OCCUPATIONAL SAFETY AND HEALTH STANDARDS

AS AMENDED

DEPARTMENT OF LABOR AND EMPLOYMENT
MANILA

The objective of this Standard is to protect every workingman against the dangers of injury, sickness or death through safe and healthful working conditions, thereby assuring the conservation of valuable manpower resources and the prevention of loss or damage to lives and properties, consistent with national development goals and with the State's commitment for the total development of every worker as a complete human being. This Standards shall apply to all places of employment except otherwise provided in this Standard.

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By virtue of the powers vested in the Department of Labor and Employment under Article 162 of the Labor Code of the Philippines, this Occupational Safety and Health Standards is hereby promulgated for the guidance and compliance of all concerned. This body of standards rules and regulations shall hereafter be referred to as "Standards"

RULE 1000

GENERAL PROVISION

1001: Purpose and Scope:

(1) The objective of this issuance is to protect every workingman against the dangers of injury, sickness or death through safe and healthful working conditions, thereby assuring the conservation of valuable manpower resources and the prevention of loss or damage to lives and properties, consistent with national development goals and with the State's commitment for the total development of every worker as a complete human being.

(2) This Standards shall apply to all places of employment except as otherwise provided in this Standard.

1002: Definitions:

For purposes of this Standards and except as otherwise indicated, the following shall mean:

(1) *"Employer"* includes any person acting directly or indirectly in the interest of an employer, in relation to an employee, and shall include government-owned or controlled corporations and institutions, as well as non-profit private institutions or organizations.

(2*) "Employee"* shall mean any person hired, permitted or suffered to work by an employer

(3) *"Industrial Enterprise"* shall mean any workplace, permanent or temporary, including any building or collection of buildings, shed, structure, yard or any other place, where permanently or temporarily one or more persons are employed in any manufacturing of goods or products processing and any other activity similar and incidental thereto.

(4) *"Agricultural Enterprise"* shall include forestry and logging operations, farming in all its branches, and among other things, includes cultivation and tillage of the soil, dairying, the production, cultivation, growing and harvesting of any agricultural and horticultural commodities, the raising of livestock and poultry, and any practice performed by a farmer on a farm as an incident to or in conjunction with such farming operations, but does not include the manufacturing or processing of sugar, coconut, abaca , tobacco, pineapple or other farm products.

(5) *"Dry Dock"* shall include premises where work is performed on shore or on board ships in which ships or vessels are constructed, repaired, refitted, finished or broken up and housed.

(6) *"Health"* shall connote a sound state of the body and mind of the worker, which enables him to perform his job normally, in a state of well-being.

(7) *"Safe or Safety"* shall refer to the physical or environmental conditions of work or employment, which substantially comply with the provisions of this Standards.

(8) *"Work Accident"* shall mean an unplanned or unexpected occurrence that may or may not result in personal injury, property damage, work stoppage or interference or any combination thereof, which arises out of and in the course of employment.

(9) *"Work Injury"* shall mean any injury or occupational illness suffered by a person, which arises out of or in the course of his employment.

(10*)*"*Occupational Illness"* shall mean any illness caused by environmental factors, the exposure to which is characterized or peculiar to a particular process, trade or occupation and to which an employee or worker is not ordinarily subjected to or exposed outside of or away from such employment.

(11)*"Recognized Hazards"* are those which do not require technical or testing devices to detect.

(12)*"Workplace"* means the office, premises or work site, where the workers are habitually employed and shall include the office or place where the workers, who have no fixed or definite work site, regularly report for assignment in the course of their employment.

(13*)"Approved" shall* mean acceptable to the Secretary in writing after proper examination showing compliance with prescribed Standards.

(14)*"Code"* shall mean the Labor Code P.D. 442 as amended.

(1*5) "Department"* shall mean the Department of Labor and Employment.

(1*6) "Secretary"* shall mean the Secretary of Labor and Employment.

(1*7) "Bureau"* shall mean the Bureau of Working Conditions.

(18)*"Director"* shall mean the Director of the Bureau of Working Conditions.

(19)*"Standards"* shall mean the Occupational Safety and Health Standards.

(20)*"Enforcement officer"* shall mean the industrial safety engineer, the labor regulation officer, or any duly authorized representatives of the Secretary to enforce this Standards.

(21)*"Authorized Representative"* shall mean and include chartered cities, municipalities, employees or officials of other government agencies empowered by the Secretary of Labor and Employment to enforce the provisions of this Standards.

1003: Administration and Enforcement:

1003.01: Department of Labor and Employment:

(1) The Department of Labor and Employment shall administer and enforce the provisions of this Standards.

(2) Every employer shall give to the Secretary or his duly authorized representative access to its premises and records for the purpose of determining compliance with the provisions of this Standards.

(3) Every establishments or place of employment shall be inspected at least once a year to determine compliance with the provisions of this Standards. Special inspection visits, however, may be authorized by the Regional Labor Office or as authorized under Rule 1980 of this Standards, to investigate accidents, occupational illnesses or dangerous occurrences, especially those resulting in permanent total disability or death, to conduct surveys of working conditions requested by the Bureau for the purpose of evaluating and assessing environmental contaminants and physical conditions or to conduct investigations, inspections or follow-up inspections upon request of an employer, worker or a labor union of the establishment.

(4) The enforcement officer shall determine reasonable periods of compliance with recommendations depending on the gravity of the hazards needing corrections or the period needed to come into compliance with the order.

1003.02: Application to Other Places of Employment

When a condition of employment in workplaces not specifically covered by this Standards is the subject of complaints, the provision of this Standards shall apply.

1003.03: Application to Transportation:

Establishments engaged in land, sea and air transportation are not covered except their garages, dry docks, port hangars, maintenance and repair shops.

1003.04: Application to Mines:

The activities of a lessee regarding safety of mining installations, surface or underground, within the mining claim or lease, including mine safety, mineral conservation and problem of pollution in establishments or workplaces falling under "Mining Industry" as classified by the National Economic and Development Authority are not covered by this Standards.

1003.05: Application to Chartered Cities and Municipalities:

The Department of Labor and Employment shall be solely responsible for the administration and enforcement of this Standards in all places of employment except as provided in Rule 1980 of this Standards.

1004: Special Inspection, Investigation and Review:

(1) Any worker or representative of workers or any concerned person who believes that a violation of any provision of this Standards threatens physical harm or imposes imminent danger to life, may request an inspection by giving full particulars or details regarding such violation or danger to the Regional Labor Office or duly authorized representative. If upon appraisal of such notification, the Regional Office or its duly authorized representative finds reasonable ground to believe that a violation has really been committed or danger exists, a special inspection or investigation shall be conducted immediately. The complainant shall be notified in writing of the outcome of such investigation or inspection, immediately upon its completion.

(2) The Secretary of Labor and Employment on his own initiative or on complaints of the workers, shall review any failure or refusal of the Regional Labor Office or duly authorized representative to order compliance or issue recommendation with respect to such complaint or reported violation.

1005: Duties of Employers, Workers and other Persons:

(1) Each employer covered by the provisions of this Standards shall:

a. furnish his workers a place of employment free from hazardous conditions that are causing or are likely to cause death, illness or physical harm to his workers;

b. give complete job safety instructions to all his workers, especially to those entering the job for the first time, including those relating to the familiarization with their work environment, hazards to which the workers are exposed to and steps taken in case of emergency;

c. comply with the requirements of this Standards; and

d. use only approved devices and equipment in his workplace.

(2) Every worker shall cooperate with the employer in carrying out the provisions of this Standards. He shall report to his supervisor any work hazard that may be discovered in his workplace.

(3) Every worker shall make proper use of all safeguards and safety devices furnished in accordance with the provisions of this Standards for his protection and that of others, and shall follow all instructions given by the employer in compliance with the provisions of this Standards.

(4) It shall be the duty of any person, including any builder or contractor or enforcement agent, who visits, builds, renovates, or installs devices, or conducts business in any establishment or workplace, to comply with the provisions of this Standards and all regulations of the employer issued there under as well as with other subsequent issuances of the Secretary.

1006: Confidentiality of Trade Secrets:

All information reported to or otherwise obtained by the enforcement officer in connection with any inspection or proceedings under this Standards, which contains or might reveal a trade secret, shall be considered confidential except that such information may be revealed in any proceeding where it is required or necessary. The Secretary, the Regional Director or duly authorized representative, shall issue appropriate orders to protect the confidentiality of trade secrets.

RULE 1010

OTHER SAFETY RULES

1011: Promulgation of Rules:

Safety and health rules may be promulgated**,** amended, modified, or revoked in the following manner:

(1) The Bureau, on the basis of information submitted in writing by interested parties or on the basis of information available to it, upon determination that a Rule should be promulgated or amended in order to serve the objectives of the Code, shall draft a proposed Rule. Conformably with the principle of tripartism, the Bureau may ask the advice and assistance of individuals and organizations, private or public agencies, particularly recognized workers' and employers' organizations, having special knowledge of the proposal under consideration.

(2) The Bureau shall prepare the proposal taking into consideration suggestions and recommendations available.

(3) The Director shall forward the proposal to the Secretary for approval. The Secretary shall within thirty (30) days from receipt thereof act on the proposal. If rejected, same shall be returned to the Bureau with his reasons. After a reconsideration of the returned proposal, the Director shall resubmit his proposal in the manner herein outlined.

(4) After approval of the proposal by the Secretary, the same shall be published in a newspaper of general circulation and shall take effect fifteen (15) days from the date of publication and shall become part of this Standards.

1012: Special Rules:

1012.01: Work Conditions or Practices Not Covered by Standards:

Any specific rule applicable to a condition, practice, means, methods, operations or processes shall also apply to other similar work situations for which no specific rule has been established.

1012.02: Abatement of Imminent Danger:

(1) An imminent danger is a condition or practice that could reasonably be expected to cause death or serious physical harm before abatement under the enforcement procedures can be accomplished.

(2) When an enforcement officer finds that an imminent danger exists in a workplace, he shall inform the affected employer and workers of the danger and shall recommend to the Regional Director the issuance of an Order for stoppage of operation or other appropriate action for the abatement of the danger. Pending the issuance of the Order the employer shall take appropriate measures to protect the workers.

(3) Upon receipt of such recommendation, the Regional Director shall immediately determine whether the danger exists and is of such a nature as to warrant the issuance of a Stoppage Order or other appropriate action to minimize the danger.

(4) The Order shall require specific measures that are necessary to avoid, correct or remove such imminent danger and to prohibit the presence of any worker in such location where such danger exists, except those whose presence are necessary to avoid, correct or remove such danger or to maintain a continuous process or operation. Where stoppage of operation is ordered, the Order shall allow such correction, removal or avoidance of danger only where the same can be accomplished in a safe and orderly manner.

(5) Immediately after the issuance of a Stoppage Order, the Regional Director shall furnish the Secretary, through the Director, within forty-eight (48) hours a copy of the Order and all pertinent papers relating thereto, together with a detailed description of the work conditions sought to be corrected, the safety and health rule violated by the employer, and the corrective measures imposed. The Secretary shall review the Order issued by the Regional Director and within a period of not more than five (5) working days, issue a final Order either lifting or sustaining the Order of the Regional Director.

(6) The Order shall remain in effect until danger is removed or corrected.

1012.03: Suspension of Rules:

(1) The Secretary may issue to an employer-applicant a temporary order suspending the effectivity date of a Rule or any part of this Standards for the following reasons:

a. the unavailability of professional or technical personnel or of materials and equipment needed to comply with the rule;

b. necessary construction or alteration of the prescribed facilities cannot be completed on the effectivity date of the rule;

c. the employer is participating in experiments or studies approved or conducted by the Bureau designed to demonstrate new techniques to safeguard the safety and health of workers.

(2) In such a case, the employer-applicant shall establish:

a. the reason why he is applying for a suspension order, specifying the rule or portion he seeks suspension of;

b. that he is taking all available and necessary steps to safeguard his workers against the hazards covered by the rule, and that he is prescribing necessary measures, methods, operations and practices which he must adopt and use while the suspension is in effect;

c. that he has an effective program for coming into compliance with the rule as quickly as possible, specifying a given date for compliance;

d. that he has informed his workers of the application and a copy of the application and reasons thereof have been given to the workers or their duly authorized representative.

(3) The application shall be submitted to the Regional Director or duly authorized representative, as the case may be, who after hearing the workers or their duly authorized representative shall evaluate and recommend action to the Secretary, through the Director. He may issue an interim order to be effective until the suspension order is issued by the Secretary.

(4) The suspension order, including the interim order, shall prescribe the practices, means, methods, operations, or processes which the employer must use and adopt while the order is in effect and while the program for coming into compliance with the rule is being implemented.

(5) The suspension order shall not be in effect longer than the period needed by the employer to come into compliance with the rule, or one year, whichever is shorter, renewable for another year, subject to revocation or shortening of the period by the Secretary, if such is warranted.

1012.04: Variation Order:

(1) If there shall be practical difficulty or unnecessary hardship in complying with the requirements of any rule or provision of this Standards, the Secretary, upon the recommendation of the Director, may issue an order allowing a variation in complying with such requirements, provided that the purpose of such rule or provision is substantially served and the safety and health of the workers remain ensured. The employer affected by such rule or provision may request in writing the Secretary, thru the Regional Labor Office, to

authorize such a variation stating the grounds for the request and the measures to be taken or already being taken.

(2) An application for a variation shall contain:

a. a specification of the rule or provision or portion thereof from which the employer is seeking a variation.

b . an attestation from technically qualified person that the employer is unable to comply with the rule and detailed reasons thereof;

c. a detailed statement of the measure he will take or is already taking to protect the workers against the hazards covered by the rule or provision; and

d. a certification that the workers have been informed and a copy of the application has been furnished the workers or their duly authorized representative.

(3) A variation order shall stipulate the conditions under which the variation is permitted and shall be applicable and effective only to the particular employer and operations covered by the Order. A variation order shall remain in effect until revoked by the Secretary.

1013: Hazardous Workplaces:

For purposes of this Standards, the following are considered "hazardous workplaces:"

a. Where the nature of work exposes the workers to dangerous environmental elements, contaminants or work conditions including ionizing radiation, chemicals, fire, flammable substances, noxious components and the like;

b. Where the workers are engaged in construction work, logging, fire fighting, mining, quarrying, blasting, stevedoring, dock work, deep-sea fishing and mechanized farming;

c. Where the workers are engaged in the manufacture or handling of explosives and other pyrotechnic products;

d. Where the workers use or are exposed to power driven or explosive powder actuated tools;

e. Where the workers are exposed to biologic agents such as bacteria, fungi, viruses, protozoas, nematodes, and other parasites.

RULE 1020

REGISTRATION

1021: General Provisions:

Every employer as defined in Rule 1002 (1) shall register his business with the Regional Labor Office or authorized representative having jurisdiction thereof to form part of a databank of all covered establishments.

1022: Registrable Unit:

The establishment regardless of size of economic activity, whether small, medium or large scale in one single location, shall be one registrable unit.

1023: Period of Registration:

(1) Existing establishments shall be registered within sixty (60) days after the effectivity of this Standards.

(2) New establishments shall register within thirty (30) days before operation.

1024: Registration:

(1) Registration shall be made in form DOLE-BWC-IP-3 in three copies and to be submitted to the Regional Labor Office or authorized representatives.

(2) Registration shall be free of charge and valid for the lifetime of the establishment except when any of the following conditions exists, in which case, re-registration as if it were a new establishment is required:

a. change in business name,

b. change in location,

c. change in ownership, or

d. re-opening after previous closing.

(3) Registration shall include a layout plan of the place of work floor by floor, in a scale of 1:100 meters white or blue print showing all the physical features of the workplace including storage, exits, aisles, machinery, clinic, emergency devices and location.

(4) The registration form may be reprinted or reproduced and the back page may be used for other information.

RULE 1030

TRAINING OF PERSONNEL IN OCCUPATIONAL SAFETY AND HEALTH

1031: Training Programs:

(1) The Bureau, either directly or through accredited organizations, shall conduct continuing programs to increase the supply and competence of personnel qualified to carry out the provisions of this Standards.

(2) The Bureau shall prescribe the required training programs, which shall, in consultation with the UP Institute of Public Health, World Health Organization and other technical societies, contain provisions requiring the incorporation into the training programs of the latest trends, practices and technology in occupational safety and health.

1032: Accreditation:

The Secretary may issue accreditation or authority to recognized organizations or groups of persons to conduct occupational safety and health training.

1032.01: Criteria for Training:

(1) A Bureau-prescribed course of study shall be used or followed by accredited organizations. Any deviation from the prescribed training course must be with the previous approval of the Bureau.

(2) Provisions for adequate training facilities for the holding of training including laboratory facilities, library, training rooms and equipment.

(3) Training staff must be composed of persons recognized by the Bureau, duly trained by and certified to as competent by the Bureau or accredited training organizations.

***1032.02: Audit Systems*:**

(1) A regular audit shall be done by the Bureau to determine compliance with the above criteria, the system and method of training, and the quality and effectiveness of the training staff.

(2) Upon recommendation of the Director, the Secretary may cancel the accreditation if the provisions of this Rule are not complied with.

1033: Training and Personnel Complement:

(1) The training course prescribed by the Bureau under this rule shall be a requisite for the appointment of the safetyman in place of employment.

(2) At least the following number of supervisors or technical personnel shall take the required training and shall be appointed safety man, full time or part-time depending on the number of workers employed, and the type of workplace whether hazardous or non-hazardous under Rule 1013 of this Standards

Number of Workers	No. of Safety Man
Hazardous Workplace	
200 and below	One (1) part-time safety man
over 200 to 1000	One (1) full-time safety man
for every 1000 workers	One (1) full-time safety man
Non-hazardous Workplace	
less than I 000	One (1) part-time safety man
for every I 000	One (1) full-time safety man

(3) Duties of the Safety Man: The duties of the safetyman are specified under Rule 1040 of this Standards. A part-time safetyman shall be allotted at least four (4) hours per week to perform the duties as safetyman.

(4) The employment of a full-time safety man may not be required if the employer enters into a written contract with a qualified consultant or consulting organization whose duties and responsibilities shall include the following, among others:

a. to assist, advise or guide the employer in complying with the provisions of this Standards, including the development of health and safety programs;

b. to make at least a quarterly appraisal of programs and safety performance of the establishment, including the activities of the safety committee;

c. to be present during scheduled safety inspection by authorized government agents, and during regular safety committee meetings; and

d. in the performance of these activities, to be in the establishment at least six (6) hours a week. The employment of a consultant, however, will not excuse the employer from the required training of his supervisors or technical personnel.

1034.01: Qualifications of a Safety Consultant:

(1) A qualified safety consultant shall mean one who has been a safety and health practitioner for at least five (5) years and has taken the necessary training prescribed by the Bureau.

(2) Safety practitioners with at least ten (1 0) years of experience in all fields of occupational safety and health may not be required to undergo the required training provided they secure from the Bureau a certification attesting to their competence to qualify as consultants.

(3) All safety consultants or consulting organizations, shall be accredited by the Bureau, and registered with the Regional Office concerned.

1034.02: Prohibition in the Practice of Occupational Safety and Health:

No person or organization may be allowed hired or otherwise employed in the practice of occupational safety and health unless the requirements of this Rule are complied with.

RULE 1040

HEALTH AND SAFETY COMMITTEE

1041: General Requirements:

In every place of employment, a health and safety committee shall be organized within sixty (60) days after this Standards takes effect and for new establishments within one (1) month from the date the business starts operating. In both cases the Committee shall reorganize every January of the following year.

1042: Types and Composition of Health and Safety Committee:

1042.01: Type A:

In every workplace having a total of over four hundred (400) workers the following shall compose the Health and Safety Committee:

Chairman - The manager or his authorized representative who must be a top operating official.

Members - Two department heads, Four workers (must be union members, if organized), The company physician

Secretary - The safety man

1042.02: Type B:

In every workplace having a total of over two hundred (200) to four hundred (400) workers, the following shall compose the Health and Safety Committee:

Chairman - The manager or his authorized representative who must be a top operating official.

Members -One supervisor, Three workers (must be union members, if organized), The company physician or the company nurse

Secretary - The safetyman

1042.03: Type C:

In every workplace with one hundred (100) to two hundred (200) workers, the following shall compose the Health and Safety Committee:

Chairman-Manager or his authorized representative

Members - One foreman, three workers (must be union members, if organized), The nurse

Secretary - The part-time safetyman

1042.04: Type D:

In every workplace with less than one hundred (100) workers, the following shall compose the Health and Safety Committee:

Chairman - Manager

Members - One foreman, Three workers (must be union members, if organized), The nurse/first-aider

Secretary - The part-time safety man

In this workplace, the line type as defined in 1048.02 may be organized.

1042.05: Type E: Joint Committee

When two or more establishments are housed under one building, the health and safety committee organized in each workplace shall form themselves into a Joint Coordinating Committee to plan and implement programs and activities concerning all the establishments.

The Joint Coordinating Committee shall be composed of the following:

Chairman - The chairman of the establishment committee

Members - Two supervisors from two different establishments, Two workers from two different establishments (union members, if organized)

Secretary - Appointed by the Chairman (in high rise, the Secretary shall be the building administrator)

1042.06: Membership of Committee:

The membership as provided are minimum requirements and nothing shall prohibit increases in the number of members as may be found necessary.

Where the workers are not organized, they shall be selected by a simple majority of votes of the workers.

1043: Duties of the Health and Safety Committee:

1043.01: Health and Safety Committee:

The Health and Safety Committee is the planning and policymaking group in all matters pertaining to safety and health. The principal duties of the Health and Safety Committee are:

(1) Plans and develops accident prevention programs for the establishment.

(2) Directs the accident prevention efforts of the establishment in accordance with the safety programs safety performance and government regulations in order to prevent accidents from occurring in the workplace.

(3) Conducts safety meetings at least once a month.

(4) Reviews reports of inspection, accident investigations and implementation of program.

(5) Submits reports to the manager on its meetings and activities.

(6) Provides necessary assistance to government inspecting authorities in the proper conduct of their activities such as the enforcement of the provisions of this Standards.

(7) Initiates and supervises safety training for employees.

(8) Develops and maintains a disaster contingency plan and organizes such emergency service units as may be necessary to handle disaster situations pursuant to the emergency preparedness manual for establishments of the Office of Civil Defense.

1044: Term of Office of Members:

1044.01: Health and Safety Committee:

In order to provide an opportunity for other workers to become member and participate in safety program planning, a periodic change in membership is encouraged. For this purpose, the term of office of the department head in the committee may be one (1) year. The term of office of the worker members in Type A and Type B may be for two (2) years each; in Type C, D and E Committees, may all be one (1) year. The chairman, physician or nurse and the safety man shall be permanent members of the committee.

1044.02: Joint Committee:

The term of Office of the Chairman and the Members shall be one (1) year. Membership in the Joint Committee shall be rotated among members of the health and safety committees in other establishments.

1045: Duties of the Employers:

Health and Safety committees play very important roles in eliminating work hazards. Developing workers' interest and participation in the planning and development of safety program is the responsibility of the employer. The employer must exercise the leadership necessary and provide support to make the program work. The principal duties of the employer are:

(1) Establishes and adopts in writing administrative policies on safety in conformity with the provisions of this Standards outlining therein his responsibility and authority delegated.

(2) Reports to the enforcing authority in two (2) copies of the policies adopted and the health and safety organization established to carry out the program on safety and health within one month after the organization or reorganization of the health and safety committee.

(3) Reports to the enforcing authority having jurisdiction at least once in every three (3) months, counting from January, the health and safety program of the organization outlining the activities undertaken including its safety performance, health and safety committee meetings and its recommendations and measures taken to implement such recommendations.

(4) Acts on recommended measures by the health and safety committee by adopting the elements of the health and safety program in the production process or workplace and in case of non-adoption of the Health and Safety Committee's recommendation, to inform the committee of his reasons.

1046: Duties of the Workers:

(1) Works in accordance with accepted safety practices and standards established by the employer in compliance with the provisions of this Standards.

(2) Reports unsafe conditions and practices to the supervisor by making suggestions for correction or removal of accident hazards.

(3) Serves as members of the Health and Safety Committee.

(4)Cooperates actively with the Health and Safety Committee.

(5) Assists government agencies in the conduct of health and safety inspection or other programs.

1047: Duties of the Safety Man:

The principal function of the Safety Man is to act as the employers' principal assistant and consultant in the application of programs to remove the hazards from the workplace and to correct unsafe work practices. For this purpose, the Safety Man has the following duties:

(1) Serves as Secretary to the Health and Safety Committee. As such, he shall:

a. prepare minutes of meetings;

b. report status of recommendations made;

c. notify members of the meetings; and

d. submit to the employer a report of the activities of the committee, including recommendations made.

(2) Acts in an advisory capacity on all matters pertaining to health and safety for the guidance of the employer and the workers.

(3) Conducts investigation of accidents as member of the Health and Safety Committee and submits his separate report and analysis of accidents to the employer.

(4) Coordinates all health and safety training programs for the employees and employer.

(5) Conducts health and safety inspection as member of the committee.

(6) Maintains or helps in the maintenance of an efficient accident record system and coordinates actions taken by supervisors to eliminate accident causes.

(7) Provides assistance to government agencies in the conduct of safety and health inspection, accident investigation or any other related programs.

(8) For purposes of effectiveness in a workplace where full-time safety man is required, he shall report directly to the employer.

1048 Other Types of Health and Safety Organizations:

Subject to the approval of the Secretary or his duly authorized representative, the employer may establish in his place of employment the line or staff type of organization.

1048.01: Line Type:

A form of organization where the general manager or head of the establishment directs the health and safety programs and assumes overall responsibility for the safety in the establishment. He in turn delegates the application of health and safety programs to plant personnel occupying line positions.

1048.02: Staff Type:

Staff safety organization or safety engineer type consists of a line organization with specialized personnel employed to advise and assist management in all matters of safety. Said personnel are responsible to the top executive exercising staff functions, serve all departments in an advisory capacity and supervise the application of the health and safety program in the workplace.

RULE 1050

NOTIFICATION AND KEEPING OF RECORDS OF ACCIDENTS AND/OR OCCUPATIONAL ILLNESSES

1051: Definitions

For the purpose of this Rule, the following terms are hereby defined:

(1) *"Medical Treatment Injury*" shall mean an injury which does not result in a disabling injury but which requires first aid and medical treatment of any kind.

(2) *'Disabling Injury"* shall mean a work injury which results in death, permanent total disability, permanent partial disability or temporary total disability.

(3) *"Death"* shall mean any fatality resulting from a work injury regardless of the time intervening between injury and death.

(4) *"Permanent Total Disability"* shall mean any injury or sickness other than death which permanently and totally incapacitates an employee from engaging in any gainful occupation or which results in the loss or the complete loss of use of any of the following in one accident:

a. both eyes;

b. one eye and one hand, or arm, or leg or foot;

c any two of the following not in the same limb, hand, arm, foot, leg;

d. permanent complete paralysis of two limbs;

e. brain injury resulting in incurable imbecility or insanity.

(5) "*Permanent Partial Disability*" shall mean any injury other than death or permanent total disability, which results in the loss or loss of use of any member or part of a member of the body regardless of any pre-existing disability of the injured member or impaired body function.

(6) "*Temporary Total Disability*" shall mean any injury or illness which does not result in death or permanent total or permanent partial disability but which results in disability from work for a day or more.

(7) "*Regularly Established Job*" shall mean the occupation or job description of the activities performed by an employee at the time of the accident and shall not mean one which has been established especially to accommodate an injured employee, either for therapeutic reason or to avoid counting the case as disability.

(8) "*Day of Disability"* shall mean any day in which an employee is unable, because of injury or illness, to perform effectively throughout a full shift the essential functions of a regularly established job which is open and available to him.

(9) "*Total Days Lost*" shall mean the combined total, for all injuries or illnesses of:

a. all days of disability resulting from temporary total injuries or illnesses; and/or

b. all scheduled charges assigned to fatal, permanent total and permanent partial injuries or illnesses.

(10) "*Scheduled Charges*" shall mean the specific charge (in full days) assigned to a permanent partial, permanent total, or fatal injury or' illness (See Table 6, Time Charges).

(11) "*Employee"* for the purpose of counting injuries or illnesses or calculating exposures shall be as defined in Rule 1002 (2) and shall include working owners and officers.

(12) "*Exposure"* shall mean the total number of employee-hours worked by all employees of the reporting establishment or unit.

(13) *"Disabling Injury Frequency Rate" i*s the number of disabling injuries per 1,000,000 employee-hours of exposure rounded to the nearest two (2) decimal places.

(14) *"Disabling Injury Severity Rate"* is the number of days lost per 1,000,000 employees-hours of exposure rounded to the nearest whole number.

1052: Special Provision:

1052.01

Reports made by the employer shall be exclusively for the information of the Regional Labor Office or duly authorized representative in securing data to be used in connection with the performance of its accident and illness prevention duties and activities and is a requirement distinct from that of the Employee's Compensation Commission or any other law. These reports shall not be admissible as evidence in any action or judicial proceedings in respect to such injury, fitness or death on account of which report is made and shall not be made public or subject to public inspection except for prosecution for violations under this Rule.

1052.02

The definitions and standard used here are independent of those established by the Employee's Compensation Commission.

1053 Report Requirements:

1053.01

(1) All work accidents or occupational illnesses in places of employment, resulting in disabling condition or dangerous occurrence as defined in 1053.2 shall be reported by the employer to the Regional Labor Office or duly authorized representative in duplicate and a copy furnished the employee or his duly authorized representative using form DOLE/BWC/HSD-IP-6. The formal report shall be submitted by the employer on or before the 20th day of the month following the date of occurrence of the accident or when the illness, is established and an investigation report in the prescribed form shall be submitted by the Regional Office or duly authorized representative on or before the 30th day of the same month. In case of temporary total disability where the injured or ill employee has not reported back to duty on the closing date of reporting, an estimate of the probable days of disability shall be made and entered in the report and corrected after the return of the injured. In all computations, this estimate shall be used. After the return of the injured, the corrected days of absence shall be used.

(2) Where the accident or fitness results in death or permanent total disability, the employer, in addition to the written report required under sub-paragraph (1) above, shall initially notify the Regional Labor Office or duly authorized representative within twenty four (24) hours after occurrence using the fastest available means of communication.

(3) All deaths and permanent total disabilities shall be investigated by the Regional Office or duly authorized representative within forty eight (48) hours after receipt of the initial report of the employer, prepared in duplicate using the prescribed form DOLE/ BWC/OHSD-IP-6a.

1053.02:

(1) Any dangerous occurrence as specified in sub-paragraph (2) hereunder, which may or may not cause serious bodily harm to workers employed or seriously damage the premises of employment shall be

investigated and reported by the employer upon occurrence to the Regional Labor Office or duly authorized representative having jurisdiction in duplicate using the prescribed form DOLE/BWC/HSD-IP-6.

(2) The following are dangerous occurrences, which shall be investigated and reported:

a. Explosion of boilers used for heating or power.

b . Explosion of a receiver or storage container, with pressure greater than atmospheric, of any gas or gases (including air) or any liquid resulting from the compression of such gases or liquid.

c. Bursting of a revolving wheel, grinder stone or grinding wheel operated by mechanical power.

d. Collapse of a crane, derrick, winch, hoist or other appliances used in raising or lowering persons or goods or any part thereof, the overturning of a crane, except the breakage of chain or rope sling.

e. Explosion or fire causing damage to the structure of any room or place in which persons are employed or to any machine contained therein resulting in the complete suspension of ordinary work in such room or place, or stoppage of machinery or plant for not less than twenty four (24) hours, and

f. Electrical short circuit or failure of electrical machinery, plant or apparatus, attended by explosion or fire causing structural damage thereto and involving its stoppage and misuse for not less than 24 hours.

1054: Keeping of Records:

(1) The employer shall maintain and keep an accident or illness record which shall be open at all times for inspection to authorized personnel containing the following minimum data:

a. Date of accident or illness;

b. Name of injured or ill employee, sex and age;

c. Occupation of injured or ill employee at the time of accident or illness;

d. Assigned causes of accident or illness;

e. Extent and nature of disability;

f. Period of disability (actual and/or charged);

g. Whether accident involved damaged to materials, equipment or machinery, kind and extent of damage, including estimated or actual cost; and

h. Record of initial notice and/or report to the Regional Labor Office or authorized representative.

(2) The employer shall accomplish an Annual Work Accident/Illness Exposure Data Report in duplicate using the prescribed form DOLE/BWC/HSD-IP-6b, which shall be submitted to the Bureau copy furnished the Regional Labor Office or duly authorized representative having jurisdiction on or before the 30th day of the month following the end of each calendar year.

1055: Evaluation of Disability:

1055.01: Charges:

(1) Death resulting from accident shall be assigned at time charge of 6,000 days.

(2) Permanent total disability resulting from work accident shall be assigned a time charge of 6,000 days.

(3) Permanent Partial disability either traumatic or surgical, resulting from work accident shall be assigned the time charge as provided in Table 6 on Time Charges. These charges shall be used whether the actual number of days lost is greater or less than the scheduled charges or even if no actual days are lost at all.

(4) For each finger or toe, use only one charge for the highest valued bone involved. For computations of more than one finger or toe, total the separate charges for each finger or toe.

(5) Charges due to permanent impairment of functions shall be a percentage of the scheduled charges corresponding to the percentage of permanent reduction of functions of the member or part involved as determined by the physician authorized by the employer to treat the injury or illness.

(6) Loss of hearing is considered a permanent partial disability only in the event of industrial impairment of hearing from traumatic injury, industrial noise exposure or occupational illness.

(7) The charge due to permanent impairment of vision shall be a percentage of the scheduled charge corresponding to the percentage of permanent impairment of vision as determined by the physician authorized by the employer to treat the injury or illness.

(8) For permanent impairment affecting more than one part of the body, the total charge shall be the sum of the scheduled charges for the individual body parts. If the total exceeds 6,000 days, the charge shall be 6,000 days.

(9) Where an employee suffers from both permanent partial disability and a temporary total disability in one accident, the greater days lost shall be used and shall determine the injury classification.

(10) The charge for any permanent partial disability other than those identified in the schedule of time charges shall be a percentage of 6,000 days as determined by the physician authorized by the employer to treat the injury or illness.

(11) The charge for a temporary total disability shall be the total number of calendar days of disability resulting from the injury or fitness as defined in Rule (8), provided that:

a. The day of injury or illness and the day on which the employee was able to return to full-time employment shall not be counted as days of disability but all intervening period or calendar days subsequent to the day of injury or illness shall be counted as days of disability;

b. Time lost on a work day or on a non-workday subsequent to the day of injury or illness ascribed solely to the unavailability of medical attention or necessary diagnostic aids shall be considered disability time, unless in the opinion of the physician authorized to treat the injured or ill employee, the person will be able to work on all those days subsequent to the day of the injury;

c. If the physician, authorized by the employer to treat the injured or ill employee, is of the opinion that the employee is actually capable of working a full normal shift of a regularly established job but has prescribed certain therapeutic treatments, the employee may be excused from work for such treatments without counting the excused time as disability time.

d. If the physician, authorized by the employer to treat the injure or ill employee, is of the opinion that the employee was actually capable of working a full normal shift of a regularly established job, but because of transportation problems associated with his injury, the employee arrives late at his place of work or leaves the workplace before the established quitting time, such lost time may be excused and not counted as disability time. However, the excused time shall not materially reduce his working time, and that it is clearly evident that his failure to work the full shift hours was the result of a valid transportation problem and not a deviation from the "regularly established job".

e. If the injured or ill employee receives medical treatment for his injury, the determination of the nature of his injury and his ability to work shall rest with the physician authorized by the employer to treat the injured or ill employee. If the employee rejects medical attention offered by the employer, the

determination may be made by the employer based upon the best information available to him if the employer fails to provide medical attention, the employee's determination shall be controlling.

1056: Measurement of Performance:

1056.01: Exposure to Industrial Injuries:

Exposure to work injuries shall be measured by the total number of hours of employment of all employers in each establishment or reporting unit. The exposure of a central administrative office or central sales office of a multi-establisment-concem shall not be included in the experience of any one establishment, nor prorated among the establishments, but shall be included in the over-all experience of the multi-establishment.

1056.02: Determination of Employee-Hours of Exposure:

Employee-hours of exposure for calculating work injury rates are intended to be actual hours worked. When actual hours are not available, estimated hours may be used. Employee-hours shall be calculated as follows:

(1) *Actual Exposure Hours* - Employee hours of exposure shall be, if possible, taken from the payroll or time clock records and shall include only the actual straight time hours worked and actual overtime hours worked.

(2) *Estimated Exposure Hours* - When actual employee-hours of exposure are not available estimated hours may be used. Such estimated hours should be obtained by multiplying the total employee days worked for the period by the average number of hours worked per day. If the hours worked per day vary among departments, a separate estimate should be made for each department, and these estimates added to obtain the total hours. Estimates for overtime hours shall be included.

If the employee-hours are estimated, indicate the basis on which estimates are made.

(3) *Hours not Worked* - Employee-hours paid for but not worked, either actual or estimated, such as time taken for vacation, sickness, barangay duty, court duty, holidays, funerals, etc., shall not be included in the total hours worked. The final figure shall represent as nearly as possible hours actually worked.

(4) *Employee Living in Company*-Property - In calculating hours of exposure for employees living in company property, only those hours during which employees were actually on duty shall be counted.

(5) *Employee with Undefined Hours of Work* - Traveling salesmen, executives and others whose working hours are defined, an average eight hours day shall be assumed in computing exposure hours.

(6) All stand-by hours of employees, including seamen aboard vessels, who are restricted to the confines of the employer's premises, shall be counted as well as all work injuries occurring during such hours.

1056.03: Measures of Injury/Illnesses Experience:

(1) *Disabling* Injury /Illnesses Frequency Rates -The disabling injury/illness frequency rate is based upon the total number of deaths, permanent total, permanent partial, and temporary total disabilities which occur during the period covered by the rate. The rate relates those injuries/illnesses to the employee-hours worked during the period and expresses the number of such injuries/illnesses in terms of a million man-hour unit by the use of the formula:

$$\text{Disabling Injury/Illness Frequency Rate (FR)} = \frac{\text{Number of Disabling Injury/Illness} \times 1{,}000{,}000}{\text{Employees-hours of exposure}}$$

The frequency rate shall be rounded to the nearest two decimal places.

(2) *Disabling Injury / Illness Severity Rate* - The disabling injury / illness severity rate is based on the total of all scheduled charges for all deaths, permanent total and permanent partial disabilities, plus the total

actual days of the disabilities of all temporary total disabilities which occur during the period covered by the rate. The rate relates these days to the total employee-hours worked during the period and expresses the loss in terms of million man-hour unit by the use of the formula.

$$\text{Disabling Injury / Illness Severity Rate (SR)} = \frac{\text{total days lost} \times 1{,}000{,}000}{\text{employee-hours of exposure}}$$

The severity rate shall be rounded to the nearest whole number.

(3) Average Days Charged per Disabling Injury - The average days charged per disabling injury/illness expresses the relationship between the total days charged and the number of disabling injuries/Illness. The average may be calculated by the use of the formula:

$$\text{Average days charged per Disabling injury/illness} = \frac{\text{Total Days Lost}}{\text{total number of disabling injuries/illnesses}}$$

or

$$\text{Average days charge per Disabling injury/illness} = \frac{\text{injury severity rate}}{\text{injury/illness frequency rate}}$$

RULE 1060

PREMISES OF ESTABLISHMENTS

1060.01: General Provisions:

(1) Building premises shall have adequate fire, emergency or danger sign and safety instructions of standard colors and sizes visible at all times, in accordance with table II, "Standard colors of signs for safety instruction and warnings in building premises". (Appendix)

(2) Other visible signs that may be needed to direct the driver of motorized vehicle such as STOP, YIELD, and DO NOT ENTER, properly positioned within the compound of the establishment shall be used to increase safety especially during the night.

(3) Handicapped employees should be restricted only to designated workplaces. As far as practicable and feasible they should be provided with facilities for safe and convenient movement with the establishment.

(4) Good housekeeping shall be maintained at all times through cleanliness of building, yards, machines, equipment, regular waste disposal, and orderly arrangement of processes, operations, storage and filing of materials.

(5) Personal Facilities: Adequate comfort rooms and lavatories separate for male and female workers; Adequate dressing rooms for female workers and locker rooms for male workers shall be provided, in accordance with article 132, Chapter 1, Title 111 Book 111 of the Labor Code of the Philippines. The number of comfort facilities for a given number of workers shall conform with the requirement of the Department of Health.

1061: Construction and Maintenance:

(1) All buildings, permanent or temporary shall be structurally safe and sound to prevent their collapse.

(2) Roof shall be of sufficient strength to withstand normal load, typhoons and strong winds in addition to normal weather conditions and where required to carry suspended loads.

(3) Foundations and floors shall be of sufficient strength to sustain safely the loads for which they are designed and under no condition shall they be overloaded.

(4) Plans for proposed new construction and alterations or substantial repairs of buildings shall be submitted to the Building Official for examination and approval.

1062: Space Requirement:

(1) Workrooms shall be at least 2.7 meters (8 ft. 10 in.) in height from the floor to the ceiling. Where the rooms are air-conditioned and the process allows free movement; existing heights of not less than 2.4 meters (7 ft. I 0 in.) may be allowed.

(2) The maximum number of persons employed in a workroom area shall not exceed one person per 11.5 cubic meters (400 cu. ft.). In calculating the area, no deductions shall be made for benches or other furniture, machinery. or materials but heights exceeding 3 meters (9 ft.-10 in.) shall not be included.

(3) Adequate spaces shall be provided between machinery or equipment to allow normal operation, maintenance or repair and free flow of materials under process or in finished form Passageways between machinery or equipment shall not be less than 60 cm. (24 in.)

1063: Walkway Surface:

1063.01: Stumbling Hazards:

(1) The parts of floors over which any person is liable to walk shall be sufficiently even to afford safe walking and safe trucking of materials.

(2) Such parts of floors shall be free from holes and splinters, improperly fitted gutters or conduits, protruding nails and bolts, projecting valves or pipes, or other projections or obstructions which create stumbling hazards.

1063.02: Slipping Hazards:

(1) Floors, stair-treads and landings shall not be slippery under any condition, or made of any material which will become slippery through wear.

(2) Stairways, ramps, elevator platforms and similar places where slipping may be especially hazardous shall be provided with non-slip walkway surface.

1064: Floor and Wall Opening:

1064.01: Ladderway Opening:

Ladderway floor openings shall be guarded on all exposed sides, except at the entrance to the opening, by permanent railings and toeboards. The passage through the railings shall be provided with a barrier or gate so arranged that a person cannot walk directly through the opening.

1064.02: Stairway Openings:

(1) Stairway floor opening shall be guarded on all exposed sides by permanent railings and toeboards, except the entrance to the stairway.

(2) For infrequently used stairways where traffic across the openings prevents the use of permanent railings, the guards shall consist of flush-hinged covers of adequate strength equipped with railings attached thereto so as to leave only one side exposed when the covers are open. When the openings are not in use, the covers shall be closed or the exposed sides guarded.

(3) Hatchway, chute, pit and trap door openings shall be guarded by:

a. Removable railings with toeboards on not more than two sides and permanent railings with toeboards on all other exposed sides, or

b. Flush-hinged covers as prescribed for stairway floor openings.

1064.03: Manholes and Other Openings:

(1) Manhole floor openings shall be guarded by manhole covers of adequate strength, which need not be hinged.

(2) Other floor openings into which persons can accidentally walk shall be guarded either by permanent railings and toeboards on all exposed sides or by hinged-floor opening covers of adequate strength.

(3) When covers for type (1) or (2) above are not in place, the opening shall be constantly attended to by someone or protected by portable enclosing railings.

(4) Floor openings into which persons cannot accidentally walk on account of fixed machinery, equipment or wall, shall be guarded by covers having no openings more than 2.5 cm. (1 in.) in width securely held in place.

(5) All wall openings less than I meter (3.3 ft.) from the floor, having a height of at least 75-cm (30 in.) and a width of at least, 45 cm. (18 in.) from which there is a drop of more than two (2) meters (6.6 ft.) shall be solidly enclosed or guarded by barriers capable of withstanding a load of at least 100 kgs. (220 lbs.) applied in any direction at any point of the top rail or corresponding members except vertically upward.

(6) All other wall openings, irrespective of their width shall, if their lower edge is either 8 cm. (3.2 in.) or less above floor level on the rear side and 2 meters (6.6 ft.) or more above ground or floor level on the far side, be guarded by:

a. A toeboard across the bottom of the opening, or

b. An enclosing screen either solid or of grills or slat work with openings not more than 2.5 cm. (1 in.) in width capable of withstanding a load of at least 50 kgs. (100 lbs.) applied horizontally at any point.

1064.04: Construction of Railings:

(1) All railings shall be permanently constructed of wood, pipe, structural metal or other material of sufficient strength.

(2) Standard railings shall be at least 1 meter (3.3 ft.) from the floor level to the upper surface of the top rail.

(3) Standard railings shall have posts not more than 2 meters (6.6 ft.) apart and an intermediate rail halfway between the top rail and the floor.

(4) The dimensions of railings and posts anchorage and framing of members shall be such that the completed structure shall be capable of withstanding a load of at least 100 kgs. (220 lbs.) applied from any direction to any point of the top rail.

(5) Railings of the following types of construction shall be deemed to satisfy tests requirements.

a. for wood railings - top rails and posts of at least 5 cm. x I 0 cm. (2 in. x 4 in.) stock and intermediate rails of at least 5 cm. x 5 cm. (2 in. x 2 in.) or by 2 cm. x 10 cm. (1 in. x 4 in.) stock, all such railings shall be smooth and free from large or loose knots, protruding nails or bolts, splinters, fins, slivers, or cracks.

b. for pipe railings - top rails and posts of metal pipes of at least 30 mm. (1 in.) diameter.

c. for structural metal railings - top rails and posts of angle iron of at least 38 mm. x 38 mm. x 5 mm. (1.5 in. x 1.5 in. x 0.2 in.) and intermediate rails of angle iron of at least 32 mm. x 32 mm. x 3 mm. (1*3* in. x 1.3 in. x 0.1 2 in.).

(6) Railings shall be of sound materials free from defects and all sharp corners rounded and smoothed.

1064.05: Construction of Toeboards:

(1) Toeboards shall be at least 15 cm. (6 in.) in height

(2) Toeboards may be made of wood, iron, steel or other equivalent material.

(3) Toeboards shall be securely fastened in place, with not more than 6 mm. (0.3 in.) clearance above the floor level.

1065: **Stairs:**

1065.01: Strength:

All stairs, platform, and landings shall be of sufficient strength to sustain safely a liveload of not less than 490 kg/m2 (100 lbs/ft2) with a factor of safety of four (4).

1065.02: Width:

Stairs, except service stairs, i.e., stairs giving access to oiling platforms, shall not be less than 1.1 0 meters (3 ft. 7 in.) in width, clear of all obstructions, except handrails, and shall in no case be less than 90 cm. (35 in.) without the handrails.

1065.03: Pitch:

(1) Except for service stairs, the pitch of stairways be between 30^0 to 38^0 from the horizontal but shall not be less than 20^0 or more than 45^0.

(2) Where the pitch is less than 20^0, a ramp shall be installed, and where it is more than 45^0, fixed ladder shall be provided.

1065.04: Height:

No stairway shall have a height of more than 3.6 meters (12 ft) between landings.

1065.05: Headroom:

Headroom shall be provided at all points in the stair well. 'The vertical clearance shall not be less than 2.0 meters (6 ft. 7 in.) from the top of the tread in line with the face of the riser.

1065.06: Treads and Risers:

(1) Except for the service stairs, treads shall not be less than 25cm. (9in.) in width exclusive of nosing and projections, and the riser shall not be more than 20 cm. (8 in.) and not less than that provided in 1065.03 (1)

(2) There shall be no variation in the width of the treads and the height of the risers in any flight. The top and bottom of any flight of stairs shall be clearly distinguished.

1065.07: Railings:

(1) All stairs having four or more risers shall be equipped with stair railings on any open side.

(2) Enclosed stairways less than 1.1 2 meters (3 *ft.* - 8 in.) width shall be equipped with at least one handrail preferably on the right side descending.

(3) Stairways 1.12 meters (3 ft. - 8 in.) more in width shall be equipped with one stair railing on each open side and one handrail on each enclosed side.

(4) Stairs railings shall be constructed in a permanent and sufficient manner of wood, pipe**,** structural metal or other materials of adequate strength.

(5) The height of the stair railings from the upper surface of the top rail to the surface of the tread in line with the face of the riser at the forward edge of the tread shall not be more than 90 cm. (35 in.) or less than 80 cm (31 in.).

(6) Handrails shall be continuous throughout a flight of stairs and at landings without obstruction other than those intended to prevent persons from sliding.

(7) If made of wood, handrails shall be at least 5 cm. x 5 cm. (2 in. x 2 in.) in cross section, and if of metal pipe, at least 2.54 cm. (1 in.) and not more than 6.75 cm. (2 1/2 in.) in diameter.

(8) Handrails is mounted directly on walls or partitions shall be fixed by means of brackets attached to the lower side of the rail so as not to interfere with the smoothness of the top and side surface of the rails.

(9) Brackets shall be spaced not more than 2 meters (6 ft. - 6 in.) apart and shall be of sufficient length to provide a clearance of at least 4 cm. (1.5 in.) between the rails and the wall or any obstruction on the wall.

(10) The completed structure shall be capable of withstanding a load of at least 100 kgs. (220 lbs.) applied in any direction at any point of the trail.

(11) The clear width of service stairs, such as stairs in engine and boiler rooms or of stairs leading to service platforms around machinery, shall be at least 56 cm. (22 in.).

(12) The pitch of service stairs shall not be more than 60^0 and the width of the treads shall not be less than 15 cm. (6 in.).

(13) Ramps used by persons for ascent or descent form one level to another shall be limited to a rise of not more than I in 10 and shall conform to all construction requirements applying to stairways.

(14) Ramps subjected to heavy stresses from trucking or handling materials shall be provided with additional strength by the use of heavier stock, closer spacing of posts bracing or otherwise designed with a factor of safety of four (4).

1066: Window Openings:

Window openings at stair landings, where the opening is more than 30 cm. (1 2 in.) in width and the sill is less than 1 m. 90 cm. (6 ft.) above the landing, shall be guarded securely by bars, slats, or grills to prevent persons from falling through.

1067: Fixed Ladders:

(1) All metal parts of fittings of ladders shall be made of steel, wrought iron, malleable cast iron or other materials of equivalent strength.

(2) Fixed ladders shall be installed in the following manner.

a. the perpendicular distance from the center line of the rungs to the nearest fixed object on the climbing side of the ladder is at least 90 cm. (35 in.) for a pitch of 75^0 and 75 cm. (30 in.) for a pitch of 90^0.

b. The distance from the back of the rungs to the nearest fixed object is at least 15 cm. (6 in.)

c. Except in the case of ladders equipped with cages, baskets, or equivalent guards, a clearance of 20 cm. (8 in.) from either side of the ladder to a fixed object shall be provided.

d. No fixed ladders be installed with a pitch over 90^0.

(3) Fixed ladders used to ascend heights exceeding 9 meters (30 ft.).

a. Shall be provided with landing platform for each 6 meters (20 ft.) or fraction thereof;

b. The sections of the ladder shall be staggered; and

c. If (a) or (b) is not practical, ladders equipped with cages, baskets, or equivalent guards shall be provided.

1068: Overhead Walks, Runways and Platforms:

(1) Walks, runways, working platforms or open sided floors 2 m. (6.6 ft.) or more above the floor or ground level, except platforms used for motor or similar equipment, which do not afford standing space for persons, shall be guarded on all open sides by standard railings and toeboards.

(2) Runways used for filling tank cars or for oiling purposes may have the railing on one side omitted if necessary but the hazards of falling shall be reduced by the use of runways not less than 56 cm. (22 in.) in width.

(3) All runways of platforms constructed over conveyors or machinery shall be guarded on all open sides by standards railings and toeboards.

1069: Yards:

1069.01: Surface:

(1) Plant yards shall be properly drained and graded to facilitate safe access to buildings and safe handling of materials and equipment.

(2) Properly covered or enclosed drain pools and catch basins shall be provided where necessary.

(3) Ditches, pits, and other hazardous openings shall be provided with adequate covers, enclosed or surrounded by sufficient guards,

(4) Walkways, roadways, and railroad tracks shall be carefully laid out in a manner to avoid dangerous grade crossings.

1069.02: Walkways:

(1) Safe walkways shall be constructed along the shortest line between important points.

(2) Walkways shall not be located under the eaves of buildings where they may become slippery.

(3) Where it is necessary for pedestrians to cross railroad tracks or vehicular roadways, bridges or underpasses shall be provided, and the track or roadway should be fenced to prevent direct crossing at such points.

(4) Walking along railroad tracks by unauthorized persons shall not be allowed.

(5) Railings shall be installed along walkways, on bridges on steep slopes, at slippery places and at places where pedestrians are liable to injury by passing vehicles.

1069.03: Roadways:

(1) Roadways for automobiles, tractors, or other vehicles shall be soundly constructed with good wearing surfaces.

(2) Roadways shall be of adequate width, and where used by, two-way traffic shall be at least twice the width of the widest vehicle normally used plus 1.25 m. (4 ft.). Sufficient clearance from overhead structures shall be provided.

(3) Where the installations of grade or level crossing cannot be avoided such crossing shall be protected.

(4) Adequate railings or walls shall be provided along bridges, slopes and sharp curves.

1069.04: Gates:

(1) Where the premises are surrounded by fencing, separate entrance and exit gates shall be provided for pedestrian, vehicular and railroad traffic.

(2) Gates for pedestrian traffic shall be located at a safe distance from those for vehicular and railroad traffic, shall be of sufficient width to permit the free passage of employees during rush hours, and, if possible, shall be so located not to cross vehicular or railroad traffic.

1069:05: Parking of Vehicles:

Regulations covering the use of driveways for entry and exit, speed limits, space allotments and methods of parking shall be provided and strictly enforce where parking space is provided for automobiles of the employee.

RULE 1070

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL

1071: General Provisions:

(1) This rule establishes threshold limit values for toxic and carcinogenic substances and physical agents, which may be present in the atmosphere of the work environment. Threshold Limit Values refer to airborne concentration of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed daily without adverse effect.

(2) The Regional Office, on the advice of the Director, may issue a special rule establishing threshold limit values for toxic substances not found in the table and such rule shall remain in effect until a permanent standard is issued by the Secretary.

(3) The Secretary shall periodically review or update the Standards on threshold limit values, permissible noise exposure levels, illumination levels, human carcinogens, temperature and humidity and other technical standards upon recommendation of a technical committee in the Bureau of Working Conditions. The member of the technical committee shall either be a physician, engineer, chemist or nurse who has completed at least an occupational health/occupational safety and health-training course required by this Standards, and who has been an occupational health/occupational safety and health practitioner for not less than three (3) years. Other members of the technical committee shall be drawn from the labor and employers' sectors. The technical committee shall be convened by the Director of the Bureau of Working Conditions as the need for review of the abovementioned technical standards arises.

The Standards formulated by the technical committee shall become effective upon announcement by the Secretary of Labor and Employment.

1072: Threshold Limit Values for Airborne Contaminants:

1072.01:

Threshold limit values refer to time weighted concentrations for an 8-hour workday and a total of forty-eight (48) hours work of exposure per week.

1072.02:

All employees exposure to any material specified in Table 8 and Table 8a of this Rule shall be limited in accordance to the following:

*(*1) Materials with names preceded by "C"

Ceiling Values:

An employee's exposure to any material in Table 8, the name which is preceded by a "C" (e.g. Boron triflouride), shall at no time exceed the ceiling value given for that material in the Table.

(2) Other Materials, 8-hour Time Weighted Average:

An employee's exposure to any material in Table 8, the name of which is not preceded by a "C" and any material listed in Table 8a in any 8-hour workshift shall not exceed the 8 hour time weighted average limit given for that material in the Table. However, for a short period of time an excursion in the TLV value in the Table may be allowed but should not exceed the following:

a. from 0 to I concentration by 3 times;

b. from I to I 0 concentration by 2 times;

c. from over 10 to 100 concentration by 1 ½ times;

d. from over 100 to 1000 concentration by 1 ¼ times

(3) "SKIN" Notation:

Listed substances followed by the designation "Skin' (e.g., DDT-Skin) refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or particularly by direct contact with the substance. This attention calling designation is intended to suggest appropriate measures for the prevention of cutaneous absorption so that the threshold limit is not validated.

1072.03:

To achieve compliance with Rule 1072, administrative or engineering controls must first be determined and implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or other appropriate measures shall be used to keep the exposure of employees to air contaminants within the limit prescribed.

1073: Threshold Limit Values for Airborne Contaminants: (Tables)

Table 8: Threshold limit values for airborne contaminants

Table 8a: Mineral dust

Table 8d: Human Carcinogens: Recognized to have carcinogenic potentials

1074: Physical Agents:

1974.01: Threshold Limit Values for Noise:

The threshold limit values refer to sound pressure that represents conditions under which it is believed that nearly all workers may be repeatedly exposed without adverse effect on their ability to hear and understand normal speech.

(1) Feasible administrative or engineering controls shall be utilized when workers are exposed to sound levels exceeding those specified in Table 8b hereof when measured on a scale of a standard sound level meter at slow response. If such controls fail to reduce sound within the specified levels, ear protective devices capable of bringing the sound level to permissible noise exposure shall be provided by the employer and used by the worker.

1074:02: Permissible Noise Exposure:

Table 8b

1074.03:

(1) The values specified in Table 8b apply to total time of exposure per working day regardless of whether this is one continuous exposure or a number of short-term exposures but does not apply to impact or impulsive type of noise.

(2) If the variation in noise level involves maximum intervals of one (1) second or less, it shall be considered as continuous. If the interval is over one (1) second, it becomes impulse or impact noise.

(3) When the daily noise exposure is composed of two or more periods noise exposure of different levels, their combined effect should be considered rather than the effect of each.

if the sum of the fraction

$$\frac{C_1}{T_1} + \frac{C_2}{T_2} + \frac{C_3}{T_3}$$

exceeds unity, then the mixed exposure should be considered to exceed the threshold limit value. C indicates the total time exposure at a specified noise level, and T indicates the total time of exposure permitted at the level. However, the permissible levels found in the table shall not be exceeded for the corresponding number of hours per day allowed. Noise exposures of less than 90 dBA do not enter into the above calculations.

(4) Exposures to impulsive or impact noise shall not exceed 140 decibels peak sound pressures level (ceiling value).

1075: Illumination:

1075.01: General Provisions:

All places where persons work or pass or may have to work or pass in emergencies, shall be provided during time of use with adequate natural lighting or artificial lighting or both, suitable for the operation and the special type of work performed.

1975.02: Natural Lighting,

(1) Skylights and windows should be located and spaced so that daylight conditions are fairly uniform over the working area.

(2) Where necessary, skylights and windows should be provided with means to avoid glare.

(3) A regular system of cleaning skylights and windows should be established to ensure that they are kept clean at all times.

1075.03: Artificial Lighting:

Quality:

(1) Artificial lighting shall be provided when daylight fails or for area where the daylight illumination is insufficient.

(2) The general lighting should be of uniform level, widely distributed to avoid harsh shadows or strong contrast and free from direct or reflected glare.

(3) Where intense local lighting is necessary, a combination of general and supplementary lighting at the point of work may be provided.

(4) Supplementary lighting shall be specially designed for the particular visual task and arranged or provided with shading or diffusing devices to prevent glare.

1075.04: Intensity:

(1) Artificial lighting shall be adequate at the place of work for the operation or work performed.

(2) A minimum of 20 lux (2 foot candles) shall be provided for yards, roadways and outside thoroughfares.

(3) A minimum of 50 lux (5-foot candles) shall be provided:

a. where discrimination of detail is not essential, such as handling coarse materials, coal or ashes, rough sorting or grinding of clay products;

b. for passageways, corridors, stairways, warehouses, storerooms for rough and bulky materials.

(4) A minimum of 100 lux (1 0 foot candles) shall be provided:

a. where slight discrimination of detail is essential such as for the production of semi finished iron and steel products, rough assembling, milling of grains, opening, picking and carding of cotton, or other primary operation in most of the industrial processes; and

b. for engine and boiler rooms, passenger and freight elevators, crating and boxing departments, receiving and shipping rooms, storerooms, and stockrooms for medium and fine materials, locker rooms, toilets, and washrooms.

(5) A minimum of 200 lux (20 foot candles) shall be provided where moderate discrimination of details is essential, such as for medium assembling, rough bench and machine work, rough inspection of testing of products, sewing light-colored textile or leather products, canning and preserving, meat packing, planing of lumber and veneering.

(6) A minimum of 300 lux (30 foot candles) shall be provided where close discrimination of details is essential such as for medium bench and machine work, medium inspection, fine testing, flour grading, leather finishing and weaving cotton goods or light colored cloth/goods or for office desk work with intermittent reading and writing for filing and mail sorting.

(7) A minimum of 500 to 1,000 lux (50 to 100 foot candles) shall be provided where discrimination of fine details is involved under conditions of a fair degree of contrasts for long assembling, fine bench and machine work, fine inspection, fine polishing and beveling of glass, fine wood-working and weaving dark colored cloth/goods, or for accounting, bookkeeping, drafting, stenographic work, typing or other prolonged close office desk work.

(8) A minimum of I 000 lux (1 00 foot candles) shall be provided where discrimination of extremely fine detail is involved under conditions of poor contrast for long periods of time, such as for extra fine assembling instrument, jewellery, and watch manufacturing, grading and sorting tobacco products, make-up and proof-reading in printing plants, and inspection of sewing dark-colored cloth products.

(9) The provisions of paragraphs 2 to 8 apply to lighting equipment under average operating conditions. Where conditions allow, it may be necessary to provide initially an illumination of at least 25% more. In locations where dirt will collect rapidly, the initial level should be at least 50% above the recommended standards.

(10) Any windowless room shall be provided with general lighting sufficient in intensity for the most exacting operations carried therein.

(11) Detailed standards of lighting intensity for different operations of work environment shall be as provided in Table 8c.

Note: I foot candle = 10.75 lux

For purpose of computation use I foot candle = 10 lux

1075.06: Table of Illumination Levels:

Table 8c

1075.06: Emergency Lighting:

(1) Where large numbers of persons are employed in buildings more than one story in height, emergency lighting system shall be provided in all important stairways, exits, workplaces and passages.

(2) Emergency systems shall be capable of producing and maintaining for at least one (1) hour, a minimum intensity of 5 lux (0.5 ft. candle) and shall have an energy source independent of the general lighting system installation.

(3) Provisions shall be made for the automatic lighting of the emergency system immediately upon failure of the general lighting system.

1076: General Ventilation:

1076.01: Atmospheric Conditions:

Suitable atmospheric conditions shall be maintained in workrooms by natural or artificial means to avoid insufficient air supply, stagnant or vitiated air, harmful drafts, excessive heat or cold, sudden variations in temperature, and where practicable, excessive humidity or dryness and objectionable odors.

1976.02: Air Supply:

(1) Clean fresh air shall be supplied to enclosed workplaces at an average rate of not less than 20 to 40 cubic meters (700 to 1400 cu. ft.) an hour per worker, or at such a rate as to effect a complete change of air a number of times per hour varying from four (4) for sedentary workers to eight (8) for active workers.

(2) Where an. adequate supply of fresh air cannot be obtained by natural ventilation or where it is difficult to get the desired amount of air at the center of the workrooms without creating uncomfortable drafts near the inlets, mechanical ventilation shall be provided.

1076.03: Cleanliness:

(1) Dusts, gases, vapors, or mists generated and released in work processes shall be removed at the points of origin and not permitted to permeate the atmosphere of the workrooms.

(2) Internal combustion engines fuelled by gasoline, diesel or liquefied petroleum gas (LPG). Installed in workrooms shall be located such that exhaust gases are prevented from permeating the atmosphere of the workrooms.

1076.04: Air Movement

The air movement in enclosed workplaces shall be arranged such that the workers are not subjected to objectionable drafts. The air velocity shall not exceed 15 meters (50 ft.) per minute during the rainy season and 45 meters (150 ft.) per minute during the summer season.

1076.05: Temperature and Humidity:

(1) A temperature suitable for the type of work performed shall be maintained in enclosed workplaces and such temperature shall be increased or decreased and the degree of humidity varied in accordance with the kind of work.

(2) All employees shall be protected either by insulation of the equipment or by other suitable means against radiation and excessive temperature due to steam and hot water pipes or other heated machinery or equipment.

(3) In workplaces involving exposure of workers to unduly high or low temperatures, passage rooms shall be provided so that the workers can gradually adjust themselves to the prevailing temperature.

1077: Working Environment Measurement:

1077.01: General Provisions:

(1)The employer shall exert efforts to maintain and control the working environment in comfortable and healthy conditions for the purpose of promoting and maintaining the health of his workers.

1077.02: Definitions:

Working environment measurement shall mean sampling and analysis carried out in respect of the atmospheric working environment and other fundamental elements of working environment for the purpose of determining actual conditions therein.

1077.03: Requirements:

(1) Working environment measurement shall include temperature, humidity, pressure, illumination, ventilation, and concentration of substances and noise.

(2) The employer shall carry out the working environment measurement in indoor or other workplaces where hazardous work is performed and shall keep a record of such measurement, which shall be made available to the enforcing authority.

(3) The working environment measurement shall be performed periodically as may be necessary but not longer than annually.

(4) The working environment measurement shall be performed by the safety and medical personnel who have taken adequate training and experience in working environment measurement.

(5) In the event of inability to perform the working environment measurement, the employer shall commission the Bureau/Center for Occupational Safety and Health/ Regional Labor Office concerned and other institutions accredited or recognized by the Bureau, to perform the measurement.

1077.04: Effectivity:

This Rule shall be effective upon announcement by the Secretary of Labor and Employment.

RULE 1080

PERSONAL PROTECTIVE EQUIPMENT AND DEVICES

1081: General Provisions:

1081.01: Every employer as defined in 1002:

(1)Shall at his own expense furnish his workers with protective equipment for the eyes, face, hands and feet, protective shields and barriers whenever necessary by reason of the hazardous nature of the process or environment, chemical or radiological or other mechanical irritants or hazards capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

(2) Deduction for the loss or damage of personal protective equipment shall be governed by Article 114, Book III, Labor Code of the Philippines, and Section 14, Rule VIII, Book III, Omnibus Rules Implementing the Labor Code.

1081.02: All personal protective equipment shall be of the approved design and construction appropriate for the exposure and the work to be performed.

1081.03: The employer shall be responsible for the adequacy and proper maintenance of personal protective equipment used in his workplace.

1081.04: No person shall be subjected or exposed to a hazardous environmental condition without protection.

1082: Eye and Face Protection:

*1082.01:*Eyes and face protective equipment shall be required where there is reasonable probability of exposure to such hazards. In such cases, the employer shall furnish a type of protective equipment suitable for the work to be performed and the employees shall use such equipment. Eye protection shall be provided where the processes or operations present hazards of flying objects, liquids, injurious radiation, glare or a combination of these hazards.

1082.02: Eye and face protective equipment shall conform with the following minimum requirements:

(1) provide adequate protection against the particular hazard for which they are designed or intended;

(2) be reasonably comfortable to use;

(3) fit snugly and shall not unduly interfere with the movements of the user;

(4) be durable, easily cleaned and capable of being disinfected;

(5) be kept clean and in good condition, and

(6) be of the approved type.

1082.03: Whenever eye protection is needed, persons whose visions require the use of corrective lenses shall wear goggles or spectacles of any of the following types:

(1) spectacles which provide optical correction;

(2) goggles that can be worn over corrective spectacles without disturbing the adjustment of the spectacles; or

(3) goggles that incorporate corrective lenses mounted behind the protective lenses.

1082.04: Limitations and precautions indicated by the manufacturer shall be transmitted to the user and care shall be taken to ensure that such limitations and precautions are strictly followed and observed.

1082.05: For purposes of design, construction, testing, use of eye and face protection, the American National Standards for Occupational Eye and Face Protection Equipment (ANSI z87.1-1968) is adopted.

1083: Respiratory Protection:

1083.01: The primary corrective measure in the control of occupational diseases caused by harmful dusts, fogs, fumes, mists, gases, smokes, sprays or vapors shall be to prevent atmospheric contamination. This shall be accomplished through the use or application of accepted engineering control measures, like enclosure or confinement of the operation, general and local ventilation and substitution of less toxic materials or a combination of these. When effective engineering control measures are not feasible or while they are in process of being instituted, appropriate respirators shall be used.

1083.02: Appropriate respirators shall be furnished by the employer when such equipment are necessary to protect the health of the employees.

1083.03: The employee shall use the respiratory protection in accordance with instruments.

1083.04: Respiratory Protective Program:

In order to effectively implement the provisions of Rule 1083, the employer shall institute a respiratory protective program which shall include the following:

(1) Proper selection of respirators on the basis of the hazards to which the workers exposed;

(2) Sufficient instruction and training in the proper use and the limitations of respirators;

(3) When practicable, the assignment of respirators to individual workers for their exclusive use;

(4) Regular cleaning and disinfecting of the respirators. Respirators issued for the exclusive use of one worker shall be cleaned after each day's use or as often as necessary. Those used by two or more workers shall be thoroughly cleaned and disinfected after each use;

(5) Appropriate examination and testing of the conditions of the work area in order to assure that the allowable degree of employee exposure is maintained, and to determine the effectiveness of the control measures.

1083.05: Selecting of Respirators:

(1) For purposes of proper selection, design, construction, testing and use of respirators, the American National Standards Practices for Respiratory Protection (ANSI z88.-21059) is adopted.

1083.06: Use of Respirators:

(1) Standard procedures shall be developed for the use of respirators. These should include all information and guidance necessary for their proper selection, use and care. Possible emergency uses of respirators should be anticipated and planned for.

(2) Written procedures shall be prepared covering safe use of respirators in dangerous atmospheres that might be encountered in normal operations or in emergencies. All personnel shall be familiar with these procedures and the available respirators to use.

a. Workers in enclosed toxic or oxygen-deficient atmosphere shall be assisted in case of accident by at least one additional worker stationed in an area unaffected by the incident and provided with proper

rescue equipment to assist the other(s) in case of emergency. Communication (visual, voice or signal line) shall be maintained among the individuals present;

b. When self-contained breathing apparatus or hose masks with blowers are used in atmospheres dangerous to life or health, standby men must be present with suitable rescue equipment;

c. Persons using air line respirators in atmospheres hazardous to life or health, shall be equipped with safety harnesses and safety lines for lifting or removing persons from hazardous atmospheres or other equivalent provisions for the rescue of persons. A standby man or men with suitable self-contained breathing apparatus shall be at the nearest fresh air base for emergency rescue.

(3) For the safe use of any respirator, the user shall be properly instructed in its selection, use and maintenance.

1083.07: Maintenance and Care of Respirators:

A program for the maintenance and care of respirators shall be adopted to the type of plant, working conditions, and hazards involved and shall include the following basic services:

(1) inspection for defects (including leak check),

(2) cleaning and disinfecting, and

(3) repair and storage.

1084: Head Protection:

1084.01: Head Protection:

(1) Hard hats for the protection of workers from impact penetration from falling and flying objects, blows, and from limited electric shock and burns shall be provided where there is reasonable probability of exposure to such hazards.

(2) Hard hats shall be made of non-combustible or slow-burning materials and when used in electrical environment shall be non-conductor of electricity.

(3) The total weight of complete hard hat should not be more than 0.45 kgs. (16 ounces).

(4) Hard hats shall have a brim all around to provide protection for the head, face and back of the neck.

(5) Hard hats without brims and low crowns may be allowed only in confined spaces.

(6) The cradle and sweatband of hard hats shall be detachable and replaceable.

(7) For work in excessive moisture, hard hats shall be water-proof-material.

(8) For the purpose of proper selection, design, construction, testing and use of head protectors the American National Standards Safety Requirement for Industrial Head Protection (ANSI z59-1-1969) is adopted.

1084.02: Hair Protection:

(1) All persons with long hair employed around machinery shall completely cover their hair with well fitting caps or other equivalent protection.

(2) Caps shall be of materials not easily flammable and sufficiently durable to withstand regular laundering, disinfecting and cleaning.

1085: Hand and Arm Protection:

1085.01: When selecting gloves, consideration should be given to the hazards to which the wearer may be exposed to and the ease and free movement of the fingers.

1085.02: Gloves shall not be worn by workers operating drills, punch presses or other machinery in which the hand may be caught by moving parts.

1085.03: Gloves, mittens, and leathers or pads for workers handling sharp edged or abrasive objects shall be made of tough materials and where necessary provided with special reinforcement.

1085.04: Gloves, mittens and sleeves for workers handling hot metals shall be made of suitable heat resisting material.

1085.05: Gloves and sleeves for electrical workers shall be made of rubber or other suitable materials conforming with the test requirements on dielectric strength.

1085.06: Gauntlets for workers handling corrosive substances, such as acids and caustics, shall be made of natural rubber, synthetic rubber or pliable plastic material resistant to corrosion.

1085.07: Gauntlets for protecting workers against the action of toxic, irritating or infectious substances shall:

(1) cover the forearm as much as possible,

(2) have a close fit at the upper end and

(3) not have the slightest break.

Gloves torn during use shall be replaced immediately.

1086: Safety Belts, Life Lines and Safety Nets:

1086.01: General Provisions:

(1) Workmen working in unguarded surface above open pits or tanks, steep slopes, moving machinery and similar locations, or working from unguarded surfaces six (6) meters (20 ft.) or more above water or ground, temporary or permanent floor platform, scaffold construction or where otherwise exposed to the possibility of falls hazardous to life or limb, shall be secured by safety belts and life lines. In situations where safety belts and life lines in guarded platforms and scaffolds or temporary floors are not feasible, safety nets shall be provided and installed.

(2) Window washers or cleaners working outside buildings six (6) meters (20 ft.) or more above the ground or other surfaces unless protected from falling by other means, shall use safety belts attached to suitable anchors.

(3) Workmen entering a sewer, flue, duct, or other similarly confined places shall be provided and required to wear safety belts with life lines attached and held by another person stationed at the opening ready to respond to agreed signals.

(4) Workers who are required to climb and work on top of poles six (6) meters or more shall use safety belts. On top of structures where there is no place to strap a safety belt, a messenger line shall be installed for strapping the safety belt or life line.

1086.02: Requirements:

(1) Safety belts shall be made of chromed tanned leather, linen or cotton webbing, or other suitable materials at least 11.5 cm. (4 1/2 in.) wide and 0.65 cm. (1/4 in.) thick and of sufficient strength to support a weight of 114 kgs. (250 lbs.) without breaking.

(2) Hardware used for safety belts should have a strength of approximately equal to the full strength of the waist band. Buckles shall hold securely without slippage or other failure. This holding power should be achieved by only a single insertion of the strap through the buckle in the normal or usual way.

(3) Belt anchors shall be made of metal machined from bar stock, forged or heat treated, capable of supporting a pull of 2730 kgs. (6,000 lbs.) without fracture applied in the direction which the anchor must withstand should a man fall. All anchors and fastenings shall be provided with means to prevent turning, backing off or becoming loose. Anchor fittings with single thread section which is merely screwed into reinforcing plates shall not be used. Metals recommended for belt anchors are nickel copper alloy and stainless steel.

(4) Life lines shall be made of good quality manila rope of at least 1.9 cm. (3/4 in.) diameter or equivalent material such as nylon rope of at least 1.27 cm. (1/2 in.) diameter and shall be of sufficient strength to support a weight of 1140 kgs. (2,500 lbs.) without breaking.

(5) Safety nets shall not be less than 0.94 cm. (3/8 in.) diameter mesh ropes and not less than 1.90 cm. (3/4 in.) diameter border ropes (perimeter) made of manila rope or other materials that can absorb the impact of a falling body equally as nets fabricated from manila rope of the dimensions specified. The mesh shall be arranged not to exceed 15.25 cm. (6 in.) on canters positively and securely attached to avoid wear at each crossing point and at points of contact with the border.

(6) Safety nets shall be equipped with adequately padded thimbler sockets or equivalent means of attachments. Supports and anchorages shall be of sufficient size and strength to catch any falling worker. The nets shall be attached to sufficient supports outside and beyond the area of possible fall and supported at sufficient heights to prevent sagging to any solid object beneath when cushioning the fall of a worker.

(7) Safety belts, life lines and safety nets shall be inspected before use and at least once each week thereafter. Defective belts, lines or nets shall be immediately discarded and replaced or repaired before reuse.

1087: Use of Safety Shoes:

Workers shall be provided with approved safety shoes and leg protection whenever necessary as determined by the nature of work.

RULE 1090

HAZARDOUS MATERIALS

1091: Scope:

The provisions of this Rule shall apply to all workplaces in which hazardous substances in solid, liquid or gaseous forms are manufactured, handled and used or in which flammable, irritating, offensive or toxic dusts, fibers, gases, mists or vapors are generated or released in quantities injurious to health.

1092: Definitions:

When used in this Rule the following shall mean as follows:

(1) *"Hazardous materials or substances"* mean substances in solid, liquid or gaseous forms known to constitute poison, fire, explosion or health hazard.

(2) *"Corrosive" when* referred to the action on inanimate surface such as metal, glass or wood means that a substance will cause the wearing away, or the gradual changing or destroying of the texture or substance of such materials. When referred to the action on living tissue, means that it will cause more or less severe destruction of the tissue by chemical action.

(3) *"Hot"* means that a material or substance possesses or is characterized by a relatively high temperature.

(4) *"Gases"* means normally aeroform fluid, which have neither shape nor specific volume but tend to expand indefinitely and which can be changed to the liquid or solid state by the effect of increased pressure or decreased temperature.

(5) *"Fumes"* means suspended solid particles, which are generated by condensation from gaseous state, generally after volatilisations from molten metals.

(6) *"Vapor"* means gaseous form of substances which are normally in the liquid or solid state, and which can be changed to these states either by increasing the pressure or decreasing the temperature.

(7) *"Mists"* means suspended liquid droplets generated by condensation from the gaseous to the liquid state or by breaking up of a liquid into a dispersed state, such as by atomizing, foaming or splashing.

(8) *"Fibers"* means any tough solid substance composed of thread-like tissue, whether of mineral, vegetable or animal origin.

(9) *"Dust"* means solid particles capable of being blown about or suspended in the air. generated by handling, crushing, cutting, drilling, grinding, rapid impact, spraying, detonations, or disintegration of inorganic or organic materials and are of a composition similar to the substance or substances from which derived.

(10) *"Toxic"* means acting or likely to act as a poison, or may chemically produce injurious or deadly effect.

(11) "*Irritating"* means causing undue sensitiveness of an organ or part of the body.

1093: General Rules:

1093.01: Reduction of Hazards:

When practicable, harmless substances shall be substituted for hazardous substances or the process shall be revised to reduce worker exposure to the hazards.

1093.02: Control of Processes:

Any one or a combination of the following methods shall be used:

(1) Hazardous processes shall be carried on in separate rooms or building with a minimum number of workers equipped with suitable protective equipment and trained thoroughly in safety practices for daily operations and for emergencies.

(2) The process or operation shall be carried out in an air-tight enclosure to prevent personal contact with the harmful substances and the escape of dusts, fibers, fumes, gases, mists, or vapors into the air or room in which persons work.

(3) Where airtight enclosures or apparatus cannot be used, harmful dusts, fibers, fumes, gases, mists, or vapors shall be removed at or near their point or origin by means of fume chambers or suction hoods properly connected to efficient exhaust system, and

(4) Control by general ventilation to provide a continual inflow of fresh air to keep the concentration of contaminants within safe limits.

1093.03: Use of Personal Protective Equipment:

(1) Workers shall be provided with, and shall use personal protective clothing and equipment in accordance with the requirements of Rule 1080.

(2) Personal protective equipment shall also be used to supplement control methods when such measures cannot adequately eliminate the hazard or when other measures are not possible.

1093.04: Marking of Containers:

All containers with hazardous substances shall be properly labelled. No employer within the scope of this Rule shall accept any container of hazardous substances for use, handling or storage unless such container are labelled.

(1) Specific *Labelling Requirements:* Labels shall contain the following information:

a. symbol of the relevant category of hazard of the substance contained; categories of hazards shall be explosive, flammable, oxidizing, toxic, corrosive and radioactive; symbols shall be in accordance with Figure 10 a;

b. trade name may be used in addition to the chemical name of the substance;

c. a description of the principal risk or risks;

d. a statement of the necessary precautions to be taken; and

e. if necessary, a statement of the first-aid or other simple measures to be taken in case of injury or emergency.

(2) Other Aspects of Labelling

a. Shape of labels - warning labels shall be in rectangular shapes;

b. size of symbols - the height of the danger symbol shall be in relation to the size of the package or container upon which the label will be placed.

c. text on the labels shall be adequate in sizes to be clear and legible, and

d. in black on a white background.

(3) *Marking of Labels:* All required markings shall be either lithographed or press-printed or engraved upon a paper label securely attached or applied to the outside surface of the container. Receptacles of over 18.92 liters (5 gallons) capacity may be marked with letters stencilled, stamped, or uniformly printed not less than 2.54 cm. (1 in.) in height. Marking shall not be defaced or obliterated by rain or other weather elements.

(4) *Responsibility for Labelling:* (a). The primary responsibility for the correct labelling of packages and containers of hazardous substances manufactured locally shall fall upon the manufacturers. For hazardous substances imported from foreign countries for purposes of distribution and retail to local users, responsibility for correct labelling of containers shall be the importer, distributor or retailer. (b). When hazardous substances in a factory undergo a series of distribution or repacking processes over which the manufacturer has no contact, responsibility for labelling shall fall upon the distributors, wholesalers or retailers. (c). The employer shall be responsible for labelling hazardous substances for use in his workplace other than those supplied by manufacturers or distributors; (d). In case of transfer of hazardous substances from original containers to other containers, the employer shall be responsible for the proper labelling and identification of such substances; and (e) Unlabelled hazardous substances received by the employer shall be properly labelled and identified by him.

(5) *Samples of Labels:* The sample labels in Figure 10a shall be used as guide.

(6) *Condensing of Labels:* Where small containers present a problem in labelling for lack of adequate space, the following shall be applied:

a. retain the symbol and the name of the product;

b. retain the statement of hazards;

c. consider omission of precautionary measures if they are clearly indicated in the symbol and in the statement of hazards; and

d. include precautionary measures for any additional hazards, which may be present because of the characteristic of the container, the nature of its use, and the training and experience of the user.

1093.05: Testing of Atmosphere:

The atmosphere of workrooms shall be tested periodically at such intervals as may be necessary but not longer than annually, to ensure that the concentration of irritating or toxic dusts, fibers, fumes, gases, mists or vapors are kept within the threshold limit values specified in Rule 1070.

1093.06: Ventilation and Exhaust Equipment:

Ventilation and exhaust equipment shall be inspected and tested periodically for safe and efficient operational performance.

1093.07: Prevention of Dust Accumulation:

(1) All parts of structure or equipment in which harmful dust is liberated shall be designed and installed so that the surfaces on which dust can accumulate are reduced to a minimum and shall be frequently cleaned.

(2) In rooms where materials producing flammable dusts are processed, handled and stored;

a. dusts shall be removed daily from floors, equipment and other horizontal surfaces, preferably by means of appropriate vacuum apparatus; and

b. all fixtures, ledges, projections, bearings, sidewalks, ceilings and other parts shall be cleaned and freed of dusts at least once a week.

(3) Floors:

Where practicable, floors or rooms in which harmful dust is liberated shall:

a. be smooth, impervious and easy to clean; and

b . not be covered with loose sheets, metal or other materials under which dust can accumulate.

1093.08: Cleaning:

Where toxic and irritating substances are being handled, manufactured or used, the floors, walls, structural surfaces, work benches, tables and equipment shall be thoroughly cleaned daily by means of vacuum cleaning, wet brushing or sweeping, outside of working hours.

1093.09: Precautionary Measures for Emergencies:

(1) *Warning Devices:*

In all workplaces where hazardous substances are manufactured, handled or used, suitable warning device shall be installed wherever possible, to alert the personnel in case of the liberation of dangerous quantities of said substances.

(2) *Training of Personnel:*

Workers shall be trained on procedures to control the liberation of hazardous substances, eliminate pollution, and to evacuate from the affected area in an orderly manner.

1093.10: Working Clothing:

All personnel exposed to irritating or toxic substances shall be provided with appropriate protective clothing including head covering, which shall:

(1) be removed before eating or leaving the premises and kept in places provided for the purpose;

(2) not be taken out of the factory by the users for any purpose; and

(3) be maintained in good condition and washed or cleaned at least once a week.

1093.11: Spillage:

Spillage of irritating or toxic substances shall be removed as quickly as possible by the best technical and scientific means possible. and available.

1093.12: Instruction on Health Hazards:

All workers shall be thoroughly informed of the health hazards connected with their work and the measures to be taken to protect themselves there from.

1093.13: Meals:

The introduction, preparation and consumption of food, drink and tobacco in the workroom shall be prohibited.

1093.14: Personal Cleanliness:

All workers exposed to toxic substances which enter the body through ingestion, shall be required to wash their faces and hands thoroughly before eating, drinking, smoking or before leaving the premises.

1093.15: Time for Use of Washrooms:

A time allowance for the use of the washroom before the meal period and for the use of the shower bath at the end of the days' work shall be allotted to each worker employed in the manufacture or handling of the following:

(1) irritating or toxic dry mineral or organic substances such as arsenic, chrome, lead, manganese, mercury, phosphorus, zinc and their compounds;

(2) Superphosphates and their compounds;

(3) Dust-producing toxic dyestuffs and pigments;

(4) Dust-producing and coal-tar products such as pitch and soot; and

(5) Radioactive substances.

1093.16: Medical Aid:

All workers exposed to irritating or toxic substances shall be required to report promptly any physical complaints.

1093.17: Exposure Records:

The employer shall maintain accurate record of employee exposure to potentially toxic materials which are required to be measured or monitored. This record shall be open to authorized agents and the workers exposed to such hazards.

1094: Hot and Corrosive Substances:

1094.01: Protection of Structure & Equipment:

In all workplaces where corrosive gases, fumes, mists or vapors are generated and liberated, adequate measures shall be taken to prevent damage to structural parts and factory equipment by corrosion.

1094.02: Handling:

(1) Corrosive or hot liquids should be handled in bulk by gravity system or pressure pump system, extending to the point or points of use so as to eliminate transporting in small container.

(2) Emptying receptacles containing corrosives or hot liquids not provided with drain cock shall be by pumps, tipping appliances or other suitable apparatus.

(3) Where portable receptacles are used for corrosive liquids, transport inside factories shall be effected without the escape of fumes or mists and preferably by mechanical means.

(4) Receptacles shall be kept securely closed except during extraction of the contents.

1094.03: Spillage of Acids and Alkalies:

(1) Floors in rooms where corrosive liquids are manufactured, handled or used shall be kept as dry as possible.

(2) Spillage should be avoided. Spilled corrosive liquid shall be guarded until removed to prevent workers from stepping or getting into contact with it.

(3) Spilled or escaping corrosive acid shall not be absorbed by sawdust, waste cloth or other organic materials but shall be flushed out with water or neutralized with chalk or lime.

1094.04: Diluting Acids:

When diluting acid with water, the acid shall be poured slowly into the water, with constant stirring of the mixture. Water shall never be poured into acid.

1094.05: Physical Contact With Corrosive Substances:

(1) Workers exposed to physical contact with corrosive or hot liquids or to caustic compounds of calcium, potassium, sodium or their dusts, shall be provided with and shall use protective clothing and equipment conforming to the requirements of Rule 1080.

(2) In workrooms where corrosive liquids are manufactured, handled or used, clean running water, and quick operating eye fountains and shower baths shall be installed and maintained in or adjacent to such workrooms readily accessible to all workers.

1095: **Storage:**

1095.01: Vats and Tanks:

(1) Vats, pans, and open tanks containing hot corrosive or toxic liquids shall, when the opening or top is less than 1 m (3.3 ft) above the floor or working level, be either:

a. raised so the top will not be less than 1 m (3.3 ft.) from the floor or working level, or

b. guarded on all sides by enclosures or by standard railings and when the top is less than 15 cm. (6 in.) above the floor shall be provided with standard toe- boards.

The provisions of a. and b. shall apply to every vat, pan or tank irrespective of the nature of the liquid it may contain.

(2) Where vats, pans or open tanks containing hot, corrosive or toxic liquids adjoin, the space shall be fenced.

(3) Vats**,** pans, or open tanks containing hot, corrosive or toxic liquids shall be provided with pipes or drains of sufficient capacity to carry off the contents without spilling or their backing up on the floor.

(4) Above-ground tanks containing hot, corrosive or poisonous liquids shall be:

a. surrounded by pits, catch basins or depressions of sufficient size to hold the entire contents in case of rupture; and

b. provided with overflow pipes leading to tanks or to safe places outside the building.

(5) Walkways shall not cross over open vats, pans or tanks containing hot, corrosive or toxic liquids. Where it is necessary to install service walkways for access to agitator drives or valves or for taking samples, such walkways shall be:

a. not less than 50 cm (20 in.) in width;

b. provided on both sides with standard railings and toeboards; and

c. kept clean and dry at all times.

1095.02: Storage Tanks for Non-Flammable Hazardous Liquids:

(1) Tanks used for storage of non-flammable hazardous liquids shall be:

a. located above ground or floor level;

b. supported so that leakage from any part of the tank will be noticeable;

c. surrounded with pits, catch basins or depressions of sufficient size to hold the entire contents of the largest tank in the event of rupture;

d. covered with protective paint to prevent corrosion from moisture or fumes; and

e. provided with stairways or permanent ladders and platforms, where necessary, for convenient and safe access to all parts of the tank and with floors or platforms preferably of metal grating.

(2) Tanks used for storing non-flammable hazardous liquids shall not be placed above passageways.

(3) Tanks used for storing non-flammable hazardous liquids stored in pits below ground level:

a. the pits shall be of concrete or masonry with sufficient space between the walls and the tanks to permit the passage of any person at any point; and

b. the tanks shall be mounted 38 to 45 cm. (15 to 18 in.) above the bottom of the pit.

(4) Pits containing sunken tanks used for storing non-flammable hazardous liquids shall be provided with covers and fixed ladders for safe access.

(5) All control-valves for sunken tanks used for storing non-flammable hazardous liquids shall be:

a. situated or of such design that they can be turned without any person entering the pit; and

b. provided with locking devices operated from the outlets of the pit.

(6) Workers entering storage tanks and pits containing hazardous liquids shall be provided with personal protective clothing and equipment conforming to the requirements of Rule 1080.

(7) Tanks used for storing corrosive or caustic liquids shall be provided with:

a. a permanent open wet pipe not less than 5 cm. (2 in.) in diameter at the highest point in the tank; and

b. a drain connection at the lowest point in the tank discharging into a safe place.

(8) Tanks used for storing corrosive or caustic liquids shall have the filling connections at the top and the discharge pipes 15 cm. (6 in.) above the bottom.

1095.03:

Drums containing acids shall be stored in cool places with the bung up. They shall be carefully opened each time the drum has been moved or once a week if stored for a period of time to relieve any internal pressure and subsequently sealed again.

1095.04: Carboys for Acids:

(1) Carboys containing acids shall be encased singly in baskets or in boxes cushioned with non-combustible packing material.

(2) Carboys containing acids shall be stored in separate store rooms or buildings with concrete floors having anti-acid protection or with brick floors properly drained to catch basins, dry and protected from dampness, extreme heat or sudden change in temperature.

(3) Carboys containing acids shall not be piled one on top of another but should be placed in suitable storage racks or on wooden strips laid on the floor.

(4) Special handling equipment such as two-wheeled carboy trucks shall be provided for transporting carboys containing acids to and from storage.

(5) Adequate equipment shall be provided and used for the emptying of carboys.

(6) Empty acid carboys shall be stored apart from filled carboys.

(7) Empty carboys shall be thoroughly washed out by turning them upside down over and upward with stream of water and drained before they are stored.

(8) Carboys together with their baskets or boxes shall be examined as to their condition before they are filled with acid.

1096: Use of Lead and Its Compounds:

1096.01: Definitions:

"Lead Compounds" means any organic or inorganic derivatives of lead.

1096.02: Control Measures:

(1) A substitute substance or agent less injurious or harmful shall be used instead of lead such as zinc oxide or titanium oxide instead of white lead in paint manufacture.

(2) Processes involving the use of lead and its compounds shall be enclosed and mechanical handling methods should be used or employed.

1096.03: Storage and Handling:

Stocks of lead materials shall be kept in special storage rooms outside the workrooms. Workrooms in which lead materials are handled shall be located in relation to other parts of the shop of factory in as small an area as possible to confine the lead and to concentrate control measures in that area.

1096.04: Local Exhaust System:

Properly designed exhaust systems, capable of carrying or drawing of air contaminants to maintain or control the threshold limit value of lead in the atmosphere, shall be provided for all processes which generate lead, fumes or dusts. The contaminants removed shall not be allowed to re-enter the workrooms or to pollute other parts of the workplace or the surrounding areas.

1096.05: Personal Protective Equipment:

Appropriate protective equipment and clothing such as overalls, head covering, goggles, gloves, aprons and respirators shall be issued free of charge to lead workers by the employer who shall see to their proper use and maintenance.

1096.06: Smoking or Eating:

Smoking, chewing, eating and the keeping of food in workrooms where lead or its compounds are used and handled shall not be allowed.

1096.07: Storage Lockers:

Suitable storage lockers for street and work-clothes shall be issued to each worker exposed to lead and its compounds. Adequate washing facilities shall be provided.

1096.08: Physical Examination:

Workers exposed to lead shall be subjected to periodic physical examination and laboratory examination at intervals of not more than six (6) months and where the degree of contamination rises above the threshold limit value, such physical examination shall be conducted at least once every three (3) months and a record of such examinations shall be open to authorized agents and to the exposed workers.

RULE 1100

GAS AND ELECTRIC WELDING AND CUTTING OPERATIONS

1100.01: General Provisions:

(1) Welding or cutting operations shall not be permitted in rooms or areas containing combustible materials or in proximity to explosives or flammable liquids, dusts, gases or vapors, until all fire and explosion hazards are eliminated.

(2) Welding or cutting operations on containers filled with explosives or flammable substance is prohibited. Welding closed containers that have held explosive or flammable substance shall only be undertaken after the containers have been thoroughly cleaned and found completely free of combustible gases or vapors or the containers are filled with inert gas or with water.

(3) Welding and cutting operations carried out or done in places where persons other than the welders work or pass shall be enclosed by means of suitable stationary or portable screens. Screens shall be opaque, of sturdy construction to withstand rough usage of a material which will not readily be set on fire by sparks or hot metal, at least 2 m. (6.5 ft.) high, and preferably painted with light flat paint.

(4) A portable fire extinguisher shall be provided at the place where welding and cutting operations are being undertaken.

(5) Authorization, before welding and cutting operations are allowed in large establishments, the area shall be inspected by the safetyman. He shall issue a written permit or authorization for welding and cutting, indicating therein the precautions to be followed to avoid fire or accidents.

1100.02: Personal Protective Equipment:

(1) All workers or persons directly engaged in welding or cutting operations shall be provided with the following personal protective equipment:

a. goggles, helmets or head shields fitted with suitable filter lenses and hand shields; and

b. suitable aprons.

(2) all persons directly assisting in welding or cutting operations shall be provided with gloves, goggles or other protective clothings, as may be necessary.

1100.03: Welding or Cutting in Confined Spaces:

The inhalation of any fumes, gases or dusts by persons welding or cutting in confined spaces shall be prevented by the provision of:

(1) Local exhaust and general ventilation system to keep fumes, gases or dusts within allowable concentrations or threshold limit values;

(2) Approved types of respiratory protective equipment.

RULE 1120

HAZARDOUS WORK PROCESSES

1121: Underground Tank and Similar Confined Space Work:

1121.01: General Provisions:

Before a worker or group of workers enter any confined or enclosed space and before any work is commenced, the following precautions and safety measures shall be taken:

(1) the area shall be checked visually to ensure that the water level is below 15 cm. (6 in.) and if water is present, a dry wooden platform shall be available for use;

(2) the air in the area shall be checked for:

a. explosive gases, fumes and vapors;

b. oxygen content and ;

c. carbon monoxide, if any burning or products of burning have been involved.

(3) if any of the above is present over normal levels, the area shall not be entered until ventilation by blower is effected.

(4) approved types of breathing apparatus and other personal protective equipment shall be provided and made available for use by the worker or workers entering a confined space;

(5) no worker or group of workers shall enter a confined space unless a watcher is available who is familiar with the job and in contact with the men at regular intervals and equally provided with breathing apparatus for ready use in case of emergency;

(6) no smoking or open lights, torches, arcs or flames shall be permitted in confined spaces until an inspection has been conducted to ensure that fire or explosion possibilities have been eliminated;

(7) no spraying or painting using volatile solvents of oil shall be undertaken in confined spaces unless the necessary respiratory and other adequate protection are provided;

(8) any manhole, tank opening, or other opening which is left unattended should be protected during the day by barricades, and at night by barricades and lanterns, with appropriate warning signs; and

(9) adequate means of ingress and egress from any confined or enclosed space shall be provided.

RULE 1140

EXPLOSIVES

1141: General Provisions:

1141.01:

The provisions of this Rule shall apply to the manufacture, handling and storage of explosives, fireworks and other pyrotechnic products.

1141.02:

For the transportation of explosives outside of the plant site, the Fire Code of the Philippines shall apply.

1141.03: Rule 20 of the Fire Code of the Philippines on Storage of Explosives is adopted.

1142: Definitions:

(1) *"Explosives"* shall mean and include any chemical compound or other substances intended for the purpose of producing an explosion or that which contains oxidizing or combustible unit or other ingredients in such proportion or quantity that ignition by fire, friction, concussion or detonation may produce an explosion capable of causing injury to persons or damage to property.

(2) *"Inhabited Building"* shall mean a building regularly occupied in whole or in part as a habitation for human beings and includes church, school house, railroad station, store or other buildings where people assemble, other than buildings in explosive plants.

(3) *"Explosives Plant"* shall mean and include all lands and the buildings situated thereon, used in connection with the manufacturing or processing of explosives or in which any process involving explosion is carried on, or the storage of explosives thereat, as well as any premises where explosives are used as a component part or ingredient in the manufacturing process.

(4) *"Factory or Explosive Building"* shall mean a building or structure (except magazines) in which explosives are manufactured or any process involving explosives are carried on.

(5) *"Magazine"* shall mean a building or structure, other than factory building, used exclusively for the storage of explosives.

(6) *"Railway"* shall mean and include any steam, diesel, electric or other railroad or railway for public use.

(7) *"Highway"* shall mean and include any public street, public alley, public road, or navigable stream used for transport.

(8) *"Barricaded"* means that the building containing explosives is effectually screened from a magazine, building, railway or highway either by a natural barricade or by an artificial barricade of such height that a straight line from the eave line of any magazine or building containing explosives to a point 3.70 m. (12 ft.) above the center of a railway or highway will pass through such intervening natural or artificial barricade.

(9) *"Natural Barricade"* means natural features of the ground which covers a building from another building or timber of sufficient density that the surrounding exposures which requires protection cannot be seen from the magazine when the trees are without leaves.

(10) *"Artificial Barricade"* means an artificial mound or revetted wall of earth of a minimum thickness of one (1) meter (3.3 ft.).

1143: Authorization:

(1) Explosives shall be manufactured, handled or stored only in approved places.

(2) Building authorized for use in the manufacture of explosives shall not be used for any other purpose.

(3) Specially approved precautions shall be undertaken where primary or initiating explosives are manufactured, handled or stored in addition to the precautions contained herein.

1144: Limitation:

1144.01:

Building in which any quantity of explosives are manufactured, handled, used or temporarily stored shall be classified as "explosives buildings". These buildings wherein finished explosives are kept or are stored for periods exceeding forty eight (48) hours shall be classified as "Magazine".

1144.02:

Explosives materials used in loading detonators, timing or printing caps or other similar manufacturing processes shall not be stored in workrooms wherein people are employed except under the following conditions:

(1) Where the quantity used for an eight-hour work does not exceed 45 kgs. (100 lbs.). Only this quantity shall be stored in the workroom at any one time and at a place where it shall be suitably protected from uncontrolled or irresponsible handling. Additional supply be brought from the magazine as needed after the first 45 kgs. (100 lbs.) is processed and transferred to magazines.

1144.03:

Explosives materials not in the process of manufacturing, use or leftover in any manufacturing process shall be stored in magazines.

1144.04: Only a maximum of 136,360 kgs. (300,000 lbs.) or twenty million (20,000,000) blasting caps shall be stored in any one magazine.

1144.05: Explosives or blasting caps shall not be stored or kept in any building used in whole or in part as a dwelling school, theater or any other place of public assembly.

1145: Quantity and Distance Tables:

Explosives shall not be kept or stored other than in magazine of Class I and Class II types.

(1) *Table of distance*

All buildings and magazines in explosives plants shall be located away from inhabited buildings, railways or highways, in conformity with Rule 1141.03.

(2) *Precautions:*

a. The table of distance applies only to the manufacture and permanent storage of commercial explosives. It is not applicable to the transportation, handling or temporary storage of explosives. It is not intended to apply to bombs, projectiles or other heavily encased explosives.

b. Where a building containing explosives is not barricaded, the distance shown shall be doubled.

c. When two (2) or more storage magazines are located on the same property, each magazine shall comply with the minimum distance specified. In addition, they shall be separated from each other by not less than the distance shown for "separation of magazines", except that the quantity of explosives contained in cap magazine shall determine the spacing.

d. If any two (2) or more magazines are separated from each other by less than the specified distances, such two or more magazines shall be considered as one and the total quantity of explosives stored shall be treated as stored in a single magazine with the specified minimum distances with other magazines, inhabited buildings, railways, highways and navigable streams complied with.

(3) *Intra-plant Quantity and Distance Table:*

All factory buildings in which explosives are processed, kept or stored shall be located apart from each other and from other buildings in the explosives plants and magazines shall be located away from factory and other buildings in explosives plants in conformity with Table 15.

(4) *Precautions to Table 15:*

Where a factory building or magazine is effectively barricaded, the distances specified may be reduced by "one half".

1146: Storage of Explosives:

1146.01: Class I Explosives:

Class I magazines shall be those containing over 22.5 kgs. (50 lbs.) of explosives. Such magazines shall have no openings except for ventilation and entrance. It shall be of masonry or metal construction or a combination of both constructed and maintained as follows:

(1) *Doors* - Doors must be kept closed and securely locked at all times except when opened for the purpose of storing or removing explosives or to allow persons authorized to enter such magazines.

(2) *Signs* - The premises on which explosives are kept or stored must be conspicuously defined and marked by appropriate signs, such as, " EXPLOSIVE KEEP OFF", legibly printed thereon in letters not less than 15 cm. (6 in.) high. Such signs must not be placed on magazines but shall be so located that a bullets passing through the sign will not strike the magazine.

(3) *Wood* - The outside walls shall be of 5 cm. x 10 cm. (2 in. x 4 in.) studding with a 5 cm. (2 in.) plank or tongued and grooved lumber having a nominal size of 2.5 cm. (1 in.) covered with not less than No. 26 gauge galvanized iron or steel on the outside. The inside walls shall be lined with tongued and grooved reefers. The space between the outer and inner walls shall be filled with dry course sand (not crushed stone or gravel) or a weak mixture of cement mortar. All lumber used shall be well seasoned and free from loose knots, bark edges or decay.

(4) *Brick* - Brick walls shall be 20 cm. (8 in.) in thickness of medium soft variety laid in cement mortar containing not over 25% lime.

(5) *Concrete* - Concrete walls shall be 15 cm. (6 in.) in thickness constructed of nine (9) parts sand to one (1) part cement with a 1.25 cm (1/2 in.) face surface of three (3) parts sand to one (1) part cement.

(6) *Cement Block* - Cement block walls shall be 20 cm. (8 in.) thick hollow cement block, a mixture of seven (7) parts sand and one (1) part cement. The spaces in the block shall be filled with dry coarse sand (not crushed stone or gravel) or a weak mixture of cement mortar.

(7) *Fabricated Metal* - Walls and roof shall consist of approximately No. 14 gauge metal securely fastened together. Walls shall be lined with 10 cm. (4 in.) of brick of at least a 15 cm. (6 in) sand fill between the interior and exterior walls.

(8) *Lining of Magazines* - Lining of magazines as specified in paragraphs (3) and (7) above, may not be required for the storage of black powder or for the storage of not more than 100,000 pieces of blasting caps.

(9) *Foundation* - The foundation shall be of stone laid in concrete, wood posts or brick piers. Magazines of less than 13,600 kgs. (30,000 lbs.) capacity shall have flooring of lumber having a nominal size of 2.5 cm. (1 in.) tongued and grooved. Magazines of larger capacity shall have double flooring.

(10) *Ventilation* - The floor and ceiling shall be constructed to within 5 cm. (2 in.) of the walls to provide a 3 cm. ventilation space. This shall be provided by constructing a 2.5 cm. x 15 cm. (1 in. x 6 in.) lattice wood lining on 5 cm. x 5 cm. (2 in. x 2 in.) wood stud 60 cm. (2 ft.) on centers. Foundation ventilators shall be spaced not more than 150 cm. (5 ft.) on center in all sides and properly screened to prevent the entrance of sparks of fire.

(11) *Nails* - All heads of nails shall be countersunk. No spark producing metal shall be exposed inside the buildings.

(12) *Doors* - The doors shall be 1 m. (3.28 ft.) wide and 1.8 m. (6 ft.) high constructed of at least three (3) layers of hard wood, having a nominal size of 2.5 cm. (1 in.) and covered on the outside with a steel sheet of at least No. 20 gauge. Where there is a need for bullet proofing the thickness of the steel sheet shall be a minimum of 1 cm. (3/8 in.).

(13) *Roof* - Except where permission for other construction is approved, a bullet-proof sand roof shall be used constructed as follows:

Form a box by laying a floor of a good grade of tongue and groove boards on ceiling joists and build a 2.5 cm. x 10 cm. (1 x 4 in.) rim lined with one (1) layer of building paper and filled with 10 cm. (4 in.) of dry coarse sand.

Except for fabricated metal magazines, the outer roof shall be covered with not less than No. 26 gauge galvanized iron ridge roll fastened to 2.2 cm (7/8 in.) sheating.

(14) *Gutters and Down Spouts* - Where water may enter through the door, gutters and down spouts shall be provided on the door sides.

(15) *Materials and Workmanship* - Only superior materials and workmanship shall be used.

1146.02: Class II Magazines:

Class II magazines shall be used for storing not more than 22.5 kgs (50 lbs.) of explosives. It shall be of wood or metal construction or a combination of both.

(1) *Construction* **-** The principle of construction is simply that of placing one box inside of another with a 12.5 cm. (5 in.) space in between filled with dry coarse sand, not gravel or crushed rock.

(2) *Outer Box* - The outer box shall be constructed of tongued and grooved lumber having a nominal size of 2.5 cm. (1 in.) plain lumber. The outside of the box shall be covered with no less than No. 24 gauge iron sheet. The outer box shall be 0.33 m. (1 foot) longer, 0.33 m. (1 foot) wider, and 15 cm (6 in.) deeper than the inner box allowing a 12.5 cm. (5 in.) space on all sides for sand filling. The inner box shall be set inside the outer box with the tops at level with each other and fastened into place.

(3) *Inner box* - The inside of all boxes shall be surfaced. No nail, bolt or metal screw heads shall be exposed on the inside of the box..

(4) *Ventilation* - At the top of each box, on the sides and ends, cut 0.625 cm (1/4 in.) by 5 cm. (2 in.) notches, spaced about 0.33 m. (1 foot) apart, and not directly opposite.

(5) *Setting* - The box (magazine) shall be set in a level position and supported by either wooden sills, bricks or piers and the bottom of the magazine kept at about 15 cm. (6 in.) off the ground

(6) *Sand Fill* - Fill the space between boxes with dry coarse sand (not gravel or crushed rock) to within 0.625 cm (1/4 in.) of the top. To prevent sand from falling into the storage space, a cover may be placed over the sand space.

(7) *Locks* - magazines shall be provided with adequate locks.

(8) *Signs* - At each end and on top of the magazine, above the side wall and on its barricades, there shall be conspicuously posted at all times appropriate, signs, such as, "MAGAZINE-EXPLOSIVE-DANGEROUS" legibly printed in letters not less than 15 cm. (6 in.) high.

1146.03: Temporary Storage At Job Sites:

(1) When used for temporary storage at a job site for blasting operations, Class II magazines shall be located away from neighboring buildings, railways, highways and other magazines. A distance of at least 45 m. (150 ft.) shall be maintained between Class II Magazines and the work site when the quantity of explosives kept therein is in excess of 11.4 kgs. (25 lbs.) and at least 15 m. (50 ft.) when the quantity of explosives is 11.4 kgs (25 lbs.) or less. The enforcing authority may require greater separation between Class II magazines and the work site where conditions warrant.

(2) Class II portable magazines for transporting small amounts of explosives from the permanent magazine to the work site and for temporary storage in the work site shall be constructed or built of 5 cm. (2 in.) hardwood or 7.5 cm. (3 in.) soft wood, well braced at corners, with sheet metal exterior sheating.

1146.04: Existing Magazines:

(1) Magazines existing prior to the promulgation of this Standards, which comply substantially with the intent and purpose of this requirement but not with the detailed specifications, may be allowed for a period of one (1) year subject to the reduction of capacity for the purpose of complying with the provisions of this Rule. The Secretary may require changes as are necessary to come into compliance, or to reduce magazine capacity in accordance with the requirements on construction or distance.

1146.05: Number of Employees:

The number of employees allowed in workrooms or portions of an explosives plant shall be limited to the minimum requirements of manufacturing.

1146.06: Admission to Plants:

(1) Explosives plants shall be fenced to prevent the entrance of person/s.

(2) No person, other than authorized employees or duly authorized enforcement officers, shall be allowed in any explosives plant unless they have been given permission and accompanied by the owner or his authorized representative. A record of such visits shall be kept on file in the office signed in each case by the visitor/agent and the owner/representative.

1146.07: Approval of Plans:

(1) For purposes of this Rule, the plans of all buildings in the explosives plant shall be submitted to the Integrated National Police for approval copy furnished the Regional Labor Office concerned before such buildings are constructed with the following:

a. Maps, plans or sketches of the topographical site showing the location of plant buildings, highways and also showing the existing barricades, if any, and barricades that are intended to be used. These plans shall be drawn to a scale of 1:2000 meters (100 or 200 feet to an inch) submitted in triplicate in white or blue print.

b. Plans and specifications of proposed magazines and other factory buildings drawn scale of at least 1.50 meters (1/4 in. to a foot) submitted in triplicate in white or blue print.

(2) A copy of the approved plans shall be kept in the office of the plant superintendent of each plant for inspection by duly authorized representatives of the Secretary. The superintendent of each plant shall upon the demand of said representative, furnish the following information:

a. the number of persons ordinarily engaged at work in or at each building or the maximum number allowed;

b. the maximum amount and kind of explosive materials allowed and present in each building at one time;

c. the nature and kind of work carried on in each building and whether or not such buildings are surrounded by natural or artificial barricades and dimension of each barricades;

d. record of visits and inspections; and other necessary information.

1146.08: Certificates of Safety Inspection Fees:

(1) Certificate of safety inspection issued by the Regional Office shall be required of all explosives plants showing compliance with the provisions of this Standards. Such certificates shall be valid for one (1) year from the date issued, renewable annually.

(2) Safety Inspection Fee: Refer to Rule 1970

1146.09: General Precautions:

(1) *Handling and Housekeeping*

a. Packages of explosives shall not be opened within 15 m. (50 ft.) of any magazine. Only wooden, rubber, rawhide, fiber, zinc or babbit mallet and wood wedge shall be used in opening packages of explosives.

b. All premises surrounding magazines must be kept free from bush, dry grass, and similar growth for at least 7.5 m. (25 ft.) around and no flammable materials shall be placed near or about magazines; and

c. only authorized persons shall have access to magazines.

(2) *Lighting:*

a. No open or naked lights such as lanterns, stoves and torches shall be allowed in rooms or portions of manufacturing plants. Watchmen or others using portable lighting shall be supplied with electric safety flash lights or electric safety lanterns.

b. No artificial light shall be used in magazines except approved portable electric dry cell battery lamps or lanterns.

c. Rooms or portions of plants shall be lighted, if artificial light is needed, by means of an electric system installed in conduit or in lead encased cables, with vapor proof lamps. All switches or fuses shall be located in a protected place away from such rooms or buildings. All lights, if possible, shall be protected by reflections into rooms from the outside. The use of electric motors other than those of a sparkless induction type, is prohibited.

(3) *Materials Allowed in Explosives Buildings:*

a. all explosives building shall be kept clear of all unnecessary loose tools, refuse and debris of any kind at all times, and shall not be used as temporary storehouse of materials not necessary in the process of manufacture.

b. explosives buildings, white containing explosives, shall not be used as storehouse for implements and any other material.

(4) *Matches:*

Workers shall not be allowed to carry at all times inside explosives plants, any match or other flame-producing device, unless he is authorized in writing by the plant superintendent. In such case, only safety matches shall be used and such entry and authorization properly recorded and open for inspection.

(5) *Clothing of Employees:*

a. all employees handling loose explosive or working in or around buildings used for manufacturing explosives shall wear rubber soled shoes, without iron or steel nails and with no metal attachments.

b. all explosives buildings shall be provided at each entrance with suitable device whereby the shoes of all persons entering such buildings can be cleaned.

(6) *Change or Locker House:*

Suitable change or locker houses shall be provided where employees can wash and change their clothes. No lockers shall be allowed in explosives buildings.

(7) *Transportation, Machinery and Platforms:*

a. all trucks or conveyors used for the transportation of loose explosives materials, except smokeless powder not in dry state or wet nitro compounds, shall be provided with side or end rails or guards to prevent any concentration of explosives from slipping off the truck.

b. careful inspection shall be made daily by the plant foreman to see that all machinery and equipment used in the manufacture or handling of explosives are in perfect order. If any is found not in good order, it shall not be used until placed in perfect condition.

c. all dangerous machinery and moving parts of machinery shall be guarded.

d. all platforms, stairways, tanks, vats, runways, and other dangerous places shall be guarded by standard railings and toeboards. Where there is danger of dust collection, toeboards shall not be used. Metals shall not be used for

railings and toeboards where its presence increase the danger of an explosion. No railings or toeboards shall be installed that will interfere with safety exits.

e. the tread of all wheels on trucks or conveyors or the rails used inside the explosives buildings shall be of non-sparkling materials.

(8) *Hand Carrying of Explosives:*

When explosives are carried from one building to another or from magazines to workrooms, employees carrying such explosives shall not be allowed to follow each other closely but must allow an interval of at least one (1) minute in time or 30 m. (110 ft.) in distance.

(9) *Cleanliness:*

a. if any explosive material or ingredient is spilled, it shall be cleaned immediately.

b. all floors of explosives buildings shall be free, as much as possible, from cracks, openings for any irregularities. No projecting or visible iron or steel nails shall be permitted on such floors.

1146.10: Protection Against Lightning:

(1) Lightning protection shall be provided for all electric conduits and circuits entering explosives buildings by means of suitable lightning arresters installed outside the buildings.

(2) Unless otherwise approved by the Regional Director, recommended lightning protection for magazine shall be constructed as follows:

a. *Magazine for 2,270 kgs. (5, 000 lbs.) or less..*

A vertical conductor of 2 cm. x 0.3 cm. (3/4 in. x 1/8 in.) copper tape attached to a vertical pole which shall be installed so that the horizontal distance between the conductor and the nearest part of the magazine shall not be less than 1.2 m (4 ft.). Joints in the conductor shall be tinned and riveted with 0.47 cm. (3/16 in.) copper rivet. The conductor shall terminate at least 3 m. (10 ft.) higher than the highest point of the magazine. The lower end of the conductor shall be attached to a point of at least 7.5 cm. (3 in.) above ground level by 0.47 cm. (3/16 in.) copper rivets to one or more copper rods 2 cm. (3/4 in.) in diameter which have been driven vertically into the ground to a depth of at least 3 m. (10 ft.). The resistance to earth shall be less than 10 ohms.

b. *Magazine for 2,270 kgs. (5, 000 lbs.) explosive or more:*

Masts shall be erected at each end of the longer axis of the magazine and at least 0.33 m. (1 foot) from any part of the magazine. Copper tape 2 cm. x o.3 cm. (3/4 in. x 1/8 in.) shall be attached to the mast. The conductor shall terminate at least 0.33 m. (1 foot) above the top of the mast and at a point of at least 7.5 cm. (3 in.) above ground level attached by 2 cm. (3/4 in.) in diameter copper rods which have been driven at least 3 m. (10 ft.) vertically into the ground. An aerial of 2 cm. x 0.3 cm. (3/4 in. x 1/8 in.) copper tape shall be suspended between the masts so that it is either horizontal or curved upwards in the middle and is at least 3 m. (10 ft.) higher than the highest part of the magazines. The aerial shall be attached to the copper tape conductors by 2 cm. (3/4 in.) copper rivets and binds of at least 0.6 m. (2 ft.) radius. Joints in the aerial and vertical conductors shall be tinned and riveted with 2 cm. (3/4 in.) copper rivets. The resistance to earth shall be less than 10 ohms.

c. *Method of Determining the Resistance to Earth:*

The use of megger "Earth Tester" or similar instrument is recommended.

d. *Earth Termination:*

Where the nature of the ground makes the driving of the earth rods impossible, other construction providing the same resistance to earth may be allowed by the enforcing authority.

1147: Records of Disposition of Explosives:

Every person, firm, association, or corporation manufacturing, selling, giving away, or distributing explosives, shall keep at all times an accurate journal or record in which purchase of explosives powder and every sale or disposition of explosives are legibly entered. Such record must show the names and addresses of persons to whom sales or

dispositions were made, name of persons to whom delivered, and the nature of business or persons receiving the same. Other pertinent data shall be furnished the Integrated National Police or its authorized representative, copy furnished the Regional Labor Office.

TABLE 15

TABLE OF DISTANCES FOR STORAGE OF EXPLOSIVES

EXPLOSIVES		DISTANCE IN FEET WHEN STORAGE IS BARRICADED			
POUNDS OVER	POUNDS NOT OVER	INHABITED BUILDINGS	PASSENGER RAILWAYS	PUBLIC HIGHWAYS	SEPARATION OF MAGAZINES
2	6	70	30	30	6
5	10	90	35	35	8
10	20	110	45	45	10
20	30	125	50	50	11
30	40	140	55	55	12
40	50	150	60	60	14
50	75	170	70	70	15
75	100	180	75	75	16
100	125	200	80	80	18
125	150	215	85	85	19
150	200	235	95	95	21
200	250	255	105	105	23
250	300	270	110	110	24
300	400	295	120	120	27
400	500	320	130	130	29
500	600	340	135	135	31
600	700	355	145	145	32
700	800	375	150	150	33
800	900	390	155	155	35
900	1000	400	160	160	36
1000	1200	425	170	165	39
1200	1400	450	180	170	41
1400	1600	470	190	175	43
1600	1800	490	195	180	44
1800	2000	505	205	185	45
2000	2500	545	220	190	49
2500	3000	580	235	195	52
3000	4000	635	255	210	58
4000	5000	685	275	225	61
5000	6000	730	295	235	65
6000	7000	770	310	245	68
7000	8000	800	320	250	72
8000	9000	835	335	255	75
9000	10000	865	345	260	78
10000	12000	875	370	270	82
12000	14000	885	390	275	87
14000	16000	900	405	280	90
16000	18000	940	420	285	94
18000	20000	975	435	290	98
20000	25000	1055	470	315	105

25000	30000	1130	500	340	112
30000	35000	1205	525	360	119
35000	40000	1275	550	380	124
40000	45000	1840	570	400	129
45000	50000	1400	590	420	135
50000	55000	1460	610	440	140
55000	60000	1515	630	455	145
60000	65000	1565	645	470	150
65000	70000	1610	660	485	155
70000	75000	1655	675	500	160
75000	80000	1695	690	510	165
80000	85000	1730	705	520	170
85000	90000	1760	720	530	175
90000	95000	1790	730	540	180
95000	100000	1815	745	545	185
100000	110000	1835	770	550	195
110000	120000	1855	790	555	205
120000	130000	1875	810	560	215
130000	140000	1890	835	565	225
140000	150000	1900	850	570	235
150000	160000	1935	870	580	245
160000	170000	1965	890	590	255
170000	180000	1990	905	600	265
180000	190000	2010	920	605	275
190000	200000	2030	935	610	285
200000	210000	2055	955	620	295
210000	230000	2100	980	635	315
230000	250000	2155	1010	650	335
250000	275000	2215	1040	670	360
275000	300000	2275	1075	690	385

TABLE 15a

INTRA-PLANT QUANTITY AND DISTANCE TABLE

EXPLOSIVES		DISTANCE FEET SEPARATE BUILDING OR WITHIN SUBSTANTIAL DIVIDING WALLS
POUNDS OVER	POUNDS NOT OVER	
	10	
10	25	40
25	50	60
50	100	80
100	200	100
200	300	120
300	400	130
400	500	140
500	750	160
750	1000	180
1000	1500	210
1500	2000	230
2000	3000	260
3000	4000	280
4000	5000	300
5000	6000	320
6000	7000	340
7000	8000	360
8000	9000	380
9000	10000	400
10000	12500	420
12500	15000	450
15000	17500	470
17500	20000	490
20000	25000	530
25000	30000	560
30000	35000	590
35000	40000	620
40000	45000	640
45000	50000	660
50000	55000	680
55000	60000	700
60000	65000	720
65000	70000	740
70000	75000	770
75000	80000	780
80000	85000	790
85000	90000	800
90000	95000	820
95000	100000	830
100000	125000	900
125000	160000	950
150000	175000	1000
175000	200000	1050
200000	225000	1100
225000	250000	1150

RULE 1150

MATERIALS HANDLING AND STORAGE

1150.01 General Provisions:

(1) Use *of Mechanical Equipment*. Where mechanical handling equipment is used, sufficient safe clearance shall be allowed for aisles, at loading docks, through doorways and wherever turns or passage must be made. Aisles and passageways shall be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard. Permanent aisles and passageways shall be appropriately marked.

(2) Secure *Storage.* Storage of material shall not create a hazard. Bag containers, bundle, etc., stored in tiers shall be stacked, blocked, interlocked and limited in height so that they are stable and secure against sliding or collapse.

(3) Housekeeping. Storage areas shall be kept free from accumulations of materials that constitute hazards from tripping, fire, explosion, or pest harborage. Vegetation control shall be exercised when necessary.

(4) Clearance *Limits.* Clearance signs to warn of clearance limits shall be provided.

(5) Rolling *Railroad Cars.* Derail and/or bumper blocks shall be provided on spur railroad tracks where a rolling car could contact other cars being worked, enter a building, work or traffic area.

(6) Guarding. Covers and/or guardrails shall be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, etc.

RULE 1160

BOILER

1161: Definitions:

(1) "Steam Boiler" shall mean any closed vessel wherein steam or other vapor is or is intended to be generated above atmospheric pressure by the application of fire, by the product of combustion, by electrical means, or by other heat source.

(2) "Power Boiler" shall mean a steam boiler with a working pressure exceeding 1.055-kg/cm2 gage (15 psig).

(3) "Miniature Boiler" shall mean a power boiler, which does not exceed any of the following limits.

a. 40.5 cm (16 in.) inside diameter of shell.

b. 106.5 cm (42 in.) overall length of the shell.

c. 1.85 m (20 ft^2) water heating surface, or

d. 7.03 kg/cm^2 (100 psig) maximum allowable working pressure.

(4) "Low Pressure Heating Boiler" shall mean a steam boiler used exclusively for operation at a pressure not exceeding 1.055 kg/cm^2 (15 psig) or a temperature not exceeding 121^{O}C). (250 ^{O}F).

(5) "Hot Water Boiler" shall mean a vessel completely filled with water and is intended to be heated above atmospheric pressure by the application of fire or such products of combustion, by electrical means, or other heat source.

(6) "Working Pressure" shall mean gauge pressure above atmospheric pressure in $kg./cm^2$ (psig).

(7) "Boiler Horsepower" in the absence of Manufacturer's Data, Boiler Horsepower shall mean the equivalent of 0.95 sq. m. (10 sq. ft.) of heating surface for vertical tube boilers and the equivalent of 0.46 sq. m. (5 sq. ft.) of heating surface for other types.

1162: General Provisions:

(1) No boiler shall be installed and/or operated in the Philippines without the permit issued for the purpose by the Secretary or his authorized representative.

(2) Application for installation of a new boiler shall be filed with the Bureau, through the Regional Office concerned for processing or verification accompanied by the manufacturers' data sheets, working drawings, foundation with design computation, installation and location plans, all in four copies (white print).

(3) Application for permit to locally fabricate boilers shall be filed in four (4) copies with the Bureau through the Regional Office concerned, accompanied by design drawings, computations and specifications.

(4) Major repair work on pressure parts of boilers shall only be done after the details of the repair and the design plan shall have been processed and approved by the Bureau. After repairs, the boiler shall not be operated or used without the permit issued by the Secretary.

(5) Any removal and/or change of location or ownership of a steam boiler shall be reported to the Regional Office or authorized representative by the old and new owners not later than thirty (30) days after the sale or transfer. Such boilers shall not be operated or used without the required permit.

(6) All portable pressure vessels with operating permits issued by the Secretary or authorized representative shall be honored in the Philippines during the period covered by the permit.

(7) The minimum personnel requirement in the operation of boilers shall be in accordance with Section 36, paragraph 30 of CA 294 as amended by RA 5336, otherwise known as the Mechanical Engineering Law.

1162.01: Standards Requirement:

For purposes of fabrication, as well as inspection, checking, test and other consideration prior to the approval of any installation and use of any steam boiler, the following in accordance with the latest revision, are hereby adopted:

(1) A. S.M.E. Boiler and Pressure Vessel Code;

(2) A.S.M.E. Code for Pressure Piping;

(3) A.S.M.E. Code for Unfired Pressure Vessels;

(4) A.P.I. Code for Petroleum Gases and Liquids; and

(5) The Philippine Society of Mechanical Engineers.

1162.02: Inspection of Boilers:

(1) The Bureau or the Regional Labor Office or authorized representative shall conduct inspection, both internally and externally of all boilers on the following phases of work:

a. During construction or fabrication if manufactured in the Philippines;

b. Before being placed into service after installation;

c. Before being placed into service after reconstruction or repair; and

d. Periodically at intervals of not exceeding twelve (12) months.

(2) Upon receipt of Notice of Inspection for annual inspection of steam boiler, the owner or user shall have the boiler drained, cooled, opened up and thoroughly cleaned. A 30-days grace period maybe granted as the case maybe.

(3) Steam boiler subjected to hydrostatic test shall be:

a. with a pressure equal to one and one half (1 ½) times the maximum allowable working pressure. The minimum temperature of the water used shall not be less than 2I^{O}C (70^{O}F), but the maximum temperature shall not exceed 71 ^{O}C (160 ^{0}F.)

b. under proper control, to reach the required test pressure gradually and in no case shall this test pressure be exceeded by more than six percent (6 %).

(4) During hydrostatic test of steam boilers, the safety valves shall be removed and the valves disc held down by means of testing clamps and not by screwing down the compression screw upon the spring.

(5) Steam boilers found unsafe shall not be operated until the boilers and their fittings are in good condition to ensure safe operation.

(6) Hammer test and/or Radiographic Examination or its equivalent shall be performed on the shell, head and tube.

1162.03: Age Limit of Lap-Riveted Boilers:

The age limit of a horizontal return tubular boiler having a riveted longitudinal lap joint and carrying over 3.5 kg/cm ^{2} g (50 psig.) pressure shall be twenty (20) years. No riveted joint boiler shall be discontinued from service solely on account of age. However, within a period of five (5) years after the effectivity of this Standards a joint boiler maybe used, provided that the lap-joints are thoroughly investigated particularly for cracks in the lap-joints, the boiler tested hydrostatically to 1½ times its working pressure and the general condition of the shell, tubes, sheets, joints, rivets and other parts warrant further use of the boiler, as found by the safety engineer in the presence of the owner's authorized representative (who must be a registered mechanical engineer) provided however that the total service age of the boiler is not more than twenty five (25) years.

1162.04: Construction of Steam Boilers:

(1) Steam boilers, their fitting and attachments shall be:

a. designed to adapt to the conditions of their use, and

b. constructed of sufficient strength to sustain internal pressures to which they are normally subjected.

1162.05: Boiler Records:

(1) Every boiler shall be accompanied by a certificate showing all the technical specifications used by the manufacturer including all the design standards and dimensions, and the maker's nameplate affixed on the boiler.

a. all second hand or rehabilitated boilers shall be accompanied by detailed working drawings and certificates executed by a Professional Mechanical Engineer calculating the ultimate tensile stress which shall not exceed 3,873 kg./cm ^{2} (55,000 psi), the joint efficiency of not more than 90% for radio graphed and heat-treated butt fusion weld, and a factor of safety of not less than 5.

b. the certificate shall also contain the results of all the control tests conducted during the manufacture of the material and the construction of the boiler.

c. the certificate shall be kept on file by the owner during the life time of the boiler.

d. every boiler owner shall keep a boiler maintenance register which shall show the dates of all the tests, internal and external examinations, drawings and repairs.

1163 Power Boilers

1163.01 Boiler Rooms:

(1) Clearance around the boiler to the boiler room wall or any equipment shall be at least 100 cm (3.28 ft.). Boiler room shall have two independent doors for easy access.

a. in separate buildings of fire-resistant materials used for no other purpose and situated not less than 3 m. (10 ft.) away from buildings not forming part of the factory, or

b. in structure of fire-resistant materials if situated in the same factory buildings or in close proximity to other factory buildings.

(2) Where power boiler room adjoins workrooms in which flammable or explosive substances are manufactured, used, handled, or liberated, there shall be no exits or other wall openings in the intervening walls.

(3) Power boiler rooms, blow-offs, ash pits or high pressure steam line tunnels and other places where there is danger of workers being trapped in the event of explosion or rupture of steam lines, shall be provided with not less than (2) adequate exits which shall be kept clear of any obstructions.

(4) Rails, walls, runways and stairs of iron or steel construction with non-slip surface shall be provided for convenient and safe access to overhead valves, water columns, feed water regulators and other fittings.

(5) Runways located on top or alongside a battery of power boilers shall be provided with not less than two (2) means of descent.

(6) Power boiler rooms shall be of sufficient height to permit installation and operation of all valves and safety devices with a minimum clearance of 90 cm. (3 ft.) above the highest valve fitting or levers.

(7) Pits in power boiler rooms shall be covered or guarded by standard railings and toeboards.

(8) Where power boilers are supported by structural steel work, the support shall be located or insulated that the heat from the furnace cannot impair the strength of the steel.

(9) Power boiler settings shall be provided with suitably packed openings or sleeves of sufficient size to permit the expansion and contraction of the pipes.

(10) Wet-bottom stationary boiler shall have a space of not less than 30 cm (12 in.) between the bottom of the boiler and the floor line to provide access for maintenance or inspection.

(11) Clearance around the boiler to the boiler room wall or any equipment shall be at least 90 cm. (3 ft.). Boiler room shall have two independent doors for easy access.

1163.02: Factors of Safety:

When inspection shows any deterioration of the boiler, the working pressure shall be reduced to maintain a factor of safety of not less than five (5) of such other factors as may have been fixed in the specification, provided that after twenty five (25) years of service, the factor of safety shall be increased by 10 or more as determined by the enforcing authority.

1163.03: Access and Inspection:

Power boiler or parts thereof shall be equipped with suitable manholes or other openings for inspection, examination and cleaning.

(1) Hand-hole openings in heads or shells of power boilers shall not be less than 70 mm x 90 mm (2 3/4 in. 3 ½ in).

(2) Each power boiler shall be equipped with at least one (1) safety valve if the heating surface is 46.5 sq. m. (500 sq. ft.) or less and two (2) or more if the heating surface is over. The safety valves shall be:

a. placed as close as possible to the boiler;

b. connected to the boiler independent of any other steam connection; and

c. placed between the boiler and the discharge point when installed in the pipeline.

(3) The safety valve or valves on power boilers shall be of sufficient capacity to discharge all the steam generated by the boiler without allowing the pressure to rise to more than

a. six percent (6%) above the maximum allowable working pressure; or

b. six percent (6%) above the highest pressure to which any valve is set.

(4) Seats and discs of safety valves for power boilers shall be of suitable corrosion-resistant materials and the seat shall be secured on the valve body to avoid the possibility of the seat lifting off.

(5) Safety valves for power boilers shall be constructed, tested and maintained in the following manner:

a. the failure of any part will not obstruct the free and full discharge of steam from the valves;

b. no shock injurious to the valves or to the boiler shall result from its operations; and

c. the valve can be turned on its seat.

(6) Safety valves for power boilers shall be:

a. capable of being adjusted and set to operate without chattering.

b. sealed or otherwise protected to prevent tampering by any unauthorized person;

c. provided with special means for lifting the valve for testing purposes; and

d. located to enable the boiler attendant to hear readily the discharge.

(7) Safety valves discharge outlets for power boiler shall be located or piped out away from running boards and platforms, preferably not less than 3 m. (10 ft.) above the platforms.

(8) When the discharge pipes are used on safety valves for power boilers, they shall be

a. not less in cross-sectional area than the full area of the valve outlets, and

b. fitted with open drains to prevent water lodging in the upper part of the valves or in the pipes.

(9) When mufflers are used on safety valves for power boilers, they shall:

a. have sufficient outlet area to prevent back pressure from interfering with the proper operation and discharge capacity of the valves; and

b. be constructed to avoid any possibility of obstruction of the steam passage due to deposits.

(10) Superheaters arranged in a manner that they can be isolated from power boilers shall be located near the steam outlet. However, valve or valves may be located anywhere in the length of the outlet heater if there is a uniform flow of steam through the superheater tubes and heater.

(11) Economizers used on power boilers shall be equipped with at least one (1) safety valve provided with seats and discs of corrosion resistant materials, if there is an isolating valve between the drum and economizer.

(12)Miniature boilers shall be equipped with sealed safety valves connected directly to the boiler. Miniature boilers with no extraction of steam (closed system), may in addition to safety valves, be provided with a rupture disc relieving device.

1163.04: Stop Valves:

(1) Steam discharge outlets on boilers, except safety valves, shall be equipped with stop valves located at an accessible point in the steam delivery line and as near the boiler as practicable.

(2) Quick and convenient means of manipulating the principal stop valves on power boilers shall be provided:

a. by extending the valve spindles so that the valve wheels may be operated:

i. from the floors of the boiler rooms by means of chains, gears or other mechanical devices, or

ii. from outside the boiler rooms in case of emergency.

b. by installing remote control stations for electrically operated valves in a protected space where they may be operated without danger.

(3) When two or more power boilers are connected to a common steam main, the steam connection from each boiler equipped with a manually opened valve shall be fitted with two stop valves having between them an ample free-flow drain. The discharge shall be visible to the operator while manipulating the valves.

(4) When stop valves on power boilers are located where water may accumulate, ample drain shall be provided.

1163.05: Water Column Pipes:

(1) Pipes connecting water columns to power boilers shall not be less than 25 mm. (1 in.) pipe size, and as short and direct as possible.

(2) Horizontal return to water columns shall be taken from the top of the shell in the upper part of the head and the water connections from a point not less than 15 cm. (6 in.) below the lowest center line of the shell.

(3) On the fire box type of power boilers, the water connections shall be taken from a point not less than 25 cm. (10 in.) below the lowest water line or as near thereto as possible, and in no case less than 45 cm. (18 in.) above the mud ring.

(4) Whenever practicable, water connection from power boilers to water column shall be provided with a cross at each right angle turn, to facilitate cleaning.

(5) Water columns on power boilers shall be fitted with drain cocks or drain valves with suitable connections to a safe point of disposal.

(6) No outlet connection allowing the escape of an appreciable amount of steam or water shall be placed on pipes connecting water column to medium and high pressure boilers, except for damper regulators or feed water regulators, drain, steam gauges or apparatus of similar form.

1163.06: Steam Gauges:

(1) Each power boiler shall be equipped with steam pressure gauge, placed as follows:

a. free from vibrations;

b. conveniently adjusted; and

c. afford a clear and unobstructed view to the attendant from the usual operating position, in front or at the side.

(2) Steam gauges, in satisfactory working condition for power boilers, shall be connected to the steam space or to the water column on its steam connection by siphons or equivalent devices, which shall be:

a. of sufficient capacity to keep the gauge tube filled with water; and

b. arranged that the gauge cannot be shut-off from the boiler, except:

i. by a cock placed near the gauge and provided with the level handle fitted parallel to the pipe when the cock is open, or

ii. by a cock or shut-off valve of 35 kg/cm^{2}g (500 psig.) rating or over.

(3) Steam gauges connection for power boilers shall be as short as practicable.

(4) Dials of steam gauges for power boilers shall:

a. be of a size and marked that the graduations of the pointer can be clearly determined by a person with normal vision from a distance equal to one and one half (1 1/2) times the width of the boiler front;

b. be graduated to not less than 1 1/2 times the pressure at which the safety valve is set, preferably to about double such pressure. The graduation shall be so arranged that the pointer will be at nearly vertical position when indicating the working pressure; and

c. have the working pressure indicated in red on the dial.

(5) All steam gauges in any power boiler room shall be of the same type, size and graduation.

(6) Each power boiler shall be provided with a valve connection near the regular connection of the steam gauges for the exclusive purpose of attaching gauge set.

1163.07: Water Gauge Glasses:

(1) Each power boiler, except once-through boilers with no fixed steam and water-lines, shall be equipped with at least one (1) water gauge glass which shall be:

a. located within the range of vision of the boiler attendant;

b. fitted at top and bottom with quick closing valves easily closed from the floor in case the glass breaks;

c. connected to the water column or directly to the boiler by piping of not less than 12 mm. (15/32 in.) diameter;

d. equipped with a valve drain piped to a safe point of disposal; and

e. provided with a wire glass or other suitable guard for the protection of workers from flying glass or escaping hot water in case of breakage, and such guard shall not obstruct free observation of water level.

(2) Water gauge glasses on power boilers shall be located in such a way that when the visible water level is at its lowest reading in the glass, the reading should not be less than:

a. 75 mm (3 in.) of water over the highest point of the tubes, flues or crown sheets in horizontal fire tube power boilers; or

b. 50 mm. (2 in.) of water above the lowest permissible level in water tube power boilers.

(3) Miniature boilers operating on the closed system, where there is insufficient space for the usual water gauge glass, may be provided with water level indicators of the glass bull's eye type.

1163.08: Gauge Cocks:

(1)

a. Subject to the provisions of the succeeding sub-paragraphs, each power boiler shall be equipped with three or more gauge cocks located within the range of the visible length of the water glass;

b. When the boiler is equipped with water gauge independently connected to the boiler and located not less than 70 cm. (28 in.) apart on the same horizontal line may not be provided with gauge cocks;

c. Gauge cocks shall be equipped with at least one (1) try-cock each; and

d. For boilers of the locomotive type not over 90 cm. (35 in.) diameter, and for boilers of the fire box and watering types with a heating surface not exceeding 5 sq. m. (53 sq. ft.) only two (2) gauge cocks shall be required.

(2) Gauge cocks located above normal reaching distance from the floor or working level shall be provided with:

a. permanently attached rods with chains for operation from the floor, and

b. suitable means to prevent water or steam. discharging on workers manipulating the rods or chains.

1163.09: Fusible Plugs:

(1) Fusible plugs, when used on power boilers, as additional low water alarms, shall be renewed at intervals not exceeding twelve (12) months. Casings which have been used shall not be refilled.

(2) Fusible plugs, after inspection, should be replaced with the same or equivalent specifications of the original plug.

(3) Fusible plugs shall not be used on power boilers operating at pressures exceeding 17.5 kg/cm^{2}g (250 psig).

(4) Steam actuated fusible plugs, when used in power boilers, shall be located that they can be operated when the water level is at a point where a fire actuated fusible plug is located.

1163.10: Blow-Off Requirement:

(1) Each power boiler, except once-through boilers with no fixed steam and water line, shall be equipped with at least one (1) blow-off pipe fitted with valve cock directly connected to the lowest water space, and the boiler shall be designed and installed that all water can be drained from it.

(2) Each bottom blow-off pipe on a power boiler forming a part of a range of boilers having a common blow-off pipe, drain or pump, shall be fitted with:

(a) two (2) slow opening valves, or

(b) one (1) slow opening valve, and one (1) quick opening valve or cock, or

(c) a valve operated by a key which can only be removed when the valve is closed. The key shall be the only one available for the blow-off valves of the range of the boilers.

(3) Valves for bottom blow-off pipes on power boilers shall be free from dams or pockets which may collect sediment and restrict the flow of water.

(4) When exposed to direct furnace heat, bottom blow-off pipes on power boilers shall be protected by fire bricks or other heat-resistant materials arranged that the pipes can be readily inspected.

(5) Blow-off pipings on power boilers shall discharge at a point where there is no danger of injury to workers, and shall not be connected to the sewer or the boiler, unless first passed through a blow-off tank.

(6) Blow-off tanks when used, shall be:

a. provided with a vent pipe of sufficient size to prevent the accumulation of pressure in the tank; and

b. located that all parts are accessible for inspection.

*1163.11: Feed Water System*s:

(1) The discharge end of feed water pipes for boilers shall be:

a. located that the feed water at no time will discharge:

i. directly against surfaces exposed to direct radiation of the fires or to gases at high temperature, and

ii. close to any riveted joints of the furnace sheets or to the shell.

(2) Feed pipes for power boilers shall be provided with a check valve near the boilers and a valve or stop cock between the check valve and the boiler.

(3) When two or more power boilers are fed from a common source, the main feed pipe shall also be provided with a check valve between the water supply to prevent the water from backing out from one boiler to another.

(4) Power boilers equipped with duplicated feed water arrangements shall conform to the requirements of 1163.09 on water supply source.

(5) Where economizers or other feed water heating devices are connected directly to power boilers without intervening valves, the required feed and check valves shall be placed on the inlets of the economizers of water heaters.

(6) Miniature boilers shall be provided with at least one (1) feed pump or other feeding device except on closed system boilers where a suitable connection or opening shall be provided to fill the boiler when cold or when the water main has sufficient pressure to feed the boiler at any time while under pressure.

1164: Heating Boilers

1164.01: Working Pressure and Temperature:

(1) The maximum allowable pressure of boilers used exclusively for low pressure steam heating shall not exceed 1.055 kg./cm2 g (15 psig) .

(2) The maximum allowable working temperature at or near the outlets of hot water boilers shall not exceed 121 ^{O}C (250^{O}F).

(3) Where the pressure on a low pressure steam boiler or the temperature of a hot water boiler exceeds any of those specified in the preceding paragraphs (1) and (2) the requirements of Rule 1163 shall apply and cast iron construction shall be prohibited.

1164.02: Access and Inspection Openings:

(1) Steel plate low-pressure steam boiler shall be provided with suitable manhole or wash out openings to facilitate inspection, cleaning and maintenance. However, manhole openings may be omitted where the size or construction of the boiler is such that entrance is impracticable.

(2) Manhole, handhole or washout openings in heads shall be provided, except boilers constructed where such openings are inaccessible or boilers of the locomotive or fire-box type when set in brick or boilers used exclusively for hot water heating and are not in compliance with the requirements of Rule 1163.03

(3) Cast iron low pressure steam or hot water boiler shall be provided with suitable washout openings to permit the removal of sediments.

(4) Access doors in steel-plate low pressure steam boiler settings shall not be less than 30 cm. x 40 cm. (12 in. x 16 in.).

1164.03: Safety Valves:

Each low-pressure steam boiler shall be equipped with at least one (1) safety valve which shall:

(1) Conform with the requirements of Rule 1163.03 (2) to (8) and

(2) be sealed and adjusted to discharge at a pressure not exceeding 1.055 kg/cm^{2}g (15 psig) with the seal attached so that the valve cannot be taken apart without breaking the seal.

1164.04: Water Relief Valves:

(1) Each hot water boiler shall be equipped with at least one (1)water relief valve placed on a vertical dead-end pipe attached to the cold water supply pipe close to the boiler or directly to the boiler and the discharge point free from any intervening valve or obstruction

(2) Water relief valves for hot water boilers shall be set to open at or below the maximum allowable working pressure.

(3) Diaphragms, valves, seats or discs of rubber or of composition liable to fail due to deterioration when subjected to hot water or steam shall not be used on water relief valves for hot water boilers.

(4) Water relief valves in hot water boiler shall be located where there is no danger of scalding persons.

1164.05: Stop Valves:

(1) Where a stop valve is used in the supply pipe connection of a single low pressure steam or hot water boiler, a stop valve shall also be provided in the return pipe connection.

1164.06: Water Column Pipes:

Water column pipes on low pressure steam or hot water boilers shall conform to the requirements of Rule 1163.05 (1) to (6).

1164.07: Steam Gauges:

Each low pressure steam boiler shall be equipped with steam pressure gauge, conforming, with the requirements of Rule 1163.06. However, scales on dials of steam gauges for low pressure steam boiler shall be graduated to not less than 2 kg./cm^{2}g (28.5 psig.) and the face of the pressure gauge not less than 75 mm. (3 in)

1164.08: Pressure or Altitude Gauge:

(1) Each hot water boiler shall be provided with a pressure or altitude gauge connected to the boiler in a manner that it cannot be shut-off from the boiler except by a cock placed on the pipe near the gauge and provided with a tee or level handle so fitted that it will be parallel to the pipe when the cock is open.

(2) Scales on dials of pressure and altitude gauges on hot water boiler shall:

a. be graduated to not less than one and one half (1 1/2) times the maximum allowable working pressure of the boiler; and

b. have the maximum permissible working pressure indicated in red.

1164.09: Pressure Combustion Regulators:

When pressure combustion regulators are used on low pressure steam boilers, they shall operate to prevent the steam pressure from rising above 1 kg./cm^{2}g (14.25 psig.)

1164.10: Thermometers:

Hot water boiler shall be equipped with a thermometer:

a. properly located for easy reading when observing the water pressure; and

b. sufficiently connected to indicate at all times the temperature of the water in the boiler.

1164.11: Temperature Combustion Regulators..

Each low-pressure steam boiler shall be equipped with one or more water gauge glasses.

(1) With the lower fitting provided with a valve or pet cock to facilitate cleaning, or

(2) Otherwise conforming to the requirements of Rule 1163.08 (1) and (2)

1164.12: Installation of Pipes:

Hot water heating system shall be so installed that the fluid release column cannot be accidentally shut-off.

1164.13: Blow-Off Equipment:

Each low-pressure steam or hot water boiler shall be equipped with a blow-off connection conforming with the provisions of Rule 1163. 10 (1) to (6).

1164.14: Feed Piping:

(1) Feed or make-up water shall not be discharged directly against any part of a low pressure steam boiler exposed to direct radiant heat.

(2) Where feed or make-up water is introduced into hot water boilers from a steam or water pressure line, the line shall be connected to the piping system and not directly to the boiler.

(3) Feed water shall not be introduced into low pressure steam or hot water boiler through the openings used for the water column gauge glasses or gauge cocks.

1164.15: Automatic Fuel Cut-Off and Water Feeding Devices:

Each automatically fed steam or vapor system boiler shall be equipped with an automatic low-water cut-off or water-feeding device constructed and located that when the surface of the water falls to the lowest safe water line:

a. the water inlet valve cannot feed water into the boiler through the float chamber; and

b. the device will automatically:

i. cut-off the fuel supply; or

ii. supply requisite feed water; or

iii. simultaneously cut-off the fuels and feed water supply.

1165: Cleaning and Repairs:

1165.01:

Repairs and adjustments, such as tightening up flanged fittings, shall not be made on boilers and steam lines while under pressure.

1165.02:

Before allowing workers to enter boilers for the purpose of making repairs, all blow-off, feed water, main steam stop and other valves shall be closed, locked and marked with tags or other devices to indicate that there are workers inside.

1165.03:

Where the boiler to be cleaned or repaired is one of a battery of two or more boilers, and any of them is in service, the main steam valves shall be tightly closed and locked with the free flow drain open as required in 1163.04 (3).

1165.04:

Where blow-off valves of several boilers are connected to the same header, the valves of any boiler in service shall be marked and locked to prevent opening into the boiler being cleaned or repaired.

1165.05:

No worker shall enter a boiler for the purpose of cleaning or making repairs, unless another worker is stationed outside the manhole or other access opening ready to render assistance when needed.

1165.06:

Workers shall never enter a boiler until it is sufficiently cooled off to ambient temperature. When entering a boiler, precautions shall be taken against hot flue dust or falling loose parts and explosion caused by water thrown on hot flue dust.

1165.07:

Before any person enters a boiler, it shall be thoroughly ventilated by fans, blowers, or other means to expel any possible combustible or toxic gases or vapors, particularly when scales solvents have been used.

1165.08:

During cleaning and repairing of boilers, especially on humid days, ventilation should be provided by running forced drafts or induced drafts at a low speed to eliminate flue gases from other boilers entering the boiler under repair.

1165.09:

Lights used by workers in cleaning and repairing inside a boiler shall be in good condition suitable for the work.

1165.10:

Blowtorches shall never be used inside boilers.

1165.11:

The power source of steam or air driven tools used in cleaning or repairing boilers, shall be generated outside the boiler and all connections shall be inspected at frequent intervals.

1165.12:

Tubes and shells of boilers cleaned by mechanical tools shall not be operated in one spot for any considerable length of time as this will reduce the strength of the metal.

1165.13:

After cleaning operations on boilers:

(1) One worker shall be detailed to examine the interior to see that no tools or other equipment are left inside the boilers, and

(2) The boiler shall not be closed until it is absolutely certain that-all workers are outside.

1165.14:

(1) The amount of bulging on the boiler or fire box shall not exceed 2% of the area of the bulge. If the bulge exceeds 2%, the use of the boiler shall be discontinued or patch work shall be done in accordance with the provisions of Rule 1162.

(2) All materials used in boiler repair shall be certified by the supplier as to quality and specification of the materials subject to verification by the Industrial Safety Engineer before repairs can be made.

1165.15:

Welding jobs performed on pressure parts of boilers and pressure vessels shall be undertaken by certified welders.

1165.16:

Boilers and pressure vessels locally fabricated shall be stamped by the Department indicating the following:

(1) Name of the manufacturer;

(2) Date manufactured;

(3) BML or PVDL number;

(4) Manufacturer's serial number;

(5) Design pressure;

(6) Design temperature; and

(7) Thickness of the shell.

1166: Personal Protective Equipment:

Workers in boiler rooms exposed to work hazards which cannot be otherwise eliminated, shall be provided with personal protective equipment conforming to Rule 1080.

1167: Color Coding:

Feed water and steam pipes emanating to and from the boiler shall be marked with identifiable color in conformity with Rule 1230.

1168: Requirements in the Preparation of Boiler and Pressure Vessel Plans:

Before a boiler or pressure vessel is installed, the owner/manager or his authorized representative shall file with the Bureau through the Regional Office concerned an application for installation in quadruplicate, accompanied by four (4) copies of each sheet of plans in white print. The following shall be incorporated in the plans:

(1) Location Plan:

The plan showing the site of the compound indicating any known landmarks, such as streets, private or public place or building and an arrow indicating NORTH direction drawn not necessarily to scale.

(2) Room Layout:

A layout of the workplace showing:

a. the detail of the room drawn to scale indicating the position of the boiler or pressure vessel in relation to the surrounding walls and other machinery or equipment in the room;

b. the type of material used for the room walls which may be of concrete, adobe, hollow blocks or other fire resistant construction.

(3) Installation and Foundation Plans:

a. the front and side views of the boiler/pressure vessel including the details of its anchorage or setting to the concrete foundation;

b. the water column assembly, main steam line, blow-off line, safety valve or valves, feed water appliances, pressure gauge connection, manhole or handhole, in the case of boilers;

c. the inlet and outlet pipes, drain pipe, inspection plug, manhole or handhole, glass gauge, relief or safety valves, and pressure gauge connection in case of pressure vessel;

d. the clearance of the lowest portion of the boiler shell to the floor line shall not be less than 45 cm. (17.80 in.) in case of horizontal fire tube boiler.

e. the type of furnace.

(4) Foundation Design Computation:

a. the total weight of the boiler or pressure vessel and accessories;

b. the weight of water inside the boiler or pressure vessel when full;

c. the base area and volume of concrete foundation;

d. the concrete mixture;

e. the bearing capacity of the soil; and

f. the factor of safety of the foundation.

(5) Detailed Construction Drawing:

a. the sectional front and side elevation of the boiler or pressure vessel indicating the diameter, thickness and length of the shell or drum and the dimensions, measurements, and other technical data of all other boiler parts, fittings and accessories.

b. the details of longitudinal and circumferential joints, head attachments to boiler shell, nozzle and manhole or hand hole attachments to shell.

c. the boiler/pressure vessel manufacturer's data and specification;

d. the technical details of the furnace.

(6) Installation:

a. Upon approval of the plan, installation shall be done under the supervision of a professional mechanical engineer. If minor deviations from the approved plans are done in the actual installations, the Bureau or the Regional Labor Office concerned shall be informed in writing or in person so that the necessary corrections can be noted. In cases where major alterations are done in the actual installation that may affect the original design, the necessary plans shall be resubmitted as a new application. The approved application and plans shall serve as a permit for installation.

b. Upon completion of the installation, the establishment shall request the Regional Office for final inspection and if found to be in accordance with the approved plans and standards, a permit to operate the boiler or pressure vessel for a period of one (1) year shall be issued effective on the date of inspection.

c. The establishment shall inform the Regional Office or authorized representative thirty (30) days before the expiration of the permit to operate the boiler or pressure vessel. The establishment shall prepare the boiler or pressure vessel for inspection and a hydrostatic pump shall be made ready by the establishment for the inspection.

In cases where the establishment cannot stop the operation of the boiler or pressure vessel due to unavoidable circumstances or business commitments, a grace period of thirty (30) days may be allowed by the Regional Labor Office or authorized representative.

Boiler tenders shall be licensed in accordance with the Mechanical Engineering Law, as amended.

Repair of. pressure parts of boiler or pressure vessels shall only be done after the plans and specification of materials are approved by the Bureau, Regional Labor Office concerned or authorized representative.

RULE 1170

UNFIRED PRESSURE VESSELS

1171: Definitions:

(1) "Unfired pressure vessels" shall mean any closed vessel other than a boiler constructed to hold steam, hot water, gas or air, ordinarily supplied from an external source or from the indirect application of heat. This definition shall not include portable cylinders for the storage of compressed gases.

(2) "Steam heated pressure vessels" shall mean an airtight vessel or an open pan or kettle, which is steam jacketed or equipped with steam coil or steam supply piping and is used in such operations as cooking, distilling, drying, evaporating and hardening.

(3) "Water pressure tank" " mean a pressure vessel used for heating water by means of live steam or steam coil, or for the storage of cold water to be dispersed by means of pressure.

(4) "Air pressure tank" shall mean a pressure vessel used as primary and secondary tank in connection with ordinary compression cycles, and receiving its air supply direct from the compressor.

(5) "Refrigeration tank" shall mean a pressure vessel used in refrigeration system, excluding the piping of such system.

(6) "Working pressure" shall mean a gauge pressure or pressure above the atmospheric pressure in kg./cm^{2}g (psig.).

1171.01: Requirements:

For purposes of inspection, checking, tests, and other purposes, prior to the approval of any installation and use of any pressure vessel, the provisions of Rule 1162.01 shall apply.

1171.02: Construction:

(1) Pressure vessels, their fittings and attachments shall be:

a. designed to be suitable for their intended use, and

b. of sufficient strength to sustain internal pressure to which they are normally subjected.

(2) The materials used in the construction of pressure vessels shall be of such quality as to reduce to the minimum the causes of corrosion and electrolysis.

(3) Every pressure vessel shall be accompanied by a certificate issued by the Manufacturer showing the specifications to which the vessel has been constructed and its maximum permissible working pressure.

(4) Application for permit for locally fabricated pressure vessels shall be filed with the Department accompanied by design and specification in four (4) copies.

1171.03: Installation:

(1) Pressure vessels shall be installed in a way that all parts are readily accessible for inspection.

(2) Pressure vessels installed underground shall be placed in concrete or brick pits with removable covers.

(3) Installation shall be as provided under Rule 1167.

1171.04: Factors of Safety:

When an inspection shows deterioration of the pressure vessel the permissible safe working pressure shall be reduced to maintain a factor of safety of not less than five (5) or such other figure as may be specified in the specification to which the pressure vessel was made, provided, that after twenty five (25) years of age, the factor of safety shall be increased by ten percent (10%)

1171.05: Access and Inspection Openings:

(1) Except for those types of pressure vessels where such inspection openings are impracticable, pressure vessels shall be provided with:

a. suitable manhole, hand hole or other openings for inspection, examination and cleaning or

b. removable heads or cover plates of a size not less than the required area of the openings and located to provide adequate view of its interior.

(2) Vessels over six (6) m. (20 ft.) in length shall have at least two (2) manholes.

(3) Hand hole openings in pressure vessels shall be not less than 70 mm. (2 3/4 in.) in size.

1171.06: Safety Appliances:

Pressure vessels shall be protected by such safety and relief valves, indicating and controlling devices to ensure their safe operation. The appliances shall be constructed, located and installed to avoid any mechanical damage.

1171.07: Safety Valves:

(1) Safety valves in pressure vessels shall have mechanical lifting devices to lift the valve disc from its seat when testing. The safety valve shall be set within plus or minus ten percent (10%) of its designed pressure.

(2) Safety valves of pressure vessels where pressure is supplied from an outside source shall be connected to the vessels or systems which are protected to prevent a rise in pressure beyond the allowable maximum.

(3) Pressure vessels in which pressure is generated, shall be provided with safety valves and connected:

a. directly to the vessel or

b. if the contents of the vessels are likely to clog or cause interference with the operation, safety valves may be connected to the pipe lines leading to the vessels.

(4) Safety valves having either the seat or the disc of cast iron shall not be used in pressure vessels.

(5) The discharge capacity of safety valves on pressure vessels shall be sufficient for the size of the supply pipes and the pressure at which the vessels are operated.

(6) Outlets of safety valves on pressure vessels shall be located or piped to avoid hazards to persons.

(7) When two or more safety valves are fitted on a pressure vessel, all except one of the valves shall be set to blow at a pressure slightly above but not more than ten percent (10%) of the maximum permissible working pressure.

(8) When two or more safety valves are placed in one connection for a pressure vessel, such connection shall have a cross-sectional area of at least equal to the combined areas of the safety devices.

(9) Safety valves on pressure vessels shall be provided with continuous drain.

1171.08: Rupture Discs:

(1) Safety rupture discs, shall be made of suitable materials which are:

a. uniform in thickness;

b. capable of withstanding any chemical action; and

c. durable enough to withstand the least possible change.

(2) Where safety rupture discs are used for additional protection of pressure vessels, they shall be designed to fail at a pressure above the safety valve setting.

1171.09: Identification of Control Valves:

Where .a battery of pressure vessels is operated, control valves shall be plainly marked by numbering or by the use of a distinctive color system. If the valve is located on the vessel, each vessel shall carry a mark corresponding to that on its valve.

1171.10: Indicating and Recording Devices:

Indicating and recording devices on pressure vessels shall be protected against breakage or clogging and clearly legible to the operators.

1171.11: Inspection:

(1) Pressure vessels shall be inspected, internally and externally, by authorized and qualified industrial safety engineers:

a. after installation and/or before being placed into service;

b. after reconstruction or repairs and/or before being replaced into service; and

c. at periodic intervals specified by the competent authority depending on the nature of the operation and the condition of the vessels

(2) The manufacturer's certificate and the records of inspection shall be kept available for examination during the operating life of the vessel.

(3) Upon receipt of notice of annual inspection, the owner or user shall prepare the vessel by:

a. removing the cover of all inspection openings, and

b. clean thoroughly the vessel to facilitate examination.

(4) Inspection of pressure vessels shall include:

a. hammer tests or calibration of the shells and heads;

b. test for gas leaks; and

c. hydrostatic test when considered necessary by the competent authority.

(5) When pressure vessels are subjected to hydrostatic tests, the required test pressure shall not be less than one and one-half (1 1/2) times the maximum permissible working pressure.

(6) Pressure vessels found after inspection as unsafe for use, or not provided with the fittings necessary for safe operations, or which are improperly arranged, shall not be operated unless the vessels and their fittings are in condition to ensure safe operation.

(7) When pressure vessels are repaired, only materials similar to those used in the original construction shall be utilized. For purposes of inspection, the provision of Rule 1162.02 shall apply.

1171.12: Liquefied Petroleum Gas (LPG) Vessels:

(1) Vessels containing or are used as containers for liquefied petroleum gas (LPG) shall be subjected to internal inspection, including hydrostatic tests up to a pressure of not less than one and one-half (1 1/2) times its working pressure, at intervals not exceeding five (5) years. However, internal inspection shall be conducted on such a vessel at any time within this period if in the opinion of the competent authority, said inspection is deemed necessary due to known or inspected defects.

(2) Internal inspection, prior to placing an LP Gas vessel in service, shall be conducted where:

a. a new vessel is installed;

b. a vessel has contained materials other than liquefied petroleum gas (LPG);

c. an existing vessel has been discontinued from service, emptied, and purged;

d. a vessel is reinstalled in another location;

e. a vessel has been exposed to fire; and

f. a vessel has been damaged due to handling or other similar exposure.

(3) Pressure vessels containing chemicals or catalysts shall be subjected to internal inspection including hydrostatic test up to a pressure of not less than one and one-half (1 1/2) times its working pressure at intervals not exceeding five (5) years. However, radiographic or sonar examination or its equivalent shall be conducted annually on such vessels to determine thickness.

1172: Steam Heated Pressure Vessels:

1172.01:

Where steam heated pressure vessel is operated at a pressure less than that of the main steam supply line, an effective reducing valve shall be properly secured against any manipulations by an unauthorized person.

1172.02:

Reducing valves and safety valves on steam lines for pressure vessels shall be tested occasionally. Steam supply pipes for steam heated pressure vessels shall be placed in floor trenches, where practicable, or covered with insulating materials within 2 m. from the floor or working level to prevent excessive increase of temperature in the atmosphere of the workroom.

1173: Closed Steam Heated Pressure Vessels:

1173.01: Interlocks:

(1) Closed steam heated pressure vessels equipped with bayonet-joint covers shall be provided with interlocks or other effective means for preventing:

a. the rise of pressure inside the vessel before the cover is in fully locked position, and

b. the release of the cover from the locked position before the pressure inside the vessel has been reduced to atmospheric pressure.

1173.02: Steam Agitation:

Where the contents of the closed vertical pressure vessels are stirred by means of a live steam, the vessel shall be provided with heavy coiled springs or other suitable shock absorbers under their supports.

1173.03: Revolving Closed Vessels:

(1) Pressure gauges and safety valves on revolving cylindrical steam heated pressure vessels, such as revolving autoclaves, devulcanizers, and rotary driers, shall be located on the steam lines at the trunnions thru which steam is admitted into the vessels.

(2) Driving mechanisms of revolving steam heated pressure vessels shall be provided with:

a. appropriate locking device; and

b. safeguards in accordance with the requirement of Rule 1200.

(3) Before filling or emptying a revolving steam heated pressure vessel, the driving mechanism shall be locked in off position and the stop valves shall be locked in closed position.

(4) Revolving steam heated pressure vessels shall be enclosed or guarded to a sufficient height to prevent any person from coming into contact with them when in motion.

1173.04: Autoclaves:

(1) Autoclaves shall be provided with casings that shall:

a. prevent the contents from being forced out directly in the working spaces, and

b. extend down to the floor to prevent any person from walking under the vessel.

(2) Autoclaves containing liquids shall be installed over pits or in casings of light steel or other suitable materials, tight at the bottom and capable of holding the charge or draining to a suitable receiver.

(3) All electrical equipment in rooms where autoclaves containing flammable substances are installed shall be:

a. effectively grounded; and

b. of approved explosion- proof type.

(4) Linings of autoclaves shall be examined, frequently for leaks and shall be renewed before the shells are damaged.

(5) The heating of oil for oil-jacketed autoclaves shall be performed at points remote from the vessels.

1173.05: Digesters:

(1) Digesters used for the cooking of wood chips shall be equipped with piping of corrosion resistant materials and of adequate thickness, particularly between the blow-off and blow-pits.

(2) Blow-off valves on digesters shall be so arranged that they can be operated from a location outside the digester room or from protected point remote from the valves.

(3) Openings of blow-pits shall be so constructed as small as possible with raised sides or guarded by standard railings of not less than 1.25 m. (48 in.) in height.

(4) Openings of blow-pits shall be preferably on the sides of the pits.

(5) Ladders for access to blow-pits shall be constructed that the doors of the blow-pits cannot be closed when the ladders are in place.

(6) An effective warning system consisting of bells, whistles or other signaling devices, shall be installed in digesters and blow-pits rooms, to be sounded or operated before and while digesters are being blown.

(7) Before opening blow-off valves to discharge the contents, the following procedures shall be observed:

a. the blow-pit shall be free from stock and water;

b. precautions shall be taken to ensure that all workers are out of the blow-pit;

c. the door of the blow-pit shall be securely fastened; and

d. workers in the digesters and blow-pit rooms shall be warned by signals that the blow-off valve is to be opened.

(8) Blow-off valves on digesters shall be opened slowly.

(9) Head covers on digesters shall not be loosened while any pressure is indicated on the steam gauge.

(10) Persons not directly concerned shall not be permitted in digester buildings while digesters are being blown.

(11) Each floor of digester buildings shall be provided with not less than two (2) unobstructed means of egress.

1173.06: Distilling Apparatus:

(1) Stills shall be equipped with duplicate pressure gauges, safety valves and recording thermometers or pyrometers.

(2) Charging vapor and steam lines on stills shall be:

a. fitted with dual valves, with a bleeder between them, and

b. provided with arrangements for disconnecting and blanking the lines.

(3) Convenient and safe access for quick manipulation of overhead valves on stills shall be provided.

(4) Where horizontal shell stills are mounted at varying heights to allow gravity flow, the manhole ladders shall be of different lengths to fit the front manhole of each still at the proper angle.

(5) When preparing apparatus used in distilling flammable, corrosive or toxic fluids for cleaning or repairs, the following procedure shall be observed:,

a. steam inlet valves shall be locked in close position

b. all charging fluid shall be pumped out;

c. all inlet lines shall be disconnected and blanked or the inlet valves shall be locked in position; and

d. the stills shall be blown through with live steam admitted through a top connection.

(6) When stills are to be charged with cold liquids, they shall first be filled with steam until all the air has been expelled and steam shows at the safety and vacuum relief valves.

(7) When stills are charged with hot liquids, they shall be steamed progressively from the stills through the tower and condensing equipment to a try cock on the gas line.

1173.07: Kiers:

Where hot liquids, such as solutions of caustic soda, lime or sulphuric acid are used in circulating kiers coiling out textile materials or in similar closed pressure vessels, the liquids:

a. shall be prepared in separate vessel or tanks, and

b. shall not be admitted to the pressure vessels until loading of the materials to be processed has been completed.

1173,08: Vulcanizers and Devulcanizers:

(1) Vulcanizers and devulcanizers door fastenings shall be of ample strength, properly spaced and carefully secured.

(2) Vulcanizers and devulcanizers shall be installed above the floors high enough to permit piping valves and traps on the same floors as the vessels. This requirement shall not apply where it is necessary to install bottoms of horizontal vulcanizers below floor levels in order to place the car tracts on the vulcanizers on the same level as the floor tracks.

(3) Periodic and through internal and external inspections shall be made of vulcanizers including all attachments and connecting equipment, at intervals not exceeding three (3) months.

(4) Before allowing workers to enter vulcanizers or devulcanizers for the purpose of releasing jammed or derailed vulcanizer cars or for any other necessary operation, the following shall be observed.

a. steam valves and other supply valves shall be locked in closed position;

b. the blow-down valves on the individual vessel and on any other vessel using the same drain shall be locked in closed position;

c. the vessels shall be free of hazardous fumes or vapor; and

d. the vessels shall be cooled sufficiently to prevent workers from being burned or over exposed to heat.

(5) Safety valves for vulcanizers and open-steam type devulcanizers shall be attached directly to the shells of the vessels.

(6) Vulcanizers and open-steam type devulcanizers equipped with bolted doors shall be provided with hinged type door belts securely attached to lugs on the shell rings.

(7) Before any attempt is made to open the doors of vulcanizers or open-steam type devulcanizers, the following shall be observed:

a. the steam supply valves shall be closed;

b. the blow-down and telltale valves shall be opened until the telltale valve indicates that all internal pressure has been relieved; and

c. the drain valves shall be opened.

(8) Vulcanizers and open-steam type devulcanizers shall be equipped with individual blow down piping and the use of common blow down is prohibited.

(9) Horizontal vulcanizers and open type devulcanizers shall be equipped with:

a. a drain valve at the bottom near the front of the vessel for draining condensed or cooling water from the vessels and to avoid scalding of workers when the doors are opened, and

b. an additional drain valve near the center, when the vessel is more than 0.75 m. (2. 5 ft.) in length.

(10) Vertical vulcanizers and devulcanizers shall be provided with suitable platforms equipped with standard railings and toeboards and arranged to make all working areas accessible.

1173.09: Vulcanizers:

(1) Doors on vulcanizers shall be of quick opening type, with fastening and locking arrangements in full sight of the operators.

(2) Quick opening vulcanizers doors shall be equipped with automatic interlocks that will prevent doors from being opened until all pressure has been relieved.

(3) Power-operated vulcanizer doors running in vertical guides shall be equipped with automatic latches in the guides to prevent the doors from falling in the event of failure of the hoisting mechanism.

(4) Vulcanizers shall be equipped with telltale valves, preferably located on the vulcanizer doors, for reducing the pressure inside to atmospheric level before the doors can be opened.

(5) Where bottoms of horizontal vulcanizers extend below the floor levels, the pits shall be guarded at the sides by standard railings and toeboards, and at the ends by removable rails or by chain carrying warning signs.

(6) Where vulcanizers cars are used, car stops shall be provided in the rear part of the vulcanizer to prevent the cars from striking workers when rolled in.

(7) Plates over spiders on top of hydraulic rams on vertical type vulcanizers shall be perforated and provided with center holes large enough to prevent the accumulation of steam within the rams and the blowing out of the moulds or plates upon removal of the covers.

(8) Vertical type vulcanizers shall be provided with overflow pipes of the water operating the hydraulic rams, with a capacity not less than that of the water inlet pipes, inserted through the cylinder wall at the limit of travel necessary for the ram.

1173.10: Alkali Devulcanizers:

(1) Where safety valves on alkali devulcanizers may be clogged by rubber or other foreign materials from the contents of the vessels, safety rupture discs should be substituted.

(2) Alkali devulcanizers shall be provided with baffles directly on the inner shells at the entrance to the safety valves, steam gauges, and blow-down lines.

(3) Workers exposed to splashes from caustic liquids used in alkali devulcanizers shall be provided with suitable personal protective equipment conforming to the requirement of Rule 1080.

(4) Discharge pipes and closed dump tanks for stationary alkali devulcanizers shall be designed to withstand devulcanizers' pressure in the event the lines are opened under high pressure.

(5) Revolving spherical alkali devulcanizers shall be provided with:

a. individual motor drives or effective means of locking the driver to prevent the possibility of accidental starting;

b. remote power controls, beyond the reach of persons standing in front of the manhole; and

c automatic interlocking devices which will prevent starting the driving mechanism until the manhole covers are closed and locked except when the operators keep their hands on the power controls.

1174: Open Steam Heated Pressure Vessels:

1174.01: General Provisions:

(1) Where the top edges of large open steam pressure vessels are less than 1.20 m. (4 ft.) above the floor or working level, the vessels shall be surrounded by standard railings to the floor, so that workers can watch the operations, without the possibility of falling into the vessels or being burned by splashing materials.

(2) Batteries of open kiers or similar open steam heated pressure vessels shall be arranged that:

a. the distance between the edges of the vessels is at least 45 cm. (18 in.); and

b. there is unobstructed space for passage around each vessel of at least 45 cm. (18 in.).

(3) Planks, ladders, stairs and other gangways placed over open steam heated pressure vessels containing hot liquid or hot water shall be securely fastened and provided with standard railings and toeboards preferably fitted with fillers.

(4) Sitting or standing on the edges of open steam heated pressure vessels or on guards surrounding such vessels is prohibited.

(5) Where open steam heated pressure vessels give rise to excessive water vapor, adequate steps shall be taken to reduce the relative humidity of the workroom.

1174.02: Open Jacketed Kettles:

(1) Jackets of steam jacketed cooking or tenderizing kettle shall be thoroughly drained before the steam supply valves are open.

(2) When admitting steam to cold steam jacketed kettles, the steam supply valves shall be opened slowly.

(3) Wooden scrapers should be provided and used for removing semi-solid or sticky finished products from steam jacketed pivoted kettles or kettles with side discharged doors.

(4) Open steam jacketed starch kettles used in textile industry shall be provided with covers arranged that the process can be observed, and with large overflow rings with ample drains.

(5) Workers around open steam jacketed kettles shall be provided with, and used suitable protective clothing conforming to Rule 1080.

(6) Before cleaning or making repairs inside open steam jacketed kettles, all;

a. agitating devices shall be locked or blocked to be inoperative;

b. valves or drains connected on common heads shall be closed or blocked; and

c pipings for introducing steam or other dangerous substances shall be disconnected and blanked or their inlet valves shall be locked in the closed position.

1174.03: Open Evaporating Pans:

(1) Open evaporating pans for substances which are flammable when dry, shall be kept free of impurities and the steam coils always covered by liquids when operated.

(2) Steam coils in open evaporator pans shall prevent the creation of a vacuum through steam condensation drawing the material processed into the coils, which, may cause explosion.

1175: Water and Air Pressure Tanks:

1175.01: General Provisions:

The water supplied to water pressure tanks shall be free from suspended solids and sedimentary matters.

1175.02: Hot Water Pressure Tanks:

(1) Hot water pressure tanks shall be designed to withstand full boiler pressure.

(2) Every hot water pressure tank not designed to withstand full boiler pressure shall be equipped with:

a. a reducing valve located between the steam stop valve and the tank; and

b. one or more relief or safety valves on the low pressure side of the reducing valve.

(3) Every hot pressure tank should be equipped with automatic temperature regulator set to prevent the generation of steam.

(4) Pressure gauges for hot water pressure tanks shall be installed between the reducing valves and the relief safety valves.

(5) Steam and hot water piping for hot water pressure tanks shall be adequately insulated where it is exposed to contact.

(6) Hot water tanks shall be examined frequently for leaks of steam or water, which shall include hydrostatic tests when deemed necessary by the Safety Engineer of the Regional Labor Office or authorized representative.

1175.03: Cold Water Pressure Tanks:

(1) Pressure gauges for cold-water pressure tanks for sprinkler system shall be provided with separate shut-off valves with arrangements for draining.

(2) Discharge valves on cold water pressure tanks for sprinkler system shall be locked or sealed in the open position and shall be inspected frequently to make sure that they are open.

(3) Cold water pressure system shall be provided with one or more pressure relief valves adjusted to release over the maximum air pressure of the system.

1175.04: Air Receivers:

(1) Air receivers shall be:

a. protected from the weather; and

b. accessible for external and internal inspection.

(2) Air receivers shall be provided with suitable openings for inspection and cleaning.

(3) Where two or more receivers are served by one compressor, the air supply piping for each tank shall be equipped with a stop valve and with a safety valve between the stop valve and the compressor.

(4) Safety valves for air receiver shall be proportional to the maximum quantity of free air that can be supplied.

(5) Stop valves shall be installed between air receivers and each consuming appliance at points convenient to the operator.

(6) Pipe lines of compressed air systems shall be:

a. securely fastened in place; and

b. installed not to interfere with free contraction or expansion of the pipings between fixed points.

(7) Air receivers shall be equipped at the lowest point possible with automatic drain traps or with valves which shall be opened daily, for relieving the vessels of air, moisture and oil accumulated at the bottoms.

(8) Air receivers shall be kept clean of oil, carbon and other foreign substances.

(9) Compressed air shall not be handled or used by any person except in the performance of his duties. In no case shall a jet of compressed air be directed against any person.

(10) No vessel shall be used as an air receiver unless it meets the requirements of Rule 1171.01.

(11) Compressed air shall not be used to force liquid or substance out of containers which are not constructed to withstand the pressure of the air supplied.

1176: Refrigeration Tanks:

1176.01: Refrigeration Rooms:

(1) Factory rooms in which refrigeration tanks and other parts of refrigeration systems are permanently installed and operated shall:

a. be provided with tight-fitting doors;

b. have no partitions or openings that will permit the passage of refrigerants to other parts of buildings; and

c. be provided with mechanical means of ventilation.

1176.02:

Not more than two (2) refrigeration tanks shall be located one above the other within the same area between floor and ceiling.

1176.03: Open Flames:

All electrical equipment shall be of the approved explosion proof type. No flame producing devices or hot surfaces shall be permitted in rooms where refrigeration tanks are installed.

1176.04: Materials:

All materials used in the construction and installation of refrigeration tanks shall be capable of withstanding the chemical action.

1176.05: Gauge Glasses:

Liquid level gauge glasses for refrigeration tanks, except the bull's eye type, shall be fitted with automatic shut-off valves.

1176.06: Stop Valves:

Refrigeration tanks shall be equipped with stop valves at each inlet and outlet pipes.

1176.07: Pressure Relief Device:

(1) Refrigeration tanks shut off by valves from other parts of the refrigerating system, shall be equipped with:

a at least two(2) pressure relief valves or one pressure relief valve in parallel with a rupture member when the capacity of the tank exceeds 140 liters (5 cu. ft.) and its diameter exceeds 15 cm. (6 in.) and

b. a pressure relief device or a fusible plug, when the capacity of the tank is 140 liters (5 cu. ft.) or less.

(2) Pressure relief devices for refrigeration tanks shall be connected directly to the vessels and shall be placed above the liquid refrigerant level.

(3) Pressure relief valves and fusible plugs for refrigeration tanks shall be provided with discharge pipes, leading directly and separately to the outside of the building, with outside outlets located to protect persons from exposure to any irritating or toxic fumes or vapors.

(4) Pressure relief valves and fusible plugs for refrigeration tanks containing ammonia or sulphur dioxide shall discharge into substantial tanks of the closed type or provided with hinged covers, used for no other purpose than the absorption of the refrigerants.

1177: Compressor:

1177.01: Installation:

All compressors shall be installed on firm foundations and securely fastened in place.

1177.02: Machine Guarding:

All moving parts of air compressors shall be safeguarded in accordance with the provisions of Rule 1200.

1177.03: Pressure Limiting Device:

(1) Air compressors shall be equipped with:

a. automatic mechanisms which will stop the air compressing operation when the maximum allowable pressure is reached; and

b. electrically operated pressure limiting devices on air compressors shall be designed and constructed that the electric contracts cannot lock or fuse in a position which will cause the compressors to continue its air-compressing operations.

1177.04: Speed Governors:

Unloaded air compressor or governor controls of engines shall be inspected frequently and regularly and maintained in good working conditions.

1177.05: Lubrication:

Air compressor cylinder shall be lubricated with just sufficient oil to avoid excess oil from flowing into the intercoolers, receivers and other parts of the system.

1177.06: Cooling:

(1) Where air compressors cylinders are equipped with water cooling jackets, a visible indication of water flow shall be provided.

(2) Intercoolers and after-coolers shall be designed and constructed to withstand safety the maximum pressure in their discharge piping.

1177.07: Air Intake and Discharge Piping:

(1) Air intakes for air compressors shall be located at a place where the air is pure, clean and free from any flammable or toxic gases or fumes.

(2) Air discharge piping from air compressors operating at high temperature shall be provided with insulating covers.

(3) If necessary, separator shall be installed at a convenient point between the compressor and the receiver.

1177.08: Valves:

(1) Where stop valves are installed in air discharge piping from air compressor:

a. the valves shall be easily accessible for inspection and cleaning; and

b. one or more safety valves shall be installed between the compressor and stop valve.

(2) Steam or gas supply lines to steam driven or gas driven air compressor shall be provided with a manually operated throttle valve in a readily accessible location.

(3) Compressor valves shall be inspected frequently and regularly and leaking valve shall be immediately repaired or replaced.

1178: Gas Cylinders:

1178.01: Construction:

Cylinders for compressed liquefied and dissolved gases, their fittings and attachments, shall be designed to be suitable for their use and of sufficient strength to sustain the internal pressure to which they are normally subjected.

1178.02: Cylinder Records:

Every cylinder owner or person responsible for the maintenance of the cylinder shall keep a cylinder maintenance register which shall show the corresponding dates of all tests, internal examination, cleaning and repairs undertaken. Such register shall be made available upon request for the Safety Engineer of the Regional Labor Office or authorized representative having jurisdiction.

1178.03: Inspection and Testing:

(1) Cylinders shall be inspected and tested:

a. before being placed into service for the first;

b. before being placed in service after repairs; and

c. at periodic intervals as the nature of the gas used in the cylinder may allow, provided that such intervals shall not exceed two (2) years in the vase of cylinders for corrosive gases, and five (5) years for the cylinders for other gases.

(2) Cylinders found after inspection or testing unsafe for use, or are not provided with the fittings necessary or have fittings improperly arranged, shall not be placed in service until the cylinders and their fittings have been put in good condition to ensure safe operation.

(3) It shall be the duty of the owner or person responsible for the maintenance of the cylinder to ensure that the necessary inspections are made.

1178.04: Fittings:

(1) Every cylinder shall be provided with:

a. a device that prevents damage to the bottom of the cylinder, and

b. a protective cap or other equivalent protection for the valve.

(2) The protective cap shall have a vent of such a size to prevent any gas from accumulating inside the cap.

(3) Only such materials resistant to the contents of the cylinder shall be used for parts of valves and fittings.

(4) Copper and alloy containing copper shall not be used for parts or fittings on cylinders for liquefied ammonia dissolved under pressure.

(5) All fittings of cylinders for oxygen and other oxidizing gases shall be kept free from oil grease.

(6) For all flammable gases, the connection screw shall be right-handed.

1178.05: Markings:

(1) Compressed gas cylinders shall be legibly marked for the purpose of identifying the gas content with:

a. chemical symbols - to be stamped on the metal at the shoulder of the cylinder.

b. chemical name and trade name - to be stenciled, labeled or stamped and shall not be readily removed.

(2) All markings shall be located on or near the shoulder of the cylinder.

(3) Metal stampings shall have a minimum height of 0.31 cm. (1/8 in.).

(4) The height of lettering by printing stenciling, labeling and paint or ink stamping shall not be less than one over twenty five (1/25) of the diameter of the cylinder, with a minimum height of 0.62 cm. (1/4 in.).

1178.06: Handling and Storage:

(1) Cylinders shall be adequately protected against excessive variations of temperature, direct rays of the sun and continuous dampness.

(2) Storage of charged cylinders inside factory buildings shall be:

a. limited to such number as to be reasonably safe for the workers therein;

b. suitably placed and secured against their falling and rolling.

(3) Storage rooms containing charged cylinders shall be appropriately marked on the outside with clearly visible danger signs.

(4) Cylinders shall be segregated for storage by type of gas and empty cylinders shall be stored apart from charged cylinders.

(5) Cylinders shall not be placed:

a. in or near gangways, stairways, elevator installations or other places where moving objects may strike or fall. against them;

b. close to highly flammable substances; and

c. adjacent to air intake.

(6) Storerooms shall:

a. be provided with adequate ventilation facilities to the outside air; and

b. have an adequate number of exits having regard to the quantity and nature of the gas stored.

(7) Smoking in cylinder rooms is prohibited.

1178.07: Transport:

(1) Cylinders shall be transported in a way that no part of the cylinders shall project beyond the sides or ends of the vehicle.

(2) Adequate precaution shall be taken to prevent rough handling excessive shocks or local stress.

(3) No cylinder shall be moved by a lifting magnet.

(4) When cylinders are moved by a hoisting mechanism, a properly designed cradle with suitable slings shall be used.

1178.08: Requirements in the Preparation of Pressure Vessel Plans,

The requirements for the preparation and submission of plans shall be as provided in Rule 1167.

1178.09:

The requirements for the preparation and submission of plans including installation, foundation and layout plans of power generating equipment like motors, steam engines and internal combustion engines (gasoline, gas or oil) shall be those provided in Rule 1167.

RULE 1200

MACHINE GUARDING

1201: Definitions:

For purposes of this Rule, the following terms are hereby defined:

(1) "*Prime Mover*" An engine or motor operated by steam, gas, air, electricity, liquid or gaseous fuel, liquid in motion or other forms of energy and whose main function is to drive or operate, either directly or indirectly other mechanical equipment.

(2) "*Mechanical Power Transmission Equipment*:" All mechanical means of transmitting power from prime movers to a machine up to but not including the point of operation.

(3) "*Point of Operation* "That part of a working machine at which cutting, shaping, forming or any other necessary operation is accomplished, and/or that point or location where stock or materials is fed to the machine. A machine may have more than one point of operation.

(4) "*Flywheel*" includes flywheels, balance wheels and pulleys which are mounted on and revolves with the crankshaft of an engine or other shafting of a prime mover, which by its inertia assists in securing uniform motion of machinery by resisting sudden changes of speed.

(5) "*Transmission Machinery* " Every shaft, wheel, drum, pulley, systems of tight and loose pulleys couplings, clutch, driving belts, V-belts sheaves and belts, chains and sprockets, gearing, torque connectors, hydraulic couplings, magnetic couplings, speed reducers, speed increasers or other power transmission devices by which the motion of any engine is transmitted to or received by any other machinery or appliance.

(6) "*Guarded*" Shielded, fenced, enclosed or otherwise protected according to their orders, by means of suitable enclosures, covers, or casing through "U' guards, shield guards, standard railings, or by the nature of the location where permitted in these orders, so as to remove the liability of accidental contact or approach dangerous to persons.

(7) "*Standard Machinery Guard"* Means guard constructed as prescribed in Rule 1203.

(8) "*Standard Railings and Toeboards*" Means railings and toeboards constructed as specified in Rule 1060.

1202: Provisions of Guards:

All moving parts of prime movers, transmission equipment and all dangerous parts of driven machinery shall be effectively guarded, unless so constructed or located to prevent any person or object from coming or brought into contact with them.

1202.01: Built-In Safety:

(1) When an employer orders machinery, machine parts or other working equipment, he shall specify in his order that such machinery, parts or equipment shall be provided with all the protective devices required by safety rules for any dangerous part thereof. In cases where it is impossible to anticipate the type of protective device required for special operations, such devices may be obtained or provided as soon as possible.

(2) Manufacturers, vendors and lessors of machinery, machine parts or other working equipment shall ensure that every article delivered, sold or let by them is provided with all the required protective devices.

(3) Employers installing new machinery, machine parts or other working equipment, and persons or firms in charge of the installation of such machinery or parts of machinery and other working equipment shall see to it that these are properly guarded in conformity with existing safety standards.

1202.02: Removal of Guards:

(1) No person shall remove or make ineffective any safeguard, safety appliance, or safety device guarding a dangerous machine or machine part unless such is authorized and the machine is stopped for the purpose of immediately repairing and adjusting such machinery, guard, appliance or device.

(2) Warning signs with standard color shall be installed near the machine being repaired or its guards removed.

(3) Upon completion of the repairs or adjustment, such guards, appliances or devices shall immediately be reinstalled before the machine is used.

1203: Standard Machinery Guards:

1203.01: Guards

(1) Guards shall be designed, constructed and used that they will:

a. provide positive protection;

b. prevent all access to the danger zone during operations;

c. not interfere unnecessarily or inconvenience operation or production;

d. operate automatically or with minimum effort;

e. be suitable for the job and the machine;

f. not obstruct or interfere with machine oiling, inspection, adjustment and repair;

g. withstand long use with minimum maintenance;

h. resist normal wear and stock;

i. be durable, fire and erosion resistant;

j. not constitute a hazard by themselves; and

k. give protection against operational contingencies and not merely against normally expected hazards.

(2) Standard guards or enclosures shall be made of materials suitable for the purpose for which they are designed and constructed.

(3) All machinery guards shall be securely fastened to the machine or to the floor, wall or ceiling and shall be kept in place whenever the machine is in operation.

1203.02: Framework:

The following are minimum standards for the construction of machinery guards:

(I) Small *Guards:*

a. minimum dimensions of materials of the framework of metal guards 75 cm (30 in.) or less in height and width, a surface area not exceeding 1 sq. meter (11 sq. ft.) shall be 1 cm. (3/8 in.) for solid rod, 20 mm x 10 mm x 3 mm (3/4" by 3/8" by 1/8") for angle iron.

b. other construction may be substituted for guards of the same areas if such will provide equal strength.

(2) Braced *Guards:*

a. minimum dimensions of materials of the framework of guards more than 75 cm. (30 in.) in height and with a surface area exceeding 1 sq. meter (11 sq. ft.) shall be 25 mm. x 25 mm. x 3 mm. (1 " x 1" x 1/8") for angle iron or 20 mm. (3/4 in.) diameter for metal pipe.

b. such guards should be rigidly braced every 90 cm. (3 ft.) or fractional part of their height to some fixed part of machinery or other structure.

(3) *Unbraced Guards:*

When a machinery guard is fastened to the floor or working platform without any other support or bracing, the framework shall be:

a. Wood Railings: The top rail and post shall be 50 mm x 100 mm and the intermediate rail shall be 50 mm x 50 mm or 20 mm x 100 mm.

b. All such railings shall be smooth and free from large or loose knots, protruding nails or belts, splinters, fine slivers or cracks.

c. Wood guards shall be securely fastened together with wood screws, hardwood dowels, pins, bolts, rivets, or crimped nails and shall be equal in rigidity to metal guards.

d. Pipe Railings: The top rail and post shall be 30 mm. in diameters and intermediate rail shall be 25 mm. in diameter.

e. Structural Metal Railings: Top rails and posts of angle iron shall be 38 mm x 38 mm x 5 mm and the intermediate rails of angle iron shall be 32 mm x 32 mm x 3 mm.

f. All structural metal railings shall be of sound materials free from defects and all sharp corners shall be rounded and smooth.

(4) *Joints:*

All framework joints shall be of equivalent strength to the materials of the frame.

(5) Horizontal *Overhead Belt Guards:*

Framework of guards for the horizontal overhead belts, ropes, or chains, more than 2.6 m. (8 1/2 ft.) above the floor or platform of angle iron, shall be at least:

a. 25 x 25 x 5 mm. (1 by 1 by 3/16 in.) for belts up to 25 cm. (10 in.) in width;

b. 38 x 38 x 6 mm. (1 1/2 by 1 1/2 by 1/4 in) for belts over 25 up to 35 cm (10 to 14 in.) in width;

c. 50 x 50 x 8 mm. (2 by 2 by 5 /16 in.) for belts over 35 up to 60 cm. (14 to 24 in.) in width; and

d. 80 x 80 x 10 mm. (3 by 3 by 3/8 in.) for belts over 60 cm. (24 in.) in width..

e. Horizontal overhead belt more than 2100 mm. above a floor, platform or other working level shall be guarded for their entire length if located over passageways of working places.

(6) Guards support, if of flat iron, should be of the following dimensions:

a. 38 x 6 mm. (1 1/2 by 1/4 in.) for belts up to 25 cm. (10 in.) in width;

b. 50 x 8 mm. (2 by 5/16 in.) for belts over 25 up to 35 cm. (10 to 14 in.) in width;

c. 50 x 10 mm. (2 by 3/8 in.) for belts over 35 up to 60 cm. (14 to 24 in.) in width., and

d. 65 x 10 mm. (2 1/2 by 3/8 in.) for belts over 60 cm. (24 in.) in width.

(7) All guards should be provided with an adequate number of supports and attachments to ensure sufficient rigidity and resistance.

1203.03: Fillers:

(1) *Minimum Dimensions of Materials:*

a. Fillers should be made of solid sheet metal not less than 0.8 mm. in thickness, perforated sheet metal not less than 1.00 mm. in thickness or woven wire not less than 1.6 mm. in diameter.

b. Fillers of other materials of equal strength for the same area may be substituted. Please see Table 3.1 (Appendix)

(2) *Woven Wire:*

a. Woven wire shall be of the type in which the wires are securely fastened at every crosspoint by welding or galvanizing or soldering except in the case of diamond or square wire mesh made of wire 2 mm. (0.08 in.) in diameter, 20 mm. (3/4 in) mesh or heavier.

(3) *Fastenings:*

a. Filler materials shall be securely fastened to angle iron framework with rivets or bolts by welding or weaving through the frames.

b. Wire mesh made of wire 2 mm. (0.08 in.) in diameter, 20 mm. (3/4 in.) mesh or heavier, may be bent entirely around rod frames.

c Filler materials for pipe frame shall be made into panels with rolled edges or bound with sheet metal and the panels shall be fastened to the frames with steel clips.

(4) *Filler Openings:*

a. Where guards or enclosures is within 100 mm. from moving parts, opening on the guard shall be of such size as will prevent passage of any object greater than 12 mm. in diameter.

b. Where guards are located more than 100 mm. and less than 380 mm. from moving parts, the maximum opening shall not be more than 50 mm. and where slotted guards are used, the width of the opening shall be not greater than 25 mm. and its area shall be not more than 13 sq. cm.

1203.04: Height of Guards:

Except as provided for specific installation, the minimum height of guards shall be 1.00 meter from the upper surface of the top rail to the floor or platform level.

1203.05: Floor Clearances:

Standards railing guards shall be placed not less than 380 mm. nor more than 500 mm. from any moving parts, provided however that where clearance from other moving parts are less than 380 mm. such parts shall be guarded as required elsewhere in this Standards.

1203.06: Interlocks:

Guards on power driven machinery shall be interlocked with a machine control to prevent operation of the machine unless the guard is in its proper position, or arranged that it is difficult to operate the machine unless the guard is in place.

1203.07: "U' Guards:

(1) "U" guards shall be constructed as specified in table 3.1 Appendix.

(2) Edges shall be smooth and if the size of the guard requires, it shall be reinforced by rolling or wiring or by bending with angle or flat metal.

1203.08: Wood Guards:

(1) *Material*

a. Wood used for guards shall be sound, tough and free from any loose knots.

(2) *Construction*

a. Wood guards shall be made of planed lumbed not less than 25 mm. (1 in.), or of wood or fabricated lumber of equal strength. The edges and corners shall be rounded off.

b. Wood guards shall be securely fastened together with wood screws, hardwood dowels, pins, bolts, rivets, or crimped nails and shall be equal in rigidity to metal guards fulfilling the requirements of Rules 1203.01, 1203.02 and 1203.03.

1204: Machine Guard at Point of Operation:

1204.01: General Provisions:

(1) The point of operation of machinery shall be effectively guarded.

(2) Mechanical feeding and ejection devices shall be provided.

(3) Individual starting and stopping devices shall be provided on every working machine having a cutting, drawing, grinding, pressing, punching, shearing or squeezing action to make it possible for the operator to start or stop the machine without leaving his working position.

(4) Enclosed guard shall conform to the provisions of Rules 1203.01 to 1203.08. Where visibility of operations is desirable, the fillers for the guards covering points of operation may be of clear transparent material where the strength and rigidity of standard fillers are not necessary.

(5) Where pedals are used to actuate machinery or parts of machinery, an automatic locking device shall be attached to the pedal or inverted U-shaped guard shall be fastened to the floor over the treadle leaving sufficient clearance for the foot of the operator between the treadle and the guard.

1205: Transmission Machinery Guarding:

1205.01: Prime Movers:

(1) Flywheel and other prime movers shall be periodically inspected by qualified personnel for cracks, incorrect adjustments and other defects to prevent explosion.

(2) Any exposed part of flywheel 2,100 mm or less above the floor or platform shall be guarded.

(3) In areas where standard railings are used, the railings shall not be less than 380 mm. nor more than 500 mm from the rim of the wheel. A standard toe board shall also be provided.

(4) When it is necessary to move flywheels for starting, guards may be removed temporarily but shall be returned immediately after such an operation is completed. A slot opening for jack bar will be permitted.

(5) Every jack bar should be equipped with a hand stop so located that it will safely clear the flywheel guards when fully inserted but will prevent the worker's hand being pinched between the slot and bar.

(6) Any portion of the flywheel protruding through a place where workers work or pass shall be completely enclosed or surrounded by guard rails.

1205.02: Governors:

(1) Centrifugal governors shall be guarded or enclosed in the same way as flywheels.

(2) Fly ball governors located 2,135 mm or less above the floor, platform or other working level having rotating, projecting or sectional parts or hazardous recesses shall be enclosed or covered with guard secured to rigid supports and accessible to oiling and inspection.

1205.03: Collars and Couplings:

(1) Revolving collars and couplings shall be cylindrical and no screws or bolts project beyond largest periphery. Couplings shall be enclosed by stationary guards.

1205.04: Keys and Set Screws:

(1) Projecting keys, set screws and other projections in revolving parts of a machine not guarded by the frame of the machine or by location shall be removed, made flush or guarded by non-rotating metal caps.

1205.05: Tail Rods:

(1) Tail rods extending in areas where persons work or pass shall be guarded.

(2) If guardrails are used, the range shall be 50.8 cm. (20 in.) when the tail is fully extended.

1205.06: Shafting:

(1) Shafts shall be completely enclosed 2.13 m. (7 ft.) from the floor.

(2) Shafts under benches or floors shall be covered.

(3) Exposed face ends of shafts over half the diameter of the shaft shall be guarded with non-rotating caps.

1205.07: Belt and Pulley Drive:

(1) Any part of a horizontal belt and pulley drive, involving the use of flat crowned or flanged pulleys, which is 2,100 mm or less above the floor or working level shall be guarded.

(2) The distance between two (2) pulleys, except in cases of tight and loose pulleys should be greater than the width of the belt.

(3) Overhead belts over 2,100 mm from the floor shall be guarded in its entire length if:

a. Located over passageways or workplaces and running at speed of 20 km/hr. or over.

b. Center to center distance between pulleys is 3.05 m or more.

c Belt is 200 mm or more in width.

The bottom and sides shall also be guarded.

(4) When both runs of belts are 2,100 mm or less from the floor, the belts shall be completely enclosed.

(5) Where a group of flat belt drive is guarded by standard railing guard, such drives shall be considered guarded where the distance from the vertical plane of the rail to the nearest point of any belt or pulley is not less than 380 mm nor more than 500 mm and where the distance between any two adjacent belts or pulleys does not exceed 900 mm.

(6) Belt-type variable speed drives located 2,100 mm or less from the floor or working level shall have all moving parts guarded.

(7) Belts and shafting in workplaces where flammable liquids or vapors of explosives dusts are present shall be grounded or the accumulation of static electricity shall be controlled.

(8) Pulleys with a speed of 400 rpm shall be periodically inspected for defects.

1205.08: Conveyors:

(1) Screw conveyors 2,100 mm. or less above floor or other working level shall be completely covered with substantial lids except that screw conveyors the top of which is 600 mm or less above the floor or other working level, or below the floor level may be guarded by standard railing guards having toeboards of midrail height or shall be guarded by substantial covers or gratings.

(2) All belt conveyors head pulleys, tail pulleys, single tension pulleys and dip take-up pulleys shall be so guarded that the entire sides of the pulleys are covered and the guard shall extend in the direction of the run of the belt such a distance that a person cannot reach behind it and become caught in the nip point between the belt and the pulley.

(3) Portable inclined conveyors shall have head and tail pulleys or sprockets and other power transmission equipment guarded accordingly.

(4) Where necessary to pass over exposed chain, belt, bucket, screw or roller conveyors, such crossovers shall be bridged or catwalk properly equipped with standard railings and toeboards and shall have a safe means of access either fixed ladder, ramp or stairway.

(5) Conveyors passing over areas that are occupied or used by employees shall be so guarded as to prevent the materials handled from falling on and causing injury to employees.

(6) Where workmen pass under the return strands of chain conveyors a shallow through or other effective means or sufficient strength to carry the weight of the broken chain shall be provided.

1205.09: Gears and Sprockets:

(1) All power operated gears and sprockets wherever located shall be completely covered.

(2) The chains, sprockets and chain drives located within 2,100 mm of the floor or other working level shall be guarded in the same manner as the belts are.

1205.10: Starting and Stopping Devices:

(1) Clutches, cut-off couplings or clutch pulleys and other mechanical power control devices having projecting parts where any parts of such devices is located 2,100 mm or less above the floor or working level shall be completely enclosed and such enclosure shall not interfere with the operation of the mechanical control.

(2) Each process machine driven by an individual prime mover shall be equipped with emergency stopping devices which can be safely actuated from the operator's working position unless the machine is equipped with automatic clutch which will stop or disengage all machine operation.

(3) Where an operator attends one or more process machine not having individual drive each machine shall be equipped with a stopping device which can be safely actuated from the operator's working position at the machine, such a stopping device may stop an entire group of machine by stopping the prime mover, power transmission or it may be a machine clutch, cut-off coupling or tight and loose pulley with belt shifter which can stop all the machine operations at any time on any machine. Pole or hand shifting of belts is not considered adequate means for disconnecting the power.

Exception: Where due to the process, machine must be operated in groups, the machine power control may stop the entire group of machines, such group drives shall be provided with conveniently located readily accessible, and properly marked or otherwise identified emergency stop device.

(4) Where practicable each process machine simultaneously attended or operated by more than one employee shall be equipped with a machine power control for each employee exposed to point of operation hazards. Said controls shall be interlocked in a manner to prevent operation of machine unless all controls are operated simultaneously.

(5) Machine power controls shall be maintained in safe operating conditions and shall be so designed, installed and or located that they are not likely to operate from accidental contact with objects or parts of the body.

(6) Motor switches, friction clutches, belt shifters, engine stops and similar machine parts shall be arranged that control can be effected at the point of operation.

1206: Woodworking Machinery:

1206.01:Swing and Cut-off Saw:

(1) Hood guards shall be provided on swing saws extending below the platforms with the side cover next to the end of the platform preferably hinged for easy access to the saw.

(2) The rear of the saw shall be completely housed when the saw is in back position where it is possible to pass behind a swing and cut-off saw. The housing shall include the swing frame as well as the saw.

(3) Swing saws shall be provided with limit chains or other positive means to prevent travel beyond the front edge of the saw table.

(4) Swing saw shall be provided with latches or other positive means to prevent the saw from rebounding when swinging back and shall not depend on fiber rope or cord for its functioning.

(5) Swing saws shall be provided with counterweights or other effective devices which will automatically return the saw when its front edge is released by the operator at any point of its travel.

(6) Counterweights on swing saws shall be prevented from dropping by means of:

a. bolts through the extreme ends of the bar; and

b. safety chains secured to the ceiling or other overhead support.

(7) If counterweight is used all bolts supporting the bar and weight shall be provided with nuts and cotter pins.

1206.02: Table Saws:

(1) Every circular and fed table saw shall be guarded by hood enclosing completely the portion of the saw above the table. The hood and mounting shall be so arranged that the hood will automatically adjust itself to the thickness of the stock being cut without considerable resistance to the material being sawed.

(2) Where the saw moves forward horizontally the hood or guard shall extend at least 50 mm in front of the saw teeth when the saw is in back position. The width of the hood shall be limited so as to provide not more than 12.70 mm clearance on each side of saw blade. A fixed or manually adjusted hood or guard may be allowed, provided the space between the bottom of the guard and the material being cut does not exceed 12.70 mm.

(3) Except when grooving and when a roller wheel is provided at its back, the saw shall be provided with a spreader mounted directly at the back of the saw at a distance of not more than 0.95 cm. and shall be supported so that all times it will be in alignment with the saw when the table is lifted or tilted. The spreader shall be slightly thinner than the saw kerf and slightly thicker than the saw blade.

(4) The saw shall be provided with anti-kick-back device to prevent the stock from being thrown back towards the operator. Anti-kick-back devices shall be designed to be effective for all thickness of material.

(5) The exposed part of the saw blade under the table shall be enclosed or guarded against contact.

(6) For narrow or thin cuts, push sticks or push blocks shall be used and the operator shall always stay away from the direct line of the stock being sawed.

(7) The saw guard shall be equipped with a handle or lug by which it may be temporarily retracted without exposing the operator's fingers to the blade.

(8) Saw guards shall not be locked in an open position and shall be maintained in good working conditions at all times.

1206.03: Planners:

(1) Cutting knives shall be completely enclosed, templates, jigs or fixture which will enable the part to be processed without exposing the operator's hand to the danger zone shall he used.

(2) The feeding mechanisms of planners shall be guarded or enclosed leaving only the space required for feeding of the stock. The guard shall be fastened to the frame carrying the rolls so as to remain in adjustment for any thickness of the stock.

(3) Power feed planners shall be provided with anti-kick-back devices.

1206.04: Jointers:

(1) A suitable guard which will automatically adjust itself to cover the portion of the cutting head exposed during the planning operations shall be used. The guard shall be capable of protecting the entire length of the cutting space in the table.

(2) All jointers shall be equipped with cylindrical cutting heads.

(3) The exposed portions of the cutting head at the rear of the fence shall be covered.

(4) For short cuts, push sticks or blocks shall be used.

1206.05: Sanders:

(1) Belt sanders shall have both pulleys and the unused run of the sanding belt enclosed. Rim guards will be acceptable for pulleys with smooth disc wheels provided that on-running nip points are guarded. Guards may be hinged to permit sanding on the pulley.

(2) Disc sanders shall have the periphery and back of revolving disc guarded, and the space between revolving disc and edge of table shall not be greater than 6.35 mm.

(3) The exposed parts of the drum of the drum sanders except for the portion where the material comes in contact with the abrasive surfaces shall be guarded,

(4) The revolving head of the elbow sander shall be fully guarded except where abrasive comes in contact with the material.

1206.06: Band Saws:

(1) The upper and lower band wheel shall be guarded and the periphery of the enclosure shall be of solid metal. The cover at the back and front of the saw shall be of solid or mesh metal.

(2) Feed rolls of band resaws and band ripsaws shall be protected with a semi-cylindrical guard to prevent the hands of the employee from coming in contact with the in-running rolls at any point. The guard shall be constructed of heavy material, preferably metal and the edge of the guard shall come to within 12.70 mm. of the plane formed by the inside face of the feed roll in contact with the stock being cut.

(3) Large band saws shall be provided with a breaking device to bring the saw to a stop when the power is cut off.

1206.07: Other Provisions:

(1) Proper guarding of machines in die casting, paper and printing, textile and laundry, leather and composition, food and tobacco processing, chemical industry, rubber and composition working, stone, clay and glass working, and cotton and seed cotton processing as provided for in Chapter 4 of PSME CODE are hereby adopted.

1207: Guarding Mechanical Power Presses, Foot and Hand Power Presses

1207.01: General Provisions:

Guards for mechanical power, foot and hand power presses other than what is provided in this Rule may be acceptable provided they afford equal protection to the worker.

(1*) Automatic, semi-automatic or mechanical feed presses:*

a. Fixed guards or enclosures - a fixed guard or enclosure shall be so arranged and equipped to guard the front and both sides to prevent the operator's fingers from reaching the danger zone. However, said fixed guards may not be required where access to the danger zone by the operator is not possible or necessary.

(2*) Hand and Food Power Presses:*

a. Fixed guard or enclosure - a fixed guard or enclosure across the front and shall be so arranged that the finger cannot be inserted under, over, through or around the guard. The guard may be an integral part of the die or attached to the press frame;

b. Interlocking Gate Guard - a guard or gate operated by a tripping device which will not permit the press to operate until after the hands of the operator shall have been removed from the danger zone.

c Limited Ram Travel - the stroke of the ram or plunger shall be such that the clearance between the ram and the plunger and die or the stripper shall not be more 10 mm.

d. Swept Guard - a mechanically operated guard which throws the hands of the operator out of the way as the ram descends. Such a guard should be padded to prevent injury should it strike the operator's wrist.

e. Pull-Out Protective Device - a mechanically operated device attached to the operator's hands, wrist or arms which withdraws the operator's hands from the danger zone as the ram descends.

f. Two Handed Trip Device - an arrangement whereby hands are used instead of feet to trip the press: the simultaneous and continuous action of both hands being required.

1207.02: Controls:

Mechanical, electrical or air controls shall be permitted on large presses requiring one or more operators provided that such controls require the simultaneous action of both hands of each operator to trip the press. Such controls shall be located in such a way that the hands or any part of the body of the operator will not reach the danger zone during the descending stroke.

1207.03: Pedal or Treadle Guards:

Pedals or treadles of foot actuated presses shall be provided with substantial guards to prevent accidental tripping. For treadles other than long bars extending across the machine the openings in such guards shall not be more than twice the width of the foot.

1207.04: Special Hand Tools:

Where necessary, special hand tools such as pushers, pickers, pliers, tweezers, forks, magnets, or suction discs shall also be provided for feeding or removing materials without placing the hands in the danger zone.

RULE 1210

ELECTRICAL SAFETY

1211: Philippine Electrical Code:

The Philippine Electrical Code is hereby adopted and the standards contained therein shall be considered safety standards to the extent that they safeguard any person employed in any workplace and control the practice of electrical engineering.

1212: Electrical Safety Inspection:

1212.01: Definition:

(1) "*Installation*" as used in this Rule shall mean assemblage of electrical equipment in a given location, designed for coordinated operation, properly erected and wired.

(2) "*Approved*" shall mean acceptable to the Bureau after test and examination show compliance with standards.

1212.02: General Provisions:

(1) No electrical installation shall be undertaken without the plans having been approved by the Secretary or his authorized representative.

(2) No service or power supply shall be connected to any electrical installation by any utility company supplying electricity or by any person until the necessary final inspection is conducted and a safety certificate/permit issued by the Regional Labor Office or authorized representative having jurisdiction over the case.

(3) The following are excluded in the coverage of this Rule;

a. electric generating plants with franchises which are under the jurisdiction of the Board of Power and Waterworks.

b. electric generating plants and electrical installations in radio and television station which are under the jurisdiction of the Department of Public Works, Transportation and Communications, and

c. electrical installation for conveyances used in connection with water transportation which are under the jurisdiction of the Bureau of Customs.

(4) The exemptions under 3 (a) and (b) are only for the design and construction, the electrical installation may be inspected by the Regional Labor Office or authorized representative, if such poses danger to the safety and health of the workers therein.

(5) The practice of electrical engineering as required under this Rule shall be subjected to the provisions of the Philippine Electrical Engineering Law, R.A. 184.

1212.03: Application and Plans:

(1) Application for electrical installation shall be filed by the owner/manager to the Secretary or his authorized representative having jurisdiction accompanied by plans, designs and/or specifications in triplicate prepared under the responsible charge of, signed and sealed by a registered professional electrical engineer duly licensed to practice in the Philippines. The approved plans shall serve as the installation permit and construction may be started.

(2) Application for the electrical installation for household lighting utilizing energy involving installation of twenty (20) outlets or less, or for the power or heat utilizing electrical energy not exceeding four (4) kilowatts need not be accompanied by plans.

However, a layout sketch of the proposed installation shall be submitted with a list of materials and devices to be used and a signed statement to the effect that it shall conform with the rules and regulations of this Standards.

(3) After construction, a certificate of final inspection shall be secured from the office having jurisdiction, which shall serve as a service connection, safety permit and to use the installation for one year counted from the date of final inspection.

(4) Application for a certificate of electrical inspection shall be filed by the owner, manager or his authorized representative with the Regional Labor Office or authorized representative having jurisdiction at least thirty (30) days before the expiration date of the safety permit.

1212.04: Inspection:

(1) The safety engineers of the Regional Labor Office or authorized representative having jurisdiction shall conduct annual safety inspection on all electrical installation and/or special inspections as provided in Rule 1004.

(2) All Regional Labor Offices shall adopt and maintain an effective records control of all electrical inspections in order that re-inspection shall not go beyond the expiration date.

1212.05: Permit to Use Installation:

(1) A certificate to use the installation shall be issued subject to the following:

a. Work shall be performed under the responsible charge or supervision of a duly authorized electrical engineer or a master electrician in conformity with the field of action authorized for each grade.

b. All work shall conform with the approved plans and the provisions of this Standards.

c. All materials used in the installation shall be of the approved type.

d. The certificate shall be valid for a period of one (1) year counted from the date of final inspection and renewable annually thereafter if inspection show it is safe to use.

(2) A certificate shall continue to be valid even beyond the expiration date if an application for renewal was submitted and filed at least thirty (30) days before the expiration date and for reasons beyond its control, the enforcing agency concerned failed to act on the application on or before the date of expiration.

(3) Temporary Installation Certificate: A temporary certificate may be issued for the following:

a. temporary installations for building construction or other civil engineering work;

b. temporary installations pending completion of permanent installation; and

c. temporary installation for amusements such as ferris wheels, fairs, fiestas and other similar electrical installations.

(4) Temporary Installation Certificate shall be issued after the following conditions are complied with:

a. Clearance by the enforcing authority of the electrical plans where the installation is over twenty (20) outlets or the total load exceeds four (4) kilowatts.

b. Submission of sketch of the proposed installation to the Regional Labor Office or authorized representative for installation of twenty (20) or less outlets on for loads not exceeding four (4) kilowatts, showing a layout of the wiring installation, location and a signed statement that the installation shall conform with this Standards and that all materials used shall be of the approved type.

(5) Duration of Temporary Certificate:

a. Temporary installation for construction work and installation pending permanent installation shall be for a period of one hundred twenty (120) days from the date of issuance subject to renewal until the work is completed. Each renewal is for a period of one hundred twenty (120) days.

b. Installations for amusements shall be for sixty (60) days renewable for a maximum of sixty (60) days.

1212.06: Additional Loads:

(1) When subsequent inspection is conducted for additional loads to an existing installation within a covered year, fees shall be charged only for the additional load.

(2) Permit for additional loads inspected within the covered year shall have for their expiration date the date of the original electrical installation.

(3) The original installation including all additional loads shall be reinspected on the same date of the following year.

(4) Additional load and/or alteration of installation is not allowed unless a permit is issued.

1213: Inspection Fees:

Refer to Rule 1970

1214: Requirements in the Preparation of Electrical Plans:

Before electrical wiring installation is done, the owner/manager or his authorized representative shall file the required application for electrical wiring installation in triplicate, accompanied by three (3) copies of each sheet of plans in white print. The following shall be incorporated in the plans.

(1) *Location Plans:*

a. site of the compound indicating any known landmarks, private or public buildings and arrow indicating NORTH direction drawn not necessarily to scale.

b. the service drop from the utility company pole to the building structure; and

c. all feeder lines.

(2) *Electrical Layout:*

a. power layout, in addition to the lighting layout, if the number of motors exceed (10);

b. other loads;

c. bell system circuit;

d. telephone system circuit;

e. riser or single line diagram

f. riser design computation;

g. load schedule;

h. electrical legend and specifications;

(3) *Outdoor sub-station:*

a. location of outdoor sub-station indicating the distance with respect to the nearest building,

b. primary and secondary lines,

c. fencing or enclosure,

d. top, front and side views showing pertinent distances,

e. grounding system,

f. specification

c. single line diagram

h. legend

i. design computation.

(4) *Indoor Sub-station:*

Transformer vault walls, roof, flooring, doorways, ventilation and drainage including items, b, d, e, f, g, h and i of outdoor sub-station requirements.

RULE 1220

ELEVATORS AND RELATED EQUIPMENT

1221: Definitions:

(1) "*Elevator*" shall mean a hoisting and lowering mechanism equipped with a car or platform, which moves in guides in substantially vertical direction, serving two or more floors of a building or structure.

(2) "*Hoistway*" shall mean a shaftway for the travel of one or more elevators. It includes the pit and terminates at the underside of the overhead machinery/space floor or grating, or at the underside of the roof.

(3) "*Buffer*" shall mean a device designed to stop a descending car or counterweight beyond its normal limit of travel by steering or by absorbing and dissipating the kinetic energy of the car or counterweight.

(4) "*Safety Counterweight*" shall mean a mechanical device attached to the counterweight frame to stop and hold the counterweight in case of predetermined over speed or free fall or if the hoisting ropes slacken.

(5) "*Elevator Pit*" shall mean that portion of a hoist extending from the level of the lowest landing door to the floor at the bottom of the hoistway.

(6) "*Elevator Landing*" shall mean that portion of floor, balcony, or platform to receive and discharge passenger or freight.

(7) "*Hoistway Enclosure*" shall mean the fixed structure, consisting of vertical walls or partitions, which isolates from all other parts of the building or from an adjacent hoistway in which the hoistway floor and assemblies are installed.

(8) "*Elevator Car*"' shall mean the load carrying unit including the platform, car frame, enclosure and car door or gate.

(9) "*Car door or gate*" shall mean the movable portion of the car entrance which closes the opening access to the car.

(10)"*Control*" shall mean the system governing the starting, stopping, direction of motion, acceleration and speed.

(11)"*Controller*" shall mean a device or group of devices which serves to control in a predetermined manner the apparatus to which it is connected.

(12)"*Emergency stop switch* " shall mean a device located in the car which when operated causes the electric power to be removed from the driving machine, motor and brake of an electric elevator or from the electrically operated valves and/or pump motor of a hydraulic elevator.

(13)"*Trunsom*" shall mean a panel or panels used to close a hoistway enclosure opening above a hoistway entrance.

(14)"*Travel*" shall mean the vertical distance between the bottom terminal landing and the top terminal landing of an elevator.

(15)"*Driving Machine*" shall mean the power unit, which applies the energy necessary to raise and lower the elevator car or to drive the elevator.

(16)"*Car Enclosure*" shall mean the top and the walls of the car resting on and attached to the car platform.

(17)"*Car Frame*" shall mean the supporting frame to which the car platform, upper and lower sets of guide shoes, car safety and the hoisting rope sheaves or the plunger of a direct plunger elevator are attached.

(18)"*Car Platform*" shall mean the structure which forms the floor of the car that supports the load.

(19)"*Dumbwaiter*" shall mean a hoisting and lowering mechanism with a car of limited capacity of 220 kg. (500 lbs.) and size which moves in guides in a substantially vertical direction and is used exclusively for carrying materials.

(20)"*Escalator*" shall mean a power driven, inclined continuous stairway used for raising and lowering passengers.

(21)"*Freight Elevator*" shall mean an elevator primarily used for carrying freight and in which only the operator and the persons necessary for unloading and loading the freight are permitted to ride.

(22)"*Hand Elevator*" shall mean an elevator utilizing manual energy.

(23)"*Passenger Elevator*" shall mean an elevator used primarily to carry persons.

(24)"*Power Elevator*" shall mean an elevator utilizing energy other than gravitational or manual to move the car.

(25)"*Electric Elevator*" shall mean a power elevator where the energy is applied by means of an electric driving machine.

(26)"*Hydraulic Elevator*" shall mean a power elevator where the energy is applied by means of a liquid under pressure in a cylinder equipped with plunger or piston.

(27)"*Direct Plunger Elevator*" shall mean a hydraulic elevator having a plunger or piston directly attached to the car frame or platform.

(28)"*Electric Hydraulic Elevator*" shall mean a direct-plunger elevator where the liquid is pumped under pressure directly into the cylinder by a pump driven by an electric motor.

(29)"*Roped Hydraulic Elevator*" shall mean a hydraulic elevator having its piston connected to the car with wire ropes.

1222: General Provisions:

1222.01: Application:

The owner/manager or his authorized representative shall file with the Secretary or his authorized representative having jurisdiction an application to install or construct an elevator together with the necessary plans in triplicate signed and sealed by a registered professional mechanical engineer for the mechanical plans and by a professional electrical engineer for the electrical plans, both duly licensed to practice in the Philippines.

1222.02: Permit:

No elevator, (passenger or freight) shall be installed and/or operated in any place of employment in the Philippines without a written permit issued for the purpose by the Regional Labor Office or authorized representative having jurisdiction.

1222.03: Construction:

(1) Upon approval of the application and plans together with the necessary supporting papers, the installation and/or construction of the elevator may be started under the direct charge and supervision of a professional mechanical engineer and professional electrical engineer,

(2) The Regional Office or authorized representative shall be informed either in writing or in person of any deviation made from the approved plans.

(3) In cases where major alterations are made that may affect the approved design, the plans shall be resubmitted for approval.

(4) Upon completion of the installation and/or construction, a request for final inspection shall be filed with the Regional Labor Office or authorized representative having jurisdiction. If such inspection show compliance with the approved plans, standards and necessary tests, a permit or certificate shall be issued valid for one (1)year from the date of final inspection.

1222.04: Renewal:

Application for the renewal of a permit/certificate shall be filed by the owner/manager or his duly authorized representative with the Regional Labor Office or authorized representative with the Regional Labor Office or authorized representative having jurisdiction at least thirty (30) days before the expiration date of permit or certificate.

1223: General Requirements:

(1) Every part of the structure, machinery, and equipment shall be:

a. of good design, good mechanical construction, sound material, adequate strength, free from defects, and

b. kept in good working condition.

(2) Hoistways from all elevators shall be substantially enclosed throughout their height and there shall be no openings except for necessary doors, windows or skylights.

(3) Hoistways for elevators outside the buildings shall be substantially enclosed to a height of at least 3 m (10 ft.) provided that the enclosure shall be continuous to the top of any side where there is access to the cage.

(4) The enclosures shall be either a continuous wall or substantial grill work, metal bars, or wood slats. In general enclosures shall be fire resistant.

(5)

a. Where a hoistway extends into the top of a building, fire-resistant hoistway or machinery spaced enclosures shall be carried to the underside of the roof, if the roof is of fire-resistive construction, and at least 90 cm (3 ft.) above the surface of the roof, if the roof is of non-fire-resistive construction;

b. Where a hoistway does not extend into the top floor of a building, the top of the hoistway shall be enclosed with a fire resistant construction.

(6)

a. A pit shall be provided for every elevator.

b. The floor of the pit shall be approximately level.

c. Pits extending below the ground level shall have non-combustible floors and shall be designed to prevent entry of ground water into the pit. The pit floor of any hoistway not extending to the ground shall be of fire resistant construction.

d. Hoistway pits shall be of such depth that when the car rests on the fully compressed buffers, there shall be a vertical clearance of not less than 610 mm. between the pit floor and the lowest structural or

mechanical part, equipment or device installed beneath the car platform except guide shoes or rollers, safety jaw assemblies, and platform aprons, guards, or other equipment located within 305 mm. horizontally from the sides of the car platform.

e. Safe and convenient access shall be provided to all pits and shall conform to the following:

(1) Access shall be by means of the lowest hoistway door or by means of a separate pit access door. Where a separate pit access door is provided, it shall be self-closing and provided with a spring-type lock arranged to permit the door to be opened from inside the pit without a key. Such doors shall be kept locked.

(2) There shall be installed in the pit of each elevator where the pit extends more than 914 mm below the sill of the pit access door, a fixed vertical ladder or non-combustible material located within reach of the access door. The ladder shall extend not less than 1,067 mm above the sill of the access door, or handgrips shall be provided to the same height.

(3) Pits shall be accessible only to authorized persons.

f. A permanent lighting fixture shall be provided in all pits, which shall provide an illumination of not less than 54 lux at the pit floor. A light switch shall be so located as to be accessible from the pit access door.

g. There shall be installed in the pit of each elevator an enclosed stop switch or switches and shall be located as to be accessible from the pit access door. When the pit exceeds 2,010 mm. in depth, an additional stop switch is required adjacent to the pit ladder and approximately 1,220 mm. above the pit floor. Where more than one switch is provided, they shall be wired in series.

(7) Hoistways of elevators serving more than three (3) floors shall be provided a means of venting smoke and hot gases to the outer air in case of fire. The area of the vents shall not be less than 3 1/2% of the area of the hoistway or less than 0.28 sq. m. (3 sq.ft.) for each elevator car, which ever is greater. Of the total required vent area, not less than 1/3 shall be permanently opened by a damper.

a. Vents shall be located:

i. in the side of the hoistway, enclosure directly before the floor or floors at the top of the hoistway and shall open directly to the outer air through non-combustible ducts to the outside, or

ii. in the wall or roof of the penthouse or overhead machinery space above the roof provided, that the openings have a total area of not less than the minimum required.

b. Closed portions of the required vent area shall consist of windows, skylights openings glazed with glass not more than 0.32 cm (1/8 in.) thick.

(8) Windows on the walls of the hoistway enclosures are prohibited. Frames and sashes of windows in machine rooms and skylights shall be of metal. A metal or concrete floor shall be provided at the top of the hoistway:

a. Above or level the machine beams where the machine is located over the hoistway.

b. Below the overhead sheaves where the machine is located over the hoistway.

c. Metal floors shall conform to the following:

1. If of bar-type grating, the openings between bars shall reject a ball 20 m.m. in diameter.

2. If of perforated sheet metal or of fabricated openwork construction, the openings shall reject a ball 25 mm. in diameter.

(9)

a. The floor shall be capable of sustaining a concentrated load of 136 kg. on any 2,580 mm ^{2} area in addition where it constitutes the floor of the main or secondary level machinery space, it shall be designed for a live load of not less than 611 kg/m^2 in all open areas.

b. A sign stating the maximum allowable load for which the floor is designed shall be prominently displayed at eye level in a main and secondary machine room spaces and shall be of metal with block letters with at least 10 cm. (4 in.) high on a white background.

c. The floor shall extend over the entire area of the hoistway where the cross-sectional area is ten (10) sq. m. or less. Where the cross-sectional area is greater, the floor shall extend not less than 2 cm. beyond the contour of the machine or sheaves or other equipment, and to the entrance to the machinery space at or above the level of the platform.

d. Differences in levels of machine room and machinery space floors shall be avoided, where practicable. Where the difference in level in such floors exceed 30 cm., a railing shall be provided at the edge of the higher level. Where such change in level occurs, ladders or stairs shall be provided for access between levels.

(10)Ropes, wires or pipes shall not be installed in hoistway, except where necessary for the operation of the elevators. Only electrical wiring, rage ways, and cables used directly in connection with the elevator, including wiring for signals, for communication with the car, for lighting, heating, air conditioning, and ventilating the car, for low voltage fire-detecting systems, for pit sump pumps, and for heating and lighting the hoistway, may be installed inside the hoistway.

(11)Electrical conductors, other than trailing cables, shall be encased in metal conduits or armored cables and all live parts of the electrical apparatus in hoistways or in cages shall be suitably enclosed to afford protection against accidental contact.

(12)Landing doors of power driven elevators shall be provided with interlocks to hold the elevator car immovable while any landing is open, and to make it impossible to open any landing door when the car is more than 7.5 cm. (3 in.) away from the landing except with a special emergency key.

(13)Landing openings in passenger-elevator hoistway enclosures shall be protected preferably by sliding doors, or swinging doors or a combination of both.

(14)On passenger elevators, vertically sliding or counter-balanced landing doors shall only be permitted if interlocked with elevator car doors or gates so the landing door cannot:

a. open more than 60 cm. (24 in.) until the hoistway door is locked in its fully opened positions, and

b. start to close until the car door or gates is closed to 60 cm. (24 in.) of full closure.

(15)Landing doors or gates shall when closed, extend to the top of the landing opening.

(16)Elevators car doors or gates shall, when closed, guard the full opening.

(17) Passenger elevators, except elevators operated by automatic control shall be operated at all times by regular, trained and competent operators.

(18)Clearance between the sides of elevators cars and hoistway enclosure shall not be less than 1.9 mm. except on the sides used for loading and unloading. Clearance between the cars and their counterweight shall not be less than 25 mm. The clearance between counter weight and the counterweight screen and between the counterweight and the hoistway enclosure shall be not less than 19 mm.

(19)Clearance between the car-platform sill and the hoistway edge of any landing sill, or the hoistway side of any vertically sliding counterweighted or counterbalanced hoistway door or of any vertically sliding

counterbalanced biparting hoistway door, shall be not less than 13 mm. where side guides are used, and not less than 19 mm. where corner guides are used. In no case shall such clearances exceed 38 mm.

(20)The clearance between the landing edge of car platform sill the hoistway enclosure of fascia plate for the full width of the clear hoistway-door opening shall be not more than 127 mm. Except where vertically sliding hoistway doors are installed, the clearance specified may be increased 190 mm. For heavy duty elevators on extra wide door openings, the clearance may be increased where necessary, subject to the approval of the enforcing authority.

(21)Car and machine counterweights shall run in guides or suitable boxes with the inner surfaces flush or without any obstruction.

(22)Counterweight runways shall be located in the hoistways with the exposed sides covered from a height of at least 2.15 m. (7 ft.) above the floor of the pit.

(23)Car or machine counterweights not located in the elevator shaft shall be entirely enclosed on all sides.

(24)At least two hoisting and two counterweight cables shall be provided on all power freight elevators raised or lowered by cables.

(25)The operation of freight elevators having only one hoisting cable shall be prohibited, unless the diameter and material of the cable is adequate to carry safely the maximum load with a factor of safety of not less than 12.

(26)The drum ends of cables shall be securely anchored, preferably by clamps, on the side of the winding drum, and these shall be at least two turns of the hoisting and counterweight cables on winding drums where either the car or counterweights are at its lower limits of travel.

(27)All cables and drum type elevators shall be provided with equalizers and eveners respectively.

(28)No elevator machinery, except the idler or deflecting sheave, shall be hanged underneath the supporting beams at the top of the hoistways.

(29)No machinery, except the buffers and machinery for hydraulic plunger elevators shall be located directly under the elevator hoistway.

(30)Set screw fastening shall not be used in lieu of keys in the construction and installation of any hoisting machinery.

(31)All hoisting machinery shall be provided with adequate guards as required by Rule 1200.

(32)All elevators operated from a pressure tank where the fluid pressure is obtained by directly admitting air or gas to the tank shall comply with the rules governing hydraulic elevators.

(33)All parts of elevator installation shall be inspected at regular intervals as prescribed by the enforcing authority.

(34)Elevator cars shall be provided with an audible emergency signal that is operable from within the car and audible outside or with a telephone.

(35)All elevator cars shall have a sign posted conspicuously which shall show the maximum rated load.

(36)Power elevators that do not conform to all the regulations for passenger elevators, shall have signs posted at every landing and in the elevator car, prohibiting passengers except the operator from riding.

(37)All electric elevator cars shall be provided with emergency stop switches, independent of the operating devices and located adjacent to the emergency stop switches.

(38)The rated speed of power driven elevators carrying an operator shall not exceed 3.66 km/hr. (200 ft. per minute), except in the case of automatic operation and continuous pressure operation elevators or those controlled by a regular operator.

(39)The rated speed of electric freight elevators with continuous pressure operation shall not exceed 2.76 km/hr. (151 ft. per minute).

(40)The rated speed of belt or chain-driven freight elevator shall not exceed 1.1 km/hr. (60 ft. per minute), and the rated speed of elevators operating through hatchway covers shall not exceed 0. 91 km/hr. (50 ft. per minute)

(41)Landing openings in freight elevators shall be protected by horizontal or vertical sliding doors, combination sliding and swinging doors, swinging doors, or vertical sliding doors.

(42)Higher speeds provided in (38), (39), (40) and (41) may be permitted subject to the approval of the enforcing authority.

1224: Standards Requirements:

For purposes of inspection, checking, test and other considerations prior to the approval of any installation and use of any elevator, the following in accordance with their latest revisions, are hereby adopted:

(1) A.S.M.E. Elevator Code and

(2) P.S.M.E. CODE

1225: Requirements in the Preparation of Plans:

Before an elevator (passenger or freight), manlift, dumbwaiter or escalator is installed, the owner/manager or his authorized representative shall file with the Secretary or his authorized representative an application for mechanical and electrical wiring installation, to install elevator/manlift/dumbwaiter escalator, and to construct hoistway and install gates and doors, in triplicate, accompanied by three (3) copies of each sheet of plans in white print. The following shall be incorporated in the plans which show the requirements as indicated:

(1) *Location Plans:*

a. site of the compound indicating any known landmarks, such as street, private or public place or building and an arrow indicating NORTH direction drawn not necessarily to scale.

(2) *Electrical Layout:*

a. lighting and power layout;

b. riser or single lines diagrams;

c. riser design computation;

d. load schedule;

e. electrical legend and specification.

(3) *Machine Room:*

a. Front and side view and plan of the driving machine, governor exit and machine beams;

b. type of drive.

(4) *Hoistway:*

a. the construction, specification and dimension;

b. location of limit switches and all other safety devices.

(5) *Car, Cage and Platform:*

a. specification materials and dimensions;

b. side and front views of the car sizes of frameworks, doors, gates, sill, floor and top emergency exits;

c. ventilation, handrails, guides, tracks, hangers, bumpers, slack devices and controllers;

d. car safety devices and platform guards.

(6) *Governor:*

a. the specifications, dimensions and materials;

b. type, speed and governor marking plate.

(7*) Counterweight:*

a. dimensions, materials and specifications;

b. the counterweight safety devices, enclosures, guards, guides and sheaves;

c. the rope, the rods and frames.

(8) *Buffers, Bumpers, Cars and Counterweights*

a. the type and location;

b. the construction, materials and specifications;

c. the factor of safety and buffer marking plate or rating plate.

(9) *The Pits:*

a. The dimensions and constructions;

b . access to pit, light, drainage and guards between adjacent pits.

(10*) Cables, Hoisting and Suspension Ropes:*

a. the size, material and number of cables;

b. tensile stress, factor of safety number of strands, number of wires per strand, lay weight per m. and size of the driving drum.

(11) *Design Computation:*

The minimum rate load, speed, factor of safety, weight of counterweight, stresses in car frame, platform frames, tripping speed of governor, stopping distance for car and counterweight safety devices and impact on buffer supports.

(12) *Clearance of Cars and Counterweights:*

a. the top and bottom car clearance;

b. the top counterweight clearances;

c. the maximum bottom runby;

d. the clearance between car and hoistway, enclosures,

e. the clearances between the car and counterweight frame;

f. the clearances between car in multiple hoistway and landing sills, and

g. the clearance between loading side of car platform and hoistway enclosures.

RULE 1230

IDENTIFICATION OF PIPING SYSTEM

1230.01: Scope:

This Rule shall provide a common code to assist in the proper identification of materials conveyed in piping systems.

This Rule shall cover only the identification of piping systems in industrial and power plants. It does not cover pipes buried in the ground.

1230.02: Standard Requirements:

Specifying the contents of piping system shall be primarily on the basis of stenciled or lettered legends. Use of color as a means of specifying the type of material conveyed in a piping system shall be in conformity with the provisions of this Standard. Relatively, for the purpose of uniformity and to lessen the chances of error, confusion or inaction especially in times of emergency, Article 11.4, Chapter XI of the Philippine Society of Mechanical Engineers Code, in accordance with its latest edition, is hereby adopted

1230.03: Definitions:

(1) "*Piping Systems*" shall include conduit for the liquids, semi-liquids, but not solids carried in air or gas.

In addition to pipes of any kind, fittings, valves and pipe coverings are included. Supports, brackets, or other accessories are specifically excluded from the application of this Standards.

(2) "*Fire Protection Materials and Equipment*" shall include sprinkler system and other fire-protection equipment The identification of this group of materials may also be used to identify or locate such equipment as alarm boxes, extinguishers, fire blankets, fire doors, hose connections, hydrants and other fire-fighting equipments.

(3) "*Dangerous Materials*" shall include materials which are hazardous to life or property because they are easily ignited, toxic, corrosive, at high temperatures and pressures, productive of poisonous gases or are in themselves poisonous. It also includes materials that are known ordinarily as fire producers or explosives.

1230.04: Methods of Identification of Contents of Piping System:

(1) "*Positive Identification*" of contents of piping systems shall be primarily on the basis of stenciled or lettered legends giving the name of content in full or abbreviated form in accordance with Table 25 C. Where it is desirable or necessary to give supplementary information such as hazard or use of the piping system content, this may be done by additional legend or by color applied to the entire piping system, or as colored bands. Legends may be placed on colored bands. (See figure 20.)

(2) "*Identification by color or by colored bands*" which are supplementary to the use of legends shall be installed at frequent intervals on straight pipe runs (sufficient to identify), close to all valves, and adjacent to all change-in-directions, or where pipes pass through walls and floors. The color identification may be accompanied by use of decals or plastic bands which are made to conform with the standards. If desired, the entire length of the piping system may be painted with the color.

1230.05: Visibility:

Attention shall be given with reference to pipe markings. Letterings on overhead pipe above normal line of operators' vision shall be placed below the horizontal center line of the pipe (See Figure 20.)

1230.06: Location of stenciled or lettered legends:

In certain types of plants, it may be desirable to label the pipes at junction points or points of distribution only, while at other locations the markings may be installed at necessary intervals all along the piping, close to valves and to change-in-direction.

1230.07: Type and Size of Letters for Stencils:

The standard sizes for letters in the use of stencils shall be from 13 to 89 millimeters in height.

Tags shall be used for identifying pipes with less than (3/4") 19 millimeters in diameter. The lettering or the background shall be in standard color. (See Table 25-d)

In cases where it is decided to paint the entire piping, the color and sizes of legend letters stenciled on the piping for identification of materials conveyed should conform to the specifications. (See Tables 25 a and 25 b).

RULE 1410

CONSTRUCTION SAFETY

1411: Definitions:

When used in this Rule, the following shall have their meanings except when otherwise provided:

(1) "*Sheathing*" shall mean the vertical member of shoring and timbering which directly resists pressure from side of an excavation.

(2) "*Wale*" shall mean the longitudinal member of shoring and timbering which directly resists pressure from sheating.

(3) "*Strut*" shall mean the transverse member of shoring and timbering which directly resists pressure from sheating or wales.

(4) "*Scaffold*" shall mean a temporary structure of timber or metal work with a platform used in the construction, alteration or demolition of a building, or other maintenance work used to support workers or to allow the hoisting and lowering of workers, their tools and materials.

(5) "*Standard or Upright*" shall mean the vertical member of scaffold transmitting the load to the ground or to a base plate.

(6) "*Ledger or Stringer*" shall mean a scaffold bracing, which extends horizontally from standard to standard forming right angles with the putlogs and forms a tie between the standards.

(7) "*Putlogs " or "Bearer*" shall mean a scaffold member spanning between a ledger and a building wall or between two ledgers upon which the platform rests.

(8) "*Brace*" shall mean a scaffold member that holds standards or uprights in a fixed position to prevent any lateral movement.

(9) "*Single Scaffold*" shall mean a platform supported by a single row of uprights or standards tied along the wall, connected horizontally by a ledger and supporting putlogs which rests on ledger on one side and in holes left in walls on the other.

(10)"*Double Scaffold*" shall mean a platform supported on two rows of uprights or standards parallel to the wall of a building connected by horizontal ledgers and is independent from the building wall.

(11)"*Suspended Scaffold*" shall mean a scaffold suspended by means of ropes or chains capable of being lowered or raised by winch, pulley, block or such other means.

(12)"*Trestle Scaffold*" shall mean scaffolds in which the supports for the platform are step ladders, tripods or similar movable contrivances.

(13)*"Hoist*" shall mean a lifting machine with a carriage, platform or cage which moves on guides.

(14)"*Lifting Appliance"* shall mean a crab, winch, pulley block or gin wheel used for raising or lowering a hoist crane, sheer legs excavators, draglines, pile driver, or pile excavators.

(15)"*Lifting Gear*" shall mean a chain sling, rope sling, ring, link, hook, shackle, swivel or eyebolt.

(16)"*Mobile Crane*" shall mean a crane capable of traveling under its own power.

(17)*"Plant or Equipment*" shall include any plant equipment gear, machinery, apparatus or appliances, or any part thereof.

1412. General Provisions

1412.01: Health and Safety Committee:

At every construction site there shall be organized and maintained a Health and Safety Committee conforming with Rule 1040 and a medical and dental service conforming with Rule 1960.

1412.02: Alternative Methods and Materials:

In the application of this Rule, the construction, composition, size, and arrangement of materials used may vary provided that the strength of the structure is at least equal to that herein prescribed.

1412.03: Electrical:

Before any construction is commenced, and during the construction, steps shall be taken to prevent danger to the workers or operating equipment from any live electric cable or equipment either by rendering the cable or apparatus electrically dead or by providing barriers to prevent contact.

1412.04: Machine Guarding:

All moving parts of machinery used shall be guarded in accordance with the requirements of Rule 1200.

1412.05: Fire Protection: -

(1) Fire Protection equipment shall be, provided in accordance with the requirements of Rule 1940.

(2) Permanent stand pipe installed in a construction site shall:

a. be installed progressively as the construction work proceeds.

b. be provided with a valve at every hose outlet.

c. have a hose outlet to which is connected a hose that is:

i. at least 4 cm. (1 1/2 in.) in diameter,

ii. equipped with a combination straight stream and fog nozzle, and

iii. installed in all storeys in locations where every part of the budding shall be protected by a hose having a length of not more than 25 m. (75 ft.)

d. have a connection of the size used by the local fire department:

i. located on the street side not more than 1 m. (3 ft.) and not less than 0.33 m (1 ft.) above the ground level.

ii. to which there must be a clear access at all times, and

iii. protected from mechanical damage.

1412.06 : Lighting of Work Areas:

Every work-area and approach thereto, every place where raising or lowering operations with the use of a lifting appliance are in progress, and all openings dangerous to workers, shall be lighted with the minimum requirements provided in Rule 1210.

1412.0 7 : Lifting of Weights:

For continued lifting, a male worker shall not be made to lift, carry or move any load over fifty kilograms (50 kgs.) and female workers over twenty-five kilograms (25 kgs.). Weights over these shall either be handled by more than one worker or by mechanical means.

1412.08: Pipelines:

Repair work on any section of a pipeline under pressure shall not be undertaken until the pipeline is released of the pressure or the section under repair is blocked off the line pressure to ensure that no worker will be endangered.

1412.09: Protection of the Public:

A safe covered walkway shall be constructed over the sidewalk for use by pedestrians in a building construction work less than 2.3 m. (7 ft.) from a sidewalk or public road.

*1412.10: Protection from Falling Mate*rials:

(1) Steps shall be taken to protect workers from falling materials, such as the provision of safety helmets and safety shoes.

(2) Tools, objects and materials (including waste materials) shall not be thrown or tipped from a height, but shall be properly lowered by crane, hoist or chutes. If such is not practicable, the area where the material is thrown or lowered shall be fenced and no person allowed in the fenced area.

1412.11: Protruding Nails and Loose Materials:

(1) Material or lumber with protruding nails shall not be used in any work or be allowed to remain in any place where they are a source of danger to the workers.

(2) Loose materials shall not be placed or left on working platforms, gangways, floors or other workplaces but shall be removed, stacked or stored not to obstruct passage. Materials shall not be stacked in a manner causing danger to the workers or overload and render unsafe any platform, gangway, floor, roof or other part of a building or structure.

1412.12: Protection against Collapse of Structure:

(1) All temporary structure shall be properly supported by the use of guys, stays, and other fixings necessary for stability during construction.

(2) Where construction work will likely reduce the stability of an existing or adjacent building shoring shall be undertaken to prevent the collapse or fall of any part of the structure.

1412.13: Safe Means of Access:

Safe means of access and egress shall be provided and maintained to and from every place where work is undertaken.

1412.14: Storage of Materials:

(1) Building materials and equipment shall not be placed or stored on a permanent or temporary structure exceeding its safe load carrying capacity.

(2) Lumber structural steel and similar building materials shall be properly stored and secured against collapsing or tipping. Cross pieces shall be used in a pile of lumber more than I m. (3 ft.) high.

(3) Pipes and reinforcing steels shall be stacked in racks or frames supported to prevent movement.

(4) Gangways and platforms shall not be used as storage for materials and tools.

1412.15: Storage of Cylinders:

Compressed gas cylinders shall be stored in upright position protected against heat and overturning and when not in use, the control valves shall be covered by protective caps screwed to proper positions.

1412.16: Traffic Control..

In construction sites where a worker's safety is likely to be endangered by a vehicular traffic, flagmen, warning signs, barriers or lane control devices shall be installed.

1412.17: Vehicular Loading:

No person shall remain on or in a vehicle during loading or unloading except those required to be there and only when all necessary protection against hazards are provided.

1412.18: Vehicle Driving:

No person shall operate any vehicle or equipment in a construction site unless he has adequate training and experience to operate such vehicle or equipment and is authorized by his immediate supervisor.

1412.19: Internal Combustion Engine:

No internal combustion engine shall be operated in an enclosed area unless:

(1) the exhaust gases or fumes are discharged directly outside to a point where the discharge gases or fumes cannot return to the enclosure.

(2) the place is ventilated to protect workers from exhaust gases.

1412.20: Personal Protective Equipment:

Personal Protective equipment as required in Rule 1080 shall be provided the workers.

1412.21: Other Standards:

The provisions of this Rule are minimum requirements and any other regulation of other government authority of the same nature but with higher numerical values prevail.

1413: Excavation:

1413.01: Shoring and Timbering:

(1) The walls of every excavation over 1 m. (3 ft.) deep shall be supported by adequate shoring and timbering to prevent collapse, provided that this shall not apply to an excavation:

a. in which a worker is not required to enter for any purposes.

b. cut in solid rock.

c. the walls are sloped to forty-five degree (45) angle from the vertical or cut to the angle of repose.

d. in which a worker is engaged in timbering or other work for the purpose of compliance with this Rule if precautions are taken to ensure his safety.

(2) Shoring or timbering in excavation over 6.6 m. (29 ft.) deep and those installed to prevent the movement, collapse of an adjacent structure shall be designed by a structural engineer and approved by the proper authority.

(3) No excavation in an adjacent building or structure shall be undertaken unless steps are taken to prevent danger to workers.

(4) Before shoring or timbering, the walls of an excavation shall be stripped of loose rocks or other materials that might slide, roll or fall on workers.

(5) Every excavation over 1 m. (3 ft.) shall be kept free of water at all times.

1413.02: Minimum Berm:

(1) Excavated material shall be kept from the edge of the excavation to provide a clear berm of a distance not less than one third of the depth of the excavation.

(2) Where the disposal area is limited, a berm of reduced width of not less than 1 m. (3 ft.) may be allowed, provided the materials being excavated are stable, the shoring is designed to carry the additional load, and barriers are provided to prevent roll back of the excavated materials.

1413.03: Tools Materials and Machinery:

(1) Tools or materials shall be kept a minimum of I m. (3 ft.) away from the edge of the excavation to prevent their being knocked down into the excavation.

(2) No vehicle or other machinery shall be driven, operated or located near the edge of an excavation at least a distance one-third (1/3) of its depth.

1413.04: Provision for Barricades.

The top of the walls of an excavation more than 2.0 m. (6 ft.) deep shall be barricated to a height of at least I m. (3 ft.) to prevent the fall of workers.

1413.05: Means of Access and Escape:

(1) Every excavation over I m. (3 ft.) deep shall be provided with means of access and escape in case of flooding or collapse of the excavation work.

(2) Every excavation shall have at least one (1) ladder in every 16.6 m. (50 ft.) of length or fraction thereof, of a length, which shall extend at least 0.83 m. (2'6") above the top of the excavation to provide a firm handhold when stepping on or off the ladder.

1413.06: Inspection and Examination of Excavation:

Every part of an excavation over 2 m. (6 ft.) deep where workers work shall be inspected by the person in charge at least once everyday.

1413.07: Supervision and Execution of Timbering and other Work:

(1) Timbering or support for any excavation shall be erected, added, altered or dismantled only under the direction of the project supervisor.

(2) Timbering and other support for any excavation shall be of good construction, sound materials, and of adequate strength for the purpose for which it is used and properly maintained,

(3) All struts and bracings shall be properly secured to prevent displacement.

(4) Timber giving off toxic saps or substance soluble in water shall not be used for timbering.

1413.08: Harmful Dust, Gases, Fumes:

(1) When harmful dusts, gases and fumes are present in an excavation to such a degree hazardous to the safety and health of the workers, all measures shall be taken either by exhaust ventilation or by other means to free the area of such contaminants.

(2) Internal combustion engine shall only be operated in an excavation when provision is made to ensure that the exhaust gases and fumes are rendered harmless or discharged to a point away from the excavation.

1413.09: Sizes and Spacing of Members:

Sheating shall not be less than 5 cm. x 15 cm. (2" x 6") in section, wales not less than 10 cm. x 15 cm. (4" x 6") in section and struts not less than 10 cm. x 15 cm. (4" x 6") in section; the length, section and spacing of timbering members shall be designed considering the nature of soil, depth and the surroundings.

1414: Scaffoldings:

(1) Every scaffold shall be of good construction of sound materials and strength for the purpose for which it is intended.

(2) Timber used for scaffolds shall be in good condition, the bark completely stripped off, and not painted or treated in any manner that defects cannot be easily seen.

(3) All materials and parts of scaffold not in use or intended for re-use shall be kept under good condition and separate from other materials unsuitable for scaffolds.

(4) Timber/bamboo scaffoldings shall be limited to a height of 20 meters from the ground or base provided that, over a height of 10 meters, the scaffolding and all other installations constructed over the scaffolding shall be designed by a structural engineer and duly approved by the appropriate authority.

(5) At heights over 20 meters, structural metals should be used designed by a structural engineer and duly approved by the appropriate authority;

(6) Structural steel when used as load bearing members of scaffolding shall be destressed at welded or bent joints and design construction approved by the proper authority.

1414.01: Maintenance of Scaffolds:

(1) All scaffolds shall be properly maintained and every part shall be kept, fixed and secured in position to prevent displacement.

(2) No partly dismantled scaffold shall be used unless it is rendered stable, strong and safe for the purpose.

(3) Scaffoldings left standing for four (4) months shall not be used until damaged members are replaced and the whole structure returned to its original strength.

1414.02: Supervision and inspection of Scaffolds:

(1) Scaffold shall be erected, added, altered or dismantled only under the supervision of the person in charge of the construction.

(2) All materials used in any scaffold shall be inspected before use.

(3) Lumber with two (2) nail holes aligned crosswise or four (4) nail holes along its length shall not be used as horizontal load bearing member of scaffolds.

1414.03: Strength and Stability of Scaffolds:

Every scaffold shall:

(a) be capable of supporting twice the maximum load to which it may be subjected without exceeding the allowable unit stresses of the materials used;

(b) have all standards diagonally and horizontally braced to prevent lateral movement; and

(c) have no splices between the points of support of horizontal members and secured to prevent lateral movement.

1414.04: Construction of Timber Scaffolds:

(a) In single scaffold, the standard shall be placed at 1.18 to 2.43 meters (4 to 8 ft.) apart at a distance of 1 m. (3 ft.) from the wall, connected horizontally by ledgers spaced vertically at 1.51 m. (5 ft.) to 1.81 m. (6 ft.) on centers. Putlogs shall be placed in the holes left in the walls.

(b) The size of the standard shall not be less than 8.9 cm. (3 in.) in diameter or its equivalent and when it is necessary to extend a standard, the overlaps shall not be less than 60 cm. (23 in.),

(c) In double scaffold, the outer row shall be at a distance of 1.22 to 1.32 m. from the wall. The putlogs shall rest entirely on the ledgers. In addition to the diagonal braces, inclined supports shall be provided to prevent the scaffold from leaning away from the wall. The supports shall be strutted at intermediate heights against the standards.

(d) The size of the standards for double scaffold shall not be less than 10 cm. in diameter or its equivalent and when it is necessary to extend a standard the overlap shall not be less than 15 cm.

(e) Ledgers, standards and putlogs shall be securely fastened by bolts, dogs, or ropes.

(f) The distance between two consecutive putlogs shall be designed with due regard to anticipated load and the nature of the platform flooring. As a minimum rule, the spacing shall be as follows:

for 3.2 cm. thick planks, spacing shall not exceed I m. for 3.8 cm. thick planks spacing shall not exceed 1.5 m.

(g) The displacement of the foot of the standard shall be prevented either by sinking it into the ground or by fixing it on a base plate.

1414.05: Types of Scaffolds:

(1) Traveling scaffold shall ;

(a) be of stable construction and weighted at the base to prevent overturning,

(b) be used only on firm and even surface,

(c) be securely braced,

(d) not be moved when any worker is on the scaffold,

(c) be moved only from or near the base,

(2) Suspended scaffold shall not be uses unless:

(a) the fixed support or outriggers to which it is attached are capable of supporting at least four (4) times the maximum load to which they may be subjected without exceeding the allowable unit stresses of the material used;

(b) the platform is at least 25 cm. wide, suspension points shall not be more than 3 m, apart, and provided with devices to keep the platform at a distance from the wall to allow working in sitting position.

(c) when suspended scaffold is raised or lowered, it shall have rope pulls equipped with pulley blocks, and mechanical hoisting equipment with a positive device to prevent the scaffold from falling freely.

(3) cantilever, jib, figure and bracket scaffolds:

(a) every cantilever or jib scaffold shall be properly supported, fixed and anchored on opposite side of the supports, have outrigger of designed strength and properly strutted or braced to ensure rigidity and stability.

(b) Figure or bracket scaffold shall not be supported or held by dogs, spikes or similar fixing devices that will pull out.

(4) Skips, brackets, boatswain chair:

(a) Skip, bracket, basket and boatswain chair shall not be used as substitute for a suspended scaffold unless the work is of such short duration and the work is under the supervision of the person responsible for the construction.

(b) No skip, bracket, or basket shall be used as a suspended scaffold unless it is:

i. at least 76 cm. deep and

ii. either constructed of metal or carried by two strong bands of metal fastened around the sides and bottom.

(5) Ladder Scaffolds or Ladder jack Scaffolds:

A ladder scaffold shall be used only when:

(a) the work is of such light nature and the material required for the work is light and can be hung on the ladder.

(b) the distance between the ladders of the scaffold is less than 3 m.

(6) Trestle Scaffolds:

(a) Trestle scaffolds shall not be used if the working platform is more than 5 m. from the ground or floor or other surface upon which the scaffold is erected.

(b) A trestle scaffold shall not be erected on a scaffold platform unless:

i. the platform is sufficiently wide for the transport of materials,

ii. the uprights are firmly attached to the platform and braced to prevent displacement, and

iii. designed by structural engineer and approved by the proper authority if erected on a scaffold 10 meters or over in height.

(c) No trestle scaffold shall be erected on suspended scaffold.

(7) Outrigger Scaffold:

An outrigger scaffold shall have:

(a) its platform within 8 cm. from the wall and

(b) shall have outrigger secured against horizontal and vertical movements.

(8) Bamboo Scaffold:

Bamboo scaffold may be used for painting or light construction work constructed and maintained.

(a) the material and construction shall be sufficient to carry at least four (4) times the imposed load,

(b) only one worker shall be allowed in any one span;

(c) the maximum span between posts shall be 266 cm. (8 ft.)

(d) when the height or fall is over 6.6 in. (20 ft.), the use of safety belt shall be required;

(e) when erected over a height of 10 meters (30 ft.), the design shall be by a structural engineer approved by the proper authority and construction shall be under expert supervision, and

(f) the maximum height allowed is 20 meters (60 ft.)

1414.06: Platform, Runways, Ramps and Stairs:

(1) All working platforms, runways and ramps from which workers are liable to fall a distance of more than 2 m. (6 ft.) shall be:

(a) for platform with minimum width of 70 cm. (28 in.) the runways and ramp shall be 45 cm. (18 in.) and if runways are used for the passage of materials, the width shall not be less than 70 cm. (28 in.).

(b) provided with strong guard rails up to a height of 91 cm. (35 in.) above the working surface and toeboards of at least 20 cm. (8 in.) in height.

(2) The following shall be the minimum width of platform for various types of scaffolds:

(a) When the platform is not more than 2 m. (6 ft.) above the ground floor:

i. for painters, decorators and similar types of workers, 30 cm. (12 in.);

ii. for all other types of workers and tools, 50 cm. (20 in.)

(b) When the platform is more than two 2 m. (6 ft.) above the ground or floor:

i. for men, tools and materials, I m. (3 ft.)

ii. for men, tools, materials and vehicles, 1.5 m. (5 ft.)

(3) Every platform, runway, ramp or stairs shall be kept free from any obstruction, materials, rubbish and projecting nails. When they become slippery due to the nature of work, steps shall be taken by way of sanding, cleaning or by any other means to roughen the surface.

(4) Supporting members used in the construction of platforms, runways, ramps and stairs shall be securely fastened and braced. The supporting members shall be placed in a firm and rigid foundation to prevent lateral displacement.

(5) The uniformly distributed minimum design load of platform, runway, ramp or stair shall be 650 kg./sq. m. (133 lbs./sq. ft.). The stress due to concentrated loads at any point in the floor shall not exceed those

caused by the uniformly distributed load used in the design. Planking used shall not be less than 3 cm. (2 in.) thick.

(6) A scaffold platform shall not project beyond its end support to a distance exceeding four (4) times the thickness of the plank, unless secured to prevent tipping.

(7) All planks, platforms, runways and ramps shall be fixed and supported to prevent sagging and moving.

(8) Slope of runway or ramp shall not exceed 2 in 3.

(9) When the slope of runway or ramp requires additional foothold using stepping laths,

they shall:

i. have a minimum section 5 x 8 cm. (2 in. x 3 in.) placed at maximum intervals of 46 cm. (18 in.) on centers;

ii, extend to the full width of the runway or ramp except that they may be interrupted over a width of not more than 10 cm. (4 in.) to facilitate the passage of barrows.

1415: Construction Equipment:

1415.01: Lifting Appliances:

(1) Every lifting appliance including working gear and all other plant equipment used for anchoring or fixing shall:

a. be of good mechanical construction, of sound material and adequate strength for the load it will carry;

b. be properly maintained and inspected at least once a week and the result of such inspection shall be recorded in a log book maintained by the employer or user of the equipment, open to enforcing authority.

(2) Any anchoring or fixing arrangement provided in connection with a lifting appliance shall be adequate and secure to hold the imposed load.

1415.02: Brake Controls and Safety Devices:

(1) Every crane, crab and winch shall be provided with a brake to prevent the fall of the load and to control operation when the load is lowered.

(2) Every handle or lever of a lifting appliance provided for controlling its operation shall be provided with suitable locking arrangement to prevent its accidental movement.

(3) Every lever or handle provided for controlling the operation of a lifting appliance shall have upon it clear marking to indicate purpose and mode of operation.

1415.03: Protection of Crane Driver:

(1) Platform for crane drivers and signalers shall be:

(a) of sufficient area,

(b) closely planked, plated and

(c) provided with safe means of access and egress.

(2) Every side of a platform more than 2.16 meters (6.5 ft.) high shall be provided with guard rails and toeboards.

(3) The driver of every power driven lifting appliance shall be provided with a cabin which shall:

(a) afford protection from the weather and falling objects, and

(b) be constructed to afford ready access to operating parts of the lifting appliance within the cabin and shall be periodically inspected and maintained.

1415.04: Anchorage and Load Test of Cranes:

(1) When lifting appliances are used on soft or uneven ground or on a slope, adequate measures shall be taken to ensure their stability or undue movement.

(2) No crane shall be used for raising or lowering loads unless:

(a) it is securely anchored;

(b) adequately balanced by a weight properly placed and secured ;

(3) Every crane after erection altered or any kind of change shall be tested by the contractor/supervisor with the imposition either:

(a) of a load of twenty-five per cent (25%) above the maximum load to be lifted by the crane as erected at the position when the maximum pull is applied on each anchorage, or

(b) of lesser load arranged to provide an equivalent test of the anchorages or balancing arrangements.

(4) A report of the test shall be recorded in a log book to be maintained by the employer.

(5) The maximum load allowed shall be affixed in a place where it can be readily be seen by the crane operator.

(6) No crane shall be used or erected under conditions likely to endanger stability.

1415.05: Drums and Pulleys:

Every chain or rope that terminates at the winding drum of a lifting appliance shall be properly secured thereto and at least two turns or such chain or rope shall remain on the drum in every operating maximum end position of the appliance.

1415.06: Cranes and Derricking Jibs:

(1) When the derricking jib of a crane is operated through a clutch, there shall be an effective inter-locking arrangement between the derricking drum in such a way that the clutch cannot be operated unless the pawl is ineffective engagement with the derricking jib and the pawl cannot be disengaged unless the clutch is in effective engagement with the derricking drum. This requirement shall not apply when the derricking drum is independently driven and the mechanism driving the derricking drum is self-locking.

(2) The hosting mechanism of a crane shall not be used to pull the load sideways unless it is ascertained that no undue stress is imposed on the crane structures and its stability is not endangered.

1415.07: Crane Operation and Signaling:

(1) A lifting appliance shall not be operated other than by a person trained, competent, physically fit, and authorized to operate the appliance.

(2) When the operator of a lifting appliance has no clear and unrestricted view of the load for safe working, there shall be appointed one or more signal men to give the necessary signals to the operator.

(3) Every signal given for the movement or stopping of a lifting appliance shall be distinctive in character and the person to whom it is given is able to hear or see it easily.

1415.08: Safe Working Loads:

(1) Safe working loads shall be plainly marked on every lifting appliance and in case of a crane with variable operating radius, safe load at various radii of the jib shall be marked on the jib displayed in the driver's cabin or fitted with an automatic safe load indicator.

(2) In every derricking jib, the maximum radius at which the jib may be worked shall be plainly marked on it.

(3) No lifting appliance shall be loaded beyond its safe working load.

1415.09: Guy Derrick Cranes:

(1) The jib of guy derrick cranes shall not be erected between the back stays of the crane.

(2) Measures shall be taken to prevent the foot of the king post of any derrick crane from being lifted out of its socket.

1415.10: Testing and Examination of Lifting Appliances:

(1) No lifting appliance shall be used unless it has been tested and examined thoroughly initially and every year thereafter by a competent person by way of his training and experience in such work.

(2) No lifting appliance which has undergone substantial alteration or repair affecting its strength or stability shall be used unless it is tested and thoroughly examined by a competent person.

1415.11: Hoist:

Every hoistway shall be efficiently protected by enclosures and when access to the hoist is necessary, it shall be fitted with gates. Such enclosures and gates shall extend to 2.16 m. (6' 6") except when lesser height is sufficient to prevent the fall of persons and where there is no risk of any worker coming in contact with any moving part of the hoist, but shall in no case be less than 2.16 m. (6' 6").

1415.12: Marking of Safe Working Loads on Hoist:

The safe working load or the number of persons that can be carried in a hoist shall be plainly marked on every platform or cage of the hoist. A notice prohibiting overloading of the hoist shall be placed on the platform or cage of the hoist.

1415.13: Operation of Hoist:

(1) Hoist for the carriage of goods and materials shall be of such construction that it is operated outside of the cage unless the doors of the cage and the enclosure are of the interlocked type.

(2) Hoist for the carriage of persons shall have the doors of the cage and enclosure of hoistway of interlocked type and the cage completely covered and fitted with overrun devices.

1415.14 : Carriage of Persons by Means of Lifting Appliances:

No person shall be raised, lowered or carried by a power driven lifting appliance except:

(1) on the driver's platform in case of a crane or a hoist, or

(2) on an approved suspended scaffold, or

(3) when the use of hoist or suspended scaffold is not reasonable, provided that:

(a) the appliance can be operated from one position only;

(b) the winch used is so constructed that when control lever or switch is not held in operating position, brake is applied and disengages from pawl and ratchet gears; and

(c) no person is carried except in:

(i). a chair or cage, or

(ii). a safe skip or other receptacle at least 1 m. (3 ft.) deep, and

(iii) measures are taken to prevent the chair, cage, skip or receptacle from spinning or tipping in a manner dangerous to any occupant.

1415.15: Test and Examination of Hoists:

(1) After erection or alteration, every hoist shall be tested and examined every six (6) months by a competent person and the result of such tests and examination shall be recorded in a logbook maintained for the purpose.

(2) The logbook shall be made available for inspection by the enforcing authority.

1415.16: Chains, Ropes and Lifting Gears:

(1) No chain, rope or lifting gear shall be used unless:

(a) it is of good construction, sound material, of adequate strength, suitable quality and free from potent defects.

(b) it has been tested and examined by a competent person specifying the safe working load.

(2) No wire rope shall be used for lifting and lowering of any load if in any 10 meters length the total number of visible broken wires exceed five percent of the total number of wires in the rope.

(3) No chain, rope of lifting gear shall be loaded beyond its safe working load except for the purpose of testing.

(4) No chain, ring hook, link, clamp, shackle, swivel or eyebolt altered or repaired by welding shall be used unless it is tested and examined and its working load specified in the test.

(5) Hooks for missing or lowering of load shall have devices to prevent displacement of sling or load.

(6) No double or multiple sling shall be used if the upper ends are not connected by means of shackle, ring or link of adequate strength or the safe working load is exceeded.

(7) Chains with knots or chains shortened by means of bolts and knots inserted through the links or by welding shall not be used.

(8) No chain, rope or lifting gear shall be used unless it is thoroughly examined by a competent person at intervals of six (6) months and the result of examination recorded in a log book maintained for the purpose open for inspection by the enforcing authority.

(9) A chain or lifting gear shall not be used unless it is annealed or heat treated as required by the manufacturer.

1416:Plant and Equipment:

(1) When the operator of a power driven crane, shovel forklift truck, front end loader and similar machinery is exposed to overhead hazards, a cab, screen or other overhead protection shall be provided.

(2) When any equipment or part thereof is being dismantled, or repaired and a worker maybe endangered by the collapse or movement of the equipment, blocking shall be installed to prevent collapse or movement.

(3) When a worker is endangered by the rotation or uncontrolled motion of a load being hoisted by a crane or similar hoisting machine, one or more guide ropes or tag lines shall be used to prevent rotation on uncontrolled motion.

(4) A friction type clamp used in hoisting materials shall be constructed in a manner that accidental slacking of the hoisting cable will not release the clamp.

(5) When the operator of a shovel or similar machine is obstructed in the view of the path of travel of any part of the shovel or similar machine, one or more signal men shall assist the operator by:

(a) keeping that part of the shovel or similar machine under observation when it is out of view of the operator, and

(b) communicating with the operator using prearranged signals or where these signals are impracticable, by audible communication system.

(6) Every lifting jack shall:

(a) have its rated capacity legibly cast or stamped in plain view on the jack, and

(b) be equipped with a positive stop to prevent over travel or where a positive stop is impracticable, it shall be provided with a device indicating maximum allowable travel.

(7) Where a vehicle, crane, machine or other equipment is driven in reverse in a location where a worker or the operator may be endangered, operation shall be directed by another worker who shall be stationed in full view of the operator and the path of travel.

(8) An unattended vehicle parked on sloping ground or adjacent to an excavation shall have its brakes applied and the wheels blocked to prevent movement.

(9) A hose supplying steam or air to a hammer or a pole driver or to a drill carriage shall have attached thereto a wire, rope or chain to prevent the hose from whipping.

(10) Piles or sheet piling shall be adequately supported at all times during hoisting, phasing, removal or withdrawal and no worker who is not directly engaged in such operation shall be in the area where the operation are being carried out.

1417: Demolition:

1417.01:

All demolition operations of building or other structure over six (6) meters high shall be under supervision of a competent person. No person except the workers who are directly engaged in the demolition shall enter a demolition area to within a distance equal to 1 1/2 times the height of the structure being demolished, where this distance is not possible the structure shall be fenced around and no unauthorized person shall be allowed within the fenced area.

1417.02: Demolition Work:

(1) On every demolition work, danger signs shall be posted around the structure and all doors and opening giving access to the structure shall be kept barricaded or guarded.

(2) Demolition work shall not commence until:

(a) all necessary steps have been taken to prevent injury to any person or damage to adjoining property, and

(b) all existing gas, electrical and other services likely to endanger a worker shall have been shut off or disconnected.

(3) Prior to demolition all glass shall:

(a) be removed from windows and other locations, or

(b) otherwise shall be protected so that there is no possibility of breakage at any stage of the demolition.

(4) Shoring or other necessary measures shall be taken to prevent the accidental collapse of any part of the building or structure being demolished or any adjacent building or structure endangering the workers.

(5) Demolition shall proceed systematically, storey by storey, in a descending order and the work on the upper floors shall be completely over before removing any of the supporting members of the structure on the lower floor. This shall not prohibit the demolition on section, in the same descending order if means are taken to prevent injury to workers and damage to property.

(6) All precautions shall be taken to avoid damage from collapse of a budding being demolished or any part of it when any part of the framing is removed from a framed or partly framed building.

(7) No building or any part of the structure shall be overloaded with debris or materials to render it unsafe and hazardous to persons working.

(8) Adequate precautions shall be taken to avoid danger from any sudden twisting, springing or collapse of any steel or ironwork cut or released.

(9) No workers shall stand on top of wall, pier or chimney more than six (6) meters (1 8 ft.) high unless safe flooring or adequate scaffolding or staging is provided on all sides of the wall, three (3) meters (9 ft.) away from where he is working.

(10) A truss, girder, or other structural member shall not be disconnected until it has been:

(a) relieved of all loads other than its own weight, and

(b) provided with temporary supports.

(11) Stairs and stair railings, passageways and ladders shall be demolished last.

(12)When demolition is suspended or discontinued all access to the remaining part of the building shall be fenced or barricaded.

1418.00: Mechanical Demolition:

The demolition area where work is done by mechanical devices such as weight balls or power shovels shall:

(a) be barricaded for a minimum distance of 1 1/2 times the height of the structure.

(b) not allow entrance of unauthorized persons.

(c) arranged and maintained so the mechanical devices used shall not cause any damage to adjacent structures, power lines or public road.

1419.00; Explosives:

1419.01: Supervision:

(1) A competent person shall be appointed in charge of and personally present at a blasting operations who shall supervise the fixing of all charges and other blasting, activities.

(2) The names of persons designated to handle, transport, prepare or use dynamite or other high explosives shall be posted in the field office and on or in the magazine.

(3) No person inexperienced in handling dynamite or other high explosives shall handle, transport, prepare or use dynamite, unless the inexperienced person work under the personal supervision of a person with experience in blasting operations.

(4) A record of explosives received and used shall be properly maintained and open for inspection by the enforcing authority.

1419.0 2: Blasting:

(1) Only the quantity of dynamite required for immediate use in blasting of a part of a building or other structure shall be removed from the magazine.

(2) No holes shall be drilled:

(a) within 3.3 m. (10 ft.) of a hole containing explosives or blasting agents;

(b) within 6.6 m. (20 ft.) of a hole being loaded with explosives or blasting agents.

(3) Every firing circuit in connection with blasting operations shall be broken in a suitable manner at a safe distance from the blasting area.

(4) When a charge is fired, steps shall be taken to see that persons employed are in a position free from the explosives or from flying objects.

(5) The applicable provisions of Rule 1140 shall also apply to the use, handling, and storage of explosives in construction industry.

RULE 1420

LOGGING

1421: General Provisions:

(1) Every employer in the logging industry shall organize a safety committee in accordance with Rule 1040.

(2) Medical and dental services shall be provided in every workplace where logging operation is in progress in accordance with Rule 1960.

(3) All persons in charge of a work group or gang shall be trained first aiders.

(4) At every worksite there shall be provided adequate communication system and transportation in order to bring an injured person to a clinic or hospital for proper medical care.

1422: Handtools:

(1) Handtools shall be well maintained, restricted to the use for which they are intended and shall be issued to and used only by workers required and trained to use such tools.

(2) Impact tools which have mushroomed more than 0.6 cm. from the body of the tool shall be repaired or replaced.

(3) Only spikes or needles of the right quality, size and condition shall be used for splicing.

(4) Blasting or the use of powder actuated tools shall only be done by duly trained and authorized workers.

1423: General Logging Operations:

(1) No work shall be started or continued in timbered areas during periods of high winds, extremely heavy fogs and other hazardous weather conditions, or when vision is impaired by darkness unless adequate lighting facilities are provided.

(2) Safety shoes, hard hats and other protective equipment shall be provided by the employer when warranted by the type of work and by the hazards in which the workers are exposed.

(3) Non-slip materials shall be installed on all decks of machinery or equipment used by the workers in the performance of their duties.

(4) Imbedded metals or spikes shall be removed from logs before they are sent to the mills.

(5) After each shift or work period, a system to account for all workers returning from the woods shall be established and a daily report of these submitted to the immediate supervisor.

(6) All snags dangerous to any operation or activity shall be felled.

(7) Blocks, straps, clevises, lugs, lines, riggings, boilers, prime movers and other similar equipment shall be thoroughly inspected and the necessary repairs or replacement made before they are put to use. Only clevises or shackles of a screw pin or lock nut type shall be used for connections. Moving blocks shall be well greased.

(8) Cross cut or drag saws shall have the teeth shielded while being transported.

(9) Riding on rigging equipment is prohibited.

(10) All lines, block, loading and yarding equipment shall be of sufficient strength to safely withstand all imposed strains.

(11) Servicing of fuel tanks of gasoline fed equipment shall be done in an approved manner and no gasoline shall be handled in open containers. There shall be no open light or fire within 30 m (100 ft.) from the equipment during refueling or loading of gasoline or other flammable substances.

(12) Logging cars or trains carrying passengers shall not carry gasoline over 19 liters (5 gal.) outside of the regular fuel supply tank The allowable quantity shall be carried in especially made container with tight screw covers. Smoking or open lights shall not be allowed in cars carrying gasoline or other flammable substances.

(13) Logging trains carrying passengers shall not be coupled immediately behind or in front of logging trains carrying gasoline over 19 liters (5 gal.).

(14) Fellers shall be so located that they will not endanger other workers. In steep logging sites, one set of fellers shall not be located immediately on the slope from other fellers. Fellers shall not be allowed to work alone. The head feller shall at all times know the location of other workers and passing persons.

(15) When felling trees near a railroad trail or motor road, traffic shall be controlled to prevent accidents.

(16) Spring boards or chopping platforms shall be so designed to safely carry all workers and equipment and all wood materials used therein shall be sound and straight grained lumber.

(17) Before felling a tree, a way of escape shall be determined and this way shall be arranged and kept clear of any obstruction to permit a quick get-away of all workers.

(18) Undercuts shall be about 113 of the diameter of the tree. Two horizontal undercuts shall not be allowed unless the tree is sniped.

(19) After a back-cut is started, a tree shall not be left standing under any circumstances.

(20) The head feller shall warn all workers in the vicinity of a tree to be felled, indicating the direction of the fall and taking notice that all persons in the vicinity are out of reach of the falling tree or other trees which may be struck by the falling tree.

(21) All logs liable to roll while bucking shall be propped and the props shall be removed only after the logs are moved away.

(22) If there is danger in cutting through a log while bucking, a safe margin shall be left and the log distinctly marked to warn the rigging man.

1424: Use and Maintenance of Power Saws:

(1) Power saws shall be stopped when moved from tree to tree, adjusted or when the tree starts to fall

(2) The idler end of the bar of chain saws shall be adequately guarded.

(3) Every power saw shall be provided with a deadman grip.

(4) Every power saw shall be provided with a clutch which shall be maintained in good operating condition.

(5) Every electric power saw shall be grounded aid provided with a shut off switch.

(6) All electric cables of power equipment shall be disconnected during transfer from one place to another.

1425: Logging Engine:

(1) Only skilled and experienced workers shall be employed as logging engine operators.

(2) All logging engines shall be provided with sound signaling devices audible to all persons in the vicinity of the logging operations.

(3) Brake bands, drum and bearings shall be adequate for the type of service in which they are used.

(4) Ends of lines attached to drums shall be securely fastened. Ends of line aver 2.5 cm. (1 in.) shall be babbitted.

(5) Sleds of logging engine shall be designed and constructed to withstand moving. They shall be provided with sheds designed and constructed to withstand the whipping action of breaking lines.

(6) Head blocks and fair-leads shall be fastened with maximum number of four (4) bolts designed with a factor of safety of six (6).

1426: Logging Engine Operation:

(1) Sufficient rigging shall be set to avoid jerking of the logging engine. Insecure stumps used to hold the logging engine shall be tied back. Insecure trees used for holds shall be guyed.

(2) When holds are being changed, the logging engine shall be secured with a separate line if there is danger of it sliding.

(3) Sufficient rigging shall be used when snubbing logging engines down step grades and during this operation the mainline shall be used for snubbing and the haul back for pulling.

(4) Only the hook tender and the engine operator shall ride the logging engine when it is moved. A clear way of escape shall be provided for these workers riding in the engine.

(5) The high climber shall always be within sight or calling distance of another worker. He shall be well equipped with a safety belt, steel spurs, and steel cored climbing rope with an extra set of these equipment reserved in case of emergency.

(6) Running lines shall not be moved while the high climber is working in the trees except as he directs. All signals shall come from the high climber which shall be received and transmitted by an experienced worker assigned to the job. While the high climber is working in the tree, all other workers shall stay at a safe distance.

(7) Spar trees shall be provided with pass lines of from I to 1.5 cm. in diameter, in good condition without short or eye-to-eye splices or knots, and long enough for the purpose.

(8) Pass line equipment shall be properly maintained and inspected before placing in the trees. The bearing pin shall be of the type which will positively secure the nuts and pins. The chains shall be of at least 0.6 cm. (114 in.) of the best material without cold shuts or wire strands and attached to the end of the pass line with a clevis or ring.

(9) Spar trees shall be sound and of sufficient diameter to carry out the loads imposed on them. Spar trees used for loading or yarding shall be short enough to be rigid and the top guy wires shall not be more than 30 cm (12 in.) or less than 15 cm. (6 in.) from the top of the spar trees. Spar trees, except those belonging to the first, second or third group of timber shall be barked.

(10) Guy wires shall not be less than 2.5 cm. (1 in.) in diameter of plow steel or better material in good condition, and shall develop a factor of safety of three (3) under a load that will stall the engine.

(11) The minimum number of guy lines for logging operations shall be as follows:

OPERATION	TOP GUY	BUCKLE GUY
Logging and Yarding	6	4
Logging and Swinging	6	4
Loading only (head tree)	5	-
Loading only (tail tree)	5	-
Yarding only	5	3
Yarding with sky line		
Head tree	6	4
Tail tree	3	-

(12) Guy line shall be fastened to spar trees by means of shackles, hooks and slides, or other devices of similar construction equal in strength to the guy lines. The use of loops or wild eyes to attach guy lines is prohibited.

(13) Shackle pins shall be inserted head up and securely fastened with molles or cotter keys. The "U" part of the shackle shall be around the guy lines and the pins through the eyes. Only sleeve shackles shall be used to hang tree jack.

(14) Guy lines shall be passed alternately around the spar trees in opposite directions and shall be properly attached to the spar trees to prevent their falling when they are tightened.

(15) Extensions to the guy lines or sky lines shall only be by regular long splices equal in strength to the lines to which they are spliced or by shackles connecting two spliced eyes tucked at least three (3) times. The shackles used for connections shall have a strength of at least 1 1/2 times the strength of the lines which they connect. Shackles shall not be placed where the lines pass through blocks or travelers.

(16) Guy lines shall be hung in a tree by jacks and securely anchored to a stump or dead tree. The end of the sky lines shall not be anchored to spar trees.

(17) Stumps shall be carefully chosen as to position and strength and, if necessary, they shall be tied back. These stumps shall be inspected from time to time during the progress of operation. Standing trees shall not be used as stumps except for holding tail trees in yarding operations.

(18) The anchor ends of guy or sky lines shall be firmly secured by passing the end lines at '.east two and one half (2 ^{1}/2) turns around the stumps adequately notched to contain the end lines. Where spikes are used to secure the lines, each turn shall be firmly spiked. Where wire rope clips are used, they shall be at least three (3) "U" bolts secured on the dead end of the rope and spaced at approximately six (6) times the diameter of the rope.

(19) Tightening of guy and sky lines shall be by mechanical power. In removing lines from stumps, the last wrap shall be removed by blasting, otherwise a reverse safety wrap shall be put on and the safety holdbacks shall be used.

(20) All tree straps shall be of the best material, properly seated and at least larger than the pulling lines.

(21) All running lines, load blocks, and tree jacks shall be properly hanged to the spar trees. The strength of shackles used to hang blocks and tree jacks shall be not less than two (2) times that of the pulling lines. The shackle pins shall be secured by a nut with a cotter key or wire strand run twice through the pin with the loose ends rolled in.

(22) Straps of at least double the strength of the running lines shall be used to hang blocks and tree jacks hanged in only one eye. Threaded straps for running lines or swivel type blocks shall not be used.

(23) Safety straps of at least 2.5 cm. (1 in.) material shall be used on all blocks rigged below the guy lines. The end of the strap shall be securely fastened to the block and the other end to a shackle arranged to slide down on a guy line which will carry the blocks in the direction of least hazard to the workers. Where this arrangement is not possible, safety strap shall be 1.25 cm. (112 in.) larger than the pulling lines.

(24) Spar tree rigging shall be arranged so that the lines will not rub against each other. No block, except pass blocks, shall hang above the top guy lines.

(25) Blocks used for yarding or swining shall be hung in at least two (2) straps, and each strap shall be of a line equal in strength to the running line.

(26) Yarding with more than one (1) logging engine at one time in one spar tree is prohibited.

(27) The angle between the logging engine, the high line block and the yarding or swing line shall not be less than 90^{o}.

(28) Signals to the engine operator shall be received and transmitted only by a designated worker, except in case of danger, when any one may give the signal. Signals shall be clear and distinct.

(29) The workers receiving and transmitting signals shall be in a place out of moving lines, logs and other hazards and where he can clearly hear and be clearly heard by the rigging crew.

(30) Signal system shall be properly installed and maintained in good condition at all times. Signals on logging engines, tractors and other machinery used by yarders shall be audible to the rigging crew.

(31) Hand signals for yarding and swinging shall only be used in temporary emergencies and only when the worker giving the signal is in plain sight of the logging engine operator but shall never be used for distances more than 9 m. (30 ft.)

(32) Signals to the yarding operator shall be given only by one member of the yarding crew. When this worker is out of sight, another worker shall be assigned to receive and transmit all signals during swinging operation.

(33) No log chasing operation shall be made when the logs are swinging. Log chasers shall be sure that the logs are securely landed before unhooking the chokers.

(34) Logs shall not be loaded or moved while the chasers are working on other logs or until all the workers and equipment are on the clear.

1427: Tractor Yarding:

(1) Logs shall not be suspended in arches when tractor yarding is done on slopes of 60^{o} or over. Instead tractor or skid trails shall be constructed and the tractor shall be equipped with blades.

(2) Sufficient tractor brakes shall be used to hold the machine on any grade over which it is being operated. Holding devices shall be provided on brakes which shall be of a design that will not accidentally release.

(3) Tractor running boards shall be kept from getting slippery, otherwise they shall be covered with non-slip materials.

(4) Arches shall be equipped with line guards arranged to prevent a whipping action if the lines break. If a coupling is attached above the drum, it shall be secured by a strap.

(5) Riding on arches, logs or any part of the tractor, except on the driver's seat, is prohibited.

(6) Workers shall not stand on the tracks of the logging tractor, except if required by the nature of the work they are doing and only when there is no danger of the tractor moving.

(7) Movements of tractors around workers shall be regulated by clearly visible and distinct signals which can be understood by the workers.

(8) Every tractor shall be equipped with a canopy guard designed, constructed and installed to protect the operator from falling trees, side winders, breaking lines and other such hazards, The design shall be such as to allow the driver all visibility possible.

1428: Line, Blocks, Rigging:

(1) Second hand or used cables and straps shall not be used until their condition has been established as sufficient to carry the imposed loads.

(2) Cables or straps which are badly worn, fatigued, kinked, chafed, or damaged beyond point of safety shall be taken out of service or repaired. Cables with 12 1/2% of the wires broken within a distance of one wrap shall not be used.

(3) The following shall be used in permanently splicing running lines:

ROPE DIAMETER	UNRAVELED
0.638 cm (1/4 in.)	1.52 m.
1027 cm. (1/2 in.)	2.14 m.
1.905 cm. (3/4 in.)	2.74 m.
2.54 cm. (1 in.)	3.65 m.
3.175 cm. (1 - 3/4 in.)	4.57 m.
3.81 (1 - 1/2 in.)	6.10 m.
4.445 cm (1 - 3/4 in.)	7.65 m.
5.02 cm. (2 in.)	9.15 m.

(4) Eye splices shall be used in joining long lay ropes.

(5) Short splices, eye-to-eye splices, cat's paws, knots or molles, or wild eyes shall not be used for permanently joining ropes, except for temporary purposes when rigging.

(6) Eye splices in all lines shall be tucked 3 times, and 4 times if subjected to heavy strains.

(7) Blocks and sheaves shall be in proportion to the size, stress and design of the cables used. Sheaves shall be of solid metal or better material. Bearings shall be well oiled.

(8) All blocks shall be fitted with line guards to prevent fouling. The bearings and pins shall be securely fastened.

(9) Tree jacks shall be repaired or replaced when the wood they contain becomes insufficient to prevent the lines from rubbing on the bolts.

(10) High load shackles, sky line shackles, skidders, tower shackles, or swivels subjected to heavy strains not be built up by welding. The strength of shackles used for joining line shall not be less than 1 1/2 times that of the lines they join.

(11) The spread of the jaws of the high load shackles shall fit the yoke or swivel. High load and rigging shackles, except those of manganese steel, shall be heat treated at intervals.

RULE 1940

FIRE PROTECTION AND CONTROL

1941:General Provisions:

(1) All buildings for occupancy used shall be located in areas provided for by applicable zoning regulations of the locality.

(2) Specific standards in design and construction, occupancy and use of buildings and facilities shall be those prescribed by the Building Code of the Philippines.

(3) Fire tests of building materials and fire protection equipment used in any place of employment shall be those provided for the Fire Code of the Philippines.

(4) Standards for the design and installation of Indoor, outdoor general storage, sprinkler system and fire protection system shall be those provided for by Chapter 9 of the Philippine Society of Mechanical Engineers (PSME) Code.

1942: Definitions:

When used in this Rule, the following unless otherwise indicated, shall mean:

(1) "*Fire-Rating*" - the time duration that a material shall withstand a standard fire exposure test.

(2) "*Flash Point*" - the minimum temperature in degrees at which material will. give off flammable vapor.

(3) "*Wood-frame Construction*" - a construction in which wooden frame-work forms the structural support for enclosure walls, floors, and doors.

(4) "*Slow burning Construction*" - construction consisting of substantial masonry walls and heavy timber interior.

(5) "*Fire-resistant Construction*" - construction in which all walls, partitions, floors, stairs, roofs, window frames and sashes, doors and other interior finish, consist of fire resistant materials designed to withstand, without collapse during burning of the contents of the building for a specified time.

1943: Building Construction and Facilities:

1943.01: Types of Building Constructions:

(1) The height of buildings used as places of employment shall be as provided in Table 45a.

(2) Existing buildings not in conformity with Table 45a shall be given five years to comply with the Standards.

(3) The number of stories provided in Table 45a may be increased by two if approved automatic sprinkler protection is provided. This provision may be applicable to existing buildings if the discrepancy is only in the number of stories.

1943.02: Segregation:

Processes involving serious explosions and flash-fire hazards shall be located in segregated buildings and only a. minimum number of workers required in the process shall be allowed inside at any given time.

1***943.03: Exits:***

(1) At least two exits shall be provided in every floor and basement of every workplace capable of clearing the work area in five (5) minutes.

(2) Additional exits shall be provided if the travel distance from any occupied space in a high hazard occupancy exceeds twenty-three (23) meters.

(3) In moderate or low-hazard occupancy, the travel distance shall not be more than thirty-one (3 1) meters for industrial establishments, sixty-one (6 1) meters for business establishments and thirty and one-half (30.5) meters for mercantile and commercial establishments.

(4) If approved automatic-sprinkler protection is installed, the travel distance in high hazard occupancy may be increased to twenty-five (25) meters and for moderate or low-hazard occupancy may be increased to forty-six (46) meters.

(5) The width of the exits shall be computed by dividing the total occupants of a floor or a storey (maximum allowable) by sixty (60) in industrial and commercial establishments by forty-five (45) in service establishments, and by seventy-five (75) in places of assembly and the quotient multiplied by fifty-five (55) to get the width of the exit in centimeters.

(6) On every floor, except the ground floor, one of the exits shall lead to an inside stairway or a smoke-proof tower, while the other exits shall lead to inside stairways, smoke-proof towers or horizontal exits.

(7) Slide escapes may be considered as exits in buildings housing high hazard occupancies but these shall not constitute more than twenty-five (25) percent of the total number of the required means of egress.

(8) Safe, continuous and unobstructed passageways with a minimum width of at least one meter, but not less than the width of the exist, shall be provided and maintained.

(9) No steps or stairs shall be used in horizontal exits. When there is a difference in level between cemented floor areas, ramps or inclines of not more than one to ten (1 to 10) slopes shall be installed.

(10) The construction of the exits, including stairs and means of illumination, shall be in accordance with the provisions of the Building Code and the Electrical Code of the Philippines. In the absence of such provisions, the Fire Code of the Philippines shall apply.

1943.04: Stairways:

(1) Stairs, platforms, stairways and landings in buildings of any type of construction over three (3) stories in height used as fire exits shall be constructed of incombustible materials.

(2) Building over three (3) stories in height of non-fire resistant construction and with roofs having a slope of less than 1 in 4, at least one stairway shall extend through the roof.

(3) All stairways used as fire exits shall lead directly to the street or through fire resistant passages with a width of at least equal to the aggregate width of all exits discharging through such passages.

(4) All approaches to fire exits shall be cleared of any obstruction and properly marked to make the direction of egress clear.

1943.05: Fire Doors:

(1) Stairway enclosures, fire exits and partitions shall be provided with fire doors of the self-closing type and easily opened from either side towards the line of travel in leaving the building except the last floor which should open away from the exit.

(2) Doors giving access to stairways shall not open directly on stairs, but shall open on landings leaving a path of travel equal to at least the width of the door at any point during its swing.

(3) Doors swinging on both sides, vertical-sliding doors, rolling shutters and revolving doors shall not be allowed as exits.

(4) Where for practical reasons swinging doors are not suitable, horizontal sliding doors may be used.

(5) Doors from stairways to the outside of the building shall have a width equal to at least the effective width of the stairs.

(6) Doors leading into or out of any building or floor shall not be locked or fastened during period of occupancy.

1943.06: Installation of Facilities:

Installation of building facilities like hot water pipes, chimneys, or heat producing appliances shall be ad provided in this Standards.

1943.07: Storage:

(1) Significant quantities of commodities with fire hazards greater than ordinary combustible commodities shall be separated from the main bulk by fire walls.

(2) Commodities which may be hazardous when combined with each other shall be stored separately to prevent contact with each other.

(3) Water absorbed during fire fighting operations shall be considered in the determination of safe floor loads.

1944: Fire-Fighting Facilities:

1944.01: General Requirements:

(1) Portable installations, vehicles, except those for public utility, are subject to the provisions of this Standards.

1944.02: Water Supply:

(1) Where connection from a public water supply system is not available, an adequate private water supply reservoir capable of supplying all fire fighting systems for eight (8)hours shall be provided.

(2) Supply system, including tanks or reservoirs and pumps, shall be located and protected that their operation or use will not be impaired by a fire in the workplace.

1944.03: Hydrants:

(1) Hydrants shall be of the same types and sizes as those used by the local public fire department and located or protected that they will not be exposed to mechanical damage from vehicles.

1944.04: Hose:

(1) Hose couplings, outside hydrants or standing nipples shall be of the same type and size as those used by the local public fire department.

(2) Hose shall be thoroughly drained and dried after each use, and tested at frequent intervals or at least once every four (4) months.

1944.05: Portable Extinguisher:

(1) General Requirement

a. all places of employment, including those where automatic-sprinkler protection system is installed, shall be provided with portable fire extinguishers for protection against incipient fires;

b. portable extinguishers shall be maintained in fully charged and operable condition and kept in their designated places at all times when not in use;

c. approved fire extinguishers shall be used;

d. extinguishers shall be installed on hangers or brackets conspicuously located in unobstructed areas readily accessible in the event of fire;

e. extinguishers having group weight not exceeding 18 kilograms shall be installed so that the top is not more than 1.5 meter above the floor. Those exceeding 18 kgs., except wheeled types, shall be installed not more than I m. above the floor.

f. extinguishers shall be inspected monthly or at more frequent intervals when circumstances require to ensure they are in their designated places, to determine physical damages and that they are in good operable condition;

g. at regular intervals of not more than one year, or when specifically indicated by an inspection, extinguishers shall be thoroughly examined, recharged or repaired; and

h. on the place where extinguishers are located, the type and use of the extinguishers and instructions on its proper use shall be marked in visible and easily readable letters.

(2) Selection of Extinguishers:

Extinguishers shall be selected for the specific class or classes or hazards to be protected against in accordance with the following:

a. Extinguishers for Class "A" hazards, such as wood, cloth, paper, rubber and other similar ordinary materials, shall be selected from foam, loaded stream, multipurpose dry chemical and water types;

b. Extinguishers for Class "B" hazards, fires in flammable liquids, gases and greases, shall be selected from carbon dioxide, dry chemical, foam, loaded stream and multipurpose dry chemical;

c. Extinguishers for Class "C" hazards, fires which involve energized electrical equipment where the electrical non-conductivity of the extinguishing media if of importance, shall be selected from carbon dioxide, dry chemicals, and multi-purpose dry chemicals;

When the electrical energy is disconnected. Class "C" fire may be treated as either Class "A" or

Class "B";

d. Extinguishers for protection of Class "D" hazards fire in combustible metals, such as magnesium, titanium, zirconium, sodium and potassium, shall be of types approved for use on the specific combustible metal hazard. Only suitable dry powder extinguishers shall be used for metal fires;

e. Toxic vaporizing extinguisher is not recommended for any type of fire;

f. Extinguishers which need to be inverted to operate are not recommended for use;

g. Soda acid fire extinguishers are not recommended for use.

(3) Distribution of fire extinguishers:

a. Extinguishers for light hazards Class "A" fires, where the amount of combustible or flammable materials present are of such quantity that fires of small size may be expected in offices, schoolrooms, churches, assembly halls and other similar places shall be located that a person will not travel more than thirty (30) meters from any point to reach the nearest extinguisher. One (1) unit of five to six (5 to 6) quarts (1 114 to 1 1/2 gal.) foam extinguisher for every 250 sq. meters (2,500 sq. ft.) of floor area or a greater fraction thereof shall be provided;

b. Extinguishers for ordinary hazards Class "A" fires, where the amount of combustible of flammable material present are such that fires of moderate size may be expected in mercantile storage and displays auto showrooms, parking garages, light manufacturing warehouses not classified as extra hazard, school shops and other similar places shall be provided and located that a person will not travel for more than fifteen (15) meters from any point to reach the nearest extinguishing capacity for every 125 sq. meters of floor area or a greater fraction thereof;

c. Extinguishers for extra hazard Class "B" fires, where the amount of combustible or flammable materials present is such that fires of severe magnitude may be expected in woodworking auto repair, air craft servicing, warehouses with high piled (5 meters or over) combustible processes, such as flammable liquid handling, painting and other similar areas shall be provided with a 2.7 kgs. dry chemical for every sixty (60) sq. meters of floor area or a greater fraction thereof;

d. For deep-layer flammable liquid Class "B" fires in deep or quench tanks, at least one numerical unit of extinguishing potential shall be provided for every sixty (60) sq. meters of floor area or a greater fraction thereof. The travel distance to reach the nearest extinguisher shall not be more than fifteen (15) meters. Multiple smaller extinguishers shall not be used in lieu of larger units required;

e. Extinguishers suitable for Class "B" fires are not acceptable in lieu of the required extinguishers for Class "A" fires unless it has also a Class "A" rating. An extinguisher carrying both Class "A" and "B" ratings may be accepted for area requirements under each individual letter classification and at the numerical rating for that class;

f. Extinguishers with Class "C" rating shall be required where energized electrical equipment may be encountered. The size and location shall be on the basis of the anticipated Class "A" or "B" hazards;

g. Extinguishers shall have a durable tag securely attached to show the maintenance and re-charge data and containing the signatures of persons performing the service;

h. Extinguishers shall be properly marked to indicate the suitability of the extinguishers for particular class of fires;

i. Extinguishers shall be hydrostatically tested before use and periodically tested at least once in every five (5) years or as may be required by the enforcing authority when inspection indicate the need for such examination.

1945: Flammable and Combustible Liquids:

(1) This requirement shall apply to liquids with a flash point of not more than 93.30C.

(2) Liquids of flash points above 93.3^{oC} which may assume the characteristic of lower flash points liquids when heated shall be covered by this provision.

1945.01: Tank Storage:

(1) Tanks used for flammable and combustible liquids shall be built of steel.

(2) Tanks may be built of materials other than steel for underground installation or if required by the properties of the liquid stored shall be designed to specifications approved for the purpose.

(3) Unlined concrete tanks may be used for storing flammable or combustible liquids having a gravity of 40 degrees or heavier.

(4) Tanks located above ground or inside buildings shall be of non-combustible construction.

1945.02: Design and Fabrication:

(1) The design and specification used in the construction and installation of tanks shall be as provided under applicable regulations of the American Petroleum Institute and the ASME Boiler and Pressure Vessels Code, which are adopted for this purpose.

(2) Plans for fabrication and fabrication processes shall be approved and supervised by the Bureau.

1945.03: Installation of Outside Tanks:

(1) Every above ground tank. for the storage of flammable or combustible liquids, except those liquids operating at pressures not in excess of 2.5 psig. and equipped with emergency venting which will not permit the pressure to exceed 2.5 psig., shall be located in accordance with Table 45b.

(2) Every above ground tank for the storage of flammable or combustible liquids, except those liquids with boil over characteristics and unstable or combustible liquids operating at pressures exceeding 2.5 psig. and equipped with emergency venting which will permit pressure to exceed 2.5 psig. shall be located in accordance with Table 45 c.

(3) Every above ground tank for the storage of flammable or combustible liquids with boil-over characteristics shall be located in accordance with Table 45 d.

(4) Every above ground tank for the storage of unstable liquids shall be located in accordance with Table 45e.

(5) Reference distances for use in Table 45b-e shall be as provided in Table 45f.

(6) The distance between two storage tanks shall not be less than three (3) ft., except two tanks of diverse ownership where the Regional Office or authorized representative may substitute the distances provided in Tables 45b-e on the written request and consent of the owners.

1945.04: Drainage, Dikes and Walls of the Above Ground Tanks:

(1) The area surrounding a tank or group of tanks shall be provided with drainage to prevent the accidental discharge of liquid to adjoining property or reaching waterways. When the tanks under consideration do not constitute a hazard to adjoining property, the Regional Office or authorized representative may waive or suspend this provision.

(2) The volumetric capacity of the drainage shall not be less than the amount of the full liquid content of the largest tank within the diked area.

1945.05: Installation of Tanks Inside of Buildings:

Tanks shall not be installed inside buildings except service or supply tanks with a capacity of not more than six (6) gals.

1945.06: Installation of Underground Tanks:

(1) The distance from any part of tanks storing liquids having flash points below 37.770C (100^0F) to the nearest wall of a building, basement or pit shall not be less than 30.50 cm. (1 ft.); and the property line, not less than 91.50 cm. (3 ft.).

(2) The distance from any part of a tank storing liquids having flash points at or above 37.77^{0}C (IOO^{0}F.) to the nearest wall of a building basement pit or property line shall not be less than 30.50 cm. (1 ft.)

(3) Underground tanks shall be set on firm foundations and surrounded with at least six (6) inches of non-corrosive inert material well tamped in place. Tanks shall be covered with a minimum of two feet of earth or four inches reinforced concrete slab on top of one foot of earth.

(4) Vent pipes shall terminate outside of buildings and higher than the fill opening. The size of the vent shall depend on the filling or withdrawal rate to prevent the pressure in tank to exceed, 2.5 psig.

1945.07: Service Stations:

(1) Tank used in automotive service stations shall be buried as provided in Rule 1945.06 but with at least six inches thick reinforced concrete slab over one foot of earth.

(2) There shall be only a maximum of three tanks in one service station containing 6,000 gallons per tank and a total aggregate of 18,000 gallons.

(3) Above ground tanks used in automotive stations shall be as provided in Rule 1945.05.

(4) There shall be no smoking or open flames in the area and the motors of all equipment being fueled shall be shut off.

1945.08: Processing and Bulk Plants:

All buildings, installations and operations in processing and bulk plants shall be as provided in Rule 1 1 60 and the Philippine Electrical Code.

1945.09: Other Installations:

All other tanks installed not in conformity with this Rule shall reduce their contents to comply with the distance requirements. Those to be installed shall be with the prior approval of the Department.

1946: Combustible Solids:

1946.01: Nitrate Motion Picture Film:

(1) Nitrate picture film shall be stored or handled in buildings of fire-resistant construction.

(2) All rooms where nitrate motion picture films are stored or handled, except motion picture projection rooms and film vaults, shall be separated from each other and from all other parts of the building by partition of suitable stability and fire-resistance. The partitions shall be continuous from the floor to ceiling and securely anchored to walls, floor and ceiling.

(3) Opening in partitions shall be protected by approved fire door of a type suitable for the purpose.

(4) Rooms in which nitrate motion picture films are handle through which workers pass, shall be provided with a minimum aisle of 80 cm. (31.24) width.

(5) Explosion vents shall be provided in rooms or vaults used for storing and handling nitrate films.

(6) There shall be at least 3.25 sq. m. of floor area allotted to each worker in every room and not more than 15 persons shall work at any one time in a room where nitrate film is handled.

(7) Tables and racks used in connection with the handling of film (joining inspection and assembling tables) shall be non-combustible, or shall be of wood construction with no member less than 3.75 cm. and kept at least 10 cm. away from any radiator or heating apparatus.

(8) In rooms where nitrate film is stored or handled, artificial illumination shall be restricted to incandescent or fluorescent electric lights. Light fixture shall be firmly set in place and provided with guards to avoid mechanical injury.

1946.02: Pyroxylin Plastics:

(1) Buildings used in the fabrication of pyroxylin plastics shall be of fire-resistant materials. However, budding for factory use may be of non-fire-resistant construction but shall not exceed four stories or 17 meters in height.

(2) All portions of buildings used in whole or in part for the fabrication of pyroxylin plastics shall be provided with adequate aisle space and have at least two exits remote from each other.

(3) No pyroxylin plastic shall be stored within I meter from steam pipes, chimneys and other heating apparatus nor within 6 meters from any manufacturing operations. Heating equipment containing ignition sources shall not be permitted in any room used for storage.

(4) Smoking is prohibited in any establishment handling and storing pyroxylin plastics and conspicuous "No Smoking' signs shall be posted in prominent places.

(5) Fire fighting equipment of the right type and number shall be provided.

1946.03: Magnesium:

A. Melting and Casting:

(1) Melting operation shall be done in buildings of non-combustible materials preferably with a high roof for adequate ventilation.

(2) Pots and crucibles shall be inspected regularly and discarded as soon as there is any evidence of possible failure. Safety run-off containers shall be provided for melting pots and crucibles.

(3) Ladles, skimmers and sludge pans must be thoroughly predried and not before contacting molten metal.

(4) Flame-resistant clothing, high foundry shoes, and adequate face protection shall be used by employees working in melting and casting operations.

B. Rough Finishing and Castings:

(1) Provisions shall be made for the proper removal of dust produced by grinders and for the immediate quenching of sparks produced. Cuttings from band saws should be swept up at regular intervals to prevent excessive accumulation in the work area.

(2) Work benches and other equipment shall be non-combustible materials. If wood table tops or other fixtures of wood or combustible materials are considered necessary, these shall be treated to render them fire retardant and free from cracks or recesses in which magnesium dust can accumulate.

(3) Operators shall wear caps and hard finished or fire-resistant outer clothing without pockets or cuffs.

C. Heat Treating:

(1) Thermocouples used to operate the temperature devices shall be properly maintained to prevent overheating,

(2) Furnace should be tested initially and at regular intervals to locate undesirable high temperature areas.

(3) Furnace shall be properly and tightly constructed. Gas or oil-fired furnaces shall be provided with combustion safety controls. All furnaces shall have two sets of temperature controls operating independently, one maintaining the desired temperature and the other for high temperature limit control. The high temperature limit control shall be adjusted to operate at a temperature slightly above the controller. In case the latter fails, the limit switch shall cut off the power preventing ignition of the magnesium.

(4) Magnesium to be put in a heat-treating furnace should be carefully freed of magnesium turnings, chips and sawdust.

(5) Magnesium billets, castings and wrought products must not be placed in a heat treating furnace with wood spacers or other materials below the normal heat treating ranges of magnesium.

(6) Aluminum parts, sheets or separators must not be included in a furnace load of magnesium.

(7) The heat treating temperature cycle recommended by the alloy manufacturer shall be strictly adhered to.

(8) Molten salts containing nitrates shall not be used for heat treating magnesium alloys.

D. Machining Magnesium:

(1) Tools used for machining shall not be allowed to ride on the metal without cutting.

(2) When holes with depths greater than five times the drill diameter are being drilled in magnesium, a high helix drill (45) degrees shall be used to prevent the packing of chips causing resultant frictional heating and possible flash fire in the fine chips.

(3) Machinery used for machining and drilling shall be provided with pans to catch the chips or turnings so installed that the pans can be readily withdrawn from under the machine in case of fire.

1946.04: Titanium:

(1) Buildings in which reaction chambers and furnaces are used in the processing of titanium, shall be fire-resistant or of noncombustible materials.

(2) The main building shall have adequate ventilation and doors at more than one location shall be remote from each other. Dry rooms shall be of fire resistant materials.

(3) Floors in furnace rooms and dry rooms shall be of noncombustible materials, preferably of concrete, brick or steel plates. Floors shall be slightly crowned or sloped to prevent accumulation of water in the vicinity of the reactors or furnaces and safety run-offs. shall be provided to direct or contain any spills of molten metal into safe channels.

B. Storage:

(1) Containers of titanium tetrachloride shall be stored in a cool, well-ventilated dry place away from the areas of acute fire hazards. Containers shall be labeled plainly and stored carefully to avoid mechanical injury.

C. Mechanical Equipment:

(1) Furnaces and reaction chambers shall be inspected and checked regularly to detect defects and leaks. No equipment found to be defective shall be used until the damaged parts are replaced or repaired and properly tested to ensure safe operation.

(2) Furnace setting must be kept dry and free of iron scales.

(3) Fuel supply lines shall have the control valves at an accessible location remote from the reactors.

(4) Benches, stands, and tables used in furnace rooms where special fire hazards exist shall be of non combustible materials.

D. Fire Prevention

(1) The process that produces titanium sponge shall be carried out in enclosed oxygen- free containers.

(2) An inert-gas dispensing system shall be installed for processing inert-gas requirement.

(3) All pipes, fittings, and valves in the inert gas-dispensing or distributing system shall be checked to ensure an uninterrupted flow of gas to the reactors.

(4) All containers used to receive molten metal shall be thoroughly dried before using. All metals added to melting pots containing molten metal shall be thoroughly pre-dried.

(5) Good housekeeping is essential. Supplies shall be stored in an orderly manner with properly maintained aisles to permit regular inspection and segregation of incompatible materials.

(6) Ordinary combustible materials such as paper, wood, cartons and packing materials must not be stored or allowed to accumulate near furnaces or other ready sources of ignition.

(7) Supplies or materials in the reactor building and dry rooms shall be limited to the amount needed for normal eight-hour operation.

E. Fire Protection:

(1) Only extinguishers of the type developed especially for combustible metal fires shall be used for controlling and containing small titanium fires.

(2) Portable fire extinguishers of appropriate size and type shall be provided at locations where the presence of ordinary combustibles constitute the principal hazard.

(3) Where automatic sprinkler protection is provided, a deflecting shield or hood be provided for the furnaces, reactors or other places where hot or molten may be present.

F. Safety Precautions for Personnel:

(1) Special clothing of the type worn by foundry workers, including high foundry man shoes, shall be worn by employees engaged in tapping operations at the furnaces in titanium sponge plants. Clothing shall be fire retardant, easily removable with snap fasteners and without cuffs or pockets. Caps, or hoods and standard type face protectors shall be worn by workers tapping furnaces. Persons working with titanium or transferring it into or out of the storage shall wear protective clothing designed to provided protection against skin contact and of the approved type (it respirators and chemical goggles.

G. Casting:

(1) All titanium furnace crucibles molds shall be designed to avoid the contact of molten metal with water.

(2) When titanium is being cast, provisions shall be made to retain spilled metal under vacuum or inert gas protection and contact with water shall be prevented.

(3) As in other casting operations, molds shall be predried and heated to remove volatiles before molten metal is poured into them.

H. Forging:

(1) Fire protection in forging areas may be of the type generally provided for fires in ordinary combustibles, electrical or oil fires.

1946.05: Zirconium:

(1) Good housekeeping shall be maintained. Periodic cleaning, collection of dust at the point of operation and removal of dust and fine scrap from the premises shall be considered important steps in any fire prevention program.

(2) Machining operation shall be conducted under controlled conditions to prevent dust dispersion and excessive heating that may lead to ignition of the zirconium.

1947: Electrical Installation:

1947.01: General Requirements:

All electrical installations shall be in accordance with the provisions of Rule 1210.

1947.02: Emergency Systems:

Emergency lighting system shall be provided to automatically light emergency exits in case of failure of the main electrical power line.

1948: Alarm Systems and Fire Drills:

1948.01: Sounding Devices:

(1) All buildings having two or more stories in height shall be equipped with fire alarm system and signals of distinctive quality and pitch clearly audible to all persons inside the building.

(2) Hand-operated sending stations of fire alarm boxes shall be provided on every floor and located that the travel to reach a station is not more than thirty (30) meters for industrial and commercial establishments with moderate or low hazard occupancy.

(3) Fire-alarm stations shall be conspicuous, readily accessible, and in the natural path of escape from fire.

(4) Hand operated sending stations of fire alarm boxes shall be provided on every floor and located such that the travel to reach a station is not more than sixty-one (61) meters for business establishments with moderate or low hazard occupancy.

1948.02: Fire-fighting Drills:

(1) Every place of employment depending on the magnitude of potential fires and the availability of assistance from the public fire department shall organize a fire brigade to deal with fires and other related emergencies.

(2) The members of the fire brigade shall be physically qualified for the job and properly trained on fire-fighting use of hose, line, ventilation of buildings, salvage operations, rescue operations, first aid, and other related activities.

1948.03: Fire Exit Drills:

(1) Fire-exit drills shall be conducted at least twice a year year to maintain an orderly evacuation of buildings, unless the local fire department requires a higher frequency of fire drills.

(2) Fire exit drills shall only include evacuation of persons and shall not include salvage operation.

(3) In buildings where the population is of a changing character, the fire-exit training of the regular employees shall include the proper procedure to direct other occupants to safety.

(4) Occupants of each department, floor or portion of the building shall be designated a particular place to assemble outside of the building and in places that will not hamper fire-fighting,

(5) When two or more establishments occupy a budding, fire exit drills shall be planned as if there is only one (1) establishment.

(6) The organization and the composition of a fire-exit drill committee shall be as provided by the requirements of the local fire department.

TABLE 45a

TYPE OF CONSTRUCTION	OCCUPANCY HAZARDS		
	LOW	MODERATE	HIGH
WOOD - FRAME SLOW - BURNING FIRE - RESISTANT	3 STORIES 7 STORIES NO LIMIT	2 STORIES 6 STORIES NO LIMIT	1 STOREY 4 STORIES 5 STORIES

TABLE 45 b

TYPE OF	PROTECTION	MINIMUM DISTANCE IN FEET FROM PROPERTY LINE UPON WHICH TO BUILD ON INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY	MINIMUM DISTANCE IN FEET FROM NEAREST SIDE OF ANY PUBLIC WAY OR NEAREST IMPORTANT BUILDING AND SHALL NOT BE LESS THAN 5 FEET
	Protection for Exposure	1/2 times diameter of tank but need not exceed 90 feet	1/6 times diameter of tank but need not exceed 30 feet
Floating Roof	None	Diameter of tank but need not exceed 175 feet	1/6 times diameter of tank but need not exceed 30 feet
Vertical with weak Roof to Shell Seam	Approved foam or inerting system on the tank	1/2 times diameter of tank but need not exceed 90 feet and shall not be less than 50 feet	1/6 times diameter of tank but need not exceed 30 feet
	Protection for Exposures	Diameter of tank but need not exceed 175 feet	1/6 times diameter of tank but need not exceed 60 feet
	None	2 times diameter of tank but need not exceed 350 feet	1/6 times diameter of tank but need not exceed 60 feet
Horizontal and Vertical with Emergency Relief Venting to Limit Pressures to 2.5 psig	Approved inerting system on the tank for approval foam system on vertical tanks	1/2 times Table 45 f but shall not be less than 5 feet	1/2 times Table 45f
	Protection for Exposures	Table 45 f	Table 45 f
	None	2 timesTable 45 f	Table 45 f

TABLE 45 c

TYPE OF TANK	PROTECTION	MINIMUM DISTANCE FROM PROPERTY LINE UPON WHICH TO BUILD ON INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY	MINIMUM DISTANCE IN FEET FROM NEAREST SIDE OF ANY PUBLIC WAY OR NEAREST IMPORTANT BUILDING
ANY TYPE	Protection for Exposure	1 - 1/2 times Table 45 f shall not be less than 25 feet	1 - 1/2 times Table 45 f shall not be less than 25 feet
	None	3 times Table 45 f but shall not be less than 50 feet	1 - 1/2 times Table 45 f shall not be less than 25 feet

Table 45 d

TYPE OF TANK	PROTECTION	MINIMUM DISTANCE FROM PROPERTY LINE UPON WHICH TO BUILD ON INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY	MINIMUM DISTANCE IN FEET FROM NEAREST SIDE OF ANY PUBLIC WAY OR NEAREST IMPORTANT BUILDING
Floating Roof	Protection for Exposure	Diameter of tank but need not exceed 175 feet	1/3 times diameter of tank but need not exceed 60 feet
	None	2 times diameter of tank but need not exceed 350 feet	1/3 times diameter of tank but need not exceed 60 feet
Fixed Roof	Approved foam of inerting system	Diameter of tank but need not exceed 175 feet	1/3 times diameter of tank but need not exceed 60 feet
	Protection for Exposure	2 times diameter of tank but need not exceed 350 feet	1/3 times diameter of tank but need not exceed 120 feet
	None	2 times diameter of tank but need not exceed 350 feet	1/3 times diameter of tank but need not exceed 120 feet

Table 45e

TYPE OF TANK	PROTECTION	MINIMUM DISTANCE FROM PROPERTY LINE UPON WHICH TO BUILD ON INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY	MINIMUM DISTANCE IN FEET FROM NEAREST SIDE OF ANY PUBLIC WAY OR NEAREST IMPORTANT BUILDING
Horizontal and Vertical Tanks with Emergency Relief Venting to Permit Pressures but in excess of 2.5 psig	Tanks Protected with any one of the following: Approved water spray Approved inerting Approved insulation and refrigeration Approved Barricade	Tabke 4 f but not less not than 25 feet	not less not than 25 feet
	Protection for Exposure	2 - 1/2 times Table 45 f but not less than 50 ft.	not less than 50 ft.
	None	5 times Table 45 f but not less than 100 ft.	not less than 100 ft.
Horizontal and Vertical Tanks with Emergency Relief Venting to Permit Pressures over 2.5 psigFixed Roof	Tanks Protected with any one of the following: Approved water spray Approved inerting Approved insulation and refrigeration Approved Barricade	2 times Table 45 f but not less than 50 ft.	not less than 50 ft.
	Protection for Exposure	4 times Table 45 f but not less than 100 ft.	not less than 100 ft.

TABLE 45 f

CAPACITY TANK GALLONS	MINIMUM DISTANCE FROM PROPERTY LINE UPON WHICH TO BUILD ON INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY	MINIMUM DISTANCE IN FEET FROM NEAREST SIDE OF ANY PUBLIC WAY OR NEAREST IMPORTANT BUILDING
275 OR LESS	5	5
276 TO 750	10	5
751 TO 12,000	15	5
12,001 TO 30,000	20	5
30,001 TO 50,000	30	10
50,001 TO 100,000	50	15
100,001 TO 500,000	80	25
500,001 TO 1,000,000	100	35
1,000,001 TO 2,000,000	135	45
2,000,001 TO 3,000,000	165	55
3,000,001 OR OVER	175	60

RULE 1950

PESTICIDES AND FERTILIZERS

1951: Scope:

This rule shall apply to all agricultural and industrial enterprises, as defined in Rule 1002 in which these chemicals are used or manufactured.

1952: Definitions:

(1) "*Pesticides*" shall mean any substance or product, or mixture thereof, including active ingredients, adjuvant and pesticides formulations, intended to control, prevent, destroy, repel or mitigate directly any pest. The term shall be understood to include insecticides, fungicide, bactericide, nematocide, herbicide, molluscide, avicide, rodenticide, plant regulator, defoliant, desiccant and the like.

(2) "*Pesticide residues*" shall mean the quantity of the original active or its biologically active transformation product which remain on a substance after weathering factors have taken effect.

(3) "*Fertilizers*" shall mean any substance solid or liquid or any nutrient element or elements-organic or inorganic-singly or in combination with other materials, applied directly to the soil or to the plant for the purpose of promoting plant growth, increasing crop yield or improving their quality.

(4) "*Harmful fertilizers*" are those, which are infectious, irritating, toxic and flammable.

(5) "*Agricultural pesticides*" shall refer to pesticides, which are to be used in agriculture.

(6) "*Household pesticides*" shall refer to pesticides as used for the control of pests found in places of human habitation, work and recreation e.g. flies, mosquitoes, cockroaches, ants, rodents. These shall include pesticide used for the control of pests in home, yards and gardens.

(7) "*Structural pesticides*" shall refer to pesticides as used in the control of pest in the following areas and which are to be applied only by FPA certified pesticide applicators.

a. Homes-including but not limited to private homes, hotels, condominiums and subdivisions.

b. Buildings-including but not limited to schools, and hospitals, food factories and other food handling establishments, commercial buildings, bodegas, storage and warehouses, building under construction and handicraft factories;

c. Lumber yards and other treating processing plant;

d. Other facilities engaged in the protection of stored, processed or manufactured product.

(8) "*Organic fertilizers*" refer to any product whose basic ingredients are of plants and/or animal origin that have been decomposed biologically or chemically or through any other process and which can support solid and plant needs.

(9) "*Mineral fertilizers*" are the products produced either synthetically or by the treatment of naturally occurring mineral.

(10) "*Naturally occurring fertilizers*" shall include guano, rock phosphate, limestone, dolomite, pest and gypsum, sulfur deposit and others that are found in nature, mined and used as fertilizer raw materials.

1953: General Provisions:

1953.01:

Pesticides and fertilizers shall be handled and used only by persons thoroughly instructed in their use handling hazards and the precautions that shall be taken to avoid such hazards.

1953.02:

Persons working with pesticides and fertilizers shall have pre-employment and periodic examinations as provided under Rule 1960.

1953.03:

Persons handling pesticides and fertilizers which react strongly to alcohol, shall abstain from alcoholic drinks at least ten hours before and at least twelve hours after any work or operation where these substances are used or applied.

1953.04:

All containers of pesticides and fertilizers shall state on the label:

(1) Product information

(2) Directions for use

(3) Direction for storage and disposal

(4) Safety precautions, whenever applicable

(5) First aid measures, whenever applicable

(6) Physician's information and treatment

1954: Pesticides:

1954.01: Handling:

(1) The precautions stated in the label before handling or using any pesticides shall be followed:

a. Pesticides shall be applied only as directed in the amount and in the manner specified in the label.

b. Protective clothing and other protective equipment such as gloves, masks, boots, etc. as indicated in the label shall be used.

c. Smoking, drinking or eating while handling pesticides is prohibited. Hands, face or the whole body shall be washed thoroughly before smoking, drinking, eating and attending to personal needs.

d. Pesticides spilled on the skin and clothing shall be immediately washed thoroughly with clean running water. Spillage at the working area shall be immediately decontaminated prior to proper disposal.

e. Persons using agricultural pesticides shall spray or apply these in the windward direction.

f. Whenever pesticides are applied, entry shall be allowed only after a specified time and when properly protected.

g. Agricultural pesticides shall be applied in such a manner that lakes, canals, rivers, or thickly populated places are not polluted.

h. Workers using pesticides shall not blow out blocked spray pipes or nozzles with the mouth.

(2) Adequate ventilation shall be provided in areas where pesticides are poured, mixed or transferred from one container to another.

(3) Equipment used in pesticide manufacture, formulation, repacking and application shall be adequately maintained to avoid leakage or contamination of workers.

(4) In the transport of pesticides, the following precautions shall be observed:

a. Only safe and appropriate containers shall be used.

b. Pesticide shall be separated from other cargoes during transport.

c. Leaks or mutilated containers shall be checked during and after transporting pesticides to prevent contamination of cargo, vegetation and waterways.

d. Pesticides shall not be borne directly on the back of workers or work animals.

e. Spilled pesticides shall be decontaminated immediately prior to proper disposal.

1954.02: Storage:

(1) Pesticides shall be stored in original container tightly closed.

(2) The precaution listed in the label shall be followed for the storage of each compound.

(3) Pesticides shall be stored in cool, dry, and well ventilated places not accessible to children, animals and unauthorized persons.

(4) Pesticides shall be stored away from food and foodstuff.

(5) Volatile pesticides shall always be stored separately from other pesticides to avoid cross contamination and shall always be stored in an unrestricted atmosphere.

(6) Smoking, eating or drinking in the pesticides area is prohibited.

1955: Fertilizers:

1955.01: Handling:

The following rules shall be observed in the handling of agricultural chemicals:

(1) Fertilizers shall not be left unattended to when not in use;

(2) Fertilizers shall be prepared by mechanical means in closed vessels. However, if closed mechanical preparation is impracticable:

a. Tall vessels and long handled implements shall be used to reduce the risk of splashing;

b. Vessels shall not be fully filled to avoid splashing.

(3) Unbreakable vessels shall be used in the preparation of toxic fertilizers.

(4) Protective clothing, like boots, gloves, goggles and face shield shall be used when mixing, diluting, spraying or spreading toxic fertilizers.

(5) Spillage of fertilizers and contamination shall be prevented. Spillage shall be thoroughly cleaned immediately.

(6) Whenever practicable, apply toxic fertilizers by mechanical means.

(7) Immediately after spraying toxic fertilizers in a greenhouse, the employers shall:

a. require all persons entering the greenhouse to be properly protected;

b. post notices on all gates of the greenhouse stating how long the area is to remain closed before entry of persons without proper protection is allowed.

(8) Workers using toxic fertilizers shall not:

a. blow out blocked spray pipes or nozzle with the mouth;

b. spray or spread fertilizers against the direction of the wind.

(9) Decontaminate the exterior of all tanks and containers in which toxic fertilizers are stored.

(10) Securely close the opening of all tanks and containers in which toxic fertilizers are kept.

(11) Tanks and piping shall:

a. be regularly checked for damage and

b. be provided with stop valves or other devices that can effectively prevent or limit the escape of the substance.

(12) Fertilizers shall be transported only in suitable vehicles to ensure protection to the driver and other users of the vehicles.

(13) Handling of organic fertilizers shall be by mechanical means to minimize direct contact with such fertilizers or in the absence of mechanical means, proper protection during handling shall be required.

(14) Personal protective equipment shall be provided too, and used by workers when applying mineral fertilizers.

1955.02: Storage:

(1) Storage place for fertilizers shall be well lighted to facilitate easy identification of chemicals.

(2) Storage building shall be sound, weather-proof, water-tight and fire-resistant.

(3) Storage rooms or buildings shall be locked to prevent entry of unauthorized persons or animals.

(4) Fertilizers shall be stored separately from other material and in particular; away from food and feeding stuff.

(5) Fertilizers of different kinds shall be stored separately in sacks or containers on skids or platform and kept away from walls and combustible materials.

(6) Transfer nitrate from bags and wooden barrels to incombustible bins. Empty bags and barrels shall be thoroughly washed after each use.

(7) Sodium chloride shall be stored in metal containers.

(8) Aqua ammonia shall be stored in a cast iron or mild steel tank designed with a working pressure of 7 kg./cm^2

(9) Anhydrous ammonia shall be transported and stored in pressure containers designed with a working pressure of 18.65 kg,/cm2 g (265 psig). Storage tanks shall have no brass and copper fittings.

(10) Anhydrous ammonia tanks shall be provided with pressure relief valves on the pipelines and bleed valves in the hoses.

(11) Tanks for anhydrous ammonia shall:

a. be situated at a safe distance from other buildings, fire hazard and traffic;

b. be protected against solar heat and mechanical damage; and

c. not more than four-fifths (4/5) full.

(12) Organic fertilizer shall be stored in open and well ventilated areas.

(13) Fertilizers stored in containers other than those provided by the manufacturer shall be clearly labeled with the name of the substance and marked with proper symbols.

1955.03: Hygiene:

(1) The employer shall provide his workers with necessary protective clothing and equipment maintained in good condition.

(2) Workers handling pesticides and harmful fertilizers shall be instructed not to eat, drink or smoke unless:

a. they have removed their protective clothing;

b. they have washed their hands and face;

c. and they are in the area for eating purposes.

(3) Workers handling pesticides and harmful fertilizers shall:

a. deposit their personal or street clothing in rooms provided for the purpose;

b. remove all protective clothing and equipment at the end of each day's work and deposit them in specified decontaminating containers provided for the purpose.

c. wash hands, face and neck or take a shower if pesticides /harmful fertilizers was used or handled.

(4) Protective clothing shall be laundered or otherwise thoroughly cleaned at least once a week or more frequently, depending upon the degree of the contamination and the material or substance used.

(5) Workers shall thoroughly wash gloves after every use.

(6) Workers may be vaccinated to give them active immunity. Sera and medicaments may be taken as passive defense measures.

(7) Workers exposed to prolonged contact with natural fertilizers shall be subjected to regular medical examination.

1957: Disposed of Unwanted Materials:

(1) Waste of harmful pesticides, empty cases, boxes, bottles, and other containers shall be:

a. returned to the supplier, if practicable;

b. buried deep in the earth away from springs and other water sources;

c. burned in such a way that persons cannot be endangered by the smoke and other products of combustions.

(2) Pesticides or empty containers shall not be left lying about in the fields, yards, and other open areas, and shall not be thrown into the ponds, streams or drains.

(3) Pesticides that have not lost their potency shall be destroyed. The competent authority shall be consulted on the proper disposal of large quantities of these substances.

RULE 1960

OCCUPATIONAL HEALTH SERVICES

1961: General Provisions:

(1) Every employer shall establish in his place of employment occupational health services in accordance with the regulation and guidelines provided for under this rule.

(2) The employer, the workers, and their representatives, where they exist shall cooperate and participate in the implementation of the organizational and other measures relating to occupational health services.

1961.01: Coverage:

(1) This Rule shall apply to all establishments whether for profit or not, including the Government and any of its political subdivisions and government-owned or controlled corporations.

(2) The Bureau of Dental Health Services of the Department of Health shall be responsible for the development and enforcement of dental standards.

1961.02: Definitions:

As used in this Rule, except where the context clearly indicates otherwise, the following terms shall mean as herein defined:

(1) "*Occupational Health Services*" are services entrusted with essentially preventive functions and responsible for advising the employers, the workers, and their representatives, in the establishment/undertaking of the following:

(a) The requirements for establishing and maintaining a safe and healthy working environment which will facilitate optimal physical and mental health in relation to work, and

(b) The adaptation of work to the capabilities of workers in the light of their state of physical and mental health.

(2) "*Occupational Health Personnel*" in an establishment/undertaking refers to the qualified first-aider, nurse, dentist, or physician, whose service/services have been engaged by the employer in order to provide occupational health services in the establishment/ undertaking.

(3) "*First Aid Treatment*" means adequate, immediate and necessary medical and/or dental attendance or remedy given in case of injury or sudden illness suffered by the workers, irrespective of whether or not such illness/injury is occupational in nature, before more extensive medical and/or dental treatment can be secured. It does not include following treatment for an injury or illness.

(4) "*First Aider*" means any person trained and duly certified or qualified to administer first-aid by the Philippine National Red Cross or by any organization accredited by the same.

(5) "*Occupational Health Practitione*r" refers to a physician, nurse, engineer, dentist or chemist duly licensed to practice his/her profession in the Philippines and possessing all of the additional qualifications required under Rule 1964.01.

(6) *"Emergency Treatment Room*" means any enclosed area or room equipped with the necessary medical facilities and supplies, and located within the premises of the establishment where workers maybe brought for examination and treatment of their injuries or illnesses in cases of emergency.

(7) "*Emergency Clinic"* means an enclosed area, room or building, located within the premises of the establishment, and equipped with the necessary medical facilities and supplies, where workers maybe brought for examination and treatment of their injuries or illnesses in cases of emergency, where more elaborate instruments and equipments (such as examining bed, oxygen tank) are made available for the workers, and where the services of a more competent medical staff are provided, who may handle or treat a few simple cases of injuries or illnesses needing short-term confinement, or may refer such cases to hospitals.

1961.03: Occupational Health Services:

(1) Functions: Without prejudice to the responsibility of each employer for the health, and safety of the workers in his employment, and with due regard to the necessity for the workers to participate in matters of occupational health and safety, occupational health services shall have the following functions as are adequate and appropriate to the occupational risks of the establishment/undertaking.

(a) Identification and assessment of the risks from health hazards in the workplace;

(b) Surveillance of the factors in the working environment and working practices which may affect the worker's health, including sanitary installations, canteens, and housing where these facilities are provided by the employer;

(c) Advice on planning and organization of work, including the design of the workplace, on the choice, maintenance, and condition of machinery and other equipment, and on substances used in work;

(d) Participation in the development of programs for the improvement of working practices as well as testing and evaluation of health aspects of new equipment;

(e) Advice on occupational health, safety and hygiene, and on ergonomics and individual and collective protective equipment;

(f) Surveillance of worker's health in relation to work;

(g) Promoting the adaptation of work to the workers;

(h) Collaboration in providing information, training and education in the fields of occupational health and hygiene and ergonomics;

(i) Organizing of first-aid and emergency treatment; and

(j) Participation in analysis of occupational accidents and occupational diseases.

1961.04: Organization and Preventive Services:

(1) Occupational health services maybe organized by:

(a) the establishment/undertaking

(b) government authorities or official services recognized by the Bureau

(c) social security institution

(d) any other bodies authorized by the Bureau

(e) a combination of any of the above.

(2) Occupational health services organized as a service for a single small-scale establishment shall have an occupational health practitioner as one of its personnel, who shall conduct an inspection of the workplace:

(a) at least once every two (2) months for hazardous small-scale establishments employing 1 to 50 workers;

(b) at least once every month for hazardous small-scale establishments employing 51 to 99 workers;

(c) at least once every six (6) months for non-hazardous establishments employing 1 to 99 workers.

(3) Occupational health services organized as a service for a single, non-hazardous medium scale establishment employing 100 to 199 workers, shall have an occupational health practitioner as one of its personnel who shall conduct an inspection of the workplace at least once every three (3) months.

(4) Occupational health services organized as a service for a single, hazardous medium scale establishment employing 100 to 199 workers shall have a part-time occupational health physician as one of its personnel, who shall perform the duties of an occupational health physician as provided for under Rule 1965.02.

(5) For hazardous and non-hazardous large-scale establishments employing 200 workers and more occupational health services shall be organized as a service solely for a single establishment/undertaking, and shall have a part-time or full-time occupational health physician, in accordance with the provisions of Rule 1963, as one of its personnel. Such occupational health physician shall perform the duties of an occupational health physician as provided for under Rule 1965.02.

(6) When an occupational health service is organized as a service common to a number of establishments/ undertakings, the following regulations shall be followed:

(a) for small-scale industries, the total number of establishments shall not exceed ten (10).

(b) for medium-scale industries, the total number of establishments shall not exceed four (4).

1962 : Hazardous Workplace:

For purposes of this Rule, the Bureau shall, with the approval of the Secretary, add from time to time to the list of hazardous workplaces provided in Rule 1010.

1963: Emergency Health Services

1963.01: Medicines and Facilities:

(1) Every employer covered by this Rule shall in his workplace at least minimum quantity of medicines, medical supplies and equipments and medical faculties listed in Table 9 (appendix) on medicines. Supplies and facilities, for the use of the workers employed in the establishment/undertaking.

(2) The medicines, medical supplies and facilities prescribed in table 9 maybe substituted with other comparable medicines and/or facilities as prescribed by the occupational health physician of the workplace.

(3) The medicines, medical supplies and facilities prescribed in table 9 shall be kept inside the treatment room/medical clinic required under Rule 1963.02, and shall be replaced with the same quantity immediately after use or consumption.

1963.02:Emergency Medical and Dental Services:

Every employer covered by this rule shall provide his employees/workers medical and dental services and facilities in the following cases and manner:

(1) For hazardous workplaces:

(a) in small-scale industries where the number of workers is from 1 to 50, the employer shall provide the services of a full-time first aider who maybe one of the workers in the workplace and who has immediate access to the first-aid medicines prescribed in Rule 1963.01.

(b) in small-scale industries where the number of workers is from 51 to 99, the employer shall provide the services of a part-time occupational health nurse who ~ stay in the premises of the workplace at least four (4) hours a day, six (6) times a week. Where there are more than one work shift in a day: the nurse shall stay in the workplace during the shift which has the biggest number of wonders. The employer shall also provide the services of a full-time first-aider and shall maintain in his place of employment an emergency treatment room for his workers.

(c) in medium-scale industries where the number of workers is from 100 to 199, the employer shall provide the services of a part-time occupational health physician and a part-time dentist each of whom shall stay in the premises of the workplace at least four (4) hours a day, three (3) times a weed, and each one working on alternate days with the other, where there are more than one work shift in a day, the physician and the dentist shall stay in the workplace during the shift which has the biggest number of workers. In addition, the services of a full-time occupational health nurse and a fulltime first-aider shall be provided. The employer shall maintain in his place of employment an emergency treatment room for his workers.

(d) in large-scale industries where the number of workers is from 200 to 600, the employer shall provide the services of a part-time occupational health physician and a part-time dentist each of whom shall stay in the premises of the workplace at least four (4) hours a day, six (6) times a weed, and each working in alternate periods with the other, where there are more than one work shift in a day, the physician and the dentist shall stay at the workplace during the shift which has the biggest number of workers. The services of a full-time occupational health nurse and a full-time firstaider shall also be provided. The employer shall maintain in his place of employment an emergency medical clinic for his workers.

(e) in large-scale industries, where the number of workers is from 601 to 2000, the employer shall provide the services of a full-time occupational health physician who shall stay in the premises of the workplace eight (8) hours a day, six (6) times a week, or two (2) part-time occupational health physician each working four (4) hours a day, six (6) times a week in alternate periods with the other. The services of a full-time dentist shall also be provided. The physician and the dentist shall stay at the workplace during the shift which has the biggest number of workers. The services of a full-time occupational health nurse and a full-time first-aider shall be provided for every work shift. The employer shall maintain in his place of employment an emergency medical and dental clinic for his workers.

(f) in large-scale industries where the number of workers is more than 2000, the employer shall provide the services of a full-time occupational health physician and a full-time dentist, each of whom shall stay in the premises of the workplace eight (8) hours a day, six (6) times a week during the work shift which has the biggest number of workers. In addition, the employer shall provide the services of one (1) part-time occupational health physician for each of the other work shifts who shall stay in the premises of the workplace at least four (4) hours a day, six (6) times a week. The services of a full-time occupational health nurse and a full-time first-aider shall also be provided for every work shift. The employer shall maintain in his place of employment an emergency hospital having a bed capacity of one (1) bed for every one hundred (100) workers and a dental clinic.

(g) every employer of industries/establishments having factories/plants using or producing pesticides under toxicity categories I and HI of the World Health Organization (WHO) toxicity classification standards shall provide for his workers the following:

(i) a medical clinic within 100 meters of working area in the formulating/manufacturing plant.

(ii) the services of a competent full-time occupational health physician who shall stay in the medical clinic provided for above, at least eight (8) hours a day during the work shift which has the biggest number of workers:

(iii) a bathroom with shower and eyewash facilities within or beside the medical clinic provided for above, and

(iv) an examining table with capacity to allow trendelenberg position.

(2) For non-hazardous workplaces:

(a) in small-scale industries where the number of workers is from 1 to 99, the employer shall provide the services of full-time first-aider who maybe one of the workers in the workplace and who has immediate access to the first-aid ' medicines prescribed under Rule 1963.01. Where the number of workers is from 51 to 99, an emergency treatment room shall be provided.

(b) in medium-scale industries where the number of workers is from 100 to 199, the employer shall provide the services of a part-time occupational health nurse who shall stay in the premises of the workplace at least four (4) hours a day, six (6) times a week. Where there are more than one work shift in a day, the nurse shall stay in the workplace during. the shift which has the biggest number of workers. The employer also provide the services of a full-time first-aider and shall maintain in his place of employment an emergency treatment room for his workers.

(c) in large-scale industries where the number of workers is from 200 to 600, the employer shall provide the services of a part-time occupational health physician and a part-time dentist each of whom shall stay in the premises. of the workplace at least four (4) hours a day, three (3) times a week, on alternate days with the other. Where there are more than one work shift in a day, the physician and the dentist shall stay in the workplace during the shift which has the biggest number of workers. In addition, the services of a full-time occupational health nurse and a full-time first-aider shall be provided. The employer shall maintain in his place of employment an emergency treatment room for his workers.

(d) in large-scale industries where the number of workers is from 601 to 2000, the employer shall provide the services of a part-time occupational health physician and a part-time dentist each of whom ~ stay in the premises of the workplace at least four (4) hours a day, six (6) times a week working in alternate periods with the other. Where there are more than one work shift in a day, the physician and the dentist shall stay in the workplace during the shift which has the biggest number of workers. The employer shall also provide the services of a full-time occupational health nurse and a full-time first-aider, and maintain in his place of employment an emergency clinic for his workers.

(e) in large-scale industries where the number of workers is more than 2000, the employer shall provide the services of a full-time occupational health physician and a full-time dentist, each of whom shall stay in the premises of the workplace eight (8) hours a day, six (6) times a week during the workshift which has the biggest number of workers. In addition, t-he employer shall provide the services of one part-time occupational health physician for each of the other workshift who shall stay in the premises of the workplace at least four (4) hours a day, six (6) times a week. The employer shall also provide the services of a full-time occupational health nurse for every work shift. The employer shall provide the services of a full-time first-alder and shall maintain in his place of employment an emergency medical and dental clinic for his workers.

(3) For both hazardous and non-hazardous workplaces:

(a) where there are more than one (1) work shift in a day, the employer shall, in addition to the requirements of this rule, provide the services of a full-time first-aider for every work shift.

(b) where only a treatment room is provided by the employer under this rule, he shall in addition, provide for his workers in case of emergency, access to the nearest medical/ dental clinic or to a medical/dental clinic located not more than five (5) kilometers away from the workplace. Such access shall be in the

form of providing the necessary transportation facilities and a written agreement with the medical/dental clinic to attend to such emergencies brought to them.

(c) the physician/dentist required to stay in the workplace during the workshift having the biggest number of workers shall be subject to call at anytime during the other shifts to attend to emergencies.

1963.03: Emergency Hospital:

(1) An employer may not establish an emergency hospital or dental clinic in his workplace as required in these regulations where there is a hospital or dental clinic which is located not more than five (5) kilometers away from the workplace, if situated in any urban area, or which can be reached in twenty-five (25) minutes of travel, if situated in a rural area, and the employer has facilities readily available for transporting workers to the hospital or clinic in case of emergency. For purposes of this Rule, the employer shall enter into a written contract with the hospital or dental clinic for the use of such clinic/hospital in the treatment of workers in case of emergency. However, this shall not excuse the employer from maintaining in his place of employment an emergency treatment room for his workers.

1963.04: Contracts for Occupational Health Services:

(1) Contracts for occupational health practitioner services entered into by employer shall only be with occupational health practitioners and/or occupational health clinics accredited by the bureau, or with an agency/institution organization duly authorized or recognized by the bureau.

(2) No occupational health practitioner, whether acting singly or as a part of a group/ association, shall enter into a contract for occupational health practitioner services with more than ten (10) establishments.

(3) No part-time occupational health physician/nurse shall enter into contract for occupational health services with more than four (4) establishments.

(4) When a full-time occupational health physician/nurse who is also a qualified occupational health practitioner, has entered into a contract for occupational health services with one (1) establishment, he/she shall not engage himself/herself, with or without a written contract, for the same services with any other establishment.

(5) Under no circumstances shall an employer enter into a retainership contract for health services in place of the occupational health services provided for under Rule 1960.

(6) The employer shall furnish the Bureau and the Regional Labor Office concerned a copy each of the contract for Occupational Health Services.

1964: Training and Qualification:

1964.01: Qualifications:

(1) A first-aider must be able to read and write and must have completed a course in first aid conducted by the Philippine National Red Cross or any organization accredited by the same.

(2) A nurse must have passed the examination given by the Board of Examiners for nurses and duly licensed to practice nursing in the Philippines with at least fifty (50) hours of Basic training in occupational nursing conducted by the Bureau/Region office concerned, the College of Public Health of the University of the Philippines, or by any institution/organization accredited by the former.

(3) A physician, whether part-time or full-time, must have passed the examination given by the Board of Examiners for Physicians, is licensed to practice medicine in the Philippines, and a graduate of Basic training course in occupational medicine conducted by the Bureau, the College of Public Health of the University of the Philippines, or by any institution/organization duly accredited by the former.

(4) A physician engaged by the employer of a hazardous establishment employing more than 2,000 workers, to be its full-time occupational health physician must have, in addition to the qualifications required under Rule 1964.01 (3), a diploma or master's degree in occupational health or industrial health or its equivalent or completed a residency training program in occupational medicine, must be duly certified by the Bureau, and must have registered with the Regional Labor Office.

(5) A dentist, whether part-time or full-time, must have passed the examination given by the Board of Examiners for Dentists, is licensed to practice dentistry in the Philippines, and has completed a basic training course in occupational dentistry, conducted by the Bureau of Dental Health Services of the Department of Health or any organization duly accredited by the same.

(6) An occupational health practitioner, as defined under Rule 1961.02, must have all of the following qualifications:

a. a graduate of an advanced training course in occupational health and safety conducted by the bureau, the College of Public Health of the University of the Philippines, or any institution/organization duly authorized/accredited or recognized by the former;

b. must have had at least five (5) years experience in the field of, or practice of occupational health and safety;

c. must be duly certified/accredited by the Bureau;

d. must have registered with the Regional Office concerned.

1964.02: Opportunity for Training:

(1) Nurses, physicians and dentists who do not possess the special training qualifications provided for in Rule 1964.01 shall, within six (6) months from the date of employment, comply with this requirement.

(2) All employers without the required trained first-aider on the date of effectivity of this Standards shall, within six (6) months have the required number of his workers undergo the prescribed training in first-aid.

1964.03: Refresher Training:

The occupational health personnel and the first-aiders of every establishment shall undergo a minimum of eight (8) hours refresher training course in their respective fields at least once a year.

1965: Duties of Employers:

1965.01:

It shall be the duty of every employer to:

(1) Establish in his workplace occupational. health services to provide a healthful place of work;

(2) Adopt and implement a comprehensive health program for his workers;

(3) Enter into a contract with hospitals or dental clinics, if these are not available in his workplace; and

(4) Maintain a health record of his programs and activities and submit an annual medical report, using form DOLE/BWC/HSD/OH-47, to the Regional Labor Office concerned, copy furnished the Bureau of Working Conditions on or before the last day of March of the year following the covered period.

1965.02: Duties of the Occupational Health Physician:

The Occupational Health Physician, whether part-time or full-time, who shall be responsible for promoting and maintaining the health and well-being of the workers, shall have the following duties and functions:

(1) Organize, administer and maintain an occupational health service program integrating therein an occupational safety program;

(2) Continually monitor the work environment for health hazards through periodic inspection of the workplace;

(3) Prevent diseases or injury in the workplace by establishing proper medical supervision over substances used, processes, and work environment;

(4) Conserve the health of the workers through physical examinations, proper advice for placement and health education;

(5) Provide medical and surgical care to restore health and earning capacity of injured workers;

(6) Maintain and analyze records of all medical cases and to prepare and submit to the employer annual medical reports, using form DOLE/BWC/OH-47, as required by this Standards;

(7) Conduct studies on occupational health within his means and resources;

(8) Act as adviser to management and labor on all health matters;

(9) And report directly to top management in order to be effective.

1965.03: Duties of the Dentist:

The duties of the dentist in the workplace shall be in accordance with the Standards prescribed by the Bureau of Dental Health Services, Department of Health.

1965.04: Duties of the Occupational Health Nurse:

The duties and functions of the Occupational Health Nurse are:

(1) In the absence of a physician, to organize and administer a health service program integrating occupational safety, otherwise, these activities of the nurse shall be in accordance with the physician;

(2) Provide nursing care to injured or ill workers;

(3) Participate in health maintenance examination. If a physician is not available, to perform work activities which are within the scope allowed by the nursing profession, and if more extensive examinations are needed, to refer the same to a physician;

(4) Participate in the maintenance of occupational health and safety by giving suggestions in the improvement of working environment affecting the health and well-being of the workers; and

(5) Maintain a reporting and records system, and, if a. physician is not available, prepare and submit an annual medical report, using form DOLE/BWC/HSD/OH-47, to the employer, as required by this Standards.

1965.05: Duties of the First-Aider:

The duties of the First-Aider are to:

(1) Give immediate temporary treatment in case of injury or illness, before the services of a physician becomes available. If the case needs a physician the first-aider shall immediately call or refer the injured to one;

(2) Participate in the maintenance of occupational safety and health programs, if a member of the Safety Committee; and

(3) Maintain medical services and facilities.

1965.06: Duties of the Occupational Health Practitioner:

The duties of the occupational health practitioner are to:

(1) Advise the employers, the workers and their representatives in the workplace the necessary requirements in establishing and maintaining a safe and healthful working environment which will facilitate optimal physical and mental health for workers;

(2) Conduct periodic inspection of the workplace as required under Rule 1961.04;

(3) Act as adviser to the employer, workers and their representatives in matters concerning the organization, administration and maintenance of an occupational health program; and

(4) Maintain a reporting and records system and prepare and submit an annual medical report for the employer, using form DOLE/BWC/HSD/OH-47, as required by this Standards.

1966: Occupational Health Program:

1966.01:

The employer shall organize and maintain an occupational health program to achieve the following objective:

(1) Assess the worker's physical, emotional and psychological assets as well as his liabilities in order to facilitate his proper placement and ensure the suitability of individuals according to their physical capacities, mental abilities and emotional make-up in work which they can perform with an acceptable degree of efficiency without endangering their own health and safety and that of their co-workers;

(2) Protect employees against health hazards in their working environment in order to prevent occupational as well as non-occupational diseases;

(3) Provision for first-aid, emergency services and treatment depending on the nature of the industry;

(4) Assure adequate medical care of ill and injured workers;

(5) Encourage personal health maintenance and physical fitness and proper nutrition practices; and

(6) Provide guidance, information and services for family planning programs.

1966.02:

The Health Program shall include the following activities:

(1) Maintenance of a healthful work environment by requiring occupational health personnel to conduct regular appraisal of sanitation conditions, periodic inspection of premises, including all facilities therein, and evaluate the working environment in order to detect and appraise occupational health hazards and environmental conditions affecting comfort and job efficiency;

(2) Health Examinations:

a) Entrance;

b) Periodic;

c) Special examination;

d) Transfer examination;

e) Separation examination.

(3) Diagnosis and treatment of all injuries and occupational and non-occupational diseases;

(4) Immunization programs; and

(5) Accurate and complete medical records of each worker starting from his first examination or treatment, which must be under the exclusive custody and control of the occupational health personnel. Such records shall be made available to the worker or his duly authorized representative and ~ not be used for discriminatory purpose or in any other manner prejudicial to his interest.

(6) Health Education and Counseling in which the occupational health and safety personnel shall cooperate with the supervisors in imparting appropriate health and safety information to employees, such as health hazards and proper precautions, habits of cleanliness, orderliness, safe work practices, use and maintenance of available personal protective clothing and devices, and the use of available health services and facilities; and

(7) Nutrition program which shall be under the dietician and supervised by a physician if the latter is present.

1967: Physical Exanimation:

(1) All workers, irrespective of age and sex, shall undergo physical examination:

a. before entering employment for the first time;

b. periodically, or at such intervals as may be necessary on account of the conditions or risks involved in the work;

c. when transferred or separated from employment; and

d. when injured or ill.

(2) All examinations shall:

a. be complete and thorough;

b. be rendered free of charge to the workers; and

c. include X-ray or special laboratory examinations when necessary due to the peculiar nature of the employment.

(3) The results of these physical examinations shall be recorded carefully and legibly on appropriate forms by the health service personnel charged with such responsibility.

(4) Records of physical examinations and all information obtained by the health personnel shall be considered strictly confidential.

1967.01: Pre-employment/Pre-placement Physical Examinations:

(1) Pre-employment Physical examination shall be conducted:

a. to determine the physical condition of the prospective employee at the time of hiring: and

b. to prevent the placement of a worker on a job where, through some physical or mental defects, he may be dangerous to his fellow workers or to property.

(2) Pre-employment physical examination shall:

a. be a general clinical examination including special laboratory examinations when necessary due to the peculiar nature of the workers prospective employment;

b. include chest x-ray examinations. Under the following circumstances, x-ray examinations " be rendered free of charge.

i. where the employer or establishment is required by these Rules to engage the services of an Occupational Health physician and where there are x-ray facilities in the establishment;

ii. where the employer does not maintain such facilities, x-ray examinations shall be conducted by;

aa. government clinics or hospitals;

bb. the occupational health physician; and

cc. private clinics or hospitals when applicants are referred to them.

iii. in all other instances, the applicant shall pay the cost of the examination.

(3) At the completion of the examination, the applicant shall he rated as follows:

CLASS A - Physically fit for any work

CLASS B - Physically under-developed or with correctible defects, (error of refraction dental caries, defective hearing, and other similar defects) but otherwise fit to work,

CLASS C - Employable but owing to certain impairments or conditions, (heart disease, hypertension, anatomical defects) requires special placement or limited duty in a specified or selected assignment requiring follow-up treatment/periodic evaluation.

CLASS D - Unfit or unsafe for any type of employment (active PTB, advanced heart disease with threatened failure, malignant hypertension, and other similar illnesses).

1967.02: During Employment:

1967.03: Periodic Annual Medical Examinations:

Periodic annual medical examinations shall be conducted in order to follow-up previous findings, to allow early detection of occupational and non-occupational diseases, and determine the effect of exposure of employees to health hazards. These examinations:

(1) Shall be as complete and as thorough as the pre-employment examinations and include general clinical examinations.

(2) Shall include all special examinations and/or investigations deemed necessary for the diagnosis of these diseases which will be free of charge in case the workers are exposed to occupational health hazards.

(3) Shall include, whenever feasible, a chest x-ray examination at least once a year which shall be rendered free of charge to the workers,

(4) Shall be as frequent as the nature of employment may warrant taking into consideration the special hazards involved and their relative importance.

(5) Shall include regular biochemical monitoring which shall be conducted free of charge for workers exposed to toxic substances/pesticides classified under toxicity categories I and II of the World Health Organization (WHO) toxicity classification standards.

(6) Shall have an interval of not longer than one year between two (2) consecutive periodic physical examinations.

1967.04:

In occupations where there is a risk to the health of the worker either due to toxic substances they handle or of the environment in which they work, only persons who are pronounced medically fit shall be employed.

1967.05:

When occupational disease have been detected . in workers and continued employment might jeopardize their health, their employment shall be discontinued until after their complete or satisfactory recovery. If circumstances permit, such workers shall meanwhile be given some other job consistent with their state of health and which shall not impede or retard their recovery.

1967.06: Transfer Examinations:

Applicants examined for employment and accepted for specific work or job shall not be transferred to another work or job until they have been examined by the physician and certified that the transfer is medically advisable.

1967.07: Other Special Examinations:

Special examinations may be required where there is undue exposure to health hazards, such as lead, mercury, hydrogen sulfide, sulfur dioxide, nitro glycol and other similar substances.

1967.08. Return to Work Exanimations:

A return to work examination shall be conducted:

(1) to detect if illness of the worker is still contagious;

(2) to determine whether the worker is fit to return to work, and

(3) After prolonged absence for health reasons, for the purpose of determining its possible occupational causes.

1967.09 : Separation from Employment Exanimation:

An employee leaving the employment of the company shall, if necessary, be examined by the occupational health physician:

(1) to determine if the employee is suffering from any occupational disease;

(2) to determine' whether he is suffering from any injury or illness which has not completely healed; and

(3) to determine whether he has sustained an injury

RULE 1970

FEES

1971 General Provisions:

(1) In the conduct of the administration and enforcement of this Standards, reasonable fees shall be collected for such services except for technical safety inspection. Fees for technical safety inspection shall be as provided in the National Building Code of the Philippines, PD 1096, and shall be paid to the Building Official.

(2) All fees collected shall be covered by official receipts.

(3) The amount collected shall be deposited with the National Treasury to the credit of the Department of Labor and Employment.

1972 Explosives.

(1) Safety Inspection Fees

(a) For explosive plants with five (5) or less Class I magazine. For additional Class I magazine in excess of five (5) f	600.00 40.00
(b) For plants manufacturing explosive with five (5) or less Class II magazine For every additional Class II magazine in excess of five (5)	40.00 20.00
(c) For non-manufacturing establishments maintaining Class I magazine For every additional Class II magazine	200.00 20.00
(d) For non-manufacturing establishments maintaining two (2) or less Class 11 magazines For every additional Class II magazine in excess of two (2)	100.00 10.00

(2) Plan Checking Fee:

(a) Explosive Plants	200.00
(b) Magazine for non-manufacturing plants Class I Class 11	40.00 40.00 10.00

1973: Local Fabrication of Boilers/Pressure Vessels:

Schedule of Service Fees:

1. Plan checking fees:

a. For checking fabrication plans of steam boiler up to 50 horsepower	60.00
over 50 to 200 hp	200.00
over 200 to 500 hp	350.00
over 500 hp	600.00
b For checking fabrication plans for pressure vessels up to 5.cu. ft.	15.00
over 5 cu. ft. to 10 cu ft.	25.00
over 10 cu. ft. to 30 cu ft.	30.00
over 30 cu. ft. to 50 cu ft.	40.00
over 50 cu. ft. to 100 cu ft.	50.00
for every cu. ft or fraction thereof in excess of 100 cu. ft	1.00
b. For checking fabrication plans for pressure vessels up to 5 cu. ft 15.00	

2. Inspection Fees;

a. For inspection during fabrication:	
boiler up to 10 hp	120.00
over 10 hp to 20 hp	145.00
over 20 hp to 30 hp	170.00
over 30 hp to 40 hp	200.00
over 40 hp to 50 hp	240.00
over 50 hp to 60 hp	300.00
over 60 hp to 70 hp	340.00
over 70 hp to 80 hp	360.00
over 80 hp to 90 hp	390.00
over 90 hp up to 100 hp	420.00
For each horsepower of fraction thereof in excess of 100 hp	1.50
b. For the examination and inspection during fabrication of pressure vessels up to	
5. cu. ft	15.00
over 5 cu., ft. to 10 cu. ft	25.00
over 10 cu. ft. to 30 cu. ft	40.00
over 30 cu. ft. to 50 cu. ft	50.00
over 50 cu. ft. to 100 cu. ft	70.00
For every cu. ft. or a fraction thereof in excess of 100 cu. ft	5.00

1974: Certificates of Safety Practitioners/Consultants:

(1) Consulting Organizations/Consultants:

(a) Certificates	200.00
(b) Annual Fee	100.00

(2) Safety Practitioners:

(a) Certificates	100.00	100.00
(b) Annual Fee	20.00	20.00

RULE 1980

AUTHORITY OF LOCAL GOVERNMENT

1981: General Provisions:

(1) The Department shall be solely responsible for the administration and enforcement of occupational safety and health laws in all workplaces. However, local governments may be authorized by the Secretary to enforce this Standards within their respective jurisdictions where they have adequate facilities and personnel for the purpose as determined by and subject to national standards prescribed by the Department.

(2) The Department or such other duly authorized engineers and other national government agents, as the Secretary may designate, shall enforce the requirements of the Electrical Engineering Law pertaining to the installation, operations, tending and maintenance of electric generating plans and pass upon applications for electrical construction or installation within their respective jurisdiction in all cases which are not acted upon by the Board of Power and Waterworks, the Department of National Defense, and the Bureau of Customs, and shall issue the corresponding permits if the plans and/or specifications submitted are in conformity with the provisions of this Standards.

1981.01: Types of Inspection:

For the purpose of this Standards, inspection activities shall be divided into Technical Safety

Inspection and General Safety Inspection.

(1) Technical Safety Inspection - shall refer to inspection for the purpose of safety determination of boilers, pressure vessels, internal combustion engines, electrical installations, elevators, hoisting equipment and other mechanical equipment.

(2) General Safety Inspection - shall refer to inspection of the work environment, including the location and operation of machinery other than those covered by technical safety inspections. adequacy of work space, ventilation, lighting, conditions of work environment, handling, storage or work procedures, protection facilities and other safety and health hazards in workplace.

1982: Authority to Chartered Cities:

The Department may delegate enforcement of this Standards to chartered cities, subject to the conditions provided herein, the authority to conduct technical safety inspection in workplaces within their respective jurisdictions, together with the undertaking of other related activities.

1982.01: City Service Plan:

Chartered cities that desire to assume responsibility for technical safety inspection as defined above shall submit a request to the Secretary, through the Regional Labor Office concerned with the following requirements:

(1) A plan containing:

a. Copy of the city ordinance or other appropriate authority enabling the city to establish and operate a safety service adequate for the purpose of technical safety inspection;

b. A description of the safety service as organized, including its organizational structure, statement of functions, name and qualifications of each personnel, tools and equipment available, and where the service shall be organizationally attached;

c. An undertaking that the safety standards established by the Department including rules, standards and orders shall be complied with in the conduct of the activities of the service:

d. The. number of establishments to be covered by inspection activities of the service; and

e. An undertaking that the reports required by said standards, rules and orders shall be submitted to the Department.

(2) Personnel:

Every safety service shall, for the purpose of technical safety inspection as provided herein, have at least one professional mechanical or electrical engineer for the first five hundred (500) inspectionable units and one registered mechanical or electrical engineer or master electrician for every other five hundred (500) inspectionable units depending on the safety service applied for, with the necessary clerical support personnel.

(3) Tools, Equipment and Other Facilities:

Every city safety service authorized to conduct technical safety inspection shall be equipped with the following:

a. Slide rule

b. Collapsible steel tape

c. Engineering Scale

d. Flashlight

e. Boiler testing hammer

f. Depth gauge, micrometer, inside and outside caliper

g. Inspector's test pressure gauge

h. Sealing pliers

i. Hook-on volt ammeter

j. Megger tester

k. Safety goggle

1. Tachometer

m. Hard hat

n. Safety shoes

The Department may add to this list of tools or equipment as the nature of the work may require.

1982.02: Processing and Approval of Request:

The Bureau shall conduct the necessary investigations to determine the capability of the city-applicant to conduct technical safety inspection in their respective jurisdictions. The city concerned shall make available all the facilities and the cooperation necessary for the proper conduct of such investigations. The request for authority shall be given due course if the Secretary is satisfied upon the completion of such investigation that the city safety service is adequate for the purpose of technical safety inspections,

subject to such conditions as the Secretary may prescribe, otherwise the applicant shall be informed on how it can meet the prescribed requirements.

1982.03: Effectivity of Authority:

(1) The authority delegated to chartered cities shall take effect upon approval by the Secretary of the plan after all the necessary administrative arrangement have been completed and the Secretary, after. proper investigation, is satisfied that the undertakings contained in the Plan have been complied with

(2) The authority delegated shall specify the technical areas and related activities for which it is granted.

1982.04: Duration of Authority:

The authority delegated to chartered cities by the Secretary shall be effective until otherwise withdrawn by him, after proper investigation, on grounds of failure of the city safety service to undertake its work in accordance with this Rule, the plan as approved, and the appropriate standards, rules and regulations established by the Department.

1982.05: Evaluation of Performance:

For the purpose of Rule 1982.04 hereof, the Secretary or his authorized representative shall from time to time verify compliance by the city safety service with the issuance therein stated, including spot-checking of tools and equipment used in the safety service, inspectionable units and establishments.

1982.06 : Assistance to City Safety Service:

The Department shall render assistance to any City Safety Service upon request in all matters affecting the performance of its safety functions.

1983: Authority of Municipalities:

A municipality which desires to assume authority to conduct technical safety inspection shall follow the procedure prescribed in 1982.01. The Secretary shall evaluate, reject or withdraw such plan in the same manner provided by this Rule.

1984: Authority of Other Government Agencies:

The Secretary may authorize other government agencies to conduct technical safety inspection as may be necessary in the attainment of the objectives of such agencies and the demands of national development. The application for authority shall be as required in this Rule.

1985: Application of this Standards to Existing Plans and Authorities:

All plans and authorities granted prior to the approval of this Standards shall remain in fun force for one year from the date this Standards takes effect. After said period, such plans and authorities shall be revised to conform with the provisions of this Standards.

1986: Duplication of Inspection:

(1) Where a delegation of authority has been granted, the Secretary shall not conduct similar inspection activities in the area covered by the delegation unless the authority is revoked or for audit purposes; and

(2) In the case of mobile inspectionable units, such as portable boilers, pressure vessels, and other similar units, the necessary annual inspection shall be conducted and the inspection fee paid only once a year regardless of the subsequent location of such inspectionable unit within the fee year.

RULE 1990

FINAL PROVISION

1991: False Statement or Representation:

Upon the effectivity of this Standards, it shall be unlawful for any person to make any statement, report or representation, as may be required for the effective implementation of the provisions of this Standards, knowing such statement, report or representation to be false in any material respect.

1992: Separability:

If any provision of this Standards or the application of such provision to any person or circumstance shall be declared invalid, the remainder of this Standards and the application of such provision to other persons or circumstances shall not be affected thereby.

1993: Resolution of Conflicts and Overlapping Jurisdictions:

In case any Rule in this Standards conflicts, duplicates or overlaps with regulations or rules prepared and implemented by other government agencies, such conflict, duplication or overlapping shall be resolved by coordination or any other means of cooperation among such agencies.

1994: Repeal of Prior Safety Orders:

All occupational safety and health rules, standards, orders or parts thereof which are inconsistent with this Standards are hereby repealed.

1995: Penal Provisions:

All violations of the provisions of this Standards shall be subject to the applicable penalties provided for in the Labor Code, PD 442 as amended.

1996 : Effectivity

This Standards shall take effect fifteen (15) days after its approval.