AN TOÀN NAM VIỆT

NAM VIỆT

THE DOCUMENT

ON GROUP 1 OCCUPATIONAL SAFETY TRAINING

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The training materials for Group 1 Occupational Safety training course were prepared by the teaching staff of An Toan Nam Viet in accordance with the framework program prescribed in Article 18 of Decree 44/2016/NĐ-CP and amended and supplemented in Decree 140/2018/NĐ-CP.

Course objectives

Target Audience	Course objectives
Group 1 subjects as defined in Decree 44/2016/ND-CP	After completing the course, students who are subjects of group 1 will have a basic understanding of the following basic knowledge: • General knowledge about the system of laws on labor safety and hygiene, standards and regulations, state regulations on labor safety in use, preservation, storage, inspection of machines, equipment, materials and substances with strict requirements on occupational safety. • Organization, management and implementation of occupational safety and hygiene at the establishment. • Basic knowledge about hazardous and harmful factors, preventive measures, improvement of working conditions. • Basic principles of first aid.

I. Overview of the System of Policies and Laws on Occupational Safety and Health

Based on the Constitution, the system of policies and laws on occupational safety and health has been basically formed according to the diagram (see diagram), in which the legal normative document is a document issued by a competent state agency according to procedures and order prescribed by law, including general rules of conduct, guaranteed by the State to be implemented to regulate social relations in the socialist direction.

II. Legal Documents Related to Group 1 Safety Training Materials

Document number	Main Content	Date of issuance
A. Law		
25/2008/QH12	Health Insurance Law	14/11/2008
10/2012/QH13	Labor Law	18/06/2012
46/2014/QH13	Law amending and supplementing a number of articles of the Health Insurance Law	13/06/2014
58/2014/QH13	Social Insurance Law	20/11/2014
84/2015/QH13	Law on Occupational Safety and Hygiene	25/06/2015
B. Decree		
95/2013/NĐ – CP	Regulations on administrative sanctions in the field of labor, social insurance and sending Vietnamese workers to work abroad under labor contracts.	22/08/2013
59/2015/NĐ - CP	Regulations on management of investment projects in construction	18/06/2015
88/2015/NĐ - CP	Amending and supplementing a number of articles of Decree 95/2013/ND-CP	07/10/2015
85/2015/NĐ – CP	Regulations detailing a number of articles of the Labor Code on policies for female workers	01/10/2015
115/2015/NĐ – CP	Regulations on a number of articles of the Social Insurance Law on compulsory insurance	11/11/2015
37/2016/NĐ – CP	Regulations detailing and guiding the implementation of a number of articles of the Law on Occupational Safety and Health on compulsory occupational accident and occupational disease insurance	15/05/2016
39/2016/NĐ – CP	Regulations detailing a number of articles of the Law on Occupational Safety and Hygiene	15/05/2016
44/2016/NĐ – CP	Regulations detailing a number of articles of the Law on Occupational Safety and Hygiene on Occupational Safety Technical Inspection, Occupational Safety and Hygiene Training, and Occupational Environment Monitoring.	15/05/2016

155/2016/NĐ – CP	Regulations on sanctioning of administrative violations in the field of environmental protection	18/11/2016
42/2017/NĐ – CP	Amending Decree 59/2015/ND-CP	05/04/2017
44/2017/NĐ – CP	Regulations on the level of compulsory social insurance contributions to the occupational accident and occupational disease insurance fund	14/04/2017
C. Circular		
14/2013/TT - BYT	Guidelines for health examination	06/05/2013
27/2013/TT - BLĐTBXH	Regulations on occupational safety and health training	18/10/2013
04/2014/TT - BLĐTBXH	Guidelines for the implementation of the regime of equipping personal protective equipment	12/02/2014
14/2016/TT - BYT	Regulations detailing the implementation of a number of articles of the Social Insurance Law in the field of health	12/05/2016
15/2016/TT - BYT	Regulations on occupational diseases entitled to social insurance	15/05/2016
07/2016/TT - BLĐTBXH	Regulations on the content of organizing the implementation of occupational safety and hygiene for production and business establishments	15/05/2016
08/2016/TT - BLĐTBXH	Guidelines for collecting, storing, synthesizing, providing, publishing, and evaluating the situation of occupational accidents and technical incidents causing serious occupational safety and hygiene unsafety	15/05/2016
13/2016/TT - BLĐTBXH	List of jobs with strict requirements on occupational safety and hygiene	16/06/2017
19/2016/TT - BYT	Guidelines for occupational hygiene management and workers' health	30/06/2016
28/2016TT – BYT	Guidelines for Occupational Disease Management	30/06/2016
41/2016/TT - BLĐTBXH	Regulations on the minimum price for technical safety inspection services for machines, equipment, materials and substances with strict requirements on occupational safety	11/11/2016

53/2016/TT– BLĐTBXH	Issuing a list of machines, equipment, materials and substances with strict requirements on occupational safety	28/12/2016
54/2016/TT– BLĐTBXH	Issuing 30 procedures for technical safety inspection of machines, equipment and materials with strict requirements on occupational safety under the management authority of the Ministry of Labor, War Invalids and Social Affairs	28/12/2016
16/2017/TT–BLĐTBXH	Regulations detailing a number of contents on technical safety inspection activities for machines, equipment and materials with strict requirements on occupational safety	08/06/2017
19/2017/TT– BLĐTBXH	Regulations detailing and guiding the implementation of occupational safety and hygiene training activities	03/07/2017
10/2017/TT – BCT	Issuing 18 procedures for technical safety inspection of machines, equipment and materials with strict requirements on occupational safety under the management authority of the Ministry of Industry and Trade	03/07/2017

III. Overview of the System of Standards and Regulations

Document number	Main Content	Date of issuance
A. Personal protective equipment (PPE)		
TCVN 1841:1976	Leather, imitation leather and canvas protective gloves	04/12/1976
TCVN 3580:1981	Protective glasses - Light filters to protect eyes	1981
TCVN 5082:1990	Eye protection equipment - Technical requirements	1990

TCVN 5083:1990	Eye protection equipment for welding and light filter observation techniques - Requirements for use and light transmission	1990
TCVN 6407:1998	Industrial safety helmets	1998
TCVN 6689:2000	Protective clothing	2000
TCVN 7312:2003	Dust masks with filter	2003
TCVN 7547:2005	Personal protective equipment	17/02/2006
OSHAS 18000:2007	Ear protection equipment	2007
TCVN 7654:2007	Specialized work boots	2007
TCVN 7802 – 1:2007	Personal fall arrest system - Full body harness	2007
TCVN 7802 – 2:2007	Personal fall arrest system - Lanyard and energy absorber	2007
TCVN 7802 – 3:2007	Personal fall arrest system - Self-retracting lifeline	2007
TCVN 7802 – 4:2008	Personal fall arrest system - Vertical rail and vertical lifeline combined with sliding fall arrester	2008
TCVN 7802 – 5:2008	Personal fall arrest system - Connecting elements with self-locking and self-closing gates	2008
TCVN 7802 – 6:2008	Personal fall arrest system - Functional tests of the system	2008
TCVN 8084:2009	Electrically insulating gloves	2009
TCVN 8197:2009	Safety boots with chainsaw cut resistance	2009
TCVN 6875:2010	Protective clothing against heat and flame	2010
QCVN 10/2012/BLĐTBXH	Occupational safety for filters used in masks and half masks	05/01/2012
QCVN 08/2012/BLĐTBXH	Respiratory protective equipment - dust filter	16/04/2012
QCVN 02/2012/BLĐTBXH	Industrial safety helmets	16/02/2012

QCVN 23:2014/BLĐTBXH	National technical regulations on personal fall arrest systems	30/12/2014
QCVN 27/2016/BLĐTBXH	Eye protection in welding	28/12/2016
QCVN 28/2016/BLĐTBXH	Automatic filter used in welding masks	28/12/2016
B. Electrical Safety		
TCVN 2572:1978	Electrical safety signs	1978
TCVN 3145:1979	Safety requirements for electrical switching devices with voltages up to 1000V	27/12/1979
TCVN 3256:1979	Electrical safety - Terms and Definitions	1979
TCVN 4114:1985	Safety requirements for electrical equipment with voltages above 1000V	17/12/1985
TCVN 4115:1985	Residual current devices for the protection of persons in mobile electrical machines and appliances with voltages up to 1000V	17/12/1985
TCVN 5587:2008	Foam-filled insulating tubes and solid insulating rods for live working	17/12/1985
QCVN 01/2008/BCT	National Standard on Electrical Safety	17/06/2008
TCVN 7114 – 1:2008	Ergonomics Lighting of indoor workplaces	2008
TCVN 7114 – 3:2008	Ergonomics Lighting of workplaces - Requirements for safety lighting and protection at outdoor workplaces	2008
TCVN 9358:2012	Installation of equipment grounding systems for industrial works	2012
TCVN 9385:2012	Lightning protection for construction works	2012
TCVN 7722 – 2 – 4:2013	On electric lamps - Part General purpose portable electric lamps	2013
TCVN 7722 – 2 – 4:2013	On electric lamps - Part Hand lamps	2013
TCVN 7722 – 2 – 22:2013	On electric lamps - Part Electric lamps for emergency lighting	2013

TCVN 9621 – 4 :2013	Effects of current on human beings and livestock - Part Effects of lightning	2013
TCVN 9621 – 5 :2013	Effects of current on human beings and livestock - Part Touch voltage threshold values for physiological effects	2013
TCVN 9626:2013	Live working - Part Insulating mats	2013
TCVN 9629:2013	Live working - Part Insulating ladders	2013
TCVN 9888 – 2:2013	Lightning protection - Part Risk management	2013
TCVN 9888 – 3:2013	Lightning protection - Part Physical damage to structures and life hazard	2013
TCVN 9888 – 4:2013	Lightning protection - Part Electrical and electronic systems within structures	2013
QCVN 14/2013/BLĐTBXH	National Standard on occupational safety for electrically insulating footwear	30/12/2013
QCVN 15/2013/BLĐTBXH	Foam-filled insulating tubes and solid insulating rods for live working	30/12/2013
C. Fire and explosion prevention		
TCVN 3255:1986	Explosion safety - General requirements	1986
TCVN 3254:1989	Fire safety - General requirements	1989
TCVN 4879:1989	Fire protection - Safety signs	1989
TCVN 5279:1990	Fire and explosion safety - Combustible dust	1990
TCVN 5303:1990	Fire safety - Terms and definitions	1990
TCVN 6100:1996	Fire protection - Carbondioxide extinguishing agent	1996
TCVN 6102:1996	Fire protection - Foam extinguishing agent	1996
TCVN 6103:1996	Fire protection - Smoke control	1996
TCVN 6060:1996	Fire protection - High-rise buildings	1996
TCVN 6061:1996	Fire protection - Markets, Commercial Centers	1996

TCVN 4878:2009	Fire protection - Fire classification	2009
D. Occupational Safety, Health, and Environment		
TCVN 2288:1978	Hazardous and harmful factors in production	1978
1613/BYT – QĐ	Standards for classifying health for recruitment and periodic health examination for workers	1997
3733/2002/QĐ - BYT	Issuing 21 occupational hygiene standards, 05 principles and 07 occupational hygiene parameters	10/10/2002
TCVN 6705:2009	Solid waste	2009
TCVN 6707:2009	Hazardous waste - Warning signs	2009
QCVN 07/2009/BTNMT	National Technical Regulation on hazardous waste thresholds	16/11/2009
QCVN 19/2009/BTNMT	National Technical Regulation on industrial emissions for dust and inorganic substances	16/11/2009
QCVN 20/2009/BTNMT	National Technical Regulation on industrial emissions for some organic substances	16/11/2009
QCVN 21/2009/BTNMT	National Technical Regulation on industrial emissions from chemical fertilizer production	16/11/2009
QCVN 22/2009/BTNMT	National Technical Regulation on industrial emissions from thermal power	16/11/2009
QCVN 23/2009/BTNMT	National Technical Regulation on industrial emissions from cement production	16/11/2009
QCVN 24/2009/BTNMT	National Technical Regulation on industrial wastewater	16/11/2009
QCVN 25/2009/BTNMT	National Technical Regulation on industrial wastewater	16/11/2009
TCVN 5945:2010	Industrial wastewater standards	2013
QCVN 31/2010/BTNMT	National technical regulation on landfill leachate	29/12/2010
QCVN 32/2010/BTNMT	National technical regulation on environment for imported plastic scrap	29/12/2010

QCVN 33/2010/BTNMT	National technical regulation on environment for imported paper scrap	29/12/2010
QCVN 40/2011/BTNMT	National Technical Regulation on industrial wastewater	28/12/2011
QCVN 02/2012/BTNMT	National Technical Regulation on medical solid waste incinerators	28/12/2012
QCVN 30/2012/BTNMT	National Technical Regulation on industrial waste incinerators	28/12/2012
QCVN 1/NT/2015/BTNMT	National technical regulation on natural rubber pretreatment wastewater	31/02/2015
QCVN 2/NT/2015/BTNMT	National technical regulation on industrial wastewater from paper and pulp	31/03/2015
QCVN 13/T/2015/BTNMT	National technical regulation on industrial wastewater from textile dyeing	31/03/2015
QCVN 21/2016/BYT	National technical regulation on high frequency electromagnetic fields - permissible exposure levels for high frequency electromagnetic fields at workplaces	30/06/2016
QCVN 22/2016/BYT	National technical regulation on lighting - Permissible lighting levels at workplaces	30/06/2016
QCVN 23/2016/BYT	National technical regulation on ultraviolet radiation - Permissible exposure levels for ultraviolet radiation at workplaces	30/06/2016
QCVN 24/2016/BYT	National technical regulation on noise - Permissible exposure levels for noise at workplaces.	30/06/2016
QCVN 25/2016/BYT	National technical regulation on industrial frequency electromagnetic fields - Permissible exposure levels for industrial frequency electromagnetic fields at workplaces.	30/06/2016
QCVN 26/2016/BYT	National technical regulation on microclimate - Permissible values for microclimate at workplaces.	30/06/2016

QCVN 27/2016/BYT	National technical regulation on vibration - Permissible values at workplaces.	30/06/2016
E. Machines, equipment, materials, and substances with strict requirements on occupational safety		
E.1. Lifting equipment		
TCVN 4755:1989	Cranes - Safety requirements for hydraulic equipment	25/09/1989
TCVN 5206:1990	Lifting equipment - Safety requirements for counterweights and stabilizers	1990
TCVN 5206:1990	Lifting equipment - Safety requirements for counterweights and stabilizers	1990
TCVN 3147:1990	Safety regulations in loading and unloading machines	1990
TCVN 5180:1990	Electric hoists - general safety requirements	1990
TCVN 5207:1990	Lifting equipment - Container cranes safety requirements	1990
TCVN 4244:2005	Lifting equipment - Design, manufacture and technical inspection	2005
TCVN 7549 – 1:2005	Cranes - Safe use, general requirements	2005
TCVN 7549 – 3:2005	Cranes - Safe use, tower cranes	2005
TCVN 7549 – 4:2005	Cranes - Safe use, jib cranes	2005
TCVN 5757:2009	Steel wire ropes for general purposes	2009
TCVN 6396 – 2:2009	Hydraulic elevators - safety requirements for construction and installation	2009
TCVN 6396 – 3:2010	Safety requirements for the construction and installation of elevators. Part Electric and hydraulic lifts	2010
TCVN 6396 – 73:2010	Safety requirements for the construction and installation of elevators. Applies to passenger and goods lifts. Part Elevator status in case of fire	2010
TCVN 6397:2010	Safety requirements for the construction and installation of escalators and moving walks	2010

QCVN 22/2010/BGTVT	National technical regulation on the manufacture and inspection of loading and unloading equipment	09/09/2010
QCVN 07/2012/BLĐTBXH	National technical regulation on occupational safety for lifting equipment	30/03/2012
QCVN 11/2012/BLĐTBXH	National technical regulation on occupational safety for escalators and moving walks	19/12/2012
TCVN 6396 – 28:2013	Safety requirements for the construction and installation of elevators. Applies to passenger and goods lifts. Part Remote alarm on passenger lifts and passenger and goods lifts	2013
QCVN 18/2013/BLĐTBXH	National technical regulation on occupational safety for hydraulic elevators	30/12/2013
QCVN 27/2013/BLĐTBXH	National technical regulation on occupational safety for hoists	30/12/2013
QCVN 19/2014/BLĐTBXH	National technical regulation on occupational safety for ropeway systems for transporting people	30/12/2014
TCVN 6396 – 77:2015	Safety requirements for the construction and installation of elevators. Applies to passenger and goods lifts in the event of an earthquake	2015
TCVN 6396 – 77:2015	Safety requirements for the construction and installation of elevators. Applies to passenger and goods lifts in buildings in use	2015
TCVN 11074 – 4:2015	On cranes - Inspection - General requirements	2015
QCVN 20/2015/BLĐTBXH	National technical regulation on occupational safety for lifting platforms used to lift people	08/12/2015
QCVN 25/2015/BLĐTBXH	National technical regulation on occupational safety for engine-powered forklift trucks with a lifting capacity of 1,000 kg or more	08/12/2015
QCVN 26/2016/BLĐTBXH	National technical regulation on occupational safety for hydraulic elevators	28/12/2016
QCVN 29/2016/BLĐTBXH	Occupational safety for cranes	28/12/2016

QCVN 30/2016/BLĐTBXH	Occupational safety for cranes and gantry cranes	28/12/2016
E.2. Pressure equipment		
TCVN 2360:1978	Elliptical bottom with folded steel edge for containers, equipment and boilers	1978
TCVN 497:1989	Compressed air systems for the machine building industry - Check valves - Test methods	1989
TCVN 5181:1990	Air compressors - Technical requirements	1990
TCVN 5346:1991	Safety of boilers and hot water - General requirements for strength calculation	1991
TCVN 6155:1996	Pressure vessels - Safety technical requirements for installation, use and repair	1996
TCVN 6156:1996	Pressure vessels - Safety technical requirements for installation, use and repair - Part Test methods	1996
TCVN 4245:1996	Technical safety requirements in the production and use of oxygen and acetylene	1996
TCVN 6297:1997	Gas cylinders - Cylinders for permanent gases - Inspection at the time of filling	1997
TCVN 6304:1997	Liquefied gas cylinders - Safety requirements for storage, handling and transportation	1997
TCVN 6307:1997	Refrigeration systems - Test methods	1997
TCVN 6413:1998	Fixed fire tube boilers of welded construction (except water tube boilers)	1998
TCVN 6740:2000	Refrigerating compressors - Presentation of performance data	2000
TCVN 6741:2000	Refrigerating compressors - Test methods	2000
TCVN 7441:2004	Liquefied petroleum gas systems at the point of consumption - Requirements for design, installation and operation	2004
TCVN 6294:2007	Gas cylinders - Welded carbon steel gas cylinders - Periodic inspection and testing	2007

TCVN 7704:2007	Fixed fire tube boilers of welded construction (except water tube boilers)	1998
TCVN 6486:2008	Liquefied petroleum gas - Storage under pressure - Requirements for design and location of installation	2008
QCVN 01/2008/BLĐTBXH	National technical regulation on occupational safety of boilers and pressure vessels	27/11/2008
TCVN 8366:2010	Pressure vessels - Design and manufacturing requirements	2010
TCVN 6713:2013	Gas cylinders - Safety in operation	2013
TCVN 6715:2013	Gas cylinders - Dissolved acetylene gas cylinders - Inspection at the time of filling	2013
TCVN 7163:2013	Portable gas cylinders - Cylinder valves - Technical characteristics and type testing	2013
TCVN 7389:2013	Portable gas cylinders - Fitting cylinder valves to gas cylinders	2013
TCVN 9314:2013	Gas cylinders - Pressure relief valves - General requirements and type testing	2013
TCVN 9441:2013	Industrial valves - Pressure testing of metallic valves	2013
TCVN 10118:2013	Gas cylinders, cylinder bundles - Design, manufacture, testing and inspection requirements	2013
TCVN 10122:2013	Gas cylinders, compressed gas cylinders (except C2H2) - Inspection at the time of filling	2013
QCVN 04/2013/BCT	National technical regulation on safety of liquefied petroleum gas cylinders made of steel	31/07/2013
QCVN 04/2014/BCT	National technical regulation on safety of steam and hot water pipelines in power plants	15/12/2014
TCVN 6104 – 1:2015	Refrigeration and heat pump systems - Safety and environmental requirements Part Definitions, classification and selection criteria	2015

TCVN 10361:2014	Portable gas cylinders - Periodic inspection and testing of composite gas cylinders	2014
TCVN 10363:2014	Gas cylinders - Non-welded gas cylinders - Periodic inspection and testing	2014
TCVN 6104 – 2:2015	Refrigeration and heat pump systems - Safety and environmental requirements Part Design, construction, recording, testing and documentation	2015
TCVN 6104 – 3:2015	Refrigeration and heat pump systems - Safety and environmental requirements Part Installation site	2015
TCVN 6104 – 4:2015	Refrigeration and heat pump systems - Safety and environmental requirements Part Operation, maintenance, repair and recovery	2015
TCVN 6739:2015	Refrigerants - Designation and Safety Classification	2015
TCVN 11275:2015	Properties of refrigerants	2015
TCVN 11276:2015	Refrigeration and heat pump systems - Flexible hoses, vibration eliminators, expansion joints and non-metallic pipes - requirements and classification	2015
QCVN 21:2015/BLĐTBXH	National technical regulation on occupational safety for Steam and hot water pipelines	08/12/2015
QCVN 31:2017/BLĐTBXH	National technical regulation on occupational safety for Refrigeration systems	26/07/2017
E. Construction		
TCVN 4431:1987	Safety railings - Technical conditions	1987
TCVN 5308:1991	Technical regulations on safety in construction	1991
TCVN 6052:1995	Steel scaffolding	1995
TCXD VN 296:2004	Scaffolding - Safety requirements	2004
QCVN 45: 2012/BGTVAT	National technical regulation on passenger bus stations	12/12/2012
AS/ANZ 1577:2013	Scaffolding planks (Australian standard)	2013

QCVN 12:2013/BLĐTBXH	National technical regulation on occupational safety for suspended working platforms	2013
QCVN 12: 2013/BCT	National technical regulation on design requirements for petrol stations	18/06/2013
QCVN 18: 2014/BXD	National technical regulation on Safety in construction	05/09/2014
QCVN 10: 2014/BXD	National technical regulation on Construction of works to ensure access and use by people with disabilities	29/12/2014
E. Machines, Equipment, and Substances Used in Production		
TCVN 2292:1978	Painting work - General safety requirements	1978
TCVN 3146:1986	General safety requirements for electric welding work in manufacturing industries	1986
TCVN 4279:1989	Metal cutting machine safety techniques - Requirements for electrical equipment	1989
TCVN 5184:1990	Metal cutting machines - Specific safety requirements for the structure of drilling machines	1990
TCVN 5881:1995	Small vertical drilling machines	1995
TCVN 4245:1996	General safety requirements in the production and use of oxygen and acetylene	1996
TCVN 7014:2002	Machine safety - Safety distances to prevent danger zones being reached by persons	2002
TCVN 7300:2003	Machine safety - Prevention of unexpected start-up	2003
TCVN 7302 – 2:2003	Ergonomic design for machine safety - Principles for determining the dimensions required for workspaces	2003
TCVN 7302 – 3:2003	Ergonomic design for machine safety - Anthropometric data	2003
TCVN 7387 – 1:2004	Machine safety - Common means of access to machinery Part Selection of fixed means of access between two levels	2004

TCVN 7302 – 1:2007	Ergonomic design for machine safety - Principles for determining dimensions. Requirements for openings allowing whole body access into machinery	2007
TCVN 7387 – 2:2007	Machine safety - Common means of access to machinery Part Working platforms and walkways	2007
TCVN 7301 – 1:2008	Machine safety - Risk assessment - Part Principles	2008
TCVN 7301 – 1:2008	Machine safety - Risk assessment - Part Practical guidance and examples of methods	2008
TCVN 8094 – 1:2009	Arc welding equipment - Part Welding power sources	2009
TCVN 7996 – 1:2009	Hand-held motor-operated electric tools - Safety - Part General requirements	2009
TCVN 7996 – 2 – 1:2009	Hand-held motor-operated electric tools - Safety - Part Requirements for drills and impact drills	2009
TCVN 7996 – 2 – 5:2009	Hand-held motor-operated electric tools - Safety - Part Requirements for circular saws	2009
QCVN 03:2011/BLĐTBXH	National technical regulation on occupational safety for electric welding machines and electric welding work	29/11/2011
TCVN 7387 – 3:2011	Machine safety - Common means of access to machinery Part Stairs, stepladders and guard-rails	2011
TCVN 7387 – 4:2011	Machine safety - Common means of access to machinery Part Fixed ladders	2011
TCVN 7996 – 2 – 7:2011	Hand-held motor-operated electric tools - Safety - Part Requirements for liquid spraying devices for non-flammable liquids	2011
TCVN 7996 – 2 – 11:2011	Hand-held motor-operated electric tools - Safety - Part Requirements for reciprocating saws	2011
TCVN 7996 – 2 – 13:2011	Hand-held motor-operated electric tools - Safety - Part Requirements for chain saws	2011
TCVN 7996 – 2 – 14:2011	Hand-held motor-operated electric tools - Safety - Part Requirements for planers	2011

TCVN 7996 – 2 – 19:2011	Hand-held motor-operated electric tools - Safety - Part Requirements for planer-thicknessers	2011
TCVN 7996 – 2 – 20:2011	Hand-held motor-operated electric tools - Safety - Part Requirements for jigsaws	2011
TCVN 9058:2011	Machine safety - Interlocking devices associated with guards - Principles of design and selection	2011
TCVN 9059:2011	Machine safety - Guards - General requirements for the design and construction of fixed and movable guards	2011
QCVN 09:2012/BLĐTBXH	National technical regulation on occupational safety for hand-held motor-operated electric tools	30/12/2013
QCVN 17:2013/BLĐTBXH	National technical regulation on occupational safety for gas welding equipment	30/12/2013

IV. State Management Regulations on Occupational Safety and Health When Constructing New, Renovating, Expanding Production Facilities, Using, Storing, and Inspecting Machines, Equipment, Materials, and Substances with Strict Requirements on Occupational Safety

1. Excerpts from the Law on Occupational Safety and Hygiene in the Group 1 Safety Training Materials

Article 31. Inspection of machines, equipment, materials and substances with strict requirements on occupational safety

1. Machines, equipment, materials, and substances with strict requirements on occupational safety must be inspected before being put into use and periodically inspected during use by an organization operating in the field of technical safety inspection.
2. The inspection of machines, equipment, materials, and substances with strict requirements on occupational safety must ensure accuracy, publicity, and transparency.
3. The Government shall specify in detail the competent authority to grant, conditions on facilities, techniques, order, procedures, dossiers for new issuance, re-issuance, extension, and revocation of Certificates of eligibility for operation of organizations operating in the field of technical safety

inspection; standards for inspectors to meet the inspection requirements of the inspected objects; the inspection of machines, equipment, materials, and substances with strict requirements on occupational safety.

2. Excerpts from Decree 44/2016/ND-CP in the Group 1 Safety Training Materials

Article 2. Subjects of application

1. Employers and employees as defined in Article 2 of the Law on Occupational Safety and Hygiene.
2. Public service units, enterprises and other organizations and individuals involved in technical safety inspection activities; occupational safety and hygiene training; and occupational environment monitoring.

Article 16. Responsibilities of organizations and individuals using machines, equipment, materials, and substances with strict requirements on occupational safety

1. Select an organization operating in the field of technical safety inspection to conduct the initial inspection before putting into use or periodic inspection during the use of machines, equipment, materials, and substances with strict requirements on occupational safety; only put into use machines, equipment, materials, and substances with strict requirements on occupational safety that have passed inspection.
2. Report to the Department of Labor, War Invalids, and Social Affairs in the locality within 30 days before or after putting into use machines, equipment, materials, and substances with strict requirements on occupational safety, unless otherwise specified by specialized laws.
3. Keep technical safety records of the inspected objects as prescribed in the national technical regulations on occupational safety and hygiene. In case of transfer (or sublease) of the inspected objects, the seller (or sublessor) must hand over all technical safety records to the buyer (or sublessee).
4. Facilitate the inspection organization to conduct the inspection, prepare all technical documents related to the inspected objects to provide to the inspector and send a representative to witness the inspection process.
5. Implement the recommendations of the inspection organization in ensuring safety during the use of the inspected objects. Do not continue to use the inspected objects with unsatisfactory inspection results or expired inspection.
6. Manage, use, and dispose of the inspected objects in accordance with the provisions of the national technical regulations on occupational safety and hygiene and according to the manufacturer's instructions.
7. The sample of the written report on the use of machines, equipment, materials, and substances with strict requirements on occupational safety is prescribed in Appendix Iđ issued together with this Decree.

Article 17. Subjects participating in occupational safety training courses

The subjects in Article 14 of the Law on Occupational Safety and Hygiene are divided into the following groups:

1. Group 1: Managers in charge of occupational safety and hygiene, including:
    - a) Heads of units, production and business establishments, and their affiliated departments, branches; heads of production, business, and technical departments; workshop supervisors or equivalents;
    - b) Deputies of the heads as prescribed in Point a, Clause 1 of this Article, who are assigned to be in charge of occupational safety and hygiene.
2. Group 2: Occupational safety and hygiene officers, including:
    - a) Full-time or part-time occupational safety and hygiene officers of the establishment;
    - b) Persons directly supervising occupational safety and hygiene at the workplace.
3. Group 3: Employees working in jobs with strict requirements on occupational safety and hygiene are those working in jobs on the List of jobs with strict requirements on occupational safety and hygiene issued by the Ministry of Labor, War Invalids and Social Affairs.
4. Group 4: Employees who do not belong to the groups prescribed in Clauses 1, 2, 3, and 5 of this Article, including apprentices, trainees, and probationers working for employers.
5. Group 5: Medical workers.
6. Group 6: Safety and hygiene officers as prescribed in Article 74 of the Law on Occupational Safety and Hygiene.

3. Excerpts from Circular 04/2017/TT-BXD in the Group 1 Safety Training Materials

Article 4. Responsibilities of the construction contractor

1. Before commencing construction, the contractor shall prepare and submit to the investor for approval a comprehensive plan on occupational safety. This plan shall be reviewed periodically or unscheduled to adjust to the actual construction situation on the site. The basic content of the comprehensive plan on occupational safety is prescribed in Appendix I of this Circular.
2. Establish an occupational safety management department as prescribed in Clause 1, Article 36 of Decree 39/2016/ND-CP and organize the implementation of the comprehensive plan on occupational safety for the part of the work it undertakes.
3. The main contractor or general contractor shall be responsible for inspecting the occupational safety management in the construction of the work for the parts of the work performed by the subcontractors. Subcontractors shall be responsible for complying with the regulations in this Article for the part of the work they undertake.
4. Organize the preparation of separate and detailed construction methods for specific works with high risk of occupational safety unsafety as prescribed in the national technical regulations on safety in construction works.
5. Stop construction when detecting the risk of occupational accidents or incidents causing occupational safety unsafety and take remedial measures to ensure safety before continuing construction.
6. Remedy the consequences of occupational accidents or incidents causing occupational safety unsafety occurring during the construction of the work.
7. Periodically or unscheduledly report to the investor on the results of the implementation of occupational safety management in the construction of the work as prescribed in the construction contract.
8. Perform other contents as prescribed by law on occupational safety and hygiene.

Article 5. Responsibilities of the investor

1. Approve the comprehensive plan on occupational safety in the construction of the work prepared by the contractor and organize the inspection and supervision of the contractor's implementation of the plan.
2. Assign and notify the tasks and powers of the occupational safety manager as prescribed in Clause 2, Article 115 of the Construction Law to the construction contractors.
3. Organize coordination between contractors to implement occupational safety management and resolve arising issues related to occupational safety in the construction of the work.
4. Suspend construction when detecting the contractor's violation of regulations on occupational safety management causing or at risk of causing occupational accidents or incidents causing occupational safety unsafety. Require the contractor to rectify to ensure occupational safety before allowing construction to continue.
5. Direct and coordinate with the construction contractor to handle and remedy the consequences when occupational accidents or incidents causing occupational safety unsafety occur; report incidents causing occupational safety unsafety; coordinate with competent authorities to resolve and investigate incidents related to machines, equipment, and materials as prescribed in Articles 18 and 19 of this Circular; organize the preparation of incident handling records for machines, equipment, and materials as prescribed in Article 20 of this Circular.
6. In the case of the investor hiring a project management consultant or a construction supervision consultant, the investor has the right to assign this consultant to perform one or several responsibilities of the investor as prescribed in this Article through a construction consultancy contract. The investor shall be responsible for supervising the implementation of the construction consultancy contract, handling related issues between the project management consultant, the construction supervision consultant with other contractors and with local authorities during the construction process of the work.
7. In the case of applying the type of general contract for design - supply of technological equipment - construction of the work (EPC) or turnkey contract (hereinafter referred to as general contractor), the responsibility for occupational safety management is prescribed as follows:
    - a) The investor has the right to assign the general contractor to perform one or several responsibilities of the investor as prescribed in this Article through a construction contract. The investor shall be responsible for inspecting and supervising the implementation of the construction contract and the compliance with regulations on occupational safety management in the construction of the work by the general contractor;
    - b) The general contractor shall perform the responsibilities assigned by the investor as prescribed in Point a of this Clause and perform the responsibilities prescribed in Article 4 of this Circular for the part of the work it undertakes.
8. The investor's implementation of the regulations in this Article does not reduce the responsibility for ensuring occupational safety of the construction contractors for the parts of the work they undertake.

Article 6. Responsibilities of the occupational safety management department of the construction contractor

1. Implement the comprehensive plan on occupational safety in the construction of the work approved by the investor.

2. Guide workers to identify hazardous factors that may cause accidents and measures to prevent accidents on the construction site; require workers to use adequate personal protective equipment correctly during work; inspect and supervise the compliance with occupational safety requirements for workers; manage the number of workers working on the construction site.
3. When detecting violations of regulations on occupational safety management or risks of occupational accidents or incidents causing occupational safety unsafety, promptly take corrective measures and handle them according to the contractor's internal regulations; decide to temporarily stop construction for work with risks of occupational accidents or incidents causing occupational safety unsafety; suspend the participation in work of workers who do not comply with technical safety measures or violate regulations on the use of personal protective equipment in construction and report to the construction site manager.
4. Proactively participate in rescuing and remedying occupational accidents or incidents causing occupational safety unsafety; participate in emergency response when requested by the investor, the employer, or competent state agencies.

Article 7. Responsibilities of workers on construction sites

1. Comply with the provisions of Article 17 of the Law on Occupational Safety and Hygiene.
2. Refuse to perform assigned tasks when they are deemed unsafe after reporting to the direct supervisor but not being rectified or handled, or the contractor does not provide adequate personal protective equipment as prescribed.
3. Only accept to perform tasks with strict requirements on occupational safety and hygiene after being trained and issued an occupational safety and hygiene card.

Article 8. Inspection of occupational safety management in construction work by specialized construction authorities

1. The inspection shall deal with: the compliance with the provisions of law on occupational safety management of the investor and contractors participating in investment and construction activities; the establishment and implementation of the comprehensive plan on occupational safety of the investor and contractors on the construction site..
2. Organization of occupational safety inspection in construction work:
    - a) For construction works prescribed in Clause 1, Article 32 of Decree 46/2015/ND-CP, the inspection authority shall be implemented as prescribed in Clause 2, Article 32 of Decree 46/2015/ND-CP;
    - b) For the remaining works, the People's Committee of the district level shall organize the inspection.
3. The competent authority prescribed in Clause 2 of this Article shall conduct the inspection as follows:
    - a) Inspect according to periodic or unscheduled plans or coordinate simultaneous inspection with the inspection of construction work acceptance as prescribed in Clause 8, Article 34 of Decree 59/2015/ND-CP;
    - b) Coordinate inspection according to the plan of the state management agency on labor.

4. Circular 53/2016/TT-BLDTBXH Issuing the list of machines, equipment, materials, and substances with strict requirements on occupational safety

(See the full text of the Circular in the lower reference section at the end of this Group 1 safety training document)

V. Organization and Safety Management Mechanism in Group 1 Safety Training Materials

1. Overview of the Organizational Chart of the Safety Management System in Group 1 Safety Training Materials

(Group 1 Safety Training Materials according to the Law on Occupational Safety and Hygiene)

2. Excerpts from Decree 44/2016/ND-CP Guiding a Number of Articles of the Law on Occupational Safety and Hygiene on Occupational Safety and Hygiene Inspection and Training

Article 72: Occupational Safety and Hygiene Department

1. Based on the size, nature of work, risk of occupational accidents, occupational diseases, and working conditions, the employer must assign personnel to carry out occupational safety and hygiene tasks or establish a department to manage occupational safety and hygiene tasks at the establishment.

The Government shall specify in detail this provision.

2. Occupational safety and hygiene officers or the occupational safety and hygiene department have the task of advising and assisting employers in organizing the implementation of occupational safety and hygiene at the production and business establishment, including the following main contents:
    - a) Develop internal regulations, procedures, and measures to ensure occupational safety and hygiene; fire and explosion prevention;
    - b) Develop and supervise the implementation of the annual occupational safety and hygiene plan; assess risks and develop emergency response plans;
    - c) Manage and monitor the reporting and inspection of machines, equipment, materials, and substances with strict requirements on occupational safety and hygiene;
    - d) Organize information dissemination, propaganda, and training activities on occupational safety and hygiene; first aid, emergency response, prevention and control of occupational diseases for workers;
    - đ) Organize self-inspection on occupational safety and hygiene; investigate occupational accidents and technical incidents causing occupational safety and hygiene unsafety according to the provisions of law;
    - e) Preside over and coordinate with the medical department to organize the supervision and control of hazardous and harmful factors;

- g) Synthesize and propose to the employer to resolve the recommendations of the inspection team, the inspection team and employees on occupational safety and hygiene;
- h) Coordinate with the Executive Board of the grassroots trade union to guide the implementation of the tasks of safety and hygiene officers;
- i) Organize emulation, commendation, disciplinary action, statistics, and reporting on occupational safety and hygiene.

3. Occupational safety and hygiene officers and the occupational safety and hygiene department have the following rights:
   - a) Request the person in charge of the production department to order a work stoppage or may decide to temporarily suspend work in case of emergency when detecting risks of occupational accidents to implement measures to ensure occupational safety and hygiene, and at the same time must report to the employer;
   - b) Suspend the operation of machines and equipment that are not safe or have expired;
   - c) Be provided by the employer with time to attend occupational safety and hygiene vocational training courses according to the regulations of law.
4. Occupational safety and hygiene officers must have technical expertise and knowledge of the production and business practices of the establishment.
5. In case the production and business establishment does not have enough personnel or does not establish an occupational safety and hygiene department according to the provisions of Clause 1 and Clause 4 of this Article, it must hire organizations with sufficient capacity according to the provisions of law to perform occupational safety and hygiene tasks as prescribed in Clause 2 of this Article.

Article 73. Medical department

1. Based on the size, nature of work, risk of occupational accidents and diseases, and working conditions, the employer must assign personnel to carry out medical tasks or establish a medical department responsible for the care and management of workers' health. (The Government shall specify in detail this provision.)
2. Medical officers or the medical department have the task of advising and assisting employers and directly implementing the management of workers' health, with the following main contents:
   - a) Develop plans, first aid and emergency response means, essential medicines, and scenarios for occupational accident emergency response, organize training on first aid and emergency response for workers at the establishment;
   - b) Develop plans and organize health examinations, occupational disease detection examinations, medical assessments to determine the level of work capacity reduction in case of occupational accidents or diseases, nursing and rehabilitation of work capacity, advise on preventive measures against occupational diseases; propose and arrange suitable working positions according to workers' health;
   - c) Organize regular medical examinations and treatment at the establishment and provide first aid and emergency response to victims of occupational accidents or technical incidents causing occupational safety and hygiene unsafety as prescribed;
   - d) Disseminate information on occupational hygiene, prevention and control of occupational diseases, and improve health at the workplace; inspect the compliance with hygiene regulations, organize disease prevention and control, ensure food safety

and hygiene for workers at the establishment; organize the implementation of material compensation as prescribed;

- đ) Establish and manage information on occupational hygiene at the workplace; organize occupational environment monitoring to assess harmful factors; manage workers' health records, health records of people with occupational diseases (if any);
- e) Coordinate with the occupational safety and hygiene department to perform relevant tasks as prescribed in Clause 2, Article 72 of this Law.

3. Excerpts from Decree 39/2016/ND-CP in the Group 1 Safety Training Materials

Article 36. Organization of the occupational safety and hygiene department

The organization of the occupational safety and hygiene department as prescribed in Clause 1, Article 72 of the Law on Occupational Safety and Hygiene is specified as follows::

1. For production and business establishments operating in the fields of mining, coke production, refined petroleum product production, chemical production, metal and metal product production, non-metallic mineral product production, construction, shipbuilding and ship repair, electricity production, transmission and distribution, the employer must organize an occupational safety and hygiene department that meets the following minimum requirements:
   - a) Production and business establishments employing less than 50 workers must assign at least 01 person to work on occupational safety and hygiene on a part-time basis;
   - b) Production and business establishments employing from 50 to under 300 workers must assign at least 01 person to work on occupational safety and hygiene on a full-time basis;
   - c) Production and business establishments employing from 300 to under 1,000 workers must assign at least 02 persons to work on occupational safety and hygiene on a full-time basis;
   - d) Production and business establishments employing over 1,000 workers must establish an occupational safety and hygiene department or assign at least 03 persons to work on occupational safety and hygiene on a full-time basis.
2. For production and business establishments operating in fields and industries other than those specified in Clause 1 of this Article, the employer must organize an occupational safety and hygiene department at the establishment to meet the following minimum requirements:
   - a) Production and business establishments employing less than 300 workers must assign at least 01 person to work on occupational safety and hygiene on a part-time basis;
   - b) Production and business establishments employing from 300 to under 1,000 workers must assign at least 01 person to work on occupational safety and hygiene on a full-time basis;
   - c) Production and business establishments employing over 1,000 workers must establish an occupational safety and hygiene department or assign at least 02 persons to work on occupational safety and hygiene on a full-time basis.
3. Persons working in occupational safety and hygiene on a full-time basis as prescribed in Clauses 1 and 2 of this Article must meet one of the following conditions:
   1. a) Have a university degree in technical majors; have at least 01 year of working experience in the field of production and business of the establishment;

2. b) Have a college degree in technical majors; have at least 03 years of working experience in the field of production and business of the establishment;
3. c) Have an intermediate degree in technical majors or directly perform technical work; have 05 years of working experience in the field of production and business of the establishment.

4. Persons working in occupational safety and hygiene on a part-time basis as prescribed in Clauses 1 and 2 of this Article must meet one of the following conditions:
    1. a) Have a university degree in technical majors;
    2. b) Have a college degree in technical majors; have at least 01 year of working experience in the field of production and business of the establishment;
    3. c) Have an intermediate degree in technical majors or directly perform technical work; have 03 years of working experience in the field of production and business of the establishment.

Article 37. Organization of the medical department

The organization of the medical department as prescribed in Clause 1, Article 73 of the Law on Occupational Safety and Hygiene is specified as follows:

1. For production and business establishments in the fields of processing and preserving aquatic products and products from aquatic products, mining, textile, garment, leather, footwear production, coke production, chemical production, rubber and plastic product production, waste recycling, environmental sanitation, metal production, shipbuilding and ship repair, construction material production, the employer must organize a medical department at the establishment to meet the following minimum requirements:
    - a) Production and business establishments employing less than 300 workers must have at least 01 medical worker with an intermediate degree;
    - b) Production and business establishments employing from 300 to under 500 workers must have at least 01 doctor/physician and 01 medical worker with an intermediate degree;
    - c) Production and business establishments employing from 500 to under 1,000 workers must have at least 01 doctor and each shift must have 01 medical worker with an intermediate degree;
    - d) Production and business establishments employing 1,000 or more workers must establish a medical facility in an appropriate organizational form as prescribed by law on medical examination and treatment.
2. For production and business establishments operating in fields and industries other than those specified in Clause 1 of this Article, the employer must organize a medical department at the establishment to meet the following minimum requirements:
    - a) Production and business establishments employing less than 500 workers must have at least 01 medical worker with an intermediate degree;
    - b) Production and business establishments employing from 500 to under 1,000 workers must have at least 01 physician and 01 medical worker with an intermediate degree;
    - c) Production and business establishments employing over 1,000 workers must have 01 doctor and 01 other medical worker.
3. Medical workers at the establishment prescribed in Clauses 1 and 2 of this Article must meet all of the following conditions:

- a) Have a medical qualification including: doctor, preventive medicine doctor, nursing bachelor, physician, secondary nurse, midwife;
- b) Have a certificate of occupational health expertise.

4. The employer must notify the information of the medical worker at the establishment according to the form in Appendix XXI issued together with this Decree to the provincial Department of Health, where the establishment has its head office.
5. In case the establishment cannot arrange medical workers or cannot establish a medical department as prescribed in Clauses 1, 2, and 3 of this Article, the production and business establishment shall comply with the following regulations:
   - a) Sign a contract with a medical examination and treatment establishment with sufficient capacity according to the following regulations: provide a sufficient number of medical workers as prescribed in Clauses 1, 2, and 3 of this Article; be present at the production and business establishment in time in case of emergency within 30 minutes for plain, town, and city areas and 60 minutes for mountainous, remote, and isolated areas;
   - b) Notify the information of the above medical examination and treatment establishment according to the form in Appendix XXII issued together with this Decree to the provincial Department of Health, where the establishment has its head office.

Article 38. Organization of the grassroots occupational safety and health council

The organization of the grassroots occupational safety and hygiene council as prescribed in Clause 1, Article 75 of the Law on Occupational Safety and Hygiene is specified as follows:

1. The employer must establish a grassroots occupational safety and hygiene council in the following cases:
   - a) Production and business establishments in the fields and industries prescribed in Clause 1, Article 36 of this Decree and employing 300 or more workers;
   - b) Production and business establishments operating in fields and industries other than those prescribed in Point a of this Clause, employing 1,000 or more workers;
   - c) Economic groups, state corporations.
2. Production and business establishments other than those prescribed in Clause 1 of this Article may establish an occupational safety and hygiene council if deemed necessary and eligible to operate..

VI. Hazardous and Harmful Factors in Group 1 Safety Training Materials

1. Terminology & Definitions (according to the Occupational Safety and Health Act & OSHAS 18001 - 2007)

- a./ Workplace: is an area where work-related activities are carried out under the control of the organization
- b./ Hazard: is a factor that causes unsafety, injury, or death to people during work.
- c./ Harmful factor: is a factor that causes illness or reduces human health during work.
- d./ Incident: is a work-related event in which an injury or health impairment (regardless of severity) or death is likely to occur
- e./ Hazard: is a source or situation with the potential to cause harm, injury, or ill health, or a combination of these
- f./ Risk: is the combination of the likelihood of an event or hazardous situation occurring and the severity of the injury or ill health resulting from that event or situation, including acceptable risk and unacceptable risk
- g./ Risk assessment: is the process of evaluating the risk from a hazard, taking into account the adequacy of existing controls and deciding whether the risk is acceptable
- h./ Warning: or preventive action is an action to eliminate, prevent, or prevent the recurrence (also known as corrective action) of potential nonconformities or potential undesirable situations

2. Classification of Hazardous and Harmful Factors at the Workplace in Group 1 Safety Training Materials

According to TCVN 2288: 1978, hazardous and harmful factors at the workplace are classified into 4 basic groups

- Group of physical and chemical factors
- Group of biological factors
- Group of psychological and physiological factors

Group of physical factors, group of chemical factors			
A. Group of physical factors			
Serial number	Causes	Serial number	Causes
1	Moving machinery, parts, objects... transmitting, moving...	10	Increased voltage, static electricity
2	Increased, decreased, or dusty air temperature...	11	Increased electromagnetic radiation, magnetic field strength, electric field strength
3	Increased or decreased air humidity	12	Lack or absence of natural light
4	Dust, substances in the air, increased or decreased surface temperature of materials and equipment	13	Insufficient illuminance at the workplace

5	Sudden increase, decrease, or change in the environmental pressure of the workplace, noise	14	Increased brightness
6	Increased levels of infrasound and ultrasound vibrations	15	Reduced contrast
7	Increased vibration levels	16	Direct and reflected glare
8	Increase or decrease in air movement or air ionization	17	Increased optical radiation fluctuations, ultraviolet radiation
9	Increased radiation in the working area	18	Increased levels of infrared radiation
B. Group of chemical factors			
- General toxic factors			
Serial number	Causes	Serial number	Causes
1	Hypersensitivity to contact	4	Mutagenic
2	Due to irritation	5	Affecting reproductive function
3	Carcinogenic factors		
- Effects through penetration into the human body			
1	Through the skin	3	Through the digestive tract
2	Through respiration		
c. Group of biological factors			
Serial number	Causes	Serial number	Causes
1	Impacts causing injury or illness	2	Plants, animals
d. Group of psychological and physiological factors			
Serial number	Causes	Serial number	Causes
1	Physical overload	2	Mental and psychological overload

3. Causes of hazardous and harmful factors in safety training document group 1

The causes of the emergence of hazardous and harmful factors arise from two main reasons:

a. Indirect Causes

- Due to society and the surrounding environment
- Management organization
- Inadequate arrangement and organization of the workplace
- Processes or procedures not suitable for production conditions
- Awareness and understanding of individuals in their work
- Lack of information sharing and cooperation between management and workers
- Other causes

b. Direct Causes

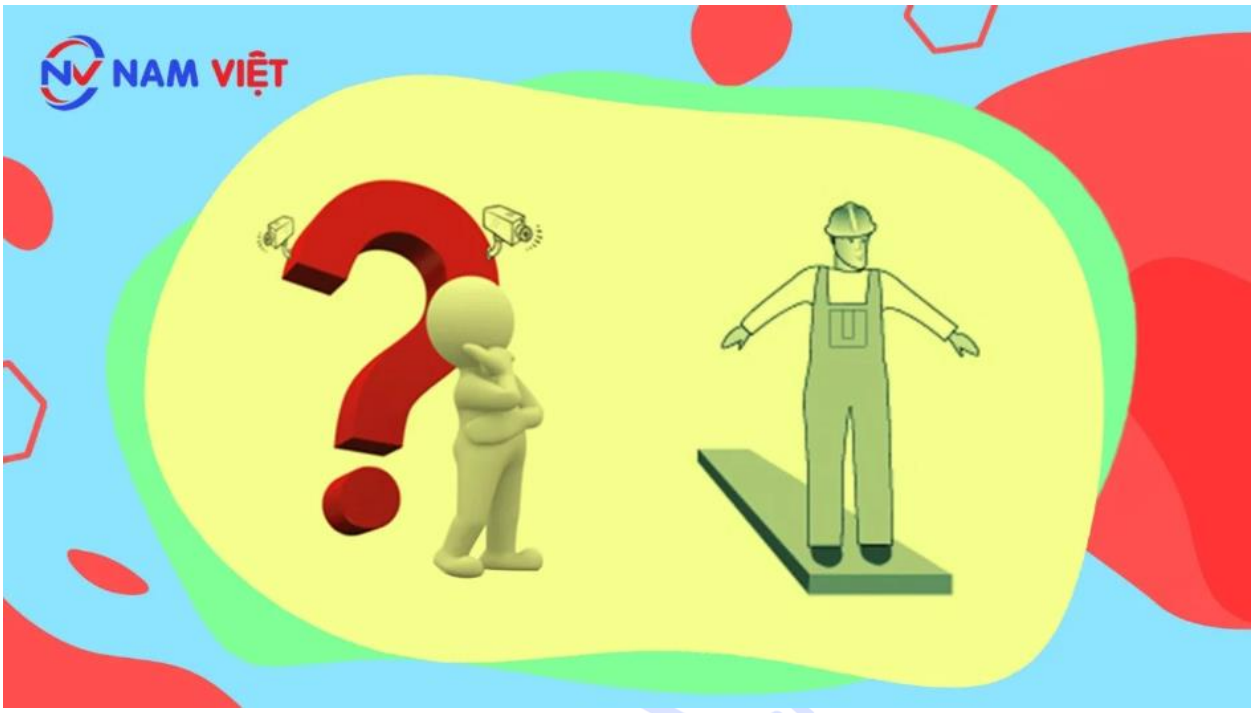
- Hazardous behavior of workers during labor
- Reluctance to report identified hazards or technical incidents
- Awareness and adherence to labor discipline during work or task execution
- Non-compliance or improper compliance with procedures
- Unforeseen events beyond control
- Other causes

4. Identification of Hazardous and Harmful Factors in Group 1 Safety Training Materials

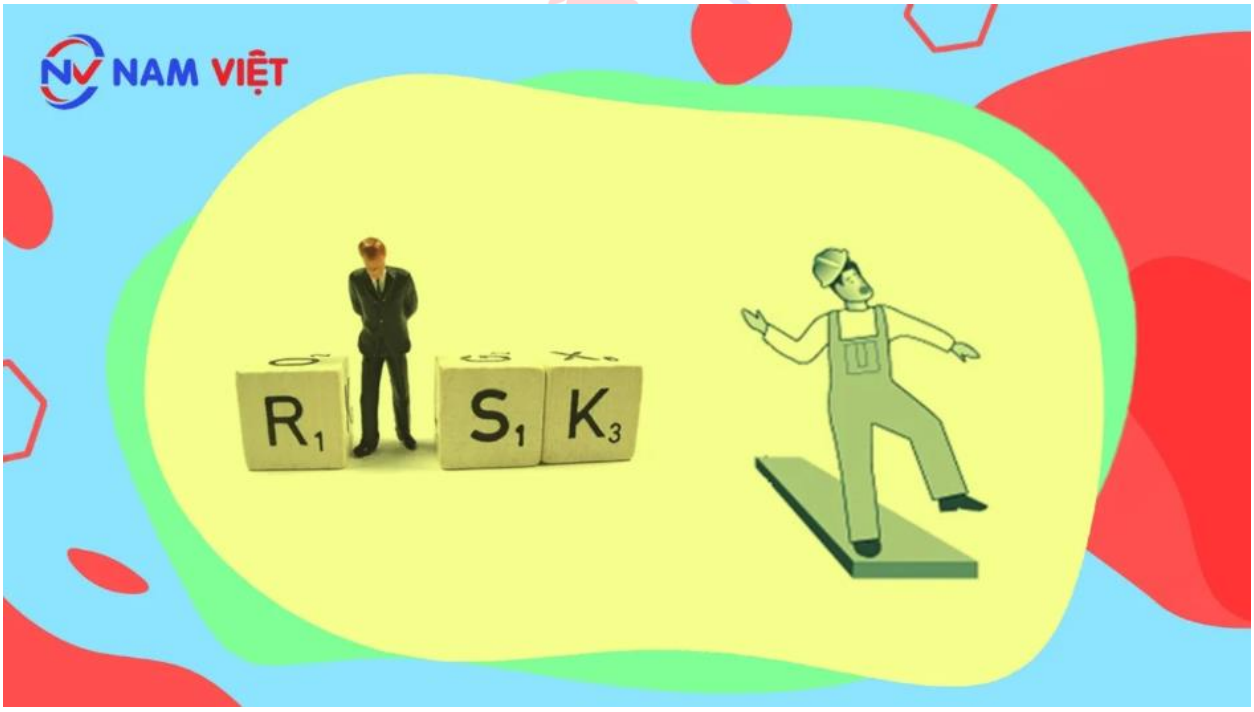
According to the work timeline diagram, hazardous and harmful factors, dangers, and risks are potential elements that can recur during work processes. Thus, evaluating and identifying these factors is essential to minimize and eliminate them, including acceptable hazards

Steps to identify hazardous, harmful factors, dangers, and risks before performing assigned tasks:

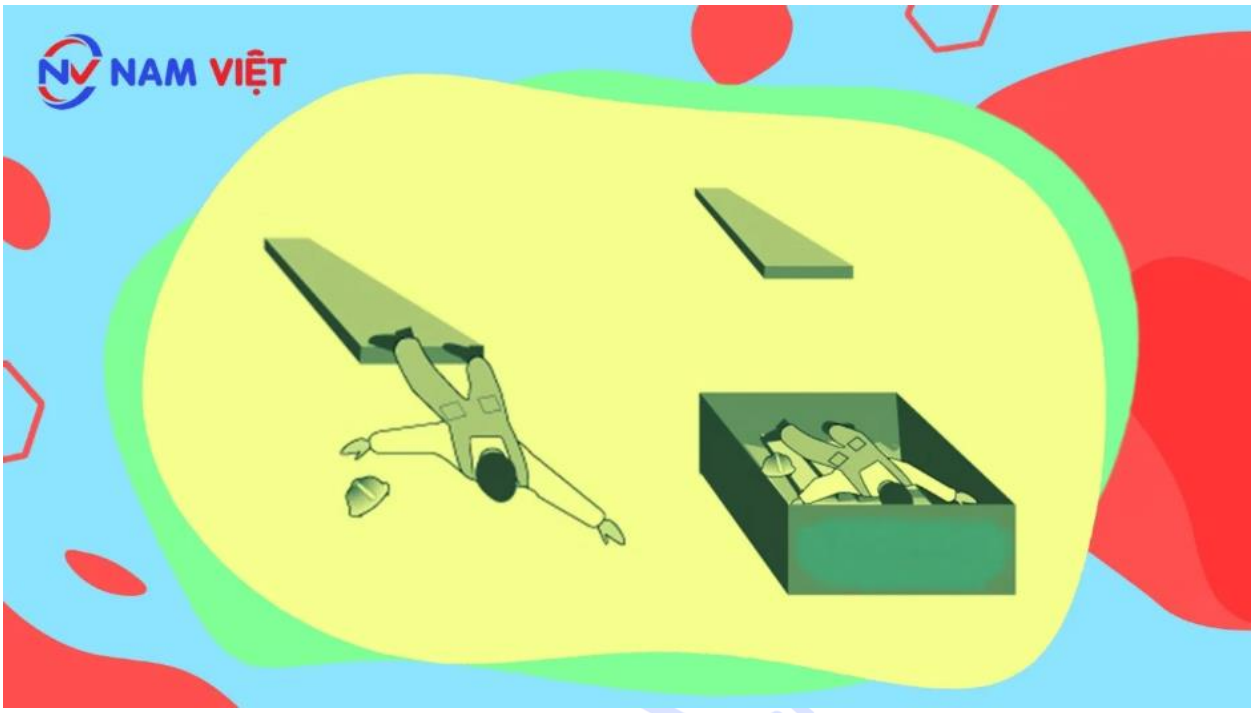
Step 1: Identify hazardous, harmful factors, and risks, including acceptable risks.



Step 2: Assess the potential risks through risk evaluation



Step 3: Identify the greatest possible risk, including acceptable risk.



Step 4: Measures to prevent and mitigate risks during work execution

Step 5: Administrative measures, technical measures

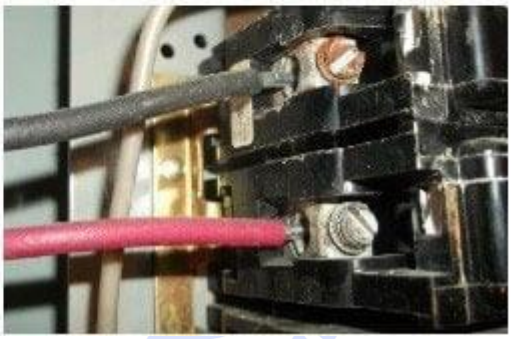
5. Dangerous and harmful factors that often occur at the workplace in the Safety Training Document Group 1

a. Electricity

Risks arising from the working environment such as:

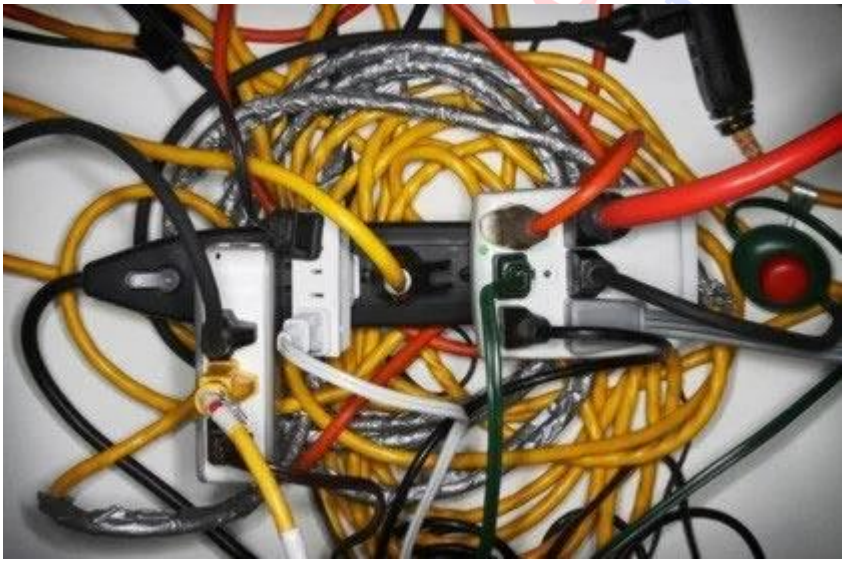
- Accumulation of static electricity from dust
- Humidity, mold, condensation on the surface of objects or equipment
- Chemical activity
- Conductive floor



Risks arising from human factors such as :

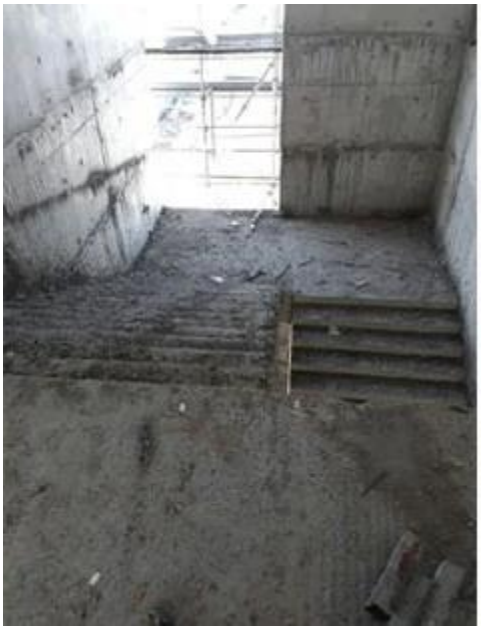
- Subjectivity in use
- Awareness and perception during use



b. Falls from Height

Risks arising from the working environment such as:

- Lack of barriers or warnings.
- Inappropriate barriers or warnings.




Risks arising from human factors such as:

- Complacency in work.
- Lack of awareness and perception during work.
- Not using personal protective equipment.

c. Crushing and Trapping

Risks arising from the working environment such as:

- Lack of guarding for moving parts.
- Failure to maintain, service, or repair machines according to schedule.

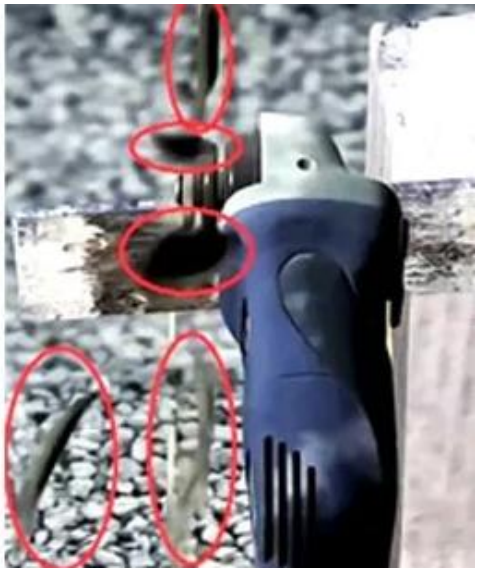
Risks arising from human factors such as:

- Complacency during work.
- Human awareness and perception.


d. Projectiles

Risks arising from the working environment such as:

- Lack of guarding for moving parts that generate projectiles.
- Lack of measures to control equipment before workers start working.

Risks arising from human factors such as:

- Not checking and complying with safety measures for using equipment.
- Using equipment incorrectly or not as intended.
- Not using personal protective equipment.


e. Falling, Collapsing Objects

Risks arising from the working environment such as:

- Lack of shielding or support measures.đỡ
- Due to management organization.


Risks arising from human factors such as:

- Violating internal rules, regulations, procedures, safety measures
- Not complying with warnings and instructions at the workplace
- Not organizing the workplace.

f. Traffic Accidents

Risks arising from the working environment such as:

- Lack of traffic warnings and guidance within the unit.
- Lack of internal rules, procedures, and safety measures.

Risks arising from human factors such as:

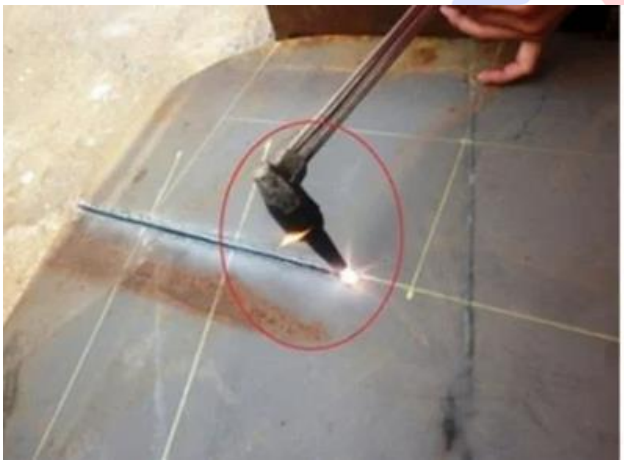
- Violating internal rules, regulations, procedures, safety measures.
- Using audio-visual devices or phones while operating vehicles.

- Not complying with warnings and instructions in areas where vehicles are operating.

g. Fire and Explosion

Risks arising from the working environment such as:

- Lack of warnings, fire prevention measures, and escape routes.
- Lack of procedures and safety measures for work prone to fire and explosion
- Unsafe equipment.




Risks arising from human factors such as :

- Violating internal rules, regulations, procedures, and safety measures.
- Not complying with warnings and instructions in areas with operating equipment.

h. Dust :

Risks arising from the working environment such as:

- Lack of shielding and control measures to limit dust in production
- Lack of or insufficient measures to check and shield dust before working.

Risks arising from human factors such as:

- Complacency and not implementing sufficient dust control measures
- Not using personal protective equipment

i. Working Posture:

Risks arising from the working environment such as:

- Inappropriate working position
- Unsuitable workspace.

Risks arising from human factors such as :

- Overexertion
- Inappropriate working posture.

VII. Improving working conditions in Safety Training Document Group 1

Working conditions are understood as the totality of natural, social, economic, and technical factors manifested through tools and means of labor, objects of labor, technological processes, the working environment, and their arrangement in space and time, their interaction in relation to workers at the workplace, creating certain conditions for people in the labor process. The psychological and physiological state of people while working at the workplace is also considered a factor closely associated with working conditions.

The working environment is the place where material and social components gather, where people carry out production and work activities. Many factors often appear here, which can be very comfortable and convenient for workers, but can also be very bad and harsh for people (for example: high or too low temperatures, high humidity, high concentrations of dust and toxic gases, high noise levels, lack of light...).

The factors appearing in the working environment are caused by the operation of machinery and equipment, by the impact and change of the object of labor, by the impact of people during the implementation of the technological process, and also by factors of climate and natural conditions.

The psychological and physiological state of workers while working is a very important subjective factor, sometimes it is the cause of incidents leading to occupational accidents and occupational diseases for themselves and others.

Therefore, improving working conditions aims to clearly identify the origin, level, and impact of dangerous and harmful factors on people to propose measures to reduce and eliminate these factors, or in other words, manage and control them closely and effectively, ensuring safety and protecting the health of workers.

Methods to improve working conditions in Safety Training Document Group 1: There are 7 steps to implement.

1. Evaluating environmental factors at the workplace in Safety Training Document Group 1

To identify poor practices, good practices, and propose appropriate solutions. The assessment includes the following points:

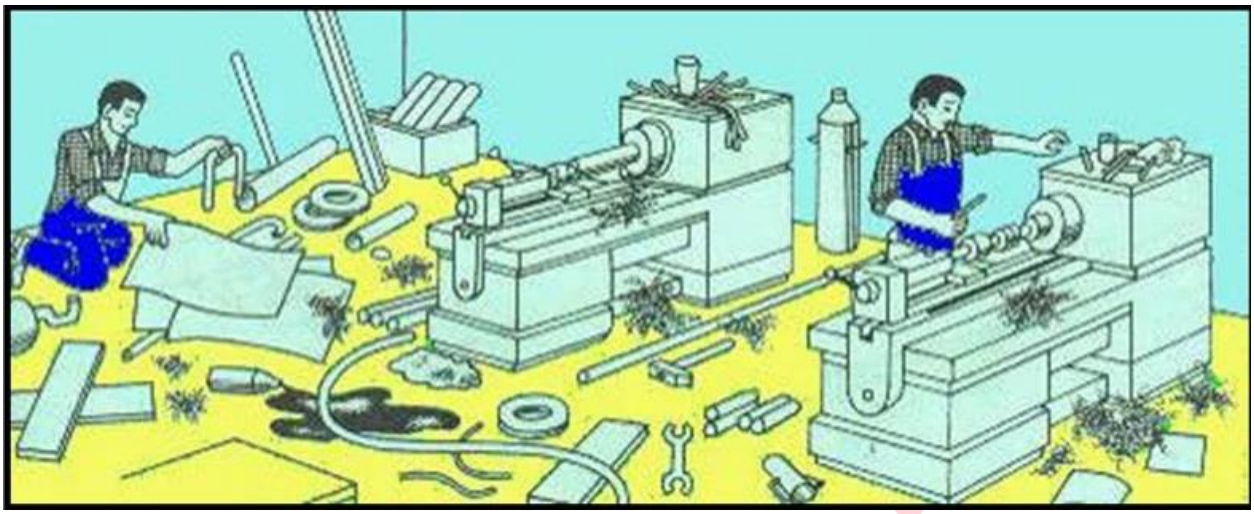
- Organization of the workplace and transportation of materials
- Working conditions at the workplace
- Safety of machinery and equipment
- Working environment at the workplace
- Welfare facilities at the workplace
- Work organization at the workplace.

2. Workplace Organization and Material Transportation in Safety Training Document Group 1

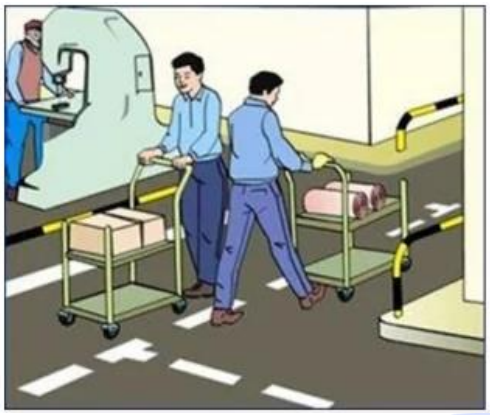
Steps to implement this principle:

Organizing the workplace and material transportation routes:

- Remove unnecessary materials and products



- Improve transportation routes, do not obstruct escape routes



- Place materials and products in designated areas, not directly on the floor


- Use multi-level racks



- Shorten work operations and transportation routes
    - Keep frequently used items nearby.


    - Use mobile racks and shelves.

- Use carts and hand trucks.

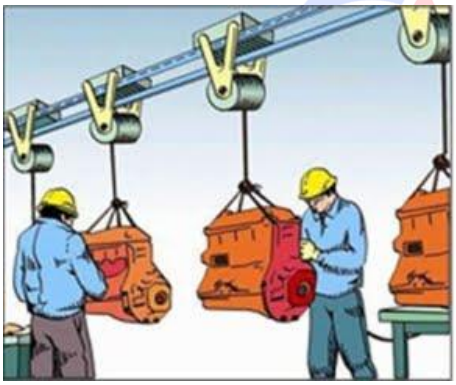
- Increase efficiency for lifting operations
  - Do not lift weights beyond your strength, have multiple people lift the object, divide it into smaller and lighter parts.



- Move materials to waist level.



- Use specialized equipment for lifting, lowering, and transporting heavy objects



- Keep your back straight, use leg muscles when lifting.

3. Working Conditions at the Workplace in Safety Training Document Group 1

Steps to implement this principle

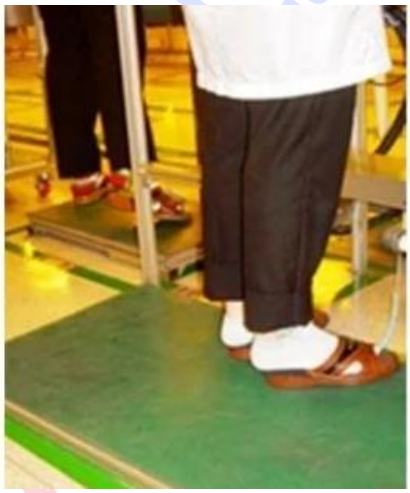
- Within Reach
  - Tools, materials, equipment control buttons... within reach of the arm

  - Have a designated tool storage area with a suitable location for each tool within that area

  - Perform work at elbow level.



- Use footrests for shorter workers, use platforms to elevate items for taller workers


- Use chairs with backrests for workers who sit while working

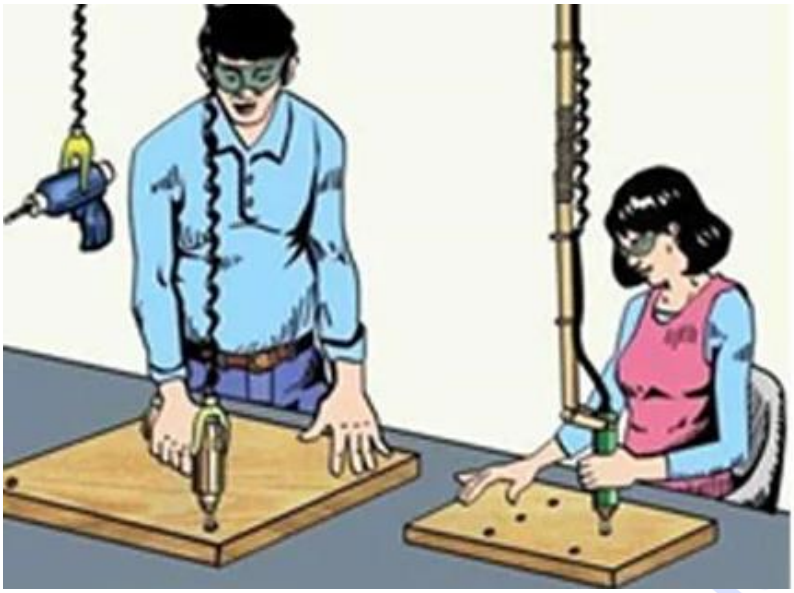
- Using a stool allows workers to alternate between standing and sitting

- There is enough legroom when working in either a sitting or standing position.

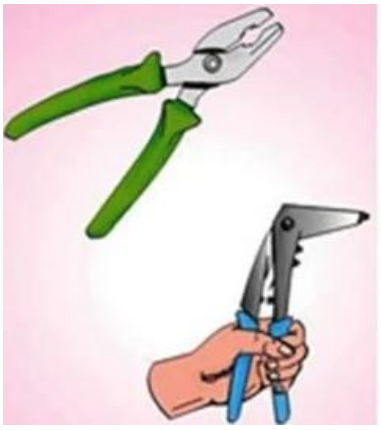

- Principles for securing production materials and hand tools
  - Use fixtures to secure production materials



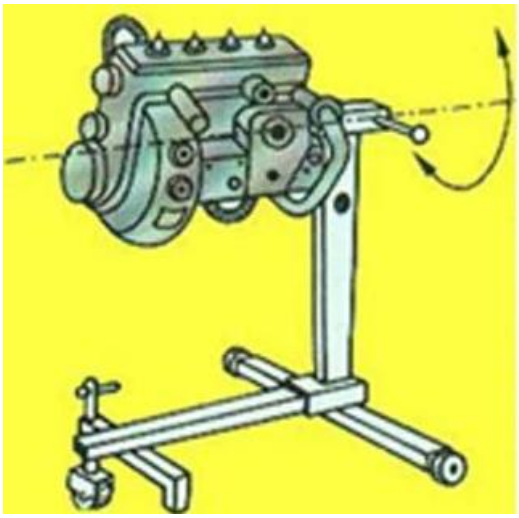
  - Use hanging tools for easy movement/transport.

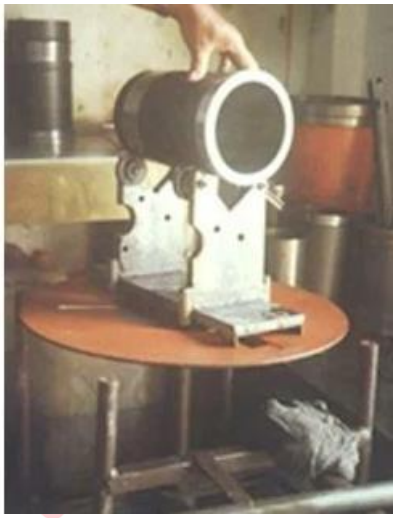


- Hand tools have thick, easy-to-grip, and insulated handles.



- Use a turntable for tasks that require multiple operations/movements.

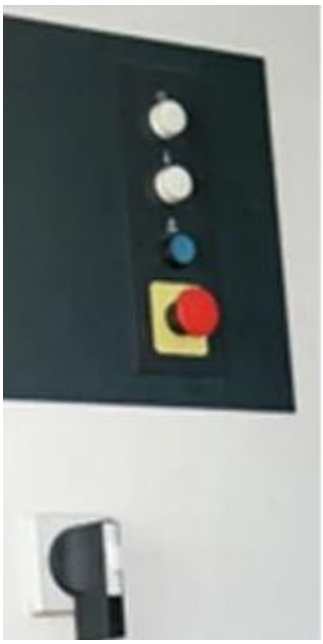




- Principle of easy distinction/differentiation.
    - Place signs and important buttons within reach of the work area.


    - Signs and control buttons are easily distinguishable and labeled with simple local terms.

- Emergency stop buttons are distinctively colored and placed in a visible, easily accessible location.



4. Safety for machinery and equipment in group 1 safety training materials.

Steps to implement this principle

- Ensure that the operating points of the machinery have no hazardous points.
- The entry and exit directions of materials during processing and construction should be safe and suitable for the machinery

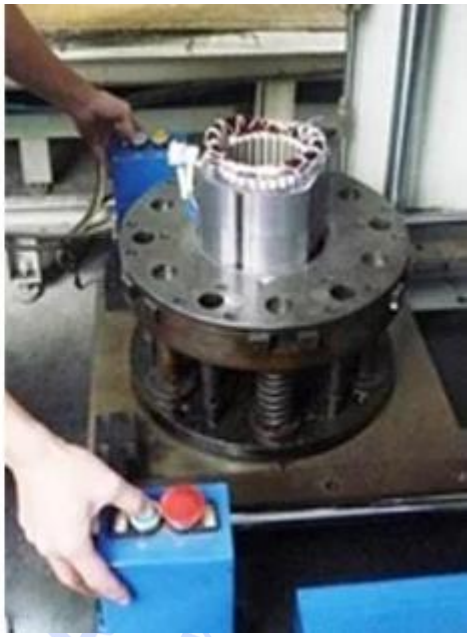


- Cover hazardous parts.
  - Fixed parts.



- Adjustable parts.


- Two-handed control.



- Regular maintenance (including protective devices) in accordance with regulations.
  - Performed by trained and experienced personnel.

  - Disconnect the power source and hang a sign that says "Danger - Do Not Operate."

5. Working environment in group 1 safety training materials

Steps to implement this principle:

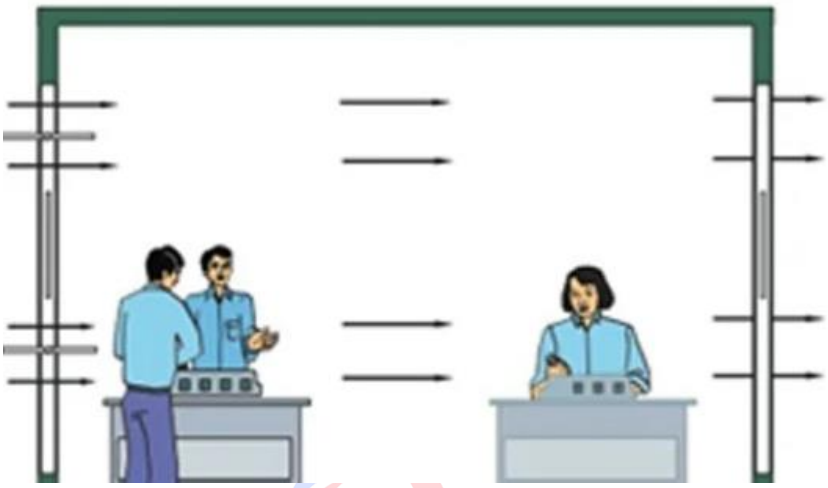
- Ensure adequate lighting at the workplace.
  - Make use of natural daylight during the day.

  - Use local lighting for precise work.

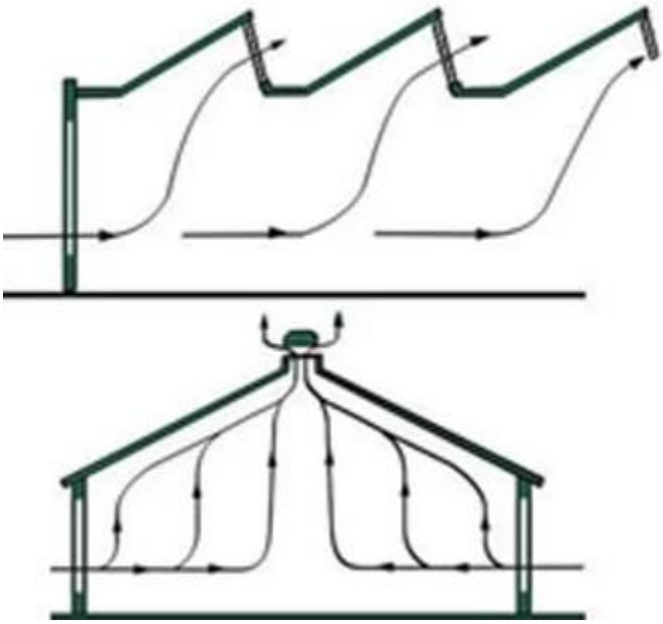
- Arrange light sources reasonably to prevent glare.

- Maintain and service light sources.

- Ventilation
  - Enhance natural ventilation.



  - Utilize the rising of hot air.



- Protect the workplace from external heat.

- Use electric fans to increase ventilation.

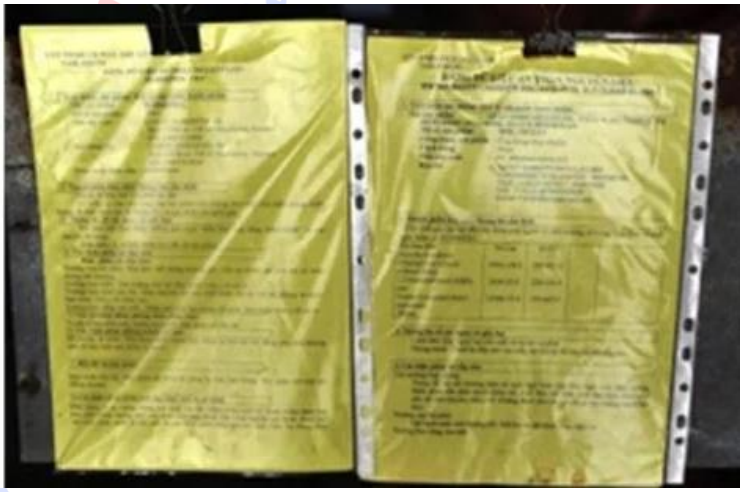


- Isolate sources of health hazards.



- Use an exhaust system to eliminate hazardous sources.

- Chemical containers must have labels, safety data sheets (MSDS), and tight-fitting lids.

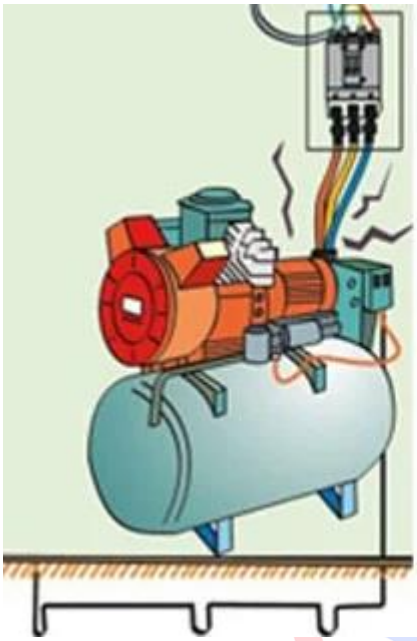


- Fire and electrical accident prevention
    - Remove flammable and explosive materials from heat and fire sources.

- Equip with sufficient fire extinguishers and place them in a visible and easily accessible location.

- The circuit is covered and protected by an automatic electrical disconnect protector (ELCB) or fuse.

- Ensure that electrical equipment has grounding wires.



6. Welfare facilities at the workplace in group 1 safety training materials

Steps to implement this principle

- Provide essential welfare facilities
  - Drinking water, washbasins, toilets



- Utilize essential, cost-effective welfare facilities.
    - Personal protective equipment, changing rooms, personal locker.



    - Canteen - parking area for workers.

- Recreational facilities - childcare for workers.

- Medical care and emergency preparedness.

- Care for pregnant women and people with disabilities.

7. Workplace organization in group 1 safety training materials

Steps to implement this principle

- Eliminate unnecessary work steps/operations
- Coordinate tasks to make work more diverse and interesting
- Establish small buffer zones between different workstations to ensure smooth workflow.


- Regularly include short breaks and exercise sessions during work hours.


  - Encourage mutual exchange to foster understanding and improve work efficiency.
  - Provide occupational safety and health training

VIII. Basic First Aid in Group 1 Safety Training Materials

1. Definition

Basic first aid is the initial assistance and intervention provided by a first responder to a victim who is injured due to an accident, illness, etc., before professional medical help arrives. Basic first aid can be performed by oneself or with the assistance of others.

2. Purpose/Objective

- Minimize the deterioration of the victim's condition.

- Promote the victim's recovery process.

3. The Importance of Basic First Aid

Time is of utmost importance in providing basic first aid. It determines the recovery of function or permanent disability. It decides the life or death of the victim.

Consequences of not providing timely first aid:

- Cardiac arrest
- After 4 minutes → Brain damage
- After 10 minutes → Irreversible brain damage.

Note: To ensure the safety of the victim, the first responder, and bystanders during basic first aid, it is essential to:

- Stay Calm – Act Quickly
- Immediately stop or disconnect the equipment causing the accident.
- Protect yourself from danger first.
- Protect others around you from danger.
- Protect the victim from further harm.
- Explain to the victim what you are doing and why, so they can cooperate during first aid.
- When calling for emergency services, be clear, concise, and accurate. Only hang up the phone after the medical facility has ended the call.
- Never move the victim in any way without knowing the extent of their injuries and stabilizing their wounds.
- The first aider must not administer any medication to the victim without the direction of medical personnel.
- The first aider must not attempt to manipulate a fracture or treat other injuries if it is not a fracture.

4. Basic First Aid Techniques in Group 1 Safety Training Materials

Remain CALM – ACT QUICKLY while simultaneously performing the following 6 steps:

- a. Assess, identify, and isolate any hazards at the accident scene before approaching the victim to ensure the safety of the responder, bystanders, and the victim.
- b. When approaching the victim, assess their external condition and injuries to determine the priority of treatment. If:
    - The victim is conscious: Ask questions and offer reassurance to help them stay calm, while gathering information about their injuries (if any).
    - The victim is unconscious or unresponsive: Examine and assess the victim directly to identify any other injuries (if any).

Note: Never move the victim in any way without knowing the extent of their injuries.

- c. Call for help (if necessary)
- d. Call for emergency services (115) or the nearest medical facility. Basic information to provide when calling for help :
    - Information about the location of the accident
    - Information about the accident and its nature
    - Information about the victim's injuries and condition
    - Information about any hazards
    - Contact information

Note: Do not hang up the phone until the call is ended by the emergency services.

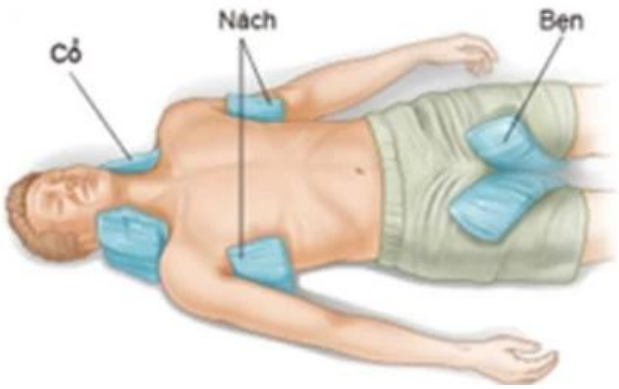
- e. Basic First Aid
- f. Transport the victim to the nearest medical facility

5. Basic First Aid Techniques in Group 1 Safety Training Materials

A. First Aid for Heat Stroke and Heat Exhaustion

Heat stroke and heat exhaustion: are conditions of acute dehydration of the body caused by working or staying outdoors in the sun for too long, when the outdoor temperature is too high, or working in hot and humid environments such as tunnels, enclosed spaces, or engaging in strenuous physical activity for prolonged periods, leading to a greater amount of heat generated and absorbed than the body can dissipate.

Initial first aid for heat stroke and heat exhaustion includes resting in a cool place, drinking water with a little salt until thirst is quenched, applying cool compresses, fanning, and taking a cool bath... Do not apply ice directly to the skin or take fever-reducing medication.



B. First Aid for Burns

A burn (also known as a scald) is an injury to the skin or other tissues caused by heat, electricity, chemicals, friction, or radiation. Levels of burns:

- First-degree burn: This is the mildest type of burn, causing the least damage to the skin. A first-degree burn is also called a superficial burn because it only affects the outermost layer of skin.

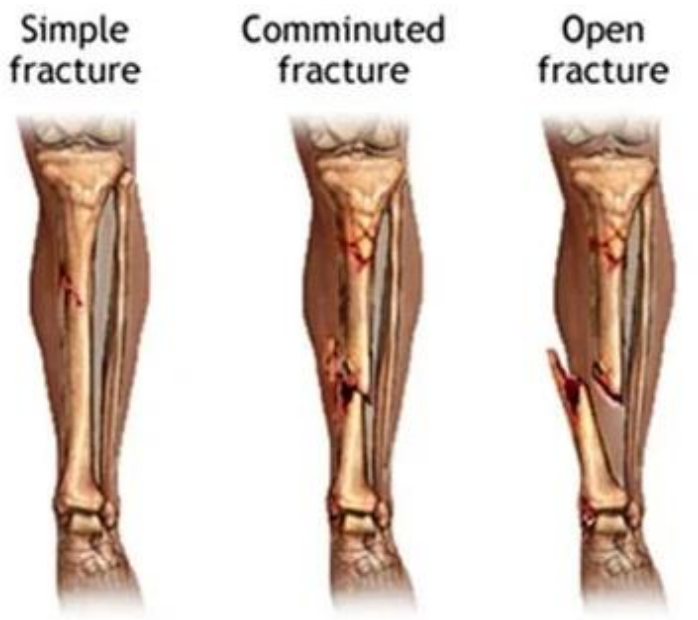
- Second-degree burn: This is a more serious type of burn than a first-degree burn, as the damage has extended to the lower layers of skin. This type of injury can cause the skin to blister and become very red and swollen. Some blisters may break open, making the burn wet. Initial first aid for first and second-degree burns involves continuously flushing the burned area with cool water or soaking the burned area in water. If chemicals get into the eyes, flush them gently and continuously with water while blinking frequently to wash out the chemicals. Never use any other chemicals or solvents to wash or apply to the burn.

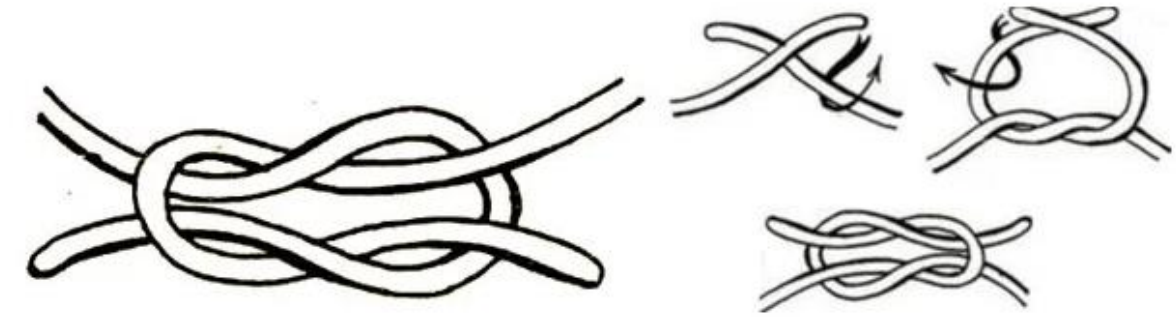
- Third-degree burn: This is the most severe type of burn, causing the most serious damage, extending to deeper layers of the skin. The damage can reach blood vessels, major organs, and bones, potentially leading to death. Initial first aid for third-degree burns should not involve any self-treatment. Call for emergency services immediately. While waiting for the ambulance, elevate the wound above the heart. Do not remove clothing but ensure that it does not stick to the burn.

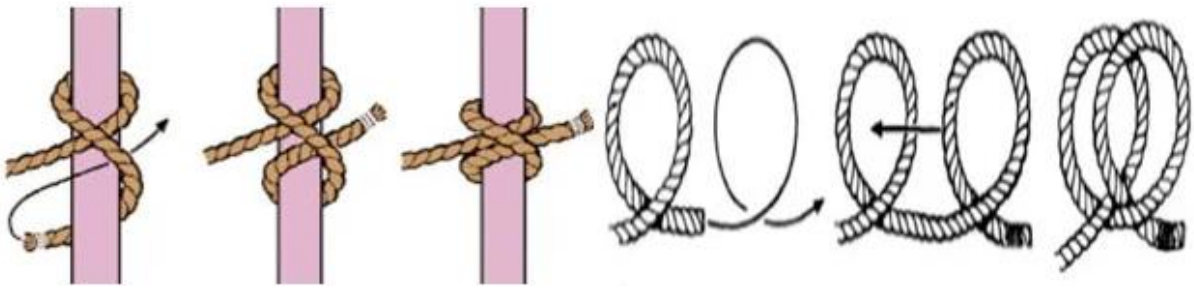
C. First Aid for Fractures

A fracture is a break in the continuity of a bone, which can manifest in various forms, ranging from a crack to a complete break.

The cause of a fracture is the impact of an external force, either indirectly or directly, on the bone. Fractures are classified into two types: closed fractures and open fractures.

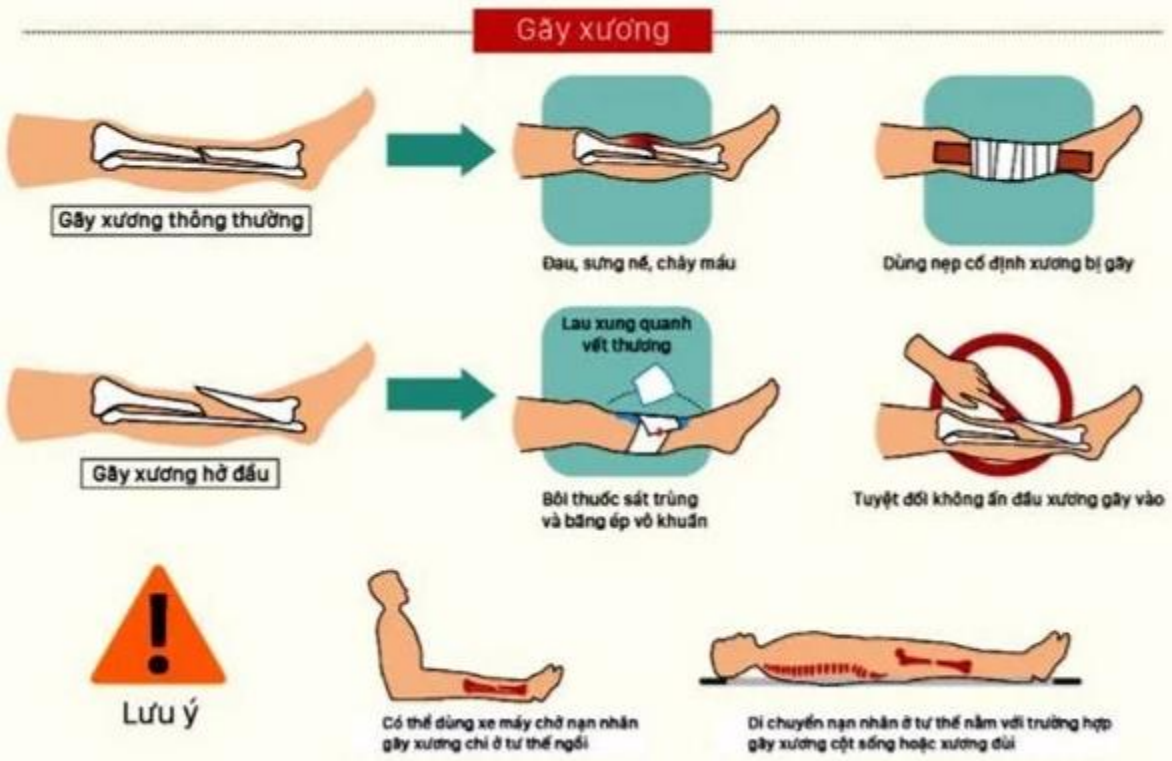









Bong gân
Bong gân
Hạn chế cử động vùng bị tổn thương
Chườm đá
Băng lại
Nới lỏng băng nếu thấy đầu chi tái nhợt
Trật khớp
Không cử động khớp
Không thoa dầu nóng
Chườm lạnh
Có thể cố định tay vào thân người



D. First Aid for Bleeding Wounds

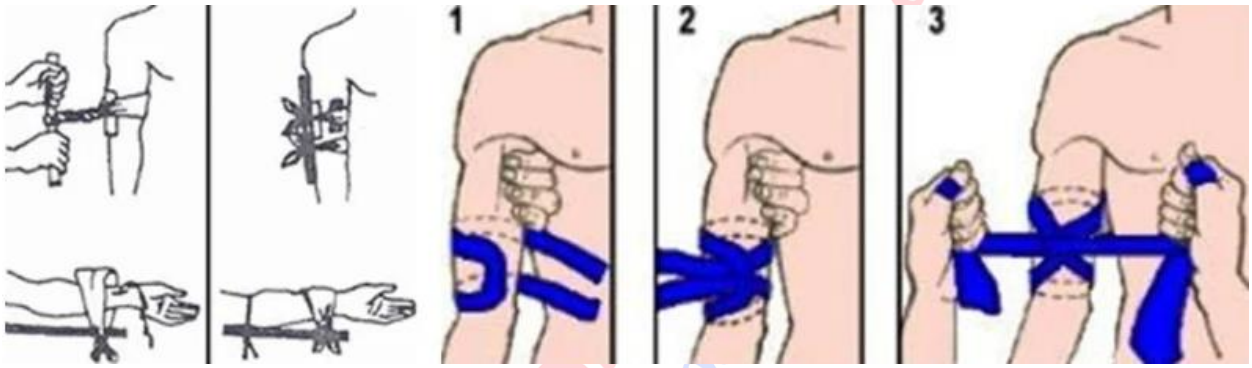
Bleeding, also known as hemorrhage, is a condition where blood, consisting of plasma and cellular components, escapes from the circulatory system due to trauma that ruptures blood vessels, causing blood to leak out or accumulate in one area of the body, or due to underlying medical conditions.

Bleeding wounds often occur due to traffic accidents or daily activities such as fractures that puncture blood vessels, traumatic lacerations of blood vessels; due to assault such as knife wounds, stabbing, or injuries from bombs, mines, and projectiles... Severe bleeding from major blood vessels can lead to death if not treated promptly.

Stopping bleeding must be done correctly, following proper principles and techniques,to preserve the limb and life of the injured person. The first aider must assess each wound and the nature of bleeding to choose the appropriate method of bleeding control, avoiding arbitrary or

incorrect techniques, especially when applying a tourniquet, as it can endanger the patient's life. Some methods of bleeding control for bleeding wounds include: tourniquets, pressure bandages, and direct pressure on the blood vessel.

- Applying a tourniquet (garrot): The tourniquet must be placed in the most visible place, closest to the wound. Priority is given to transporting the victim to the hospital first, along with a ticket recording the time of tourniquet placement. During the process of applying a tourniquet, loosen the tourniquet every hour for a few minutes to allow blood to flow down to nourish the lower part of the injured area, then continue to tighten the tourniquet when the blood begins to flow again. Note, only apply a tourniquet in the following cases: the limb is crushed and can no longer be preserved; apply a tourniquet at the site of the accident, but near a hospital, the patient transport time to the hospital is less than one hour; Temporarily placed for a short time to prepare for surgery.



- Pressure bandage to stop bleeding: Use a roll of bandage or a towel folded into a small ball, place it on the wound and apply pressure on top to stop the bleeding. Use the bandage to roll the bandage tightly around the limb until no blood seeps through the bandage. The best way to stop bleeding is to use an elastic bandage. This method is simple and easy to perform, has good hemostatic effects and does not cause negative consequences for the damaged area.

- Compressing blood vessels: Use your fingers to press the path of the upper blood vessels (closer to the heart than the wound) into the bone base. The location often used to press the pulse: in the upper limb is behind the collarbone, if bleeding is from the subclavian artery in the shoulder or arm area. At the axillary hollow, if bleeding occurs in the axillary artery and brachial artery, in the arm area. At the medial border of the biceps muscle, at the elbow crease, if bleeding occurs in the radial and ulnar arteries, in the forearm area. Lower limb: mid-point of the inguinal fold, if

bleeding of the femoral artery is due to a wound under the thigh. In the popliteal hollow, if bleeding occurs in the lower leg artery…

IX. Additional reference materials for Group 1 safety training documents

Circular 53/2016/TT – BLDTBXH Promulgating a list of machines, equipment, materials and substances with strict requirements on labor safety

BỘ LAO ĐỘNG - THƯƠNG BINH VÀ XÃ HỘI	**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM**
	Độc lập - Tự do - Hạnh phúc
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Số: 53/2016/TT-BLĐTBXH	Hà Nội, ngày 28 tháng 12 năm 2016

THÔNG TƯ

ISSUING A LIST OF MACHINERY, EQUIPMENT, MATERIALS AND SUBSTANCES WITH STRICT REQUIREMENTS ON OPERATIVE SAFETY AND HYGIENE

Pursuant to the Law on occupational safety and hygiene No. 84/2015/QH13 dated June 25, 2015;

Pursuant to Decree No. 44/2016-ND-CP dated May 15, 2016 of the Government detailing a number of articles of the Law on Occupational Safety and Hygiene on technical inspection of labor safety and training. safety training, occupational hygiene and working environment monitoring;

Pursuant to Decree No. 106/2012/ND-CP dated December 20, 2012 of the Government regulating the functions, tasks, powers and organizational structure of the Ministry of Labor, War Invalids and Social Affairs;

At the request of the Director of the Department of Labor Safety;

The Minister of Labor, War Invalids and Social Affairs issued a Circular promulgating the List of machines, equipment, supplies and substances with strict requirements on occupational safety and hygiene.

Article 1. List of machines, equipment, supplies and substances with strict requirements on occupational safety and hygiene

Issued together with this Circular is a List of machines, equipment, materials and substances with strict requirements on occupational safety and hygiene.

Article 2. Implementation organization

1. Based on the socio-economic development situation and state management requirements, ministries, according to their authority, manage machinery, equipment, supplies and substances with strict requirements on occupational safety and hygiene. Regulations prescribed in Article 33 of the Law on Occupational Safety and Health, when there is a request to amend or supplement the List, send an official dispatch to the Ministry of Labor, War Invalids and Social Affairs, with the following contents:

- Names of machines, equipment, materials, and substances that need to be amended or added to the List, including scientific names and commercial transaction names (if any);

- Assess the necessity, feasibility, and impact of modifying and adding machines, equipment, supplies, and substances to the List (attached to draft inspection procedures, if any).

2. The Department of Labor Safety, Ministry of Labor, War Invalids and Social Affairs is responsible for synthesizing and reporting to the Ministry of Labor, War Invalids and Social Affairs on proposals, amendments and supplements to the List of machines, equipment, supplies and substances with strict requirements on occupational safety and hygiene of the Ministries according to regulations.

3. The Department of Labor, War Invalids and Social Affairs of provinces and centrally run cities is responsible for coordinating with relevant agencies to disseminate and guide the implementation of this Circular to businesses, agencies, organizations, cooperatives, households and individuals that use machinery, equipment, supplies and substances with strict requirements on occupational safety and hygiene in the area; Synthesize and report annually to the Ministry of Labor, War Invalids and Social Affairs on the implementation of this Circular along with a report on the implementation of labor safety and hygiene in the area..

Article 3. Implementation effect

1. This Circular takes effect from February 12, 2017.
2. Circular No. 05/2014/TT-BLDTBXH dated March 6, 2014 of the Ministry of Labor, War Invalids and Social Affairs on promulgating the list of machines, equipment and supplies with strict requirements on labor safety. takes effect from the effective date of this Circular.
3. During the implementation process, if there are any problems, agencies, organizations and individuals should promptly report in writing to the Ministry of Labor, War Invalids and Social Affairs for consideration and resolution./.

CATEGORY

TYPES OF MACHINERY, EQUIPMENT, MATERIALS AND SUBSTANCES WITH STRICT REQUIREMENTS ON LABOR SAFETY AND HYGIENE

(Issued together with Circular No. 53/2016/TT-BLDTBXH dated December 28, 2016 of the Ministry of Labor, War Invalids and Social Affairs)

S.N	MACHINERY, EQUIPMENT, MATERIALS AND SUBSTANCES WITH STRICT SAFETY AND LABOR HYGIENE REQUIREMENTS
Section I	**Machines, equipment, and supplies have strict requirements on labor safety**
1	Boilers of all types (including superheaters and water heaters) with rated steam working pressure above 0.7 bar; hot water boiler with refrigerant temperature above 115°C.
2	Oil heater.
3	Level I and II steam and hot water pipeline systems have an outside diameter of 51mm or more, level III and level IV pipelines have an outside diameter of 76mm or more according to the classification in Vietnamese Standard TCVN 6158 :1996 and TCVN 6159:1996.
4	Pressure vessels with rated working pressure higher than 0.7 bar (excluding hydrostatic pressure) according to classification in Vietnamese Standard TCVN 8366:2010 and pressure vessels with rated working pressure level above 210 bar.
5	Tanks, tanks, tanks used to store and transport liquefied petroleum gas, liquefied petroleum gas, compressed natural gas or liquids with working pressure higher than 0.7 bar or liquid or solid The

	powder form has no pressure, but when removed, it uses air with a pressure higher than 0.7 bar according to the classification in Vietnamese Standard TCVN 8366:2010.
6	Types of bottles used to store and transport compressed gas, liquefied petroleum gas, compressed natural gas, liquefied petroleum gas, and dissolved gas with working pressure higher than 0.7 bar.
7	Supply system, modulation system, charging system for compressed air, liquefied petroleum gas, liquefied petroleum gas, dissolved gas.
8	Fixed gas pipeline systems, pipelines, and offshore gas pipelines; Medical gas pipeline system.
9	Refrigeration systems of all types according to the classification in Vietnamese Standard TCVN 6104:2015, except for refrigeration systems with working medium of water and air; Refrigeration systems with a refrigerant charge of less than 5kg for refrigerants of group 1, less than 2.5kg for refrigerants of group 2, no limit on the amount of refrigerant charged for refrigerants of group 3.
10	Cranes of all types: automobile cranes, wheeled cranes, crawler cranes, tower cranes, railway cranes, base cranes.
11	Cranes of all types: Rolling cranes, suspension cranes.
12	Gantry cranes of all types: Gantry cranes, semi-gantry cranes.
13	Cargo cable shaft; Cable shaft for carrying people; Cable shafts in construction machines, inclined well loading shafts, vertical well loading shafts.
14	Electric hoist; Hand-pulled hoists have a lifting capacity of 1,000kg or more.
15	Electric winch runs on rails.
16	Electric winches are used to lift loads and pull loads in an inclined direction; lifting table; raised floor; raised floors used to lift people working at height; winch for lifting people working at height.
17	Hand winches have a lifting capacity of 1,000kg or more.
18	Engine-powered forklifts have a lifting capacity of 1,000kg or more.
19	Forklift: Self-propelled forklift, forklift using hydraulic transmission mechanism, manual transmission chain to lift people higher than 2m.
20	Hoists for lifting goods; hoist lifting goods with people; hoists that lift people; Hoists used in construction.
21	Elevators of all types.
22	Escalator; conveyor belt carrying people.
23	Moving performance floor.

24	Game equipment: roller coasters, ferris wheels, slides that carry people up to a height of 2m or more, with a moving speed of 3m/s relative to the fixed floor, except for sports competition vehicles.
25	Cable car system for carrying people.
26	Winches and loading shafts with lifting capacities of 1,000kg or more are used in underground mining.
27	Single hydraulic support columns, mobile frame racks and self-propelled support systems are made from single hydraulic support columns used to support furnaces in underground mining.
28	Internal combustion engine (Crankcase volume over 0.6 m3 or cylinder diameter over 200mm).
29	Explosion-proof transformer.
30	Explosion-proof electric motor.
31	Explosion-proof distribution and switching equipment (magnetic starter, soft starter, circuit breaker, automatic circuit breaker, inverter, leakage current relay).
32	Explosion-proof control equipment (control panel, push button box).
33	Explosion-proof generator.
34	Explosion-proof electric cable.
35	Explosion-proof lighting.
36	Electric blasting machine.
37	Sliding formwork system.
38	Climbing formwork system.
39	Sliding formwork steel truss system.
40	Specialized drilling machines, pile pressing and driving machines with winch systems.
41	Concrete pumps.
42	Machines for tunnel and underground construction: Machines and equipment in open excavation technologies; machines and equipment in closed excavation technologies; underground construction machines using shield and shield combination technology; underground concrete making machine.
43	Steel scaffolding system; combined bars and pillars.
44	Suspended platform for lifting people used in construction.
45	The radio station has a maximum transmit power of 150W or more.

46	Television stations have a maximum transmitting power of 150W or more.
Section II	**Machines, equipment, and supplies have strict military-specific labor safety requirements**
1	Types of explosives.
2	Explosive means (detonators, detonating wires, slow-burning wires,...).
3	Cable and fiber optic cable for equipment set 3f-24.40; 3f-24.50; ГГМИ 468929.058.
4	Optical crane equipment set 3f-10.36-04.
5	Load testing device 8E088.
6	MC-35004 Device/MC-35030 Device Set.
7	K350-110 missile forklift set.
8	YXHC f55-70MЭ drying and cooling station.
9	Dismantling stand K350-60.
10	Crane carrying arm K350-14-01.
11	Nitrogen bottle system and pipeline network.
12	Station system, network for storing, filling, and preparing liquid-gas nitrogen with purity as high as 98%.
13	Nitrogen tank for launch vehicle 9Õ-117M.
14	Missile container crane cable set.
15	Missile crane P-15UÕY9513-0.
16	Missile container crane cable; launch engine Õ9510-10A; warhead Õ9590-0; warhead in box C1.42-00.
17	Air compressors ДК-9M and ЭК-9.
18	Propellant and explosive stabilization equipment (Linter stabilization equipment; Hecxozen stabilization equipment; Nitro Cellulose (NC) stabilization equipment).
19	Reaction equipment belonging to the propellant and explosive production line (Nitroglycerin (NG) generator; NitroXelulo (NC) generator; Dinitrotoluene (DNT) generator; Tetracene acid manufacturing equipment; manufacturing equipment lead acid Stipnate).

20	Pressure equipment containing raw materials for making explosives (pressure tank for transporting Na2CO3; pressure tank for transporting DNT; pressure tank for transporting Na2SO4; pressure tank for transporting Na2SO3.
21	Explosive stuffing and compression equipment in the propellant and explosive production line: Mechanical equipment (fine compressor, 10-position compressor); hydraulic equipment (hydraulic press, fire granule compression device, black pill press).
22	Equipment for mixing propellant and explosives with propellant and explosive lines: Rotary drum mixing equipment (explosive wire mixer, 3-part black powder mixer, Amonite mixing mill, talcum powder mixing machine with medicine); shaking mixing equipment (TEN drug converter, black powder particle dedusting machine, black powder particle generator, explosive powder screening machine); paddle mixing equipment (drug mixer, wet explosive mixer, gum and drug mixer).
23	Equipment for assembling and vibrating bullets and fire particles: Concussion testing machine; impact testing machine; bullet dispensers and cartridges; B40 fuze removal device and bullet tail tube.
24	Bullet leaking machine.
25	Pneumatic bullet clamping device.
26	Pressure increasing and decreasing chamber; high pressure air filter; Pressure chamber used in training and nursing for water special forces.
27	YKC compressed air station; VZ20/350; AKZC 75M oxygen station; Azot station UGZCIA.
28	Cranes of all types used for: Lifting and lowering torpedoes, missiles, lifting and lowering boats on ships and islands.
29	Rocket bullet crane.
30	PMP ferry bridge lifting system (winch for lifting).
31	Equipment for lifting and lowering bombs and ammunition (electric hoist; manual hoist with lifting tonnage of 500 kg or more).
32	Electric winches and manual winches are used to lift and pull loads in propellant and explosive factories.
33	Bomb and ammunition forklift.
34	Umbrella chair crane.