop countermeasures to prevent the recurrence of similar accidents.

(2) Complete appropriate accident form per DA Pam 385-40 or USACRC's online accident reporting tool (preferred method), and forward through command channels and the CAC or Garrison Safety Office, as applicable, within five work days.

(3) Notify the Occupational Safety and Health (OSHA) area office within eight hours after the death of an Army civilian or within 24 hours after the hospitalization of one or more Army civilian employees in a work-related incident; work-related amputations such as a limb or appendage that has been severed, cut off, either completely or partially; work-related losses of an eye; and/or a work-related heart attack. Notification will be by telephone or in person, to the nearest area office to the site of the incident, by telephone using the toll free central number, 1-800-321-OSHA (6742), or on-line at *www.osha.gov.*

(4) Take corrective actions after determining causation factors.

(5) Eliminate or abate hazards contributing to the accident and update hazard analysis, employee safety training and standard operation procedures, as appropriate.

(6) Maintain up-to-date status on injured employee(s) until he or she is returned to full duty status.

(7) Consult with Civilian Personnel Advisory Center (CPAC) and designated Injury Compensation Program Coordinator (ICPC), regarding modified duty assignment to return injured employee to work as soon as possible.

(8) Post the annual summary of workplace related injuries and illnesses in a visible location to heighten employee awareness. Annual injury/illness summary will be posted from 1 February to 30 April.

d. Nonsupervisory employees.

(1) Notify the supervisor of all work-related accidents and illnesses no later than the end of the shift, or close of business (COB) the day of occurrence. For civilian personnel, this will include accidents related to duties performed while on temporary duty (TDY) status or in any location while on official duty status. For military personnel, this will include accidents occurring on- or off-duty.

(2) File appropriate claims as soon as possible after the injury.

(3) Keep supervisor informed of medical status including restrictions or other recommendations.

e. Civilian Personnel Advisory Center.

(1) Review Federal Employees' Compensation Act claims and advise supervisors as necessary to support or controvert claims.

(2) Assist managers in returning employees to duty as soon as is medically possible.

(3) Recommend light duty assignments to supervisors based on case review and evaluation.

(4) Establish a Federal Employees' Compensation Act (FECA) Working Group to review occupational injuries and illnesses, analyze FECA costs, trends, and plans to return injured employees to work.

6-3. Accident and incident classes

a. Class A accident. Army accident that results in a total cost of property damage of $2 million or more; an injury and/or occupational illness results in a fatality or permanent total disability.

b. Class B accident. Army accident that results in a total cost of property damage of $500,000 or more but less than $2 million; an injury and/or occupational illness results in permanent partial disability, or when one or more personnel are hospitalized as in-patients, as a result of a single occurrence.

c. Class C accident. Army accident that results in a total cost of property damage of $50,000 or more but less than $500,000; a nonfatal injury or occupational illness that results in one or more days away from work or training beyond the day or shift that the injury occurred.

d. Class D accident. Army accident that results in a total cost of property damage of $20,000 or more but less than $50,000; a nonfatal injury or occupational illness that results in restricted work, transfer to another job, medical treatment beyond first aid, needle stick injuries/cuts from sharps contaminated from another person's blood or other potentially infectious material, medical removal based on medical surveillance IAW OSHA standard, occupational hearing loss or work-related tuberculosis case.

e. *Class E accident.* Army ground accident that results in a total cost of property damage of $5,000 or more but less than $20,000.

6-4. Fatality After Accident Review

a. Notification, investigation and reporting procedures will be in accordance with the parent command's guidance on the accidental death of any Soldier, on- or off-duty, on-duty death of a DA civilian or contract employee.

b. The Fatality After Action Review Board will convene within 14 days of the incident to ensure accidental losses are investigated in a timely manner to identify causes or contributing factors, and determine necessary actions to prevent recurrence.

Chapter 7
Vehicle Safety Program

7-1. General
This chapter establishes responsibilities and procedures for reducing the risk of injury and death to CAC and Fort Leavenworth personnel in Army/General Services Administration (AMV/GSA) motor vehicles and privately owned vehicles (POV). All commanders will ensure RM is used to reduce or control hazards that cause motor vehicle accidents. Commanders will ensure first-line supervisors and NCOs know their authority to intervene or take action to deal with the "at risk" driver. First-line supervisors and NCOs will identify the "at risk" Soldier and counsel the Soldier to motivate or discipline the individual to modify the behavior that places them, and others at risk

7-2. Army and General Services Administration motor vehicles
All personnel will complete the online Accident Avoidance Course at https://www.lms.army.mil before operating any AMV/GSA on Fort Leavenworth.

a. *Responsibilities*.

(1) CAC and Garrison Safety staff.

(a) Analyze all AMV/GSA accidents.

(b) Provide countermeasures to activity commanders and directors.

(c) Provide AMV/GSA accident prevention literature to activities.

(2) Logistics Readiness Command – Fort Leavenworth. Transportation Officer, will ensure the following:

(a) All personnel possess a valid state driver's license before issuing a sedan.

(b) All drivers of Army-owned or leased buses, military police vehicles, ambulances, fire trucks, fueling vehicles, vehicles carrying hazardous cargo, motorcycles, mopeds, crash-rescue vehicles, or other emergency vehicles have completed additional training and are tested in accordance with AR 600-55, Chapter 4, before issuing a license. This training must be documented on DA Form 348 (Equipment Operator's Qualification Record).

(c) Conduct driver performance testing on 16 passenger vehicles and above, or vehicles with a gross vehicle weight rating (GVWR) of greater than 10,000 pounds, and issue OF 346, US Government Motor Vehicle Operator's Identification Card, upon successful completion of the performance test.

(d) Biweekly vehicle dispatch, to include a vehicle inspection with the activity representative, and primary preventive maintenance is conducted per AR 385-10, Chapter 11.

(e) System defects causing or contributing to accident causation factors are identified and corrected.

(f) Vehicle dispatch log is maintained and vehicle mileage recorded.

(g) Maintain driver records on each individual driver (copies of training certificates, DA Form 348, violations, etc).

(h) Identify damage to AMV/GSA vehicles and initiate Financial Liability Investigation Property Loss (FLIPL) report.

(i) Forward a copy of the FLIPL to the CAC and Garrison Safety Offices as appropriate.

(3) Commanders and Directors:

(a) Develop and implement a motor vehicle/specialty vehicle safety policy in accordance with this regulation, AR 385-10 and AR 600-55.

(b) Ensure all personnel required to operate an AMV/GSA complete the online Accident Avoidance Course at https://www.lms.army.mil within 30 calendar days of arrival/assignment and every four years thereafter as part of the license renewal procedure.

(c) Ensure drivers are selected, trained, tested, and licensed per AR 600-55.

(d) Recognize vehicle operators, who maintain outstanding safe driving records (see Chapter 7).

(e) Ensure safe driving operations are in accordance with AR 385-10, Chapter 11.

(f) Accident investigative procedures reveal operator task errors, management or supervisory errors, equipment failures, and environmental factors causing or contributing to an accident. As an aid to AMV/GSA accident investigation, ensure SF Form 91 (Operator Report of Motor Vehicle Accident) is available to operators.

(g) System defects causing or contributing to above factors are identified and corrected.

(h) Emphasize POV safety in activity's weekend, holiday and seasonal safety briefings.

(4) Supervisors of AMV/GSA operations:

(a) Set standards of performance for vehicle operations to ensure continuity, safety, consistency, and clarity so drivers are aware of and understand their responsibilities.

(b) Periodically assess driver performance in accordance with AR 600-55, paragraph 4-4. Use incentives to reward drivers with good driving records.

(c) Ensure all personnel required to operate an AMV/GSA complete the online Accident Avoidance Course at https://www.lms.army.mil within 30 calendar days of arrival and/or assignment.

(d) Contact the Army Traffic Safety Training Program coordinator in the Garrison Safety Office at 684-1743 to schedule driver improvement/remedial drivers training to reinforce positive driving behaviors.

(5) All CAC and Fort Leavenworth personnel operating or riding as a passenger in a DoD motor vehicle will utilize safety belts. The vehicle operator is responsible for

informing passengers of the safety belt requirement. The senior occupant is responsible for ensuring enforcement. With respect to civilian employees, when it is not clear who is the senior occupant, the driver is responsible for ensuring enforcement.

(6) All personnel operating a Government-owned vehicle on or off Fort Leavenworth are prohibited from talking on a cell phone unless the vehicle is safely parked or unless they are using a hands free device. In addition, all personnel are prohibited from text messaging while operating a Government-owned motor vehicle. Emergency responders such as MP, ambulance, fire emergency, EOD and HAZMAT are the only exemption to this prohibition.

7-3. Privately Owned Vehicles

Most Army personnel are killed or injured in single-vehicle accidents at night as a result of excessive speed, substance abuse (alcohol or illicit/prescription drug), or fatigue. Negative behavior, manifested by such things as a history of traffic offenses, alcohol abuse, misconduct and poor performance, often indicate potential privately owned vehicle (POV) accident victims. All newly assigned Army personnel will receive a briefing on the local driving hazards they may encounter while at Fort Leavenworth. All newly assigned Soldiers to an organization, less than 26 years of age, will receive the Intermediate Drivers Traffic Safety Training Course. Contact the Garrison Safety Office, 684-1743, for additional information regarding enrollment for this training. The POV risk management tool box https://safety.army.mil and risk management control option program is implemented in all CAC and Fort Leavenworth units. Commanders, directors, and supervisors should include periodic safety training and briefings of the following:

a. Causes of accidents and countermeasures.

b. Emotions and accident causations.

c. How to control fatigue when driving.

d. Pedestrian safety precautions.

e. Driver's view of motorcycling.

f. How to avoid a collision with another vehicle.

g. The effects of drugs and alcohol on driving skills.

h. Safety restraint usage per AR 385-10, Chapter 11.

i. Prohibition against the use of headphones, earphones or cell phones, to include text messaging, while driving.

j. Dangers of using cell phones, and text messaging, to include hands-free wireless phones, while driving.

k. Dangers of eating and drinking while driving.

l. Vehicle inspections. Commanders will ensure that unit POV safety inspections are conducted for their Soldiers. Inspections should include verification of motorcycle rider training, licensing, personal protective clothing and equipment, and the signed Installation Motorcycle Agreement.

7-4. Motorcycles

a. All Army military personnel operating privately or government-owned motorcycles, motor scooters and mopeds on an Army installation must be licensed by civil authorities and satisfactorily complete a Motorcycle Safety Foundation motorcycle safety course. Contact the Garrison Safety Office at 684-3274/1741/1743 for scheduling information.

b. Civilian personnel or contracted laborers that are properly licensed to ride a motorcycle or motor scooter shall not be required to receive service-sponsored training or to prove they have taken other motorcycle training in order to operate a motorcycle or motor scooter on a DOD installation.

c. All motorcycles must be registered with the Provost Marshal Office.

d. Personal Protective Equipment (PPE). The following PPE is mandatory for Army Soldiers at any time, on or off a DOD installation; Army National Guard and U.S. Army Reserve personnel while in a military duty status; Army Civilian personnel in a duty status, on or off a DOD installation, to include contractor personnel; all persons at any time on an Army installation while operating or riding a motorcycle, motor scooter, moped or ATV.

(1) Helmets, certified to meet Department of Transportation (DOT) standards, properly fastened under the chin.

(2) Impact or shatter resistant goggles, wraparound glasses, or full-face shield properly attached to the helmet, certified to meet ANSI Safety Code Z87.1, for impact and shatter resistance. A windshield alone is not adequate eye protection.

(3) Over the ankle boots with rubber soles must be worn.

(4) A long-sleeved shirt or jacket, long trousers and full-fingered gloves or mittens designed for use on a motorcycle, must be worn. Motorcycle jackets and pants constructed of abrasion-resistant materials such as leather and containing impact-absorbing padding are strongly encouraged. Riders are encouraged to select PPE that incorporates fluorescent colors and retro-reflective material.

e. Soldiers will sign the Fort Leavenworth Motorcycle/ATV Agreement upon assignment to Fort Leavenworth or prior to attending the Motorcycle Safety Course. Army civilian personnel are encouraged to sign the Installation Motorcycle Agreement.

f. All motorcycles, motor scooters and mopeds must have two rearview mirrors (one mirror on each side).

g. To increase visibility, all motorcycles, mopeds and motor scooters must have headlights turned on at all times when operated on Fort Leavenworth.

h. Mandatory progressive motorcycle training. Progressive motorcycle training is designed to keep motorcycle operator training current and sustain rider skills. All Soldiers who operate a motorcycle are required to take the following Motorcycle Safety Foundation (MSF) endorsed, or state-approved, motorcycle operator's safety training:

(1) Basic Rider Course (BRC). Prior to operating a motorcycle, Soldiers will successfully complete the BRC.

(2) Basic Rider Course II (BRC II). Within 12 months of completing the BRC, Soldiers will complete either the BRC II or Military Sports Rider Course (MSRC), depending on the type of motorcycle owned and operated.

(3) Sustainment training. Soldiers will complete motorcycle sustainment training every five years, which consists of retaking the BRCII or MSRC, based on the type of motorcycle owned or operated. Commanders are not authorized to waive or defer sustainment training.

i. Motorcycle refresher training. Soldiers deployed for more than 180 days will complete the MSF endorsed, or state-approved course prior to operating a motorcycle, based on the type of motorcycle owned or operated.

j. Soldiers who have been inactive for five years, have acquired a new motorcycle (larger engine or different model) or have experienced a major geographic relocation are required to successfully complete the Army approved motorcycle safety course.

k. Three-wheeled motorcycles.

(1) Powered non-enclosed three wheelers will be considered a motorcycle unless classified by vehicle identification number as an automobile by the National Highway Traffic Safety Administration. The owner will submit all documentation for consideration to HQDA, Combat Readiness/Army Safety Center, by way of the Soldier's chain of command, for review and approval.

(2) All PPE requirements applicable to motorcycles are applicable to three wheelers.

(3) All three-wheeled operators will familiarize themselves with and follow the manufacturer's instructions and safety precautions pertaining to their vehicle.

(4) Operators of three wheelers, to include conventional motorcycles with sidecar, will complete the modified MSF BRC pending the release of the MSF three-wheeled basic rider course with adoption by the US Army.

7-5. Motorcycle Mentorship Program
The MMP is a voluntary program where seasoned riders guide less experienced riders to create a supportive environment of responsible motorcycle riding. The overall goal of the program is to reduce accidents through the promotion of safe, responsible riding.

a. CAC subordinate organizations, Garrison, and tenant activities are encouraged to establish a unit-level motorcycle mentorship program that support commanders' motorcycle accident prevention program.

b. The program should inspire and support a mentoring atmosphere emphasizing skilled, responsible, and positive riding experiences. It may consist of, but not be limited to, a variety of events such as bike night, unit ride, skill development exercises, motorcycle maintenance seminars, bike rodeo, fund raiser events, etc.

7-6. All-terrain and specialty vehicles
All operators of Government furnished all-terrain vehicles (ATVs) or specialty vehicles such as, segways, gators, mules, aircraft tugs, etc., will be trained on the controls that have been implemented to mitigate hazards. Curriculum and proficiency training will be tailored to meet specific mission objectives. Supervisors will ensure Government ATV/Specialty Vehicle operators successfully complete the Specialty Vehicle Institute of America based course.

7-7. Commander's assessment
Following every vehicle fatality or serious injury, commanders will conduct an assessment of the accident with the involved Soldier's chain-of-command to determine what happened, why it happened and how it could have been prevented. Findings will be presented to the Community Health Promotion Council.

Chapter 8
Ergonomic Program

8-1. Purpose
This program establishes policies, responsibilities, and procedures for implementing ergonomics, the science of fitting the work environment to the people who do the work.

8-2. Policy
The goal of the Combined Arms Center (CAC) and Fort Leavenworth Ergonomic Program is to prevent injuries and illnesses by eliminating or reducing worker exposure

to ergonomic hazards. A collaborative partnership between all levels of the working community is essential to achieve this goal. Command emphasis, commitment by management, and demonstrated visible involvement are imperative to provide the organization resources and motivation necessary to implement a sound ergonomic policy. All commanders, directors, managers, and supervisors will ensure that each work station or environment in their area of responsibility is fitted to the person(s) assigned to that work station or environment.

8-3. Responsibilities

a. Chief of Staff will ensure all elements of the ergonomic program are implemented effectively.

b. CAC and Garrison Safety Offices.

(1) Evaluate work place for ergonomic problems.

(2) Advise directors, commanders, and supervisors in resolution of ergonomic related issues.

(3) Coordinate train-the-trainer workshops, as required.

(4) Develop and disseminate ergonomic awareness materials.

(5) Maintain and review injury and illness records related to ergonomic problems to develop trend analysis.

c. Preventive medicine – Industrial Hygiene.

(1) Identify ergonomic risk factors during industrial hygiene (IH) surveys.

(2) Perform or assist with in-depth ergonomic evaluations and assessments as needed.

(3) Participate with Occupational Health and safety personnel and physical or occupational therapists (if available) in the evaluation of operations where ergonomic health hazards may exist.

(4) Assist in identifying personnel with ergonomic related injuries.

(5) Assist in conducting ergonomic training as needed.

d. Civilian Personnel Advisory Center. Assist in the identification of personnel with ergonomic related injuries based on Worker's Compensation Report.

e. Mission and Installation Contracting Command, Directorate of Contracting, Fort Leavenworth (MICC-DOC-L). Assist activities in the selection of ergonomic furniture and equipment.

f. Directorate of Public Works. Ensure ergonomic considerations are integrated into facility modifications and construction.

g. Commanders and directors.

(1) Establish an ergonomic plan.

(2) Ensure supervisors are trained on ergonomic factors that apply to their area of responsibility.

(3) Ensure area of responsibility is periodically evaluated for identification of ergonomic deficiencies and take appropriate corrective action.

(4) Ensure ergonomics are implemented in all job hazard analyses as appropriate.

h. Supervisors.

(1) Develop an ergonomic plan applicable to the area of responsibility.

(2) Train employees on reporting procedures for reporting ergonomic related illnesses and the importance of early reporting.

(3) Include ergonomic considerations in job hazard analysis.

(4) Evaluate the area of responsibility to ensure ergonomic standards are met.

(5) Provide protective equipment to reduce potential ergonomic injury or illness while engineering controls are implemented.

(6) Ensure ergonomic considerations are integrated into the purchase of new furniture.

(7) Ensure an ergonomic baseline self-assessment is conducted by all new employees or as a result of a change in an employee's workplace within 30 days of assignment or change and periodically thereafter.

i. Individuals.

(1) Assist supervisors in identifying ergonomic hazards.

(2) Complete the ergonomic self-assessment to establish a baseline in the prevention of ergonomic hazards.

(3) Report symptoms of possible ergonomic related injuries or illnesses to the supervisor.

(4) Use protective devices or equipment as required.

j. Ergonomic Task Force. The task force will assist in the implementation of the Installation Ergonomics Program. The task force will oversee and participate in gathering and evaluating injury, lost work time, trends, compliant data on worksites and work processes, and recommending corrective action. The task force will convene, as needed. The task force will consist of the following members:

(1) Garrison Safety Specialist.

(2) Industrial Hygienist.

(3) Occupational Health Nurse.

(4) DPW representative.

(5) MICC-DOC-L representative.

(6) CPAC representative.

(7) CAC Safety representative.

8-4. Procedures

Ergonomic considerations will be integrated in the job hazard analysis process and conducted in accordance with Chapter 2 of this regulation, para 2-4. Worksite analysis implementation of ergonomic hazard control measures are performed in conjunction with the job hazard analysis (see Appendix G).

a. Worksite analysis. Problem or hazard identification and detailed analysis are essential steps in conducting worksite analysis.

(1) Problem or hazard identification. Identification of jobs or worksites with ergonomic risk factors is the first step in the prevention of ergonomic hazards. This is accomplished by direct observation, case referrals and incident reports. Direct observation is conducted by trained personnel or by workers who can identify tasks or situations which are uncomfortable and may indicate ergonomic risks. Case referrals from CPAC, Occupational Health Nurse, Industrial Hygienist, CAC Safety Office or the Garrison Safety Office may be used to identify a work area with potential ergonomic risk. For example, a laboratory technician seeks medical care for hand or wrist pain and provides an occupational history which indicates possible worksite risk factors. In this

situation, the referral would be from the Occupational Health Nurse to the supervisor. Specific health or performance events such as wrist pain, back pain, or increased mishaps may be indicative of ergonomic risks. Incident reports such as accident reports, occupational and health reports, and supervisor monthly surveys are used to help identify ergonomic risk factors. The following are risk factors that contribute to ergonomic related disorders that should be considered in identifying ergonomic problems or hazards.

(a) Repetitive motions (especially during prolonged activities).

(b) Sustained static or awkward postures.

(c) Excessive bending or twisting of the wrist.

(d) Continued elbow or shoulder elevation (e.g., overhead work).

(e) Forceful exertions (especially in an awkward posture).

(f) Excessive use of small muscle groups (e.g., pinch grip).

(g) Acceleration and velocity of dynamic motions.

(h) Vibration.

(i) Mechanical compression.

(j) Restrictive workstation (e.g., inadequate clearances).

(k) Improper seating or support.

(l) Inappropriate hand tools.

(m) Machine-pacing and production based incentives.

(n) Extreme temperatures.

(o) Extended exposure to noise.

(p) Improper lighting.

(2) The combined effect of several risk factors in a job workstation may lead to a higher probability of causing an ergonomic disorder.

(3) Detailed analysis. Detailed analysis is necessary for further evaluation of those jobs or worksites. Personnel conducting analysis should systematically:

(a) Consider the concept of multiple causation factors.

(b) Look for trends, including age, gender, work task, and time of injury.

(c) Identify the work task or portions of the process which contain risk factors.

b. Prevention and control of ergonomic hazards. The primary method of preventing and controlling exposure to ergonomic hazards is through effective design (or redesign) of a job or worksite (see Appendix J). The following are intervention methods in order of priority for prevention and controlling ergonomic hazards.

(1) Process elimination. Elimination of the ergonomically demanding process essentially eradicates the hazard. For example: eliminating a meat wrapper's need to use a manual tape dispenser and label applicator by providing an automatic label and tape dispenser.

(2) Engineering controls. Ergonomic engineering controls redesign the worksite or equipment to fit the limitations and capabilities of workers. Equipment of worksite redesign typically offers a permanent solution. For example: the provision of a visual display terminal (VDT) workstation which is adjustable over a wide range of anthropometric dimensions.

(3) Substitution. Substituting a new work process or tool (without ergonomic hazards) for a work process with identified ergonomic hazards can effectively eliminate the hazard. For example: replacing hand tools which require awkward wrist positions (extreme wrist flexion, extension, and or deviation) with tools which allow a neutral wrist posture.

(4) Work practices. Practices which decrease worker exposure to ergonomic risks include changing work techniques, providing employee conditioning programs, and regularly monitoring work practices. It also includes equipment maintenance, adjustment, and modification of current equipment or tools, as necessary.

(a) Proper work techniques include methods that encourage correct posture, use of proper body mechanics, appropriate use and maintenance of hand and power tools, and correct use of equipment and workstations.

(b) Trained ergonomic personnel in consultation with Occupational Health should identify those jobs that require a break-in period. Occupational Health should evaluate those employees returning from a health related absence and define the break-in period for each individual employee.

(c) Regular monitoring of operations helps to ensure proper work practices and to confirm that the work practices do not contribute to cumulative trauma injury or hazardous risk factors.

(d) Effective schedules for facility, equipment, and tool maintenance, adjustments, and modifications will reduce ergonomic hazards. This includes ensuring proper working condition, having sufficient replacement tools to facilitate maintenance, and effective housekeeping programs. Tool and equipment maintenance may also include vibration monitoring.

(5) Administrative controls. Administrative controls can be used to limit the duration, frequency, and severity of exposure to ergonomic hazards. Examples of administrative controls include but are not limited to:

(a) Reducing the number of repetitions by decreasing production rate requirements and limiting overtime work.

(b) Reducing the number of repetitions by reducing line and or production speed or by having worker input into production speed (e.g., using worker-based rather than machine-based production speed).

(c) Providing rest breaks to relieve fatigued muscle-tendon groups. The length of the rest break should be determined by the effort required, total cycle time, and the muscle-tendon group involved.

(d) Increasing the number of employees assigned to the task (e.g., lifting in teams rather than individually).

(e) Instituting job rotation as a preventive measure, with the goal of alleviating physical fatigue and stress to a particular set of muscles and tendons. Job rotation should not be used in response to symptoms of cumulative trauma, as this can contribute to symptom development in all employees involved in the rotation schedule rather than preventing problems. Analysis of the jobs used in the rotation schedule should be conducted by trained ergonomic and health care personnel.

(f) Providing light or restricted duty assignments to allow injured muscle-tendon groups time to rest, assisting in the healing process. Light or restricted duty assignments should be provided when physical limitations (as identified by a health care provider) allow the worker to return to work performing less than their normal work requirements. Every effort must be made to provide light or restricted duty assignments.

(6) Personal protective equipment (PPE). PPE is not necessarily recommended for controlling exposure to ergonomic hazards, as little research has been conducted to support claims of their usefulness.

(a) Ergonomic appliances such as wrist rests, back belts, back braces, etc., are NOT considered to be PPE. Consultation with trained ergonomic personnel on the effectiveness of such devices should be made prior to purchase.

(b) Ergonomic hazards should be considered when selecting PPE. PPE should be provided in a variety of sizes, accommodate the physical requirements of workers and the job, and should not contribute to ergonomic hazards.

c. Health care management. Early recognition and medical management of ergonomic disorders are critical to reduce the impact of injury on both the employee and employer.

(1) Common symptoms of musculoskeletal ergonomic disorder can include, but are not limited to pain, tingling, numbness, stiffness, and weakness in the neck, shoulders, arms, hands, back, and legs. Other symptoms can include headaches, visual fatigue, and increased errors.

(2) Soldiers and employees with symptoms of ergonomic disorders should report to medical personnel for an evaluation. Active duty soldiers should report to their primary care provider. Civilians have the right to choose a civilian source of care. Civilians should report to the Occupational Health Nurse even if they are being treated by their own physician.

(3) Supervisors should ensure that symptomatic soldiers and employees report for a medical evaluation in a timely manner.

d. Training and education. The Garrison Safety Office in conjunction with MAHC and CPAC will conduct train-the-trainer ergonomic education for ADSOs and supervisors as needed. ADSOs will train supervisors, and supervisors will train employees.

(1) Training curriculum. Training will consist of but not be limited to the following:

(a) The potential risk of ergonomic disorders.

(b) The possible causes and symptoms.

(c) How to recognize and report symptoms.

(d) The means of prevention.

(e) The sources of treatment.

(2) Types of training:

(a) General. Employees who are potentially exposed to ergonomic hazards should receive formal instruction on hazards associated with their jobs and equipment. This training could be conducted at the initial orientation and annually thereafter.

(b) Specific training. New employees and reassigned workers should receive an initial orientation and hands-on training prior to being placed in a full production position. The initial orientation should include: a demonstration of the proper use, care, and operating procedures for all tools and equipment; use of safety equipment; and the use of safe and proper work procedures such as proper lifting techniques.

Chapter 9
Hazard Abatement Program

9-1. General

The CAC and Fort Leavenworth Hazard Abatement Program is established to prescribe policy, responsibilities, and procedures in the abatement of unsafe and unhealthy conditions. Commanders, directors, and supervisors shall ensure a safe and healthy environment is provided at all times in their areas of responsibility. An analysis of all hazards will be made to determine the degree of risk.

a. Each hazard will be assigned a risk assessment code in accordance with DA Pam 385-30, paragraph 3-6. Hazards will be eliminated starting with the worst case. Operating plans and budgets will include appropriate planning, programming, and resources to correct all identified hazards.

b. The following provides elapsed time in days to abate or mitigate RAC 1, 2, and 3 safety, health, and fire hazards to a lower risk level:

(1) RAC 1 safety and health hazards abated or mitigated within 10 days of hazard identification.

(2) RAC 2 safety and health hazards abated or mitigated within 30 days of hazard identification.

(3) RAC 3 safety and health hazards abated or mitigated within 90 days of hazard identification.

9-2. Responsibilities

a. *CAC Chief of Staff*. Ensure hazard abatement program is implemented throughout CAC and Fort Leavenworth.

b. *CAC and Garrison Safety Staff.*

(1) Assist commanders, directors, and supervisors in developing and implementing hazard abatement plans.

(2) Assign risk assessment codes to all identified hazards and safety related projects in accordance with DA Pam 385-30, paragraph 3-6.

(3) Review year-end priority list to ensure safety related projects are prioritized in accordance with risk assessment code.

(4) Command assigned safety and occupational health professionals will maintain a hazard tracking system for significant risk hazards that cannot be corrected in accordance with 9-1 paragraph b (1 thru 3) of this section.

c. Directorate of Public Works.

(1) Prioritize safety related projects based on risk assessment codes, starting with the worst case, as budget permits.

(2) Ensure an abatement plan is established for RAC 1 and RAC 2 hazards within thirty (30) days of identification that cannot be corrected immediately.

(3) Submit funding request for unfinanced safety related projects through appropriate channels to IMCOM.

d. Commanders and directors.

(1) Ensure activity hazard abatement plan is developed for hazards that cannot be eliminated within the elapsed time in days identified in 9-1 paragraph b (1 thru 3) of this section. Plan shall include description of hazards, date identified, estimated cost, expected correction date, status, and risk assessment code.

(2) Work with DPW or MICC-DOC-L in eliminating identified hazards as appropriate.

(3) Review plans periodically and update status of project.

e. Supervisors.

(1) Develop hazard abatement plan for hazards that cannot be eliminated within the elapsed time in days identified in 9-1 paragraph b (1 thru 3) of this section.

(2) Review plans periodically and update status of project.

Chapter 10
Indoor Air Quality

10-1. General

a. Purpose. The CAC and Fort Leavenworth Indoor Air Quality Program is established to prescribe policy, procedures, and responsibilities in preventing, controlling, and eliminating indoor air contaminants.

b. Sources. There are four major sources of indoor air contaminants. Processes that occur indoors, construction and finishing materials, occupants, and outdoor air. Copy machines may emit significant amounts of volatile organics. Certain types of treated paper used in printing and computer operations contain solvents that are readily volatilized. Formaldehyde from some construction materials, such as particle board and carpet, are frequent known indoor air contaminants. Other construction materials such as ceiling and floor tiles, wall coverings, adhesives, and furniture are sources of several dozen volatile organic compounds (i.e., toluene, alkali, etc.). Examples of air contaminants from occupants are tobacco smoke and carbon dioxide. Pollen, fungi, carbon monoxide, motor vehicle exhausts, boiler gases, exhausted air construction activity, and gasoline spills are examples of outdoor air contaminants that may enter the indoor environment through vents, openings on lower floors, garage doors from loading docks, building shafts, and stairwells.

c. Policy. Commanders, directors, and supervisors shall take appropriate action to minimize the risk of indoor air contaminants. Heating, refrigeration and air-conditioning (HVAC) systems shall be maintained and operated to assure that it operates up to original design specifications and continues to provide at least the minimum outside air ventilation rate based on actual occupancy required by building code, mechanical code, or ventilation code applicable at the time the facility was constructed, renovated, or remodeled, whichever is most recent.

10-2. Responsibilities

a. *Garrison Commander*. Ensure implementation of the CAC and Fort Leavenworth Indoor Air Quality Program.

b. *CAC and Garrison Safety Staff.*

(1) Assist in the evaluation of indoor air quality issues.

(2) Advise command on corrective actions in resolution of indoor air quality issues.

(3) Coordinate train-the-trainer indoor air quality seminars.

(4) Coordinate with Preventive Medicine for evaluation of indoor air quality issues.

c. Preventive Medicine – Industrial Hygiene.

(1) Assist in the evaluation and prioritization of indoor air quality issues.

(2) Verify the source (for example, moisture) and determine if there are feasible solutions to resolve indoor air quality concerns and prevent recurrence.

(3) Assist in conducting train the trainer indoor air quality seminars.

(4) Coordinate with DPW – Engineering Division, to conduct design reviews to evaluate existing ventilation systems and recommend improvements.

(5) Coordinate with DPW – Operations and Maintenance Division, or the building facility management office to correct building or ventilation deficiencies.

d. Directorate of Public Works.

(1) Assist directors, commanders, and supervisors in providing quality indoor air.

(2) Assist in the resolution of indoor air quality issues.

(3) Maintain HVAC systems to provide indoor air quality that meets the standards for each building and building use.

(4) Provide POC for problems regarding HVAC systems.

(5) Participate in air quality seminars as requested.

e. Commanders and directors.

(1) Promote indoor air quality in the workplace.

(2) Designate indoor air quality officer.

(3) Ensure HVAC building systems are adequate and in operable condition.

(4) Emphasize the importance of HVAC system operating during all work shifts except during repair and scheduled maintenance.

(5) Ensure areas of responsibility without adequate mechanical ventilation are maintained where windows, doors, vents, stacks, and other portals designed or used for natural ventilation are in operable condition.

(6) Ensure all indoor air quality complaints are reported to the CAC or Garrison Safety Office, as applicable, within twenty four (24) hours of complaint.

(7) Ensure all employees are trained on indoor air quality procedures.

(8) Ensure all plans for renovation, remodeling, and the purchase of new equipment is reported to the Garrison Safety Office for evaluation, as appropriate.

e. Supervisors.

(1) Ensure the HVAC systems are operating during all work shifts except during repairs and maintenance.

(2) Ensure areas of responsibility are free of indoor air contaminants that are at a level that exceeds the permissible exposure limits.

(3) Report all incidents when and where indoor air contaminants are suspected to the CAC or Garrison Safety Office, as appropriate.

(4) Refer employees who report illness(es) related to the work place environment to the Occupational Health Clinic, Munson Army Health Center, for evaluation and documentation in their medical records.

(5) Train employees on policy, procedures, and responsibilities for reporting indoor air quality issues.

10-3. Procedures

a. Each activity should develop an indoor air quality plan to minimize the risk of indoor air contaminants. This plan should include the following:

(1) Policy, procedures, and responsibilities for preventing indoor air contaminants.

(2) Procedures for reporting indoor air contaminants.

(3) Coordination procedures when planning building alterations (i.e., POCs for DPW, Safety, and Industrial Hygiene).

(4) Description of the facility building systems.

(5) As-built construction documents which locate major building system equipment and the areas that they serve.

(6) Information for the daily operation and management of the building systems.

(7) A general description of the building and its functions including, but not limited to, work activity, number of employees, hours of operations, weekend use, tenant requirements, and known air contaminants released in the space.

(8) Preventive maintenance and operating plan.

b. Building alterations. The following shall be integrated in plans for renovation, remodeling, rearrangement, or the purchase of building equipment:

(1) Safety review and evaluation by Garrison Safety Office in initial planning stage.

(2) Means to assure HVAC systems continue to function effectively during remodeling and renovation activities.

(3) Controls to prevent air contaminant entry into the HVAC air distribution system.

(4) Notification to employees with at least 24 hours in advance.

(5) Isolation or containment of work areas and appropriate negative pressure containments.

(6) Consideration for the efficiency of the existing building HVAC system can be maintained when alterations are completed.

(7) Measures to be implemented to improve building HVAC system if needed after alteration.

c. Ventilation. The most effective control for prevention of indoor air quality problems is assuring an adequate supply of fresh outdoor air through natural or mechanical ventilation. The following will improve ventilation efficiency:

(1) Ensure that outdoor air supply dampers and room air vents are open.

(2) Remove or modify partitions or obstructions which block fresh air flow.

(3) Rebalance the system to prevent inflow or outflow of contaminated air due to pressure differentials between rooms.

(4) Prevent poor distribution of make-up air by proper placement of air inlets and exhausts.

(5) Use room fans to improve mixing and dilution of pollutants which are below hazardous levels.

d. Preventive maintenance. Preventive maintenance for HVAC system components should include:

(1) Check damper positions and functioning belts, baffles, duct work, and system balance.

(2) Measure air flow and perform necessary adjustments if necessary to meet American Society for Heating, Refrigeration, and Air-Conditioning Engineers, 62-1989.

(3) Replace filters on air handling units at regular intervals.

(4) Clean air distribution ducts and dampers.

(5) Replace damaged insulation.

Contaminant	Health Effect	Source
Acetic Acid	Eye, respiratory and mucous membrane irritation	X-ray development equipment, silicone caulking compounds
Carbon Dioxide	Difficulty concentrating, drowsiness, increased respiration rate	Unvented gas and kerosene appliances, improperly vented devices, processes or operations which produce combustion products, human respiration
Formaldehyde	Hypersensitive or allergic reactions; skin rashes; eye, respiratory and mucous membrane irritation; odor annoyance	Off-gassing from urea formaldehyde foam insulation, plywood, particle board, and paneling; carpeting and fabric; glues and adhesives; and combustion products including tobacco smoke
Nitrogen oxides	Eye, respiratory and mucous membrane irritation	Combustion products from gas furnaces and appliances; tobacco smoke, welding, and gas and diesel engine exhausts
Ozone	Eye, respiratory tract mucous membrane irritation; aggravation of chronic respiratory diseases	Copy machines, electrostatic air cleaners, electrical arcing, smog
Radon	No acute health effects are known but chronic exposure may lead to increased risk of lung cancer from alpha radiation	Ground beneath buildings, building materials, and groundwater
Volatile Organic Compounds (VOCs)	Nausea; dizziness; eye, respiratory tract, and mucous membrane irritation; headache; fatigue	Paints, cleaning compounds, moth-balls, glues, photocopiers, "spirit" duplicators, signature machines, silicone caulking materials, insecticides, herbicides, combustion products, asphalt, gasoline vapors, tobacco, smoke, dried out floor drains, cosmetics and other personal products
Miscellaneous Inorganic Gases	Eye, respiratory tract, mucous membrane irritation; aggravation of chronic respiratory diseases	Microfilm equipment, window cleaners, acid drain cleaners, combustion products, tobacco smoke, blue-print equipment
Asbestos	Asbestos is normally not a source of acute health effects. However, during renovation or maintenance operations, asbestos may be dislodged and become airborne. Evaluation of employee exposure to asbestos will normally be covered under the OSHA Asbestos standard	Insulation and other building materials such as floor tiles, dry wall compounds, reinforced plaster
Man-Made Fibers	Irritation to the eyes, skin and lungs; dermatitis	Fibrous glass and mineral wool
Tobacco smoke	Tobacco smoke can irritate the respiratory system and in allergic or	Cigars, cigarettes, pipe tobacco

	asthmatic persons, often results in eye and nasal irritation, coughing, wheezing, sneezing, headache, and related sinus problems. People who wear contact lenses often complain of burning, itching, and tearing eyes when exposed to cigarette smoke	
Microorganisms and other biological contaminants (Microbials)	Allergic reactions such as hypersensitivity diseases (hypersensitivity pneumonitis, humidifier fever, allergic rhinitis, etc.) and infections such as legionellosis are seen. Symptoms include chills, fever, muscle ache, chest tightness, headache, cough, sore throat, diarrhea, and nausea	Air handling system condensate, cooling towers, water damaged materials, high humidity indoor areas, damp organic material and porous wet surfaces, humidifiers, hot water systems, outdoor excavations, plants, animal excreta, animals and insects, food and food products

Figure 10-1. Acute health effects of major indoor air contaminants

Chapter 11
Recreational and Seasonal Safety

11-1. General
Sports and recreational activities continue to be a major cause of accidental injury. Therefore, RM will be used when planning recreational and seasonal activities. This chapter establishes policy, procedures and guidelines to heighten awareness when planning on-duty and off-duty recreational activities for Soldiers, Army civilians and their families.

11-2. Safety promotion

a. CAC Safety Office will develop promotional messages to increase awareness of the specific hazards associated with the change of seasons and celebration of holidays.

b. Supervisors will conduct safety briefings prior to all holidays and long weekends to emphasize risk management and hazard reduction.

11-3. Headphones
Using headphones or earphones while walking, jogging, skating and bicycling or when operating a motorized vehicle on installation roads and streets is prohibited.

11-4. Installation recreational areas
Standard operating procedures (SOP) will be developed and enforced to ensure public and military customer safety at all recreational facilities and areas (such as, camping; hunting; multi-recreational sports facilities; automotive shops; arts and craft centers etc). The SOP will include all pertinent information (rules, training, emergency information) required to maintain a safe and healthful environment.

11-5. Public activities on the installation
Risk management will be used to identify all hazards and risks associated with setting up the event, operation of the event, and clean up following the event. Activities will submit a written risk assessment to the Garrison Safety Office for review for all supported activities.

Chapter 12
Range Safety

12-1. General
This chapter establishes policies and responsibilities to prevent accidents on Kinder Range.

12-2. Responsibilities

a. Garrison Commander.

(1) Enforce overall range safety per DA PAM 385-63, Chapter 1.

(2) Withdraw user privileges from any organization or person that willfully disobeys prescribed rules and regulations.

b. CAC and Garrison Safety Staff.

(1) Monitor the effectiveness of enforcement of the installation range safety program.

(2) Inspect for safety deficiencies quarterly.

(3) Review annual range safety waiver.

c. Directorate of Plans, Training, Mobilization, and Security (DPTMS).

(1) Appoint range management personnel.

(2) Develop range safety plan for range operations within constraints of approved range safety waiver.

(3) Monitor units on the range and enforce safety requirements.

d. Range Management Authority (Army)/Range Control Officer.

(1) Obtain an annual range safety waiver from the installation commander or the senior mission commander, per DA PAM 385-63, paragraph 1-5. Provide a copy of the signed range safety waiver to the CAC or Garrison Safety Office, as applicable.

(2) Develop a standard Program of Instruction (POI) for the certification of using unit Officer in Charge (OIC) and Range Safety Officer (RSO).

(3) Maintain and police ranges, maneuver areas, and training facilities.

(4) Notify installation personnel and the public of firing and exercises involving possible hazards to the public.

(5) Coordinate and schedule all firing.

(6) Ensure safety related equipment is used.

(7) Survey and post range boundaries and off-limit areas to prevent trespass and entry by unauthorized personnel into surface danger zones and impact areas.

(8) Post range guards, barriers, limit of fire markers, signals, and warning signs.

(9) Establish and maintain detailed records that:

(a) Describe the range area, including detailed permanent charts and overlays.

(b) Provide information on the types of amounts of ammunition fired into the range areas.

(10) Perform other duties and activities related to the safe operation of ranges.

(11) Assist police and other civic organizations in the development of bilateral agreements for the use of range areas.

(12) Forward safety violations and accident reports to the Garrison Safety Office. Maintain one copy of each as permanent records.

(13) Provide oversight for training activities and ammunition availability to ensure “just in time” ammunition deliveries.

(14) Provide oversight for ammunition forecasts and ammunition draws.

e. Unit commanders.

(1) Designate an OIC in the grade of Sergeant First Class or above.

(2) Schedule use of range with range control.

(3) Ensure a risk assessment is conducted for range operations and is included in range request packet.

f. Officer in Charge (OIC).

(1) Read and comply with DA PAM 385-63, Chapter 1.

(2) Attend range safety certification conducted by range control officer.

(3) Designate a Range Safety Officer (RSO) in the rank of Staff Sergeant or above.

(4) Immediately record and forward safety violations to the range control.

(5) Forward accident reports to the Garrison Safety Office and range control.

(6) Ensure a risk assessment is conducted, signed by the approving authority and submitted to the range control prior to range use.

(7) Ensure that a combat lifesaver/medic is assigned, present and knows evacuation procedures.

g. Range Safety Officer (RSO).

(1) Read and comply with DA PAM 385-63, Chapter 1.

(2) Attend range safety certification seminar conducted by range control officer.

(3) Integrate the risk management process during planning, preparation and execution phases of range operations. Ensure risk assessment is onsite and readily accessible.

(4) Ensure all Soldiers receive a safety briefing prior to firing.

(5) Ensure personal protective clothing and equipment are available and used.

(6) Ensure safety measures are followed.

h. Privately Owned Weapon (POW) firers.

(1) Attend the annual range safety briefing provided by range control.

(2) Comply with range safety briefing instructions and range safety plans.

12-3. Special emphasis

a. The Garrison Commander will authorize unit night firing on a case-by-case basis. Units must submit a training plan and risk assessment to the Garrison Commander for approval no later than three (3) weeks prior to the execution of training. Individuals are not authorized to conduct night fire on ranges.

b. Automatic fire, burst fire, quick-fire and combat course firing are prohibited.

c. The POW firing lane may be used by certified military and Department of the Army civilians on an individual basis during hours of daylight and when the range is not occupied by military units for training.

d. Quick-fire and combat course firing techniques are prohibited (i.e., turn and shoot, quick draw and fire). Only the slower, point-aim, and shoot (intentional fire) technique is authorized.

e. All firing will be in accordance with range safety plan.

f. POV parking is authorized in designated areas only. Parking in areas which prohibit access for emergency vehicle traffic is unauthorized at all times.

12-4. Recreational ranges

Will comply with standards identified in AR 385-63, DA PAM 385-63, local range SOP and this regulation to the degree necessary to mitigate risk, range usage or resolve safety issues for recreational ranges located on government property.

Chapter 13
Bloodborne Pathogens

13-1. General

The CAC and Fort Leavenworth Bloodborne Pathogen Exposure Control Program (BBPECP) will reduce occupational exposure to Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV), and other Bloodborne Pathogens (BBP) that employees may encounter in their workplace and in accordance with Title 29 Code of Federal Regulations Part 1910, section 1030 (29 CFR 1910.1030), Bloodborne Pathogens. This chapter applies to personnel who have a reasonable potential of exposure to blood or body fluids in the regular performance of their normal duties. BBPs are microorganisms in human blood that can cause disease in humans. Exposure to blood or certain other body fluids infected with a BBP can result in transmission of the infection to another person (considering the lethal effects of some BBPs, it is necessary that every possible measure is taken to prevent exposure). At this time, the greatest bloodborne risk to health care and emergency service personnel is posed by the HBV. Fortunately, the risk of infection can be greatly reduced through the use of appropriate workplace practices and the administration of the Hepatitis B vaccine.

13-2. Procedures

a. All shops identified as having a reasonable potential of exposure to blood or body fluids must develop an Exposure Control Plan (ECP). The ECP must:

(1) Identify the tasks and procedures as well as the job classifications where occupational exposure to blood occurs without regard to personal protective clothing or equipment.

(2) Outline the mechanisms for implementing this regulation and specify procedure for evaluating circumstances surrounding exposure incidents.

(3) Be accessible to employees. Employers must review and update the plan annually and more often if necessary to accommodate workplace changes.

(4) Provide guidance and requirements for engineering and workplace controls. In accordance with Title 29 Code of Federal Regulations Part 1910, section 1030, paragraph 1030(d)(2) (29 CFR 1910.1030(d)(2)).

(5) Army personnel covered under this regulation, Appendix K, will be required to take immunization. Individuals who object for religious reasons may submit a request for exception through their chain of command.

b. Information and training.

(1) All identified employees must be trained upon initial assignment and annually thereafter. The training program shall contain the following elements:

(a) The training must include making accessible a copy of the regulatory text of the standard, 29 CFR 1910.1030.

(b) A general explanation of the spread, symptoms and modes of transmission of bloodborne diseases.

(c) An explanation of the activity ECP and how to access the plan.

(d) Discussion of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood or other infectious materials.

(e) An explanation of engineering controls, work practices, and personal protective clothing and equipment.

(f) Information on the hepatitis B vaccine, method of administration, and benefits of the vaccine.

(g) Information on the appropriate actions to take in response to emergencies involving blood or other infectious material. To include the method of reporting the incident and the medical follow-up that will be made available.

(h) An explanation of the signs and labels and in accordance with 29 CFR 1910.1030 (g)(1).

(i) There must be opportunity for questions and answers, and the trainer must be knowledgeable in the subject matter.

c. Methods of compliance.

(1) Mandates universal precautions and emphasizes engineering workplace practice controls.

(2) "In general, the use of universal precautions means that all blood, body fluids, or other materials contaminated (or reasonable anticipated to be contaminated) with blood or other potentially infectious materials are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens." The terms "engineering controls" and "workplace practices" refer to implementing procedures which will minimize the risk of exposure such as splashing or needle sticks. For example, this includes the use of gloves, gowns, face masks, protective eyewear, puncture-resistant sharps containers, and the bagging of contaminated materials. This also includes the provisions of adequate hand-washing facilities and the cleaning and repair of reusable equipment.

(3) Employees who are allergic to the gloves normally provided shall have access to hypoallergenic gloves, glove liners, powderless gloves or similar alternatives.

d. Housekeeping.

(1) All equipment and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials.

(2) Contaminated surfaces shall be decontaminated with an appropriate disinfectant immediately or as soon as feasible when surfaces are contaminated or after any spill of blood or other potentially infectious materials.

(3) All bins, pails, cans and similar receptacles which have become contaminated with blood or other potentially infectious materials shall be cleaned and decontaminated immediately or as soon as feasible upon visible contamination.

(4) Broken glassware which may be contaminated shall not be picked up directly with the hands. It shall be cleaned up by using mechanical means such as a brush and dust pan, tongs or forceps.

(5) Protective coverings such as, plastic wrap, aluminum foil or imperviously-backed absorbent paper used to cover equipment or environmental surfaces, shall be removed and replaced as soon as feasible when they become overtly contaminated or at the end of the work shift.

e. Labeling. Biohazard warning labels will be affixed to containers of regulated waste and refrigerators, freezers, and other containers which are used to store or transport blood or other potentially infectious materials. Red bags or containers may be

used instead of labeling. Also, labeling is not required if a facility uses universal precautions in the handling of all specimens or for containers of blood which have been tested and found to be free of HIV or HBV and released for clinical use. Labeling of containers in facilities using universal precautions shall comply with 29 CFR 1910.1030 (d)(2)(xiii)(A).

f. Hepatitis B vaccination.

(1) Employees, including trainees, volunteers, and other temporary staff, with duties involving direct patient contact, who were hired or began activity on or after 1 January 1997 will be covered on a mandatory basis. (Covered means they must complete a series of three immunizations against hepatitis B, or show evidence of prior completion of the three immunizations unless they meet any of the three exemption requirements). This condition of employment must be made clear in job announcements, job descriptions, and contracts.

(2) The vaccination series and any booster recommended by medical authorities will be provided at no cost to the employee.

(3) Employees must sign a declination form if they choose not to have blood tested (see Appendix I).

g. Post-Exposure Evaluation and follow-up.

(1) All employees who experience an exposure incident will be provided with medical evaluation and treatment as indicated by the situation.

(2) Follow-up will include a confidential medical evaluation documenting the circumstances of exposure, identifying and testing the source individual if feasible, testing the exposed employee's blood if they consent, post-exposure prophylaxis, counseling, and evaluation of reported illnesses.

(3) Health care professionals will be provided specific information to facilitate their evaluation of the exposure incident and their determination of indicated treatment. All diagnoses must remain confidential.

h. Recordkeeping.

(1) Medical records for each employee with an occupational exposure will be kept for the duration of employment plus 30 years.

(2) The record is to remain confidential and include the following information: name, social security number, Hepatitis B vaccination status (including dates), results of any examinations, medical testing and follow-up procedures, a copy of the health care professional's written opinion, and a copy of information provided to the health care professional.

(1) Training records are maintained for three years and include the following information: dates, contents of the training program or a summary, trainer's name and qualifications, and names and job titles of all persons attending the sessions.

(2) Medical records must be made available to the subject employee, Occupational Safety and Health (OSHA), or anyone with the written consent of the employee.

13-3. Responsibilities

The installation medical authority, Commander, Munson Army Health Center (MAHC), has the overall responsibility for management of the Bloodborne Pathogens Program (BBPP) and will ensure that medical elements and activities fulfill their respective roles as follows:

a. Chief of Pharmacy will provide the vaccines and or medications necessary for compliance with the BBPP.

b. Infection Control Nurse/Officer will upon request, support the Preventive Medicine and Occupational Health Services in providing education regarding BBPPs.

c. Education Division will, upon request, support the Preventive Medicine and Occupational Health Services in providing education regarding BBPPS. Maintain training records of individuals.

d. Patient administration division will maintain the medical records for active duty employees regarding pre-exposure and/or post-exposure evaluation and treatment regarding BBP.

e. Occupational Health Nurse (OHN).

(1) Perform evaluations of blood and body fluid exposures as indicated in the evaluation packet provided by the Infection Control Department.

(2) Provide direct oversight and support to local offices in the implementation of the BBPP.

(3) Assist the local Exposure Control Officer (ECO) in the development of a local ECP which specifically addresses the circumstances unique to that particular office.

(4) Support the local ECO in the implementation of the local ECP.

(5) Provide the local ECO with the framework of an ECP which can be completed with the specific information unique to the local office.

(6) Assist the local ECO in determining which job classifications and tasks are at risk of exposure to BBPs and which employees should be included in the BBPP.

(7) Assist the local ECO in determining which materials pose BBP hazards and the appropriate use of hazard labels and or specialized containers for transport or disposal.

(8) Assist the local ECO in determining what engineering controls and workplace practices are appropriate to eliminate or minimize employee exposure.

(9) Support the local ECO in providing education and training regarding BBPs.

(10) Perform the pre-exposure evaluation of employees and determine if they are eligible to receive the Hepatitis B vaccine.

(11) Coordinate the administration of Hepatitis B vaccinations and any other medications necessary to comply with the OSHA standard for BBPs.

(12) Perform the post-exposure evaluation, treatment, and follow-up as required by the OSHA standard for BBP.

(13) Maintain the medical records for civilian employees regarding pre-exposure and or post-exposure evaluation and treatment for BBPs.

(14) Coordinate with the Garrison Safety staff (primary) or the CAC Safety Manager (alternate) during inspections by OSHA or other responsible regulatory agencies.

(15) Provide guidance in the appropriate revising and updating of the installation BBPP.

(16) Know the current medical requirements regarding BBP.

(17) Determine and identify worksites at risk of exposure during regular Occupational Health worksite evaluations.

f. Commanders and supervisors.

(1) Assure compliance with the Installation BBPECP.

(2) Assure that personnel assigned to their section comply with the requirements of the BBPP and the local BBP.

(3) Assure that engineering controls and workplace practice controls are implemented and adhered to in order to minimize or eliminate exposure to BBP.

(4) Ensure personnel enrolled in BBPECP will attend birth month scheduled training.

(5) Appoint a local ECO to accomplish assigned ECO duties and responsibilities. Individuals will be appointed in writing.

(6) Ensure the appointed ECO receives training and develops skills necessary to ensure competence.

g. Local Exposure Control Officer.

(1) Become familiar with the requirements of the BBPP and the requirements of Title 29 of the Code of Federal Regulations regarding BBP (29 CFR 1910.1030).

(2) In coordination with OHN develop a local ECP.

(3) In coordination with OHN determine which materials pose a BBP hazard.

(4) Purchase the appropriate hazards labels and specialized containers and assure the proper use of hazard labels and/or specialized containers for the transport or disposal of hazardous materials.

(5) In coordination with OHN provide education and training regarding BBP to employees in the local section.

(6) Refer employees at risk of exposure to BBP to the Occupational Health Clinic for pre-exposure medical screening and Hepatitis B vaccination.

(7) In the event of a possible exposure to a BBP, refer the employee and, if available, the source of the blood or body fluid to the Munson Army Health Center (MAHC) – Occupational Health Clinic, for post-exposure evaluation and treatment.

(8) Assist MAHC, OHN in the evaluation of exposures to BBP.

h. CAC and Garrison Safety Offices.

(1) Ensure overall compliance with the installation BBPP, as applicable.

(2) Provide guidance in the appropriate revision and updating of the installation BBPP.

(3) Maintain OSHA standards and guidelines which pertain to BBP.

(4) Determine and identify worksites at risk of exposure to BBP during Standard Army Safety and Occupational Health inspections.

(5) Act as facility liaison during inspections by OSHA or other appropriate regulatory agencies.

i. Staff Judge Advocate will provide legal guidance and assistance as required.

j. Directorate of Human Resources, Adjutant General, will provide assistance in all military occupational specialties in which those job classifications have occupational exposure.

Chapter 14
Confined Space Program

14-1. General

In order to prevent injury and possible death, CAC and Fort Leavenworth personnel will not enter a permit-required confined space without an approved permit, personal protective clothing, monitoring equipment, or use of isolation/lockout/tagout procedures.

a. A confined space is a space that is large enough and configured for an individual to enter and perform work, has limited or restricted means to enter and perform work, has limited or restricted means for entry or exit, and is not designed for continuous employee occupancy.

b. A permit-required confined space is a confined space that has any one of the following characteristics:

(1) Contains or has the potential to contain, a hazardous atmosphere.

(2) Contains a material which has a potential for engulfing an entrant.

(3) Is internally configured such that an entrant could be trapped or asphyxiated.

(4) Contains any other recognized serious safety or health hazard.

c. Examples of confined spaces. Confined spaces include, but are not limited to, boilers, cupola, degreasers, furnaces, pipelines, pits, pumping stations, septic tanks, sewage digesters, sewers, manholes, silos, storage tanks, vaults, vats, tunnels, cells, ducts, or similar type enclosures.

14-2. Responsibilities

a. Garrison Safety Office.

(1) Inventory all confined space possibilities in conjunction with Preventive Medicine to identify all permit-required confined spaces.

(2) Manage the CAC and Fort Leavenworth Confined Space Program.

(3) Develop a confined space training program.

(4) Coordinate with Industrial hygiene in evaluating confined space work sites to ensure proper protective equipment is used where mechanical ventilation insufficient to maintain nonhazardous atmosphere is provided.

b. Industrial Hygiene.

(1) Assist the Garrison Safety Office with the evaluation and identification of each confined space. A copy of this evaluation will be forwarded through the director to the supervisor of personnel entering the confined space. This evaluation will include:

(a) Respiratory equipment.

(b) Protective clothing.

(c) Safety line.

(d) Body harness.

(e) Communication equipment.

(f) Air monitoring equipment.

(g) Air testing equipment.

(2) Assist the Garrison Safety Office with technical expertise for the confined space training program.

c. Directorate of Emergency Services.

(1) Appoint a confined space firefighter rescue team.

(2) Ensure personnel assigned to the confined space rescue team are provided with and trained to properly use the personal protective equipment, including respirators and rescue equipment necessary for making rescues from the installation's permit spaces.

(3) Ensure the rescue team is trained to perform the assigned rescue functions and has received the training required for authorized entrants.

(4) Ensure rescue teams practice making permit space rescues at least once every 12 months, by means of simulated rescue operations in which they remove dummies, mannequins, or personnel through representative openings and portals

whose size, configuration and accessibility closely approximate those of the permit spaces from which rescues may be required.

d. Commanders and directors of people working in confined spaces.

(1) Ensure employees do not enter a confined space without proper protective equipment.

(2) Establish confined space entry procedures.

(3) Develop and post warning signs for confined space areas needing a permit.

(4) Provide emergency procedures training for personnel assigned to a confined space entry job.

(5) Conduct atmospheric testing prior to entering a confined space to verify acceptable entry conditions and to evaluate the hazards of the space.

(6) Post CAC and Fort Leavenworth Form 2016, CAC and Fort Leavenworth Confined Space entry permit, (available through the Garrison Safety Office) or an equivalent form that meets 29 CFR 1910.146 requirements, by each confined space that poses a hazardous condition so that all personnel can read it.

e. Supervisors of employees performing confined space operations shall:

(1) Ensure confined space is identified by the Garrison Safety Office and Industrial Hygienist. Initiate and post confined space entry permit at each confined space that poses a hazardous condition where all personnel can read it.

(2) Know the hazards that may exist during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

(3) Verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.

(4) Terminate the entry and cancel the permit upon completion of job.

(5) Verify that rescue services are available and that the means for summoning them are operable.

(6) Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations.

(7) Determine, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space and that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

(8) Ensure safety precautions (proper respiratory equipment, protective equipment, safety line, safety harness) are taken in accordance with Industrial Hygiene and Garrison Safety Office evaluation.

(9) Establish confined space entry procedures and train employees on procedures.

(10) Provide emergency procedures and training for personnel assigned to a confined space entry job.

(11) Ensure confined space is monitored continuously in areas where authorized entrants are working to determine if acceptable entry conditions are being maintained during the course of the entry operations.

f. Authorized entrants shall:

(1) Know the hazards which may be faced during entry, recognize the signs and symptoms of exposure to the hazards, and understand the consequences of exposure to a hazard.

(2) Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space as required by paragraph 14-2g (6) of this section.

(3) Properly use the following equipment:

(a) Testing and monitoring equipment.

(b) Ventilating equipment needed to obtain acceptable entry conditions.

(c) Communications equipment.

(d) Personal protective equipment insofar as feasible engineering and work practice controls do not adequately protect employees.

(e) Lighting equipment needed to enable employees to see well enough to work safely and to exit the space quickly in an emergency.

(f) Barriers and shields as required.

(g) Equipment, such as ladders, needed for safe ingress and egress by authorized entrants.

(4) Exit the permit space, unless it is physically impossible to do so, when either the attendant orders evacuation, the automatic alarm is activated, or the entrants perceive that they are in danger.

g. Attendants shall:

(1) Continuously maintain an accurate count of all persons in the confined space.

(2) Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

(3) Be aware of possible behavioral effects of hazard exposure in authorized entrants.

(4) Remain outside the permit space during entry operations until relieved by another attendant.

(5) Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.

(6) Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space, and order the authorized entrants to evacuate the permit space immediately under any of the following conditions:

(a) The attendant detects a prohibited condition.

(b) The attendant detects the behavioral effects of hazard exposure in an authorized entrant.

(c) The attendant detects a situation outside the space that could endanger the authorized entrants.

(d) The attendant cannot effectively and safely perform all the duties.

(7) Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.

(8) Take the following actions when an unauthorized person approaches or enters a permit space while entry is underway:

(a) Warn the unauthorized person(s) that they must stay away from the permit space.

(b) Advise the unauthorized person(s) that they must exit immediately if they have entered the permit space.

(c) Inform the authorized entrant(s) and the entry supervisor if the unauthorized persons have entered the permit space.

(9) Perform non-entry rescues as specified by the activity's rescue procedure.

(10) Perform no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrant(s).

h. All individuals working with confined spaces will:

(1) Use protective equipment, respirators, safety line, and safety harness as required.

(2) Read posted confined space permits before entry into confined space.

(3) Not enter any permit-required confined space that does not have a confined space permit posted.

14-3. Requirements

a. Permit for confined space entry operation: CAC and Fort Leavenworth Form 2016. Supervisor will verify that appropriate entries have been made on the form before entry into a permit-required confined space. Permits will be completed and posted at entry of confined space.

b. Training.

(1) Personnel who are required to work in a permit-required confined space or in support of those working in a permit required confined space shall have additional training in the following areas:

(a) Emergency entry and exit procedures.

(b) Use of respirators, as required.

(c) Current certification in basic first aid and cardiopulmonary resuscitation (CPR) skills for personnel performing rescue service.

(d) Lockout procedures, specific to the confined space in which they operate (see Chapter 15).

(e) Safety equipment, as required.

(f) Rescue and training drills designed to maintain proficiency shall be given initially to new employees, and thereafter, at least annually, or at lesser intervals as determined necessary by the supervisor.

(g) Permit system, what the permit says and what it means.

(h) Recommended work practices.

(2) Training shall be provided to each affected employee:

(a) Before the employee is first assigned duties under this regulation.

(b) Before there is a change in assigned duties.

(c) Whenever there is a change in permit space operations that present a hazard for which an employee has not previously been trained.

(d) Whenever the employer has reason to believe that there are either deviations from the permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

c. Testing and monitoring.

(1) The tests performed shall be conducted in the following order; oxygen content, flammability, and toxic materials. These tests will include upper explosive limit (UEL) and lower explosion limit (LEL) readings.

(2) Entry into a confined space for any type of hot work shall be prohibited when tests indicate the concentration of flammable gases in the atmosphere is greater than 10% of the lower flammability limit (LFL).

(3) Equipment for continuous monitoring of gases and vapors shall be explosion proof and equipped with an audible alarm or danger signaling device that will alert employees when a hazardous condition develops.

(4) The percentage of oxygen for entry into a confined space shall be no less than 19.5%, nor greater than 23.5% at 760mm HG.

d. Labeling and posting.

(1) All warning signs shall be printed in both English and in the predominant language of the non-English reading workers.

(2) All entrances to any confined space shall be posted (see Figure 14-1).

(3) When a specific work practice is performed or specific safety equipment is necessary, an applicable statement shall be added (see Figure 14-1).

(4) Emergency procedures, including phone numbers of fire department and emergency medical services, shall be posted conspicuously within the immediate area of the confined space, or by telephone from which help would be summoned.

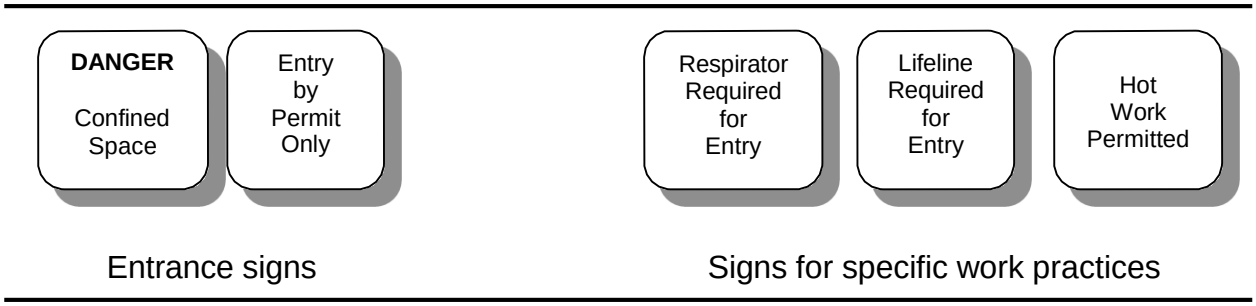

Figure 14-1. Signs for confined spaces

e. Safety equipment and clothing.

(1) Eye and face protection.

(2) Head protection.

(3) Foot protection.

(4) Body protection, aprons, and over suits.

(5) Hearing protection.

(6) Respiratory protection, the use of respiratory protection will be determined by the Industrial Hygienist.

(7) Hand protection.

(8) A safety belt with "D" rings for attaching a life line shall be worn at all times.

(9) The combination of a body harness and/or safety belt with life line shall be used when:

(a) An employee is required to enter to complete the gas analysis.

(b) An employee is working in an area where entry for the purpose of rescue would be contradicted.

(c) Any failure to ventilation would allow the build-up of toxic or explosive gases within the time necessary to evacuate the area.

(d) The atmosphere is immediately dangerous to life and health.

(10) If the exit opening is less than 18 inches (45 centimeters) in diameter, a wrist type harness shall be used.

f. Work practices.

(1) Purging and ventilating.

(a) Blower controls shall be a safe distance from confined area. An audible alarm shall be installed in all equipment to signal when there is a ventilation failure.

(b) Air flow measurements shall be made before each work shift to ensure adequate ventilation is being maintained. If the job will run continuously over several consecutive shifts, tests must be conducted at the start of each shift. If the job must be left until the next day, retesting of the atmosphere is required. The trained equipment operator must complete and sign the entry permit.

(c) Where continuous ventilation is not part of the operating procedure, the atmosphere shall be tested until continuous acceptable levels of oxygen and contaminants are maintained for three tests at five minute intervals.

(d) Local exhaust will be provided when general ventilation is inadequate due to the restrictions in the confined space or when high concentrations of contaminants occur in the breathing zone of the worker.

(2) Isolation/Lockout/Tagging.

(a) The isolation procedures shall be specific for each type of confined space.

(b) Confined spaces shall be completely isolated from all other systems by physical disconnection, double block and/or blanking off all lines.

(c) Where complete isolation is not possible (sewers and utility tunnels), specific written safety procedures approved and enforced by the supervisor shall be used.

(d) Shut off valves serving the confined space shall be locked in the closed position and tagged for identification.

(e) Electrical isolation of the confined space shall be accomplished by locking circuit breakers and or disconnects in the open (off) position with a key-type padlock.

(f) Mechanical isolation can be achieved by disconnecting linkages or removing drive belts or chains.

g. Entry and rescue.

(1) Entry procedures.

(a) The internal atmosphere shall be tested prior to an employee entering the space.

(b) Testing shall be conducted with a calibrated direct-reading instrument.

(c) Complete confined space entry permit.

(d) Implement adequate ventilation or protective equipment to ensure atmosphere is free of hazard to entrants.

(2) Rescue procedures shall be specifically designed for each entry.

(a) A trained person with a fully charged, positive pressure self-contained breathing apparatus (SCBA) shall be on standby during confined space entry.

(b) Standby person will maintain unprotected life lines and communications to all workers in confined space.

(c) Under no circumstances will the standby person enter the confined space until person is relieved and is assured that adequate assistance is present.

(d) Prior to entry of confined spaces, the installation fire department will be notified.

(3) First aid provisions.

(a) There must be someone readily available in the area of the confined space who is currently trained in CPR and basic first aid procedures.

(b) Prior to entry of confined spaces, the installation fire department must be notified.

Chapter 15
Lockout/Tagout Program

15-1. General
The purpose of this program is to establish minimum requirements for the lockout or tagout of energy isolating devices. It shall be used to ensure that the machine or equipment is isolated from all potentially hazardous energy, and locked or tagged out before employees perform any servicing or maintenance activities where the unexpected energization, start-up, or release of stored energy could cause injury. This

program establishes minimum performance requirements for the control of such hazardous energy. Appropriate lockout or tagout devices will be affixed to energy isolating devices, and to otherwise disable machines energization, start-up, or release of stored energy in order to prevent injury to employees.

15-2. Responsibilities

a. Garrison Safety Office.

(1) Serve as principal staff adviser and technical consultant.

(2) Conduct periodic inspections to ensure each activity is in compliance with this regulation and other Army and Federal policies governing lockout/tagout of machines or equipment.

b. Commanders and directors.

(1) Ensure lockout/tagout safety plans are developed, established, and implemented in each workplace as required, ensuring that consultation and bargaining obligations with the local union are met prior to implementation.

(2) Ensure authorized personnel responsible for performing lockout/tagout procedures are identified in activity safety plans (supervisors, line supervisors, operators, maintenance personnel).

(3) Ensure all machinery and equipment is listed in each section lockout/tagout safety plan.

c. Supervisors.

(1) Establish lockout/tagout safety plan isolating equipment and machinery at the energy source.

(2) Train affected employees in the purpose and use of the lockout/tagout procedures.

(3) Train authorized employees in performing lockout/tagout procedures.

(4) Ensure authorized employees perform lockout/tagout procedures as required.

(5) List all machinery and equipment in the lockout/tagout safety plan.

(6) Obtain required lockout/tagout devices needed to isolate equipment and machinery in the workplace.

(7) Assign required lockout/tagout devices to authorized personnel.

15-3. Requirements

a. Directors, commanders, and supervisors responsible for machinery and equipment will establish a lockout/tagout safety plan. See Appendix C for a sample Lockout/Tagout safety plan. Procedures will be developed for each type of equipment.

b. Appropriated employees shall be instructed in the safety significance of the lockout/tagout procedure. Each new or transferred affected employee and other employees whose work operations are, or maybe, in the area shall be instructed in the purpose and use of the lockout or tagout procedure of affected employees (operators of equipment).

c. Authorized (line supervisors, maintenance personnel) personnel shall be trained on the lockout/tagout procedures to isolate energy from the machinery and equipment.

d. Equipment and machinery will be locked/tagged out while in unoperational condition.

e. Inventory of equipment that requires lockout/tagout procedures shall be included in lockout/tagout safety plan.

15-4. Procedures

a. Make a survey to locate and identify all isolating devices to be certain which switches, valves, or other energy isolating devices apply to the equipment to be locked or tagged out. More than one energy source (electrical, mechanical, or others) may be involved.

b. Sequence of lockout or tagout system.

(1) Notify all affected employees that a lockout or tagout system is going to be utilized and the reason thereof. The authorized employee shall know the type and magnitude of energy that the machine or equipment utilizes and shall understand the hazards thereof.

(2) If the machine or equipment is operating, shut it down by normal stopping procedures (depress stop button, open toggle switch, etc.).

(3) Operate the switch, valve, or other energy isolating devices so that the equipment is isolated from its energy source. Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam or water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.

(4) Lockout and or tagout the energy isolating devices with assigned individual locks or tags.

(5) After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate. CAUTION: Return operating controls to "neutral" or "off" after the test.

(6) The equipment is now locked or tagged out.

c. Restoring machines or equipment to normal production operations.

(1) After the servicing and/or maintenance is complete, and equipment is ready for normal production operations, check the area around the machines or equipment to ensure that no one is exposed.

(2) After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove all lockout or tagout devices. Operate the energy isolating devices to restore energy to the machine or equipment.

d. Procedures involving more than one person. In the preceding steps, if more than one individual is required to lockout or tagout equipment, each shall place their own personal lockout device or tagout device on the energy isolating device. When an energy isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used. If lockout is used, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet which allows the use of multiple locks to secure it. Each employee will then use their own lock to secure the box or cabinet which allows the use of multiple locks to secure it. As each person no longer needs to maintain their lockout protection, that person will remove their lock from the box or cabinet.

e. Basic rules for using lockout or tagout system procedure. All equipment shall be locked out or tagged out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy isolating device where it is locked or tagged out.

Chapter 16
Hazardous Communication

16-1. General
The CAC and Fort Leavenworth Hazardous Communication (HAZCOM) Program is established to ensure that hazardous information on all hazardous chemicals in the Fort Leavenworth workplace is transmitted to affected employers and exposed employees. Policies and procedures of this program are established in accordance with 29 CFR, section 1910.1200 (Occupational Safety and Health Hazard Communication), and AR 700-141.

16-2. Responsibilities
Commanders and directors, safety, environmental, health, logistics, training, operations, personnel offices and supervisory personnel at all levels share responsibility for implementation of the CAC and Fort Leavenworth HAZCOM Program.

a. CAC and Garrison Safety Offices.

(1) Manage CAC & FT LVN HAZCOM Program, as applicable.

(2) Ensure inventories of hazardous chemicals used in each activity are readily accessible.

(3) Ensure that each activity appoints a HAZCOM trainer, as applicable.

(4) Provide generic hazard communication training to activity trainers, as requested.

(5) Provide instructions and training materials to trainers in each activity on the use, handling, and storage of hazardous materials, as requested.

(6) Determine employees to be trained through field surveys.

(7) Process employee complaints.

b. Industrial Hygiene.

(1) Assist in developing and providing HAZCOM training.

(2) Ensure chemical inventories comply with HAZCOM requirements.

(3) Review and interpret safety data sheets (SDSs).

(4) Identify training requirements by reviewing workplace evaluations.

c. Civilian Personnel Advisory Center.

(1) Identify hazardous materials handling in position description, as applicable.

(2) Provide system for new employee training.

d. Directorate of Public Works.

(1) Review service, construction, and maintenance contracts to ensure a list of all chemicals to be used and their storage location are available upon request by the Garrison Safety Office.

(2) Comply with AR 700-141.

(3) Ensure SDS is attached to hazardous waste materials manifest.

e. Commanders and directors.

(1) Appoint activity HAZCOM trainers, as applicable.

(2) Ensure a written comprehensive hazard communication program is developed, implemented, and maintained at each level of activity.

(3) Ensure all employees who use or are exposed to chemical hazards receive HAZCOM training.

(4) Ensure all employees who use or are exposed to chemical hazards are trained on specific hazards of each chemical.

(5) Ensure supervisors maintain SDSs for each hazardous chemical that is used or stored.

(6) Ensure SDSs are obtained from vendor for directly purchased items.

(7) Ensure hazardous material inventory is maintained and updated monthly in each work section.

(8) Ensure an updated hazardous material inventory is readily accessible upon request to Garrison Safety Office, Industrial Hygiene, or Fire and Emergency Services.

(9) Ensure hazardous material containers are labeled in compliance with 29 CFR 1910.1200 (f).

(10) Ensure employees have access to SDSs.

f. Supervisors.

(1) Develop, implement, and maintain a written comprehensive hazardous communication program.

(2) Ensure all employees who use and are exposed to chemical hazards receive HAZCOM training at initial assignment, when a new chemical hazard is introduced into the workplace and when a potential exposure exists due to another employer in a nearby work area.

(3) Ensure all employees who use and are exposed to chemical hazards are trained on specific hazards of each chemical upon initial assignment and as needed thereafter. Employee training will include, at the least, the following four elements:

(a) Methods and observations used to detect the presence or release of a hazardous chemical in the work area such as monitoring, visual appearance or odor when a chemical is being released;

(b) Physical, health, simple asphyxiation, combustible dust and pyrophoric gas hazards, as well as hazards not otherwise classified, of chemicals in the work area;

(c) Actions employees can take to protect themselves from exposure such as appropriate work practices, emergency procedures and personal protective equipment/clothing and;

(d) Workplace labeling system, safety data sheets, to include the order of information and how employees can obtain and use appropriate hazard information.

(4) Maintain records of all personnel trained in the use, handling, and storage of hazardous materials.

(5) Maintain SDS for each hazardous chemical.

(6) Obtain SDS from vendor for directly purchased hazardous chemicals.

(7) Maintain and update hazardous material inventory.

(8) Ensure updated copies of hazardous material inventory are readily accessible to Garrison Safety Office, Preventive Medicine and Fire and Emergency Services.

(9) Label, tag, and mark hazardous material containers in compliance with 29 CFR, 1910.1200 (f). Labels will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

(10) Ensure employees have access to SDSs, and are familiar with product identifier and words, pictures, symbols or combination thereof, in their work area throughout each work shift.

Chapter 17
Respiratory Protection Program

17-1. General
This chapter prescribes the procedures for using, controlling, and maintaining personal protective respiratory equipment in order to guarantee the provision of adequate equipment of known reliability on a constant and continuous basis and to comply with

29 CFR 1910.134 (Respirator Protection) and AR 11-34, The Army Respiratory Protection Program.

a. Proper respirator equipment designed to protect personnel from airborne environment hazards will be available in a clean and dependable condition at all times.

b. Consideration shall be given to methods for eliminating or reducing the cause of respiratory hazard, such as substituting less toxic substances, installation of local exhaust, natural or mechanical general ventilation, and segregation or isolation of the causative process. When these approaches have been exhausted only then should respirators be utilized.

c. Required respirators shall not be worn when conditions prevent a good facial seal. Such conditions may be a growth of a beard, mustache, sideburns, skullcap, other facial features or temple pieces on glasses that project under the face piece of the respirator. To eliminate this condition, the employee may be required to shave facial hair , remove the skullcap, or be provided with modified safety glasses. If possible, disposable type respirators should be used.

d. Military protective masks are designed for protection against nuclear, biological, and chemical (NBC) warfare and training agents only. They are not designed for protection against other chemical agents. National Institute for Occupational Safety and Health (NIOSH) approved respiratory protection equipment will be used for protection in industrial and shop type operations.

e. All respirator users will be trained and have prior medical approval before the device is issued.

f. A respiratory protection plan will be developed in each and every workplace requiring respiratory protection. Plans will be workplace specific.

17-2. Responsibilities

a. Garrison Safety Office.

(1) Function as the Installation Respiratory Program Director (IRPD).

(2) Notify Industrial Hygiene Officer of suspected noncompliance of the Respiratory Protection Program.

(3) Notify Industrial Hygiene Office of suspected atmospheric contaminants that may require respirator usage.

(4) Review and approve respiratory protection program safety plans for operations that require respiratory protection.

(5) Provide support to managers responsible for enforcing the Respiratory Protection Program requirements.

b. The Industrial Hygiene Office.

(1) Assist with implementing the Respiratory Protection Program.

(2) Evaluate concentration of air contaminants at the worksite and recommend control measures.

(3) Ensure that all available methods have been used to reduce the concentration of air contaminants.

(4) Review and approve safety plans for operations that require respiratory protection.

(5) Establish respirator requirements and selection with affected organizations.

(6) Conduct routine industrial hygiene surveys for air contaminants in areas requiring respiratory protection.

(7) Provide guidance for the type of respiratory devices and replacement parts purchased.

(8) Provide, as requested, respirator fit testing and training to assure respirator provides user with the required protection. Maintain associated documentation as required by 29 CFR 1910.134.

(9) Prescribe and disseminate instructions as to type of respiratory equipment to be used.

(10) As requested, provide training information for respirator custodians in uses and maintenance procedures. Keep the respirator custodians apprised of current changes applicable to respiratory equipment and users.

(11) Review requests for new and additional respiratory equipment for adequate protection.

(12) Provide technical assistance, when requested by organizations, for selecting the proper equipment to be used or determine whether it is necessary.

(13) As requested, train and instruct respirator users in proper use, care, fitting, and limitations of respirators.

(14) As requested, provide fit-testing for negative pressure respirators and maintain a record of respirator users.

c. The Occupational Health Clinic.

(1) Perform medical evaluations of workers to determine if workers assigned to tasks requiring the use of respirators are physically, psychologically, and physiologically able to perform work while wearing prescribed respiratory protection.

(2) Advise supervisors as to whether each employee is able to wear respiratory protection and perform work while wearing prescribed respiratory protection.

(3) Review workers' medical status annually.

d. The Radiation Protection Officer will evaluate the respirator use procedures to determine if the requirements of 10 CFR 20 and the applicable Nuclear Regulatory Commission (NRC) license are followed if respirator use is based on exposure to radioactive materials.

e. The Directorate of Public Works is responsible for the installation of air compressor systems. Compressed air for human consumption that is provided from these sources must meet Grade D standard as specified by American National Standards Institute (ANSI) Compressed Gas Association (CGA) G-7.1 per 29 CFR 1910.134.

f. Commanders and directors.

(1) Ensure that all available methods have been used to reduce the concentration of air contaminants in the work environment.

(2) Provide required respiratory protective equipment to personnel.

(3) Ensure that employees entering an environment with air contaminants in excess of allowable limits are protected with the appropriate respiratory equipment.

(4) Ensure that safety plans are developed for each operation that requires respiratory protection. These safety plans should be approved by the Garrison Safety Office.

(5) Appoint a respirator custodian and provide facilities and resources to control and maintain all respiratory protective equipment used or available for use in the organization.

(6) Ensure that respirator custodians receive the appropriate training.

(7) Ensure that respirator storage area for respirator devices are maintained in a clean and sanitary condition.

(8) Ensure proper maintenance of all respiratory protective equipment according to procedures prescribed by 29 CFR 1910.134.

(9) Ensure that emergency egress devices are inspected and serviced routinely (monthly) and maintain an up-to-date-record.

(10) Ensure that potential respirator users receive the appropriate training and required medical approval and fit-testing for the device used.

(11) Ensure that breathing air system is Grade D breathing air as defined in ANSI/CGA specification G-7.1 per 29 CFR 1910.134.

(12) When it is suspected that respiratory protective equipment may be necessary, contact the local command safety office and request an evaluation of the operation.

(13) Ensure the prospective user participates in the appropriate training and fit-testing prior to using the device.

g. Supervisors.

(1) Include respirator use in activity SOPs for a particular work area, as needed, with guidance from the designated IRPD and ensure areas are properly posted.

(2) Familiarize employees with SOP for operations that require respirator use.

(3) Coordinate with the Occupational Health Clinic and Industrial Hygiene for medical evaluation, respirator training, and fit-testing, as required.

(4) Ensure affected employees receive respiratory training prior to requiring the employee to use a respirator in the workplace and annually, thereafter.

(5) Provide a safe, clean, and sanitary area for storage of the respirator equipment. Individual respirators should be stored in sealed plastic bags.

(6) Ensure employees perform proper respirator maintenance and care.

(7) Prohibit employees to perform tasks requiring respiratory protection when a respirator is not being worn or an effective fit cannot be obtained.

(8) Implement a schedule of routine maintenance for servicing and inspecting airline purification panels and changing filters and cartridges as necessary.

(9) Appoint an activity respirator custodian.

h. Respirator custodian will:

(1) Be familiar with AR 11-34, 29 CFR 1910.134, and local requirements for respirator use. A copy of these regulations should be on file.

(2) Issue respirator to approved personnel and maintain an up-to-date record. A copy of this record will be readily accessible to the IRPD upon request.

(3) Coordinate with the Industrial Hygiene Office about the approved respirator use and users in the organization.

(4) Maintain necessary inventory levels of respirators, accessories, and replacement parts.

(5) Maintain accurate record for all respirator devices serviced. A copy of the record will be readily accessible to the IRPD upon request.

(6) Receive adequate training in respirator inspection, maintenance, sanitization, and repair.

(7) Inspect all respirators routinely.

(8) Perform necessary maintenance and repairs of respirator equipment as prescribed by 29 CFR 1910.134.

(9) Perform necessary cleaning and sanitizing of equipment and accessories and place in prescribed bags for redistribution.

(10) Maintain respirator storage area clean and sanitary.

(11) Inspect, clean, and maintain self-contained respiratory units after use; giving special attention to checking connectors, valves, facepiece, head straps, cartridges, canisters/filers and all rubber parts and hoses for defects. All regulators and warning devices shall function properly and all air and oxygen cylinders shall be fully charged according to manufacturers' instructions. Defective components shall be replaced immediately.

(12) Maintain an up-to-date record of respirator issued, inventory of equipment, and schedule for service. A record will be kept of inspection dates and findings of respirators maintained for emergency use. Copies of these records will be readily accessible to the IRPD upon request.

(13) Receive and process requests for temporary loan of respiratory equipment from user organization and determine type of respiratory equipment needed.

(14) Initiate and process procurement requests for all respiratory protective equipment and supplies. Ensure that only approved designated parts are ordered.

(15) Maintain current safety plans detailing maintenance and control procedures for all respiratory protective equipment and supplies.

i. Respirator users will:

(1) Be familiar with regulations and procedures for respirator use.

(2) Coordinate with Occupational Health Clinic and Industrial Hygiene for medical evaluation, respirator training, and fit-testing, as required.

(3) Use respirators according to instructions and training.

(4) Perform positive and negative pressure tests to ensure satisfactory fitting and valve function each time respirators are used.

(5) Store respirator equipment in a clean, safe, and sanitary location. Storage of respirators in a sealed plastic bag is the preferred method.

(6) Notify supervisor at once when it is suspected that respiratory protective equipment is necessary to safely perform a required task.

(7) Receive and adhere to instructions governing the proper techniques of using the respiratory protective equipment and also to the control and maintenance procedures, which apply, to the user. This applies to all respirator protective equipment whether issued on a temporary loan basis or whether on a permanent placement basis in a permanent location.

(8) Notify supervisor of any use of an emergency respirator or when equipment does not appear to work or is in disrepair.

(9) Use respirator device in all instances when it is required, and use only the equipment that has been approved for a particular operation.

(10) Inspect respirators before and after each use. Conduct the required positive and negative pressure test whenever a filtration type respirator is used.

(11) Report all medical conditions or changes in health status that may impact on the safe wear of respiratory protective equipment to the installation occupational health clinic.

(12) Undergo prescribed medical surveillance as scheduled.

j. Directorate of Emergency Services will:

(1) Ensure all Self-Contained Breathing Apparatus (SCBA) are properly maintained with the exception of egress capsules placed at designated locations. All

SCBA shall be inspected monthly. Air and oxygen cylinders shall be fully charged to manufacturer's instruction and all regulators and warning devices shall function properly.

(2) Conduct quarterly evaluation of quality of air used in SCBA.

(3) Respond to any situation where a SCBA would be required to enter a contaminated atmosphere.

17-3. Training

a. Training of activity respirator custodians and supervisors for permanent, intermittent, or IDLH use of respiratory protective equipment will be conducted annually and will include:

(1) The principles of respiratory protection.

(2) The requirements of AR 11-34, paragraph 3-5.

(3) The functioning of the CAC and Fort Leavenworth Respiratory Protection Program.

(4) Selection, fitting, care, and use of respiratory protection.

(5) Inspection of respiratory protective equipment.

(6) Recordkeeping necessary for an effective Respiratory Protection Program.

b. Training of users of respirators will provide individuals with an opportunity to handle the respirator, have it fitted properly, test its facepiece-to-face seal, wear it in normal air for a familiarization period, and wear it in a test atmosphere during fit-test. The training will be conducted to ensure it is understood by affected personnel and will include the following:

(1) An explanation of the respiratory hazards and health problems associated with the improper fit, use or maintenance.

(2) A discussion of capabilities and limitations of the selected respirator, service life, change out schedules and any compressed air sources.

(3) How to inspect, put on, check the seals for leaks, and remove.

(4) How to use the respirator in emergency situations including respirator malfunction.

(5) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.

(6) Detailed instructions on maintenance, shelf life and storage.

c. The training will be conducted prior to the respirator being used in the workplace and annually, thereafter.

17-4. Respiratory plan

a. Respiratory protection plan should contain all information needed to maintain an effective respirator program to meet the user's individual requirements. It should be useful to those directly involved in the respirator program, those fitting the respirators and training the workers, respirator maintenance worker, and the supervisor responsible for overseeing respirator use on the job. It is not necessary that operating procedures be written for the wearer, although in a very small program it may be desirable to direct the wearer to the contents of the respiratory protection plan. An analysis of the individual program will show to what extent information for the wearer should be included.

b. Content of the respiratory protection plan. Procedures should contain all information needed to ensure proper respiratory protection of a specific group of workers against particular hazards. The hazards must be assessed thoroughly, otherwise, written procedures will have only limited validity. Generally, procedures should contain the following:

(1) Guidance for selection of the approved respirators for protection against particular hazards.

(2) Detailed maintenance procedures for:

(a) Cleaning and disinfecting.

(b) Drying.

(c) Inspecting.

(d) Repairing or replacing worn or defective components.

(e) Storing.

(3) Administrative procedures for:

(a) Purchase of approved respirators.

(b) Control of inventory of spare parts and new respirators.

(c) Issuance of respirators to ensure use of the proper one for a given hazard. A plan must be developed for every workplace requiring respiratory protection. Because each workplace differs substantially, each plan must be tailored to the specific conditions of that particular workplace.

(d) Guidance of supervisory personnel in continued surveillance of respirator use and determination of workers' exposure to respiratory hazards.

(4) Instructions for respirator use during emergencies, including fire, which can create an atmosphere of IDLH.

(5) Guidelines for medical surveillance of workers, including pre-employment physical examinations to eliminate those physically or psychologically unfit to wear respirators, and annual physical examinations to review the overall effectiveness of the respirator program on the basis of physiological factors.

(6) Procedures for evaluating the respirator program's effectiveness.

(7) Fit testing.

c. *Format.* The exact format of written respiratory protection plans may vary widely. The activity supervisor who has many workers wearing respirators and perhaps several respiratory hazards to be considered, may formulate separate procedures for selection and use of respirators for each hazard. For the supervisor who has only a few workers to protect from very few hazards, a much more simplified document may suffice, but it must cover the same subjects. In general, the complexity of procedures increases as the toxicity of the respiratory hazards increase, demanding better and more reliable protection. It is better to be overly thorough in developing a written respiratory protection plan than not detailed enough.

d. Emergency procedures. Particularly important are procedures for respirator use during emergencies such as fire, large spillage of toxic material, accidental release of a potentially lethal substance, or failure of a ventilation system. All possible emergencies must be considered in advance and prepared in written procedures because memories may be faulty in the stress of an emergency. Furthermore, these emergency procedures should be used in training emergency response teams.

17-5. Procedures

a. Qualitative fit testing procedures.

(1) Irritant smoke (Stannic Chloride) test. The irritant smoke test can be used for both air-purifying respirators and atmosphere supplying respirators. When an air-purifying respirator is tested, it should be equipped with a high-efficiency or P100 series filter. The irritant smoke is produced by air flowing through a commercially available

smoke tube normally used to check the performance of ventilation systems. Adequate ventilation will be provided when carrying out a test to prevent contamination of the room where the test is carried out with smoke. The respirator user should keep their eyes closed during the test, even when the respirator has eye protection. If the respirator user detects the presence of the smoke into the respirator during the test at any time, the test has failed. The test operator operates the smoke tube to direct smoke over the respirator, keeping the smoke tube about 12 inches from the respirator, and watches the reactions of the respirator user. If the respirator user does not detect the presence of smoke into the respirator, the test operator moves the smoke tube closer to the respirator and observes the reactions of the respirator user. When the smoke tube has been moved to within six inches of the respirator and the respirator user still has not detected the presence of smoke into the respirator, the smoke may be directed at potential points of leakage in the seal of the respirator to the user. If the respirator user still does not detect penetration of the smoke into the respirator, the user should carry out a series of exercises such as deep breathing, turning head from side to side, nodding head up and down, and talking while smoke is directed at the respirator. If the respirator user is unable to detect the presence of smoke into the respirator, the user has achieved a satisfactory fit with the respirator. At which point the respirator user shall undergo a second sensitivity check if there has been no response, once the respirator has been removed, to determine a reaction to the irritant smoke. If at this time there is no response the fit test is void.

(2) Odorous vapor test. The odorous vapor test can be used for both air-purifying respirators and atmosphere-supplying respirators. When an air-purifying respirator is tested, it should be equipped with a cartridge or canister, which removes the test vapor from the air. An odorous material commonly used in the test is isoamyl acetate. If isoamyl acetate is employed as the test agent, an air-purifying respirator should be equipped with an organic vapor cartridge or canister. The simplest means of carrying out the test is to saturate a piece of fabric or sponge with liquid isoamyl acetate or to fill a stencil brush with liquid isoamyl acetate and then move the fabric, sponge, or stencil brush around the respirator worn by a person. The fabric, sponge, stencil brush should be passed close to the potential points of leakage in the seal of the respirator while the user carries out exercises such as normal breathing, deep breathing, turning head from side to side, nodding head up and down, and talking. If the respirator user detects the odor of isoamyl acetate vapor at any time during the test, the test is failed. If the respirator user is unable to detect the odor of isoamyl acetate vapor, the user has achieved a satisfactory fit with the respirator. An improved qualitative respirator-fitting test using isoamyl acetate vapor as the test agent may be carried out using a hood, chamber, or room containing a known concentration of isoamyl acetate in the air. The concentration of isoamyl acetate vapor in air commonly used is 100 parts per million by volume. The respirator user enters the enclosure containing the test atmosphere and carries out a series of exercises such as normal breathing, deep breathing, turning head from side to side, nodding head up and down, talking, grimacing, bending over and normal breathing. If the respirator user detects the odor of isoamyl acetate vapor during the test, the user should be permitted to readjust the seal of the respirator. If the respirator user is unable to detect the odor of isoamyl acetate vapor, the user has

achieved a satisfactory fit with the respirator. The use of isoamyl acetate vapor as a test agent has the following two major drawbacks; the odor threshold varies widely among persons, although most persons can detect by odor a concentration of isoamyl acetate vapor in air as low as 0.1 parts per million by volume; and olfactory fatigue may cause a person to fail to detect the odor of a low concentration of isoamyl acetate vapor in the air. Before performing this test, all persons should be tested to determine their ability to sense the odor of isoamyl acetate vapor in the air. Since the odorous vapor test is subjective, the validity of the test result depends on honest indication by the respirator user as to whether or not an odor was detected during the test.

b. Procedures for carrying out quantitative respirator-fitting tests. Quantitative fit testing shall be administered by persons capable of calibrating equipment, performing tests properly, the ability to recognize invalid tests, ability to calculate fit factors properly and ensure test equipment is in proper working condition. All quantitative respirator-fitting tests involve exposing the respirator user to a test atmosphere containing as easily detectable, relatively nontoxic aerosol, vapor, or gas as the test agent and then measuring the penetration of the test agent into the respirator. While wearing the respirator in the test atmosphere, the respirator user carries out a series of exercises simulating work movements. The respirator is equipped with a sampling probe which is connected by means of flexible tubing to an instrument which measures the penetration of the test agent into the respirator. Quantitative respirator-fit tests can be used for both air-purifying respirators and atmosphere-supplying respirators. When carrying out a quantitative respirator-fit test which uses an aerosol as the test agent, it is an acceptable procedure to equip an air-purifying respirator with a high-efficiency filter. When carrying out a quantitative respirator-fit test which uses a vapor or gas as the text agent, it is an acceptable procedure to equip an air-purifying respirator with an appropriate cartridge or canister which removes the vapor or gas from the air.

(1) Exercises carried out by respirator users. A respirator user should carry out a series of exercises which stimulate work movements. The kinds of exercises carried out should depend on the type of respirators. Each exercise should be carried out for at least one minute with the exception of the grimace exercise which will last 15 seconds. The series of exercises for testing a respirator equipped with a facepiece should include, but not be limited to, the following: normal breathing, deep breathing, turning head from side to side, nodding head up and down, talking, grimacing, bending over and normal breathing.

(2) Test atmospheres containing the test agents specified in America National Standard Institute 788-2-1980 are suitable for carrying out quantitative respirator-fitting tests.

(3) It is recommended that test chambers used to carry out quantitative respirator-fitting tests have the following characteristics:

(a) The design of the chamber and equipment used to generate the test atmosphere should ensure that the concentration of the test agent in the test atmosphere inside the chamber does not vary more than ± 10% during a test.

(b) The design of the chamber and equipment used to disperse the test atmosphere in the chamber should ensure that the test agent is uniformly distributed in the test atmosphere throughout the chamber.

(c) The size of the chamber must permit a respirator user to carry out all the designated exercises.

(d) The chamber should contain provisions to permit the test operator to visually observe the respirator user inside the chamber.

(4) Protection factor determination. The instrument which measures the penetration of the test agent into the respirator worn by a person in the test atmosphere should be connected to a fast-response recorder which records the penetration values. The average of the peaks of the penetration of the test agent into the respirator for each type of exercise carried out by the respirator user should be determined. The test instrument will automatically calculate the overall fit factor for the entire set of exercises. The Pass or Fail message will indicate the success of the test. The fit test is complete if the test was a Pass. Recommended procedures for field testing the seal of the respirator to the user can be conducted in accordance with procedures recommended by respirators manufacturers or by any of the following tests:

(a) TEST One: Irritant or odorous test agent. The person wearing a respirator is exposed to an irritant smoke, odorous isoamyl acetate vapor, or other suitable test agent easily detectable by irritation, odor, or taste (an air-purifying respirator must be equipped with the appropriate air-purifying element). If the respirator user is unable to detect the presence of the test agent inside the respirator, it can be reasonably assured that the seal of the respirator to the user is satisfactory.

(b) TEST Two: Negative-pressure sealing test. A negative-pressure sealing test can be used on air-purifying respirators equipped with tight-fitting respiratory-inlet coverings and on atmosphere-supplying respirators equipped with the tight-fitting respiratory-inlet coverings and breathing tubes which can be squeezed or blocked at the inlet to prevent the passage of air. The test may be difficult or impossible to carry out on valveless respirators. Close off the inlet opening of the respirator's canister, cartridge, or filter by covering with the palm of the hand or by replacing the inlet seal on a canister. Inhale gently so that the facepiece collapses slightly, and hold breath for 10 seconds. If the facepiece collapses slightly and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

(c) TEST Three: Positive-pressure sealing test. A positive-pressure sealing test can be used on respirators equipped with tight-fitting respiratory-inlet coverings which contain both inhalation and exhalation valves. This test may be difficult or impossible to

carry out on valveless respirators. The exhalation valve or breathing tube, or both, is closed off and then the wearer exhales gently into the facepiece. The face fit is considered to be satisfactory if a slight positive pressure can be built up inside the facepiece without the detection of any outward leakage of air between the sealing surface of the facepiece and the respirator wearer's face. For some respirators, this test method requires that the respirator wearer first remove an exhalation cover from the respirator and then replace it after completion of the test. These tasks often are difficult to carry out without disturbing the fit of the respirator to the user.

(5) The following are warnings concerning negative-pressure and positive-pressure sealing tests. Care must be taken in carrying out a negative-pressure or positive-pressure sealing test; otherwise, the results of the sealing test may be unreliable. Thorough training in carrying out these tests should be given to respirator users.

(a) A person who has hair (stubble, mustache, sideburns, beard, low hairline or bangs) which passes between the face and the ceiling surface of the facepiece of the respirator shall not be permitted to wear such a respirator.

(b) A person who has hair (mustache or beard) which interferes with the function of a respirator valve shall not be permitted to wear the respirator.

(c) A spectacle which has temple bars or straps which pass between the sealing surface of a respirator full facepiece and the wearer's face shall not be used.

(d) A head covering which passes between the sealing surface of a respirator facepiece and the user's face shall not be used.

(e) The wearing of a spectacle, a goggle, a face shield, a welding helmet, or other eye and face protective device which interferes with the seal of a respirator to the user shall not be allowed.

(f) If scars, hollow temples, excessively protruding cheekbones, deep creases in facial skin, the absence of teeth or dentures, or unusual facial configurations prevent a seal of a respirator facepiece to a user's face, the person shall not be permitted to wear the respirator.

(g) If missing teeth or dentures prevent a seal of a respirator mouthpiece in a person's mouth, the person shall not be allowed to wear a respirator equipped with a mouthpiece.

17-6. Maintenance

a. General. A program for the maintenance of respirators shall include the following: cleaning and sanitizing, inspection for defects, repair, and storage. Each respirator shall be properly maintained to retain its original shape and effectiveness.

b. Each respirator shall be cleaned and sanitized to ensure that the respirator user is provided with a clean and sanitized respirator at all times.

(1) Recommend procedures for cleaning and sanitizing respirators are as follows:

(a) Remove, when necessary, the following components of respiratory-inlet covering assemblies before cleaning and sanitizing: filters, cartridges and canisters, speaking diaphragms, demand and pressure-demand valve assemblies, and any components recommended by the respirator manufacturer.

(b) Wash respiratory-inlet covering assemblies in warm (43 degrees Celsius or 110 degrees Fahrenheit maximum temperature) cleaner-sanitizer solution. A stiff bristle (not wire) brush may be used to facilitate removal of dirt or other foreign material.

(c) Rinse respiratory-inlet covering assemblies in clean, warm (43 degrees Celsius or 110 degree Fahrenheit maximum temperature) water.

(d) Drain all water and air-dry the respiratory-inlet covering assemblies.

(e) Clean and sanitize all parts removed from respiratory-inlet covering as recommended by the manufacturer.

(f) Hand wipe respiratory-inlet covering assemblies, all parts, and all gasket and valve sealing surfaces with damp, lint-free cloth as needed to remove water residues and all foreign materials.

(g) Inspect parts and replace any which are defective.

(h) Reassemble parts on respiratory-inlet covering assemblies.

(i) Attach new filters, cartridges, and canisters to respiratory-inlet coverings.

(j) Visually inspect and, where possible, test parts and respirator assemblies for proper function.

(k) Place assembled respirators in appropriate containers for storage.

(2) Machines may be used to expedite the cleaning, sanitizing, rinsing, and drying of large numbers of respirators. Extreme care must be taken to ensure against tumbling, agitation, or exposure to temperatures above those recommended by the manufacturer (normally 43 degrees Celsius or 110 degrees Fahrenheit maximum), as these conditions are likely to result in damage to the respirators. Ultrasonic cleaners, clothes-washing machines, dishwashers, and clothes dryers have been specially adapted and successfully used for cleaning and drying respirators. Cleaners and or

sanitizers that effectively clean the respirator and contain a bactericidal agent are commercially available. The bactericidal agent frequently used is a quaternary ammonium compound. Strong cleaning and sanitizing agents and many solvents can damage rubber or elastomeric respirator parts. These materials must be used with caution.

(3) Alternatively, respirators may be washed in a detergent solution and then sanitized by immersion in a sanitizing solution. Some sanitizing solutions which have proven effective are: a hypochlorite solution (50 parts per million of chlorine); two minute immersion or an aqueous iodine solution (50 parts per million of iodine), two minute immersion. Other commercially available sanitizers of equal disinfectant quality may be used as directed, if recommended or approved by the respirator manufacturer.

(4) The hypochlorite and iodine solutions are unstable and break down as time progresses; they may cause deterioration of rubber or other elastomeric parts and may be corrosive to metallic parts. Immersion times should not be extended beyond the mentioned time periods, and the sanitizer must be thoroughly rinsed from the respirator parts. Rinse thoroughly in clean, warm water. Drain. Thorough rinsing is critical. Detergents or disinfectants that dry on face pieces may result in dermatitis.

(5) Respirators may become contaminated with toxic materials. If the contamination is light, normal cleaning procedures should provide satisfactory decontamination; otherwise separate decontamination steps may be required before cleaning.

Chapter 18
Radiation Program

18-1. General

The CAC and Fort Leavenworth Radiation Program is established to prescribe policies and responsibilities for the management of radioactive material and radiation producing devices and their related hazards. All CAC and Fort Leavenworth personnel are afforded protection from radiation hazards. Radiation safety responsibility is given ample priority. This command is committed to maintaining occupational radiation exposures as low as reasonably achievable (ALARA).

18-2. Responsibilities

a. Garrison Commander.

(1) Provide adequate resources to support the CAC and Fort Leavenworth Radiation Safety Program.

(2) Establish measures to control safety and health hazards from radiation sources and radioactive material.

(3) Maintain occupational exposures within regulatory limits as well as ALARA.

(4) Designate a Radiation Safety Committee, as applicable.

(5) Designate Radiation Safety Officer (RSO) and alternate.

(6) Review and sign each application for a license and Department of Army (DA) authorization or permit for both military and nonmilitary agencies to include civilian contractors.

(7) Enforce provisions of this regulation.

(8) Provide a fire-resistant building or a fire-resistant enclosure for storage of radioactive materials for shipping and receiving purposes.

b. *CAC Safety Staff.* Assist the Garrison RSO in the administration of the CAC and Fort Leavenworth Radiation Protection Program.

c. Garrison RSO.

(1) Administer the CAC and Fort Leavenworth Radiation Safety Program.

(2) Provide guidance on creating working conditions and operating procedures that comply with applicable regulations and directives.

(3) Assist Local Radiation Safety Officer (LRSO) instruct personnel in safe working practices, emergency procedures, harmful effects of radiation overexposure, and other topics required by 29 CFR 1910.1096, as needed.

(4) Evaluate and document hazards related to specific operations involving production, storage, use, transportation, disposal, or loss of control of radioactive material to ensure adequate control and safeguards are used. This evaluation includes physical measurements or calculations of radiation levels present, a prediction of potential hazards resulting from changes in materials, or operations and proposed corrective actions semiannually.

(5) Review equipment, materials, facilities, operations, and procedures involving radioactivity.

(6) Advise, in writing, the Garrison Commander, CAC Safety Office, the licensee, and other responsible officers of any unsafe practices, defects, or noncompliance under 10 CFR 21.

(7) Provide technical and administrative review for NRC license, DA authorization or permit, and every plan to use radioactive material and ionizing radiation sources on the installation.

(8) Assist commanders, directors, and supervisors in developing activity radiation protection standard operating procedures.

(9) Train and advise activity RSOs in accordance with (IAW) Federal, State, Army, and this regulation.

(10) Maintain and update inventory of all radioactive material and ionizing radiation producing devices annually.

(11) Survey incoming and outgoing shipments of radioactive materials.

(12) Evaluate existing use of radioactive materials.

(13) Perform annual checks to assure all radiation detection equipment has been properly calibrated.

(14) Check the use and storage of radiation sources quarterly.

(15) Provide assistance in completing the application for permits or licenses to use, store, handle, or transfer radioactive material or radiation-producing devices.

(16) Prepare and maintain historical records of location of use or storage of radioactive material on the installation.

(17) Coordinate with activity RSOs, medical officials and emergency response personnel to establish plans and procedures for responding to radiation emergencies on the installation.

d. Mission and Installation Contracting Command, Directorate of Contracting – Fort Leavenworth (MICC-DOC-L). Ensure provisions of this regulation are implemented in contracting clause.

e. Directorate of Public Works.

(1) Ensure proper shipping documents are completed with each shipment and all handling, storage, and disposal procedures are adhered to.

(2) Assist in proper procedures in disposal of radioactive waste.

(3) Ensure provisions of this regulation are implemented in design specifications.

f. Commanders and directors of organizations which use or possess ionizing or nonionizing radioactive materials.

(1) License radioactive items as required by Federal, State, Army, and this regulation.

(2) Maintain records for each individual radioactive item.

(3) Ensure supervisors maintaining radioactive items advise Garrison RSO of any proposed changes of the following:

(a) Accountability of an item.

(b) Relocation of an individually controlled item.

(4) Maintain and update inventory annually and forward a copy to Garrison RSO.

(5) Ensure radiation protection plan is established and located in areas where radioactive products are maintained.

(6) Ensure personnel who use, store, or transfer radioactive materials are trained on activity plan.

(7) Post radiation warning signs, markings, and safety switches IAW DA Pam 385-24, 10 CFR 21, TB Med 523, and this regulation.

(8) Store radiation products in fire resistant building.

(9) Ensure licensed or authorized radioactive materials are not transferred to unauthorized persons or organizations.

(10) Appoint activity RSO.

(11) Ensure shipper provides the Transportation and Maintenance Division with the amount and type of radioactive material contained in the shipment.

(12) Ensure all alleged overexposure or accidents involving radiation are reported under the accident reporting requirements of this regulation.

g. Activity supervisors responsible for use, storage, and transportation of ionized radioactive products.

(1) Develop radiation protection plan.

(2) Train personnel on radiation protection plan prior to contact with radiation material.

(3) Ensure personnel inform and coordinate with the RSO on matters involving radiation, prior to use.

(4) Maintain radiation exposure received by individuals under their supervision as low as reasonably achievable.

(5) Notify the activity RSO whenever radioactive material is received or when analytical devices containing radioactive material are relocated, transferred, shipped, or disposed from area of responsibility.

(6) Notify activity RSO whenever there are alleged items of noncompliance or safety hazards.

(7) Ensure use of radioactive material or equipment is reviewed by activity RSO.

(8) Ensure all procurement for radioactive material or equipment is reviewed by activity RSO.

h. Activity RSO.

(1) Serve as point of contact for coordination of ionized radiation issues in the activity.

(2) Is familiar with CAC and Fort Leavenworth Radiation Safety Program.

(3) Assist supervisors in development of radiation protection plan and obtaining licenses, authorizations, and permits as required.

(4) Notify Garrison RSO prior to radioactive material or equipment being received, relocated, transferred, shipped, or disposed.

18-3. Ionizing radiation

a. Licensing, DA authorization, and permits.

(1) NRC licensing. All products received, transferred, used, possessed, owned and disposed of which contain radiation, require licenses IAW NRC licenses.

(a) All applications for NRC licenses, renewals, amendments, and related correspondence are submitted through activity RSO to Garrison RSO.

(b) The Garrison RSO reviews and forwards to the Garrison Commander for approval and signature.

(c) Request for license is forwarded on memorandum 120 days prior to need of approval with seven signed copies of NRC Form 313 (Application for By-Product Material) and enclosures.

(2) DA radiation authorizations (DARA's) are required IAW AR 385-10, paragraph 7-6. Request procedures are as follows:

(a) Submitted on memorandum with attached DA Form 3337 (Application for DA Radioactive Material Authorization of Permit) 90 days before required approval or expiration date.

(b) Request is submitted through activity RSO and activity commander or director to Garrison RSO for review and approval by the Garrison Commander.

(3) DA radiation permits. Non-Army agencies, to include other military Services, vendors and civilian contractors, require an Army radiation permit to use, store, or possess ionizing radiation sources on an Army installation. Non-Army applicants will apply by letter with supporting documentation to the Garrison Commander at least 30 days before the requested start date of the permit. Disposal of radioactive material by non-Army agencies on Army property is prohibited.

b. Inventory of radioactive materials. Inventory records contain the following:

(1) Specific items of equipment or radioisotopes.

(2) Serial number.

(3) Location of the item.

(4) Radiation levels.

(5) Radioactivity.

(6) NRC or DA authorization numbers.

(7) Receipts, transfers, and local disposal.

(8) Date of inventory and name of person making the inventory.

c. Procurement, shipment, transfer or loan, storage, and disposal.

(1) Procurement.

(a) Requests for procurement of radioisotopes and ionizing radiation producing machines are forwarded to the Garrison RSO for review. All materials are accrued and

licensed IAW AR 385-10 and this regulation. Procurement actions are not taken until the required license authorization has been received.

(b) A radiation protection plan for operations involving radiation is submitted to the Garrison RSO. No operation will start until approval granted by the RSO. The plan includes: subject; brief description of operation; area, building, and room number; source of ionizing and nonionizing radiation and activity; type of operation; step-by-step procedures of work to be accomplished; personnel involved; and risk assessment.

(2) Shipment.

(a) Transportation of radioactive materials.

1 Radioactive materials are packaged and transported IAW 49 CFR 172 and DA Pam 385-24, chapter 2.

2 When transporting reportable quantities of radioactive materials by motor vehicle, two radioactive labels (white I, yellow II, or yellow III) will be attached to each package.

3 When transporting radioactive materials by motor vehicle, no passenger is in the part of the vehicle containing the material (body of truck, backseat of a sedan, etc.).

4 The vehicle operator or escorts of radioactive materials are briefed as to potential hazards, methods to minimize hazards, and emergency procedures. Written information is provided as to the means for obtaining assistance in the event of an emergency.

5 If necessary to leave the radioactive material in an unattended vehicle, the container will be locked in or to the vehicle.

(b) Incoming radioactive materials. On all incoming and outgoing shipments, the RSO will maintain record copies of log.

1 Upon receipt of radioactive material, the supply officer shall notify the Garrison RSO before opening.

2 The shipment is monitored within three hours of receipt during duty hours or within three hours of the following day during normal duty hours.

3 The radioactive material is stored in the radioisotope storage area until consignee picks up from shipping and receiving area.

(3) Transfer or loan.

(a) Before any radioactive material can be transferred from one location to another, the Garrison RSO is notified so the location can be properly surveyed and approved.

(b) Radioactive materials are not transferred from one user to another without proper authorization.

(c) The transfer or loan of any radioactive material outside of the immediate command requires prior approval from the Garrison Commander at Fort Leavenworth.

(d) Request for the transfer of radioactive materials is submitted through command channels to Headquarters (HQs) IMCOM, by letter in triplicate. Request is reviewed by activity RSO with copy furnished to Garrison RSO.

(e) The request for transfer contains, as a minimum, the following information:

1 Type of equipment.

2 Model of equipment.

3 Serial number.

4 Radioactive element and quantity.

5 NRC license number of receiver for all materials requiring NRC license.

6 If the transfer is to another service, the NRC license number or DA authorization number.

7 Desired transfer date.

8 Justification for proposed transfer.

9 Upon receipt of authorization to transfer radioactive materials, the owning installation prepares all shipping documents and NRC Form 314 (Certification of Disposition of Materials) and will forward two copies of each to HQs, IMCOM.

(4) Storage.

(a) Radioactive materials are stored in a fire resistant building or within a fire resistant enclosure.

(b) The storage facility is locked and access controlled at all times.

(c) Access distance to radioactive materials in the stored condition is restricted so as to limit the exposure level specified in Department of the Army Radiation Authorization (DARA) (see Garrison RSO).

(d) Appropriate radiation signs are posted as required by 10 CFR 21 and 29 CFR 1910.1096 (see Garrison RSO).

(e) Only authorized personnel are allowed to enter the storage area, and the duration of exposure is kept to an absolute minimum.

(f) The individual user of radioactive material stored in a temporary location is directly responsible for the manner in which it is stored.

(5) Disposal.

(a) Incidents or losses involving radioactive materials are reported immediately by the activity RSO to the Garrison RSO.

(b) Reports required by 10 CFR 2203 and 2206 are in addition to the requirement of the above (see Garrison RSO).

(c) Accidents and incidents are investigated and reported as required by AR 385-10.

d. Personal protection. Contamination of personnel, areas, or equipment can be a serious problem in working with ionizing radiation. Constant vigilance is maintained to prevent contamination or to limit the spread by every user. Entire buildings may become uninhabitable due to carelessness.

(1) Contamination. The following general measures are observed to prevent or contain contamination:

(a) Wear protective clothing, such as laboratory coats, rubber gloves, booties, etc.

(b) Wear masks or respirators if inhalation hazards are present.

(c) Wear dosimeter and film badges at all times while in the area.

(d) Monitor areas, personnel, and equipment before, during, and after operation.

(e) Use the proper tools for handling.

(f) Label and tape radioactive materials used in experiments with complete information such as date, experiments, and materials involved, level of activity, and special precautions, etc.

(g) Post work areas with appropriate warning signs and mark contaminated area.

(h) Take care to prevent any material from entering the mouth from hands or other means. Smoking, drinking, and eating are prohibited in all radiation areas.

(i) Prevent contamination from being taken or escaping from any radiation area.

(j) Use proper instrumentation for radiation measurement and detection.

(k) Keep contaminated clothing and equipment in marked containers in radiation area until proper disposal can be made.

(l) In general, good housekeeping rules and common sense precautions will greatly decrease occurrence of contamination. A person, item, or area is considered contaminated if detectable radiation exceeds maximum permissible limits designated by the National Committee on Radiation (see Garrison RSO).

(2) Decontamination.

(a) Decontamination procedures will depend upon the type and degree of contamination and material contaminated. In minor spills, the person using the radioisotope will confine the contamination of liquids by using absorbent paper. Contaminated dry material is confined by wetting and using absorbent paper. It is most important that the user be familiar not only with all rules and regulations concerning the handling of radioactive materials, but also with the immediate steps to be taken in case of serious contamination. These steps apply not only to confining and removing the contamination, but also include actions which will protect the user and all other personnel.

(b) In case of contamination, the person involved ensures that the Garrison RSO is notified immediately. The Garrison RSO supervises the decontamination and directs the action to be taken with respect to the employees and their physical well-being and examination.

e. Emergency procedures.

(1) All cases involving personal injury are reported to the activity and Garrison RSO. This covers:

(a) Accidental overexposure of external radiation.

(b) Ingestion or inhalation of radioactive materials.

(c) Wounds (including very minor scratches).

(2) Specific procedures for accidental spills: Accidental spills may be liquid or dry spills. In case of liquid spills, don protective rubber gloves and drop absorbent paper on spills. In case of dry spills, don protective rubber gloves and dampen spill thoroughly taking care not to spread the contamination. Water may generally be used except where chemical reaction with water would generate an air contaminant. Oil should not be used.

(3) Procedures for spills involving no immediate radiation hazard to personnel.

(a) Notify all other persons in the area at once.

(b) Permit in the area only the minimum number of persons necessary to deal with the spill.

(c) Confine the spill immediately.

(d) Notify the Garrison RSO.

(4) Procedures for spills involving radiation hazard to personnel.

(a) Notify all persons not involved in the spill to vacate the area immediately.

(b) If spill is liquid and hands are protected, turn the container upright.

(c) If spill is on the skin, flush immediately.

(d) If spill is on clothing, discard outer or protective clothing at once.

(e) Vacate the room.

(f) Notify the Garrison RSO immediately.

18-4. Non-ionizing radiation

a. Non-ionizing radiation is radio frequency, laser, and microwave energy. They are non-ionizing because they consist of low energy content and do not ionize material. Therefore, the transfer of energy to a biological system must result in something other than molecular ionization, such as occurs with ionizing radiation (e.g., x-rays and gamma radiation). Since biological systems are primarily water, radio frequency (RF) and microwave energy transfer to water molecules and dissolved ions and small molecules probably accounts for the majority of the absorption by these systems.

b. Laser and radio frequency microwave equipment.

(1) General requirements.

(a) Only qualified and trained personnel will install, adjust, and operate laser and radio frequency equipment.

(b) All personnel working in the vicinity of such equipment are informed of potential personal health hazards.

(c) All equipment is properly labeled with standard warning signs.

(d) A radiation protection plan is published and enforced to deal with operational limitations placed on the equipment and control of the radiation field to minimize personnel exposure.

(e) Periodic operational checks are conducted on all radiation safety devices such as alarms, lights, and interlocks installed on or near radiating sources. Defective devices are repaired and replaced before continuing operation. A log is maintained to document findings.

(2) Personnel responsible for laser equipment will ensure:

(a) Laser equipment bears a label to indicate make, maximum output, and beam spread.

(b) Personnel whose work requires exposure to laser beams are provided with appropriate laser safety goggles which will protect for the specific wave length of the laser and consist of optical density adequate for the energy involved.

(c) Only mechanical or electronic means are used as a detector for guiding the internal alignment of the laser.

(d) The laser beam is not directed at employees, and laser units in operation are above the heads of employees whenever possible.

(e) When it is raining or snowing or when there is dust or fog in the air, the operation of laser systems is prohibited where practical; during such weather conditions, employees are kept out of range of the area of source and target.

(f) Employee exposure to laser power densities is in the following limits:

1 Direct staring: 1 microwatt/cm^2.

2 Incident staring: 1 milliwatt/cm^2.

3 Diffused reflected light: 2 ½ watts/cm^2.

(3) Employees are not exposed to microwave power densities in excess of 10 milliwatts per square centimeter.

(4) Employees are not exposed to radio frequency power densities in excess of those listed in Table 18-1.

Frequency Range (MHz)	Power Density (mW/cm^2)
0.3-3	100
3-30	$900/f^2$
30-300	1.0
300-1500	f/300
1500-10,000	5.0

Table 18-1. Radio frequency exposure limits for personnel

Chapter 19
Fall Protection

19-1. General
The CAC and Fort Leavenworth Fall Protection Program is established to prescribe policies, procedures, and responsibilities for protecting personnel working in operations which consist of the risk of an accidental six-foot fall or more above a lower level.

19-2. Responsibilities

a. Garrison Safety Office.

(1) Provide technical assistance to commanders, directors, and supervisors in providing proper fall protection.

(2) Evaluate and identify operations which require fall protection.

(3) Assist in providing to personnel who work in operations which require fall protection.

b. Commanders and directors.

(1) Develop and implement fall protection plan for all operations which require fall protection.

(2) Ensure supervisors are trained in fall protection procedures and requirements.

(3) Ensure supervisors train personnel in fall protection procedures and requirements.

(4) Provide adequate fall protection in accordance with this regulation, Army, and Federal safety standards.

c. Supervisors.

(1) Train personnel on proper fall protection procedures and requirements in accordance with activity fall protection plan.

(2) Ensure adequate fall protection is provided in accordance with this regulation, Army, and Federal safety standards.

(3) Evaluate areas of responsibilities and ensure personnel comply with proper fall protection procedures and requirements as required.

d. All individuals working in operations which require fall protection comply with the fall protection procedures and requirements as required.

19-3. Procedures

a. All supervisors conducting training are competent in the following areas:

(1) Nature of fall hazards in the work area.

(2) Correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.

(3) Use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used in accordance with 29 CFR 1926.502.

(4) The role of each employee in the safety monitoring system when this system is used.

(5) Limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs.

(6) The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.

(7) The role of employees in the activities fall protection plan.

b. Activity fall protection plan and training includes all areas in paragraph 16-4a of this regulation and 1926.502 as required in each operation.

c. Risk assessments are conducted IAW chapter 2 of this regulation on all operations prior to start of work.

d. Risk assessments are included in fall protection plan and training.

e. Fall protection systems. The following systems are used in compliance with 1926.502 to protect personnel from falls.

(1) Guardrail systems.

(a) If the employer chooses to use guardrail systems to protect workers from falls, the systems must meet the following criteria. Toprails and midrails of guardrail systems must be at least one-quarter inch (0.6 centimeters) nominal diameter or thickness to prevent cuts and lacerations. If wire rope is used for toprails, it must be flagged at not more than six feet intervals with high-visibility material. Steel and plastic banding cannot be used as toprails or midrails. Manila, plastic, or synthetic rope used for toprails or midrails must be inspected as frequently as necessary to ensure strength and stability.

(b) The top edge height of toprails, or (equivalent) guardrails must be 42 inches (1.1 meters) plus or minus three inches (eight centimeters), above the walking and working level. When workers are using stilts, the top edge height of the top rail, or equivalent member, must be increased by an amount equal to the height of the stilts.

(c) Screens, midrails, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking and or working surface when there are no walls or parapet walls at least 21 inches (53 centimeters) high. When midrails are used, they must be installed at a height midway between the top edge of the guardrail system and the walking and or working level. When screens and mesh are used, they must extend from the top rail to the walking and or working level and along the entire opening between top rail supports. Intermediate members, such as balusters, when used between posts, shall not be more than 19 inches (48 centimeters) apart.

(d) Other structural members, such as additional midrails and architectural panels, shall be installed so that there are no openings in the guardrail system more than 19 inches (.5 centimeters) wide.

(e) The guardrail system must be capable of withstanding a force of at least 200 pounds (890 newtons) applied within 2 inches of the top edge in any outward or downward direction. When the 200-pound (890 newtons) test is applied in a downward direction, the top edge of the guardrail must not deflect to a height less than 39 inches (1 meter) above the walking and or working level.

(f) Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding a force of at least 150 pounds (666 newtons) applied in any downward or outward direction at any point along the midrail or other member.

(g) Guardrail systems shall be surfaced to protect workers from punctures or lacerations and to prevent clothing from snagging.

(h) The ends of top rails and midrails must not overhang terminal posts, except where such overhang does not constitute a projection hazard.

(i) When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section must be placed across the access opening between guardrail sections when hoisting operations are not taking place.

(j) At holes, guardrail systems must be set up on all unprotected sides or edges. When holes are used for the passage of materials, the hole shall have not more than two sides with removable guardrails sections. When the hole is not in use, it must be covered or provided with guardrails along all unprotected sides or edges.

(k) If guardrail systems are used around holes that are used as access points (such as ladderways), gates must be used or the point of access must be offset to prevent accidental walking into the hole.

(l) If guardrails are used at unprotected sides or edges of ramps and runways, they must be erected on each unprotected side or edge.

(2) Personal fall arrest systems.

(a) These consist of an anchorage, connectors, and a body belt or body harness and may include a deceleration device, lifeline, or suitable combinations. If personal fall arrest system is used for fall protection, it must do the following: Limit maximum arresting force on an employee to 900 pounds (4 kilonewtons) when used with a body belt; limit maximum arresting force on an employee to 1,800 pounds (8 kilonewtons) when used with a body harness; be rigged so that an employee can neither free fall more than six feet (1.8 meters) nor contact any lower level; bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet (1.07 meters); and have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of six feet (1.8 meters) or the free fall distance permitted by the system, whichever is less.

(b) Personal fall arrest systems must be inspected prior to each use for wear damage and other deterioration. Defective components must be removed from service. Dee-rings and snaphooks must have a minimum tensile strength of 5,000 pounds (22.2 kilonewtons). Dee-rings and snaphooks shall be proof-tested to a minimum tensile load of 3,600 pounds (16 kilonewtons) without cracking, breaking, or suffering permanent deformation.

(c) Snaphooks shall be sized to be compatible with the member to whom they will be connected, or shall be of a locking configuration.

(d) Unless the snaphook is a locking type and designed for the following connections, they shall not be engaged; (a) directly to webbing, rope or wire tope; (b) to

each other; (c) to a dee-ring to which another snaphook or other connector is attached; (d) to a horizontal lifeline or (e) to any object incompatible in shape or dimension relative to the snaphook, thereby causing the connected object to depress the snaphook keeper and release unintentionally.

(e) OSHA considers a hook to be compatible when the diameter of the dee-ring to which the snaphook is attached is greater than the inside length of the snaphook when measured from the bottom (hinged end) of the snaphook keeper to the inside curve of the top of the snaphook. Thus, no matter how the dee-ring is positioned or moved (rolls) with the snaphook attached, the dee-ring cannot touch the outside of the keeper, thus depressing it open. As of January 1, 1998, the use of non-locking snaphooks will be prohibited.

(f) On suspended scaffolds or similar work platforms with horizontal lifelines that may become vertical lifelines, the devices used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline.

(g) Horizontal lifelines shall be designed, installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system that maintains a safety factor of at least two. Lifelines shall be protected against being cut or abraded.

(h) Self-retracting lifelines and lanyards that automatically limit free fall distance to two feet (0.61 meters) or less shall be capable of sustaining a minimum tensile load of 3,000 pounds (13.3 kilonewtons) applied to the device with the lifeline or lanyard in the fully extended position.

(i) Self-retracting lifelines and lanyards that do not limit free fall distance to two feet (0.61 meters) or less, ripstitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000 pounds (22.2 kilonewtons) applied to the device with the lifeline or lanyard in the fully extended position.

(j) Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body belts and body harnesses shall be made of synthetic fibers.

(k) Anchorages shall be designed, installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system that maintains a safety factor of at least two, (i.e., capable of supporting at least twice the weight expected to be imposed upon it). Anchorages used to attach personal fall arrest systems shall be independent of any anchorage being used to support or suspend platforms and must be capable of supporting at least 5,000 pounds (22.2 kilonewtons) per person attached.

(l) Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds (22.2 kilonewtons).

(2) Positioning device systems. These body belt or body harness systems are to be set up so that a worker can free fall no further than 2 feet (0.6 meters). They shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds (13.3 kilonewtons), whichever is greater. Requirements for snaphooks, dee-rings, and other connectors used with positioning device systems must meet the same criteria as those for personal fall arrest systems.

(3) Safety monitoring systems.

(a) When no other alternative fall protection has been implemented, the employer shall implement a safety monitoring system. Employers must appoint a competent person to monitor the safety of workers and the employer shall ensure that the safety monitor is competent in the recognition of fall hazards; is capable of warning workers of fall hazards dangers and in detecting unsafe work practices; is operating on the same walking and or working surfaces of the workers and can see them; and is close enough to work operations to communicate orally with workers and has no other duties to distract from the monitoring function.

(b) Mechanical equipment shall not be used or stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations on low-sloped roofs.

(c) No worker, other than one engaged in roofing work (on low- sloped roofs) or one covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.

(d) All workers in a controlled access zone shall be instructed to promptly comply with fall hazard warnings issued by safety monitors.

(4) Safety net systems.

(a) Safety nets must be installed as close as practicable under the walking and or working surface on which employees are working and never more than 30 feet (9.1 meters) below such levels. Defective nets shall not be used. Safety nets shall be inspected at least once a week for wear, damage, and other deterioration. The maximum size of each safety net mesh opening shall not exceed 36 square inches (230 square centimeters) nor be longer than six inches (15 centimeters) on any side, and the openings, measured center-to-center, of mesh ropes or webbing, shall be secured to prevent enlargement of the mesh opening. Each safety net or section shall have a border rope for:

(b) Safety nets shall be installed with sufficient clearance underneath to prevent contact with the surface or structure below.

(c) When nets are used on bridges, the potential fall area from the walking and or working surface to the net shall be unobstructed.

(d) Safety nets must extend outward from the outermost projection of the work surface in accordance with the distances shown in Table 19-1.

Vertical distance from working level to horizontal plane of net	Minimum required horizontal distance of outer edge of net from the edge of the working surface
Up to 5 feet (1.5 meters)	8 feet (2.4 meters)
More than 5 feet (1.5 m) up to 10 feet (3 m)	10 feet (3 m)
More than 10 feet (3 m)	13 feet (3.9 m)

Table 19-1. Safety net distance standards

(e) Safety nets shall be capable of absorbing an impact force of a drop test consisting of a 400-pound (180 kilogram) bag of sand 30 inches (76 centimeters) in diameter dropped from the highest walking and or working surface at which workers are exposed, but not from less than 42 inches (1.1 meters) above that level.

(f) Items that have fallen into safety nets including (but not restricted to) materials, scrap, equipment, and tools, must be removed as soon as possible and at least before the next work shift.

(5) Warning line systems.

(a) Warning line systems consist of ropes, wires or chains, and supporting stanchions are set up as follows: flagged at no more than 6-foot (1.8 meters) intervals with high-visibility material; rigged and supported so that the lowest point (including sag) is no less than 34 inches (0.9 meters) from the walking and/or working surface and its highest point is no more than 39 inches (1 meter) from the walking and/or working surface; stanchions, after being rigged with warning lines, shall be capable of resisting, without tipping over, a force of at least 16 pounds (71 newtons) applied horizontally against the stanchion, 30 inches (0.8 meters) above the walking and/or working surface, perpendicular to the warning line and in the direction of the floor, roof, or platform edge; the rope, wire or chain shall have a minimum tensile strength of 500 pounds (2.22 kilonewtons) and after being attached to stanchions, must support without breaking, the load applied to the stanchions; and shall be attached to each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in the adjacent section before the stanchion tips over.

(b) Warning lines shall be erected around all sides of roof work areas. When mechanical equipment is being used, the warning line shall be erected no less than six feet (1.8 meters) from the roof edge parallel to the direction of mechanical equipment operation, and not less than 10 feet (3 meters) from the roof edge perpendicular to the direction of mechanical equipment operation.

(c) When mechanical equipment is not being used, the warning line must be erected no less than six feet (1.8 meters) from the roof edge.

f. Fall protection will be used all times for the following conditions:

(1) Excavations. Each employee at the edge of an excavation six feet (1.8 meters) or more deep shall be protected from falling by guardrail systems, fences, barricades, or covers. Where walkways are provided to permit employees to cross over excavations, guardrails are required on the walkway if it is six feet (1.8 meters) or more above the excavation.

(2) Formwork and reinforcing steel. For employees, while moving vertically and/or horizontally on the vertical face of rebar assemblies built in place, fall protection is not required when employees are moving. OSHA considers the multiple hand holds and footholds on rebar assemblies as providing similar protection as that provided by a fixed ladder. Consequently, no fall protection is necessary while moving from point to point for heights below 24 feet (7.3 meters). An employee must be provided with fall protection when climbing or otherwise moving at a height more than 24 feet (7.3 meters), the same as for fixed ladders.

(3) Hoist areas. Each employee in a hoist area shall be protected from falling six feet (1.8 meters) or more by guardrail systems or personal fall arrest systems. If guardrail systems (or chain gate or guardrail) or positions thereof must be removed to facilitate hoisting operations, as during the landing of materials, and a worker must lean through the access opening or out over the edge of the access opening to receive or guide equipment and materials, that employee must be protected by a personal fall arrest system.

(4) Holes. Personal fall arrest systems, covers, or guardrail systems shall be erected around holes (including skylights) that are more than six feet (1.8 meters) above lower levels.

(5) Leading edges. Each employee who is constructing a leading edge six feet (1.8 meters) or more above lower levels shall be protected by guardrail systems, safety net systems, or personal fall arrest systems. If the employer can demonstrate that it is infeasible or creates a greater hazard to implement these systems, he or she must develop and implement a fall protection plan that meets the requirements of 29 CFR 1926.502(k).

(6) Overhand bricklaying and related work. Each employee performing overhand bricklaying and related work six feet (1.8 meters) or more above lower levels shall be protected by guardrail systems, safety net systems, or personal fall arrest systems, or shall work in a controlled access zone. All employees reaching more than 10 inches (25 cm) below the level of a walking and/or working surface on which they are working shall be protected by a guardrail system, safety net system, or personal fall arrest system.

(7) Precast concrete erection and residential construction. Each employee who is six feet (1.8 meters) or more above lower levels while erecting precast concrete members and related operations such as grouting of precast concrete members and each employee engaged in residential construction, shall be protected by guardrail systems, safety net systems, or personal fall arrest systems. When the employer can demonstrate that it is infeasible or creates a greater hazard to use those systems, the employer must develop and implement a fall protection plan that meets the requirements of 29 CFR 1926.502(k).

(8) Ramps, runways, and other walkways. Each employee using ramps, runways, and other walkways shall be protected from falling six feet (1.8 meters) or more by guardrail systems.

(9) Low-slope roofs. Each employee engaged in roofing activities on low-slope roofs with unprotected sides and edges six feet (1.8 meters) or more above lower levels shall be protected from falling guardrail systems, safety net systems, personal fall arrest systems or a combination of a warning line system and guardrail system, warning line system and safety net system, warning line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs 50 feet (15.24 meters) or less in width, the use of a safety monitoring system without a warning line system is permitted.

(10) Steep roofs. Each employee on a steep roof with unprotected sides and edges six feet (1.8 meters) or more above lower levels shall be protected by guardrail systems with toeboards, safety nets systems, or personal fall arrest systems.

(11) Wall openings. Each employee working on, at, above, or near wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is six feet (1.8 meters) or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches (1.0 meter) above the walking and/or working surface must be protected from falling by the use of a guardrail system, a safety net system, or a personal fall arrest system.

g. Inspection and maintenance. All fall protection equipment is inspected frequently. Visual inspections are conducted prior to each use. A competent person inspects periodically.

Chapter 20
Explosive Safety Management Program

20-1. General

a. All personnel who handle and use Ammunition and Explosives (A&E) on Fort Leavenworth will comply with AR 385-10, DA Pam 385-64 and this regulation. Commanders, directors, managers, and first-line supervisors will ensure personnel that

handle, store, use or transport A&E comply with this regulation and conduct operations in a safe manner.

b. Every effort will be taken to remove excess, unwanted, unneeded, or unknown A&E inventory from storage.

c. Each affected organization will have a surveillance program to ensure safety of A&E in storage.

d. Ammunition and explosive operations will be conducted to expose the minimum number of people to the smallest quantity of explosives for the shortest period of time.

20-2. Responsibilities

a. *Senior Commander.*

(1) The Senior Commander is responsible for the direction of the Explosive Safety Management Program (ESMP).

(2) Approval authority for the deviation approval and risk acceptance document (DARAD).

b. Garrison Commander.

(1) Establish a written Explosive Safety Management Program (ESMP) in accordance with DA PAM 385-64.

(2) Appoint, in writing, a qualified designee to manage the installation ESMP.

c. Garrison Safety Office.

(1) Manage, coordinate, evaluate and provide oversight for the CAC and Fort Leavenworth ESMP.

(2) Evaluate A&E storage sites at least biannually.

(3) Assist in training all personnel who routinely handle, store and transport A&E.

(4) Coordinate with Fort Riley Quality Assurance Specialist Ammunition Surveillance (QASAS) on explosive safety issues/concerns as prescribed in DA PAM 385-64.

(5) Review the installation master plan and quantity-distance (QD) for compliance with planned facilities on existing A&E sites both prior to and after construction.

(6) Review deviation approval and risk acceptance documents and exemptions for completeness and accuracy prior to organization forwarding for approval.

(7) Ensure all Potential Explosion Sites (PES) and Exposed Sites (ES) for both military and civilian are indicated on approved explosives site plans/submissions.

(8) Issue DA Form 87, Certificate of Training, to personnel who have successfully completed the required courses to handle, store and/or transport A&E.

(9) Annually verify explosive storage licenses for accuracy.

(10) Annually review the installation explosive location map to ensure the routes and sites support the mission of Fort Leavenworth.

(11) Inspect ammunition holding facilities and operations for special hazards IAW AR 385-10, paragraph 5-4.

(12) Review QASAS magazine inspection reports and track abatement actions for explosives safety deficiencies.

(13) Maintain a list of all ammunition storage area requirements and records of annual inspections.

(14) Participate in the installation master planning process, and review annually, to ensure construction is not planned inside explosive safety arcs. If construction not related to ammunition operations is required within explosive safety arcs, the explosive safety site plans and explosive licenses will be updated and approved at the appropriate level.

(15) Serve as the central repository for all explosive documentation and recordkeeping.

d. CAC Safety Office.

(1) Assist the Garrison Safety Office with the oversight of the CAC and Fort Leavenworth Explosive Safety Program.

(2) Assist the Garrison Safety Office in the training validation process of personnel required to handle Class V Ammunition and Explosives.

(3) Ensure all explosive exposures to military and civilians are indicated on the site plans.

(4) Review the QASAS magazine inspection reports.

(5) Review and validate all explosives licenses annually IAW DA Pam 385-64, para 5-2 and 5-3, and submit status to the Explosive Safety Program Manager for approval.

(6) Evaluate A&E storage sites at least biannually, as applicable.

e. Logistics Readiness Command - Fort Leavenworth.

(1) Develop explosive safety management SOP for Ammunition Supply Point procedures for handling, storage, disposal, transporting, and explosive operations.

(2) Ensure that personnel responsible for managing A&E keep current information of the location and type A&E stored. Provide this information to safety and firefighting personnel.

(3) Assist Garrison with training of personnel responsible for ammunition operation and operational personnel in precautions and procedures for handling, storage, disposal, transporting and explosive operations.

(4) Provide assistance to units as requested and required.

f. Directorate of Public Works.

(1) Evaluate A&E facilities for adequate lightning protection.

(2) Ensure lightning protection inspectors are trained and certified.

(3) Ensure adequate lightning protection is installed in all explosive facilities.

(4) Review the installation master plan and Quantity-Distance (QD) for compliance with planned facilities on existing ammunition and explosives sites both prior to and after construction.

(5) Ensure CAC and Garrison Safety Offices are included in installation master planning process and review.

(6) Installation Master Planner of the facilities and operations will be involved in the Explosives Safety Management Program. The Master Planner will advise the Explosive Safety Program Manager of any proposed construction plans or considerations in the established installation explosive arcs.

g. Directorate of Emergency Services.

(1) Ensure proper fire symbols and chemical hazard symbols are posted at A&E storage operations.

(2) Ensure firefighting personnel and other operating personnel are familiar with alarm notification system and emergency procedures in the event of a fire.

(3) Conduct and document fire drills as required IAW DA PAM 385-64.

(4) Ensure vehicles transporting explosives follow established explosive routes.

h. Commanders and directors.

(1) Establish and implement a written ESMP that complies with AR 385-10, DA Pam 385-64, and this document.

(2) Appoint, in writing, a unit point of contact for ammunition and explosive safety.

(3) Ensure personnel are trained in ammunition explosives safe handling, storage, and transporting procedures.

(4) Ensure drivers transporting A&E meet licensing requirements below:

(a) Military personnel will have a valid civilian driver's license and a current military driver's license with annotation of authorized vehicle type and hazardous materials endorsement.

(b) Department of Defense (DOD) civilian employees, DOD contractors and US Reservists in technician status will have a valid Commercial Driver's License (CDL) and hazardous materials endorsement. In addition, DOD civilians and contractors will have an OF 346, US Government Motor Vehicle Operator's Identification Card, when driving a government vehicle.

(5) Ensure proper fire symbols and chemical hazard symbols are posted on A&E storage operations.

(6) Ensure risk assessments are conducted on all operations involving A&E.

(7) Ensure A&E are adequately stored in accordance with compatibility requirements.

(8) Ensure lightning protection systems are visually inspected every 12 months and an electrical test is conducted every twenty four (24) months, as required.

(9) Maintain a record of test and maintenance results for 6 cycles documenting that the LPS inspections meet standards in DA Pam 385-64.

(10) Provide the Command Safety Office with a copy of the inspection results and any corrective actions performed.

(11) Ensure A&E operation is assigned to the responsible individual at all times.

(12) Ensure A&E used in day-to-day operations are stored in accordance with Army, IMCOM and parent command requirements.

(13) Ensure proper placards are placed on vehicles transporting A&E.

(14) Ensure periodic inspections of vehicles transporting A&E are conducted and documented on DD Form 626, Motor Vehicle Inspection. Vehicles transporting hazardous material must be inspected frequently validating mechanical condition and safety devices are in good working order. Documentation of inspection will be available upon request.

(15) Ensure Army vehicles transporting A&E are equipped with at least two fire extinguishers suitable for the hazards involved.

(16) Initiate development of explosive licenses, explosive safety site plans, and deviation approval and risk acceptance document(s) (DARAD), DA Form 7632. Coordinate these with appropriate staff elements.

(17) DARAD will be accurate and current. When the leadership transitions, the incoming leadership must be informed of and renew the risk acceptance.

(18) DARAD will be coordinated and deconflicted with the installation master plan holder.

20-3. Installation Training Certification for Class V Ammunition and Explosives

a. The command appointed explosive safety program managers will annually review training of personnel required to handle A&E. Scheduled annual training review will be conducted in conjunction with the Technical Assistance Visit (TAV) by the supporting QASAS from Fort Riley, KS. The explosive safety program managers will validate training completion IAW 20-4 of this section for personnel handling, transporting, issuing and receiving Class V Ammunition and Explosives. Annual review will be recorded in a memorandum and distributed to all affected activities. When reviews are required more frequently due to personnel turn-over an electronic review will be initiated by the explosive safety program manager.

b. Training completion packets for review and validation will include course completion certificates for A&E personnel as required in para 20-4, a thru c.

20-4. Training

a. Munitions Handlers working for the Ammunition Supply Point (ASP), will complete and maintain training as required in:

(1) Introduction to Ammunition (AMMO-45-DL/9E-F67/920-F35); certificate.

(2) Technical Transportation of HAZMAT (AMMO-62); biennial recertification required.

(3) Class V, Issue, Turn-In and Residue Recovery Procedures (AMMO-64-DL/4E-F45/645-F29); certificate.

(4) Military Munitions Rule (AMMO-68-DL/4E-F46/645-F30); certificate. Annual refresher required.

b. Unit personnel and activity customers of Fort Leavenworth, transporting live ammunition to and from the ASP are required to take and maintain training as required in:

(1) Introduction to Ammunition (AMMO-45-DL/9E-F67/920-F35); certificate.

(2) Class V, Issue, Turn-In and Residue Recovery Procedures (AMMO-64-DL/4E-F45/645-F29); certificate.

(3) HAZMAT Familiarization and Safety in Transportation (AMMO-67-DL/9E-F69/920-F37); certificate OR Barton College Ammunition Handler Course, IAW 49 CFR Section 172.704; certificate (equivalent to AMMO-67).

(4) Military Munitions Rule (AMMO-68-DL/4E-F46/645-F30); certificate. Annual refresher required.

c. Unit personnel who manage operational load in unit arms room are required to take and maintain training as required in:

(1) Introduction to Ammunition (AMMO-45-DL/9E-F67/920-F35); certificate.

(2) Class V, Issue, Turn-In and Residue Recovery Procedures (AMMO-64-2-DL/4E-F45/645-F29); certificate.

(3) Military Munitions Rule (AMMO-68-DL/4E-F46/645-F30); certificate. Annual refresher required.

d. Ammunition area and operation supervisors and planners.

(1) Introduction to Ammunition (AMMO-45-DL/9E-F67/920-F35); certificate.

(2) Risk Management & Preparation of SOP for AMMO & EXP (AMMO-54-DL/9E-F68/920-F36); certificate.

(3) Military Munitions Rule (AMMO-68-DL/4E-F46/645-F30); certificate. Annual refresher required.

e. Command Safety and Occupational Health personnel should have general knowledge and understanding of explosives safety requirements specific to explosives safety functions and general safety management. The following courses are mandatory to meet minimal common skill level competencies:

(1) Introduction to Ammunition (AMMO-45-DL/9E-F67/920-F35); certificate.

(2) US Army Explosives Safety Familiarization (AMMO-63-DL/4E-F44/645-F28); certificate.

(3) Ammunition Publications (AMMO-78-DL/4E-F62/645-F46); certificate.

(4) Introduction to Explosives Safety Management for Safety Professionals (AMMO 107-DL/4E-F26/431-F10); certificate.

(5) Military Munitions Rule (AMMO-68-DL/4E-F46/645-F30); certificate.

f. Personnel who prepare, review, or recommend approval of site plans:

(1) Introduction to Ammunition (AMMO-45-DL/9E-F67/920-F35); certificate.

(2) US Army Explosives Safety Familiarization (AMMO-63-DL/4E-F44/645-F28; certificate.

(3) Ammunition Publications (AMMO-78-DL/4E-F62/645-F46); certificate.

(4) Application of US Army ESQD Principles (AMMO-99-DL/4E-F65/645-F49; certificate.

(5) Army Explosive Safety Site Planning (AMMO-100-DL/4E-F25/431-F9); certificate.

(6) Tutorial for Using DDESB Approved Automated QD Calculator (Army) AMMO-101-DL.

(7) Explosive Safety Siting (ESS) and Army Site Submission Electronic Tool (ASSET) AMMO-103-DL.

(8) Introduction to Explosives Safety Management for Safety Professionals (AMMO 107-DL/4E-F26/431-F10); certificate.

g. Military Working Dogs. Realistic and effective training of MWDs to detect explosives requires simulated searches using real explosive samples. MWD explosive

use, training, transportation, physical security and guidance will be in accordance with AR 190-12 and DA PAM 190-12.

h. Personnel who test/inspect grounding, bonding, and/or lightning protection systems will complete Army Electrical Explosive Safety (AMMO-28-DL/4E-F33/645-F17); certificate.

i. Personnel who have taken and passed required training will be issued a DA Form 87, Certificate of Training upon approval by the ITCB. It will be in their possession and readily accessible before any A&E are issued from or turned in to the ASP.

j. With the exception to Technical Transportation of HAZMAT, AMMO-62, all training required for munitions handlers, unit personnel and activity customers can be completed through distance learning at the Army Training Requirements and Resources Systems (ATRRS) website: http://www.dactces.org/. Personnel required to store, handle, request, issue or transport ammunition and explosives will complete the online courses within 60 calendar days of assignment.

20-5. Ranges

The Range Management Authority (Army) is designated as the Senior Commander's representative for Command and Control (C2) for range and training areas on Fort Leavenworth and will work with all organizations to accomplish the Fort Leavenworth range and training missions. All tenant activities will coordinate with Range Operations for current training and firing range status. Range operations will be in accordance with Standard Operating Procedures (SOP) published by Range Operations and the Fort Leavenworth Safety Office. Any military forces to include Army National Guard and Army Reserves coming onto Fort Leavenworth for training will coordinate and schedule activities through Range Operations. For additional requirements refer to CAC & Fort Leavenworth Range Operations, 210-21 and chapter 12 of this document.

20-6. Unit arms room

a. Unit are authorized to store small arms ammunition in unit arms room. At no time will the cumulative total of all ammunition stored in the arms room exceed 100 pounds net explosive weight (NEW). Storage of ammunition and operational loads in unit arms room must be approved in writing by the Garrison Commander.

b. Ammunition storage in unit arms room requires an approved explosive storage license.

c. Storage license will consist of the following documents:

(1) Request for operational load, signed by the current commander, request will include purpose, hazard class, nomenclature, DODIC and quantity. Request will be coordinated with Fire and Emergency Services, Garrison Safety Office, Command

Safety Office, Physical Security and Quality Assurance Surveillance Ammunition Specialist (QASAS).

(2) Risk assessment approved by the Garrison Commander that justifies the storage based on operational necessity and safety considerations.

(3) Security Construction Statement, DA Form 4604-R.

(4) Explosive Site License, Quantity Distance Verification, CAC & FL Form 385-1-4-R-E.

d. Commanders shall store only a limited quantity of ammunition required for operational necessity.

e. Ammunition must be packaged in an approved Department of Transportation (DOT) container.

f. In accordance with DA Pam 385-64 and the Garrison Commander, training ammunition is not authorized to be stored in the Unit's Arms Room.

20-7 Ammunition accidents and malfunctions

Accident, incident and/or malfunctions for specific types of ammunition are defined as the following:

a. *Accident*. An unintentional or chance event resulting in property damage or personal injury. In regards to A&E, this specifically includes the suspected or detected presence of unexploded explosive ordnance that constitutes a hazard to operations, installations, personnel or material.

b. *Incident*. An unintentional or chance event considered likely to result in property damage or injury to personnel. In regards to A&E, this specifically includes the suspected or detected presence of unexploded ordnance that constitutes a hazard to operations, installations, personnel or material.

c. *Malfunction*. Failure of an ammunition item to function as expected when fired or launched or when explosive items function under conditions that should not cause functioning.

(1) Malfunctions include hangfires, misfires, duds, abnormal functioning, and premature functioning of explosive ammunition items under normal handling, maintenance, storage, transportation and tactical deployment.

(2) Malfunctions do not include accidents or incidents that result solely from negligence, malpractice, or situations such as vehicle accidents or fires.

20-8. Accident reporting procedures

In the event of an accident involving ammunition, the following actions will be taken:

a. The Range Safety Officer will immediately suspend firing and report the incident to the Range Control Officer with the following information:

(1) Type of malfunction.

(2) Weapon involved.

(3) Type of ammunition involved.

(4) Lot number of ammunition involved.

(5) Quantity of the DODIC and lot on hand.

(6) Time of occurrence.

(7) Cause of the malfunction, if known.

b. The Range Control Officer will notify the QASAS, Fort Riley, for further guidance and action.

c. The Range Control Branch will notify the Garrison Safety Office of all accidents, incidents and/or malfunctions.

20-9. Ammunition and Explosives (A&E) Recovery Program.

a. Definitions:

(1) Amnesty: The Amnesty Program is for the recovery of A&E assets that were once accounted for under control of a unit and were not returned as part of that unit's live turn-in to the AHA. Items considered to be amnesty must have had a known history, but are of a significantly small quantity (under one box small arms ammunition, or under five smoke/simulators, etc) as not to merit an amended turn-in.

(2) Found on Installation (FOI): These are assets that have not been utilized, are then found, but have no identifiable owner. Types, packaging, and quantities may vary.

(3) Leaders at all levels will prevent any intimidating atmosphere which would prevent Soldiers/civilians from freely turning in ammunition.

(4) Newly assigned personnel to the unit/activity will be briefed on the amnesty program as part of reception and integration counseling.

(5) Leaders will ensure Soldiers are briefed on the amnesty program prior to handling any weapon or ammunition.

(6) Units are not authorized to store amnesty ammunition in the arms room.

(7) Ensure that all personnel understand that the possession, use, or sale of military ammunition is strictly forbidden.

b. Amnesty boxes.

(1) To prevent pilferage, mount amnesty boxes so that ammunition cannot be removed without unlocking the box.

(2) Turn-in ammunition found during the hours of 0700-1500 the same day to the ASP. No records or other paperwork are required for turn-in.

(3) Items not classified as ammunition will be disposed of properly.

20-10. Clearing barrels.

a. Clearing barrels will be used at the commander's discretion. If clearing barrels are used, commanders will develop and implement clearing barrel procedures, and enforce their proper use, to include:

(1) Provide clearing barrels at designated clearing locations.

(2) Provide direct supervision when using clearing barrels.

(3) Commanders will implement procedures to monitor clearing barrels for loose ammunition.

(4) Clearing barrels will be a minimum of 14 inches in width and 24 inches deep.

b. Fill clearing barrels with pea gravel or sand. If sand is used, it must be free of rocks or other debris; ensure the sand is dry and not compacted.

c. Mount clearing barrels at a height and angle to permit safe and smooth firearms clearing.

d. Clearing barrels will have an aiming point in the center of the front lid at least four inches wide and one inch deep.

20-11. Demilitarization and demolition. Fort Riley, EOD, provides support to Fort Leavenworth for demilitarization and destruction of A&E.

20-12. Contractors. There are currently no contract employees that handle ammunition and explosives on Fort Leavenworth.

Chapter 21
Electrical Safety

21-1. General

a. Safety hazards exist in any workplace. Risk of injury from unsafe handling of energy from electrical systems has increased significantly over the past few decades. This chapter establishes policy for integrating electrical safety standards, techniques and procedures in local operations to mitigate risk of electrical related injuries, deaths and/or property damage. Electrical equipment will be free of recognized hazards that are likely to cause serious physical harm or death to employees and/or property damage.

b. Qualified and unqualified personnel.

(1) Only qualified personnel will conduct any electrical related work.

(2) Qualified personnel include employees who have received work specific training and demonstrate knowledge and skills needed to control hazards associated with the electrical work.

(3) Unqualified personnel have not received the required training about the hazards associated with conducting electrical related work.

21-2. Risk management.

a. An approved risk assessment is required in all electrical related operations.

b. Appropriate control measures will be implemented prior to start of work.

c. Job hazard analysis will be developed for all qualified electrical workers working within limited approach boundary or arc flash boundary of energized electrical conductors and circuit parts operating at 50V or more where an electrical hazard exists.

d. An energized electrical work permit is required when working on energized electrical conductors or circuit parts operating at 50V or more that are not placed in an electrically safe work condition. The authority having jurisdiction will approve the written energized electrical work permit (EEWP).

21-3. Responsibilities

a. CAC and Garrison safety staff will conduct periodic inspections to ensure each activity is in compliance with this regulation and other Army and Federal standards governing electrical safety as applicable to level of responsibility.

b. Activity commanders/directors will:

(1) Ensure electrical safety plans are developed, established and implemented in each workplace as required to reduce personal injury due to electrical hazards.

(2) Ensure employees who are exposed to electrical hazards in their workplace are provided information to heighten awareness.

c. Supervisors will:

(1) Develop and implement electrical safety procedures into their operations.

(2) Reduce electrical hazards to the lowest possible level in all operations to include but not be limited to office areas, training areas, recreational areas, construction zones, contingency operations, range facilities, maintenance operations, vehicle operations and storage facilities.

(3) Ensure electrical hazards are included in risk assessments and job hazard analyses as appropriate.

(4) Ensure that all personnel working in electrical related operations are appropriately trained.

(5) Ensure worker compliance of safety-related work practices, at least annually, by way of direct observation and regular workplace inspections.

d. Contract employer will:

(1) Ensure employees are trained in electrical hazards in accordance with National Fire Protection Association (NFPA), 70E standards.

(2) Advise the DPW contractor inspector of any unique electrical hazards created by the contract work, the finding of any additional electrical hazards during the work performed which was not included in the contract and what corrective action was taken to correct any violations/hazards reported by the DPW contractor inspector.

21-4. Training requirements

a. Electrical safety awareness and promotion. All personnel will be made aware of electrical hazards in their work environment, how to recognize electrical hazards and actions to take to protect themselves from identified electrical hazards that might occur routinely in their work area.

b. Qualified personnel shall receive classroom or on-the-job training or a combination of the two in:

(1) Emergency procedures.

(2) Proper use of special precautionary techniques.

(3) Proper protective clothing and equipment.

(4) Determining nominal voltage.

(5) Approach distances.

(6) Determining degree and extent of the hazard.

c. Electrical workers will complete initial training upon assignment and refresher training every three years thereafter to ensure compliance of safety-related work practices and procedures.

d. An electrical worker observed not complying with safety-related work practices will receive additional training.

21-5. Grounding, bonding, and lightning protection systems
Grounding, bonding and lightning protection systems in a new or existing facility can deteriorate unless maintenance is performed at regular intervals throughout the life of the facility.

a. *Ammunition and explosive storage facilities*.

(1) Visual inspections will be conducted every 12 months and documented.

(2) Electrical test interval will not exceed 24 months and requires documentation.

(3) A copy of the visual inspection and electrical test results will be provided to the user and the CAC or Garrison Safety Office, as applicable.

b. *Facilities that house critical systems*.

(1) Visual inspections will be conducted every two months and documented.
(2) Electrical test interval will not exceed 24 months and require documentation.

(3) A copy of the visual inspection and electrical test results will be provided to the CAC or Garrison Safety Office, as applicable.

21-6. Personal protective clothing and equipment
All electrical workers will use the appropriate protective equipment such as hard hats, rubber gloves, gas masks, boots, and goggles as required for the job hazard(s).

a. Workers will know how to visually inspect and test their personal protective equipment.

b. All unsafe protective clothing and equipment must be isolated, tagged, repaired or discarded.

21-7. Precautions for equipment commonly found in workplaces.

a. Adapters. Converting three-prong electrical plugs for use into two-prong receptacles is prohibited.

b. Extension cords.

(1) Extension cords will not be used in lieu of permanent wiring for equipment. Use extension cords only when necessary and only on a temporary basis.

(2) Ensure cords do not dangle from the counter or table tops to reduce a fall hazard or property damage.

(3) Never cover an extension cord with newspapers, clothing, rugs, or any object(s) that would cause overheating to reduce potential for a fire hazard.

(4) Ensure appliances are used with cords that are rated at or above the current and voltage needed by the appliance.

(5) Stringing of electrical cords (daisy chain) from one cord to another is prohibited.

(6) Do not run cords through windows, holes in walls, in between doors, or under carpet or rugs.

(7) Do not use cords where they may be pinched, and in areas where they may pose a tripping hazard.

(8) When disconnecting cords, pull the plug rather than the cord itself to reduce damage to the connectors.

(9) Visually inspect cords prior to use for external damage/defects such as loose parts, missing or damaged prongs or damage to outer jacket or insulation. If there is evidence of damage that might expose an employee to injury, the damaged item will be removed from service and may not be used until repaired by a qualified electrician.

(10) Only use extension cords rated for outdoor use when using a cord outside.

c. Electrical receptacles.

(1) Only qualified personnel will install receptacles or replace damaged receptacles.

(2) Receptacles installed on 15- or 20-ampere branch circuits will be of the grounding type.

(3) Receptacles will be mounted in boxes or assemblies designed for the purpose and will be securely fastened in place.

(4) Receptacles faceplates will be installed to completely cover the opening and rest securely against the mounting surface.

(5) Damaged receptacles will be replaced immediately after identification and marked to prevent use until replaced.

d. Ground fault circuit interrupters.

(1) A ground fault circuit interrupter (GFCI) will be used for protection against shock or electrocution in wet or damp locations, indoor or outdoor and within six feet of a water source such as sinks, bathrooms, pools, etc.

(2) An initial test is required to verify operability of the GFCI-protected circuit after installation. This initial test should be conducted by a qualified electrical worker.

(3) After the GFCI-protected circuit has been tested and verified operable, the Push-to-Test button will be activated and reset monthly.

Appendix A
References

Section I
Required Publications

AR 11-34
Respiratory Protection Program (Cited in para 7-16*c*)

AR 40-5
Preventive Medicine (Cited in paras 7-11*b* and 9-13*i*)

AR 190-45
Military Police Records and Forms (Cited in para 7-9)

AR 385-10
Army Safety Program (Cited in para 7-4*e*)

AR 385-63
Range Safety Program

AR 600-55
Motor Vehicle Driver Selection, Testing and Licensing (Cited in paras 7-8 and 7-8*c*)

AR 700-141
Hazardous Materials Information System (Cited in paras 7-13*l* and 7-13*m*)

DA PAM 385-24
The Army Radiation Safety Program (Cited in paras 4-2*j*, 7-8, and 7-9)

DA PAM 385-26
Army Electrical Safety Program

DA PAM 385-30
Mishap Risk Management

DA PAM 385-40
Accident Reporting and Records (Cited in para 7-15*e*)

DA PAM 385-64
Ammunition and Explosive Safety Standards (Cited in paras 4-2*j*, 7-8, and 7-9)

10 CFR
Energy

29 CFR 1910
OSHA (Cited in paras 4-2*j*, 7-8, and 7-9)

29 CFR 1960
Basic Program Elements for Federal Employees OSHA Programs & Related Matters

32 CFR 634.25
Installation Traffic Code

49 CFR
Transportation (Cited in paras 4-2*j*, 7-8, and 7-9)

Army Safety Career Program 12 Explosives Safety Handbook

CAC and Fort Leavenworth Regulation 40-9
Occupational Health Program

DoD Instruction 6055.01
Department of Defense Safety and Occupational Health Program

ATP 5-19
Risk Management.

TB Med 523
Control of Hazards to Health from Microwave & Radio Frequency Radiation & Ultrasound (Cited in paras 4-2*j*, 7-8, and 7-9)

TM 5-682
Facilities Engineering: Electrical Facilities Safety

TM 5-690
Grounding and Bonding in Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Facilities.

TRADOC Reg 385-2
Training and Doctrine Command Safety Program (Cited in paras 4-2*j*, 7-8, and 7-9)

Section II
Prescribed Forms

The following CAC & FTLVN forms can be accessed at:
https://combinedarmscenter.army.mil/cachq/PubsRegs/Forms/Safety.aspx

Explosive Site License, Quantity Distance Verification, CAC & FL Form 385-1-4-R-E

Job Hazard Analysis CAC & FTLVN Form 370-E

Facility Safety General Checklist (hazards) CAC & FTLVN Form 2027-R

Industrial Safety Checklist (hazards) CAC & FTLVN Form 2027-1-R

General Safety Checklist (programs) CAC & FTLVN 2027-2-R

Industrial Safety Checklist (programs) CAC & FTLVN Form 2027-3-R

New Employee Orientation Checklist CAC & FTLVN Form 2027-4-R

Ergonomics Self-Assessment CAC & FTLVN Form 2027-5-R

Appendix B
Special Emphasis Areas

B-1. General
Areas of emphasis in activities will vary depending on the operation, degree of hazard and operational difficulties. Such potential loss areas should be identified so that effective controls can be instituted.

B-2. Maintenance safety

a. SOPs will be prepared, published, and readily accessible in the work area covering each potentially hazardous operation such as, but not limited to:

(1) Painting.

(2) Use of grease racks and pits.

(3) Tire changing and repair.

(4) Battery shops.

(5) Welding.

(6) Servicing brake linings and clutch pads.

(7) Carpenter shops.

(8) Plumbing shops.

(9) High voltage substations.

(10) Electrical shops.

(11) Respiratory protection.

(12) Hazard Communication Program.

b. Traffic flow in and around buildings will be carefully planned with emphasis on eliminating points of traffic conflict, blind corners, and close clearances. Parking and storage of vehicles will be avoided on sloping ground, inclines, and ramps when possible.

c. Grease pits will be protected when not in use by chains or rope barriers around the areas or by pit covers.

d. Lights and electrically operated equipment will conform to the National Electric Code.

e. Containers or safety cans used to hold oil and grease soaked rags will be painted red with the name of the contents conspicuously stenciled or painted on the can in yellow. These safety cans will be emptied daily.

f. Gasoline will not be used to clean parts, floors, pits, or other materials. Solvent tanks will be equipped with a self-closing lid or fusible leak. Lids will be kept closed when tank is not in use.

g. Vehicle motors will be operated in confined areas only when necessary repairs or adjustments are being made. Adequate ventilation will be provided by use of exhaust systems, exhaust fans, or by use of a tailpipe exhaust extension system, which exhausts to the outside.

h. Vehicles jacked up or suspended by chain hoist will be blocked with jackstands or substantial, inspected, wood blocking devices. Personnel will not get under vehicles supported by jacks only.

i. Cranes and hoist will be operated only by trained and qualified personnel.

j. When inflating tires with split or locking rims, the following safeguards will be employed.

(1) The inflation safety cages will be used.

(2) A lock-on air chuck with an extension air hose at least 10 feet long, with pressure gauge located in the air hose at least 10 feet from cage, will be used. National stock number (NSN) 4910-00-441-8686 is the stock number for the hose and gauge assembly, NSN 4730-00-729-7076 is the male end lock-on chuck, and NSN 4370-00-277-6948 is the female end of the chuck.

(3) Every individual involved in tire inflation operations will be trained in proper performance of the operation.

k. Servicing brake linings and clutch pads may pose a serious hazard from airborne asbestos fibers. All such operations will be evaluated by preventive medicine and the industrial hygienist, and recommended protective measures will be followed.

l. All lifting devices (i.e., hoists, cranes, jacks, and forklifts) will be inspected, marked, load tested, and maintained in accordance with requirements of 29 CFR 1910.66(e), and 1910.179(j) (3).

m. Spray painting operations are prohibited inside buildings unless ventilation systems and paint spray booths are installed.

Activity	**Location**
DPW	
Entomology Shop (Pesticides)	Bldg 234
Electrical Shop	Bldg 304
Plumbing Shop	Bldg 304
Spray Paint Booth	Bldg 304
Carpenter Shop	Bldg 304
Logistics Readiness Command – Fort Leavenworth	
Vehicle Maintenance	Bldg 86
DFMWR	
Swimming Pools (Chlorine)	Bldg 157

Golf Course Maintenance (Pesticides, Flammable Storage)	Bldg 364
Flying Club (Flammable Storage and Aircraft Maintenance)	Bldg 338
DPTMS	
Laser Engraver	Bldg 77
USDB	
Welding Shop (High Intensity Welding, Flammable Storage, Spray Paint Booth)	Bldg 1140
Wood Shop (Spray Paint Booth, Machinery)	Bldg 1140
Screen Print (Chemical Hazards)	Bldg 1140
NEC	
Battery Recharge Operations	Bldg 136
Sherman Army Airfield	
Hanger Operations (Flammable Storage)	Bldg 132

Table B-1. High risk operations

B-3. Tripping hazards

All aisles, passageways, stairs, sidewalks, and other walking surfaces will be free of tripping hazards.

B-4. Prevention of accidents during the summer season

During April, commanders and activity chiefs will conduct a briefing for all personnel concerning hazards of the summer season. Topics to be discussed, as a minimum, will include swimming, boating, prevention of heat injuries, lightning, tornadoes, snakes, and the use of sunscreens.

B-5. Severe weather precautions

a. Each activity will be prepared to deal effectively with hazards associated with inclement weather. Such hazards include slippery walkways due to rain, ice, or snow and hazards associated with high winds and tornadoes. Each activity will prepare a plan of action to handle these hazards and will ensure that all personnel are familiar with the plan including evacuation drills.

b. When ice or snow conditions develop after regular duty hours, all personnel will monitor local television and radio stations for reporting instructions.

B-6. Hazardous training

Activities planning to implement new high-risk training exercises will submit detailed plans to the CAC or Garrison Safety Office for review and comment prior to implementing the training.

a. High-risk training is defined as training, which exceeds normal military activities. The following list should not be considered all-inclusive and commanders, directors, or designated leaders should request safety office review for types of training that involves a degree of risk that could result in serious injury or death.

(1) Water operations (canoeing, stream crossing, rafting).

(2) Vehicle operations.

(3) Suspension traverse (slide for life).

(4) Confidence courses.

b. Plans submitted for review should include, as a minimum, the specific training to be conducted, site location, references used to develop the training plan, and risk assessment.

B-7. Ammunition and explosive storage

All facilities and sites including arms rooms and recreational facilities require an ammunition and explosive license. Explosive storage license will be reviewed by the Garrison Safety Manager. After assumption of command, commanders or directors in charge of ammunition and explosive storage must submit memorandum (Request for Explosive Storage License) with location and justification for storage.

Appendix C
Safety Plan – Examples

C-1. General

Each activity is required to have a written standard operating procedure (SOP) for safety and high-risk operations. Commanders, directors, and supervisors at each level will establish and maintain a continuing comprehensive and aggressive accident prevention program throughout their activity. Activity safety plans should not be extensive, but must reflect the commander or director's development of an aggressive accident prevention program.

C-2. Example General Safety SOP

1. Purpose. To ensure a continued, aggressive preventive safety program throughout this activity.

2. Reference. CAC and Fort Leavenworth Regulation 385-1.

3. Scope. This safety plan outlines the organization of the activity safety program and the responsibilities of personnel implementing the safety program.

4. Objective. To improve the overall effectiveness of the activity by minimizing loss of personnel and equipment.

5. Responsibilities. The commanding officer or director is responsible for assuring that the accident prevention effort meets the requirements of current regulations. The following personnel are responsible as indicated:

a. Additional duty safety officer or supervisor.

(1) Provide staff management of the activity a safety program to ensure safety requirements are in compliance.

(2) Establish and maintain a portion of the activity bulletin board, which provides current safety literature and information.

(3) Make monthly inspections of training and maintenance activities within the unit and initiate action to correct the hazards or deficiencies detected. Keep records to document inspections.

(4) Investigate or coordinate investigation of accidents, which occur within the activity. Prepare accident report when appropriate.

(5) Conduct periodic safety briefings for personnel. Present initial safety briefing to newly assigned personnel.

(6) Prepare safety briefing guide for the commander's use prior to holiday periods and weekends.

(7) Establish and maintain an accident case file for all accidents during the current and preceding calendar year.

(8) Brief the commander as necessary and/or at a minimum monthly, on the status of the activity accident prevention effort.

(9) Ensure newly assigned personnel receive safety orientation.

(10) Schedule activity motorcyclist to attend the Motorcycle Safety Course.

(11) Review accident reports for completeness and send to the CAC Safety Office or Garrison Safety Office, as applicable.

b. Commander, director, and ADSO will:

(1) Integrate current safety requirements into all training activities and plans.

(2) Ensure training of personnel is adequate for safe operation of equipment to avoid injury or equipment loss during training sessions.

c. Supervisors will:

(1) Ensure necessary protective equipment and clothing is available within the unit as required by daily operations.

(2) Ensure all operations are safely conducted.

d. Motor officer will:

(1) Ensure activity drivers are thoroughly trained prior to the licensing for military vehicle operations.

(2) Conduct safety briefings and refresher training of activity drivers.

(3) Establish a safety plan for motor pool operations and provide enforcement measures.

e. Leaders and supervisors. Establish in writing a safety plan for specific operations. Enforce the procedures established.

6. Accident Reporting. All accidents involving personnel from the unit, which result in injury to personnel or damage to property, will be reported expeditiously to this section. Pending the arrival of the safety officer, the supervisor of the injured person will begin an investigation to determine why the accident occurred. When the safety officer or NCO arrives, all information collected will be given to the safety officer or NCO for completing the investigation and preparing the accident report.

7. Unit Safety Committee or Council. The activity Safety Committee or Council shall consist of all members of the unit staff to include the safety officer and shall be operated in conjunction with regularly scheduled staff meetings. Problems concerning safety shall be discussed and resolved on a routine basis during these meetings. The safety officer shall provide documentation of actions as needed.

8. Safety Awards. Personnel who actively support and contribute to the activity safety program will receive special recognition. Leaders will identify supervisors, drivers, and other individuals who are deserving, and recommend them for recognition and award as appropriate.

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Figure C-1. Example General Safety SOP

C-3. Example Confined Space Safety Plan

1. Purpose. To minimize risk associated with work in confined space.

2. Reference. CAC and Fort Leavenworth Regulation 385-1, Chapter 14, Confined Space Entry Program Requirements.

3. Policy. In order to prevent several types of injuries and possible death, no CAC and Fort Leavenworth personnel will enter a confined space without an approved permit, personal protective clothing, monitoring equipment, and isolation and tagout procedures (see CAC and Fort Leavenworth Regulation 385-1, Chapter 14, for identification of confined space).

4. Procedures. (Procedures shall be in accordance with CAC and Fort Leavenworth Regulation 385-1, Chapter 14, and activity work process procedures.)

5. Responsibilities.

a. Supervisor. (Duties should be listed in accordance with CAC and Fort Leavenworth Regulation 385-1, Chapter 14, and standard work procedures.)

b. Entrants. (Duties should be listed in accordance with CAC and Fort Leavenworth Regulation 385-1, Chapter 14, and standard work procedures.)

c. Attendants. (Duties should be listed in accordance with CAC and Fort Leavenworth Regulation 385-1, Chapter 14, and standard work procedures.)

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Figure C-2. Example Confined Space Safety Plan

C-4. Example Ergonomic Safety Plan

1. Purpose. To establish a plan for integrating ergonomic standards – fitting the work environment to the worker.

2. Reference. CAC and Fort Leavenworth Regulation 385-1, Chapter 8, CAC Ergonomic Program.

3. Scope. This plan outlines the information needed to carry out the procedures and responsibilities in the implementation of ergonomic standards in the work environment.

4. Objective. To reduce the risk of ergonomic related injuries increasing productivity, job satisfaction, and the quality of work. Decreasing lost work time, work time, costs and ultimately improving the quality of life.

5. Policy. All personnel will support and participate in the ergonomic program.

6. Responsibilities. (Responsibilities shall contain responsibilities listed in Chapter 8, paragraph 8-3 of this regulation and any other additional responsibilities required in specific work areas.)

7. Procedures. (Procedures shall be set in accordance with this regulation and specific activity procedures and requirements.)

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Figure C-3. Example Ergonomic Safety Plan

C-5. Example Lockout/Tagout Safety Plan

1. Purpose. To establish procedures for lockout/tagout to safely isolate equipment and machinery in accordance with this regulation and 29 CFR 1910.147.

2. Responsibilities.

a. Supervisor. (List supervisor's responsibilities.)

b. Affected employees. (Identify affected employees; carpenters, mechanics, plumbers, craft shop customers, and list responsibilities.)

c. Authorized employees. (Identify authorized employees and list responsibilities.)

NOTE: Affected employees and authorized employees may be the same person. (See glossary.) Also, supervisors and authorized employees may be the same person.

3. Policy. Lockout/tagout procedures will be used on the following machinery and or equipment whenever adjusting, servicing, or performing maintenance.

*(List machinery or equipment; band saws, mortising machine, drill press, table saw, grinders, lathes, presses, shapers, etc.)

4. Procedures. (List general procedures in this section.) **NOTE**: when more than one type of machinery and or equipment is operated, list procedures for each type in the appendix of the safety plan.

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Figure C-4. Example Lockout/Tagout Safety Plan

Appendix D
Suggested Items for Inclusion in Performance Standards

a. Provides subordinate personnel with a safety and occupational health indoctrination. This includes:

(1) Informing subordinate personnel of specific hazards relate to their jobs.

(2) Informing subordinate personnel of their rights and responsibilities.

(3) Instructing subordinate personnel to report hazardous conditions which exist in the workplace.

(4) Instructing personnel concerning hazards on the installation in the local area, and of hazards during off duty activities.

b. Successfully completes required formal safety training for supervisors.

c. Is intimately familiar with the organization safety plans, and performs evaluations of the job and work site for hazardous conditions as required by applicable regulations.

d. Submits required reports of accidents and inspections in a timely manner.

e. Ensures safety is incorporated into plans and operations.

f. Enforces adherence to safety rules.

g. Performs other safety duties as appropriate.

Appendix E
Preliminary Actions and Reporting of Army and Contractor Aircraft Accidents and Aircraft Ground Accidents

Procedures

a. Persons involved in, or aware of, an Army aircraft accident will notify the commander or supervisor directly responsible for the operation, materiel, or persons involved by telephone.

b. Take action to secure the accident scene to prevent moving or disturbing the aircraft and wreckage until released by the president of the accident investigation board, or its removal is directed by higher military or civilian authority.

c. Notify the Commander, United States Army Safety Center, Centralized Accident Investigation (CAI) Operations, by telephone, AUTOVON 558-2660/558-4273, in case of Class A and B accidents. As a minimum, notice will include the information required by AR 385-10, paragraph 3-8.

d. Notify proper authorities of aircraft mishap immediately in accordance with AR 385-10, paragraph 3-8. Information required for accident reporting must be in accordance with DA PAM 385-40, chapter 3.

APPENDIX F
Centralized Accident Investigation, Ground (CAIG) Program

F-1. Centralized Accident Investigation, Ground (CAIG) Program

This section prescribes the requirements for the CAC and Fort Leavenworth Centralized Accident Investigation, Ground (CAIG) Program. Class A ground accidents as defined in AR 385-10, paragraph 3-4a, involving military on duty and other selected categories of accidents as determined by the parent command safety office will be investigated by a CAIG board (see Appendix D, paragraph D-3).

a. The first commander in the troop chain of command who becomes aware of an on duty Class A accident will:

(1) Ensure that Soldiers are cared for and casualties evacuated and treated as needed. This includes moving Soldiers and security guards to safe distances from danger or hazards.

(2) Secure the accident site to prevent disturbance of the site or movement of wreckage and equipment until relieved by proper authority.

(3) During duty hours, notify the CAC Safety Office, 684-1742. During non-duty hours, notify the staff duty officer (SDO), 684-4154. As a minimum notice will include the following information:

(a) Date and time of accident.

(b) Type of equipment and nomenclature involved.

(c) Unit having accident.

(d) Location of accident.

(e) Hazardous and or sensitive materials involved.

(f) Weather conditions at time of accident.

(g) Total number of people involved.

(h) Highest rank involved.

(i) Brief synopsis of event.

(j) Point of contact (POC).

(4) Coordinate all actions with appropriate authorities for accidents occurring in areas not under Army control.

(5) Minimize environmental damage. Cleanup of oil, fuel, and other hazardous material spills will be accomplished as soon as possible. If a hazard exists, cleanup will take precedence over preservation of accident site.

(6) Ensure access to the accident scene is restricted to commanders and other agencies conducting concurrent investigations.

(7) Provide military police or criminal investigation department personnel access to items of evidence that could be destroyed by time or the elements before the CAIG board arrives at the accident site.

b. The Commanding General or designated representative will:

(1) Appoint the president and other members of the board from organizations other than the activity incurring the accident. Individuals from that activity may be designated as advisers (nonvoting) to enhance the investigation and reporting of the accident.

(2) Give priority to accident investigation and reporting duties to ensure prompt completion of CAIG reports.

(3) Ensure that no member of the board has a personal interest in the outcome of the accident investigation.

(4) Administratively support the investigation board.

c. CAC Safety Manager/Garrison Safety Manager will:

(1) Serve as safety point of contact for the board.

(2) Ensure that preliminary actions required by these instructions are initiated.

(3) Process information concerning the accident and progress of the investigation to HQ TRADOC or IMCOM West Region Safety Office single POC, as applicable.

(4) Coordinate the activities and reports prepared and submitted by all agencies concerned with the accident, and send reports to TRADOC Command Safety Office or IMCOM West Region Safety Office single POC, as applicable.

d. Logistics Readiness Center – Leavenworth. Will provide logistics support including equipment to recover wreckage when it is authorized to be moved, (i.e., ground accidents involving multiple vehicles, injuries or fatalities as determined by the type of accident). Provisions will be made for a suitable and secure area for storage and technical inspection of wreckage.

e. Composition of CAIG boards.

(1) The CAIG will consist of a board president, a recorder, and additional technical members as necessary, and will provide augmentation. The board president will be a minimum of field grade, preferably branch-qualified in the area being investigated. Local CAC and Fort Leavenworth personnel will be appointed as members or advisers as requested by the board president.

(2) All personnel appointed as members will be voting participants. Therefore, members including the board president will be from organizations other than the activity incurring the accident and will be screened to ensure that no member of the board has an interest in the accident that may bias the outcome of the investigation. Members will normally consist of a medical officer and technical specialist qualified in the maintenance and operation of the equipment involved in the accident.

(3) Personnel appointed as advisers are nonvoting participants. Advisers are to enhance and expedite the investigation and reporting of the accident. Advisers will consist of the CAC/Garrison Safety Office POC and a POC from the organization incurring the accident. In cases where the equipment involved is unique to one organization or activity at a location, technical specialists from organizations other than that incurring the accident may not be available. In this case, technical personnel from the organization incurring the accident may be used, at the discretion of the board president, on advisory status. Advisers will not be personnel directly involved in the accident or in the chain of command of those directly involved. Requests for assistance by other outside agencies should be referred to TRADOC Command Safety Office.

(4) Both members and advisers will be appointed on orders and are responsible for following the provisions of this regulation and AR 385-10, Chapter 3.

f. On arrival at the accident scene, the accident board assumes control of the site from the chain of command. He or she will direct the security of the site and other tasks and keep the commanders concerned informed of the progress of the investigation. At this point, responsibility for all matters is transferred to the president of the board.

g. Preservation of the accident scene will be in accordance with AR 385-10, paragraph 3-24.

h. The accident investigation board will have access to all evidence, photographs, and witness statements collected by MP and CID investigators. The accident board will also have access to all personnel, medical, and financial records on personnel involved in the accident and maintenance records on the equipment involved in the accident. The accident investigation board will have access to all evidence analysis per AR 385-10, paragraph 3-26.

i. Other investigators will be given access to information collected by the accident investigation board per AR 385-10, paragraph 3-27.

j. CAIG reports will be processed promptly.

(1) The initial reviewing official normally will be the commander of the unit involved or the commander of the supervisor directly responsible for the operation, material, or persons involved in the accident. The initial reviewing official will:

(a) Concur or nonconcur in the findings and recommendations of the CAIG report.

(b) Note corrective actions taken or proposed and recommendations for additional actions by higher headquarters or other agencies.

(c) Expeditiously forward the original and all copies of the report through the chain of command to the approving authority.

(d) Ensure that factual data of the accident are circulated promptly within the unit and that recommendations that can be put into effect immediately at the unit level are implemented.

(2) The commanding general or designated representative will:

(a) Approve or disapprove each recommendation made by the CAIG board as written or amended by reviewing officials and make additional comments as required.

(b) State how corrective actions will be accomplished.

(c) Recommend action by higher headquarters or other agencies.

(3) The reviewing and approving officials will ensure the accident report is complete and take additional actions as required.

Appendix G
Job Hazard Analysis

Potential Hazards.

A hazard is a potential danger. The purpose of the Job Hazard Analysis (JHA) is to identify ALL hazards, both those produced by the environment or conditions and those connected with the job procedure.

To identify hazards, ask yourself these questions about each step:

Is there a danger of the employee striking against, being struck by, or otherwise making injurious contact with an object?

Can the employee be caught in , by, or between objects?

Is there potential for slipping, tripping or falling?

Could the employee suffer strains from pushing, pulling, lifting, bending or twisting?

Is the environment hazardous to safety and/or health (toxic gas, vapor mist, fumes, dust, heat or radiation)?

Close observation and knowledge of the job is important. Examine each step carefully to find and identify hazards, the actions, conditions, and possibilities that could lead to an accident. Compiling an accurate and complete list of potential hazards will allow you to develop the recommended safe job procedures needed to prevent accidents.

Recommended Action or Procedure.

Using the first two columns (see Appendix A, Section III) as a guide, decide what actions or procedures are necessary to eliminate or minimize the hazards that could lead to an accident, injury, or occupational illness.

Begin by trying to: Engineer the hazard out and provide guards, safety devices, etc. Provide personal protective equipment. Insure good ergonomics (positioning the person in relation to the machine or other elements in such a way as to improve safety).

List the recommended safe operating procedures. Begin with an action word. Say exactly what needs to be done to correct the hazard, such as, “lift using your leg muscles”. Avoid general statements such as, “be careful”.

List the required or recommended personal protective equipment necessary to perform each step of the job.

Give a recommended action or procedure for each hazard.

Serious hazards should be corrected immediately. The JHA should then be changed to reflect the new conditions.

Finally, review your input on all three columns for accuracy and completeness. Determine if the recommended actions or procedures have been put in place. Re-evaluate the job safety analysis as necessary.

The JHA is an important accident prevention tool.

Appendix H
Risk Assessment Matrix

Read risk level at intersection of probability and effect			PROBABILITY				
			Frequent	Likely	Occasional	Remote	Unlikely
			A	B	C	D	E
EFFECT	Catastrophic	I	Extremely high	Extremely high	High	High	Moderate
	Critical	II	Extremely high	High	High	Moderate	Low
	Marginal	III	High	Moderate	Moderate	Low	Low
	Negligible	IV	Moderate	Low	Low	Low	Low

EFFECT

Catastrophic	Death or permanent total disability, system loss, major property damage
Critical	Permanent partial disability, temporary total disability in excess of 3 months, major system damage, significant property damage.
Marginal	Minor injury, lost workday accident, compensable injury or illness, minor system damage, minor property damage
Negligible	First aid or minor supportive medical treatment, minor system impairment

PROBABILITY

Frequent	Individual soldier/employee/item: Occurs often in career or equipment service life All personnel or inventory : Continuously experienced
Likely	Individual soldier/employee/item: Occurs several times in career/equipment life All personnel or inventory: Occurs frequently
Occasional	Individual soldier/employee/item: Occurs sometime in career/equipment life All personnel or inventory: Occurs sporadically or several times in inventory life
Remote	Individual soldier/employee/item: Possible to occur in career/equipment life All personnel or inventory: Remote chance of occurrence; expected to occur sometime in inventory service life
Unlikely	Individual soldier/employee/item: Can assume will not occur in career;/equipment life All personnel or inventory: Possible, but occurs only very rarely

Appendix I
Blood Test Refusal Form

Blood Test Refusal Form – EXAMPLE

Blood Test Refusal

I understand that I may have been exposed to blood and or body fluids (or other materials that may contain infectious agents) which may compromise my health. I refuse to allow_____to test my blood for any evidence of previous infection with these agents and recognize that refusal to allow testing at this time may result in the inability to determine if the exposure was occupational and a delay of diagnosis if I have been infected. I understand that should I change my mind within 90 days of the signing of this document, my blood will be tested for possible evidence of current or previous infection.

_____
SIGNATURE DATE

_____
WITNESS DATE

Appendix J
Ergonomic Factors and Preventive Measures

a. Seated repetitive work with light parts.

This type of work situation seems to involve few stresses. The work position is seated and the work is usually done near the body. There is little abnormal stretching or twisting, the items which are handled don't weigh much. Examples of jobs that fall into this category are telephone operator, working at a word processor, and soldering electronic components.

(1) Fixed or locked work position and repetitive movements.

Even though this type of work may seem to be well suited for human beings at first glance, difficulties exist ranging from minor to severe. The most important reasons for these problems are that the work position is locked and unchanging throughout the entire workday, the same movements are made with very few pauses. Pain in the neck and shoulders are common medical problems in this kind of work. Stress headaches also occur, and in some cases the lower legs can swell up because of poor blood circulation.

(2) Going beyond purely technical solutions.

When you try to either resolve or reduce the problems of the seated workplace, it is important to realize that technical solutions alone are not enough. The problems of the fixed working position and the repetitive pattern of movement must be addressed. This can be done, in part, by organizing the work in a different way. Try to vary the tasks. In addition to short cycles, try to include other tasks to break the pattern of monotonous repetition. Pauses for exercise have also had a positive result. Another alternative is to initiate job rotation so the worker alternates between tasks at totally different workplaces and thus exchanges jobs with fellow workers one or more times during the day.

(3) Checking out the work height.

The height of the workstation ought to be adjustable. The installation should be flexible so that the operator can adjust the height easily during the work shift, thereby altering the work position. When several different people use the same worktable, height adjustment is particularly important. Unfortunately, worktables set too high are common, forcing the worker to compensate by either hunching the shoulders or extending the upper arms. Both of these positions lead to other ergonomic problems. Check to see that the working height of the table is below the lowest part of the elbow. This way, a relaxed position can be assumed, with "hanging" shoulders and the upper arms close to the body. Some jobs can also be done standing, and alternating between sitting and standing is a good way to create variety. In these cases, the work surface can simply be moved to a suitable work height, allowing the arms and shoulders to maintain the same relaxed position for either seated or standing work.

(4) Tilting the table.

In many cases an adjustable work surface provides a better work position. Like the adjustable height mechanism, the tilting mechanism ought to be simple, and preferably have a nonskid surface to prevent parts from sliding off the table.

(5) Adjustable chair.

The height of the chair should be easily adjustable within the range of 15 to 22 inches. The seat back should also be adjustable, both up and down, and forward and back. In certain cases, an arm support is a useful addition, but it must be simple to install. An arm support which is too high can cause more problems than it solves. An alternative to arm supports is a work surface with a semicircular indentation by the seat so that the arms can rest directly on the table's surface. An arm or wrist support on the table may also be useful, particularly in adding machine work, calculating or typing. As an alternative to conventional chairs, a forward-tipping chair used in conjunction with a knee support can be used. In order for such a chair to be used effectively for the relief of back strain, the standard height of the worktable ought to be raised to about 39 ½ inches.

(6) Room for the legs.

Another requirement for a good workplace is adequate legroom. A space about 27 ½ inches wide is sufficient. The thickness of the tabletop should also be taken into consideration. The tabletop should not be more than 1 ½ inches thick or there will not be adequate room for the thighs, even if the chair and table heights are correctly adjusted.

(7) Proper illumination.

This type of work makes great demands on the eyes. If the fall of light is not correct, or if the illumination is inadequate and not glare free, the worker will have to lean forward or to one side to see clearly. This can negate good points in the workplace and cause neck pain and eye strain.

b. Seated work with larger parts.

In these tasks the object being worked with is so large that it is not always possible to perform the work in an optimal work area, either in terms of the heights of the workspace or its horizontal placement. It may be possible to use lifting devices to get the object into place and into the correct position, but other stressful elements may still be present. This type of work most often takes place in garages, in certain assembly operations, and in welding sites.

(1) Bent forward and twisted position.

Unlike the jobs in the seated repetitive work with light parts, these jobs are not nearly as monotonous, but it is often difficult to adjust the work area to allow work to be done in the correct position. Because of the shape of the work object, it may be necessary to work in a leaning forward position. This leads to static muscle overload. Twisted work positions are also common, resulting in lopsided muscle loads.

(2) Adaptability/Accessibility.

The best way to minimize strains is to make it possible for the object being worked on to be adapted to the individual doing the work. Electrically or hydraulically powered worktables which can be raised or lowered provide a definite improvement. Tables specifically designed to tolerate the industrial environments and the extra weight involved are readily available. A rotating disc which allows the object being worked on to be swung around improves accessibility. This can help to prevent awkward forward-leaning postures. For larger pieces, it is best to have a fixture into which the object can be placed. This fixture should be able to tip as well as rotate, in many cases improving the work position further. If the fixture itself cannot rotate, it may be possible to have a chair which can easily move around the fixture.

(3) Adjustable chair.

If the job requires shifting between the sitting and standing position, the chair should be designed to facilitate this change. Certain workplaces (for instance, in welding) utilize a chair which is fastened to the worktable by a link arm, allowing the chair to move easily in and out as well as sideways. When working with tall work pieces it is not possible to sit normally, because if the work object is at the correct height for the hands, there will not be room under the worktable for the legs. A saddle type chair, on which the workers sit in a half-standing position, can relieve back pressure in this situation.

(4) Workplace illumination supplements.

As in all workplaces, proper illumination is important. Because this kind of work is often approached from different directions, the worker must be able to change the direction of the light to avoid glare and to maintain proper contrast values. An adjustable light at the worksite should be used to complement ceiling lights.

(5) Not over seven kilograms (about 15 pounds).

The flow of material to and from the job site must be regulated so that the workload is neither too great nor too small. Anything weighing more than about 15 pounds should not be lifted from a sitting position. It may be possible in many cases to use a hoist or a smaller table-mounted lifting device. These devices are discussed under work type five (standing, heavy lifting and carrying work).

c. Seated control work.

In this type of work, the worker is usually seated. This includes supervision of an activity or process as well as direct control by means of wheels, knobs and levers. This work may demand both muscular strength and fine motor movements. The work area is usually near the body, but stretching is sometimes necessary in order to reach control surfaces, or to see the work being done. Some work of this type requires the person to stand or move around occasionally, interrupting the long periods of sitting. Almost all vehicle drivers fall into this class of work. This includes forestry vehicle operators and heavy equipment operators. Other work activities which apply are those in industries where work procedures are directed and observed from a control room.

(1) Vibrations produce extra stress.

Job stress in this type of work is caused primarily by the fixed working position and the demands for visibility, which can lead to distorted postures. The placement and design of the controls may contribute greatly to the stress. In addition, vibrations produce extra stress for vehicle operators, and many of them tense muscles to some extent in order to compensate for the vibrations.

(2) Driver's seat.

The fixed work position in the driver's seat is caused by the need to observe the controls. Therefore, it's important to be sure this working position is not made unnecessarily burdensome because of a chair that cannot be properly adjusted. When buying new equipment, be sure the placement of the controls is adjustable. Modern control seats are often adequately adjustable; that is, they can adjust plus or minus three inches from side to side and slightly less than three inches in height from a neutral position of 18 inches. On the other hand, the placement of the back wall of vehicle cabins frequently prevents a large person from moving the control seat back to its maximum distance from the pedals. It is best for the chair seat and back support to be tiltable at various angles. In addition, a driver's seat ought to be equipped with a vibration-reducing suspension. For rough terrain vehicles, the demands on the chair are even greater.

(3) Good instruction book.

Even though most modern driver's seats fulfill these requirements, there are still problems. Chair adjustments are not always easy to make and the control panels are not constructed so the chair can be adjusted in a comfortable, logical way. Clear marking and a good instruction book are also necessary. Remember, too, that chairs need to be taken care of, and the adjustment mechanisms lubricated.

(4) Swiveling chair.

If the driver must be able to look backwards frequently and for long periods of time, the chair should be capable of swiveling 180 degrees. For work in vehicles which are often driven backward, it is a good idea for the controls to swivel with the chair. Adequate leg room must also be provided when the chair is swiveled 180 degrees. If a swivel chair is not possible, large mirrors or a TV monitor can provide a clear view backwards.

(5) Design and placement of controls.

There are two types of design and placement of controls. In the past, controls were usually mounted on or connected to a control panel or instrument board. Road vehicles still have this type of placement. Other types of command centers are more and more frequently equipped with finger-operated power-assist mechanisms mounted directly on the armrests of the chair. This arrangement is considered to be a more favorable layout for the workplace. However, the risks of stress as presented in seated repetitive work with light parts, should be considered for this design.

(6) Ideal effort.

The ideal amount of effort which should be expended in operating a finger-control system is 3-5 N(Newton). (10 N is the equivalent of about 2.2 pounds). For a hand-

operated lever, 5-20 N (about 1-4.5 pounds) is suitable, and for a wheel or know, the control effort can rise to an optimal 50 N (about 11 pounds). All of these ideal effort levels assume that the control is in an optimal position relative to the worker. In some cases, larger expenditures of energy can be justified.

(7) Clear view.

The working position for control work is determined primarily by the need to see. This is true whether the worker needs to see the ground or is viewing an instrument cluster. The entire field of vision required to do the job must be readily visible from the normal seated position. It should not be necessary to lean forward or to twist in order to see. Corner pillars in vehicle cabs ought to be designed and placed so they do not hinder visibility. Illumination in the cab and especially in the area of vision must be designed and built so the driver area should be so even the eye does not have to compensate for changes in light. Ideally, the eyes should not have to move more than 10 degrees in either direction sideways, and not more than 30 degrees up or down from the horizon. A human being's color perception is concentrated in the center of the field of vision. It is therefore important that color-coded information like warning lights be placed in this part of the field of vision rather than peripherally.

(8) Entrance ladder important.

While seated control work does not actually include the means of entry into the workplace, it is part of the total work situation, and should be included. If entrance to the cab takes place via a ladder, the lowest rung of the ladder should not be any more than about 14 inches off the ground or floor. The remaining rungs should be about 8-12 inches apart, and should be at least 12 inches wide and four inches deep. The door to the cab should be at least 24 inches wide and 63 inches high. For delivery trucks and other vehicles in which constant entering and exiting takes place, the demands on the entrance are even greater. Here it is important to have the step to the entrance as low as possible.

d. Standing work.

Most kinds of jobs, which are performed while standing fall under this heading. These include work with machinery, work at a worktable, etc. Standing work can mean the work is done with the hands outside an optimal area, both horizontally and vertically downwards. There may be both short and long intervals when the body is bent forward. This work is generally not highly repetitive some handling of medium to heavy material may also be involved. Lathe operators, building custodians, sales checkers, printers, surgeons, and to some degree, hairdressers and packing workers are examples of people whose work falls into this work type.

(1) Strains of standing work.

Standing work involves stresses and strains on the legs, arms, and back. Static strains occur when the job must be performed bent forward for some time, or when the job is performed some distance from the body with outstretched arms. In addition, side strains can result from working in twisted positions. If the work is performed standing for the entire workday, consider the possibility of changing the work pattern so that

some of the work can be performed sitting down. Jobs, which involve increased strength, are best performed while standing. As with seated work, it is important that the work height be adjustable.

(2) Correct machine height.

Machines and worktables, which cannot be easily adjusted for height, at the very least, ought to be positioned for height when they are installed. If the machine height cannot be changed, and if several people of different heights work at the machine, adjustments must be made another way. For example, a vertically adjustable platform can be installed in front of the machine. Another solution is to use moveable platforms of different heights. If these solutions are used, it is important to take care that it is still easy to reach the work platform and that the risk of falls in not increased.

(3) Place for the feet.

It is very expensive to rebuild machinery. Therefore, before new machinery is purchased, a check should be made to see that all controls are placed within an optimal area of the hands, both in term of distance from the body and height. It is important for the workers to be able to come close to the machine safely in order to minimize the static stresses of working in a bend-forward position. There should be a recess for the feet at the lower edge of the machine, or the worker will be forced to stand some distance from the machine. In machine work, the need to be able to see clearly often determines the work position. If the work object is far away from the operator, the operator is forced to bend over. Therefore, in certain cases it is good to tilt the upper portion of the workplace at an angle toward the worker. Energy expenditures for operating machinery are the same as those set forth in seated control work. However, when work is to be performed standing it is wrong to design a control worked with a pedal.

(4) Space around the machine.

There must be plenty of room around a machine for use both as a service area and a transport area. Normally, a free zone of about 45-48 inches is needed around a machine. Does the job entail the feeding or removal of material? This material ought to be placed to the side of the machine, so that body movements can be from side to side rather than twisting. If the material is placed beside the operator, or behind the operator, problems arise. Equipment and tools which are often used on the job should be placed at the same height as the machine and not in a cabinet under it.

e. Standing heavy lifting and carrying working.

This type of work requires the worker to lift, hold or move a heavy load while standing. Such work constitutes a small part of the job. It is an important side element in distribution and in the handling of patients in hospitals. It is also an important part of work in the carpet industry and in furniture moving.

(1) Improper technique increases risk.

The level of strain, which can prove hazardous, relates to lifting a weight which is too great, or the attempt to handle a weight which is not near the body. Incorrect lifting or

carrying techniques dramatically increase strain. Another problem is the increased risk of stumbling when handling a heavy load. Muscles tense to avoid a fall. Muscles may be affected without being noticed, and damage can result.

(2) Technical measures.

The best technical solution would be to completely eliminate manual lifting. In many cases this is actually possible, either with the help of ordinary hoists or with specially built help devices. Often it is possible to use available lifting devices by adapting them with special fixtures, or with a gripping device designed for the products which are to be handled. Hoists can be used to move loads for short distances. For longer distances it is better to use lifting carts with stands that permit height regulation.

(3) Several factors.

The strain which results from handling a load depends primarily on its weight, shape, gripping or holding possibilities and the beginning and ending position. The weight and shape of the object determines the amount of force which will impact the joints. Weight and shape also determine which of the muscles will come into use to bear the load. The closer to the body a load can be carried or, more correctly, the closer to the body the center of gravity of a load can be carried, the less strain it can cause. About 22 pounds at 32 inches from the body produces the same strain on the lower back as 110 pounds near the body. It doesn't make sense to establish either an optimal or maximum weight for a load which is to be lifted or handled. How often a lift must be made is also of great importance. The acceptable weight decreases rapidly as the frequency of lifts increases. The ability to get a good grip on the load also has a great effect on strain. If a good grip is missing, a great deal of energy goes into just holding the load. A bad grip presents the risk of sudden strains. It is often possible to equip a load with extra holds if it lacks good gripping possibilities. Sometimes it is possible to change the work method so that lifts can be completely avoided. For example, lifting containers filled with liquids may be avoided by pumping the liquids from one container to another. The initial position of the burden and its final position (in height) also have a great influence on stresses on the body. The most advantageous position is between 18.5 and 37 inches from the floor, depending on a person's own height. If the transfer of the load must be done manually, it is extremely helpful if the load can be positioned at the correct height initially, for instance, with a scissors table.

(4) Avoid twisting.

Lifting should not be combined with twisting the body, as this puts extra strain on the back. It is important to see that there is enough room to perform the lift in the correct position and with the correct body movements. Carrying on stairs always creates an extra strain and presents extra risk of accidents. In order to avoid accidents the feet must have a proper grip. This means proper shoes and non-slip floors. The transport path must be free of obstacles for its entire length.

f. Working with hand tools.

Work with the arms above the chest height can be done either standing or sitting. In certain jobs it can also include lifting and/or work with hand tools. In some cases, such

as working on ceilings, there are extra stresses on the neck. It is obvious that when you are working with the hands above the chest height you are far outside the optimal area in height and outside the optimal area horizontally, too.

(1) Static load or strain.

Working with the hands above chest height creates severe strain on the heart because the heart must work harder to get blood to the elevated areas. This type of work also causes troublesome static strain.

(2) Examples of measures.

Ideally, this type of work should be eliminated. A simple, effective way to do that is to raise the work area. For example, the work situation at a counter can be improved by raising the floor on the inside of the counter so the sitting person is at the same height as the standing person. This also avoids an uncomfortable bending of the neck caused by having to look up at an angle. For other jobs, a fixture and a tipping device can be used which allow the work object to be placed in front of the worker instead of overhead. For example, in the construction of a car chassis, the chassis can be rotated 90 degrees, making it easier for the operator to mount axles and other parts of the underside of the car. Sometimes a simple lifting device can be used in the same way.

(3) Standing for ceiling work.

For work on ceilings, which is common at construction sites, an extension arm or pole can sometimes be used so the hands are in front of the body instead of over it.

(4) Balance block.

Hand tools, which are used at a fixed workplace, can be hung up on a balance block. This diminishes the tools' weight, at the same time, they are always at hand, usually without getting in the way. When new machines are purchased, be especially careful that controls or part feeding are not placed too high up. Access to a stable but easily movable platform or jack can in most cases create the effect of the work area being moved down.

g. Working with hand tools. Work with hand tools is not really a type of work. However, hand tools are used in most jobs.

(1) Rest position of the hand.

In a relaxed position the hand lies with the palm down. It is gently curved with the thumb outstretched. The knuckle of the index finger is higher than the knuckle of the little finger. This is the rest position of the hand, and can be considered to be the position of the hand at the time activity is initiated. In designing hand tools it's best to strive for a form which allows the hand to work in the resting position. In most cases where the hand must expend considerable energy it is important that the handle not be too narrow. A thick handle allows the finger muscles to exert the greatest force. This also reduces surface pressure on the hand. It is important that the size of the handle be efficient. A screwdriver for small screws need not have a small handgrip.

(2) Satisfactory surface pressure.

It is important that the entire hand has room and can grip. The length of the handle should not be less than 4.75 inches. A cylindrical handle normally gives the most equal distribution of surface pressure. Handles can be made with patterns in the grip to improve the hold. For twisting movement, like a screwdriver, “rifling” can be cut along the handle. If energy is exerted in the tool’s direction the rifling can be done across the tool. The size of the grip must take into account who the tool will be used by, both men and women, by people with both large and small hands. In addition, handles and tools should be designed to be used by both right-handed and left-handed people.

(3) Avoid unnecessary twisting.

A hand tool should be designed so that the direction of function is the same as the direction in which force is applied. That way, unnecessary twisting movements are avoided. Where extra force is necessary to carry out a job, the handle should be formed so the thumb can lie across the top of the handle. This allows some of the force to be absorbed by the thumb. Handles of tools intended to be used only one way can be advantageously designed with an oval cross section. In addition, the tool should be designed so unnecessary twisting movements do not occur. With hand tools which are not used for fine motor activity, it is important that the various tools used be as similar in weight as possible.

(4) Material.

The material a handle is made of ought to be hard. This is particularly true for tools used in workshops where it is possible for bits of metal to lodge in the handle and injure the hand. The material should not be able to absorb liquids of any type that could cause skin disorders.

Appendix K
Bloodborne Pathogen Exposure Occupation Listing

Appropriated Fund Positions			
Title	Series	Job Number	Organization
Firefighter	GS-0081	89810	DES
		92813	
		92816	
		92833	
Recreation Aid/Asst	GS-0189	87598	FMWR
		88343	
		93127	
Medical Officer	GS-0602	H001A	MEDDAC
		82275	
		87124	
Physician’s Asst	GS-0603	89832	MEDDAC
Clinical Nurse	GS-0610	89012	MEDDAC
		89111	
		90396	
		93028	

Practical Nurse	GS-0620	H084A	MEDDAC
		90823	
Nursing Assistant	GS-0621	H086A	MEDDAC
		89108	
		90154	
Medical Supply Tech	GS-0622	87234	MEDDAC
		90291	
Health Tech (Ortho)	GS-0640	90169	MEDDAC
Occ Health Tech	GS-0640	91560	MEDDAC
Health Tech (Disp Opt)	GS-0640	93083	MEDDAC
Medical Technologist	GS-0644	91342	MEDDAC
		92190	
		92559	
		94026	
Medical Technician	GS-0645	86102	MEDDAC
		86322	
		94039	
Histopathology Tech	GS-0646	82185	MEDDAC
Diagnostic Radiology Tech	GS-0646	84357	MEDDAC
	GS-0647	90171	
Dental Asst	GS-0681	12363	DENTAC
		12365	
		12367	
		80014	
Comm Health Dental Hygienist	GS-0682	84453	DENTAC
		84456	
Dental Laboratory	GS-0683	86011	DENTAC
Motor Vehicle Oper	WG-5703	91193	MEDDAC
Laundry Plant	WS-7301	93830	USDB
Laundry Worker	WG-7304	91262	USDB
Non-Appropriated Fund Positions			
Title	Series	Job	Organization
Lifeguard	NF-0189	10087	FMWR
		11L87	

Glossary

Section I
Abbreviations

AFGE
American Federation of Government Employees

ALARA
As low as reasonably achievable

AMV
Army motor vehicle(s)

ANSI
American National Standards Institute

AR
Army regulation

BASOPS
Base operations

BBP
Bloodborne Pathogens

BBPECP
Bloodborne Pathogen Exposure Control Program

BBPP
Bloodborne Pathogens Program

bldg
building

CAC & FT LVN
Combined Arms Center and Fort Leavenworth

CAI
Centralized accident investigation

CAIG
Centralized accident investigation, ground

CFM
Cubic feet of air per minute

CFR
Code of Federal Regulations

CGA
Compressed Gas Association

CID
Criminal Investigation Department

cm
Centimeter

COR
Contracting Officer's Representative

CPAC
Civilian Personnel Advisory Center

CPR
Certification in basic first-aid

CTD
Cumulative Trauma Disorder

DA
Department of the Army

DARA
Department of Army radiation authorizations

DES
Directorate of Emergency Services

DFMWR
Directorate of Family and Morale and Welfare and Recreation

DOD
Department of Defense

DPTMS
Directorate of Plans, Training, Mobilization and Security

DPW
Directorate of Public Works

ECP
Exposure control plan

EEWP
Energized electrical work permit

FAR
Federal acquisition regulation

FFA
Federal Fire-fighters Association

FM
Field manual

GFCI
Ground fault circuit interrupter

HAZCOM
Hazardous communication

HBV
Hepatitis B virus

HG
Mercury

HIV
Human immunodeficiency virus

HMIS
Hazardous material information system

HQ
Headquarters

IAW
In accordance with

ICO
Infection control officer

IRCC
Ionizing Radiation Control Committee

IRPD
Installation respiratory program director

JHA
Job hazard analysis

LEL
Lower explosive limit

LFL
Lower flammable limit

LRC
Logistics Readiness Center – Fort Leavenworth

MACOM
Major command

MEDDAC
Medical Department Activity

MICC-DOC-L
Mission & Installation Contracting Command, Directorate of Contracting Fort Leavenworth

m
Milli

MHz
Megahertz

MM
Millimeter

MP
Military police

NCO
Noncommissioned Officer

NRC
Nuclear Regulatory Commission

OIC
Officer In-Charge

OHS
Occupational Health Services

OSHA
Occupational Safety and Health Act

PCE
Protective clothing and equipment

PES
Potential explosion sites

PMS
Preventive Medicine Services

POC
Point of contact

POW
Privately owned weapons

PPE
Personal protective equipment

PRAM
Preliminary report of aircraft mishap

QD
Quantity distance

RF
Radio frequency

RPO
Radiation protection officer

RSO
Range safety officer

RTEC
Registry of toxic effects code

SASOHI
Standard army safety occupational and health inspection

SCBA
Self-contained breathing apparatus

SDO
Staff duty officer

SDS
Safety data sheet

SFC
Sergeant First Class

sq
Square

SSG
Staff Sergeant

TLV
Threshold limit value

TRADOC
Training and Doctrine Command

UEL
Upper explosion limit

UIC
Unit identification code

VDT
Visual display terminal

W
Watt

Section II
Terms

Abate
To eliminate or reduce an OSH hazard by complying with OSH standards criteria or taking equivalent protective measures.

Acceptable entry conditions
A confined space work place in which uncontrolled hazardous atmospheres are not present.

Affected employees
An employee whose job requires them to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires them to work in an area in which such servicing or maintenance is being performed.

Arc flash hazard
A dangerous condition associated with the possible release of energy caused by an electric arc.

Army material-handling equipment
Forklifts, aircraft tugs, warehouse tractors, warehouse cranes, straddle trucks, and all construction-type equipment such as farm type tractors, front loaders, and sweepers.

Army motor vehicle
a. A vehicle that is owned, leased, or rented by the DA and Reserve Components.
b. A vehicle that is primarily designed for over-the-road operation.
c. A vehicle whose general purpose is the transportation of cargo or personnel.

Examples are passenger cars, station wagons, trucks, ambulances, buses, motorcycles, fire trucks, and refueling vehicles. Also included in this category are tactical wheeled vehicles.

Attachment plug
A device that, by insertion in a receptacle, establishes a connection between the conductors of the attached flexible cord and the conductors connected permanently to the receptacle.

Attendant
An individual stationed outside the permit required confined space who is trained as required by this standard and who monitors the authorized entrants inside the permit required confined space.

Authorized employee
A person who locks or implements a tagout system procedure on machines or equipment to perform the servicing or maintenance on the machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee's duties also include performing maintenance on that machine or equipment. An authorized employee's duties also include performing maintenance or service on a machine or equipment which must be locked or a tagout system implemented.

Authorized entrant
An employee who is authorized by the activity commander or director in writing to enter a permit required confined space. Authorized entrants may rotate duties with the attendant if both are trained and authorized by the commander or director in writing to

do so. Any properly trained person who has been authorized by the CAC Commander, such as the CAC Safety Officer, Industrial Hygienist, Fire Chief, etc. may enter a permit space provided the attendant is informed of that entry.

Authorized material
Radioactive material not requiring a specific NRC license. Receipt, possession, use or transfer of radioactive material requires specific authorization or permit by a specific agency or service organization.

Blanking
The absolute closure of a pipe, line or duct by fastening across its bore a solid plate or cap which completely covers the bore: which extends at least to the outer edge of the flange at which it is attached; and which is capable of withstanding the maximum upstream pressure.

Boundary, arc flash protection
When an arc flash hazard exists, an approach limit at a distance from a prospective arc source within which a person could receive a second degree burn if an electrical arc flash were to occur.

Boundary, limited approach
An approach limit at a distance from an exposed, energized electrical conductor or circuit part within which a shock hazard exists.

Branch circuits
The circuit conductors between the final overcurrent device protecting the circuit and the outlet(s).

By-product material
Any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident or the process of producing or using special nuclear material.

Capable of being locked out
An energy isolating device will be considered to be capable of being locked out either if it is designed with a hasp or other attachment or integral part to which, or through which, a lock can be affixed, or if it has a locking mechanism built into it. Other energy isolating devices will also be considered to be capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Commodity (radioactive)
An item of government property made up in whole or in part of radioactive materials.

Contamination (radioactive)

The presence of radioactive material in any place it is not desired and particularly in any place where its presence can be hazardous to man or his environment.

Cumulative trauma disorders
Ergonomic disorders of the musculoskeletal and or nervous system which are result of, or contributed to by the biomechanical risk factors. CTDs are a class of musculoskeletal disorders involving damage to the tendons, tendon sheaths, synovial lubrication of the tendon sheaths, and the related bones, muscles, and nerves. Synonymous terms include repetitive motion injury, occupational overuse syndrome, and repetitive strain injury.

Double block and bleed
The closure of a line, duct, or pipe by locking and tagging a drain or vent which is open to the atmosphere in the line between two locked-closed valves.

Electrical hazard
A dangerous condition such that contact or equipment failure can result in electric shock, arc flash burn, thermal burn, or blast.

Energized
Electrically connected to or having a source of voltage.

Energized electrical work permit
Required when working on energized electrical conductors or circuit parts operating at 50V or more that are not placed in an electrically safe work condition.

Energy isolating device.
A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker, a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; a slide gate; a slip blind; a line valve; a block; and any similar device used to block or isolate energy. The term does not include a push button, selector switch, and other control circuit type devices.

Energy source
Any source of electrical mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Entry
The act by which a person intentionally passes through an opening into a permit required confined space, and includes ensuing work activities in that space. The entrant is considered to have entered as soon as any part of the entrant’s body breaks the plane of an opening into the space.

Ergonomics
A body of knowledge about human abilities, human limitations, and other human characteristics that are relevant to the design of tools, machines, systems, tasks, jobs, and environments for safe, comfortable, and effective human use. The aim of the discipline is to fit the job to the person in order to prevent the development of occupational injury of illness and to reduce the potential for fatigue, error, or unsafe acts, and to increase effective, efficient work.

Ergonomic disorders
The range of health problems arising from repeated stress to the body encountered in the workplace. These health problems may affect the musculoskeletal, nervous, and neurovascular systems and include the various occupationally induced cumulative trauma disorders (CTDs), and cumulative stress injuries, and repetitive motion disorders.

Ergonomic hazards
Workplace conditions that may harm the worker: improperly designed workstations, tools, equipment; improper work methods; and excessive tool or equipment vibration are examples. Other examples include aspects of workflow, line speed, posture, force required, work or rest regimens, and repetition rates.

Ergonomic Task Force
Those responsible for identifying and correcting ergonomic hazards in the workplace, including trained ergonomic personnel, health care providers, industrial hygienists, safety personnel, engineers, and other support personnel, managers, supervisors, and employees.

Extremely high risk
Loss of ability to accomplish mission.

Ground fault circuit interrupter
A device intended for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period of time when a current to ground exceeds the values established for a Class A device

Hazard
A condition with the potential of causing injury to personnel, damage to equipment or structures, loss of material, or decrease of ability to perform a function.

Hazard analysis
Studying the elements of identified hazards to achieve an understanding of risk prior to devising a means of eliminating or controlling them.

Hazardous atmosphere

An atmosphere which exposes employees to a risk of death, incapacitation, injury, or acute illness from one or more of the following causes:

a. An airborne combustible dust at a concentration that obscures vision at a distance of five (5) feet or less.

b. An atmospheric concentration of any substance for which a permissible exposure limit is published in Subpart Z of 29 CFR Part 1901 and could result in employees' exposure in excess of its permissible limit(s).

c. Any atmospheric condition recognized as immediately dangerous to life or health.

Health care personnel
Include occupational therapists, physical therapists, physicians, physician assistants, nurses, and other health care professionals, and their related, supervised technicians (for example, certified occupational therapy assistants and licensed practical nurses). Health care personnel participating in the ergonomics program should have training in basic ergonomics and epidemiology and be up-to-date in the systematic recognition, evaluation, treatment, and rehabilitation of cumulative trauma disorders.

Health hazard
A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.

High risk
Significantly degrades mission capabilities in terms of required mission standards.

Hot tap
A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Hot work permit
The commander's or director's written authorization to perform operations which could provide a source ignition, such as welding, cutting, burning, or heating.

Immediately dangerous to life or health
Any condition which poses an immediate threat of loss of life: may result in irreversible or immediate-severe health effects; may result in eye damage: irritation or other conditions which could impair escape from the permit space.

Immediate-severe health effects
Any acute clinical sign(s) of a serious, exposure-related reaction manifested within seventy two (72) hours after exposure.

Inerting

Displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Injury
Traumatic bodily harm such as a cut, fracture, burn, poisoning, stress, or strain caused by a single incident, or a long or short-term exposure to an external force, toxic substance (including allergic reactions to injections), or physical agent. In the case of environmental factors such as toxic chemicals, single exposures are associated with accidents and spills in workplaces where the specific substance is not normally in the environment.

Ionizing radiation
Electromagnetic or special radiation capable of producing ions directly or indirectly in its passage through matter. For purposes of this regulation, alpha and beta particles, gamma rays, x-rays and neutrons are examples of ionizing radiation. This type of radiation does not include sound or radio waves, visible, infrared, or ultraviolet lights or lasers.

Isolation
The separation of a permit space from unwanted forms of energy which could be a serious hazard to permit space entrants.

Laser
A device that utilizes the natural oscillations of atoms or molecules between energy levels for generating coherent electromagnetic radiation in the ultraviolet, visible or infrared regions of the spectrum.

Leak test
A test of how well a sealed source is containing its radioactive content.

License
A document issued by the NRC under 10 CFR that gives the right to the bearer to procure, receive, store, transfer, use, export, and import specified radioactive items under specific terms.

Licensed materials
Source, special nuclear, or by-product material received, stored, possessed, used, or transferred under a general or specific license issued by the NRC or an agreement state.

Linebreaking
The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, a gas, or any fluid at a pressure or temperature capable of causing injury.

Lockout

The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device
A device that utilizes a positive means such as a lock, either key or combination type, to hold energy isolating device in the safe position and prevent the energizing of a machine or equipment.

Lockout procedures
Developed to ensure that machinery or equipment is isolated from all potentially hazardous energy, and locked out before employees perform any servicing or maintenance activities where the unexpected energization, start-up, or release of stored energy could cause injury.

Low risk
Little or no impact on accomplishing the mission.

Medium risk
Reduces mission capability in terms of required mission standards.

Microtrauma
A series of minor stresses to the body, each of which alone does not cause discernible damage; however, their accumulation over time can lead to ergonomic disorder. These disorders (injuries of syndromes) are also known as cumulative trauma disorders, overuse disorders, repetitive motion injuries, repetitive strain injuries, occupational motion-related injuries, regional musculoskeletal disorders, and work-related disorders.

Monitoring (area)
Routine monitoring of the radiation level or contamination of a certain area, building, room, or equipment. Some laboratories or operations distinguish between routine monitoring and survey activities.

Monitoring (personnel).
Monitoring any part of an individual including the breath, excretions, or any part of the clothing.

Motorcycle
Motor vehicle having a seat or saddle for its operator and designed to travel on not more than three wheels (includes mopeds, motor scooters and pocket bikes).

Multiple causation
The combined effect of several risk factors in one job, operation, or workstation, which may increase the possibility of cumulative trauma disorders.

Nonionizing radiation

Radiation consisting of low energy and does not ionize material (i.e., microwave, radio frequency, and laser).

Normal production operations
The utilization of a machine or equipment to perform its intended production function.

Occupational illness
Any abnormal physical condition or disorder other than one resulting from an injury caused by long-term or short-term exposure to chemical, biological, or physical agents associated with the occupational environment.

Occupational injury
Any on-duty injury to Army personnel caused by events or conditions in the occupational environment.

Outlet
A point on the wiring system at which current is taken to supply utilization equipment.

Pinch grip
A grip which involves one or more fingers and the thumb.

Physical hazard
A chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, or organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water reactive.

Qualified person
One who has skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

Radiation protection officer
Person appointed by the commander to give advice on the hazards of ionizing radiation and to supply effective ways to control these hazards.

Radioactive material
Any material or combination of materials that voluntarily give off ionizing radiation. This includes natural elements such as radium and accelerator-made radionuclides.

Radio frequency
An electromagnetic wave frequency intermediate between audio frequencies and infrared frequencies used especially in radio and television transmission.

Receptacle

A contact device installed at the outlet for the connection of an attachment plug. A single receptacle is a single contact device with no other contact device on the same yoke. A multiple receptacle is two or more contact devices on the same yoke.

Registry of Toxic Effects Code (RTEC)
Code which is used in occupational health to identify chemical hazard.

Rescue team
A group of two or more firefighters designated and trained to perform rescues in permit spaces on Fort Leavenworth.

Residual hazard
A hazard that has not been eliminated by design.

Residual risk
Expected loss from a residual hazard. The risk remaining after one or more cycles of risk reduction efforts.

Respirator custodian
The individual appointed and trained to control and maintain respirator equipment.

Respirator crib
The central control point for issued respirators.

Retrieval line
A line or rope secured at one end to the worker by a chest, waist, or full body harness, or wristlets, and with its other end secured to either a lifting (or other retrieval) device, or to an anchor point located outside the entry portal.

Risk
An expected loss or danger resulting from a hazard. Risk is expressed in terms of estimated severity and probability of injury or damage.

Risk acceptance
A formal or implied decision to accept the consequences of a risk based on a risk assessment.

Risk assessment
Process of detecting hazards and systematically determining probability severity and consequences.

Risk management
Leadership and decision making process that develops controls over danger, losses, or adverse situations. Making trade off decisions between potential, expected loss, and injury versus the benefit of accepting the residual risk.

Safety
The control of recognized hazards to attain an acceptable level of risk.

Safety data sheet
Written or printed material concerning hazards and precautions of a hazardous chemical which is prepared in accordance with CFR 1910.1200(g).

Servicing and/or maintenance
Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Tagout
The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout device
A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Threshold limit value (TLV)
The limit of exposure to a hazardous chemical, determined by the American Conference of Governmental Industrial Hygienists, that can be tolerated in normal workweek of forty (40) hours.

Unqualified person
A person who is not a qualified person.

Voltage, nominal
A nominal value assigned to a circuit or system for the purpose of conveniently designating its voltage class (for example, 120/240V, 480/277V, or 60V). The actual voltage at which a circuit operates can vary from the nominal within a range that permits satisfactory operation of equipment.

Working community
All members of the work environment, at all levels of authority. It consists of installation commanders, the installation medical authority, the designated installation ergonomics officer, identified ergonomics personnel, healthcare personnel, safety personnel, the civilian personnel advisory center, contracting support, DPW, logistics, union representatives, unit commanders, supervisors and active duty military and civilian personnel. The important element is that all members of the working community must

be considered equal and share the commitment to ergonomics for the program to be successful.

Worksite
A work area or work environment

Workstation
An individual employee's work area, such as a desk, chair, and computer terminal or an individual inspection station.

The proponent agency for this regulation is the Combined Arms Center (CAC) Safety Office. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the Commander, U. S. Army Combined Arms Center and Fort Leavenworth, ATTN: ATZL-CSO, 415 Sheridan Ave, Fort Leavenworth, Kansas 66027-1399

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