

Governance Committee Agenda

Thursday, August 27, 2009

William Green Building

Level 2, Room 3

8:00 AM – 9:30 AM

Call to Order

Alison Falls, Committee Chair

Roll Call

Mike Sourek, Scribe

Approve Minutes of July 30, 2009 meeting

Alison Falls, Chair

Review and Approve Agenda

Alison Falls, Chair

New Business/ Action Items

1. Board advisory structure for input on medical issues
Robert Coury, Chief of Medical Services and Compliance
Robert Balchick MD, Medical Director
2. Motions for Board considerations:
 - A. For Second Reading
 1. General Policy and Principal Operating Units of Bureau
Offices: Rules 4123-9-1 to 4123-9-12
Tom Sico, Director of Legal Operations
 2. 2009 Vocational Rehabilitation Services Fee Schedule: Rule
4123-18-9
Freddie Johnson, Director of Managed Care Services
Karen Fitzsimmons, Rehab Policy Unit Manager
 - B. For First Reading
 1. Workshops and Factories: Rules 4123:1-5
Don Bentley, Director, Technical Support, Division of
Safety and Hygiene

Discussion Items

1. Rule Review Calendar
Don Berno, Board Liaison
2. Committee Calendar

Executive Session , if needed

Adjourn

Alison Falls, Committee Chair

Next Meeting: Thursday, September 24, 2009

*Not all agenda items have material.

** Agenda Subject to change

8/24/2009 3:31 PM

BWC Board Medical Services Designee(s)

Introduction

The most basic responsibility for the BWC medical services division is to manage the medical care that occurs after a workplace injury. While BWC does not provide direct medical care, we define the threshold for quality and cost-effective treatment for the benefit of both the workers and employers of the State of Ohio.

BWC does this by developing and continually updating our philosophy of optimal care through rules, policies, manuals, guidelines, and communication with our customers, stakeholders and internal staff. All the medical services processes and deliverables are subjected to this policy development rigor in areas including medical benefits and pricing, vocational rehabilitation services, pharmacy services, claims management, managed care services, provider credentialing and relations, and provider bill payment.

Resources used to develop these policies include the dedication and hard work of all our staff and the basic medical research that we have been doing and will advance to the next level with our partnership with the OSU College of Public Health. Policy creation is also informed by the advice and expertise of our existing provider advisors on the Pharmacy and Therapeutics and the Health Care Quality Assurance Advisory Committees, as well as collaboration with advisors from Labor, Management, Government advisory council, and the feedback from all our stakeholders.

In most cases, the Board of Directors (Board) is the final decision maker for any substantial medical services program provided by BWC. In medical services, that has meant, for example, approving the benefit plan and fee schedule. However, many of the granular processes never make it to the Board level but, nonetheless, contribute to the final policy development.

The idea of creating a Board Designee for medical services sprang from the concept of involving the Board in some of these policy developments closer in time to the inception of an idea to address an issue. The concept has been shown to enhance any business model where the goal is to find the best solution for complex problems. This is accomplished through improved communication channels, exchange of knowledge and expertise, and acknowledgment of alternative viewpoints.

There are other various mechanisms to leverage the collaborative resources of the Board and BWC staff including the current process of funneling medical issues to the governance committee, or creating a separate medical services committee. With any of these options, both the Board and BWC staff will continue to deliver the highest level of commitment and integrity

in carrying out our fiduciary responsibility to the injured workers and employers of the State of Ohio.

The BWC Legal Division participated in outlining the opportunities and challenges associated with each option for the Board's consideration.

BWC Board Medical Services Designee

Opportunities

- a) Facilitates the concept of early exchange of resources
- b) Can develop a higher level of expertise in one designee
- c) More efficient use of board resources
- d) May stimulate more frequent engagement by both sides than other models

Challenges

- a) Other board members do not benefit from the process (Although the requirement for periodic reporting to the entire board ensures a complete communication loop and consensus decision making.)
- b) May be burdensome for one board member
- c) BWC-specific medical services knowledge lost as board designee term expires
- d) Presents potential for conflict of interest or perception of a conflict of interest. If a Board member is participating in the development of BWC practices that directly impact his/her constituent base, a conflict of interest may exist for that Board member. Although Board members must address strategic policy of the agency that can impact a constituent base, the Ethics Commission has determined that this inherent conflict of interest created by the statutory scheme of the Board of Directors does not necessarily preclude participation in decision-making processes of the Board. However, it is not equally clear that Board member participation in the development of BWC practices is acceptable, or whether this type of Board member involvement could create undue influence at BWC.
- e) Increased potential for violation of Open Meetings Act through offline substantive discussion between BWC and Board member (acting on behalf of the Board) intended to lead to official Board action. If only one Board member is involved with the development of BWC's granular day-to-day processes that lead to BWC medical services policy, then such involvement should be made clear (this may address Open Meeting Act concerns).

- f) Potential exists for overstepping statutory duties through involvement in day-to-day operational matters.

BWC Board Medical Services Committee

Opportunities

- a) Greater degree of transparency
- b) Allows opportunity for all Directors to have direct input on policy-making for medical services
- c) Visible commitment to medical issues by the Board

Challenges

- a) May cause a strain on limited board resources
- b) Early involvement in medical issues is more challenging.
- c) May not add material value over the current governance committee
- d) Potential exists for overstepping statutory duties through involvement in day-to-day operational matters.
- e) Board member expertise to address issues to be handled by committee.

OBWC Board of Directors
Medical Services Committee Charter

This is presented as conceptual draft for discussion purposes. If Board creates a committee, the charter will be drafted by the committee members.

Purpose

The Medical Services Committee (Committee) will assist the OBWC Board of Directors (Board) in the development of strategic policy for the provision of safe, cost-effective medical and vocational rehabilitation services for the mutual benefit of injured workers and employers.

Membership

The Committee will consist of at least _____ Board members....

Meetings

The Committee shall meet as frequently as needed and will provide activity reports to the Board of Directors at the next regularly scheduled meeting.

Duties and responsibilities

The Committee shall have the responsibility for ensuring the appropriateness and oversight of policy regarding the following BWC services:

- The composition of or improvement to BWC's medical provider network and practice guidelines;
- managed care and claims processes including the appropriate disability prevention model;
- the benefit plan, treatment guidelines, formularies and corresponding fee schedules;
- provider bill payment services, and
- outcome metrics for all of the above.

OBWC Board of Directors Medical Services Designee(s)

Purpose

The BWC Board Medical Services Designee(s) (Designee(s)) will assist the BWC Board of Directors (Board) and BWC management in the development of strategic policy as it relates to the provision of safe, cost-effective medical and vocational rehabilitation services for the mutual benefit of injured workers and employers. The Designee(s) serves as a conduit between the Board and management to address these medical services delivery challenges at the earliest opportunity. This will be accomplished through an exchange of information and an interchange of ideas to work toward a consensus on strategic policies.

BWC Board Medical Services Designee

The Designee(s) will be a member(s) of the OBWC Board of Directors as determined by the Board.

Duties and Responsibilities

The Designee(s) shall have the responsibility for regularly communicating with BWC management to gain a more granular knowledge of BWC medical services and policy. In turn, the Designee(s) will communicate to management strategic advice on medical policy. The Designee(s) will report to the Board the date and substance of communications with BWC staff.

The exchange of information and policy discussion shall be in matters regarding the following BWC services:

- The composition of or improvement to BWC's medical provider network and practice guidelines;
- managed care and claims policies including the appropriate disability prevention model;
- the benefit plan, treatment guidelines, formularies and corresponding fee schedules;
- provider bill payment services, and
- outcome metrics for all of the above.

The Designee(s) appointment is not intended to preclude a Board Member access to BWC staff nor conversely limit BWC staff access to the Board.

Medical Management of the Workers' Compensation Claim

Robert Coury, Chief of Medical Services and
Compliance

Dr. Robert Balchick, M.D. Medical Director

Presentation Objectives

- Briefly review the processes involved in claim management from the medical benefit perspective
 - *Statutorily active claims* = 1,291,455
 - *Active Claims* = 265,000
 - *Tx Auth (C-9s) filed* = 484,582
- Review model(s) to facilitate Board development of strategic medical services policy

What Happens When an Injury Occurs? Key Process Steps

- Submission of First Report of Injury (FROI) and Medical Documentation
- Determination of Allowed Condition – Causally Related to the reported injury (BWC Function)
- Authorization and coordination of medical treatment consistent with appropriate treatment plan and BWC benefit plan (MCO Function)
 - Medical Case Management
- Alternative Dispute Resolution of Medical Treatment (MCO and BWC sequentially)
- Provider bill payment

Provider Request for Medical Treatment Authorization

- Injured worker seeks medical treatment from provider of choice
- Medical Provider submits request to MCO together with the treating diagnosis and treatment plan

MCO Process for Authorization of Medical Services

- Consistent with Miller Criteria (Ohio Supreme Court case (1994))
- Consistent with BWC Benefit Plan allowances
- Consistent with recognized treatment guidelines, for example, those published by the Work Loss Data Institute: “Official Disability Guidelines”

Comprehensive Medical Case Management Services of MCO

- Certain high risk cases are assigned a medical case manager to work with the injured worker, the employer, and the provider to:
 - assist in treatment delivery
 - promote patient compliance
 - coordinate information
 - facilitate return to work planning
- Criteria for case selection – identify at risk cases
- MCO performs a complete assessment of the injured worker and interacts with BWC claim service office in developing claim management plan
- Vocational rehabilitation

Medical Billing and Reimbursement

- Providers bill the appropriate MCO
- The bill adjudication process verifies accuracy and compensability
- MCO submits the bill with payment recommendation to BWC
- BWC applies additional edits to the bill and determines final payment; deposits payment into a dedicated MCO provider account; MCO makes provider payment

Review Model(s) to Facilitate Board Development of Strategic Medical Policy

BWC Medical Policy Resources:

- BWC Medical Services Policy Staff
- OSU College of Public Health
- Pharmacy and Therapeutics Committee
- Health Care Quality Assurance Advisory Committees,
- Labor, Management, Government advisory council
- Stakeholder feedback

Board Discussion

Common Sense Business Regulation (BWC Rules)

(Note: The below criteria apply to existing and newly developed rules)

Five Year Rule Review

Chapter 4123-9 Rules

Rule Review

1. The rule is needed to implement an underlying statute.

Citation: R.C. 4121.121, 4121.31

2. The rule achieves an Ohio specific public policy goal.

What goal(s): These rules describe the overall general organization of BWC offices and functions assigned to the Administrator and BWC.

3. Existing federal regulation alone does not adequately regulate the subject matter.

4. The rule is effective, consistent and efficient.

5. The rule is not duplicative of rules already in existence.

6. The rule is consistent with other state regulations, flexible, and reasonably balances the regulatory objectives and burden.

7. The rule has been reviewed for unintended negative consequences.

8. Stakeholders, and those affected by the rule were provided opportunity for input as appropriate.

Explain: The proposed revisions to OAC 4123-9 relate primarily to bureau staff functions. Therefore, no external stakeholder groups were identified or consulted. Should external stakeholder interest develop, it can be addressed through the JCARR hearing process.

9. The rule was reviewed for clarity and for easy comprehension.

10. The rule promotes transparency and predictability of regulatory activity.

11. The rule is based on the best scientific and technical information, and is designed so it can be applied consistently.

12. The rule is not unnecessarily burdensome or costly to those affected by rule.

If so, how does the need for the rule outweigh burden and cost? _____

13. The Chief Legal Officer, or his designee, has reviewed the rule for clarity and compliance with the Governor's Executive Order.

BWC Board of Directors
Executive Summary
General Policy of the Bureau and
General Organization of Bureau Offices

Introduction

Chapter 4123-9 of the Ohio Administrative Code (OAC) contains rules that describe the organizational structure of the bureau's divisions. Ohio Administrative Code 4123-9-01(A) very generally outlines the primary functions of the bureau.

Background Law

Ohio Revised Code 4121.31(A)(1)(a) provides the statutory basis for the existing Ohio Administrative Code Chapter 4123-9. Specifically, R.C. 4121.31(A)(1)(a) requires that the Bureau adopt rules which set forth the “[a]ssignment to various operational units of any duties placed upon the administrator by statute”. The recommended deletion of OAC Chapter 4123-9 and its replacement by a single rule reduces the description of the Bureau's organizational structure to the statutory duties assigned to operational units as required by R.C. 4121.31(A)(1)(a).

Proposed Changes

The bureau recommends that Chapter 9 be rescinded in its entirety. In its place, the bureau proposes that a single rule be adopted that describes the operational units of the bureau. The proposed rule is sufficiently broad and comprehensive to account for all statutorily mandated functions as well as others deemed appropriate by the administrator for the efficient operation of the bureau.

This proposal complies with the Governor's regulatory reform efforts and the initiative to streamline rules where appropriate and it also provides flexibility and latitude to the administrator to reorganize the operational units of the bureau to achieve the most efficient performance of the functions of those operational units.

The bureau also recommends that the newly developed rule be placed in Chapter 5. It is not appropriate to dedicate an entire chapter to a single rule. Chapter 5 was the most logical place for a general, organizational rule.

Ohio Administrative Code 4123-9-01(A) generally outlines the policy of the bureau. The bureau's current mission statement serves this function more effectively. Therefore, it is recommended that OAC 4123-9-01(A) be rescinded and not replicated in the version of chapter 9 which has been condensed into proposed OAC 4123-5-01.

External Stakeholder Involvement

The proposed revisions to OAC 4123-9 relate primarily to bureau staff functions. Therefore, no external stakeholder groups were identified or consulted. Should external stakeholder interest develop, it can be addressed through the JCARR hearing process.

CHAPTER 9 FIVE YEAR RULES REVIEW.

~~4123-9-01 General functions and organization of the bureau. (Rescind)~~

~~(A) The main functions of the bureau of workers' compensation are of the following:~~

- ~~(1) Prompt payment of compensation and benefits, in accordance with the statutes and rules of the bureau and the industrial commission, for death, injuries, or occupational diseases received in the course of and arising out of employment. Each party shall receive fair, impartial, and equal service.~~
- ~~(2) Maintaining an ongoing program to identify employers subject to the Ohio Workers' Compensation Act and to audit employers to ensure proper premium and assessment payment.~~
- ~~(3) Establishing workers' compensation coverage for employers under the state insurance fund and collecting premium from employers subject to the Ohio Workers' Compensation Act.~~
- ~~(4) Granting qualifying employers the privilege of self-insurance, and auditing and monitoring the programs conducted by self-insuring employers to ensure compliance with the workers' compensation statutes and rules.~~

~~(B) The administrator of workers' compensation may organize the work of the bureau, its divisions, sections, departments, and offices, to the extent necessary to achieve the most efficient performance of the functions of the bureau.~~

~~4123-9-02 Legal division of the bureau. (Rescind)~~

~~The duties of the legal division of the bureau shall include, but will not be limited to, the following:~~

~~(A) Providing legal advice and assistance to the administrator and the bureau on issues affecting the administration of the workers' compensation act and the operation of the bureau of workers' compensation;~~

~~(B) Assisting the administrator in the filing of administrative appeals and representation of the interest of the state insurance fund, the statutory surplus fund, and other funds administered by the bureau;~~

~~(C) Assisting the administrator in the investigation of all potential acts of internal and external fraud committed against the bureau.~~

~~(D) Assisting the administrator in security concerns;~~

~~(E) Assisting the administrator by independently reviewing the systems of internal control and recommending improvement when appropriate;~~

~~(F) Conducting investigations of alleged safety violations pursuant to workers' compensation claims.~~

~~(G) Assisting the administrator in the investment and management of the surplus and/or reserves in accordance with the investment philosophy of the workers' compensation oversight commission;~~

~~(H) Monitoring federal and state EEO compliance.~~

~~4123-9-03 Finance division of the bureau. (Rescind)~~

~~The duties of the finance division of the bureau shall include, but will not be limited to, the following:~~

~~(A) Assisting the administrator in maintaining the solvency of the state insurance fund;~~

~~(B) Maintaining accurate records of losses incurred by employers on account of injuries, establishing proper reserves as a factor in the rate calculation process, establishing a merit rating system of employer, and other functions to assist the administrator in the rate making process;~~

~~(C) Assisting the administrator in receiving and disbursing funds from the state insurance fund and other applicable funds in accordance with state and federal laws, rules and regulations;~~

~~(D) Assisting the administrator in preparing the bureau's budget by allocating, auditing, and adjusting appropriations and expenses.~~

~~4123-9-04 Information technology division of the bureau. (Rescind)~~

~~The duties of the information technology division of the bureau shall include, but will not be limited to the following:~~

~~(A) Continually improving the business reliability of the bureau through technical improvement and automation;~~

~~(B) Increasing and enabling flexibility and responsiveness to changing business requirements;~~

~~(C) Providing electronic data and technical system support for each of the bureau's divisions.~~

~~**4123-9-05 Government and media affairs division of the bureau. (Rescind)**~~

~~The duties of the government and media affairs division of the bureau shall include, but will not be limited to, the following:~~

~~(A) Preparing, publishing and distributing news releases, reports, pamphlets, articles, and other publications, print or electronic, relating to the bureau's operations.~~

~~(B) Handling all communications with the media.~~

~~(C) Responding to inquiries from the public.~~

~~(D) Monitoring state and federal legislation for impact on the bureau and responding to inquiries from members of the state or federal legislatures.~~

~~**4123-9-06 Employer management services division of the bureau. (Rescind)**~~

~~The duties of the employer management services division of the bureau, shall include, but will not be limited to the following:~~

~~(A) Identifying employers subject to Ohio workers' compensation act;~~

~~(B) Conducting periodic review of manual classifications and payroll reports of state fund employers to ascertain that employer premiums have been properly computed and paid;~~

~~(C) Granting, renewing, and revoking the privilege of self insurance; auditing and monitoring self insuring employers to ensure compliance with bureau statutes, rules and policies; handling complaints filed against self insuring employers; managing medical-only and bankrupt self insuring employer claims;~~

~~(D) Auditing and monitoring the safety and hygiene fund;~~

~~(E) Assisting the superintendent of the division of safety and hygiene in researching, investigating, and conducting loss prevention programs and courses for employers;~~

~~(F) Conducting research and analysis.~~

~~4123-9-07 Human resources division of the bureau. (Rescind)~~

~~The duties of the human resources division of the bureau shall include, but are not limited to, the following:~~

- ~~(A) Administering personnel plans, policies and programs in compliance with state and federal statutes, rules, and regulations;~~
- ~~(B) Providing payroll and benefit services for bureau employees;~~
- ~~(C) Assisting with determining personnel needs of the bureau, posting employment opportunities, and filling position vacancies;~~
- ~~(D) Development of employment policies and monitoring of labor compliance issues;~~
- ~~(E) Providing forms, supplies, and mail service support for each of the bureau's divisions;~~
- ~~(F) Providing delivery and fleet services to bureau divisions.~~

~~4123-9-08 Field operations division of the bureau. (Rescind)~~

~~The duties of the field operations division shall include, but will not be limited to the following:~~

- ~~(A) Managing claims according to bureau statutes, rules and policies, including medical-only claims, claims filed by out-of-state injured workers and employees of the bureau and industrial commission, special claims, including black lung, marine fund, disabled worker relief fund, and public works relief claims;~~
- ~~(B) Adjudicating non-contested claims by issuing an order to approve or deny the payment of compensation or benefits;~~
- ~~(C) Executing orders of the industrial commission;~~
- ~~(D) Issuing adjustment and overpayment orders;~~
- ~~(E) Approving settlements of claims as authorized by the workers' compensation statutes;~~
- ~~(F) Planning, developing, and implementing relevant employee training programs, including continuing education and the online learning center.~~

~~4123-9-09 Quality assurance division of the bureau. (Rescind)~~

~~The duties of the quality assurance division of the bureau shall include, but will not be limited to the following~~

~~(A) Providing an independent assessment of program activities and functions to evaluate them for effectiveness and compliance, using generally accepted auditing standards;~~

~~(1) Assessing program compliance with applicable laws, rules, and policies;~~

~~(2) Assessing objectives of new or ongoing programs for relevance;~~

~~(3) Determining the extent to which a program achieves the desired results;~~

~~(4) Assessing the effectiveness of program components;~~

~~(5) Identifying factors inhibiting satisfactory performance;~~

~~(6) Determining whether more cost-effective alternatives can be implemented;~~

~~(7) Identifying duplication, overlap, or conflicts among related programs;~~

~~(8) Assessing the adequacy of controls;~~

~~(9) Evaluating whether reported measures of effectiveness are valid and reliable;~~

~~(B) Providing written reports and recommendations for improvement.~~

~~4123-9-10 Injury management services division of the bureau. (Rescind)~~

~~The duties of the injury management division services of the bureau shall include, but will not be limited to, the following:~~

~~(A) Implementing the health partnership program (HPP) and qualified health plan (QHP) in accordance with workers' compensation statutes;~~

~~(B) Assessing the compliance of HPP and QHP with workers' compensation statutes, rules and policies;~~

~~(C) Establishing criteria to determine the amount to be paid for medical services, equipment, and supplies;~~

~~(D) Authorizing, denying or adjusting provider payments;~~

~~(E) Developing programs to provide rehabilitation services to claimants in accordance with workers' compensation statutes;~~

- ~~(F) Assuring that claimants' rehabilitation services further return to work objectives;~~
- ~~(G) Developing, implementing and assessing claims, medical and vocational rehabilitation policies and procedures;~~
- ~~(H) Overseeing and consulting for contractual compliance issues regarding managed care organizations;~~
- ~~(I) Enrolling and certifying providers in HPP systems and maintaining disability evaluators panel;~~
- ~~(J) Resolving complaints regarding HPP;~~
- ~~(K) Assisting in provider training;~~
- ~~(L) Recovering medical payments made in excess or in error;~~
- ~~(M) Administering the employee health services for bureau and industrial commission central office employees, as well as the catastrophic nurse advocates program benefiting injured workers who have suffered catastrophic injuries from job-related accidents;~~
- ~~(N) Supporting systems initiatives for management of the bureau's pharmacy benefits program;~~
- ~~(O) Developing requirements for enhancements and coordinating and testing systems for electronic data interchange transactions, related to claims, providers, network and medical billing processes, and for systems relating to claims;~~
- ~~(P) Providing analytical, statistical, and reporting services to internal and external customers, including but not limited to calculating the employer open enrollment report card, managed care organizations' incentive payments, managed care organizations' administrative payment set-offs, and most managed care organizations' related statistics;~~
- ~~(Q) Coordinating medical, claims, and rehabilitation policies, procedures, and programs;~~
- ~~(R) Responding to local and statewide inquiries regarding claim handling practices and procedures.~~

~~4123-9-11 Customer service division of the bureau. (Rescind)~~

~~The duties of the customer service division of the bureau shall include, but will not be limited to, the following:~~

- ~~(A) Supporting state and bureau quality initiatives;~~

~~(B) Planning, developing, and implementing leadership training;~~

~~(C) Planning, developing, and implementing personal development programs.~~

~~4123-9-12 Communications division of the bureau. (Rescind)~~

~~The duties of the communications division of the bureau shall include, but will not be limited to, the following:~~

~~(A) Preparing, publishing and distributing reports, pamphlets, articles, and other publications, print or electronic, relating to the bureau's operations;~~

~~(B) Coordinating the bureau's special events;~~

~~(C) Producing and editing content for broadcast on public access television station;~~

~~(D) Managing the conference center.~~

4123-5-01 **Assignment of duties to the bureau's operational units. (New)**

The administrator may reorganize the work of the bureau to the extent necessary to achieve the most efficient performance of its the functions. The duties of the operational units of the bureau include, but are not limited to the following:

(A) A division responsible for the fiscal and planning function will assist the administrator in maintaining the solvency of the insurance fund, establishing policies and procedures for fiscal management, receiving and disbursing funds from the state insurance fund, and preparing the bureau's budget.

(B) A division responsible for the medical services function will assist the administrator in establishing and maintaining a quality pool of medical and vocational service providers; developing and maintaining quality medical, vocational rehabilitation, and pharmaceutical benefits plans; developing and overseeing managed care services, and ensuring the proper and timely payment of medical bills.

(C) A department responsible for the special investigations function will conduct investigations of alleged workers' compensation fraud and alleged violations of specific safety requirements pursuant to workers' compensation claims.

(D) A division responsible for the customer service function will assist the administrator in:

- (1) Identifying employers subject to the Ohio Workers' Compensation Act;
 - (2) Conducting periodic reviews of the manual classifications and payroll reports of state fund employers to ensure that employer premium payments have been properly computed and paid
 - (3) Developing and making available alternative premium plans to state fund employers;
 - (4) Managing and settling the claims of injured workers in accordance with applicable statutes, rules and policies;
 - (5) Addressing matters relating to self-insured employers, including but not limited to, privilege status, auditing, monitoring, handling complaints, and managing medical-only and bankrupt self-insuring employer claims;
 - (6) Supporting the superintendent of the division of safety and hygiene on matters relating to work place safety.
- (E) A division responsible for the actuarial function will assist the administrator in ensuring that rates for all employers are calculated based on actuarial principles and standards of practice, ensuring that financial liabilities for compensation and compensation adjustment are calculated based on actuarial principles and standards of practice, and developing and supporting alternative rating options for employers.
- (F) A division responsible for the investment function will assist the administrator in the investment and monitoring of assets of the state insurance fund and other funds administrated by the bureau, and in the implementation and monitoring of the bureau investment policy approved by the board of directors.
- (G) A division responsible for the internal audit function will conduct reviews of divisions and control systems within the bureau, at appropriate intervals, to determine whether they are effectively carrying out their functions of administration, accounting, safeguarding of bureau assets, and control in accordance with management's instructions, policies, and procedures, and in a manner that is in agreement with both agency objectives and high standards of administrative practice; conduct special examinations at the request of management or the bureau of workers' compensation board of directors audit committee; submit an annual audit plan to the administrator and the audit committee for their review and approval.

Replacing Chapter 9.

Common Sense Business Regulation (BWC Rules)

(Note: The below criteria apply to existing and newly developed rules)

Vocational Rehabilitation Provider Fee Schedule

Rule 4123-18-09

Rule Review

1. The rule is needed to implement an underlying statute.

Citation: R.C. 4121.61, R.C. 4121.441(A)

2. The rule achieves an Ohio specific public policy goal.

What goal(s): The rule adopts a fee schedule for workers' compensation vocational rehabilitation services in accordance with R.C. 4121.61, R.C. 4121.441(A), and *Ohio Hosp. Assn. v. Ohio Bur. of Workers' Comp.*, Franklin App. No. 06AP-471, 2007-Ohio-1499.

3. Existing federal regulation alone does not adequately regulate the subject matter.

4. The rule is effective, consistent and efficient.

5. The rule is not duplicative of rules already in existence.

6. The rule is consistent with other state regulations, flexible, and reasonably balances the regulatory objectives and burden.

7. The rule has been reviewed for unintended negative consequences.

8. Stakeholders, and those affected by the rule were provided opportunity for input as appropriate.

Explain: The proposed fee schedule was provided for review to BWC's Labor-Management-Government Advisory Council (LMG), which is responsible for providing advice and recommendations to BWC on rehabilitation matters (see R.C. 4121.70 and OAC 4123-18-18).

BWC also provided the proposed fee schedule to the following stakeholder groups: the International Association of Rehabilitation Professionals (IARP), the Ohio Physical Therapy Association (OPTA) and the Ohio Association of Rehabilitation Facilities (OARF) and the Ohio Association for Justice (OAJ). Meetings were held on June 23rd and June 25th with stakeholders to discuss the fee schedule. IARP attended both of the meetings and OPTA and OARF attended one meeting.

Stakeholders' questions, concerns and feedback resulted in productive revisions to the proposed rules.

9. The rule was reviewed for clarity and for easy comprehension.
10. The rule promotes transparency and predictability of regulatory activity.
11. The rule is based on the best scientific and technical information, and is designed so it can be applied consistently.
12. The rule is not unnecessarily burdensome or costly to those affected by rule.

If so, how does the need for the rule outweigh burden and cost? _____
13. The Chief Legal Officer, or his designee, has reviewed the rule for clarity and compliance with the Governor's Executive Order.

BWC Board of Directors
Executive Summary
BWC Vocational Rehabilitation Provider Fee Schedule Rule
OAC 4123-18-09

Introduction

Chapter 4123-18 of the Ohio Administrative Code contains BWC rules providing for the vocational rehabilitation of injured workers in the Ohio workers' compensation system. The rules were first published as Industrial Commission (IC) rules in the early 1980's, and were converted to BWC rules in the early 1990's when H.B. 222 transferred authority over vocational rehabilitation services from the IC to BWC.

BWC reviewed revised the vocational rehabilitation rules in 2001, following the implementation of the Health Partnership Program (HPP), and again in 2004 and 2009, pursuant to five-year rule review.

Background Law

Ohio Revised Code (O.R.C.) 4121.61 provides that the Administrator, with the advice and consent of the BWC Board of Directors, shall "adopt rules, take measures, and make expenditures as it deems necessary to aid claimants who have sustained compensable injuries or incurred compensable occupational diseases . . . to return to work or to assist in lessening or removing any resulting handicap."

O.R.C. 4121.441(A) provides that the Administrator, with the advice and consent of the BWC Board of Directors, shall adopt rules for implementation of the HPP "to provide medical, surgical, nursing, drug, hospital, and rehabilitation services and supplies to an employee for an injury or occupational disease"

Prior to the 10th District Court of Appeals decision in *Ohio Hosp. Assn. v. Ohio Bur. of Workers' Comp.*, Franklin App. No. 06AP-471, 2007-Ohio-1499, BWC adopted the vocational rehabilitation provider fee schedule in the manner provided for in O.R.C. 4121.32(D), which grants BWC authority to "establish, adopt, and implement policy guidelines and bases for decisions involving reimbursement issues including, but not limited to . . . reimbursement fees . . . set forth in a reimbursement manual and provider bulletins."

However, pursuant to the Court of Appeals' decision in the *OHA* case, BWC is now required to adopt changes to its provider fee schedules, including the vocational rehabilitation provider fee schedule, via the O.R.C. Chapter 119 rulemaking process. BWC has undergone a systematic revision of its vocational rehabilitation provider fee schedule and, now proposes to adopt the newly revised vocational rehabilitation provider fee schedule as an Appendix to newly enacted OAC 4123-18-09.

Proposed Changes

The major substantive changes proposed for the vocational rehabilitation fee schedule include:

- There are currently a total of 76 vocational rehabilitation fee codes with a recommendation to add code W0513 for Ergonomic Implementation for a total of 77.
- Fee increases are proposed in 50 of the 77 codes representing the following 5 services:

1. Vocational Rehabilitation Case Management (39 codes)
 2. Travel and Wait Time for case managers (4 codes)
 3. Mileage for case managers and other providers (4 codes)
 4. Occupational Rehabilitation – Comprehensive (2 codes)
 5. Work Conditioning (1 code)
- There are a total of 9 codes with proposed changes to the Unit of Service (UOS). These changes may impact the overall price paid for 7 of the codes:
 1. Ergonomics (2 codes)
 2. Work Adjustment (2 codes)
 3. Job Analysis (1 code)
 4. Job Seeking Skills Training (1 code)
 5. Job Placement/Development (1 code)
 - The change in UOS for 2 codes will have no fee impact:
 1. Vocational Evaluation (1 code)
 2. Vocational Screening (1 code)
 - There are proposed changes to the definitions for Other Provider Travel and Other Provider Mileage (4 codes) to allow for reimbursement of Travel and Mileage to providers of Transitional Work, Ergonomic Study, Ergonomic Implementation and Job Analysis.
 - There are a total of 18 codes with no changes recommended.

Stakeholder Involvement

The proposed fee schedule was provided for review to BWC's Labor-Management-Government Advisory Council (LMG), which is responsible for providing advice and recommendations to BWC on rehabilitation matters (see R.C. 4121.70 and OAC 4123-18-18).

BWC also provided the proposed fee schedule to the following stakeholder groups: the International Association of Rehabilitation Professionals (IARP), the Ohio Physical Therapy Association (OPTA) and the Ohio Association of Rehabilitation Facilities (OARF) and the Ohio Association for Justice (OAJ). Meetings were held on June 23rd and June 25th with stakeholders to discuss the fee schedule. IARP attended both of the meetings and OPTA and OARF attended one meeting.

Stakeholders' questions, concerns and feedback resulted in productive revisions to the proposed rules.

4123-18-09 Vocational rehabilitation provider fee schedule. (New)

(A) Pursuant to sections 4121.441 and 4121.61 of the Revised Code, the bureau shall adopt rules for the provision of vocational rehabilitation services to injured workers. The administrator hereby adopts the vocational rehabilitation provider fee schedule indicated in the attached appendix A, developed with stakeholder input, effective November 15, 2009.

(B) Whether the MCO has elected to retain a provider panel or not, an MCO may contract with vocational rehabilitation providers. Every provider contract shall describe the method of payment to the providers. The MCO shall provide an MCO fee schedule to each provider that contracts with the MCO. The MCO fee schedule may be at different rates than the bureau fee schedule. The MCO shall make the MCO fee schedule available to the bureau as part of its application for certification. The bureau shall maintain the MCO fee schedule as proprietary information.

Appendix A

BUREAU OF WORKERS' COMPENSATION

VOCATIONAL REHABILITATION PROVIDER FEE SCHEDULE

EFFECTIVE NOVEMBER 15, 2009

Effective: 11/15/2009

Promulgated Under: 119.03

Statutory Authority: 4121.12, 4121.30, 4121.31, 4123.05

Rule Amplifies: 4121.441, 4121.61, 4121.62, 4123.53, 4123.66

Prior Effective Dates:

BWC 2009 Proposed Vocational Rehabilitation Services Provider Fee

Medical Service Enhancements

Prompt, effective medical and vocational care makes a big difference for those injured on the job. It is often the key to a quicker recovery and timely return-to-work and quality of life for injured workers. Thus, maintaining a network of dependable vocational rehabilitation service providers ensures injured workers get the prompt care they need. It also ensures access to quality, cost-effective service. Access for injured workers, and employers, means the availability of quality, cost-effective treatment provided on the basis of medical and/or vocational necessity. It facilitates faster recovery and a prompt, safe return to work.

The Medical Services Division has focused on improving its core medical services functions. Our goals are as follows: enhance our medical and vocational provider network, establish a better benefits plan, institute an updated and competitive provider fee schedule, improve our managed care processes, and establish excellent medical bill payment services.

Vocational Provider Fee Schedule

Introduction and Methodology

As stated, implementing a sound and effective provider fee schedule is a critical component of the Medical Services Division's goals. The Ohio Bureau of Workers Compensation reimburses over 3600 vocational providers who are either independent providers or affiliated with a vocational rehabilitation service entity. An appropriate fee schedule is integral to maintaining an effective and comprehensive network of providers. An equitable and competitive fee for the right vocational service is essential to maintain a quality provider network across the wide range of necessary provider disciplines. Thus, the guiding principle is to ensure access to high-quality vocational services by establishing an appropriate Benefit plan and Terms of service with a competitive fee schedule which, in turn, enhances BWC's vocational provider network.

BWC's vocational services have operated under an unchanged fee schedule policy since 1999. As a result, BWC Medical Services undertook a comprehensive review of the benefit plan and corresponding vocational fee schedule. The process for the comprehensive review included:

- A.** Reviewing specific service coverage statuses relative to indicators of vocational needs, and revising accordingly.
- B.** Assessing the existing number of service units for all services in relation to expected patterns of service delivery, and revising accordingly.
- C.** Evaluating current established fees for services, and adjusting accordingly.
- D.** Review proposed service fees and unit recommendations against other payers.

In applying the above process, the Rehabilitation Policy staff reviewed 76 local codes.

The method BWC uses to determine which services will be within the coverage plan and the fee schedule for those services is detailed below.

Determination of Coverage and Units of Services

BWC performed an assessment to determine what rehabilitation services are needed to include and/or exclude from the vocational benefit plan. Consideration is given to whether particular services are in line with BWC's objectives which are providing services that most effectively facilitate an injured worker's return to work, or remain at work. Based on this review a decision is made to add, keep or remove any particular rehabilitation service.

BWC gathered information from several sources to complete this assessment. Sources included feedback from stakeholders and/or providers, data on trends in vocational rehabilitation services taken from seminars, literature reviews etc., and data research of services provided in other state's workers' compensation systems.

At the same time, BWC determined for each benefit plan service, what the appropriate number of units or range of units for that service should be.. Importance was placed on ensuring the injured worker gets the right treatment at the right time and in sufficient quantity to maximize positive outcomes without creating program inefficiencies.

Setting Fees

The fees for vocational rehabilitation services were also reviewed, and evaluated against the guiding principle as set forth above. As a result of that evaluation determinations were made whether fees should be increased, remain the same or decreased. Fees for any new services were also set during this step. The reimbursement level for any service took into account the Ohio environment, the existing fees and the determination of what change in fees would facilitate the achievement of the guiding principle.

After establishing the fees, BWC gathered service and reimbursement data from other payers and evaluated the established Ohio fees against the gathered information. The process for gathering comparison data involved performing research of various payers of rehabilitation services and of providers or vendors of equipment and tools. Because of the nature of local service definitions and the differences that can exist in services from one state to another, care was taken in comparing the gather data against Ohio's recommended plan and reimbursement levels. Thus, the evaluation of this data was used to add an additional confidence level check of BWC's recommended benefit plan design including reimbursement levels.

2009 Proposed Fee Schedule Updates

BWC proposes to increase the fees for the following services:

- 39 vocational rehabilitation case management service codes from \$7.00 per six minute unit of service to \$7.50 per six minutes

- vocational case management travel and wait codes from \$3.50 per six minute units of service to \$3.75 per six minutes
- mileage reimbursement for Vocational Rehabilitation case managers and other designated rehabilitation providers from \$.30 per mile to \$.45 per mile
- Occupational Rehabilitation – Comprehensive codes from \$128.25 (for first 2 hours) and \$51.18 (each additional hour) to \$135.95 and \$54.25 respectively
- Work Conditioning from \$37.50 per hour to \$40.00 per hour
- Transitional Work, Ergonomic Study, Ergonomic Implementation and Job Analysis from no allowance of provider travel and mileage to allowance.

BWC proposes the following Unit of Service changes:

- Ergonomic Study and Job Analysis - from “By Report” to a fifteen minute unit of service. Each unit would be reimbursed at \$45.00. In addition a new code is being proposed to allow for an Ergonomic Implementation service.
- Work Adjustment from \$300.00 per week to \$15.00 per hour with a weekly maximum of thirty-five hours or \$525.00 per week.
- Job Seeking Skills Training from \$500.00 per program to \$5.00 per six minute unit of service with a maximum of 150 units of service or \$750.00 maximum per program.
- Comprehensive Vocational Evaluation and Vocational Screening from a one hour unit of service to a six minute unit of service.

Impact of Recommendation

The impact of the recommended changes is as follows:

1. Estimated \$1.9 million increase or approximately 5.9% over the vocational rehabilitation costs incurred in calendar year 2008,
2. Improvement in provider reimbursement
3. Appropriate provision of benefits necessary to address Ohio’s injured worker’s needs, i.e. returning to work or remaining at work,
4. Fully support the guiding principle: *ensure access to high-quality vocational services by establishing an appropriate Benefit plan and Terms of service with a competitive fee schedule which, in turn, enhances BWC’s vocational provider network.*



Bureau of Workers' Compensation

Governor **Ted Strickland**
Administrator **Marsha P. Ryan**

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Recommendations for changes to the vocational rehabilitation fee schedule from LMG Advisory Council, International Association of Rehabilitation Professionals (IARP), Ohio Association of Rehabilitation Facilities (OARF), and Ohio Physical Therapy Association (OPTA).

Service Code	Fee Schedule Recommendations	Stakeholder Rationale	BWC Response	Resolution
W3000 - 40 Z3000-40 Vocational Rehabilitation Case Management	IARP recommends that the fee for Vocational Rehabilitation Case Management (VRCM) codes be increased from \$70.00 per hour to \$80.00 per hour.	IARP has recommended that this service fee be increased. IARP further indicated disagreement with BWC's recommendation based on their research and requested the fee be increased to \$80.00 per hour.	BWC agrees with IARP's premise. In determining the appropriate level of change in the fee, BWC evaluated various Ohio market reimbursement levels against the BWC guiding principle of ensuring injured workers' access to quality care. Per that evaluation, BWC determined that an increase in reimbursement was warranted for this service.	BWC is recommending a 7% increase in this fee from \$70.00 per hour to \$75.00 per hour.
W0644 Ergonomic Study	OPTA agrees with the recommendation for using a 15 minute unit of service and with the recommended \$45.00/UOS reimbursement rate for billing purposes.	OPTA notes that the 15 minute increment is typically used by therapists and supports the designation for the code. OPTA believes that the service should be by report as the length of time needed to complete each service varies with the work situation being studied.	BWC agrees with OPTA's perspective and feedback.	BWC is recommending establishing a 15 minute unit of service for this code. BWC recommends reimbursement for W0644 at \$45.00 per unit of service (UOS) up to 28 UOS.
W0513 Ergonomic Implementation	OPTA does not see the necessity of the additional code W0513 for Ergonomic Implementation and believes that the W0644 code is sufficient and should be billed "by report".	OPTA believes that the service should be by report as the length of time needed to complete each service varies with the work situation being studied.	BWC's position is that Ergonomic Implementation services are unique and separate from the Ergonomic Study. The implementation and follow-up services present more variance in activities than the study itself. Thus, a new service code allows for better quality measures and tracking of the implementation and follow-up services.	BWC is recommending the addition of a code for Ergonomic Implementation. BWC is further recommending reimbursement for W0513 at \$45.00 per unit of service up to 16 units.

Service Code	Fee Schedule Recommendations	Stakeholder Rationale	BWC Response	Resolution
W0644 Ergonomic Study W0513 Ergonomic Implementation W0645 Job Analysis W0637 Transitional Work	OPTA requests payment of provider travel and mileage to perform these services	OPTA notes that there are a limited number of providers for these codes. They report that the provider sometimes travels several hours to provide the service and would like for this to be compensated.	BWC agrees with the feedback from all stakeholders on this service. BWC evaluated expanding this type of reimbursement for these services against the BWC guiding principle of injured workers' access to quality care. Per that evaluation BWC determined that expanding reimbursement to providers of these services facilitates access to quality care and further helps to keep injured workers on the job.	BWC is recommending that providers of these services be added to the types of providers allowed to be reimbursed under the codes for Travel W3050 and Z3050 and Mileage W3052 and Z3052.
W0644 Ergonomic Study W0513 Ergonomic Implementation W0645 Job Analysis W0637 Transitional Work	IARP concurs with OPTA's requests for payment of provider travel and mileage to perform these services		BWC agrees with the feedback from all stakeholders on this service. BWC evaluated expanding this type of reimbursement for these services against the BWC guiding principle of injured workers' access to quality care. Per that evaluation BWC determined that expanding reimbursement to providers of these services facilitates access to quality care and further helps to keep injured workers on the job.	BWC is recommending that providers of this service be added to the types of providers allowed to be reimbursed under the codes for Travel W3050 and Z3050 and Mileage W3052 and Z3052.
W0645 Job Analysis	IARP recommends that the 8 unit of service or 2 hour cap that is proposed be increased or softened to allow for the varying complexity of jobs that are being analyzed.	IARP notes that the proposed cap would not cover the full costs of 52% of our past payment for this service. They suggest that this service be "by report" or that there is a mechanism to exceed the proposed cap.	BWC agrees with the premise of the feedback offered, but disagrees with the suggested recommendation. BWC believes the recommended unit of service (UOS) provides an appropriate standard for review for this service, and establishes a more consistent billing mechanism, while providing definition for usual and customary rates for this service. However, where sufficient justification from the provider and pre-authorization of the MCO are submitted, additional UOS will be available.	BWC is recommending increasing the proposed cap from 8 UOS to 16 UOS (4 hours) and allowing the designation of "up to" which reflects the ability to exceed the 16 UOS.

Service Code	Fee Schedule Recommendations	Stakeholder Rationale	BWC Response	Resolution
<p>W0645 Job Analysis</p>	<p>While OPTA agrees with the suggested UOS and the reimbursement rate per UOS, they request that the proposed cap for this service (8 units of service) be removed and that the service continue "by report".</p>	<p>OPTA notes the importance of a functional job analysis to make fitness-for-duty determinations and design more job-specific plans of care. They contend that there is a huge variation in professional time required to perform this service in a manner that supports disability prevention outcomes and believe that the range of case and job complexity supports OPTA's position that recommended caps do not reflect the reality of how they have to do business as providers in the trenches.</p>	<p>BWC agrees with the premise of the feedback offered, but disagrees with the suggested recommendation. BWC believes the recommended unit of service (UOS) provides an appropriate standard for review for this service, and establishes a more consistent billing mechanism, while providing definition for usual and customary rates for this service. However, where sufficient justification from the provider and pre-authorization of the MCO are submitted, additional UOS will be available.</p>	<p>BWC is recommending increasing the proposed cap from 8 UOS to 16 UOS (4 hours) and allowing the designation of "up to" which reflects the ability to exceed the 16 UOS.</p>
<p>W0650 Job Seeking Skills Training</p>	<p>IARP had requested that the unit of service for Job Seeking Skills Training be changed from a per program to 6 minute or hourly fee. They noted that this is proposed in the fee schedule.</p>	<p>This change was requested to more accurately reflect the services provided.</p>	<p>BWC agrees with all stakeholders' feedback regarding this service.</p>	<p>BWC is recommending changing the UOS for Job Seeking Skills Training from "per program" to \$5.00 per 6 minute UOS with maximum of 150 UOS.</p>
<p>W0660 Job Placement / Job Development</p>	<p>IARP recommends that the 13 week limit of Job Placement / Job Development be increased to 26 weeks and that the current 500 UOS (50 hours) be removed or increased in correlation to the extension from 13 to 26 weeks.</p>	<p>IARP notes that this recommendation is based on the current economy. IARP reports that the average duration for unemployment of all individuals at this time is 21.4 weeks and that 27% of workers remain unemployed for 27 weeks or more. IARP contends that a person with a disability generally requires more time to locate employment.</p>	<p>BWC agrees in part with the stakeholder, recognizing the new challenges which injured workers may face in the job market, and that the current time allowed for this service needs to be adjusted.</p>	<p>BWC is recommending increasing the UOS to 800 UOS over a 20 week period and designating the UOS as "up to" rather than "maximum".</p>
<p>W0702 Occupational Rehab - Comprehensive Initial 2 hrs W0703 Occupational Rehab - Comprehensive each add'l hour</p>	<p>OPTA recommends that CARF accreditation be removed as a requirement for providers of the Occupational Rehabilitation - Comprehensive (Work Hardening) service. OPTA recommends that APTA's guidelines for this service be used to ensure quality instead.</p>	<p>OPTA believes that CARF is a huge expense that keeps smaller facilities from participating as providers of this service. OPTA contends that there is an access to care issue that is created by this requirement. OPTA states that facilities who can provide exceptional services are not renewing their CARF accreditation due to the cost of accreditation.</p>	<p>BWC research did not result in a finding that injured workers' access to quality care has been undermined. BWC, after hearing a presentation from the national CARF body, concluded that this accreditation provides a tool which ensures quality care for injured workers receiving this service. Using another guideline such as APTA, would require increased staffing and associated costs to create and execute surveys that could ensure quality.</p>	<p>BWC is maintaining CARF accreditation for this service</p>

Service Code	Fee Schedule Recommendations	Stakeholder Rationale	BWC Response	Resolution
W0702 Occupational Rehab - Comprehensive Initial 2 hrs W0703 Occupational Rehab - Comprehensive each add'l hour	OPTA notes that if BWC is requiring CARF accreditation for Occupational Rehabilitation - Comprehensive, the BWC fee for this service should be higher than any bench-mark entity.	OPTA notes that no other benchmark state requires CARF accreditation for this Work Hardening and they believe that if BWC requires this added burden, then BWC should have the highest level of reimbursement.	In determining the appropriate level of change in the fee, BWC evaluated various Ohio market reimbursement levels against the BWC guiding principle of ensuring injured workers' access to quality care. Per that evaluation, BWC determined that an increase in reimbursement was warranted for this service.	BWC is recommending a 6% increase in the service fee or \$135.95 for 1st 2 hours of service and \$54.25 for each additional hour.
W0703 Occupational Rehab - Comprehensive each additional hour	OARF notes that BWC's proposed fee for each additional hour of Occupational Rehabilitation- Comprehensive is well below both the median and the mean when compared to benchmark entities.		In determining the appropriate level of change in the fee, BWC evaluated various Ohio market reimbursement levels against the BWC guiding principle of ensuring injured workers' access to quality care. Per that evaluation, BWC determined that an increase in reimbursement was warranted for this service.	BWC is recommending a 6% increase in the service fee or \$135.95 for 1st 2 hours of service and \$54.25 for each additional hour.
W0702 Occupational Rehab - Comprehensive Initial 2 hrs W0703 Occupational Rehab - Comprehensive each add'l hour	OARF recommends that CARF accreditation be kept as a requirement for providers of the Occupational Rehabilitation - Comprehensive (Work Hardening) service.	OARF believes that CARF offers a level of quality assurance and review that is good and notes that while some facilities are dropping CARF it is more an issue of lack of referrals than the expense of accreditation.	BWC agrees with the stakeholder feedback.	BWC is maintaining CARF accreditation for this service

Service Code	Fee Schedule Recommendations	Stakeholder Rationale	BWC Response	Resolution
<p>W0702 Occupational Rehab - Comprehensive Initial 2 hrs W0703 Occupational Rehab - Comprehensive each add'l hour</p>	<p>IARP agrees with OPTA recommendation that CARF accreditation be removed as a requirement for providers of the Occupational Rehabilitation - Comprehensive (Work Hardening) service.</p>	<p>IARP believes that the CARF requirement is burdensome to the providers which decreases the number of providers in the system and requires injured workers to travel greater distances to obtain services.</p>	<p>BWC research did not result in a finding that injured workers' access to quality care has been undermined. BWC, after hearing a presentation from the national CARF body, concluded that this accreditation provides a tool which ensures quality care for injured workers receiving this service. Using another guideline such as APTA, would require increase staffing and associated costs to create and execute surveys that could ensure quality.</p>	<p>BWC is maintaining CARF accreditation for this service</p>
<p>W0710 Work Conditioning</p>	<p>OPTA recommends that the local code for Work Conditioning be removed from the Fee Schedule and that services shift to Occupational Rehab - Comprehensive with elimination of the CARF requirement.</p>	<p>OPTA notes that most other benchmarking states reimburse for Work Conditioning using CPT Codes 97545 and 97546. CPT recognizes these codes for both Work Conditioning and Occupational Rehab-Comprehensive. OPTA notes that most benchmark states pay the same fees for both services utilizing these codes. OPTA further notes that from the Therapist's service delivery vantage point there is no difference between the two services. Rather the differences relate to duration and the addition of services in Occupational Rehabilitation - Comprehensive.</p>	<p>BWC, as part of our guiding principle, works to ensure that we have an appropriate benefit plan and terms of service for injured workers. BWC's position is that Work Conditioning is a service that is unique from active therapy and Occupational Rehabilitation Comprehensive, and has positive value for the vocational rehabilitation of injured workers.</p>	<p>BWC is maintaining the Work Conditioning service offering.</p>
<p>W0710 Work Conditioning</p>	<p>OPTA further recommends that the local code for Work Conditioning be removed and that additional units of service be allowed in the Active Therapy services that may be included as part of a vocational rehabilitation plan.</p>	<p>OPTA reports that by allowing the billing / reimbursement to be provided using Active Therapy codes, a similar conditioning service could be offered but would reimburse the provider for direct one-to-one time in their work with the injured worker and for set up of the program for conditioning/work simulation. OPTA believes that Work Conditioning is unnecessary.</p>	<p>BWC, as part of our guiding principle, works to ensure that we have an appropriate benefit plan and terms of service for injured workers. BWC's position is that Work Conditioning is a service that is unique from active therapy and Occupational Rehabilitation Comprehensive, and has positive value for the vocational rehabilitation of injured workers.</p>	<p>BWC is maintaining the Work Conditioning service offering.</p>

Service Code	Fee Schedule Recommendations	Stakeholder Rationale	BWC Response	Resolution
<p>W0710 Work Conditioning</p>	<p>OARF recommends that Work Conditioning continue to be reimbursed by the hourly increments.</p>		<p>BWC agrees with this recommendation.</p>	<p>BWC will maintain the current reimbursement protocols.</p>
<p>W0637 Transitional Work</p>	<p>LMG asked about the discrepancy in BWC's fee for Transitional Work Services and that reported for other states.</p>	<p>The concern was that BWC was paying much higher rates for this service.</p>	<p>In determining the appropriate level of change in a fee, BWC evaluated various Ohio market reimbursement levels against the BWC guiding principle of ensuring injured workers' access to quality care. Per that evaluation, BWC determined that no change in reimbursement was warranted for this service. BWC notes that we require that this service be provided by a licensed therapist, while other states offer this service through the Vocational Rehabilitation Case Manager.</p>	<p>BWC will maintain the current reimbursement levels and protocols.</p>
<p>All codes with recommended increases in fee</p>	<p>LMG questions providing any increases in BWC fees given the state of the economy and the state budget.</p>	<p>The concern was that in our current economy, nearly all of us are facing budget cuts so it seems counter intuitive to provide "raises" for providers.</p>	<p>In determining the appropriate level of change in the fees, BWC evaluated various Ohio market reimbursement levels against the BWC guiding principle of ensuring injured workers' access to quality care. Per that evaluation, BWC determined that an increase in reimbursement for some services was warranted and recommended.</p>	<p>BWC is recommending changes to 54 service code fees which amounts to an average of 5.8% increase from the levels of all reimbursed service fees.</p>

OHIO BWC 2009 VOCATIONAL REHABILITATION SERVICES FEE SCHEDULE PROPOSAL

Medical Services Division
Freddie Johnson, Director, Managed Care Services
Karen Fitzsimmons, Manager,
August 27, 2009

Introduction and Guiding Principles

- Legal Requirements For Fee Schedule Rule
- Proposed Time-line for Implementation
 - Stakeholder Meetings
 - Board Presentation July/August
 - Proposed to JCARR – September 1st
 - Effective Date – Monday, November 16, 2009
- Guiding Principle:

Ensure access to high-quality medical care and vocational rehabilitation services by establishing an appropriate Benefit plan and Terms of service with competitive fee schedule which, in turn, enhances medical/vocational provider network

Fee Schedule Update Methodology

- Reviewed all 76 Vocational Rehabilitation Services codes
- The maximum number of units reimbursable for all codes was reviewed, with some revisions
- Current reimbursement rates were evaluated with some modification
- Benchmarking against other payers

Recommended Reimbursement Changes

BWC proposes to increase the fees for the following services:

- 39 vocational rehabilitation case management service codes from \$7.00 per six minute unit of service to \$7.50 per six minutes
- Vocational case management travel and wait codes from \$3.50 per six minute units of service to \$3.75 per six minutes
- Mileage reimbursement for Vocational Rehabilitation case managers and other designated rehabilitation providers from \$.30 per mile to \$.45 per mile
- Occupational Rehabilitation – Comprehensive codes from \$128.25 (for first 2 hours) and \$51.18 (each additional hour) to \$135.95 and \$54.25 respectively
- Work Conditioning from \$37.50 per hour to \$40.00 per hour

Recommended Reimbursement Changes

BWC proposes the following unit and billing of service changes:

- Ergonomic Study and Job Analysis - from “By Report” to a fifteen minute unit of service.
- Comprehensive Vocational Evaluation and Vocational Screening from a one hour unit of service to a six minute unit of service.
- Work Adjustment from \$300.00 per week to \$15.00 per hour with a weekly maximum of thirty-five hours.
- Job Seeking Skills Training from \$500.00 per program to \$5.00 per six minute unit of service with a maximum of 150 units of service.
- Job Placement and Job Development from service limits of 50 hours in 13 weeks to up to 80 hours in 20 weeks.

Recommended Reimbursement Changes

BWC proposes the following benefit coverage changes:

- Addition of a new service code for Ergonomic Implementation and Follow-up
- Expanding travel and mileage provider reimbursement to also cover providers of Transitional Work, Ergonomic Study, Ergonomic Implementation and Job Analysis services

Recommendations

- **Modify Reimbursement Rates of 54 Procedure Codes**
 - Case Management
 - Mileage Rate
 - Occupational Rehab – Comprehensive (Work Hardening)
 - Work Conditioning

- **Modify Unit of Services on 8 Procedure Codes**
 - 5 Codes with both Price and Unit of Services Modified
 - 3 Codes with only Unit of Services Modified

- **Added One New Code**
 - Ergonomic – Implementation/Follow-up

- **No Change to 18 Service codes**

Impacts and Outcomes

- Vocational Services Costs Impact
 - An estimated 5.86% increase in reimbursement
 - Estimated dollar figure is \$1.9 million
- Appropriate Provision Benefits Necessary to Address Ohio's Injured Workers' Needs
- Supports the Guiding Principle of Access to Quality Care

Thank You

Common Sense Business Regulation (BWC Rules)

(Note: The below criteria apply to existing and newly developed rules)

Chapter 4123:1-5 Rules

Rule Review

1. The rule is needed to implement an underlying statute.
Citation: R.C. 4121.13
2. The rule achieves an Ohio specific public policy goal.
What goal(s): Update and conform to national standards of employee safety in workshops and factories environment.
3. Existing federal regulation alone does not adequately regulate the subject matter.
4. The rule is effective, consistent and efficient.
5. The rule is not duplicative of rules already in existence.
6. The rule is consistent with other state regulations, flexible, and reasonably balances the regulatory objectives and burden.
7. The rule has been reviewed for unintended negative consequences.
8. Stakeholders, and those affected by the rule were provided opportunity for input as appropriate.

Proposed changes were submitted to an external review committee consisting of stakeholders representing public and private Ohio employers and employees. The committee included representatives of the American Federation of Labor/Congress of Industrial Organizations, the Ohio Manufacturers Association, American Federation of State, County and Municipal Employees/Ohio Civil Service Employee's Association and the Ohio City/County Management Association. The committee held monthly meetings in April, May, and June of 2009 to review and comment on the proposed changes as well as recommend other appropriate changes that were not identified by DSH's technical advisors' unit.

9. The rule was reviewed for clarity and for easy comprehension.
10. The rule promotes transparency and predictability of regulatory activity.
11. The rule is based on the best scientific and technical information, and is designed so it can be applied consistently.
12. The rule is not unnecessarily burdensome or costly to those affected by rule.

If so, how does the need for the rule outweigh burden and cost? _____

13. The Chief Legal Officer, or his designee, has reviewed the rule for clarity and compliance with the Governor's Executive Order.

BWC Board of Directors
Executive Summary
Occupational Safety and Health Rules for
Workshops and Factories

Introduction

This executive summary outlines the results of the five-year rule review of the Specific Safety Requirements (SSRs) in Ohio Administrative Code (OAC) Chapter 4123:1-5, workshops and factories. The five-year review of all other OAC chapters containing SSRs has been completed. Specifically, the Board has reviewed and approved revisions to OAC Chapter 4123:1-1, operation of elevators, OAC Chapter 4123:1-3, Construction, OAC Chapter 4123:1-7, metal casting, OAC Chapter 4123:1-9, steel mills, OAC Chapter 4123:1-11, laundering and dry cleaning, OAC Chapter 4123:1-13, rubber and plastic industries, OAC Chapter 4123:1-17, window cleaning, and OAC Chapter 4123:1-21, fire fighting.

Background Law

The Ohio Constitution, Article II, Section 35 and R.C. 4121.13 empower the BWC to adopt rules which establish worker safety standards. Article II, Section 35 of the Ohio Constitution and R.C. 4121.47 both provide that an injury due to a violation of a specific safety rule (VSSR) can result in an employer paying a 15% to 50% penalty added to the compensation payable to an injured worker.

The majority of the safety standards contained in Ohio Administrative Code 4123:1-5 on workshops and factories parallel comparable provisions set forth in the federal Occupational Safety and Health Administration (OSHA) regulations (29 C.F.R. 1910).

Proposed Changes

A total of 152 distinct changes to Chapter 4123:1-5 are identified for consideration by the Board. Some of these changes are related to formatting or simply correct administrative code reference numbers. The greatest number of changes are proposed for OAC 4123:1-5-17 on personal protective equipment and OAC 4123:1-5-99.1 on toxic concentration, flash point, boiling point, explosive limits and vapor density of common flammable and toxic liquids and gases. Relative to personal protective equipment, the changes incorporate OSHA's guidelines on testing procedures for eye protection and hard hats, update the body harness and fall protection sections, and change language regarding respiratory protection. For toxic chemicals, changes are proposed to the Occupational Exposure Limits (OEL) to make them consistent with OSHA's Permissible Exposure Limits (PEL). In some cases, this involves raising the current OEL to be consistent with OSHA's PEL.

Stakeholder Involvement

The DSH's technical advisors unit reviewed OAC Chapter 4123:1-5 and drafted proposed updates and changes. Those changes were then submitted to an external review committee consisting of stakeholders representing public and private Ohio employers and employees. The committee included representatives of the American Federation of Labor/Congress of Industrial Unions, the Ohio Manufacturers Association, American Federation of State, County and Municipal Employees/Ohio Civil Service Employee's Association and the Ohio City/County

Management Association. The committee held monthly meetings in April, May, and June of 2009 to review and comment on the proposed changes as well as recommend other appropriate changes that were not identified by DSH's technical advisors' unit. Craig Mayton, BWC legal counsel, participated in the committee meetings to address legal questions. Director James Harris, member of BWC's Board of Directors, observed the Committee's May 5, 2009 meeting. The guiding principles used by the assigned technical advisors and the external stakeholders to reach consensus relative to proposed changes were: (1) a commitment to provide clear SSR's for safe workplaces; and (2) the desire to update the rules consistent with current recognized industry standards (such as the American National Standards Institute) and OSHA regulations. Attached is correspondence from the respective stakeholders which expresses their agreement with and support for the proposed changes.

Acknowledgements

The Bureau of Workers' Compensation would like to acknowledge the outstanding contributions of the following individuals and organizations to the review process:

Ms. Dianne Grote Adams from the Ohio Manufacturers Association

Mr. David Anderson from the Ohio City/County Management Association

Ms. Sandra Bell from the American Federation of State, County and Municipal Employees/Ohio Civil Service Employee's Association

Mr. William Crooks from the American Federation of Labor/Congress of Industrial Unions

Mr. David Packer from the American Federation of State, County and Municipal Employees/Ohio Civil Service Employee's Association

Chapter 4123:1-5 Workshops and Factories

4123:1-5-01 Scope and definitions. (Amend)

(A) Scope.

The purpose of this Chapter of the Administrative Code is to provide reasonable safety for life, limb, and health of employees. In cases of practical difficulty or unnecessary hardship, the Ohio bureau of workers' compensation may grant exceptions from the literal requirements of the rules of this chapter to permit the use of other devices or methods when, in the opinion of the bureau, the equivalent protection is thereby secured.

Comment [jcs1]: Typo corrected.

The specific requirements of this chapter are requirements upon an employer for the protection of such employer's employees and no others and apply to all workshops and factories subject to the Workers' Compensation Act (sections 4123.01 to 4123.99 of the Revised Code). Specific requirements of other chapters of the Administrative Code adopted by the Ohio bureau of workers' compensation shall apply to the particular industry covered by any such other chapter, and, to the extent of conflict between this chapter and such other chapter, the latter shall govern, but in all other respects this chapter shall be deemed to apply and the other to be a supplement of this chapter.

Installations or constructions built or contracted for prior to the effective date (shown at the end of each rule) of any requirement shall be deemed to comply with the provisions of these requirements if such installations or constructions comply either with the provisions of these requirements if with the provisions of any applicable specific requirement which was in effect at the time contracted for or built.

(B) Definitions.

(1) "Access board (hot board)" : a platform designed to be fastened to a pole or structure and having dielectric properties equal to dry wood.

(2) "Adjustable barrier guard" : a barrier requiring adjustment for each job setup or die setup.

(3) "Aerial device" : any vehicle-mounted telescoping or articulating device which is used to position personnel at job sites.

(4) "Air contaminants" : hazardous concentrations of fibrosis-producing or toxic dusts, toxic fumes, toxic mists, toxic vapors, or toxic gases, or any combination of them when suspended in the atmosphere.

(5) "Air-lift hammer" : (see "gravity hammers").

(6) "Angle of repose" : the greatest angle above the horizontal plane at which unexcavated material will lie without sliding.

(7) "Anti-repeat" : the part of the clutch/brake control system designed to limit a mechanical power press to a single stroke if the tripping means is held on the operating position. Anti-repeat requires release of all tripping mechanisms before another stroke can be initiated. Anti-repeat is also called "single stroke reset" or "reset circuit."

(8) "Approved" : accepted or certified by a nationally recognized testing agency, such as "Underwriters' Laboratories," "Factory Mutual Engineering Corporation," or an authorized governmental agency.

(9) "Approved storage facility (magazine)" : a facility for the storage of explosive materials covered by a license or permit issued under authority of the appropriate governmental agencies.

(10) "Bearer" : a horizontal member of a scaffold upon which the platform rests and which may be supported by ledgers.

(11) "Blast area" : the area in which explosives loading and blasting operations are being conducted.

(12) "Blaster" : a person qualified to be in charge of and responsible for the loading and firing of a blast.

(13) "Blasting agent" : any material or mixture consisting of a fuel and oxidizer used for blasting, but not classified as explosives, and in which more of the ingredients are classified as an explosive provided the finished (mixed) product cannot be detonated with a no. 8 test blasting cap when unconfined.

(14) "Blasting cap" : (see "detonator").

(15) "Board-type drop hammer" : (see "gravity hammers").

(16) "Boatswain's chair" : a seat supported by slings attached to a suspended rope, designed to accommodate one employee in a sitting position.

(17) "Bolster plate" : the plate attached to the top of the bed of a power press having drilled holes or T-slots for attaching the lower die or die shoe.

(18) "Brace" :

(a) Scaffold

A tie that holds one scaffold member in a fixed position with respect to another member.

(b) Trench

The horizontal members of the shoring system with ends bearing against the uprights or stringers.

(19) "Brake (mechanical power press)" : the mechanism used to stop and hold the crankshaft, either directly or through a gear train, when the clutch is disengaged.

(20) "Brake monitor" : a sensor designed, constructed, and arranged to monitor the effectiveness of a mechanical power press braking system.

(21) "Bulldozers" : stationary power-driven machines used chiefly for bending operations. They have a movable head operated by links attached to the main drive gears and moving in a horizontal plane.

(22) "Circuit" a conductor or system of conductors through which an electric current flows or may flow.

(23) "Cleats" : ladder crosspieces of rectangular cross-sections placed on edge on which an employee may step in ascending or descending.

(24) "Climbers" : lineman's tools used on the legs and feet to enable the lineman to climb wooden poles.

(25) "Clutch" : the coupling mechanism used on a mechanical power press to couple the flywheel to the crankshaft, either directly or through a gear train.

(26) "Collector" (see "separator").

(27) "Conductor" : metallic material suitable for carrying an electric current.

(28) "Confined space" : an enclosure not intended for continuous employee occupancy, having limited means of ingress and egress and poor natural ventilation and which may contain hazardous contaminants or be oxygen deficient.

(29) "Contact distance (electrical)" : that distance within which contact in doing the work or contact in the event of reaching, slipping, or falling may possibly occur.

(30) "Control system" : sensors, manual input, and mode selection elements, interlocking and decision-making circuitry, and output elements to a mechanical power press operating mechanism.

(31) "Counterbalance" : the mechanism that is used to balance or support the weight of the connecting rods, slide, and slide attachments on a power press.

(32) "Coupler" : a device for locking together the component parts of a tubular metal scaffold.

(33) "Cutting-off wheels" : organically bonded wheels designed for use with power-driven equipment for a multitude of operations variously known as cutting, cutting-off, grooving, slotting, coping, jointing, etc.

(34) "Danger zone" : the point of operation where a known hazard exists.

(35) "Deenergized" : free from any electrical connection to a source of potential different from that of the earth.

(36) "Designated employee" : an employee selected or assigned by the employer or the employer's representative as being qualified to perform specific duties.

(37) "Detonating cord" : a flexible cord containing a center core of high explosives and used to initiate other explosives.

(38) "Detonator" : any device containing a detonating charge that is used for initiating detonation in an explosive; the term includes, but is not limited to, electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuse, detonating cord delay connectors, and non-electric instantaneous and delay blasting caps.

(39) "Dielectric" : a nonconductor of electric current which will not absorb moisture, such as fiberglass, or equivalent.

(40) "Die setting" : the process of placing or removing dies in or from a power press, and the process of adjusting the dies, other tooling, and safeguarding means to cause them to function properly and safely.

(41) "Die shoe" : a plate or block upon which a die holder is mounted. A die shoe functions primarily as a base for the complete die assembly, and, when used, is bolted or clamped to the bolster plate or the face of the slide.

(42) "Dockboard (bridge plate)" : a movable plate (usually metal) for bridging the gap between motor vehicle or freight car and a dock or loading platform.

(43) "Energized" : anything connected to an electrical source having a greater potential than that of the earth.

(44) "Excavation" : any manmade cavity or depression in the earth's surface, including its sides, walls, or faces, formed by earth removal and producing unsupported earth conditions by reason of the excavation. If installed forms or similar structures reduce the depth-to-width relationship, an excavation may become a trench.

(45) "Exhaust system" : includes suction systems, hoods, ducts, fans, separators, receptacles, and other parts necessary for the proper installation and operation thereof.

(46) "Explosive" : any chemical compound or mixture that is intended for the purpose of producing an explosion.

(47) "Exposed to contact" : the location of the material or object which, during the course of operation, is accessible to an employee in performance of his **the employee's** regular or assigned duty.

Comment [jcs2]: Language made gender neutral

(48) "Face of slide" : the bottom surface of the slide to which the punch or upper die of a power press is generally attached.

(49) "Factor of safety" : the ratio between the ultimate breaking stress and the working stress of the material, structure, or device. For example, the term "factor of safety of four" means that the material, structure, or device shall be constructed of such strength that the maximum load will be one-fourth the designed ultimate breaking load. Where other factors of safety appear, they shall apply in the same manner. The standard of "The American Society for Testing and Materials (ASTM)" shall be used in determining the strength of material except as otherwise provided herein.

(50) "Feed rolls" : in-running rolls which perform no other function than to feed material to the point of operation.

(51) "Feeding" : the process of placing or removing material within or from the point of operation. This may be done automatically, semi-automatically, or manually.

(52) "Fire-resistance rating" : the measured time in hours or fractions thereof that the material or construction will withstand fire exposure, as determined by fire tests conducted in conformity with recognized standards.

(53) "Fire-resistive construction" : a method of construction which prevents or retards the passage of hot gases or flames as defined by the fire-resistance rating.

(54) "Flanges" : collars, discs, or plates between which grinding wheels are mounted and are referred to as adaptor, sleeve, or back-up type.

(55) "Floor hole" : an opening measuring less than twelve inches but more than one inch in its least dimension in any floor, pavement, or yard.

(56) "Floor opening" : an opening measuring twelve inches or more in its least dimension, in any floor, platform, pavement, or yard.

(57) "Foot control (part revolution clutch press)" : the foot-operated control mechanism designed to be used with a clutch or clutch/brake control system.

(58) "Foot pedal (full revolution clutch press)" : the foot-operated lever designed to operate the mechanical linkage that trips a full revolution clutch.

(59) "Forging" : the product of work on metal formed to a desired shape by impact or pressure in hammers, forging machines (upsetters), presses, rolls, and related forming equipment.

(60) "Forging presses" : a class of forging equipment wherein the shaping of metal between dies is performed by mechanical or hydraulic pressure.

(61) "Full revolution clutch (mechanical power press)" : a type of clutch that, when tripped, cannot be disengaged until the crankshaft has completed a full revolution and the press slide a full stroke.

(62) "Fumes" : small solid particles formed by the condensation of vapors of solid materials.

(63) "Gas" : a formless fluid which tends to occupy an entire space uniformly at ordinary temperatures and pressures.

(64) "Gate" or "movable barrier device" : a movable barrier arranged to enclose the point of operation before a power stroke can be started.

(65) "Grab bars" : individual handholds placed adjacent to or as an extension above ladders for the purpose of providing access beyond the limits of the ladder.

(66) "Gravity hammers" : A class of forging hammer wherein energy for forging is obtained by the mass and velocity of a freely falling ram and the attached upper die. Examples: board-type drop hammers and air-lift hammers.

(67) "Ground" :

(a) "Ground connection" : the equipment used in establishing a path between an electric circuit or equipment and earth. A ground connection consists of a ground conductor, a ground electrode, and the earth which surrounds the electrode.

(b) "Grounded" : connected to earth by a ground connection.

(c) "Grounded effectively" : connected to earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent the building up of voltages which may result in undue hazard to connected equipment or to employees.

(68) "Grounding conductor" : a conductor which is used to connect the equipment or the wiring system with a grounding electrode or electrodes.

(69) "Guard" : the covering, fencing, railing, or enclosure which shields an object from accidental contact. (See also "safety guard.")

(70) "Guarded" : means that the object is covered, fenced, railed, enclosed, or otherwise shielded from accidental contact.

(71) "Guide post" : the pin attached to the upper or lower die shoe, operating within the bushing on the opposing die shoe, to maintain the alignment of the upper and lower dies of a power press.

(72) "Handhold (handgrip)" : a device attached to a manlift which can be grasped by the passenger to provide a means of maintaining balance.

(a) "Closed type" : a cup-shaped device into which the passenger may place his fingers, open at the top in the direction of travel of the step for which it is to be used, and closed at the bottom.

(b) "Open type" : one which has a handgrip surface fully exposed and capable of being encircled by the passenger's fingers.

(73) "Handrail" : a single bar or pipe supported on brackets from a wall, floor, or partition, as on a stairway ramp.

(74) "Hazardous concentrations (as applied to air contaminants)" : concentrations which are known to be in excess of those which would not normally result in injury to an employee's health.

(75) "Head protection devices" :

(a) "Bump cap or hat" : a thin-shelled plastic headgear worn to provide protection to the head from bumps or lacerations but does not meet the requirements for protective helmets.

(b) "Crown straps" : that part of the suspension which passes over the head.

(c) "Hair enclosure" : a hat or cap (other than a protective helmet or bump cap) or a hairnet specifically designed to protect the wearer from entanglement in moving parts of machines, equipment, or from exposure to sparks, hot metal, or ignition.

(d) "Protective helmet" : a rigid headgear also known as a safety or hard hat, or as a safety or hard cap, that is worn to provide protection for the head, or portions thereof, against impact, flying articles, or electric shock, or any combination thereof, and which is held in place by a suitable suspension.

(e) "Suspension" : the internal cradle of a protective helmet or bump cap which holds it in place on the head and is made up of the headband and crown straps.

(76) "Hood" : that part of an exhaust system into which the contaminated air or dust, fumes, mist, vapor, or gas first enters.

(77) "Hot line (live line) tools" : those tools which are especially designed for work on energized high voltage conductors and equipment.

(78) "Inch" : an intermittent motion imparted to the slide (on mechanical power presses using part revolution clutches) by momentary operation of the inch operating means.

(79) "Kickouts" : accidental release or failure of a shore or brace used in trenching.

(80) "Ladder" :

(a) "Extension ladder" : a portable ladder, adjustable in length. It consists of two or more sections traveling in guides or brackets so arranged as to permit length adjustment. Its size is designated by the sum length of the sections measured along the side rails.

(b) "Extension trestle ladder" : a self-supporting portable ladder, adjustable in length, consisting of a trestle ladder base and a vertically adjustable single ladder, with an effective means for locking the ladders together. The size is designated by the length of the trestle ladder base.

(c) "Fixed ladder" : a ladder permanently attached to a structure, building, or equipment.

(i) "Ladder cage" : an enclosure which encircles the climbing space of the ladder and is securely fastened to the side rails of the ladder or to the structure.

(ii) "Ladder well" : a permanent complete enclosure around a fixed ladder, which is securely fastened to the walls of the well.

(d) "Individual-rung ladder" : a fixed ladder, each rung of which is individually attached to a structure, building, equipment, or manhole.

(e) "Platform stepladder" : a modification of a portable stepladder with a working platform provided near the top.

(f) "Rail ladder" : a fixed ladder consisting of side rails joined at regular intervals by rungs or cleats and fastened in full length or in sections to a building, structure, or equipment.

(g) "Sectional ladder" : a portable ladder, nonadjustable in length, consisting of two or more sections so constructed that the sections may be combined to function as a single ladder. Its size is designated by the overall length of the assembled sections.

(h) "Side-rolling ladder" : one from which an employee getting off at the top must step attachments to a guide rail, which is generally fastened to shelving, the plane of the ladder being also its plane of motion.

(i) "Side-step ladder" : one from which an employee getting off at the top must step sideways in order to reach the landing.

(j) "Single ladder" : a portable, nonadjustable ladder consisting of only one section.

(k) "Stepladder" : a self-supporting portable ladder, nonadjustable in length, having flat steps or treads and a hinged back. Its size is designated by the overall length of the ladder measured along the front edge of the side.

(l) "Through ladder" : one from which an employee getting off at the top must step through the rails in order to reach the landing.

(m) "Trestle ladder" : a self-supporting portable ladder, nonadjustable in length, consisting of two sections hinged at the top to form equal angles with the base. The size is designated by the length of the side rails measured along the front edge.

(81) "Lanyard" : a rope, suitable for supporting one person. One end is fastened to a safety belt or harness and the other end is secured to a substantial object or a lifeline.

(82) "Leading wire" : an insulated wire used between the electric power source and the electric blasting cap circuit.

(83) "Ledger (stringer)" : a horizontal scaffold member which extends from post to post and which supports the putlogs or bearer forming a tie between the posts.

(84) "Lifeline" : a rope, suitable for supporting one person, to which a lanyard is attached.

(85) "Limit switch" : a device on a manlift for the purpose of cutting off the power to the motor and applying the brake to stop the carrier in the event that a loaded step passes the terminal landing.

(86) "Magazine" : (see "approved storage facility").

(87) "Manlift" : a device consisting of a power-driven endless belt with steps or platforms and handholds attached to it for the transportation of personnel from floor to floor.

(88) "Mist" : small droplets of materials that are ordinarily liquid at normal temperature and pressure.

(89) "Nominal" : in name or form, but not in fact; for example, a piece of lumber described as four inches by four inches but which, in fact, meets a standard which is less.

(90) "Non-current carrying" : not intended to be energized.

(91) "Off-hand grinding" : the grinding of any material or part which is held in the operator's hand.

(92) "Operator" : any employee assigned or authorized to work at the specific equipment.

(93) "Part revolution clutch" : a type of clutch that can be disengaged at any point before the crankshaft has completed a full revolution and the press slide a full stroke.

(94) "Pinch, nip, or shear point" : the point or points at which it is possible to be caught between the moving parts of a machine, or between the material and the moving part or parts of a machine.

(95) "Pitch" : the included angle between the horizontal and the ladder measured from the opposite side of the ladder from the climbing side.

(96) "Platform" : a working space for employees elevated above the surrounding floor or ground.

(97) "Point of operation" : the area where material is actually positioned and work is being performed during any process.

(98) "Polishing wheels" : wheels designed for use with power-driven equipment to apply a luster or polish to materials.

(99) "Portable explosive-actuated fastening tool" : a tool which depends upon an explosive charge to propel or discharge a stud, pin, or fastener, for the purpose of impinging it upon, affixing it to, or penetrating another object or material.

(a) "High-velocity tool" : a tool or machine which, when used with a load, propels or discharges a stud, pin, or fastener at velocities in excess of three hundred feet per second.

(b) "Low-velocity tool" : a tool or machine which, when used with a load, propels or discharges a stud, pin, or fastener at velocities not in excess of three hundred feet per second.

(100) "Power shears" : power-driven machines used for cutting bars, slabs, sheets, or other material.

(101) "Presence sensing device" : a device that creates a sensing field or area and deactivates the clutch control of a power press when an operator's hand or any part of his body is within such field or area.

(102) "Press" : a powered machine that shears, punches, forms, or assembles metal or other material by means of cutting, shaping, or by combination dies attached to slides. A press consists of a stationary bed or anvil, and a slide (or slides) having a controlled reciprocating motion toward and away from the bed surface, the slide being guided in a definite path by the frame of the press.

(103) "Primed cartridge" : a cartridge of explosives to which a detonator has been attached as a means of firing.

(104) "Protective shield or guard" : a device, attached to the muzzle end of a portable explosive-actuated fastening tool, which is designed to confine flying particles.

(105) "Pull-out device" : a mechanism attached to the operator's hands and connected to the upper die or slide of a power press, that is designed, when properly adjusted, to withdraw the operator's hands as the dies close when the operator's hands are inadvertently within the point of operation.

(106) "Railing" : a vertical barrier erected above exposed edges of a floor opening, wall opening, ramp, platform, or runway to prevent falls of employees.

(107) "Rated load (roof car suspended platforms)" : the combined weight of employees, tools, equipment, and other material which the working platform is designed to lift.

(108) "Rated speed" : the speed for which a tool or piece of equipment is designed.

(109) "Repeat" : an unintended or unexpected successive stroke of a power press resulting from a malfunction.

(110) "Respiratory devices" :

(a) "Air-purifying device" : a device which removes contaminants from the atmosphere and used only in atmospheres containing sufficient oxygen to sustain life (at least 19.5 per cent by volume at sea level) and within specified concentration limitations to the specific device. These are:

(i) "Mechanical-filter respirator" : a device which provides respiratory protection against particulate matter, such as nonvolatile dust, mists, or metal fumes.

(ii) "Chemical-cartridge respirator" : a device which provides respiratory protection against certain specific gases and vapors in concentrations not in excess of 0.1 per cent by volume.

(iii) "Gas mask" : a device which provides respiratory protection against certain specific gases and vapors in concentrations no greater than that specified on the canister label.

(b) "Supplied-air device" : a device, other than self-contained breathing apparatus, which delivers breathing air for an indefinite period of time through a supply hose connected to the wearer's facepiece.

(c) "Self-contained breathing apparatus" : a device which provides complete breathing protection for a limited period of time based on the amount of breathing air or its equivalent supplied and the breathing demand of the wearer.

The basic types of self-contained breathing apparatus are:

(i) Closed-circuit devices (rebreathers):

(a) Compressed oxygen type.

(b) Chemical oxygen type.

(c) Liquid oxygen type.

(ii) Open-circuit devices (supply and exhaust):

(a) Demand type.

(b) Pressure demand type.

(111) "Roof car" : (see "scaffolds").

(112) "Roof car suspended platform" : (see "scaffolds").

(113) "Roof-powered platform" : (see "scaffolds").

(114) "Runway" : a passageway for employees elevated above the surrounding floor or ground level.

(115) "Safety belt" or "safety harness" : a device worn around the body which by reason of devices to which it is attached will limit an employee's fall.

(116) "Safety block" : a prop that, when inserted between the upper and lower dies of a power press or between the bolster plate and the face of the slide, prevents the slide from falling of its own dead weight.

(117) "Safety guard (grinding wheel)" : a device designed to restrain the pieces of a grinding wheel in the event the wheel is broken in operation.

(118) "Safety harness" : (see "safety belt").

(119) "Scaffold" :

(a) "Manually propelled mobile scaffold" : a portable rolling scaffold supported by casters.

(b) "Mobile" : manually propelled.

(c) "Mobile tubular welded sectional folding scaffold" : a sectional folding metal scaffold either of ladder frame or inside stairway design, substantially built of prefabricated welded sections, which consist of end frames, platform frame, inside inclined stairway frame and braces, or hinged connected diagonal and horizontal braces, capable of being folded into a flat package when the scaffold is not in use.

(d) "Mobile work platform" : generally a fixed work level, one frame high, on casters or wheels, with bracing diagonally from platform to vertical frame.

(e) "Roof car" : a structure for the suspension of a working platform, providing for its horizontal movement to working positions.

(f) "Roof car suspended platform" : equipment to provide access to the exterior of a building consisting of a suspended power-operated working platform, a roof car, and the operating and control devices.

(g) "Roof-powered platform" : the working platform of a roof car suspended platform having the raising and lowering mechanism located on a roof car.

(h) "Self-powered platform" : a working platform, of a roof car suspended platform, having the raising and lowering mechanism located on the working platform.

(i) "Swinging scaffold" : a power- or manually operated platform suspended by two or more lines and independent of the building except for attachment at the roof or parapet.

(j) "Tube and coupler scaffold" : an assembly consisting of tubing which serves as posts, bearers, braces, ties, and runners, a base supporting the posts, and special couplers which serve to connect the uprights and to join the various members.

(k) "Tubular welded frame scaffold" : a sectional panel, or frame metal scaffold substantially built up of prefabricated welded sections which consist of posts and horizontal bearer with intermediate members. Panels or frames shall be braced with diagonal or cross braces.

(l) "Two-point suspension scaffolds" : a scaffold suspended from overhead supports, the platform of which is supported by stirrups or hangers at two points to permit raising or lowering.

(120) "Securely fastened" : the object or thing referred to shall be substantially fixed in place.

(121) "Self-powered platform" : (see "scaffold").

(122) "Separator (collector)" : that part of an exhaust system, the purpose of which is to separate material from the air which conveys it.

(123) "Shaft" : an excavation made from the surface of the ground the longer axis of which forms an angle with the vertical of no more than forty-five degrees.

(124) "Shall" : to be construed as mandatory.

(125) "Sheet pile" : a pile, or sheeting, that may form one of a continuous interlocking line, or a row of timber, concrete, or steel piles, driven in close contact to provide a tight wall to resist the lateral pressure of water, adjacent earth, or other materials.

(126) "Sides," "walls," or "faces" : the vertical or inclined earth surfaces formed as a result of trenching or excavation work.

(127) "Single-stroke mechanism (mechanical power press)" : an arrangement used on a full revolution clutch to limit the travel of the slide to one complete stroke at each engagement of the clutch.

(128) "Slide" : the main reciprocating member of a power press. A slide is also called a ram, plunger, or platen.

(129) "Sling" : an assembly which connects the load to the material handling equipment.

(130) "Split-rail switch" : an electric limit switch operated mechanically by the rollers of manlift steps. It consists of an additional hinged or "split" rail, mounted on the regular guide rail, over which the step rollers pass. It is springloaded in the "split" position. If the step supports no load, the rollers will "bump" over the switch; if a loaded step should pass over the section, the split rail will be forced straight, tripping the switch and opening the electrical circuit.

(131) "Standard guard railing" : a substantial barrier, constructed in accordance with paragraph (E) of rule ~~4123~~4123:1-5-02 of the Administrative Code.

(a) "Top rail" : the top lateral member of a standard guard railing.

(b) "Intermediate rail" : the lateral member or members of a standard guard railing, installed at intervals of no more than twenty-one inches.

(132) "Steam hammers" : a type of drop hammer where the ram is raised for each stroke by a double-action steam cylinder and the energy delivered to the workpiece is supplied by the velocity and weight of the ram and attached upper die driven downward by steam pressure. Energy delivered during each stroke may be varied.

(133) "Stop control" : an operator control on a mechanical power press designed to immediately deactivate the clutch control and activate the brake to stop slide motion.

Comment [jcs3]: Typo corrected.

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(134) "Stripper" : a mechanism or die part on a power press for removing the parts or material from the punch.

(135) "Stud, pin, or fastener (as used in portable fastening tools)" : a fastening device specifically designed and manufactured for use in portable explosive-actuated fastening tools.

(136) "Substantial (referring to material things)" : constructed of such strength, or of such materials, and of such workmanship that the object will withstand the wear, usage, or shock for which it is designed.

(137) "Sweep device" : a single or double arm (rod) attached to the upper die or slide of a power press and designed to move the operator's hands as the dies close when the operator's hands are inadvertently within the point of operation. (Their use on power presses is prohibited.)

(138) "Swinging scaffold" : (see "scaffold").

(139) "Toeboard" : a vertical barrier erected along exposed edges of a floor opening, platform, runway, ramp, or scaffold to prevent falls of material.

(140) "Travel" (manlifts): the distance between the centers of the top and bottom pulleys.

(141) "Traveling cable" : a cable made up of electrical or communication conductors or both, and providing electrical connection between the working platform and the roof car or other fixed point.

(142) "Trench (when used as a noun)" : a narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench at the bottom is no greater than fifteen feet.

(143) "Trench boxes (safety cages, trench shields)" : a shoring system composed of steel plates and bracing, welded or bolted together, which can be moved along as work progresses and protects employees from movement of earth and cave-ins.

(144) "Trench jack" : a screw or hydraulic-type jack used as cross bracing in a trench shoring system.

(145) "Turnover bar" : a bar used in die setting to turn manually the crankshaft of a mechanical power press.

(146) "Two-point suspension scaffold" : (see "scaffold").

(147) "Unitized tooling" : a type of die in which the upper and lower members are incorporated into a self-contained unit so arranged as to hold the die members in alignment.

(148) "Uprights" : the vertical members of a shoring system.

(149) "Upsetting machines (forging machines, headers)" : a type of forging equipment in which the main forming energy is applied horizontally to the workpiece which is gripped and held by prior action of the dies.

(150) "Ventilation" :

(a) "Dilution ventilation" : ventilation provided to reduce the concentration of air contaminants in the atmosphere of all or part of the place of employment.

(b) "General ventilation" : ventilation of the general atmosphere in the place of employment.

(c) "Local exhaust ventilation" : that type of ventilation in which suction is applied at the point of generation or escape of air contaminants.

(151) "Wales (stringers)" : the horizontal members of a shoring system with sides bearing against the uprights or earth.

(152) "Wall and chute openings" : openings in any wall or partition from which there is a drop of more than four feet and which are thirty inches or more in height and eighteen inches or more in width through which an individual may inadvertently fall. Windows shall not be considered wall openings except when located at the foot of any flight of stairs or at any platform on stairs. Where windows or openings are filled in with glass block, metal frame with sash bars, or wire mesh types, they shall not be considered wall openings.

(153) "Wall hole" : an opening less than thirty inches but more than one inch high, of unrestricted width, in a wall or partition, such as a ventilation hole or drainage scupper.

HISTORY: Eff 4-1-64; 8-1-77; 1-1-86; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC 4121[41231.12](#), 4121[41231.121](#), 4121[41231.13](#)

Rule amplifies: RC 4121[41231.47](#)

119.032 review date: 3/1/03; 3/1/98

4123:1-5-02 Guarding floor and wall openings and holes. **(Amend)**

(A) Scope.

This rule covers the guarding of floor and wall openings and holes. It shall not apply to industrial grating holes nor to the working face of floor openings which are occupied by elevators, dumbwaiters, conveyors, machinery, piping or containers; the loading and unloading areas of automotive truck and railroad docks, or platforms, scaffolds, pits and trenches which are occupied for the purpose of providing access to a product, facility or process equipment while being worked upon.

(B) Reserved.

(C) Permanent openings – floor, wall and yard.

(1) Floor openings.

(a) Guarding.

(i) Floor openings, not including hoistway openings, shall be guarded with standard railing or with fixed safety covers with flush hinges.

(ii) When an overhead obstruction prevents the use of standard railing, the top of the railing shall be constructed not more than ten inches below the overhead obstruction.

(iii) Removable or hinged railings or a substantial chain or wire rope section shall be installed when operations prevent installation of standard railing or fixed safety covers with flush hinges.

(b) Work below floor openings.

Where employees are required to work below a floor opening, toeboards shall be installed.

(c) Safety covers.

When a safety cover is used to protect an opening, the unused sides of the opening shall be guarded when the cover is raised.

(d) Guarding manholes, handholes, gratings and excavations.

Barriers, barricades or standard guard railings shall be provided for guarding open manholes, handholes, gratings or excavations and shall be visible at all times.

(2) Floor holes – guarding.

(a) Every floor hole into which employees can accidentally walk shall be guarded by either:

(i) A standard railing and toeboard on all exposed sides, or

(ii) A fixed, hinged floor hole cover of substantial strength and construction. While the cover is not in place, the floor hole shall be attended by an employee designated by the employer or shall be guarded by a removable standard railing.

(b) Every floor hole into which employees cannot accidentally walk (on account of fixed machinery, equipment, or walls) shall be protected by a cover that leaves no openings more than one inch wide. The cover shall be securely held in place to prevent tools or materials from falling through.

(3) Wall openings and holes, including chute openings.

(a) Wall opening-guarding.

(i) Wall openings shall be guarded by standard railings and toeboards, or with doors or gates or substantial screens which shall extend to a minimum height of forty-two inches measured from the floor or platform level.

(ii) When the top of the wall openings, protected by a railing, prevents installation of standard guard railing, the top rail shall be not be more than ten inches below the top of the wall opening.

(b) Wall hole – guarding.

Where there is a hazard of materials falling through a wall hole, and the lower edge of the near side of the hole is less than four inches above the floor, and the far side of the hole more than five feet above the next lower level, the hole shall be guarded by a toeboard, or an enclosing screen either of solid construction, or as specified in rule ~~4123~~:1-5-99 of the Administrative Code.

Comment [jcs4]: Typo corrected

Deleted: 4121

(c) Openings used for unloading materials – guarding.

(i) Openings used for unloading material into chutes, hoppers or bins when not in use, shall be guarded.

(ii) Area at discharge end of chutes:

The area at the discharge end of chutes shall be guarded if employees are required to work in, or pass through the area. If the chute discharges into a bin, conveyor, truck, railroad car, or other container, guarding shall not be required, but warning signs of conspicuous and easily read style shall be posted to warn employees when there is a hazard from falling, flying, moving or sliding objects.

(4) Working pits.

Working pits shall be guarded when not in use.

(5) Open vats, open soaking pits and open tanks.

(a) Sides of such vats, soaking pits, and tanks, containing injurious chemicals or other materials, shall extend to a height of not less than thirty-six inches above the working floor level or shall be guarded by standard guard railing. Employees shall not be required to work over such vats, soaking pits and tanks except on elevated runways, platforms and walkways (see paragraph (D)(1) of this rule).

(b) This shall not apply to open vats, soaking pits and open tanks designated as restricted areas where product is handled by conveyor or cab-controlled overhead crane.

(6) Galvanizing tanks.

Galvanizing tanks shall have a minimum height of thirty inches. At such height the wall thickness or bench shall be no less than thirty-two inches in width. For each increase in height of one inch the wall thickness or bench may be reduced by four inches (see appendix to this rule).

(D) Elevated platforms, runways and walkways.

This rule does not apply to scaffolding.

(1) Guarding.

(a) Elevated platforms, runways and walkways four feet or more above floor or ground level shall be guarded with standard railings and toeboards. All elevated runways, platforms and walkways, regardless of height, located over or adjacent to water, machinery, open vats, open soaking pits or open tanks shall be provided with standard railing and toeboards.

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(b) When the requirement prescribed above would result in an impairment of the work being performed, alternative protection may be provided for employees. Such alternative protection shall provide safety equivalent to or greater than that required in paragraph (D)(1)(a) of this rule.

(2) Support.

Elevated runways, platforms and walkways, made of planks shall be supported at least every five feet and the planks shall be securely fastened together with cleats underneath.

(3) Openings (drainage, ventilation, etc.).

Openings for drainage, ventilation, etc. in floors, elevated runways, platforms and walkways four feet or more above floor or ground level where employees are required to work below, shall not be greater than one inch in width.

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(4) Special purpose runways.

Runways used exclusively for special purposes, such as oiling, shafting, or filling tank cars, may have the railing on one side omitted where operating conditions necessitate such omission, provided the falling hazard is minimized by using a runway of not less than eighteen inches wide.

(E) Standard guard railings, intermediate rail and toeboards.

A standard guard railing shall be constructed as a substantial barrier, securely fastened in place, and free from protruding objects, such as nails, screws and bolts, to protect openings or prevent accidental contact with some object, which barrier shall consist of a top rail not less than forty-two inches above the working level, and unless the space between the top rail and the working level is covered with substantial material, an intermediate rail. Minimum material requirements shall be:

(1) Metal.

Top rail and intermediate railings, one-and-one-half-inch nominal diameter pipe, or two by two by three-eighths-inch angle. Upright spacing not to exceed eight feet.

(2) Wood.

Top rail and uprights shall not be less than two inches by four inches (nominal) stock, intermediate rails shall be not less than two inches by four inches (nominal) stock. Uprights shall be spaced not to exceed six feet center to center. These measurements are net finished dimensions.

Deleted: Top rail and uprights, one-and-one-fourth-inch diameter pipe, or one-and-one-half by one-and-one-half by three-sixteenths-inch angle; intermediate rail, one-by one-fourth-inch bar.

Deleted: one and nine-sixteenths by three and nine-sixteenths inches;

Deleted: nine-sixteenths by five and nine-sixteenths inches.

(3) Toeboards.

A standard toeboard shall be 4 inches nominal in vertical height from its top edge to the level of the floor, platform, runway, or ramp. It shall be securely fastened in place and with not more than 1/4-inch clearance above floor level. It may be made of any substantial material either solid or with openings not over 1 inch in greatest dimension.

Where material is piled to such height that a standard toeboard does not provide protection, paneling from floor to intermediate rail, or to top rail shall be provided

(F) Stairway railings, guards and treads.

(1) Standard stair railings and standard handrails.

Every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails as specified in the following, the width of the stair to be measured clear of all obstructions except handrails:

- (a) On stairways less than forty-four inches wide having both sides enclosed, at least one handrail, preferably on the right side descending;
- (b) On stairways less than forty-four inches wide having one side open, at least one stair railing on the open side;
- (c) On stairways less than forty-four inches wide having both sides open, one stair railing on each side;
- (d) On stairways more than forty-four inches but less than eighty-eight inches wide, one handrail on each enclosed side and one stair railing on each open side;
- (e) On stairways eighty-eight or more inches wide, one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing located approximately midway of the width.

(2) Winding stairs.

Winding stairs shall be equipped with a handrail offset to prevent walking on all portions of the treads having width less than six inches.

(3) Uniform treads.

All stairways shall have risers and treads of uniform dimensions in each run, except winding stairs as covered in paragraph (F)(2) of this rule.

(G) Dockboards (bridge plates).

- (1) Portable and powered dockboards shall be substantial enough to carry the load imposed on them.
- (2) Portable dockboards shall be secured in position, either being securely fastened or equipped with devices which will prevent slipping.
- (3) Handholds, or other effective means shall be provided on portable dockboards.
- (4) Positive protection shall be provided to prevent railroad cars or motor vehicles from moving or being moved while dockboards or bridge plates are in position.

Deleted: "Toeboard" means a barrier not less than four inches in height, placed along the edge of a scaffold, platform, runway, floor opening, etc., and securely fastened thereto, with clearance between the bottom of the toeboard and the floor or platform level, not exceeding one-half inch.¶

(H) Stairways.

(1) "Stairway" means one or more flights of stairs and the necessary landings and platforms connecting them to form a continuous and uninterrupted passage from one floor or level to another.

(2) Flight of stairs.

(a) Four or more risers between landings shall be considered a flight of stairs.

(b) This does not apply to steps over a conveyor or to a working platform in connection with production lines or process units where access is for the performance of work, and the steps are not considered a passageway for general travel.

(I) Handrails.

Handrails shall be free of protruding nails or screws and not less than thirty inches, nor more than ~~thirty-four~~ inches in height measured vertically above the line in the top surface of the tread over the face of the riser.

Comment [jcs5]: Hyphen added.

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Appendix A

For Appendix A To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

HISTORY: Eff 4-1-64; 8-1-77; 1-1-86; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.12](#), [4121.121](#), [4121.13](#)

Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

4123:1-5-03 Ladders and scaffolds. (Amend)

(A) Reserved.

(B) Reserved.

(C) Ladders.

(1) Construction.

All ladders shall be substantially constructed of wood, metal or other equivalent material and shall have a safety factor of not less than four.

(a) Side rails.

(i) Wood.

Wood side rails shall be of sound material free from shakes, cross grain, checks or decay. Knots shall not exceed one-half-inch diameter and shall not be nearer than one-half inch to the edge of the rail or within three inches of the rung, step or tread.

(ii) Metal.

Metal side rails shall be parallel or shall vary uniformly in separation along the length (tapered) of the ladder or shall flare at the base. The design of the side rails shall be such that the ladder will conform to the specific safety requirements of this code.

(b) Rungs, steps or treads.

(i) Wood.

Wood rungs, steps or treads shall be sound material free from knots, shakes, cross grain, large checks or decay. All rungs, steps or treads shall have a uniform spacing which shall not exceed twelve inches on center.

(ii) Metal.

Metal rungs, steps or treads shall have a uniform spacing which shall not exceed twelve inches on center. Metal rungs, steps or treads to side rail connections shall be so constructed as to conform to the factor of safety specified in paragraph (C)(1) of this rule.

(2) Portable ladders.

(a) Metal rungs, steps or treads.

All metal rungs, steps or treads shall be corrugated, knurled, dimpled, or coated with skid-resistant material.

(b) Safety shoes, spikes or spurs.

(i) All portable ladders shall be equipped with safety shoes, metal spikes or spurs. Safety shoes shall be surfaced with cork, carborundum, rubber or other material with equivalent coefficient of friction.

(ii) This does not apply to step ladders, lashed ladder or hook ladders.

(c) Hook ladders.

Ladders designed for use by hooking shall be equipped with two or more substantial metal hooks at the top of the ladder.

(d) Portable metal or conductive ladders.

Portable metal or conductive ladders shall not be used near energized conductors or equipment except as may be necessary in specialized work, such as in high voltage substations where non-conductive ladders might present a greater hazard than conductive ladders. Conductive or metal ladders shall be prominently marked as **Conductive.**"

Comment [jcs6]: Quotation mark added.

(3) Extension ladders.

(a) Automatic locks.

Extension ladders shall be equipped with two automatic locks of malleable iron or equivalent material attached to the side rails of the upper extension and of such construction as to make the extension ladder equal in strength to a ladder constructed of continuous side rails.

(b) Where a single rung support holds an entire rung of the upper extension and the support is attached to both side rails of the lower section, two automatic locks shall not be required.

(4) Step ladders.

(a) Height.

Step ladders shall not exceed twenty feet in length.

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(b) Spreader.

A metal spreader shall be provided on step ladders to securely hold the front and back sections in open position.

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(5) Sectional ladders.

When sectional ladders are used they shall conform to the following:

(a) Length.

Sectional ladders shall not exceed sixty feet in extended length.

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(b) Connection joint.

(i) Adjacent sections shall be jointed by means of a groove in the bottom end of each rail of the upper of the two sections setting firmly over extensions outside the side rails, of the topmost rung of the next lower section and, at the same time, a groove in the top end of each rail of the lower of the two sections setting firmly over the bottom rung, inside the side rails, of the section next above.

(ii) The distance between the two rungs (topmost rung of one section, bottom rung of the section next above) mentioned in paragraph (C) (5)(b)(i) of this rule shall not be less than one foot.

(iii) The fit between rail grooves and rungs mentioned in paragraph (C) (5)(b)(i) of this rule shall be such as to provide a good fit without binding or unnecessary play.

(iv) The grooved ends of the sections shall be reinforced with a metal plate of not less than eighteen-gauge (manufacturing standard) material properly secured thereto, and a rivet adjacent to the groove, extending through the depth of the rail, or the equivalent thereof.

(c) Structural dimensions and requirements.

(i) The minimum dressed cross section and distance between side rails of wood shall be as follows:

Side Rails

Number of Cross Section Distance
of Thickness Depth Base
Sections (inches) (inches) (inches)

Comment [jcs7]: Typo corrected.

Up to & inc. 4 sections 1-1/8 2-3/4 13
Over 4 sections, up to
& inc. 6 sections 1-1/8 3-1/8 20

(ii) If the length exceeds six feet, the side rail cross sections shall be correspondingly increased.

(6) Fixed ladders.

All fixed ladders more than twenty feet in length shall be equipped with a ladder cage or ladder well. This requirement does not apply to chimney ladders.

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Deleted: This requirement does not apply to ladders on smokestacks, towers, tanks, manholes, or bins used for storage or permanent fire ladders.

(a) Landing platforms.

When ladders are used to ascend to heights exceeding twenty feet, landing platforms shall be provided for each thirty feet of height or fraction thereof, except that where no cage, well, or ladder safety device is provided, landing platforms shall be provided for each twenty feet of height or fraction thereof. Each ladder section shall be offset from adjacent sections. Where installation conditions (even for a short, unbroken length) require that adjacent sections be offset, landing platforms shall be provided at each offset.

(i) Where an employee must step a distance greater than twelve inches from the centerline of the rung of a ladder to the nearest edge of structure or equipment, a landing platform shall be provided. The minimum step-across distance shall be two and one-half inches. (See figure ~~4123~~4123:1-5-03 (C)(6)(a)(i) to this rule.)

Comment [jcs8]: Typo corrected.

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(ii) All landing platforms shall be equipped with standard guard railings and toeboards, so arranged as to give safe access to the ladder. Platforms shall be no less than twenty-four inches in width and thirty inches in length.

(iii) One rung of any section of ladder shall be located at the level of the landing laterally served by the ladder. Where access to the landing is through the ladder, the same rung spacing as used on the ladder shall be used from the landing platform to the first rung below the landing.

Figure 4123:1-5-03(C)(6)(a)(i)

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For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Ladder Far from Wall

(b) Ladder extensions.

The side rails of through or side-step ladder extensions shall extend three and one-half feet above any landing or other walking surface. For through ladder extensions, the rungs shall be omitted from the extension and shall have not less than eighteen nor more than twenty-four inches clearance between rails. For side-step or offset fixed ladder sections at landings, the side rails and rungs shall be carried to the next regular rung beyond or above the three-and-one-half-foot minimum. (See figure [4123:1-5-03 \(C\) \(6\)\(b\)](#) to this rule.)

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Figure [4123:1-5-03\(C\)\(6\)\(b\)](#)

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(c) Grab bars.

Grab bars shall be spaced by a continuation of the rung spacing when they are located in the horizontal position. Vertical grab bars shall have the same spacing as the ladder side rails. Grab bars’ diameters shall be the equivalent of the round-rung diameters.

(d) Ladder safety devices.

Ladder safety devices may be used on ladders in lieu of cage protection. No landing platform is required in these cases. All ladder safety devices such as those that incorporate life belts, friction brakes, and sliding attachments shall meet the design requirements of the ladder which they serve.

(e) Counterweighted hatch covers.

Where counterweighted hatch covers are provided they shall open a minimum of sixty degrees from the horizontal. The distance from centerline of rungs or cleats to the edge of the hatch opening on the climbing side shall be not less than twenty-four inches from offset wells or thirty inches for straight wells. There shall be no protruding potential hazards within twenty-four inches of the centerline of rungs or cleats; any such hazards within thirty inches of the centerline of the rungs or cleats shall be fitted with deflector plates placed at an angle of sixty degrees from the horizontal as indicated in figure [4123:1-5-03 \(C\)\(6\)\(e\)](#) of this rule.

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Figure [4123:1-5-03\(C\)\(6\)\(e\)](#)

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Deflector Plates for Head Hazards

(f) Pitch of fixed ladders.

(i) The pitch of fixed **ladders** shall come in the range of seventy-five degrees and ninety degrees with the horizontal. (See figure [4123:1-5-03 \(C\)\(6\)\(f\)\(i\)](#) of this rule).

Comment [jcs9]: Added missing word.

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Figure [4123:1-5-03\(C\)\(6\)\(f\)\(i\)](#)

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Pitch of Fixed Ladders

(ii) Fixed ladders within the pitch range of sixty to seventy-five degrees with the horizontal are permitted only where it is found necessary to meet conditions of installation. Lesser pitch ranges are not permissible.

(iii) Ladders having a pitch in excess of ninety degrees with the horizontal are prohibited.

(g) Manhole steps and ladders.

(i) Entrance into a manhole shall be by steps that are cast or mortared into the walls of riser or conical top sections or by portable ladder. Portable ladders shall conform to the requirements of paragraphs (C)(1) and (C)(2) of this rule.

(ii) Manhole steps that are cast or mortared into the walls of riser or conical top sections shall meet the following requirements:

(a) For steps, appurtenances and fastenings, the minimum design live load shall be a single concentrated load of three hundred pounds.

(b) Steps in riser and conical top sections shall be aligned in each section so as to form a continuous ladder with steps equally spaced vertically in the assembled manhole at the maximum design distance of sixteen inches apart. Steps shall be so designed that the foot cannot slide off the end.

(c) When dissimilar types of materials are used in the steps, appurtenances and fastenings, the materials shall be treated to prevent deleterious effects.

(d) The portion of the step projecting into the riser or cone opening shall be free of any hazardous sharp edges, burrs, or projections.

(e) Ferrous metal steps not painted or treated ~~or to~~ resist corrosion shall have a minimum cross-sectional dimension of one inch.

Comment [jcs10]: Changed “or” to “to.”

(f) The minimum length of steps shall be ten inches.

(g) The step shall project a minimum clear distance of four inches from the wall of the rise or cone section measured from the point of embedment.

(h) Rungs and cleats.

(i) All rungs shall have a minimum diameter of three-fourths inch for metal ladders or material of equivalent strength, and minimum diameter of one and one-eighth inches for wood ladders.

(ii) The distance between rungs, cleats, and steps shall not exceed sixteen inches and shall be uniform throughout the length of the ladder.

(iii) The minimum clear length of rungs or cleats shall be twelve inches.

(iv) Rungs, cleats, and steps shall be free of splinters, sharp edges, burrs, or projections which may be a hazard.

(v) The rungs of an individual-rung ladder shall be so designed that the foot cannot slide off the end. A suggested design is shown in figure 4123:1-5-03 (C)(6)(h)(v) to this rule.

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Figure 4123:1-5-03(C)(6)(h)(v)

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Suggested design for rungs on individual-rung ladders.

(i) Fastenings.

Fastenings shall be an integral part of fixed ladder design.

(j) Ladder cage.

A ladder cage which encircles the climbing space and is securely fastened to the side rails of the fixed ladder or to the structure shall be provided.

(i) Size of cage.

The cage shall not extend less than twenty-seven or more than twenty-eight inches from the centerline of the rungs of the ladder and shall not be less than twenty-seven inches in width. Vertical bars shall be at a minimum spacing of forty degrees around the circumference of the cage. This will give a maximum spacing of approximately nine and one-half inches, center to center. The inside of the cage shall be clear of projections.

(ii) Top of cage.

The top of the cage shall extend a minimum of forty-two inches above the top of the landing.

(iii) Bottom of cage.

The bottom of the cage shall extend down the ladder to a point not less than seven nor more than eight feet above the base of the ladder, with bottom flared not less than four inches, or the portion of the cage opposite the ladder shall be carried to the base. (See figure 4123:1-5-03 (C)(6)(j)(iii) to this rule.)

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(k) Ladder well.

(i) If a ladder well is provided, it shall permanently and completely enclose the climbing space and the ladder shall be securely fastened to the walls of the well.

(ii) Minimum clearance.

Ladder wells shall have a minimum clear width of fifteen inches measured each way from the center-line of the ladder. Smooth-walled wells shall be a minimum of twenty-seven inches from the centerline of the rungs, steps or treads to the well wall on the climbing side of the ladder.

Where obstructions on the climb side of the ladder exist, there shall be a minimum clearance of thirty inches from the centerline of the rungs, steps or treads.

Figure 4123:1-5-03(C)(6)(j)(iii)

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Cages for Ladders More Than 20 Feet High

(7) Trolley and side-rolling ladders.

(a) Length.

Trolley ladders and side-rolling ladders longer than twenty feet shall not be provided.

(b) Width.

The width between the side rails, inside to inside, shall be not less than twelve inches.

(c) Step attachment.

Flat steps shall be inset in the side rails one-eighth inch and secured with not less than two 6-d nails at each end, or the equivalent thereof. They shall be reinforced with angle braces or a three-sixteenths-inch steel rod.

(d) Locking device.

Locking devices shall be provided on all trolley ladders.

(e) Tracks.

(i) Tracks shall be wood or metal (excluding cast iron) or a combination of these materials.

(ii) Tracks for the top end of ladders shall be fastened securely and shall be so constructed that the wheels will not jump the track.

(iii) Tracks for side-rolling ladders shall be supported by metal or wood brackets securely screwed or bolted to shelving or other permanent structure at intervals of not more than three feet.

(f) Wheel carriages.

(i) The wheel carriage shall be so designed that a loose or broken wheel will not allow the ladder to drop or become detached from the track.

(ii) The wheel carriage for the bottom of the ladder shall be securely fastened to the bottom of the ladder.

(iii) The wheels at the upper end of the ladder shall have a minimum wheel base of eight inches.

(8) Trestle and extension trestle ladders.

(a) The width between the side rails **at** the base of the trestle ladder and base sections of the extension trestle ladder shall be not less than twenty-one inches for all ladders and sections up to and including six feet. Longer lengths shall be increased at least one inch for each additional foot of length. The width between the side rails of the extension sections of the trestle ladder shall be not less than twelve inches.

Comment [jcs11]: Changed "a" to "at."

(b) The tops of the side rails of the trestle ladder and of the base section of the extension trestle ladder shall be beveled, or of equivalent construction and shall be provided further with a metal hinge to prevent spreading.

(c) A metal spreader or locking device to hold the front and back sections in an open position, and to hold the extension section securely in the elevated position shall be a component of all extension trestle ladders and all trestle ladders over twelve feet in length.

(d) Rungs shall be parallel and level. On the trestle ladder, or on the base sections of the extension trestle ladder, rungs shall be spaced not less than eight inches or more than eighteen inches apart; on the extension section of the extension trestle ladder, rungs shall be spaced not less than six inches or more than twelve inches apart.

(e) General specifications – trestle and extension trestle ladders.

(i) Trestle ladders or extension sections or base sections of extension trestle ladders shall be not more than twenty feet in length.

(ii) The minimum distance between side rails of the trestle or extension sections or base sections at the narrowest point shall be not less than twelve inches. The width spread shall be not less than one inch per foot of length of side rail.

(9) Platform stepladder.

(a) The minimum width between side rails at the platform shall not be less than fifteen inches.

(b) The back legs and side rails shall extend at least twenty-four inches above the platform and shall be connected with a top member to form a three-sided rail, or equivalent construction shall be provided.

(c) The wood parts of a combined wood and metal platform functioning as a spreader shall not be depended upon to contribute to the spreading or locking action.

(D) Scaffolds.

(1) Stationery scaffolds.

(a) Construction.

(i) Stationary scaffolds shall be substantially constructed of wood, metal or other equivalent material and shall be securely fastened.

(ii) Dimensions, structural.

Planks used in scaffolds shall be a minimum width of nine inches and a minimum thickness of two inches, scaffold grade, and shall be straight, close grained and free of visible defects, such as large knots, decay and shakes. Wooden materials of different sectional dimensions of equal strength or other material of equal strength may be used.

Deleted: ten

(b) Factor of safety.

Stationary scaffolds and their load-bearing members shall have a designed factor of safety of not less than four.

(c) Guarding.

(i) Standard guard railing and toeboards shall be provided on the unprotected sides of all stationary scaffolds which are ten feet or more above the ground or supporting area, or that are over or immediately adjacent to water, machinery or sources of danger.

(ii) Standard guard railing and toeboards shall not be required on ladder scaffolds.

(iii) When it is not practicable to install and use standard guard railing for employee protection on a scaffold, as required by this paragraph, safety harness which are properly secured to a lanyard and lifeline or a safety net properly installed, may be used instead of standard guard railings.

Deleted: s

Deleted: belts

(d) Side screens.

Scaffolds shall be provided with a screen between the toeboard and the guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. Standard Wire one-half-inch mesh or the equivalent, where persons are required to work or pass under the scaffolds. At a minimum, side screens shall be as high as the maximum height of material to be stored or piled on the scaffold. Side screens on scaffolds shall consist of No. 18 gauge U.S. Standard Wire one-half-inch mesh or the equivalent.

√(e) Ladder or ramp access.

An access ladder or equivalent safe access shall be provided.

Deleted: Side screen shall be provided on all scaffolds more than ten feet in height that are adjacent to passageways, or where employees are employed within ten feet of the base of the scaffold, and where material is piled adjacent to and higher than toeboards. As a minimum, side screens shall be as high as the maximum height of material to be stored or piled on the scaffold. Side screens shall be made of substantial expanded metal or wire netting not larger than one-half-inch mesh, or other equivalent material, securely fastened in place.¶

√(f) Footings.

The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement.

(g) Overlap.

All planking on platforms shall be overlapped (minimum twelve inches) or shall be securely fashioned in place.

Deleted: At least one ladder or ramp shall be provided for access to stationary scaffolds four feet or more in height with the exception of suspended or swinging scaffolds.¶

(h) End supports.

Scaffold planks shall extend over their end supports not less than six inches nor more than eighteen inches extending across the entire bearer from pole to pole. The scaffold planks shall be laid tightly with no opening greater than one inch, through which tools or materials can fall.

(i) Overhead protection.

Overhead protection shall be provided for employees on a scaffold exposed to overhead hazards.

(j) Rope.

(i) Rope (wire, fire, or equivalent) used for scaffold suspension shall have a factor of safety of not less than six.

(ii) Only treated or protected fiber rope or its equivalent shall be used ~~for, on or~~ near any work involving the use of corrosive substances or chemicals.

Comment [jcs12]: Typo corrected.

Deleted: for

Comment [a13]: Use, not sue

Deleted: sue

(k) Shore or lean-to scaffolds.

The use of shore scaffolds or lean-to scaffolds is prohibited.

Comment [a14]: Use, not sue

Deleted: sue

(l) Lumber sizes.

Lumber sizes, when used in this paragraph, refer to nominal sizes except where otherwise stated.

(m) Securing.

Scaffolds shall be secured to permanent structures, through use of anchor bolts, reveal bolts, or other equivalent means. Window cleaners' anchor bolts shall not be used.

Deleted: belts

(2) Manually propelled mobile work platforms (ladder stands) and rolling scaffolds (towers).

Manually propelled mobile work platforms (ladder stands) and rolling platforms (towers) shall support at least four times the designed working load. The assembled components of all mobile work platforms (ladder stands) and rolling platforms (towers) shall provide a factor of safety of not less than four. Exposed surfaces shall be free ~~from~~ sharp edges, burrs, or other projecting parts.

Comment [jcs15]: Missing word added.

(a) Work platform levels.

(i) The maximum work platform height shall not exceed four times the minimum or least base dimension of any mobile work platform (ladder stand), or rolling scaffold (tower). Where the basic mobile unit does not meet this requirement, outrigger frames shall be provided to meet this least base dimension, or it shall be securely fastened to prevent tipping.

(ii) The minimum work platform width for any work level shall not be less than twenty inches for mobile scaffolds (towers). Ladder stands shall have a minimum step width of sixteen inches.

(iii) The supporting structure for the work platform shall be rigidly braced, using substantial cross bracing or diagonal bracing with rigid platforms at each work level.

(iv) The steps of ladder stands shall have slip resistant treads.

(v) The work platform of rolling scaffolds (towers) shall be the full width of the scaffold, except for necessary openings. Work platforms shall be securely fastened in place. All planking shall be two-inch scaffold grade lumber or equivalent.

(vi) Work platforms ten feet or more above the ground or floor shall have a standard guardrail with an intermediate rail and toeboard.

(vii) A climbing ladder or stairway shall be provided for access and egress, and shall be secured safely to or built into the scaffold and so located that its use will not tip the scaffold. A landing platform shall be provided at intervals not to exceed thirty feet.

(b) Wheels or casters.

(i) Wheels or casters shall support four times the designed working load.

(ii) Scaffold casters shall be provided with a positive wheel lock and/or swivel lock to prevent movement. Ladder stands shall have at least two of the four casters of the swivel type.

(iii) Where leveling of the elevated work platform is required, screw jacks or equivalent means for adjusting the height shall be provided in the base section of each mobile unit.

(c) Mobile tubular welded frame scaffolds.

(i) Bracing.

Scaffolds shall be braced by cross braces and/or diagonal braces for securely fastening vertical members together laterally. The cross braces shall be of a length that will automatically square and align vertical members so the erected scaffold is always plumb, square, and rigid.

(ii) Spacing.

Spacing of panels or frames shall provide a factor of safety of not less than four. The frames shall be placed one on top of the other with coupling or stacking pins which shall provide positive vertical alignment of the legs.

(iii) Locking.

Panels shall be locked together vertically by pins or be securely fastened in place by other means which shall provide equivalent rigidity.

(d) Mobile tubular welded sectional folding scaffolds.

(i) Stairway.

A stairway and work platform shall be an integral part of the structure of each sectional folding stairway scaffold.

(ii) Bracing.

A set of pivoting and hinged folding diagonal and horizontal braces and a detachable work platform shall be an integral part of the structure of each sectional folding ladder scaffold.

(iii) Sectional folding stairway scaffolds.

The width of a sectional folding stairway scaffold shall not exceed four and one-half feet. The maximum length of a sectional folding stairway scaffold shall not exceed six feet.

(iv) Sectional folding ladder scaffolds.

The width of a sectional folding ladder scaffold shall not exceed four and one-half feet. The maximum length of a sectional folding ladder scaffold shall not exceed six feet six inches for a six-foot-long unit, eight feet six inches for an eight-foot-long unit or ten feet six inches for a ten-foot-long unit.

(v) End frames.

The end frames of sectional ladder and stairway scaffolds shall be designed so that the horizontal bearers provide supports for multiple planking levels.

(e) Mobile tube and coupler scaffolds.

Couplers shall be of a structural type, such as a drop-forged steel, malleable iron or structural grade aluminum. The use of grey cast iron is prohibited.

(f) Mobile work platforms.

(i) Base width.

The minimum width of the base of mobile work platforms shall not be less than twenty inches.

(ii) Bracing.

Rigid diagonal bracing to vertical members shall be provided.

(g) Mobile ladder stands.

(i) Base width.

The maximum length of the base section shall be the total length of combined steps and top assembly, measured horizontally, plus five-eighths inch per step of rise.

(ii) Steps.

Steps shall be uniformly spaced, and sloped, with a rise of not less than nine inches, nor more than ten inches and a depth of not less than seven inches. The slope of the steps section shall be a minimum of fifty-five degrees and a maximum of sixty degrees measured from the horizontal.

(iii) Handrails.

(a) Units having more than five steps or sixty inches vertical height to the top step shall be equipped with handrails.

(b) Handrails shall be a minimum of twenty-nine inches high. Measurements shall be taken vertically from the center of the step.

(h) Erection.

Only the manufacturer of the scaffold or his ~~its~~ qualified ~~designated designee~~ shall be permitted to erect or supervise the erection of scaffolds exceeding fifty feet in height above the base, unless such a structure is approved in writing by a licensed professional engineer, or erected in accordance with instructions furnished by the manufacturer.

Comment [jcs16]: Typo corrected.

(E) Boatswains' chairs.

(1) When constructed of wood, the chair seat shall be no less than twelve inches by twenty-four inches by one-inch thickness, reinforced by cleats on the underside to prevent splitting. A chair of the same size may be constructed of material of equal strength.

(2) Seat slings shall be of no less than five-eighths-inch diameter, first grade manila rope, or its equivalent, which shall be reeved through the four seat holes so as to cross each other on the underside of the seat.

(3) Seat slings shall be of no less than three-eighths-inch wire rope when an employee is conducting a heat-producing process, such as gas or arc welding.

(4) The employee shall be protected by a safety belt and lifeline in accordance with paragraph (I)(6) of rule 4123.1-5-17 of the Administrative Code. The attachment point of the lifeline to the structure shall be appropriately changed as the work progresses.

Deleted: 1

(5) The tackle shall consist of correct size ball bearing or bushed blocks and properly spliced five-eighths-inch diameter, first grade manila rope, or equivalent.

(6) The roof irons or hooks shall be of proper size and design, securely installed and anchored. Tiebacks of three-quarters-inch manila rope, or its equivalent, shall serve as an additional means of anchorage, which shall be installed as nearly as possible at right angles to the face of the building and shall be secured to a structurally sound portion of the building permits installation substantially at right angles to the face of the building, two tiebacks shall be used and secured at substantially equal and opposing acute angles to the right angle. Where outrigger beams, which shall consist of structural metal, or davits are used, they shall be securely fastened or anchored to the frame or floor system of the building or structure.

(F) Swinging scaffolds.

(1) Swinging scaffold platforms shall be no less than twenty inches wide overall. The platform shall be securely fastened to the hangers by U-bolts or by other equivalent means.

(2) The hangers of swinging scaffolds shall be capable of sustaining four times the rated load.

(3) When hoisting machines are used on swinging scaffolds, machines shall be of an approved design.

(4) The roofirons or hooks shall be of proper size and design securely installed and anchored. Tiebacks of three-quarters-inch manila rope, or the equivalent, shall serve as an additional means of anchorage, which shall be installed as nearly as possible at right angles to the face of the building and shall be secured to a structurally sound portion of the building permits installation substantially at right angles to the face of the building, two tiebacks shall be used and secured at substantially equal and opposing acute angles to the right angle. Where outrigger beams, which shall consist of structural metal, or davits are used, they shall be securely fastened or anchored to the frame or floor system of the building or structure.

(5) Swinging scaffolds shall be suspended by wire, synthetic fiber, or natural fiber ropes capable of supporting no less than six times the rated load. All other components shall be capable of supporting no less than four times the rated load.

(6) Only treated or protected fiber rope or its equivalent shall be used for or near any work involving the use of corrosive chemicals.

(7) The sheaves of all blocks shall fit the size and type of rope used.

(8) No more than two employees shall be required to be on a two-point suspension scaffold designed for a working load of five hundred pounds. No more than three employees shall be required to be on a two-point suspension scaffold designed for a working load of seven hundred pounds.

(9) The employer shall provide an approved safety belt or harness and lifeline for each employee working on a swinging scaffold in compliance with paragraph (I)(6) of rule 4123.1-5-17 of the Administrative Code.

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(10) Employees shall not be required to use a bridge, or to move directly, between one swinging scaffold and another.

(11) Each swinging scaffold shall be securely fastened to the building or structure at each work location to prevent it from swaying. Window cleaners' anchors shall not be used for this purpose. Tie-in anchors designed for the rated load of the scaffold may be used.

(12) The platform of every swinging scaffold shall be capable of sustaining four times the rated load.

(13) All swinging scaffolds shall have standard guardrails and toeboards on all unprotected sides of platforms.

(14) The free ends of fall lines from scaffolds shall be guarded to prevent tangling or snagging.

HISTORY: Eff 4-1-64; 8-1-77; 1-1-86; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.12](#), [4121.121](#), [4121.13](#)

Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

4123:1-5-04 Mechanical power transmission apparatus.
(Amend)

(A) Scope.

This rule applies to mechanical power transmission apparatus and facilities to transmit power to operating equipment or machine tools. This rule shall not be construed as being applicable to

power transmission facilities located within the frame or the equipment and exposure is necessary to its operation or adjustment.

(B) Reserved.

(C) Belts and pulleys.

(1) Horizontal belts (not including conveyors or conveyor belts).

Horizontal belts and pulleys seven feet or less above floor or platform shall be guarded as follows:

(a) Where both runs of horizontal belts are seven feet or less from the floor level, the guard shall extend to at least fifteen (15) inches above the belt or to a standard height, except that where both runs of a horizontal belt are 42 inches or less from the floor, the belt shall be fully enclosed in accordance with rule 4123:1-5-99 of the Administrative Code. Note: In power or power development plants a standard guard railing may be used in lieu of this requirement.

(b) If lower part of belt is seven feet or less above platform or floor level and upper part of belt more than seven feet above platform or floor level, the lower part of belt and pulley shall be guarded on bottom, sides, and ends, to a height of seven feet above floor or platform level. Guarding shall be in accordance with rule 4123:1-5-99 of the Administrative Code.

Deleted: If upper part of belt is seven feet or less from floor level, the belt or pulley shall be enclosed on top, bottom, sides and ends. Note: In power or power development plants a standard guard railing may be used in lieu of this requirement.¶

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(c) Horizontal overhead belts more than seven feet above floor or platform shall be guarded for their entire length under the following conditions:

(i) If located over passageways or work places and traveling eighteen hundred feet or more per minute;

(ii) If center to center distance between pulleys is ten feet or more;

(iii) If belt is eight inches or more in width.

(d) Where passageway is provided between upper and lower parts of belts, the passageway shall be guarded on sides, top and bottom.

(2) Vertical and inclined belts (not including conveyors or conveyor belts).

Vertical and inclined belts and their pulleys seven feet or less above floor or platform level shall be guarded in accordance with rule 4123:1-5-99 of the Administrative Code.

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(3) Vee belts.

Vee belts and their pulleys, where exposed to contact, shall be guarded.

(4) Rope drives.

Rope drives and their pulleys, where exposed to contact, shall be guarded.

(D) Gears, sprockets, link belts, and friction drives.

(1) Set or train of gears.

(a) A set or train of gears is two or more power-driven gears that move and intermesh. This does not apply to adjusting gears which do not normally revolve and are not power operated, or to adjusting gears which require access to the gears for manual manipulation.

Comment [jcs17]: Typo corrected.

(b) Guarding.

All or any part of a set or train of gears, seven feet or less above floor or platform level shall be completely guarded or have a band guard around the face of the gear with the side flanges extending inward beyond the root of the teeth. Where there are openings of more than two and one-half inches between arm or through web, the entire gear shall be guarded. Guarding shall be in accordance with rule [4123:1-5-99](#) of the Administrative Code and shall be securely fastened in place.

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(2) Frictional disc, link belt, and sprocket drives.

Frictional disc, link belt, and sprocket drives shall be guarded.

(E) Shafts, collars couplings, and flywheels.

(1) Guarding of horizontal shafting.

(a) All exposed parts of horizontal shafting seven feet or less from floor or working platform, excepting runways used exclusively for oiling or running adjustments, shall be protected by a stationary casing enclosing shafting completely or by a trough enclosing sides and top or sides and bottom of shafting as location requires.

(b) Shafting under bench machines shall be enclosed by a stationary casing, or by a trough at sides and top or sides and bottom as location requires. The sides of the trough shall come within at least six inches of the underside of table, or if shafting is located near the floor, within six inches of the floor. In every case the sides of the trough shall extend at least two inches beyond the shafting or protuberance.

(2) Guarding vertical and inclined shafting.

Vertical and inclined shafting seven feet or less from floor or work platform, excepting maintenance runways, shall be guarded in accordance with rule [4123:1-5-99](#) of the Administrative Code.

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(3) Projecting shaft ends.

(a) Projecting shaft ends shall present a smooth edge and end and shall not project more than one-half the diameter of the shaft unless guarded by nonrotating caps or safety sleeves.

(b) Unused keyways shall be filled up or covered.

(4) Set screws, keys, and other projections.

Set screws, keys, and other projections, protruding beyond the surface of revolving parts shall be guarded.

(5) Collars and couplings.

(a) Collars.

All revolving collars, including split collars, shall be cylindrical, and screws or bolts used in collars shall not project beyond the largest periphery of the collar.

(b) Couplings.

Shaft couplings shall be so constructed as to present no hazard from bolts, nuts, setscrews will, however, be permitted where they are covered with safety sleeves or where they are used parallel with the shafting and are countersunk or else do not extend beyond the flange of the coupling.

(6) Universal joints.

Universal joints shall be guarded.

(7) Revolving face plates and chucks.

Revolving face plates and chucks shall be cylindrical with no projecting parts on the rim unless such projecting parts are guarded. This does not apply to those face plates and chucks revolving less than five revolutions per minute.

(8) Flywheels.

Flywheels located so that any part is seven feet or less above floor or platform shall be guarded in accordance with the requirements of paragraphs (E)(8)(a) to (E)(8)(d)(i)(C) of this rule:

(a) With an enclosure of sheet, perforated, or expanded metal, or woven wire;

(b) With standard guard railings placed not less than fifteen inches nor more than twenty inches from rim. When flywheel extend into a pit or is within twelve inches of the floor, a standard toeboard shall also be provided.

(c) When the upper rim of a flywheel protrudes through a working floor, it shall be entirely enclosed or surrounded by a standard guard railing and toeboard.

Comment [jcs18]: Missing word added.

Comment [jcs19]: Missing "s" added.

(d) Alternate methods.

(i) For flywheels with smooth rims five feet or less in diameter, where the preceding methods cannot be applied, the following may be used:

(a) A disc attached to the flywheel in such manner as to cover the spokes of the wheel on the exposed side and present a smooth surface and edge, at the same time providing means for periodic inspection;

(b) An open space, not exceeding four inches in width, may be left between the outside edge of the disc and the rim of the wheel if desired, to facilitate turning the wheel over;

(c) Where a disc is used, the keys or other dangerous projections not covered by disc shall be cut off or covered.

(ii) Paragraph (E)(8) of this rule does not apply to flywheels with solid web centers.

HISTORY: Eff 4-1-64; 8-1-77; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.12](#), [4121.121](#), [4121.13](#)

Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

4123:1-5-05 Auxiliary equipment. (Amend)

(A) Reserved.

(B) Reserved.

(C) Power-driven conveyors – chain, bucket, belt, hook and screw.

(1) Horizontal, overhead, vertical and inclined conveyors.

(a) Overhead protection.

Where overhead conveyors carry material with a clearance of seven feet or more above the floor level, and cross designed walkways or roads, or pass over areas where employees are normally at work, a substantial barrier shall be installed to catch falling material.

(b) Screw conveyors.

In addition to the requirements of paragraph (C)(1)(a) of this rule, the auger of screw conveyors shall be operated with covers secured in place. Covers shall be solid or of wire mesh, in accordance with rule [4123:1-5-99](#) of the Administrative Code, and covers designed for regular removal shall be interlocked so that removal will disconnect power source.

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(2) Conveyors exposed to contact.

All conveyors, where exposed to contact, shall be equipped with means to disengage them from their power supply at such points of contact.

(3) Safe means of passage.

Where employees are required to cross conveyors, a fixed platform equipped with standard guard railing and toeboards shall be provided.

(4) Pinch (nip) points.

Pinch points created by travel of conveyor belts over or around end, drive and snubber, or take-up pulleys of chain conveyors running over sprocket wheels shall be guarded or a means shall be provided at the pinch point to disengage the belt or chain from the source of power.

(D) Machinery control.

(1) Disengaging from power supply.

Means shall be provided at each machine, within easy reach of the operator, for disengaging it from its power supply. This shall not apply to rolling departments of iron and steel mills nor to electrical power generation or conversion equipment.

(2) When machines are shut down.

The employer shall furnish and the employees shall use a device to lock the controls in the "off" position or the employer shall furnish and the employees shall use warning tags when machines are shut down for repair, adjusting, or cleaning.

(3) Mechanical belt shifters.

Tight and loose pulleys shall be equipped with mechanical belt shifters.

(a) Cone pulley drive belts.

Cone pulley drive belts shall be equipped with a mechanical belt shifter permanently attached.

(b) Where any part of the lower cone pulley is seven feet or less above the floor, the belt and pulley shall be guarded.

(4) Treadles or extensions.

Treadles or extensions for starting machinery shall be so located or guarded as to minimize accidental tripping.

(E) Anchoring and mounting of machinery.

(1) Stationary machinery.

All stationary machinery shall be positioned or installed on floors or foundations so to prevent walking, moving, or tipping.

(2) Portable machinery.

Portable machinery mounted upon trucks or bases shall be securely fastened thereto, and such truck or base shall be so locked or blocked as to prevent movement or shift while such machine is in operation.

(F) Counterweights.

Counterweights exposed to contact shall be guarded, or secured with safety chain or wire rope so the counterweight shall not descend to a level less than eight feet above the floor or working level, where employees are required to perform their assigned duties or where employees are required to pass through in the performance of their assigned duties.

(G) Grounding of electric-powered equipment.

(1) Application.

This paragraph applies only to grounding of non-current carrying parts.

(2) Permanent equipment.

All permanently installed equipment and machinery connected to electric circuits in excess of eighty volts shall be permanently grounded.

(3) Portable electric tools.

Portable electric tools and equipment shall be provided with a means of grounding or shall be protected by a system of double insulation. Where such approved system is employed, the equipment shall be distinctively marked.

(H) Feed rolls.

Power-driven feed rolls, when exposed to contact, shall be guarded so as to prevent the hands of the operator from coming into contact with in-running rolls at any point.

(I) Fan blades.

(1) Guarding.

When the periphery of the blades of a fan used for direct ventilation or cooling of employees, such as desk fans, pedestal fans, and wall fans, is less than seven feet above the floor or working level, the blades shall be guarded. The guard shall be firmly attached to its mount so that it is either permanently affixed, or tools are required for removal, or, in the case of spring-type fasteners or wingnuts, sufficient force is required for removal so that the guard device is not inadvertently removed.

(2) Guard openings.

Any opening in a guard shall have at least one of its dimensions no greater than one inch and the distance from the guard to the blade shall be equal to or greater than the values listed in the following table to this rule.

Table [4123:1-5-05\(1\)\(2\)](#)

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SIZE OF OPENING IN GUARD

Smallest dimension in Minimum distance from

guard (inches) guard to blade

Greater than 3/4 up to 1,
inclusive 6 times the smallest
dimension.

Greater than 1/2 up to 3/4,

inclusive 4 inches.

Greater than 3/8 up to 1/2,

inclusive 2 1/2 inches.

Greater than 1/4 up to 3/8,

inclusive 1 1/2 inches.

Greater than 0 up to 1/4,

inclusive 1/2 inch.

(3) Other fans.

Other fans, such as those used in process cooling, whose blade is less than seven feet above the floor or working level, shall meet the requirements of rule [4123:1-5-99](#) of the Administrative Code. The distance from the guard to the blade must be sufficient to prevent any part of any employee's body from inadvertently contacting the blade.

(J) Steam pipes (pressure pipes).

All steam pipes shall be covered where exposed to contact. Pipe supports or other effective means shall be provided to prevent failure from vibration, expansion, or contraction.

HISTORY: Eff 4-1-64; 8-1-77; 1-1-86; 4-1-99

Rule promulgated under: RC Chapter 119.

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Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

[4123:1-5-06 Portable explosive-actuated fastening tools.](#) **[\(Amend\)](#)**

(A) Reserved.

(B) Reserved.

(C) Design requirements.

(1) High-velocity tools.

Tools of the high-velocity type shall have the following characteristics:

Comment [jcs20]: Space between "2" and "1/2" added.

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(a) The muzzle end of the tool shall have a protective shield or guard at least three and one-half inches in diameter, mounted perpendicular to and concentric with the barrel, and designed to confine any flying fragments or particles that might otherwise create a hazard at the time of firing.

(b) Where a standard shield or guard cannot be used, or where it does not cover all apparent avenues through which flying particles might escape, a special shield, guard, fixture, or jig, designed and built by the manufacturer of the tool being used, which provides this degree of protection, shall be used as a substitute.

(c) The tool shall be so designed that it cannot be fired unless it is equipped with a standard protective guard or shield, or a special shield, guard, fixture or jig.

(d) Firing the tool.

(i) The firing mechanism shall be so designed that the tool cannot fire during loading or preparation to fire, or if the tool should be dropped while loaded.

(ii) The firing of the tool shall be dependent upon at least two separate and distinct operations of the operator, with the final firing movement being separate from the operation of bringing the tool into the firing position.

(e) The tool shall be so designed as not to be operable other than against a work surface, and unless the operator is holding the tool against the work surface with a force at least five pounds greater than the total weight of the tool.

(f) The tool shall be so designed that it will not operate when equipped with the standard guard indexed to the center position if any bearing surface of the guard is tilted more than eight degrees from contact with the work surface.

(g) The tool shall be so designed that positive means of varying the power are available or can be made available to the operator as part of the tool, or as an auxiliary, in order to make it possible for the operator to select a power level adequate to perform the desired work without excessive force.

(h) The tool shall be so designed that all breeching parts will be reasonably visible to allow a check for any foreign matter that may be present.

(2) Low-velocity – piston-type tools.

Tools of the low-velocity piston type shall have the following characteristics:

(a) The muzzle end of the tool shall be designed so that suitable protective shields, guards, jigs, or fixtures, designed and built by the manufacturer of the tool being used, can be mounted perpendicular to the barrel. A standard spall shield, when supplied, shall be utilized with each tool.

(b) Firing the tool.

(i) The tool shall be designed so that it shall not in ordinary usage propel or discharge a stud, pin, or fastener, while loading or during preparation to fire, or if the tool should be dropped while loaded.

(ii) Firing of the tool shall be dependent upon at least two separate and distinct operations of the operator, with the final firing movement being separate from the operation of bringing the tool into the firing position.

(c) The tool shall be so designed as not to be operable other than against a work surface, and unless the operator is holding the tool against the work surface with a force at least five pounds greater than the total weight of the tool.

(d) The tool shall be so designed that positive means of varying the power are available or can be made available to the operator as part of the tool, or as an auxiliary, in order to make it possible for the operator to select a power level adequate to perform the desired work without excessive force.

(e) The tool shall be so designed that all breeching parts will be reasonably visible to allow a check for any foreign matter that may be present.

(D) Minimum instructions for qualifying operators.

Instructions to operators in order to teach them the use of portable explosive-actuated fastening tools shall include, but shall not be limited to, the following items:

(1) Before using a tool, the operator shall inspect it to determine to his satisfaction that it is clean, that all moving parts operate freely, and that the barrel is free from obstruction.

(2) When a tool develops a defect during use, the operator shall immediately cease to use it, until it is properly repaired.

(3) Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any employee, and hands should be kept clear of the open barrel end.

(4) No tools shall be loaded unless being prepared for immediate use, nor shall an unattended tool be left loaded.

(5) In case of a misfire, the operator shall hold the tool in the operating position for at least thirty seconds. He shall then try to operate the tool a second time. He shall wait another thirty seconds, holding the tool in the operating position; then he shall proceed to remove the explosive load in strict accordance with the manufacturer's instructions. Misfired cartridges should be placed carefully in a metal container filled with water, and returned to the supervisor for disposal.

(6) The tool shall never be left unattended in a place where it would be available to unauthorized persons.

(7) Fasteners shall not be driven into very hard or brittle materials, including, but not limited to, cast iron, glazed tile, surface-hardened steel, glass block, living rock, face brick, or hollow tile.

(8) Driving into materials easily penetrated shall be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side.

(9) Driving distance from edge

(a) Fasteners shall not be driven directly into materials such as brick or concrete closer than three inches from the unsupported edge or corner, or into steel surfaces closer than one-half inch from the unsupported edge or corner, unless a special guard, fixture, or jig, is used.

(b) Exception: Low-velocity tools may drive no closer than two inches from an edge in concrete or one-fourth inch in steel.

(c) When fastening other materials, such as a two- by four-inch wood section, to a concrete surface, it is permissible to drive a fastener of no greater than seven-thirty-seconds-inch shank diameter not closer than two inches from the unsupported edge or corner of the work surface.

(10) Fasteners shall not be driven through existing holes unless a positive guide is used to secure accurate alignment.

(11) No fastener shall be driven into a spalled area caused by an unsatisfactory fastening.

(12) Tools shall not be used in an explosive or flammable atmosphere.

(13) All tools shall be used with the correct shield, guard, or attachment recommended by the manufacturer.

(14) Any tool found not in proper working order shall be immediately removed from service. The tool shall be inspected at regular intervals and shall be repaired in accordance with the manufacturer's specifications.

(E) Strength of charge – identification.

All explosive charges (cartridges and shells) to be used in portable explosive-actuated tools shall be marked by color, in accordance with table 4123:1-5-06(E) to this rule, "Identification of Cased Loads," to designate the strength of the charge. Table 4123:1-5-06(E) IDENTIFICATION OF CASED LOADS

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Identification Color	Power Load	Color	Nominal Velocity (=45)	Level Case	Color						
Brass...	Gray...	300 2..	Brass...	Brown...	390 3..	Brass...	Green...	480 4..	Brass...	Yellow...	570 1..
5..	Brass...	Red....	660 6..	Brass...	Purple...	750 7..	Nickel...	Gray...	840 8..	Nickel...	Brown...
930 9..	Nickel...	Green....	1020 10..	Nickel...	Yellow...	1110 11..	Nickel...	Red....	1200 12..	Nickel...	1290
Nickel...					Purple...						

Note: The nominal velocity applies to 3/8-inch diameter 350-grain ballistic slug fired in a test device and has no reference to actual fastener velocity developed in any specific size or type of tool.

HISTORY: Eff 4-1-64; 8-1-77; 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC 4121.13

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

**4123:1-5-07 Hand tools, hand-held portable powered tools,
other hand-held equipment and portable safety containers.**

(Amend)

(A) Reserved.

(B) Reserved.

(C) General requirement.

All hand tools and hand-held portable powered tools and other hand-held equipment whether furnished by the employee or the employer shall be maintained in a safe condition, free of worn or defective parts.

(D) Power saws.

(1) General.

All portable power-driven saws with blades more than two inches in diameter shall be equipped with guards above and below the base plate shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to covering position. The requirements of this paragraph do not apply to circular saws used in the meat industry for meat-cutting purposes.

(2) Portable chain saws.

(a) Portable chain saws shall have all guards and handles, provided by the manufacturer, in place, all controls functioning properly and mufflers operative.

(b) Electrically powered chain saws shall be provided with proper grounding devices.

(E) Power grinders.

Safety guards used on right angle head or vertical portable grinders shall have a maximum exposure angle of one hundred eighty degrees, and be located so as to be between the operator and wheel during use. The top half of the wheel shall be enclosed at all times.

(F) Pneumatically powered tools.

All pneumatically powered portable tools shall be equipped with an automatic shutoff valve ("dead-man" control) so arranged as to close the air inlet valve when the pressure of the operator's hand is removed. Each tool shall be equipped with a retainer where accidental ejection is possible.

(G) Grounding.

All electrically powered portable tools with exposed noncurrent-carrying metal parts shall be grounded. Portable tools protected by an approved system of double insulation, or its equivalent, need not be grounded. Where such an approved system is employed the equipment shall be distinctively marked.

(H) Power cut-off and pressure control devices.

(1) Woodworking tools.

Hand-held, power-driven woodworking tools shall be provided with a dead-man control, such as a spring actuated switch, valve, or equivalent device, so that the power will be automatically shut off whenever the operator releases the control.

Comment [jcs21]: Missing "s" added.

(2) Hand-held powered tools-switches and controls.

(a) All hand-held powered circular saws having a blade diameter greater than two inches, electric, hydraulic or pneumatic chain saws, and percussion tools without positive accessory holding means shall be equipped with a constant pressure switch or control that will shut off the power when the pressure is released. All hand-held gasoline powered chain saws shall be equipped with a constant pressure throttle control that will shut off the power to the saw chain when the pressure is released.

(b) All hand-held powered drills, tappers, fastener drivers, horizontal, vertical and angle grinders with wheels greater than two inches in diameter, disc sanders with discs greater than two inches in diameter, belt sanders, reciprocating saws, saber, scroll, and jig saws with blade shanks greater than a nominal one-fourth inch, and other similarly operating powered tools shall be equipped with a constant pressure switch or control, and may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.

(c) All other hand-held powered tools, such as, but not limited to, platen sanders, grinders with wheels two inches in diameter or less, disc sanders with discs two inches in diameter or less, routers, planers, laminate trimmers, nibblers, shears saber, scroll, and jig saws with blade shanks a nominal one-fourth of an inch wide or less, may be equipped with either a positive "on-off" control, or other controls as described by paragraphs (H) (2)(a) and (H)(2)(b) of this rule.

(3) Use of compressed air.

The employer shall instruct the employees that compressed air shall not be used to clean themselves off.

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(I) Jacks.

All jacks shall have the rated load legibly and permanently marked in a prominent location, except jacks supplied as standard equipment in passenger cars.

(J) Block and tackle equipment.

(1) All blocks shall fit the size of rope they carry, and shall be so constructed as not to chafe the rope running through them.

(2) Where ropes are subjected to chafing by dragging across an intervening object, such object shall be padded.

(K) Hand tools, miscellaneous.

Employers shall not issue or permit the use of unsafe hand tools, such as:

(1) Wrenches when jaws are sprung to the point that slippage occurs;

(2) Impact tools, such as drift pins, wedges, and chisels, with mushroomed heads;

(3) Tools with splintered or cracked wooden handles or wooden handles that cannot be kept tight in the tool.

(L) Portable pneumatically powered fastener tools.

(1) Except for portable pneumatically powered fastener tools authorized in paragraph (L)(2) of this rule, two separate and independent releases are required before any such tool activates. They are:

(a) A device on the muzzle that prevents activation except during the time the tool is held firmly against the work surface.

(b) A trigger or similar device that prevents activation except during the time it is held in depressed or active position by the operator.

(2) Fastener tools that do not meet the requirements of paragraph (L)(1) of this rule may be used if they comply with all of the following requirements.

(a) The tool may only be actuated by compressed air with a driving piston having an area no greater than one square inch, with an operating air pressure of no more than one hundred pounds per square inch gauge and with a driving velocity no greater than seventy-five feet per second as measured at the muzzle.

(b) The tool may only accommodate fasteners of the wire staple or pin types with a cross sectional area no greater than .00177 square inches.

(c) The tool may drive only one fastener each time the trigger or operating lever is depressed.

(3) The operator of the tool shall be furnished the personal protective equipment required in paragraph (D) of rule [4123:1-5-17](#) of the Administrative Code. Such protection shall also be furnished for any other employees required to work in the immediate area and who are exposed to the hazards of the operation.

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(4) When not in use the tool shall be disconnected from the compressed air hose.

(5) Air hose.

Hose and hose connections used for conducting compressed air to the tool shall be designed for the pressure and service to which it is subjected.

(6) Pressure regulator.

The tool shall be equipped with a pressure regulator or other device to prevent air pressure on it from exceeding its maximum design capacity.

(M) Portable safety containers.

Portable safety containers shall be provided for handling flammable liquids with a flash point (closed cup) below 100 degrees Fahrenheit in quantities of one gallon or more. The containers shall be legibly marked "flammable".

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HISTORY: Eff 4-1-64; 8-1-77; 1-1-81; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.12](#), [4121.121](#), [4121.13](#)

Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

4123:1-5-08 Power-driven saws and knives. (Amend)

(A) Reserved.

(B) Reserved.

(C) Bandsaws, band resaws, and band knives.

All portions of the saw blade or band blade shall be enclosed or guarded, except for the working portion of the blade between the bottom of the guide rolls and the table. Bandsaw wheels shall be fully enclosed. The outside of periphery of the enclosure shall be solid. The front and back of the band wheels shall be either enclosed by solid material, or by wire mesh, or perforated metal, the dimensions and material of which shall be in accordance with rule [4123:1-5-99](#) of the Administrative Code. Such mesh or perforated metal shall be not less than 0.037 inch (U.S. Gage No. 20), and the openings shall be not greater than three-eighths inch.

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(D) Circular saws.

All circular saws shall have the exposed portion of the saw blade under the table guarded.

(1) Circular rip saw (manual feed).

(a) Guarding.

A hood-type guard shall be provided that will cover the exposed portion of the saw blade. When in use the hood type guard shall automatically adjust itself to the thickness of and remain in contact with the material being cut when the stock encounters the saw, or may be a fixed or manually adjusted guard, provided the space between the bottom of the guard and the material being cut does not exceed three-eighths inch at any time.

(b) Design.

The hood-type guard shall be so designed as to prevent a kickback, or a separate attachment that will prevent a kickback shall be provided. Anti-kickback devices shall be effective for all thicknesses of material that are cut.

(c) Spreader.

A spreader shall also be provided and securely fastened at the rear of the saw in alignment with the saw blade, except where a roller wheel is provided at the back of the saw. The spreader shall be slightly thinner than the saw kerf and slightly thicker than the saw disc to prevent material from squeezing the saw.

(d) Alternate method.

Where the method of guarding as specified above is impossible, a substantial jig, fixture, or template may be used which is designed to keep the hands of the operator out of the danger zone.

(2) Circular rip saw (power feed).

(a) Guarding.

A hood-type guard shall be provided but need not rest upon the table nor upon the material being cut, but shall extend to a line not more than three-eighths of an inch above the plane formed by the bottom of the top feed rolls. [This distance \(three-eighths inch\) may be increased to three-fourths inch, provided the lead edge of the hood is extended to be not less than 5 1/2 inches in front of the nip point between the front roll and the work.](#)

(b) Spreader.

A spreader shall be provided and fastened securely at the rear of the saw in alignment with the saw blade, except where a roller wheel is provided at the back of the saw. The spreader shall be slightly thinner than the saw kerf and slightly thicker than the saw disc to prevent material from squeezing the saw.

(3) Circular cross-cut saw.

(a) Guarding.

A hood-type guard shall be provided that will cover the exposed portion of the saw blade. When in use the hood-type shall automatically adjust to the thickness of and remain in contact with the material being cut when the stock encounters the saw, or may be a fixed or manually adjusted hood or guard, provided the space between the bottom of the guard and the material being cut does not exceed three-eighths of an inch at any time.

(b) Automatic return.

A device shall be installed which shall return the saw automatically to the back of the table when released at any point of its travel. A device shall be installed which shall be designed to prevent a rebound of the saw blade.

(4) Circular resaws.

Deleted: This requirement shall not apply to circular cross-cut saws with stationary tables where the saw moves forward when cutting.¶

(a) Guarding.

A hood-type guard shall be provided that will cover the saw at all times, except where the material is being cut.

(b) Spreader.

A spreader shall be provided and securely fastened at the rear of the saw in alignment with the saw blade, except where a roller wheel is provided at the back of the saw. The spreader shall be slightly thinner than the saw kerf and slightly thicker than the saw disc and shall be placed not more than one-half inch from the ends of the saw teeth.

(5) Swing cutoff saws.

The requirements of this paragraph are also applicable to sliding cutoff saws mounted above the table.

(a) Each swing cutoff saw shall be provided with a hood that will completely enclose the upper half of the saw at the arbor end, and the point of operation at all positions of the saw. The hood shall be constructed in such a manner and of such material that it will protect the operator from flying splinters and broken saw teeth. Its hood shall be so designed that it will automatically cover the lower portion of the blade, so that when the saw is returned to the back of the table the hood will rise on top of the fence, and when the saw is moved forward the hood will drop on top of and remain in contact with the table or material being cut.

Comment [jcs22]: Missing "at" added.

(b) Each swing cutoff saw shall be provided with an effective device to return the saw automatically to the back of the table when released at any point of its travel. Such a device shall not depend for its proper functioning upon any rope, cord or spring. If there is a counterweight, the bolts supporting the bar and counterweight shall be provided with cotter pins; and the counter-weight shall be prevented from dropping by either a bolt passing through both the bar and counterweight, or a bolt put together through the extreme end of the bar, or, where the counterweight does not encircle the bar, a safety chain attached to it.

(c) Limit chains or other equally effective devices shall be provided to prevent the saw from swinging beyond the front or back edges of the table, or beyond a forward position where the gullets of the lowest saw teeth will rise above the table top.

(6) Inverted swing cutoff saws.

Inverted swing cutoff saws shall be provided with a hood that will cover the part of the saw that protrudes above the top of the table or above the material being cut. It shall automatically adjust itself to the thickness of and remain in contact with material being cut.

(7) Radial saws.

(a) Guarding.

The upper hood shall completely enclose the upper portion of the blade down to a point that will include the end of the saw arbor. The upper hood shall be constructed in such a manner and of such material that it will protect the operator from flying splinters, broken saw teeth, etc., and will deflect sawdust away from the operator. The sides of the lower exposed portion of the blade shall be guarded to the full diameter of the blade by a device that will automatically adjust itself

to the thickness of the stock and remain in contact with stock being cut to give maximum protection possible for the operation being performed.

(b) Anti-kickback device.

Each radial saw used for ripping shall be provided with an anti-kickback device, which shall be designed to provide adequate holding power for all the thicknesses of material being cut.

(c) Saw rotation.

Ripping and ploughing shall be against the direction in which the saw turns. The direction of the saw rotation shall be conspicuously marked on the hood. In addition, a permanent label not less than one and one-half inches by three-fourths inch shall be affixed to the rear of the guard at approximately the level of the arbor, reading as follows: "Danger: do not rip or plough from this end."

(d) Automatic return.

A device shall be installed which shall return the saw automatically to the back of the table when released at any point of its travel. A device shall be installed which shall be designed to prevent a rebound of the saw blade.

(e) Positive stop.

A positive stop shall be installed which shall prevent the saw from traveling beyond the front edge of the table.

(E) Cracked saw blades.

All cracked saw blades shall be removed from service.

HISTORY: Eff 4-1-64; 8-1-77; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.12](#), [4121.121](#), [4121.13](#)

Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

4123:1-5-09 Woodworking machinery. (Amend)

(A) Reserved.

(B) Reserved.

(C) Jointers.

(1) Manual-feed jointers and planers – cutting head.

(a) Guarding – point of operation.

Manual-feed jointers and planers with horizontal head shall be equipped with a cylindrical cutting head, the knife projection of which shall not exceed one-eighth inch beyond the cylindrical body of the head.

(b) Table openings.

The opening in the table shall be as small as productive operation of the jointer permits. The clearance between the edge of the rear of the table and the cutter head shall be not less than one-eighth inch.

(c) Guards – automatic.

Manual-feed jointers and planers with horizontal cutting heads shall have an automatic guard which will:

- (i) Cover the section of the head on the working side of the fence.
 - (ii) Automatically adjust itself to recover the cutting head after the material has passed through.
- (d) Guard – cutting head back of fence or gage.

Each manual-feed jointer with horizontal cutting head shall have a guard which will cover the section of the head back of the gage or fence.

(2) Vertical head jointers.

Each wood jointer with vertical head shall have either an exhaust hood or other guard so arranged as to guard completely the revolving head, except for a slot of such width as may be required for the application of the material to be jointed.

(D) Planer, molder, sticker, and matcher.

(1) Guarding – cutting heads.

Each planer, molder, sticker, and matcher shall have all cutting heads and saws, if used, covered by a metal guard. If such a guard is constructed of:

- (a) Sheet metal – the material used shall be not less than one-sixteenth inch in thickness.
- (b) Cast iron – the material used shall be not less than three-sixteenths inch in thickness.

(2) Guarding – where exhaust systems are used.

Where an exhaust system is used, the guards shall form part or all of the exhaust hood and shall be constructed of metal of a thickness not less than that specified in (1)(a) or (b) above.

(3) Guarding – feed rolls.

Feed rolls shall be guarded in accordance with the requirements of [4123:1-5-05\(H\)](#).

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(a) Sectional in-feed rolls.

Surfaces of planers used in sizing multiple pieces of material simultaneously shall be provided with sectional in-feed rolls having sufficient yield in the construction of the sections to provide feeding contact pressure on the stock over the permissible range of variation in stock thickness for which the machine was designed.

(b) Alternate method.

In lieu of such yielding sectional rolls, suitable section kickback finger devices shall be provided at the in-feed end.

(E) Boring and mortising machines.

(1) Guarding.

(a) Mortising machines (except hollow chisel mortisers).

Mortising machines, except hollow chisel mortisers, shall be provided with thumb stops at each side of the chisel or equivalent protection.

(b) Bits.

Bits on all automatic boring machines shall be guarded at the points of operation.

(c) Chain mortiser.

The top of the cutting chain and driving mechanism shall be guarded.

(d) Counterweight.

If a counterweight is used it shall comply with the requirements of [4123:1-5-05\(F\)](#).

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(e) Universal joint.

Universal joints shall comply with the requirements of [4123:1-5-04\(E\)\(6\)](#).

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(2) Chuck design.

Safety bit chucks with no projecting set screws shall be used.

(F) Stationary sanding machines.

(1) Drum sanders.

Drum sanders shall have a guard so arranged as to enclose the revolving drum, except such portion of the drum above the table (if table is used) as may be required for the application of the material to be finished. Where an exhaust system is used, the hood of the exhaust system shall be construed as comprising all, or part, of the guard.

(2) Disc sanders.

Disc sanders shall have a guard so arranged to enclose the periphery and back of the revolving disc, except such portion of the face of the disc above the table (if table is used) as may be required for the application of the material to be finished. Where an exhaust system is used, the hood of the exhaust system shall be construed as comprising all, or part, of the guard.

(3) Belt sanders.

Belt sanders shall have both pulleys guarded in such manner as to guard the points where the belt runs onto the pulleys. The edges of the unused run of the belt shall be guarded.

(4) Feed rolls of self-feed sanding machines.

Feed rolls of self-feed sanding machines shall comply with the requirements of [4123:1-5-05\(H\)](#).

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(G) Wood shapers.

(1) Guarding.

(a) Cutting heads.

(i) The cutting heads of each wood shaper, hand-fed panel raiser or other similar machine, not automatically fed, shall be guarded. The diameter of circular shaper guards shall be not less than the greatest diameter of the cutter.

(ii) When single cutter knives in shaper heads are used, the shaper heads shall be balanced.

(b) Alternate method.

A substantial jig, fixture, or template may be used which is designed to keep the hands of the operator out of the danger zone.

(2) Starting and stopping devices.

All shapers shall be provided with a spindle starting and stopping device for each spindle.

(H) Tenoners.

Tenerons shall have all cutting heads or saws guarded. An exhaust hood may comprise part or all of the guard. If such a guard is constructed of sheet metal, the material used shall be not less than one-sixteenth inch in thickness, and if cast iron is used, it shall be not less than three-sixteenths inch in thickness.

(I) Lathes.

Each profile and swing-head lathe shall have the cutting head guarded. An exhaust hood may comprise all, or part, of the guard.

(J) Veneer machinery and equipment.

(1) Vats and soaking pits.

(a) Guarding.

Sides of vats and soaking pits shall extend to a height of not less than thirty-six inches above the working floor level. When loading or unloading operations are performed from the sides and/or ends of vats and soaking pits, standard guard railing and toeboards shall be installed.

(b) Walkways between sections.

Large vats and soaking pits divided into sections shall be provided with substantial walkways between sections. Each walkway shall be provided with a standard guard railing.

(2) Drag saws.

Drag saws shall be so located as to give at least four feet clearance for passage when the saw is at extreme end of stroke or if such clearance is not obtainable, the saw and its driving mechanism shall be guarded.

(3) Clippers and wringers.

(a) Clippers.

Veneer clippers shall have automatic feed or shall be provided with a guard when stock is manually fed or removed.

(b) Wringers.

In-running sides of veneer wringers shall be guarded leaving only sufficient space to insert stock.

(K) Cooperage machinery.

(1) Bolt, stave and heading equalizers.

Each bolt, stave and heading equalizer shall have the saws guarded except that portion immediately adjacent to the feeding device.

(2) Barrel stave saws.

Each machine of this type shall have the saw and the revolving part to which the saw blade is bolted, guarded, except that part of the saw immediately adjacent to the feeding device.

(3) Heading, rip, flat-stave and head-rounders.

All machines coming under this heading shall have the saws guarded.

(4) Stave and heading planers.

All cutting heads and knives of single and double planers shall be guarded. An exhaust hood may comprise all or part of the guard.

(5) Stave jointing machines (wheel).

Machines for jointing staves shall be guarded.

(6) Stave croziers.

The cutting heads shall be guarded except that part which actually imbeds itself in the stock.

(7) Pail and barrel lathes.

The requirements of [4123:1-5-09\(I\)](#), Lathes, where applicable, shall govern the guarding of pail and barrel lathes.

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(L) Miscellaneous woodworking machines.

(1) Combination or universal woodworking machines.

(a) Guarding.

Each point of operation shall be guarded as required for such a tool in a separate machine.

(b) Stopping and starting devices.

Such machines shall be provided with a separate stopping and starting device for each separate operation.

(2) Routers.

The pulleys, spindles, and cutting tools shall be guarded. Turnplates, jigs, and fixtures which keep the operator's hands out of the danger zone may be provided as an alternative.

(3) Glue spreaders (roll type).

The feed rolls shall be guarded. The bottom of the guard shall be not more than three-eighths inch above a plane formed by the contact face of the feed roll where it contacts the stock.

HISTORY: (former IC-5-07); Eff 4-1-64; 8-1-77

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

[4123:1-5-10 Mechanical power presses. \(Amend\)](#)

(A) Scope.

The requirements of this rule pertain to mechanical power presses. Excluded from the requirements of this rule are press brakes (when used for bending, see paragraph (F) of this

rule), hydraulic and pneumatic power presses, bulldozers, hot bending and hot metal presses, forging presses and hammers, riveting machines and similar types of fastener applicators. For guarding of these excluded machines, see rule [4123:1-5-11](#) of the Administrative Code.

Deleted: 4121

(B) Reserved.

(C) Mechanical power press guarding.

(1) Brakes.

Friction brakes provided for stopping or holding the slide movement shall be inherently self-engaging by requiring power or force from an external source to cause disengagement. Brake capacity shall be sufficient to stop the motion of the slide quickly and capable of holding the slide and its attachments at any point in its travel.

(2) Machines using full revolution clutches.

(a) Single-stroke mechanism.

Machines using full revolution clutches shall incorporate a single-stroke mechanism.

(b) Compression-type springs.

If the single-stroke mechanism is dependent upon spring action, the spring(s) shall be of the compression type, operating on a rod or guided within a bore or tube and designed to prevent interleaving of the spring coils in event of breakage.

(c) Two-hand trip.

A two-hand trip shall have the individual operator's hand controls protected against unintentional operation and have the individual operator's hand controls arranged by design and construction and/or separation to require the use of both hands to trip the press and use a control arrangement requiring concurrent operation of the individual operator's hand controls.

(d) Anti-repeat feature.

Two-hand trip systems on full revolution clutch machines shall incorporate an anti-repeat feature.

(e) Multiple-station presses.

Where two-hand trip systems are used on multiple-station presses, there shall be a separate set of controls for each assigned employee.

(3) Foot pedals (treadle).

(a) Pedal mechanism.

The pedal mechanism shall be protected to prevent unintended operation from falling or moving objects or by accidental stepping onto the pedal.

(b) Pedal return springs.

If pedal return springs are provided they shall be of the compression type, operating on a rod or guided within a bore or tube, and designed to prevent interleaving of spring coils in event of breakage.

(c) Pedal counterweights.

If pedal counterweights are provided, the path of the travel of the weight shall be enclosed.

(4) Hand-operated levers.

(a) Spring latch.

Hand-lever-operated power presses shall be equipped with a spring latch on the operating lever to prevent premature or accidental tripping.

(b) More than one operating station.

The operating levers on hand-tripped presses having more than one operating station shall be interlocked to prevent the tripping of the press except by the concurrent use of all levers.

(5) Machines using part revolution clutches.

(a) Clutch/brake control.

The clutch shall release and the brake shall be applied when the external clutch engaging means is removed, deactivated or deenergized.

(b) Stop control.

A red color stop control shall be provided with the clutch/brake control system. Momentary operation of the stop control shall immediately deactivate the clutch and apply the brake. The stop control shall override any other control, and reactivation of the clutch shall require use of the operating (tripping) means which has been selected.

(c) Control selection.

A means of selecting "off," "inch," "single stroke," and "continuous" (when the "continuous" function is furnished) shall be supplied with the clutch/brake control to select type of operation of the press.

(d) Inch operating means.

An inch operating means shall be provided and shall prevent exposure of the employee's hands within the point of operation by:

(i) Requiring the concurrent use of both hands to actuate the clutch, or

(ii) Being a single control protected against accidental actuation and so located that the employee cannot reach into the point of operation while operating the single control.

(e) Two-hand controls for single stroke.

Two-hand controls for single stroke shall conform to the following requirements:

- (i) All controls shall be protected against unintended operation.
- (ii) The two-hand control system shall permit an adjustment which will require concurrent pressure from both hands during the die closing portion of the stroke.
- (iii) The two-hand control system shall incorporate an anti-repeat feature.
- (iv) The control system shall require the operator to release all hand controls before an interrupted stroke can be resumed.
- (v) Where two-hand trip controls are used on multiple-station presses, there shall be a separate set of controls for each designated employee. Controls shall be activated and deactivated in sets of two. The clutch/brake control system shall prevent actuation of the clutch if all operating stations are bypassed.
- (vi) The starting of a continuous run shall require a separate action by the operator in addition to the setting for continuous stroking of the press before actuation of the operating controls will result in continuous stroking.

(vii) If foot control is provided, the selection method between hand and foot control shall be separate from the stroking selector and shall be designed so that the selection may be supervised by the employer.

√(viii) Foot-operated controls shall be guarded to prevent accidental operation.

(ix) Clutch/brake control systems shall automatically deactivate in the event of failure of power or pressure supply for clutch engaging or failure of air supply. Reactivation shall require restoration of normal power or air and the use of the tripping mechanisms.

(x) Turnover bar operation shall be performed only when the power source is deenergized.

(6) Electrical.

(a) Disconnect switch.

A main power disconnect switch capable of being locked only in the "off" position shall be provided with every power press control system.

(b) Motor start button.

The motor start button shall be protected against accidental operation.

(c) Drive motor starter.

All mechanical power press controls shall incorporate a type of drive motor starter that will disconnect the drive motor from the source failure, and require operation of the motor start button to restart the motor when voltage conditions are restored to normal.

(d) Accidental ground.

Deleted: Where presses are provided with a selection method of foot or hand controls the selection shall be made by a designated employee and controls other than those selected shall be inoperable.¶

All clutch/brake control electrical circuits shall be protected against the possibility of an accidental ground in the control circuit causing false operation of the press.

(7) Slide counterbalance systems.

(a) Spring counterbalance systems.

Spring counterbalance systems when used shall:

(i) Incorporate means to retain system parts in event of breakage, and

(ii) Have the capability to hold the slide and its attachments at midstroke, without brake applied.

(b) Air counterbalance cylinders.

Air counterbalance cylinders shall:

(i) Incorporate means to retain the piston and rod in case of breakage or loosening,

(ii) Have adequate capability to hold the slide and its attachments at any point in stroke, without brake applied; and

(iii) Incorporate means to prevent failure of capability (sudden loss of pressure) in event of air supply failure.

(8) Air controlling equipment.

Air controlling equipment shall be protected against foreign material and water entering the pneumatic system of the press. A means of air lubrication shall be provided when needed.

(9) Hydraulic equipment.

The maximum anticipated working pressures in any hydraulic system on a mechanical power press shall not exceed the safe working pressure rating of any component used in that system.

(10) Pressure vessels.

[All pressure vessels used in conjunction with power presses shall conform to the American Society of Mechanical Engineers Code for Pressure Vessels, 1968 Edition.](#)

(11) Control reliability.

When required by paragraph (C)(2)(e) of this rule, the control system shall operate so that a failure within the system does not prevent the normal stopping action from being applied to the press when required, but shall prevent initiation of a successive stroke until the failure is corrected. The failure shall be detectable by a simple test, or indicated by the control system. This requirement does not apply to those elements of the control system which have no effect on the protection against point of operation injuries.

(12) Brake system monitoring.

Deleted: All pressure vessels used in conjunction with power presses shall conform to the requirements of the Ohio department of industrial relations, board of building standards.¶

When required by paragraph (D)(5) of this rule, the brake monitor shall:

(a) Automatically prevent the activation of a successive stroke if the stopping time or braking distance deteriorates to a point where the safety distance being utilized does not meet the requirements set forth in paragraphs (D)(3)(c)(v) and (D)(3)(g)(iii) of this rule.

The brake monitor used with the type B gate or movable barrier device shall be installed in a manner to detect slide top-stop overrun beyond the limit established by the employer.

(b) Indicate when the performance of the braking system has deteriorated to the extent described in paragraph (C)(12)(a) of this rule; and

(c) Monitor the brake system performance on each stroke.

(D) Safeguarding the point of operation.

(1) General requirements.

(a) It shall be the responsibility of the employer to provide and require the usage of "point of operation guards" or properly applied and adjusted "point of operation devices" on every operation performed on a mechanical press. (See table [4123:1-5-10\(D\)](#) to this rule.)

Deleted: 4121

(b) The requirement of paragraph (D)(1)(a) of this rule shall not apply when the point of operation opening is one-fourth inch or less. (See table [4123:1-5-10\(D\)](#) to this rule.)

Deleted: 4121

(2) Point of operation guards.

(a) Every point of operation guard shall meet the following requirements:

(i) It shall prevent entry of hands or fingers into the point of operation by reaching through, over, under, or around the guard;

(ii) It shall conform to the maximum permissible openings of table [4123:1-5-10\(D\)](#) to this rule;

Deleted: 4121

(iii) It shall, in itself, create no pinch point between the guard and moving machine parts;

(iv) It shall utilize fasteners not readily removable by the operator, so as to minimize the possibility of misuse or removal of essential parts;

(v) It shall be easy to inspect; and

(vi) It shall offer maximum visibility of the point of operation consistent with the other requirements.

(b) When used, a die enclosure guard shall be attached to the die shoe or stripper or both in a fixed position.

(c) When used, a fixed barrier guard shall be attached securely to the frame of the press or to the bolster plate.

(d) Interlocked press barrier guard.

(i) When used, an interlocked press barrier guard shall be attached to the press frame or bolster plate and shall be interlocked with the press clutch control so that the clutch cannot be activated during normal production unless the guard itself, or the hinged or movable sections of the guard are in position to conform to the requirements of table 4123:1-5-10(D) to this rule.

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(ii) The hinged or movable sections of an interlocked press barrier guard shall not be used to actuate the press during manual feeding. The guard shall prevent opening of the interlocked section and reaching into the point of operation prior to the die closure or prior to the cessation of slide motion. See paragraph (D)(3)(b) of this rule regarding manual feeding through interlocked press barrier devices. Table 4123:1-5-10(D)

Deleted: 4121

Distance of opening from Maximum width of point of operation hazard opening (inches) (inches)

1/2 to 1-1/2.....	1/4
1-1/2 to 2-1/2.....	3/8
2-1/2 to 3-1/2.....	1/2
3-1/2 to 5-1/2.....	5/8
5-1/2 to 6-1/2.....	3/4
6-1/2 to 7-1/2.....	7/8
7-1/2 to 12-1/2.....	1-1/4
12-1/2 to 15-1/2.....	1-1/2
15-1/2 to 17-1/2.....	1-7/8
17-1/2 to 31-1/2.....	2-1/8

Figure: Diagram for Table 4123:1-5-10(D)

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For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

This diagram shows the accepted safe openings between the bottom edge of a guard and feed table at various distances from the danger line (point of operation).

The clearance line marks the distance required to prevent contact between guard and moving parts.

The minimum guarding line is the distance between the infeed side of the guard and the danger line which is one-half inch from the danger line.

The various openings are such that for average size hands an operator’s fingers will not reach the point of operation.

After installation of point of operation guards and before a job is released for operation a check should be made to verify that the guard will prevent the operator's hands from reaching the point of operation.

(e) When used, the adjustable barrier guard shall be securely attached to the press bed, bolster plate, or die shoe, and shall be adjusted and operated in conformity with table [4123:1-5-10\(D\)](#) to this rule and the requirements of this paragraph.

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(f) A point of operation enclosure which does not meet the requirements of paragraph (D)(2)(a) to (D)(2)(e) of this rule and table [4123:1-5-10\(D\)](#) to this rule shall be used only in conjunction with point of operation devices.

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(3) Point of operation devices.

(a) Point of operation devices shall protect the operator by:

(i) Preventing and/or stopping normal stroking of the press if the operator's hands are inadvertently placed in the point of operation; or

(ii) Preventing the operator from inadvertently reaching into the point of operation or withdrawing his hands if they are inadvertently located in the point of operation, as the dies close; or

(iii) Preventing the operator from inadvertently reaching into the point of operation at all times; or

(iv) Requiring application of both of the operator's hands to machine operating controls and locating such controls at such a safety distance from the point of operation that the slide completes the downward travel or stops before the operator can reach into the point of operation with his hands; or

(v) Enclosing the point of operation before a press stroke can be initiated and maintaining this closed condition until the motion of the slide has ceased; or

(vi) Enclosing the point of operation before a press stroke can be initiated, so as to prevent an operator from reaching into the point of operation prior to die closure or prior to cessation of slide motion during the downward stroke.

(b) A gate or movable barrier device shall protect the operator as follows:

(i) A type A gate or movable barrier device shall protect the operator in the manner specified in paragraph (D)(3)(a)(v) of this rule; and

(ii) A type B gate or movable barrier device shall protect the operator in the manner specified in paragraph (D)(3)(a)(vi) of this rule.

(c) A presence sensing point of operation device shall protect the operator as provided in paragraph (D)(3)(a)(i) of this rule, and shall be interlocked into the control circuit to prevent or stop slide motion if the operator's hand or other part of his body is within the sensing field of the device during the down-stroke of the press slide.

(i) The device shall not be used on machines using full revolution clutches.

(ii) The device shall not be used as a tripping means to initiate slide motion.

(iii) The device shall be constructed so that a failure within the system does not prevent the normal stopping action from being applied to the press when required, but does prevent the initiation of a successive stroke until the failure is corrected. The failure shall be indicated by the system.

(iv) Muting (bypassing of the protective function) of such device, during the up-stroke of the press slide, is permitted for the purpose of parts ejection, circuit checking and feeding.

(v) The safety distance (D(s)) from the sensing field to the point of operation shall be greater than the distance determined by the following formula:

$$D(s) = 63 \text{ inches/second} \times T(s)$$

where:

D(s) = minimum safety distance (inches); 63 inches/second = hand speed constant;

and

T(s) = stopping time of the press measured at approximately 90 deg. position of crankshaft rotation (seconds).

(vi) Guards shall be used to protect all areas of entry to the point of operation not protected by the presence sensing device.

(d) The pull-out device shall protect the operator as specified in paragraph (D)(3)(a)(ii) of this rule and shall include attachments for each of the operator's hands.

(i) Attachments shall be connected to and operated only by the press slide or upper die.

(ii) Attachments shall be adjusted to prevent the operator from reaching into the point of operation or to withdraw the operator's hands from the point of operation before the dies close.

(iii) A separate pull-out device shall be provided for each operator if more than one operator is used on a press.

(e) Sweep devices shall not be used.

(f) A holdout or restraint device shall protect the operator as specified in paragraph (D)(3)(a)(iii) of this rule and shall include attachments for each of the operator's hands. Such attachments shall be securely anchored and adjusted in such a way that the operator is restrained from reaching into the point of operation. A separate set of restraints shall be provided for each operator if more than one is required on a press.

Deleted: The safety distance (Ds) from the sensing field to the point of operation shall be greater than the distance determined by the following formula:
Ds= 63 inches/second X Ts; where:
Ds= minimum safety distance (inches);
63 inches/second = hand speed constant;
and
Ts= stopping time of the press measured at approximately 90° of crankshaft rotation (seconds).

(g) The two-hand control device shall protect the operator as specified in paragraph (D)(3)(a)(iv) of this rule.

(i) When used in press operations requiring more than one operator, separate two-hand controls shall be provided for each operator and shall be designed to require concurrent application of all controls to activate the slide. The removal of a hand from any control button shall cause the slide to stop.

(ii) Each two-hand control shall meet the construction requirements of paragraph (C)(5)(e) of this rule.

(iii) The safety distance (D(s)) from the sensing field to the point of operation shall be greater than the distance determined by the following formula:

$$D(s) = 63 \text{ inches/second} \times T(s)$$

where:

D(s) = minimum safety distance (inches); 63 inches/second = hand speed constant;

and

T(s) = stopping time of the press measured at approximately 90 deg. position of crankshaft rotation (seconds).

(h) The two-hand trip device shall protect the operator as specified in paragraph (D)(3)(a)(iv) of this rule.

(i) When used in press operations requiring more than one operator, separate two-hand trips shall be provided for each operator, and shall be designed to require concurrent application of all operators to activate the slide.

(ii) Each two-hand trip shall meet the construction requirements of paragraph (C)(5)(e) of this rule.

(iii) The safety distance (D(m)) between the two hand trip and the point of operation shall be greater than the distance determined by the following formula: $D(m) = 63 \text{ inches/second} \times T(m)$; where: $D(m)$ = minimum safety distance (inches); 63 inches/second = hand speed constant; and $T(m)$ = the maximum time the press takes for the die closure after it has been tripped (seconds). For full revolution clutch presses with only one engaging point $T(m)$ is equal to the time necessary for one and one-half revolutions of the crankshaft. For full revolution clutch presses with more than one engaging point, $T(m)$ shall be calculated as follows: $T(m) = [1/2 + (1 \text{ divided by Number of engaging points per revolution})] \times \text{time necessary to complete one revolution of the crankshaft (seconds)}$.

(4) Hand-feeding tools.

Deleted: The safety distance (Ds) between each two-hand control device and the point of operation shall be greater than the distance determined by the following formula:
 $Ds = 63 \text{ inches/second} \times Ts$; where:
Ds = minimum safety distance (inches);
63 inches/second = hand speed constant;
and
Ts = stopping time of the press measured at approximately 90° of crankshaft rotation (seconds).

Deleted: The safety distance (Dm) between the two-hand trip and the point of operation shall be greater than the distance determined by the following formula:
 $Dm = 63 \text{ inches/second} \times Tm$; where:
Dm = minimum safety distance (inches);
63 inches/second = hand speed constant;
and
Tm = the maximum time the press takes for the die closure after it has been tripped (seconds).
(iv) For full revolution clutch presses with only one engaging point, Tm is equal to the time necessary for one and one-half revolutions of the crank shaft. For full revolution clutch presses with more than one engaging point, Tm shall be calculated as follows:
 $Tm = \{ \frac{1}{2} + \frac{1}{\text{Number of engaging points per revolution}} \} \times \text{time necessary to complete one revolution of the crankshaft (seconds)}$

Hand-feeding tools are intended for placing and removing materials in and from the press. Hand-feeding tools are not a point of operation guard or protection device and shall not be used in lieu of the guards or devices required in this paragraph.

(5) Additional requirements for safeguarding.

Where the operator feeds or removes parts by placing one or both hands in the point of operation, and a two-hand control, presence sensing device, type B gate, or movable barrier (on a part revolution clutch) is used for safeguarding:

(a) The employer shall use a control system and a brake monitor which comply with paragraphs (C)(11) and (C)(12) of this rule;

(b) The control of air clutch machines shall be designed to prevent a significant increase in the normal stopping time due to a failure within the opening valve mechanism, and to inhibit further operation if such failure does occur, where a part revolution clutch is employed.

(E) Design, construction, setting, and feeding of dies.

(1) General requirements.

The employer shall furnish and require the use of hand tools for freeing and removing stuck work or scrap pieces from the dies, so that no employee need reach into the point of operation for such purposes.

(2) Scrap handling.

The employer shall provide means for handling scrap from roll feed or random length stock operations. Scrap cutters used in conjunction with scrap handling systems shall be safeguarded in accordance with paragraph (C) of this rule.

(3) Guide post hazard.

The hazard created by a guide post (when it is located in the immediate vicinity of the operator) when separated from its bushing by more than one-fourth inch shall be considered as a point of operation hazard and be protected in accordance with paragraph (D) of this rule.

(4) Unitized tooling.

If unitized tooling is used, the opening between the top of the punch holder and the face of the slide, or striking pad, shall be safeguarded in accordance with the requirements of paragraph (C) of this rule.

(5) Weight designation.

All dies shall be stamped to indicate complete die weight when handling equipment may become overloaded.

(6) Die fastening.

Provision shall be made in both the upper and lower shoes for securely mounting the die to the bolster plate and slide. Where clamp caps or setscrews are used in conjunction with punch stems, additional means of securing the upper shoe to the slide shall be used.

(7) Die handling.

Handling equipment attach points shall be provided on all dies requiring mechanical handling.

(8) Diesetting.

(a) The employer shall provide spring loaded turnover bars for presses designed to accept such turnover bars.

(b) The employer shall provide die stops or other means to prevent losing control of the die while setting or removing dies in presses which are inclined.

(c) The employer shall provide and require the use of safety blocks for use whenever dies are being adjusted or repaired in the press.

(d) The employer shall provide and require the use of brushes, swabs, lubricating rolls, and automatic, or manual pressure guns to lubricate material, punches or dies.

(F) Power press brake (when used as a power press).

The requirements of this rule shall be applicable to power press brakes when used for other than bending operations.

(G) Hydraulic and pneumatic presses.

Hydraulic and pneumatic presses shall be guarded in accordance with paragraph (E) of rule [4123:1-5-11](#) of the Administrative Code.

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(H) Exceptions.

The requirements set forth in this rule shall not apply to setting up or trying out dies.

HISTORY: Eff 4-1-64; 8-1-77; 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-11 Forging machines, other power machines and machine tools, hydraulic and pneumatic presses, and power press brakes. (Amend)

(A) Reserved.

(B) Reserved.

(C) Forging machines.

(1) Hammers and presses.

(a) The ram shall be blocked when dies are being changed or other work is being done on the hammer. Blocks or wedges shall be made of material, the strength and construction of which shall meet or exceed the specifications and dimensions shown in table [4123:1-5-11\(C\)](#) to this rule.

Deleted: 4121

(b) Tongs shall be of sufficient length to enable the employee to keep himself in the clear in case of kickback and the tongs shall not have sharp handle ends.

(c) Oil swabs, or scale removers, or other devices to remove scale, shall be provided. These devices shall be long enough to enable an employee to reach the full length of the die without placing hands or arms between the dies.

Table [4123:1-5-11\(C\)](#)

Deleted: 4121

STRENGTH AND DIMENSIONS FOR WOOD RAM PROPS

For Table – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(2) Power-driven hammers.

(a) Safety cylinder head.

Every steam or airhammer shall have a safety cylinder head to act as a cushion if the rod should break or pull out of the ram.

(b) Stop valve – shutoff valve.

Steam hammers shall be provided with a quick closing emergency valve in the admission pipeline at a convenient location. This valve shall be closed and locked in the off position while the hammer is being adjusted, repaired, or serviced, or when the dies are being changed.

Deleted: Steam or air hammers shall have a steam cushion, air cushion, spring head, or other effective means to prevent the piston from striking the top cylinder head.¶

(c) Cylinder draining.

The steam hammer cylinder shall be constructed with a self-draining arrangement, or a quick-acting type drain cock shall be provided, which should be piped to a sump or drain pipe. If it discharges into the air, it shall be located so as not to endanger employees.

Deleted: Steam or air hammers shall be provided with a stop valve in the admission pipe line, which can be locked in closed position. The stop valve shall be within easy reach of the operator.¶

(3) Air-lift hammers.

Air-lift hammers shall be provided with two drain cocks; one on main head cylinder, and one on clamp cylinder.

(4) Board-type drophammers.

(a) Guarding.

A suitable enclosure shall be provided to prevent damaged or detached boards from falling. The board enclosure shall be securely fastened to the hammer.

(b) Releasing lever.

Means shall be provided to prevent releasing lever from falling in case the front rod or releasing lever breaks.

Deleted: A guard shall be provided around the boards above the rolls. This requirement shall not apply to hammers that have a clamp.¶

(c) Front rod (friction rod).

Means shall be provided to prevent the front rod (friction rod) from falling in case it breaks.

(d) Protection over workplace.

A screen or other guard shall be installed over the workplace of hammer operator at the normal operating position.

(e) Board clamp rod.

Means shall be provided to prevent the board clamp rod from falling in case it breaks.

(5) Forging presses.

The employer shall provide and require the use of safety blocks for use whenever dies are being adjusted or repaired in all forging presses.

(6) Mechanically-operated hammers.

(a) Where only one hand is used for holding materials.

On mechanically-operated hammers where only one hand is used for holding the material, a safety stop, dog, or catch shall be provided which shall prevent the hammer from coming down until such device has been released and held out of the way by the other hand; or a hand lever instead of the foot treadle shall be provided for tripping the hammer.

(b) Where neither hand is used for holding material.

On hammers where neither hand is used for holding the material:

(i) A safety stop or tripping lever shall be provided which will require the use of both hands to trip the hammer; or

(ii) A pull guard shall be provided.

(D) Other power machines and machine tools.

(1) Upsetting machines.

Tension and safety springs shall be covered to prevent the bolt or nut from being thrown out in case of breakage.

(2) Bulldozers.

A guard shall be provided which will prevent employees from stepping between the dies.

(3) Power shears

(a) Alligator shears.

(i) Alligator shears facing an aisle or passageway shall be located a minimum of four feet therefrom, unless guarded.

(ii) A guard shall be installed which shall prevent a kickup. This requirement shall not apply to alligator shears which operate automatically or by remote control on production lines.

(b) Squaring shears.

Squaring shears, where material is fed or removed by hand, shall have the blade guarded at feed and discharge sides of the shear.

(4) Hollow spindle lathes, cutting-off machines, etc.

On hollow spindle lathes, cutting-off machines or any machine used on bar stock, pipe tubing, etc., where the material is revolved by power, substantial troughs or guards shall be provided which will prevent the operator or other employees from coming in contact with the projecting unused portion of the revolving material.

(5) Machines with reciprocating tables.

Machines with reciprocating tables shall have the openings guarded; guards shall also be provided at each end and the sides of the table if the clearance of the table, which includes the work being machined and its chuck does not exceed twenty-four inches.

(6) Die casting machines.

Danger zones on die casting machines shall be guarded.

(7) Hopper fed machinery.

(a) All hopper fed machinery, such as rotaries, die machines, and extruders, shall have the entire opening protected with substantial grid type guards to prevent access of the employee's hands into the danger zone, or the hopper shall be extended high enough to prevent entry into moving parts. The guards shall be permanently attached to the hopper. If the hopper is removable, it shall be provided with an interlock device so that the machine cannot operate when the hopper is removed.

(b) Exception.

Machinery covered expressly by requirements contained in other codes of specific requirements of the [Ohio Bureau of Workers' Compensation](#).

(8) Guillotine cutters.

(a) All power guillotine cutters where the blade is exposed to contact shall be equipped with a two-hand control device.

(b) Exception.

Machinery covered expressly by requirements contained in other codes of specific requirements of the ~~Industrial Commission of Ohio~~ Bureau of Workers' Compensation.

(9) Tumblers.

Power driven tumblers, rattlers, drums, barrels, containers, or similar machines that rotate, spin, or rock shall be guarded on an area or individual basis. The guard shall be interlocked with the drive mechanism so that the machine cannot operate unless the guard or enclosure is in place.

(10) Nip points.

(a) Means shall be provided to protect employees exposed to contact with nip points created by power driven in-running rolls, rollover platen, or other flat surface material being wound over roll surface.

(b) Exception.

Machinery covered expressly by requirements contained in other codes of specific requirements of the ~~Industrial Commission of Ohio~~ Bureau of Workers' Compensation.

(11) Food mixers.

All power driven food mixers shall be equipped with a two-hand control device to keep agitator in motion under power when bowl is opened more than one-fifth of its total opening.

(12) Fastening machines.

All power driven fixed fastening machinery, such as riveting machines, wire stitchers, staplers, sewing machines, and similar fastening machinery shall be guarded.

(13) Knives.

(a) All power driven knives or cutting blades, such as reciprocating knives, endless band knives, flying knives, slicer blades, and similar cutting machines, where exposed to contact, shall be guarded except for the necessary working portion of the blade while being used.

(b) Exception.

Machinery covered expressly by requirements contained in other codes of specific requirements of the ~~Industrial Commission of Ohio~~ Bureau of Workers' Compensation.

(E) Hydraulic or pneumatic presses.

Deleted: the industrial commission of Ohio.¶

Comment [jcs23]: Reflects that VSSR rules are now BWC's instead of the Industrial Commission's.

Comment [jcs24]: Reflects that VSSR rules are now BWC's instead of the Industrial Commission's.

Comment [jcs25]: Reflects that VSSR rules are now BWC's instead of the Industrial Commission's.

Every hydraulic or pneumatic (air-powered) press shall be constructed, or shall be guarded, to prevent the hands or fingers of the operator from entering the danger zone during the operating cycle. Acceptable methods of guarding are:

- (1) "Fixed barrier guard" – an enclosure to prevent hands or fingers from entering the danger zone;
 - (2) "Gate guard" – a movable gate operated with a tripping device to interpose a barrier between the operator and the danger zone and to remain closed until the down stroke has been completed;
 - (3) "Two-hand control" – an actuating device which requires the simultaneous use of both hands outside the danger zone during the entire closing cycle of the press;
 - (4) Pull guard – attached to hands or wrists and activated by closing of press so that movement of the ram will pull the operator's hands from the danger zone during the operating cycle;
 - (5) Restraint or hold-back guard – with attachments to the hands or wrists of the operator to prevent hands or fingers entering the danger zone during the operating cycle;
 - (6) Other practices, means or methods which will provide safeguards, preventing the hands or fingers of the operator from entering the danger zone during the operating cycle and which are equivalent in result to one of the types specified above.
- (F) Power press brake (when used as a power press).

The requirements of rule [4123:1-5-10](#) of the Administrative Code shall be applicable to power press brakes when used for other than bending.

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HISTORY:

Rule created by: Const. Art. II Sec. 35 Eff 4-1-64; 8-1-77; 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

119.032 Review Date: 3-1-03

4123:1-5-12 Abrasive grinding and cutting, polishing and wire buffing equipment. (Amend)

(A) Reserved.

(B) Reserved.

(C) Responsibility.

(1) The employer shall verbally and through demonstration instruct the employee in the safe operation and maintenance of abrasive grinding and cutting and polishing equipment.

(2) It shall be the duty of the employee to operate such equipment in accordance with such instruction.

(D) Abrasive wheel machinery.

(1) General requirements.

(a) Machine guarding.

Abrasive wheels shall be used only on machines provided with safety guards as defined in the following paragraphs of this rule, except:

(i) Wheels used for internal work while within the work being ground;

(ii) Mounted wheels, used in portable operations, two inches and smaller in diameter; and

(iii) Types 16, 17 and 18R and 19 cones, plugs, and threaded hole pot balls where the work offers protection (see appendix to this rule.)

(b) Guard design.

The safety guard shall cover the spindle end, nut, and flange projections. The safety guard shall be mounted so as to maintain proper alignment with the wheel, and the strength of the fastenings shall exceed the strength of the guard, except:

(i) Safety guards on all operations where the work provides protection to the operator, may be so constructed that the spindle end, nut, and outer flange are exposed; and where the nature of the work is such as to entirely cover the side of the wheel, the side covers of the guard may be omitted; and

(ii) The spindle end, nut and outer flange may be exposed on machines, designed as portable saws, when used with abrasive wheels.

(c) Flanges.

Grinding machines shall be equipped with flanges in accordance with paragraph (D)(3) of this rule.

(d) Work rests.

(i) On off-hand grinding machines (see appendix to this rule) work rests shall be used to support the work. They shall be of rigid construction and designed to be adjustable to compensate for wheel wear. Work rests shall be kept adjusted to a maximum opening of one-eighth inch to prevent the work from being jammed between the wheel and the rest. The employer shall instruct the employee to securely clamp the work rest after each adjustment. The employer shall also instruct the employee not to adjust the work rest with the wheel in motion.

(ii) The work rest shall be used to support the work wherever practicable.

(iii) Wherever the nature of the work requires contact with the wheel below the horizontal plane of the spindle, work rests need not be used.

(e) Excluded machinery.

Natural sandstone wheels and metal, wooden, cloth, or paper discs, having a layer of abrasive on the surface are not covered by paragraph (D) of this rule.

(2) Guarding of abrasive wheel machinery.

(a) Cup wheels.

Cup wheels types 6 and 11 (see appendix to this rule) shall be protected by:

(i) Safety guards as specified in paragraph (D)(2)(a)(i) of this rule, applies to paragraphs (D)(2)(a) to (D)(2)(j) of this rule;

(ii) Band type guards as specified in paragraph (D)(2)(k) of this rule; and

(iii) Special "revolving cup guards" which mount behind the wheel and turn with it. They shall be made of steel or other material with strength enough to withstand the shock of the bursting wheel and shall enclose the wheel sides upward from the back for one-third of the wheel thickness. The mounting features shall conform with all requirements of paragraph (D) of this rule. It is necessary to maintain clearance between the wheel side and the guard. This clearance shall not exceed one-sixteenth inch.

(b) Guard exposure angles.

The maximum exposure angles specified in paragraphs (D)(2)(a) to (D)(2)(h) of this rule shall not be exceeded. Visors or other necessary equipment shall not be included as a part of the guard when measuring the guard opening, unless such equipment has strength equal to that of the guard.

(c) Bench and floor stands.

(i) The angular exposure of the grinding wheel periphery and sides for safety guards used on machines known as bench and floor stands shall not exceed ninety degrees or one-fourth of the periphery. This exposure shall begin at a point not more than sixty-five degrees above the horizontal plane of the wheel spindle (see figures 12-1 and 12-2 to this rule, and paragraph (D)(2)(i) of this rule).

Figure: Figures 12-1 and 12-2

For Figures – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(ii) Where the nature of the work requires contact with the wheel below the horizontal plane of the spindle, the exposure shall not exceed one hundred twenty-five degrees (see figures 12-3 and 12-4 to this rule).

Figure: Figures 12-3 and 12-4

For Figures – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(d) Cylindrical grinders.

The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on cylindrical grinding machines shall not exceed one hundred eighty degrees. This exposure shall begin at a point not more than sixty-five degrees above the horizontal plane of the wheel spindle (see figures 12-5 and 12-6 to this rule, and paragraph (D)(2)(i) of this rule).

Figures 12-5 and 12-6

For Figures – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(e) Surface grinders and cutting-off machines.

The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on cutting-off machines and on surface grinding machines which employ the wheel periphery shall not exceed one hundred fifty degrees. This exposure shall begin at a point not less than fifteen degrees below the horizontal plane of the wheel spindle (see figures 12-7 and 12-8 to this rule).

Figures 12-7 and 12-8

For Figures – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(f) Swing frame grinders.

The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on machines known as swing frame grinding machines shall not exceed one hundred eighty degrees, and the top half of the wheel shall be enclosed at all times (see figures 12-9 and 12-10 to this rule).

Figures 12-9 and 12-10

For Figures – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(g) Automatic snagging machines.

The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on grinders known as automatic snagging machines shall not exceed one hundred eighty degrees and the top half of the wheel shall be enclosed at all times (see figures 12-9 and 12-10 to this rule).

(h) Top grinding.

Where the work is applied to the wheel above the horizontal centerline, the exposure of the grinding wheel periphery shall not exceed sixty degrees (see figures 12-11 and 12-12 to this rule).

Figures 12-11 and 12-12

For Figures – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(i) Exposure adjustment.

Safety guards of the type described in paragraphs (D)(2)(c) and (D)(2)(d) of this rule, where the operator stands in front of the opening, shall be constructed so that the peripheral protecting member can be adjusted to the constantly decreasing diameter of the wheel. The maximum angular exposure above the horizontal plane of the wheel spindle as specified in paragraphs (D)(2)(c) and (D)(2)(d) of this rule shall never be exceeded, and the distance between the wheel periphery member at the top shall never exceed one-fourth inch (see figures 12-13, 12-14, 12-15, 12-16, 12-17 and 12-18 to this rule).

Figures 12-13, 12-14, 12-15, 12-16, 12-17 and 12-18

For Figures – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(j) Material requirements and minimum dimensions.

(i) See figures 12-31 and 12-32 and table 12-J to this rule for minimum basic thickness of peripheral and side members for various types of safety guards and classes of service.

(ii) If operating speed does not exceed eight thousand surface feet per minute cast iron safety guards, malleable iron guards or other guards as described in paragraph (D)(2)(j)(iii) of this rule shall be used.

(iii) Cast steel, or structural steel safety guards as specified in figures 12-31 and 12-32 and table 12-J to this rule shall be used where operating speeds of wheels are faster than eight thousand surface feet per minute up to a maximum of sixteen thousand surface feet per minute.

(iv) For cutting-off wheels sixteen inches diameter and smaller and where speed does not exceed sixteen thousand surface feet per minute, cast iron or malleable iron safety guards as specified in figures 12-31 and 12-32 to this rule, and in table 12-J to this rule shall be used.

(v) For cutting-off wheels larger than sixteen inches diameter and where speed does not exceed fourteen thousand two hundred surface feet per minute, safety guards as specified in figures 12-22 and 12-23 to this rule and in table 12-A to this rule shall be used.

(vi) For thread grinding wheels not exceeding one inch in thickness cast iron or malleable iron safety guards as specified in figures 12-31 and 12-32 to this rule and in table 12-J to this rule shall be used.

(k) Band type guards – specifications.

Band type guards shall conform to the following specifications:

(i) The bands shall be of steel plate or other material of equal or greater strength. They shall be continuous, the ends being either riveted, bolted, or welded together in such a manner as to leave the inside free from projections.

(ii) The inside diameter of the band shall not be more than one inch larger than the outside diameter of the wheel, and shall be mounted as nearly concentric with the wheel as practicable.

(iii) The band shall be of sufficient width and its position kept so adjusted that at no time will the wheel protrude beyond the edge of the band a distance greater than that indicated in figure 12-24 and table 12-B to this rule or the wall thickness (W), whichever is smaller.

(3) Flanges.

(a) General requirements.

(i) All abrasive wheels shall be mounted between flanges which shall not be less than one-third the diameter of the wheel.

(ii) Exceptions.

(a) Mounted wheels;

(b) Portable wheels with threaded inserts or projecting studs;

(c) Abrasive discs (inserted nut, inserted washer and projecting stud type);

(d) Plate mounted wheels;

(e) Cylinders, cup, or segmental wheels that are mounted in chucks;

(f) Types 27 and 28 wheels;

(g) Internal wheels, less than two inches in diameter;

(h) Modified types 6 and 11 wheels (terrazzo);

(i) Cutting-off wheels, types 1 and 27A (see paragraphs (D)(3)(a)(ii)(i)(i) and (D)(3)(a)(ii)(i)(ii) of this rule);

(i) Type 1 cutting-off wheels are to be mounted between properly relieved flanges which have matching bearing surfaces. Such flanges shall be at least one-fourth the wheel diameter;

(ii) Type 27A cutting-off wheels are designed to be mounted by means of flat, not relieved, flanges having matching bearing surfaces and which may be less than one-third but shall not be less than one-fourth the wheel diameter (see figure 12-19 to this rule for one such type of mounting);

(iii) There are three general types of flanges: straight relieved flanges (see figure 12-27 to this rule); straight unrelieved flanges (see figure 12-25 to this rule); and adaptor flanges (see figures 12-28 and 12-29 to this rule);

(iv) Regardless of flange type used, the wheel shall be used in accordance with paragraph (D)(3)(f) of this rule.

Figure 12-19

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(b) Design and material.

(i) Flanges shall be of such design as to satisfactorily transmit the driving torque from the spindle to the grinding wheel.

(ii) Flanges shall be made of steel, cast iron, or other material of equal or greater strength and rigidity.

(iii) Flanges shall be designed with respect to rigidity so that when tightened, the radial width of bearing surface of contact on wheel is maintained (see table 12-F and figure 12-27 to this rule).

(c) Finish and balance.

Flanges shall be dimensionally accurate and in good balance. There shall be no rough surfaces or sharp edges.

(d) Uniformity of diameter.

(i) Both flanges, of any type, between which a wheel is mounted, shall be of the same diameter and have equal bearing surface. Exceptions are set forth in the remaining requirements of this rule.

(ii) Type 27 and type 28 wheels, because of their shape and usage, require specially designed adaptors. The back flange shall extend beyond the central hub or raised portion and contact the wheel to counteract the side pressure on the wheel in use. The adaptor nut which is less than the minimum one-third diameter of wheel fits in the depressed side of wheel to prevent interference in side grinding and serves to drive the wheel by its clamping force against the depressed portion of the back flange. The variance in flange diameters, the adaptor nut being less than one-third wheel diameter, and the use of side pressure in wheel operation limits the use to reinforced organic bonded wheels. Mounts which are affixed to the wheel by the manufacturer shall not be reused. Type 27 and type 28 wheels shall be used only with a safety guard located between wheel and operator during use (see figure 12-19a to this rule).

Figure 12-19A

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(iii) Modified types 6 and 11 wheels (terrazzo) with tapered K dimension.

(e) Recess and undercut.

(i) Straight relieved flanges made according to table 12-F to this rule and figure 12-27 to this rule shall be recessed at least one-sixteenth inch on the side next to the wheel for a distance as specified in table 12-F to this rule.

(ii) Straight flanges of the adaptor or sleeve type (see table 12-G to this rule and figures 12-28 and 12-29 to this rule) shall be undercut so that there will be no bearing on the sides of the wheel within one-eighth inch of the arbor hole.

(f) Blotters.

(i) Blotters (compressible washers) shall always be used between flanges and abrasive wheel surfaces to ensure uniform distribution of flange pressure (see paragraph (D)(4) of this rule).

(ii) Exceptions.

(a) Mounted wheels;

(b) Abrasive discs (inserted washer, and projecting stud type);

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(c) Plate mounted wheels;

(d) Cylinders, cups, or segmental wheels that are mounted in chucks;

(e) Types 27 and 28 wheels;

(f) Type 1 and type 27A cutting-off wheels;

(g) Internal wheels less than two inches in diameter;

(h) Diamond and cubic boron nitride wheels; and

(i) Modified types 6 and 11 wheel (terrazzo) – blotters applied flat side of wheel only.

(g) Multiple wheel mounting.

The driving flange shall be securely fastened to the spindle and the bearing surface shall run true. When more than one wheel is mounted between a single set of flanges, wheels may be cemented together or separated by specially designed spacers. Spacers shall be equal in diameter to the mounting flanges and have equal bearing surfaces.

(h) Dimensions.

(i) Tables 12-D and 12-F to this rule and figures 12-25 and 12-27 to this rule show minimum dimensions for straight relieved and unrelieved flanges for use with wheels with small holes that fit directly on the machine spindle. Dimensions of such flanges shall never be less than indicated and should be greater where practicable.

(ii) Tables 12-F and 12-G to this rule and figures 12-26 and 12-29 to this rule show minimum dimensions for straight adaptor flanges for use with wheels having holes larger than the spindle. Dimensions of such adaptor flanges shall never be less than indicated and should be greater where practicable.

(iii) Table 12-H to this rule and figure 12-30 to this rule show minimum dimensions for straight flanges that are an integral part of wheel sleeves which are frequently used on precision grinding machines. Dimensions of such flanges shall never be less than indicated and should be greater where practicable.

(i) Repairs and maintenance.

All flanges shall be maintained in good condition. When bearing surfaces become worn, warped, sprung, or damaged they shall be trued, refaced, or replaced. When refacing or truing, care shall be exercised to make sure that proper relief and rigidity is maintained as specified in paragraphs (D)(3)(b) and (D)(3)(e) of this rule, and they shall be replaced when they do not conform to these requirements and table 12-D to this rule, figure 12-25 to this rule, table 12-E to this rule, figure 12-26 to this rule, table 12-F to this rule, figure 12-27 to this rule, and table 12-H to this rule, figure 12-30 to this rule. Failure to observe these requirements might cause excessive flange pressure around the hole of the wheel. This is especially true of wheel-sleeve or adaptor flanges.

(4) Mounting.

(a) Inspection.

Immediately before mounting, all wheels shall be closely inspected and sounded by the employer or a designated employee (ring test) to make sure they have not been damaged in transit, storage, or otherwise. The spindle speed of the machine shall be checked before mounting of the wheel to be certain that it does not exceed the maximum operating speed marked on the wheel. Wheels shall be tapped gently with a light nonmetallic implement, such as the handle of a screwdriver for light wheels, or a wooden mallet for heavier wheels. If they sound cracked (dead), they shall not be used. This is known as the "ring test."

(i) Wheels must be dry and free from sawdust when applying the ring test, otherwise the sound will be deadened. It should also be noted that organic bonded wheels do not emit the same clear metallic ring as do vitrified and silicate wheels.

(ii) "Tap" wheels about forty-five degrees each side of the vertical centerline and about one or two inches from the periphery as indicated by the spots in figure 12-20 and figure 12-21 to this rule. Then rotate the wheel forty-five degrees and repeat the test. A sound and undamaged wheel will give a clear metallic tone. If cracked, there will be a dead sound and not a clear ring.

Figures 12-20 and 12-21

For Figure – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@isc.state.oh.us.

(b) Arbor size.

Grinding wheels shall fit freely on the spindle and remain free under all grinding conditions. A controlled clearance between the wheel hole and the machine spindle (or wheel sleeves or adaptors) is essential to avoid excessive pressure from mounting and spindle expansion. To accomplish this, the machine spindle shall be made from a nominal (standard) size to plus.002 inch. A wheel which must be forced on a spindle shall not be used.

(c) Surface condition.

All contact surfaces of wheels, blotters and flanges shall be flat and free of foreign matter.

(d) Bushing.

When a bushing is used in the wheel hole it shall not exceed the width of the wheel and shall not contact the flanges.

(e) Blotters.

A blotter shall be used between the flange and the abrasive wheel. The blotter shall cover the entire contact area of the flange. Blotters need not be used with the following types of wheels:

- (i) Mounted wheels;
- (ii) Abrasive discs (inserted nut, inserted washer, and projecting stud type);
- (iii) Plate mounted wheels;
- (iv) Cylinders, cups, or segmented wheels that are mounted in chucks;
- (v) Types 27 and 28 wheels;
- (vi) Type 1 and type 27A cutting-off wheels;
- (vii) Internal wheels less than two inches in diameter; and
- (viii) Diamond and cubic boron nitride wheels.

Figures 12-22 and 12-23 Table 12-A

Figure 12-24 Table 12-B

Figure 12-25

Figure 12-26 Table 12-E

Figure 12-27

Figures 12-28 and 12-29 Table 12-G

Figure 12-30 (no link provided)

Figure: Figures 12-31 and 12-32 Table 12-J

For Figures – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Table 12-J, Minimum Basic Thickness of Peripheral and Side Members for Safety Guards * The recommendations listed in the above table are guides for the conditions stated. Other material, designs or dimensions affording equal or superior protection are also acceptable.

Appendix TO RULE [4123:1-5-12](#)

5.12.1 – TYPE 1 STRAIGHT WHEELS

Definition: Type 1 straight wheels have diameter, thickness and hole size dimensions and should be used only on the periphery. Type 1 wheels shall be mounted between flanges.

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Limitation: Hole dimension (H) should not be greater than two-thirds of wheel diameter dimension (D) for precision, cylindrical, centerless or surface grinding applications. Maximum hole size for all other applications should not exceed one-half wheel diameter. Inorganic wheels used in snagging operations should have a maximum hole size of not more than one-quarter of the wheel diameter.

Figure: Type 1 – Straight Wheel

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.2 – TYPE 2 CYLINDER WHEELS

Definition: Type 2 cylinder wheels have diameter, wheel thickness and rim thickness dimensions. Grinding is performed on the rim face only, dimension W. Cylinder wheels may be plain, plate mounted, inserted nut or of the projecting stud type.

Limitation: Rim height, T dimension, is generally equal to or greater than rim thickness, W dimension.

Figure: Type 2 – Cylinder Wheel

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.3 – ABRASIVE DISC WHEELS

Definition: Abrasive discs have diameter, thickness and hole size dimensions. They are used in a manner similar to Type 2 cylinder wheels.

Limitation: Wheel thickness, T dimension, must be less than rim thickness, W dimension.

Figure: Abrasive Disc Wheels

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.4 – TYPE 4 TAPER SIDED WHEELS (Non Standard Shape)

Definition: Type 4 taper sided wheels have diameter, wheel thickness, grinding face thickness and hole size dimensions. Type 4 wheels have the same limitations on hole size and usage as Type 1 wheels.

Limitation: Grinding face, thickness dimension U, must be equal to or greater than one-half T dimension. J dimension shall be large enough to accommodate suitable flanges. If tapered safety flanges are used, J dimension and degree of taper required shall be determined by the wheel manufacturer.

Figure: Type 4 – Taper Sided Wheel

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.5 – TYPE 5 RECESSED ONE SIDE WHEELS

Definition: Type 5 recessed one side wheels have diameter, thickness and hole size dimensions and in addition also have a recess diameter and depth dimension. Type 5 wheels are subject to the same limitations of use and mounting as Type 1 wheels.

Limitation: Type 5 wheels are subject to the same limitation of hole size as Type 1 wheels definition 5.12.1.

In addition, recess depth, F dimension, should not exceed 50% of wheel thickness, T dimension, and diameter of recess, P dimension, shall be large enough to accommodate a suitable flange.

Figure: Wheel, recessed one side

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.6 – TYPE 6 STRAIGHT CUP WHEELS

Definition: Type 6 cup wheels have diameter, thickness, hole size, rim thickness and back thickness dimensions. Grinding is always performed on rim face, W dimension.

Limitation: Minimum back thickness, E dimension, should not be less than $1/4$ T dimension. In addition, when unthreaded hole wheels are specified, the inside flat, K dimension, must be large enough to accommodate a suitable flange.

Figure: Type 6 – Straight Cup Wheel

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.7 – TYPE 7 DOUBLE RECESSED WHEELS

Definition: Type 7 double recessed wheels have diameter, thickness and hole size dimensions and in addition also have recess diameters and depth dimensions. Type 7 wheels are subject to the same limitations of use and mounting as Type 5 wheels, definition 5.12.2.

Limitation: Type 7 wheels are subject to the same limitation of hole size as Type 1 wheels, section 5.12.1.

In addition, the combined depths of the recess, F and G dimensions, should not exceed 50% of wheel thickness, T dimension.

Figure: Type 7 – Wheel, recessed two sides

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.8 – TYPE 11 FLARING CUP WHEELS

Definition: Type 11 Flaring cup wheels have double diameter dimensions D and J, and in addition have thickness, hole size, rim and back thickness dimensions. Grinding is always performed on

rim face, W dimension. Type 11 wheels are subject to all limitations of use and mounting listed for Type 6 straight sided cup wheels, definition 5.12.6.

Limitation: Minimum back thickness, E dimension, should not be less than 1/4 T dimension. In addition when unthreaded hole wheels are specified the inside flat, K dimension, shall be large enough to accommodate a suitable flange.

Figure: Type 11 – Flaring Cup Wheel

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.9 – TYPE 12 DISH WHEELS

Definition: Type 12 dish wheels have diameter, thickness, rim thickness and back thickness dimensions. In addition Type 12 wheels always have a face thickness, U dimension. Grinding may be performed on both A and U dimensions.

Limitation: Minimum back thickness, E dimension, should be equal to or greater than 1/2 wheel thickness, T dimension. If unthreaded hole wheels are specified K dimension shall be large enough to accommodate a suitable flange.

Type 12 – Dish Wheel

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.10 – TYPE 13 SAUCER WHEELS

Definition: Type 13 saucer wheels have diameter, thickness, hole size and back thickness dimensions. Grinding shall be performed on wheel periphery, U dimension, only.

Limitation: Where unthreaded hole wheels are specified, J and K dimensions shall be large enough to accommodate suitable flanges. In addition, wheel thickness shall be uniform throughout, U dimension should always equal E dimension.

Type 13 – Saucer Wheel

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.11 – TYPES 16, 17, 18, 18R & 19 CONE & PLUG WHEELS

Definition: Type 16 cones have a curved side with a nose radius Type 17 cones have straight sides with or without a nose radius. Types 18 and 18R plug wheels are cylindrical in shape with either a square or curved grinding end. Type 19 cone wheels are a combination of cone and plug type shapes and are usually specified where base dimension D in a Type 17 cone would not provide an adequate cross section of abrasive. All types of cone and plug wheels are manufactured with blind hole threaded bushings and may be used on all surfaces except the flat mounting surface D.

Limitation: Cone and plug type wheels are mounted by being screwed onto a threaded machine spindle so that surface D seats firmly against an unrelieved, flat back-up flange. It is recommended that the maximum size or mass of the above cones and plugs be not greater than that of a 3" diameter by 5" long Type 18 plug wheel.

Type 16 – Cone, curved side

For Figure – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Types 17, 18, 18R and 19 – Cone and Plug Wheels

5.12.12 – TYPES 20, 21, 22, 23, 24, 25, 26 RELIEVED AND/OR RECESSED WHEELS

Definition: Types 20 through 26 relieved and/or recessed wheels have diameter, thickness, hole size, recess diameter and depth dimensions and in addition may be concaved on one or both sides. Types 20 through 26 wheels are subject to the same limitations of use and mounting as Type 5 wheels, definition 5.12.5.

Limitation: Concaved relief depths shall be considered as recesses and added to straight recess depth or depths for determination of total wheel recess depth. Total recess depths should not exceed 50% of wheel thickness, T dimension.

Types 20 and 21 – Relieved wheels

For Figure – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Types 22, 23, 24, 25 and 26 – Relieved and recessed wheels

5.12.13 – TYPES 27 AND 28 DEPRESSED CENTER WHEELS

Definition: Types 27 and 28, depressed center wheels, have diameter, thickness and hole size dimensions. Both types are reinforced, organic bonded wheels having off-set hubs which permit side and peripheral grinding operations without interference with the mounting. Type 27 wheels are manufactured with flat grinding rims permitting notching and cutting operations. Type 28 wheels have saucer shaped grinding rims.

Limitation: Special supporting, back adaptor and inside flange nuts are required for the proper mounting of these types of wheels.

Types 27 and 28 – Wheels, depressed center

For Figure – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.14 – TYPE 27A DEPRESSED CENTER WHEELS

Definition: Type 27A depressed center, cutting-off wheels have diameter, thickness and hole size dimensions. They are reinforced, organic bonded, off-set hub type wheels, usually 16" diameter and larger, specially designed for use on cutting-off machines where mounting nut or outer flange interference cannot be tolerated.

Limitation: See illustration for mounting details.

Type 27A wheel, mounting details

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.15 – CUTTING OFF WHEELS

Definition: Cutting off wheels have diameter, thickness and hole size dimensions and are subject to all limitations of mounting and use listed for Type 1 wheels, definition 5.12.1. They may be steel centered, diamond abrasive or organic bonded abrasive of the plain or reinforced type.

Limitation: Cutting off wheels are recommended only for use on specially designed and fully guarded machines and are subject to the following maximum thickness and hole size limitations.

Wheel Diameter Maximum Thickness _____ 6” and smaller
3/16” Larger than 6” to 12” 1/4” Larger than 12” to 23” 3/8” Larger than 23” 1/2”

Maximum hole size for cutting-off wheels should not be larger than 1/4 wheel diameter.

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Wet machine with horizontal movement for slabbing

5.12.16 – COPING WHEELS

Definition: Coping wheels are peripheral cutting wheels, and have diameter, thickness and hole size dimensions. They may be metal or organic bonded, solid or steel centered, and are subject to the same limitations of use and mounting as Type 1 wheels, definition 5.12.1.

Limitation: Coping wheels are recommended for use only on specially designed and fully guarded machines.

Slotting a block of marble to contour using a coping wheel

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.17 – TUCK POINTING WHEELS

Definition: Tuck pointing wheels, usually Type 1, reinforced organic bonded wheels have diameter, thickness and hole size dimension. They are subject to the same limitations of use and mounting as Type 1 wheels definition 5.12.1.

Limitation: Wheels used for tuck pointing should be reinforced, organic bonded.

Tuck pointing granite using a straight resinoid reinforced wheel

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

5.12.18 – MOUNTED WHEELS

Definition: Mounted wheels, usually 2" diameter or smaller, and of various shapes, may be either organic or inorganic bonded abrasive wheels. They are secured to plain or threaded steel mandrels.

Grinding wheels known as mounted wheels

For Figure – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@isc.state.oh.us.

5.12.19 – THREADED HOLE CUP WHEELS

Definition: Threaded hole cup wheels Types 6 and 11 are designed for use on vertical, right angle head, or flexible shaft portable grinders. They have one central threaded bushing, securely anchored in place. They are mounted by being screwed onto a threaded machine spindle so that the wheel back seats firmly against an unrelieved flat back flange.

Limitation: Threaded hole cup wheel mounting should not be used with wheels larger than 6" diameter. Back flanges used in mounting threaded hole cup wheels shall be flat and unrelieved.

Cup wheels

For Figure – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@isc.state.oh.us.

5.12.20 – MODIFIED TYPES 6 & 11 WHEELS (TERRAZZO)

Definition: Some Type 6 and 11 cup wheels used in the terrazzo trade have tapered K dimensions to match a special tapered flange furnished by the machine builder.

Limitation: These wheels shall be mounted only with a special tapered flange.

Modified Types 6 and 11 wheels (terrazzo)

For Figure – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@isc.state.oh.us.

(E) Wire buffing wheels.

Wire buffing wheels shall be guarded unless the nature of the work is such that the material being processed acts as a shield to the periphery of the wheel, such as internal buffing.

(F) Polishing equipment.

(1) When dry grinding, dry polishing, or buffing is being performed, suitable hoods, or enclosures, connected to exhaust systems shall be used.

(2) Such exhaust systems shall be operated continuously whenever such operations are being done and shall be capable of preventing contaminants from entering the breathing zone.

HISTORY: Eff 4-1-64; 8-1-77; 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-13 Motor vehicles, mobile mechanized equipment, and marine operations. (Amend)

(A) Reserved.

(B) Reserved.

(C) General requirements for motor vehicles and mobile mechanized equipment.

(1) A safety tire rack, cage, or equivalent protection shall be provided and used when inflating, mounting, or dismounting tires installed on split rims or rims equipped with locking rings or similar devices.

(2) Machinery, equipment, or parts thereof, being supported by slings, hoists, or jacks shall be substantially blocked or cribbed. Bulldozer blades, scraper blades, end-loader buckets, dump bodies, and similar equipment shall be either fully lowered or blocked when being repaired or not in use.

(3) Equipment parked on inclines shall have the brakes set, and the blade, bucket, etc., fully lowered if the equipment is unattended (out of sight or more than twenty-five feet from the operator).

Comment [jcs26]: Missing hyphen added.

Deleted:

(4) All cab glass shall be safety glass or equivalent with the vision unimpaired by its condition.

(5) All equipment which can contact power lines shall also comply with the requirements of paragraph (D) of rule [4123:1-5-23](#) of the Administrative Code.

Deleted: 4121

(6) At locations where gasoline is being transferred to the fuel tank of any machinery, a notice shall be posted by the employer stating specifically that the engine shall be shut down and that no smoking or open flames be permitted during the transfer.

(7) All motor vehicles operating within the confines of the owner's property shall be equipped with an audible or visual warning device, in an operable condition, activated at the operator's station.

(D) Overhead protection.

(1) All haulage vehicles loaded by means of cranes, power shovels, loaders, or similar equipment shall have a substantial cab shield or canopy to protect the operator from shifting or falling materials.

(2) High lift rider trucks shall have a substantial overhead guard as protection against falling objects, constructed in a manner that does not interfere with visibility. Openings shall not exceed

six inches in one of the two dimensions, width or length, and shall extend over the operator under all normal truck operations, including forward tilts.

(a) Where materials being handled are of such dimensions that objects could fall through the above protection, then substantial guarding, such as expanded metal, woven wire, or similar materials, shall be used in addition to the above (see rule [4123:1-5-99](#) of the Administrative Code).

Deleted: 4121

(b) Exception: Where headroom conditions are such that overhead protection cannot be used because of clearance, means of limiting the lift height shall be provided and the load shall not extend above the operator's head.

(3) In stacking or tiering operations, where the load extends above the backrest and may endanger the operator, load backrest extensions shall be provided and used.

(E) Motor vehicles used to transport employees.

(1) Vehicles assigned to, or generally used for the transportation of employees shall be equipped with securely fastened seats and backrests.

(2) Tools and material transported in the same compartment with employees shall be secured to prevent movement.

(F) Powered industrial trucks.

(1) General requirements.

(a) All nameplates and markings shall be affixed in place and maintained in legible condition.

(b) Modifications or additions which affect capacity shall conform with manufacturer's specifications. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.

(c) Where trucks are designed to permit the interchange of front-end attachments, each attachment shall be marked to identify it and show its approximate weight and capacity, together with instructions to consult truck nameplate for combination capacity at maximum elevation with load laterally centered.

(d) Trucks shall not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor shall they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts, except as provided in paragraph (F)(1)(e) of this rule. Additional counterweighting of fork trucks shall not be done unless authorized by the truck manufacturer.

(e) Trucks originally approved for the use of gasoline for fuel may be converted to liquefied petroleum gas (LPG) fuel; provided the conversion meets the manufacturer's specifications.

(f) Moving parts that represent a hazard to the operator in the normal operating position shall be guarded.

(g) Employees shall not be required to operate any truck that is not equipped with an adequate, properly maintained braking system.

(h) Only employees who have been trained and are authorized by their employer shall be required to operate a powered industrial truck.

(2) Restricted locations for fire safety purposes.

(a) The location or atmosphere shall be classified, as to whether it is hazardous or nonhazardous, prior to trucks being used therein.

(b) Trucks shall not be used in atmospheres containing explosive or flammable concentrations of liquids, gases, or vapors, such as, but not limited to, acetylene, butadiene, or hydrogen.

(c) Under the following described conditions trucks may be used only if designed and built specifically for use therein (see appendix to this rule for "Summary Table on use of Industrial Trucks in Various Locations"):

(i) Atmospheres containing explosives or flammable concentrations of metal dust, such as aluminum, magnesium, and their alloys, or other metals of similarly hazardous characteristics;

(ii) Atmospheres containing explosives or flammable concentrations of dust in grain processing operations, such as starch plants, malting plants, and other occupancies of similar nature;

(iii) Atmospheres containing explosive or flammable concentrations of dust from coal, coke, carbon black, or similar materials;

(iv) Locations hazardous due to the presence of easily ignitable fibers or flyings which may or may not be in suspension in the air;

(v) Locations where deposits or accumulations of the aforementioned dusts may be ignited by arcs or sparks originating in the truck;

(vi) Locations where easily ignitable fibers are stored or handled, including outside storages.

(3) Lighting and ventilating for operating areas.

(a) Where general lighting is less than two lumens per square foot, auxiliary directional lighting shall be provided on the truck.

(b) Adequate ventilation shall be provided in enclosed areas as required in rule [4123:1-5-18](#) of the Administrative Code (see also the current edition of "Threshold Limit Values (TLVs) for Chemical Substances in the Work Environment" adopted by the "American Conference of Governmental Hygienists (ACGIH).")

Deleted: 4121

(4) Lifting of personnel.

Lift trucks equipped with vertical only, or vertical and horizontal travel controls using a lifting carriage or forks for lifting of personnel shall:

(a) Have a platform with standard guardrails, intermediate rail, and toeboards, and a mast guard seventy-two inches in height, all securely fastened to the lifting carriage or forks;

(b) Have controls whereby personnel on the platform can shut off power to the truck and the platform, provided that such controls shall not be required if there is a truck operator in attendance at the truck controls at all times when the platform is raised; and

(c) Have overhead protection on the work platform where the employee is exposed to falling objects.

(G) Highway-type trucks, trailers, and railroad cars.

(1) Wheel chocks shall be provided and employees instructed to place them under the rear wheels to prevent highway-type trucks and trailers from rolling while they are being loaded or unloaded by powered industrial trucks. Equivalent protection may be provided instead of wheel chocks.

(2) Wheel stops or other recognized protective devices shall be provided and used to prevent railroad cars from moving while they are being loaded or unloaded by powered industrial trucks.

(3) Warning signals, i.e., blue lights at night and blue flags in the daytime, shall be placed at any end of a car accessible by switch engines to warn against movement of railroad cars while dockboards or bridge plates are in position.

(H) Marine operations and equipment.

When employees are required to step or operate a vehicle to or from a wharf, float, barge, or towboat, a ramp with side boards or a walkway shall be provided substantial in construction and fastening.

Appendix TO RULE [4123:1-5-13](#) SUMMARY TABLE ON USE OF INDUSTRIAL TRUCKS IN VARIOUS LOCATIONS

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For Appendix – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

D – units similar to the G units except that they are diesel engine powered instead of gasoline engine powered.

DS – diesel powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems, They may be used in some locations where a D unit may not be considered suitable.

DY – diesel powered units that have all the safeguards of the DS units and in addition do not have any electrical equipment including the ignition and are equipped with temperature limitation features.

E – electrically powered units that have minimum acceptable safeguards against inherent fire hazards.

ES – electrically powered units that, in addition to all of the requirements for the E units, are provided with additional safeguards to the electrical system to prevent emission of hazardous sparks and to limit surface temperatures. They may be used in some locations where the use of an E unit may not be considered suitable.

EE – electrically powered units that have, in addition to all of the requirements for the E and ES units, the electric motors and all other electrical equipment completely enclosed. In certain locations the EE unit may be used where the use of an E and ES unit may not be considered suitable.

EX – electrically powered units that differ from the E, ES, or EE units in that the electrical fittings and equipment are so designed, constructed and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.

G – gasoline powered units having minimum acceptable safeguards against inherent fire hazards.

GS – gasoline powered units that are provided with additional safeguards to the exhaust, fuel, and electrical systems. They may be used in some locations where the use of a G unit may not be considered suitable.

LP – similar to the G unit except that liquefied petroleum gas is used for fuel instead of gasoline.

LPS – liquefied petroleum gas powered units that are provided with additional safeguards to the exhaust, fuel, and electrical systems. They may be used in some locations where the use of an LP unit may not be considered suitable.

HISTORY: Eff 8-1-77; 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-14 Power-driven cranes and hoists. (Amend)

(A) Reserved.

(B) Reserved

(C) Overhead electric traveling cranes.

The term "overhead electric traveling crane" shall mean a crane consisting of a bridge mounted on trucks which runs on rails and the hoisting mechanism mounted on a trolley which moves transversely across the bridge, and may be controlled from a cab or from remote or pendant controls.

(1) Equipment.

(a) Brakes.

Holding brakes for hoist motors shall have not less than the following percentage of the full load hoisting torque at the point where the brake is applied. • 125 percent when used with a control braking means other than mechanical. • 100 percent when used in conjunction with a

mechanical control braking means, • 100 percent each if two holding brakes are provided. Holding brakes on hoists shall be applied automatically when power is removed.

(b) Footwalk.

A footwalk with standard guard railing and toeboards shall be placed along the cab access side of the bridge.

(c) Rail stops.

Rail stops shall be provided at both ends of crane runway and at ends of trolley travel.

(d) Bumpers.

A crane shall be provided with bumpers or other automatic means providing equivalent effect, unless the crane travels at a slow rate of speed and has a faster deceleration rate due to the use of sleeve bearings, or is not operated near the ends of bridge and trolley travel, or is restricted to a limited distance by the nature of the crane operation and there is no hazard of striking any object in this limited distance, or is used in similar operating conditions. The bumpers shall be capable of stopping the crane (not including the lifted load) at an average rate of deceleration not to exceed 3 ft/s/s when traveling in either direction at 20 percent of the rated load speed. A trolley shall be provided with bumpers or other automatic means of equivalent effect, unless the trolley travels at a slow rate of speed, or is not operated near the ends of bridge and trolley travel, or is restricted to a limited distance of the runway and there is no hazard of striking any object in this limited distance, or is used in similar operating conditions. The bumpers shall be capable of stopping the trolley (not including the lifted load) at an average rate of deceleration not to exceed 4.7 ft/s/s when traveling in either direction at one-third of the rated load speed

(e) Warning device.

On cab-operated cranes, A warning device or signal shall be provided for use in warning personnel of crane travel.

(2) Cabs.

(a) Enclosed cabs.

Enclosed crane cabs shall be provided with windows in front and on both sides.

(b) Open cabs.

Open cabs shall be provided with standard guard railing, and toeboard, and gate. If the opening height is inadequate for a standard guard railing, a chain or angle iron shall be used to guard the opening.

(c) Means of escape.

Means of escape shall be provided for operators of overhead cranes.

(d) Cabs subjected to excessive heat.

Deleted: A brake designed to hold the maximum rated load at any point of the lift shall be provided on the hoist. A brake shall also be provided for the bridge.¶

Deleted: toeboards

Deleted: Bumpers shall be provided on crane bridge to reduce effects of collision. Bumpers shall also be provided when two trolleys are operated on the same rails.¶

Cabs of cranes subjected to excessive heat from below shall have floors insulated with a noncombustible material.

(e) Guarding of current-carrying parts.

All current-carrying parts in crane cabs shall be guarded.

(3) Limiting devices.

A hoist limiting device shall be provided for each hoist to limit the upward travel.

(D) Electric jib cranes.

(1) The term "electric jib crane" shall mean a crane designed for lifting or lowering a load within the scope of a horizontal circle spanned by a rotating arm or jib equipped with a stationary or traveling hoist block.

(2) Equipment.

(a) Holding brake.

Holding brakes for hoist motors shall have not less than the following percentage of the full load hoisting torque at the point where the brake is applied. • 125 percent when used with a control braking means other than mechanical. • 100 percent when used in conjunction with a mechanical control braking means. • 100 percent each if two holding brakes are provided. Holding brakes on hoists shall be applied automatically when power is removed.

(b) Rail stops.

Rail stops shall be provided at the outer end of jib boom.

(c) Hoist limiting device.

A hoist limiting device shall be provided for each hoist.

(E) Electric single rail cranes and hoists.

(1) The term "electric single rail crane and hoist" shall mean a hoist with or without an operator's cab, suspended from a single overhead track or rail.

(2) Equipment.

(a) Trolley stop.

A stop shall be provided at all switches and turntables which will prevent the trolley from running off should the rail switch be turned to "open" or left in an open position.

(b) Rail stops.

Rail stops shall be provided at the ends of crane runway.

Deleted: A hoist holding brake designed to hold the maximum rated load at any point of the lift shall be provided on all jib cranes.¶

(c) Hoist limiting device.

A hoist limiting device shall be provided for each hoist.

(d) Braking system – all power-driven hoists.

Holding brakes for hoist motors shall have not less than the following percentage of the full load hoisting torque at the point where the brake is applied. • 125 percent when used with a control braking means other than mechanical. • 100 percent when used in conjunction with a mechanical control braking means. • 100 percent each if two holding brakes are provided. Holding brakes on hoists shall be applied automatically when power is removed.

Comment [jcs27]: Space should be eliminated.

(F) Electric gantry cranes.

(1) The term "electric gantry crane" shall mean a crane with the bridge mounted on structural legs which may be mobile on rails or stationary. One leg may be at ground level, the other may be elevated or both legs may be at ground level.

Deleted: All power-driven hoists shall be provided with a braking system not dependent upon electrical current. On the hoist, a braking system designed to hold the maximum rated load at any point of the lift shall be provided.¶

(2) Equipment.

(a) Bridge track wheels.

All bridge track wheels shall be equipped with sweeps.

(b) Bumpers, stops, and rail stops.

(i) A crane shall be provided with bumpers or other automatic means providing equivalent effect, unless the crane travels at a slow rate of speed and has a faster deceleration rate due to the use of sleeve bearings, or is not operated near the ends of bridge and trolley travel, or is restricted to a limited distance by the nature of the crane operation and there is no hazard of striking any object in this limited distance, or is used in similar operating conditions. The bumpers shall be capable of stopping the crane (not including the lifted load) at an average rate of deceleration not to exceed 3 ft/s/s when traveling in either direction at 20 percent of the rated load speed. A trolley shall be provided with bumpers or other automatic means of equivalent effect, unless the trolley travels at a slow rate of speed, or is not operated near the ends of bridge and trolley travel, or is restricted to a limited distance of the runway and there is no hazard of striking any object in this limited distance, or is used in similar operating conditions. The bumpers shall be capable of stopping the trolley (not including the lifted load) at an average rate of deceleration not to exceed 4.7 ft/s/s when traveling in either direction at one-third of the rated load speed

(ii) Rail stops shall be installed on both ends of trolley travel.

Deleted: Bumpers and stops shall be installed at both ends of the crane runway.¶

(c) Anchor or rail blocking device.

An anchor or rail blocking device shall be installed on all gantry cranes which are exposed to external weather.

(d) Hoist limiting device.

A hoist limiting device shall be installed on each hoist.

(G) Specific requirements applicable to all paragraphs of this rule.

(1) Defective safety devices or load-carrying equipment.

Defective crane safety devices or load-carrying equipment shall be repaired or replaced.

(2) Access ladders, stairways, and/or walkways.

Crane access ladders, stairways, and/or walkways shall be provided on all cranes.

(3) Maximum capacity.

The maximum capacity recommended by the manufacturer shall be posted on each crane.

(4) Warning signs.

Warning signs, "out-of-order" signs, or warning devices shall be placed on each crane under repair.

HISTORY: Eff 4-1-64; 8-1-77; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.12](#), [4121.121](#), [4121.13](#)

Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

4123:1-5-15 Hoisting and haulage equipment. (Amend)

(A) Equipment such as slings, hoisting or haulage lines, wire rope, natural or synthetic fiber rope, chain, metal mesh and synthetic web, and attachments used to handle material or equipment shall be used in accordance with the manufacturer's recommendations.

(B) Equipment shall be removed from service when there is evidence of a defect, damage, or distortion which may weaken such equipment.

(C) All such equipment shall have a safety factor of no less than five.

(D) Employees shall not be required to work or pass under suspended loads, nor shall the crane operator be required to carry a suspended load over employees.

(E) Manila rope and other fiber rope shall not be used when handling acid- or caustic-contaminated material or objects.

(F) Eyes in wire rope slings shall not be formed by using knots. Eyes in wire rope slings for general repetitive use shall not be formed by using wire rope clips. For special purpose unusual lifts, wire rope clips may be used to fabricate wire rope slings, provided the wire rope clips' manufacturer's recommendations are followed. When a newly installed rope has been in operation for an hour, all nuts on the clip bolts shall be re-tightened.

(G) The use of chain as a sling or choker in erection of steel is prohibited.

(H) The sheave diameter shall be no less than that recommended in the manufacturer's specifications for the size of rope used. Sheaves or pulleys with eccentric bores, or with cracked hubs, spokes, or flanges shall be repaired or removed from service.

HISTORY: Eff 8-1-77; 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-16 Cutting and welding. (Amend)

(A) Reserved.

(B) Reserved.

(C) Responsibility.

(1) The employer shall verbally and through demonstration instruct the employee in the safe operation and maintenance of cutting and welding equipment.

(2) It shall be the duty of the employee to operate such equipment in accordance with such instructions.

(D) Maximum pressure.

Under no condition shall acetylene be generated, piped (except in approved cylinder manifolds), or utilized at a pressure in excess of fifteen pounds per square inch gauge pressure.

(E) Gas welding and cutting.

(1) Equipment.

Only approved equipment, such as torches, regulators, or pressure-reducing valves, acetylene generators, manifolds, cylinders, and containers shall be used.

(2) Cylinders and containers.

(a) Marking.

Compressed gas cylinders shall be legibly marked, for the purpose of identifying the gas content, with either the chemical or the trade name of the gas. Such marking shall be by means of stenciling, stamping, or labeling and shall not be readily removed.

(b) Storage.

(i) Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of twenty feet or by a noncombustible barrier at least five feet high, having a fire resistance rating of at least one-half hour.

(ii) Cylinders, when not in use, shall be protected from any heat-radiating objects or open flame which could cause the cylinders to rupture or could cause the fusible plug to melt.

(c) Valve protection caps.

(i) All cylinders with a water weight capacity of over thirty pounds shall be equipped with means of connecting a valve protection cap or with a collar or recess to protect the valve.

(ii) Employees shall be responsible for using valve protection caps when cylinders are moved from place to place or put in storage.

(iii) Where carriers are provided for moving cylinders which are connected for use, capping shall not be required but employees shall be responsible for seeing that cylinder valves are closed and pressure is released from regulators, hoses and torches.

(d) Regulator protection.

Welders and cutters shall be instructed to close valves on oxygen and acetylene cylinders and bleed off hose pressure at the end of each workshift, to prevent malfunction of the regulators.

(e) Transporting cylinders by crane or derrick.

When cylinders are hoisted, they shall be secured on a cradle, slingboard, or pallet. They shall not be hoisted or transported by means of magnets or choker slings.

(f) Facilities for securely fastening cylinders; responsibility.

The employer shall provide facilities for securely fastening cylinders of compressed gas in an upright position.

(3) Hose and hose connections.

(a) Hose.

(i) Identification.

The color red shall be used for acetylene and other fuel gas hose. The color green shall be used for oxygen hose. The color black shall be used **for** inert gas and air hose.

Comment [jcs28]: Missing "for" added.

(ii) Hose in which flashback has occurred.

Any length of hose in which a flashback has occurred and burned in the hose shall be taken out of service. Flash-back protection shall be provided by an approved device that will prevent flame from passing into the fuel-gas system.

✓(iii) Single hose with more than one gas passage.

Deleted: Any length of hose in which a flashback has occurred and burned in the hose shall be taken out of service.¶

The use of a single hose having more than one gas passage, in which a wall failure would permit the flow of one gas into the other gas passage, shall not be permitted.

(iv) Hoses taped together – limitation.

When parallel lengths of oxygen and acetylene hoses are taped together for convenience and to prevent tangling, not more than four inches out of twelve inches shall be covered by tape.

(v) Damaged or defective hose.

Hose showing leaks, burns, worn places, or other defects rendering it unfit for service shall have the damaged portion removed, repaired or replaced.

(b) Hose connections and couplings.

(i) Hose connections for oxygen and fuel gas shall be distinguished from each other. Hose connections shall be clamped or otherwise securely fastened in a manner that will withstand, without leakage, twice the pressure to which they are normally subjected in service, but in no case less than three hundred pounds per square inch.

(ii) Hose couplings shall be of the type that cannot be unlocked or disconnected by means of a straight pull without rotary motion.

(c) Pressure reducing regulators.

(i) Oxygen and fuel gas pressure regulators, including their related gauges, shall be in proper working order while in use.

(ii) Pressure-reducing regulators shall be used only for the gas and pressures for which they are intended.

(F) Electric welding.

(1) Approved equipment.

Only approved electric welding equipment shall be used.

(2) Design.

No connections for portable control devices such as push buttons to be carried by the operator shall be connected to an alternating current circuit of higher than one hundred twenty volts. Exposed metal parts of portable control devices operating on circuits above fifty volts shall be grounded by a grounding conductor in the control cable.

(3) Installation of arc welding equipment

Installation, including power supply, shall be in accordance with the manufacturer's specifications.

(a) The frame or case of the welding machine (except engine-driven machines) shall be grounded under the conditions and according to the manufacturer's specifications.

Deleted: Hose showing leaks, burns, worn places, or other defects rendering it unfit for service shall have the damaged portion removed.¶

(b) Supply.

(i) All direct current machines shall be connected with the same polarity.

(ii) All alternating current machines shall be connected to the same phase of the supply circuit and with the same instantaneous polarity.

(c) Switches.

Proper switching equipment for shutting down the machine shall be provided.

(4) Electrode holders.

(a) Insulation. Electrode holders shall be insulated to protect the operator against shock.

(b) When not in use.

Electrode holders when not in use shall be so placed that they cannot make electrical contact with persons, conducting objects, fuel or compressed gas tanks.

(c) Cables with splices.

Cables with splices within ten feet of the holder shall not be used.

(5) Maintenance.

(a) Defective equipment.

The operator shall report any equipment or defect or safety hazard to his supervisor and the use of the equipment shall be discontinued until its safety has been assured. Repairs shall be made only by authorized, qualified personnel.

(b) Cables.

Cables with damaged insulation or exposed bare conductors shall be replaced. Joining lengths of work and electrode cables shall be done by the use of connecting means specifically intended for the purpose. The connecting means shall have insulation adequate for the service conditions.

(6) Installation and operation of resistance welding equipment.

(a) Thermal protection.

Ignitron tubes used in resistance welding equipment shall be equipped with a thermal protection switch.

(b) Guarding.

Controls of all automatic or air and hydraulic clamps shall be arranged or guarded to prevent the operator from accidentally activating them.

(c) Spot and seam welding machines (nonportable).

(i) Voltage.

All external weld initiating control circuits shall operate on low voltage, not over one hundred twenty volts.

(ii) Capacitor welding.

Stored energy or capacitor discharge type of resistance welding equipment and control panels involving high voltage (over five hundred fifty volts) shall be insulated and protected by complete enclosures, all doors of which shall be provided with interlocks and contacts wired into the control circuit (similar to elevator interlocks). Such interlocks or contacts shall be so designed as to interrupt power and short circuit all capacitors when the door or panel is open. A manually operated switch or positive device shall be installed, in addition to the mechanical interlocks or contacts, as an added safety measure assuring absolute discharge of all capacitors.

(iii) Interlocks.

All doors and access panels of all resistance welding machines and control panels shall be kept locked and interlocked to prevent access by unauthorized employees, to live portions of the equipment.

(iv) Guarding.

All press welding machine operations, where there is a possibility of the operator's fingers being under the point of operation, shall be guarded by the use of a device such as an electronic eye safety circuit, two-hand controls or protection similar to that prescribed for power press operations (see rule [4123:1-5-10](#) of the Administrative Code).

Deleted: 4121

(v) Disengaging from power supply.

Means shall be provided at each machine, within easy reach of the operator, for disengaging it from its power supply. This shall not apply to rolling departments of iron and steel mills nor to electrical power generation or conversion equipment.

(vi) [Safety blocks or pins](#).

Deleted: Safety blocks.

The employer shall provide and enforce the use of safety blocks or pins so that whenever safety blocks or pins are inserted in the platen or ram, the press becomes inoperative.

(vii) Grounding.

The secondary of all welding transformers used in multi-spot, projection, and seam welding machines shall be grounded. This may be done by permanently grounding one side of the welding secondary current circuit, or a center tapped grounding reactor connected across the secondary or the use of a safety disconnect switch in conjunction with the welding control are acceptable alternatives. Safety disconnect shall be arranged to open both sides of the line when welding current is not present.

(d) Portable welding machines.

(i) Counterbalance.

All portable welding guns shall have counterbalancing devices for supporting the gun unless the design of the gun makes counterbalancing unnecessary.

(ii) Safety chains.

All portable welding guns, transformers and related equipment that is suspended from overhead structures, I-beams, trolleys, etc., shall be equipped with safety chains or cables. Safety chains or cables shall be capable of supporting the total shock load in the event of failure of any component of the supporting system.

(iii) Clevis.

When trolleys are used to support portable welding equipment, with a forged steel clevis for the attachment of safety chains, each clevis shall be capable of supporting the total shock load of the suspended equipment in the event of trolley failure.

(iv) Switch guards.

All initiating switches located on the portable welding gun shall be equipped with guards capable of preventing accidental initiation through contact with fixturing, operator's clothing, etc. Initiating switch voltage shall not exceed twenty-four volts.

(v) Grounding.

The secondary and the case of all portable welding transformers shall be grounded. Secondary grounding shall be by:

(a) Center tapped secondary, or

(b) A center tapped grounding reactor connected across the secondary.

(vi) Butt (flash) welding equipment.

Butt welding machines shall be equipped with a hood to control flying flash. In cases of high production, where materials may contain a film of oil and where toxic elements and metal fumes are given off, ventilation shall be provided in accordance with rule [4123:1-5-18](#) of the Administrative Code.

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(7) Welding or cutting of containers.

No welding, cutting, or work utilizing a torch shall be performed on used drums, barrels, tanks, or other containers until they have been cleaned and purged of materials which when subjected to heat might produce flammable or toxic vapors.

(8) Eye and ear protection.

See rule [4123:1-5-17](#) of the Administrative Code, "Personal protective equipment."

Deleted: 4121

(G) Protection from sparks or falling objects.

(1) Cutting or welding shall be permitted only in areas that are or have been made fire safe.

(2) Screens or shields shall be provided for the protection of employees or combustible materials exposed to sparks or falling objects.

HISTORY: Eff 1-1-86; 8-1-77; 4-1-64; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC 4121.12, 4121.121, 4121.13

Rule amplifies: RC 4121.47

119.032 review date: 3/1/03; 3/1/98

4123:1-5-17 Personal protective equipment. (Amend)

(A) Reserved.

(B) Reserved.

(C) Specific requirements of general application.

(1) Personal protective equipment furnished by the employer shall be issued to the employee in sanitary and proper condition so that it will effectively protect against the hazard involved.

(2) Where employees provide their own protective equipment, such equipment shall give equal or greater protection than that furnished by the employer.

(D) Eye and face protection.

(1) Responsibility.

The employer shall provide eye protection for all employees engaged in the operations listed in paragraph (D)(2) of this rule and exposed to an eye hazard. Eye protection shall also be provided for any other employees in the immediate area and who are exposed to the hazards of the operations listed. It shall be the responsibility of the employee to use the eye protection provided by the employer (see appendix to this rule for eye and face protector selection guide).

(2) Operations requiring eye protection.

(a) Eye protection shall be provided to employees performing the following operations:

(i) When using hand tools or mechanical equipment to cut, chip, drill, clean, buff, grind, polish, shape, or surface masonry, brick, concrete, plaster, stone, plastics, or other hardened substances. This also covers demolition work where the material listed are part of the operation;

(ii) Where acids, sand, or shot blast are used in building cleaning operations;

(iii) Welding, brazing, soldering, or cutting operations involving the use of gas flames or electric arc. (See appendix to this rule);

(iv) Where portland cement is taken from an elevated bin, hopper or similar structure by a chute;

(v) All spray paint operations where the operator's eyes are exposed to paint mist in the atmosphere;

(vi) All sand or shot blast operations where the operator's eyes are exposed to the blasting;

(vii) The opening or closing of the tap holes of cupolas or melting furnaces;

(viii) In the handling of molten metal, molten glass, and molten plastic;

(ix) Metal and plastic chipping, cutting, cleaning, grinding, conditioning, or machining where there is danger of flying particles;

(x) Dressing grinding wheels;

(xi) Cleaning operations where wire wheels are used;

(xii) In handling injurious acids, alkalis, or other chemicals;

(xiii) Cutting, drilling, turning, planing, jointing, and sanding of wood with power tools;

(xiv) Operation of portable powder-actuated, pneumatically powered, and other powered fastening tools;

(xv) Operations requiring the use of compressed air;

(xvi) When working in close proximity to a laser beam in excess of five milliwatts;

(xvii) Pruning trees or cutting underbrush.

(b) This rule does not apply where a shield or exhaust equipment provides adequate eye protection for employees otherwise exposed to the hazards covered in paragraphs (D)(2)(a)(i) to (D)(2)(a)(xvii) of this rule.

(3) Face shields.

(a) Face shields may be provided in lieu of other forms of eye protection if they provide the required protection against the particular hazards for which they are designed.

(b) Face shields, in addition to eye protection, shall be provided where danger to the face exists, such as in the following operations:

(i) Welding operations;

(ii) All sand or shot blast operations;

(iii) Cleaning operations where wire wheels are used;

(iv) Metal and plastic chipping, cutting, cleaning, grinding, conditioning, or machining where there is danger of flying particles;

(v) The handling of molten metal, molten glass, and molten plastic;

(vi) The handling of injurious acids, alkalis, or other chemicals.

(4) Material requirements for eye protection shall meet ANSI Z87.1 – 1968.

(E) Foot (toe) protection.

Foot protection shall be worn by the employee where an employee is exposed to machinery or equipment that presents a foot hazard or where an employee is handling material which presents a foot hazard.

(F) Respiratory protection.

(1) Where there are air contaminants as defined in rule [4123:1-5-01](#) of the Administrative Code, the employer shall provide respiratory equipment approved for the hazard. It shall be the responsibility of the employee to use the respirator or respiratory equipment provided by the employer, guard it against damage and report any malfunction to the employer. Note: See appendix to this rule for basic guides for the selection of respirators.

(2) This requirement does not apply where an effective exhaust system (see rules [4123:1-5-18](#) and [4123:1-5-992](#) of the Administrative Code) or where other means of equal or greater protection have been provided.

(G) Head and hair protection.

(1) Responsibility.

(a) Employer.

(i) Whenever employees are required to be present where the potential hazards to their head exists from falling or flying objects, or from physical contact with rigid objects, or from exposures where there is a risk of injury from electric shock, employers shall provide employees with suitable protective headgear.

(a) Where required, head protection shall meet the requirements of ANSI Z89.1 – 1969.

(ii) When head protection is required employers shall provide accessories designed for use with the headgear.

(iii) Damaged parts of protective headgear shall be replaced. Protective helmets and bump caps or parts thereof and hair enclosures shall be sanitized before reissue.

(b) Employees.

Employees shall not alter any head or hair protective equipment and shall use such equipment in accordance with instructions and training received.

(e) Hair enclosures.

Deleted: (4) Material requirements for eye protection.¶

a) Impact test.¶
The lens shall withstand a one-inch diameter steel ball (weight approximately 2.4 ounces) dropped in free fall from a height of fifty inches onto the horizontal upper surface of the lens, impinging the lens within a circular area of five-eighths-inch diameter centered at the lens' mechanical center.¶

(b) Penetration resistance test – plastic only.¶

A plastic lens shall withstand a pointed projectile of suitable size, consisting of a new Singer number 25, size 135 X 7 needle, fastened into a holder weighing approximately 1.56 ounces freely dropped, pointed downward, from a height of fifty inches onto the outer surface of the lens. The projectile may be guided but not restricted in its fall by being dropped through a tube extending to within four inches of the lens.¶

(c) Frames, flammability test.¶

A section at least one inch long of the plastic components of the frame shall be exposed to a test for determining the flame-propagation rate. For this purpose the frame components (eyewire, temples, and sideshields) shall be ignited individually by holding one end of the specimen horizontally at the top of a luminous three-quarter-inch Bunsen burner flame in a draft-free room. The rate of propagation determined by a stopwatch shall be no less than twenty-four seconds per inch. A faster rate of propagation shall be cause for rejection.¶

(d) Marking.¶

(i) Eye and face protection shall be distinctly marked in a permanent, legible manner with the manufacturer's trademark.¶

Deleted: Foot protection shall be made available by the employer and shall be worn by the employee where an employee is exposed to machinery or equipment that presents a foot hazard or where an employee is handling material which presents a foot hazard.¶

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Deleted: (2) Protective helmets.¶

(a) Classes of helmets.¶

(i) Protective helmets as defined in paragraph (B) of rule 4121:1-5-01 of the Administrative Code shall be of the following classes:¶

(a) Class A – limited voltage protection.¶

(b) Class B – high voltage protection.¶

(i) A hat, cap or net shall be provided where there is danger of hair entanglement in moving parts of machinery or equipment, or where there is exposure to means of ignition. It shall be designed to enclose all loose hair and be adjustable to accommodate all head sizes. Material used for a hair enclosure shall be durable, fast-dyed, nonirritating to the skin, and capable of withstanding frequent cleaning. It shall not be reissued from one employee to another unless it has been thoroughly sanitized.

(ii) Hair enclosures used in areas where there is exposure to sparks, hot or molten metals, or ignition from heat, flames, or chemical reaction shall be made of materials that are nonburning or flame retardant and do not melt.

(H) Hearing protection.

Employees exposed to continuous noise levels of ninety or more decibels (dBA) slow response shall be provided with approved ear protection. (If variations in noise level involve maxima at intervals of one second or less, the noise is considered continuous.) If ear plugs that require fitting are provided, they shall be fitted to the individual employees by a competent person.

(I) Protection of the body and exposed parts and other protective equipment.

(1) All persons required to work in such a manner that their clothing may become wet with acids caustics or other injurious liquids shall be provided with such gloves, aprons, coats, jackets, sleeves, or other garments made of rubber, or other materials impervious to such liquids as are required to keep their clothing dry. Aprons shall extend well below the top of boots to prevent such liquid from splashing into the boots. Provision of dry clean cotton clothing along with rubber shoes or short boots and an apron impervious to such liquids shall be considered a satisfactory substitute where small parts are cleaned, plated, or acid-dipped in open tanks and rapid work is required.

(2) Facilities for quick drenching or flushing of the eyes and body shall be provided within the work area, where employees are exposed to injurious corrosive materials. Where plumbing is not available and where storage batteries of the enclosed type with explosion-proof vents are serviced exclusively, portable, self-contained eyewash equipment may be provided in lieu of the quick drenching or flushing facilities. Where portable self-contained eyewash equipment is used in lieu of drenching or flushing facilities, it shall be capable of delivering to the eye no less than 1.5 liters (0.4 gallons) per minute for a minimum of fifteen minutes.

(3) Welding, cutting, brazing, and molten metal exposures.

All employees exposed to the hazards created by welding, cutting, brazing, or molten metal operations shall be protected by protective clothing. This includes:

(a) Flameproof gauntlet gloves.

(b) Flameproof aprons made of leather, or other material which provides equivalent protection.

(c) Exterior clothing made of wool, cotton, or other material chemically treated to reduce combustibility.

(d) Capes or shoulder covers made of leather or other material which provides equivalent protection.

(e) Protection for the ears from the overhead welding and cutting or welding and cutting in extremely confined spaces.

(4) Working by hand on energized circuits.

When an employee is required to work on, or in proximity to, energized lines, the employer shall provide and the employee shall use protective equipment approved for the hazard involved.

(5) Climbers.

(a) Where employees are required to climb poles or trees, the employer shall provide climbers, the gaffs (spurs) of which shall not be less than one and one-eighth inches in length, measured on the underside.

(b) Storage.

Storage facilities shall be provided so that the sharp points of the climber gaffs will not cause damage to other equipment or cause injury to employees.

6) Safety belts, Harness, lifelines and lanyards.

(a) Lifelines, safety belts or harnesses and lanyards shall be provided by the employer, and it shall be the responsibility of the employee to wear such equipment when exposed to hazards of falling where the operation being performed is more than 6 feet above the ground or above a floor or platform, except as otherwise specified in this chapter, and when required to work on stored material in silos, hoppers, tanks, and similar storage areas. Lifelines and safety belts or harnesses shall be securely fastened to the structure and shall sustain a static load of no less than three thousand pounds.

(b) Where the lifeline may be subjected to cutting or abrasion, a minimum seven-eighths-inch wire core manila rope, or equivalent, shall be provided. For all other lifeline applications, a minimum of three-fourths-inch manila rope, or equivalent, shall be provided.

(c) Safety belt, harness, or strap lanyards shall be a minimum of one-half inch nylon, or equivalent, with a maximum length to provide for a fall of no more than six feet. The lanyard shall have a breaking strength of no more than three thousand pounds.

(d) All safety belt, harness, or strap and lanyard hardware shall be drop-forged or pressed steel, cadmium plated. Surface shall be smooth and free from sharp edges.

(e) All safety belt, harness, or strap and lanyard hardware shall be capable of withstanding a tensile loading of three thousand pounds without cracking, breaking, or becoming permanently deformed.

(7) Safety nets.

(a) Safety nets shall be provided when workplaces are more than thirty feet above the ground, water, or other surface where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts is impractical.

(b) Where safety net protection is required by this rule, operations shall not be undertaken until the net is in place and has been tested.

Deleted: (6) Safety belts, safety harnesses, safety straps, lifelines, and lanyards.¶
(a) When required, lifelines shall be securely fastened to the structure. Safety belts, safety harnesses, safety straps, lifelines and lanyards shall be used only for employee safeguarding and shall sustain a static load of no less than five thousand four hundred pounds. Any safety belts, safety harness, safety strap, lifeline, or lanyard actually subjected to in-service loading, as distinguished from static load testing, shall be removed from service and shall not be used again for employee safeguarding.¶

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(c) Nets shall extend [outward from the outermost projection of the work surface in accordance with the following table to this rule](#), and shall be installed as closed under the work surface as practical but in no case more than [thirty](#) feet below such work surface with the exception of bridge construction where only one level of nets is required. Nets shall be hung with sufficient clearance to prevent the falling ~~employees'~~[employee's](#) contact with the surface or structures below. Such clearance shall be determined by impact load testing.

- Deleted:** eight feet beyond the edge of the work surface where employees are exposed to falling
- Deleted:** twenty-five
- Comment [jcs29]:** Replaced "employees" with "employee's."
- Deleted:** ¶

[Table](#)

Vertical distance from working level to horizontal plane of the net	Minimum required horizontal distance of net from the edge of the working surface
---	--

Up to 5 feet	8 feet
------------------------------	------------------------

More than 5 feet up to 10 feet	10 feet
--	-------------------------

More than 10 feet	13 feet
-----------------------------------	-------------------------

(d) The mesh size of nets shall not exceed six inches. All new nets shall meet accepted performance standards of seventeen thousand five hundred foot-pounds minimum impact resistance as determined and certified by the manufacturer, and shall bear a label of proof test. Edge ropes shall provide a minimum breaking strength of five thousand pounds.

(e) Forged steel safety hooks or shackles shall be used to fasten the net to its supports. Attachment of safety nets to the working platform is prohibited.

(f) Connections between net panels shall maintain the full strength of the net.

(8) Working over or near water.

(a) Where employees are working over or near water, and where the depth or current of the water creates a danger of drowning, the employer shall provide U. S. coast guard-approved life jackets or buoyant work vests for each employee.

(b) Ring buoys with no less than ninety feet of line attached shall be provided and readily available for emergency rescue operations. Distance between ring buoys shall not exceed one hundred fifty feet.

(c) At least one lifesaving skiff shall be immediately available at locations where employees are working over or adjacent to water.

(d) In cribs and cofferdams where employees are exposed to danger of falling inside of the enclosure containing water, a life raft shall be provided.

(9) Night work.

When working at night, spotlights or portable lights for emergency lighting shall be provided as needed to perform the work safely.

(10) Barriers and warning devices.

The employer shall provide barriers and effective warning devices such as flasher lights, "Men Working" signs, cones, flares, lanterns, flags and reflectors, for the protection of employees when work is performed in congested areas and where employees are exposed to traffic hazards or other working conditions where a hazard may exist.

(J) Employee's responsibility.

It shall be the responsibility of the employee to properly use the equipment provided by the employer as required in this rule.

Appendix A

Eye and Face Protector Selection Guide

Figure

For Figure – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

1. Goggles, Flexible Fitting, Regular Ventilation 7A. Chipping Goggles, Eyecup Type, Clear Safety
2. Goggles, Flexible fitting, Hooded Ventilation Lenses (Not Illustrated)
3. Goggles, Cushioned Fitting, Rigid Body **8. Welding goggles, Coverspec Type, Tinted
- *4. Spectacles, without Sideshields Lenses (Illustrated)
5. Spectacles, Eyecup Type Sideshields 8A. Chipping goggles, Coverspec Type, Clear Safety
6. Spectacles, Semi-/Flat-Fold Sideshields Lenses (Not Illustrated)

**7. Welding Goggles, Eyecup Type, Tinted Lenses **9. Welding goggles, Converspec Type, Tinted

(Illustrated) Plate Lens

*10. Face shield, Plastic or Mesh Window (see caution note)

*11. Welding Helmet

*Non-sideshield spectacles are available for limited hazard use requiring only frontal protection.

**See "Welding and cutting shade selection guide" of this appendix.

APPLICATIONS

Operation Hazards Protectors

Acetylene-burning Sparks, harmful rays,

Acetylene-cutting Molten metal, 7,8,9

Acetylene-welding Flying particles

Chemical handling Splash, acid burns, fumes 2 (For severe exposure add 10)

Chipping Flying particles 1,3,4,5,6,7A,8A

Electric (ARC) welding Sparks, intense rays, 11 (In combination with 4, 5, 6, in tinted lenses, ad Molten metal visable)

Furnace operations Glare, heat, molten metal 7, 8, 9 (For severe exposure add 10)

Grinding-light Flying particles 1, 3, 5, 6 (For severe exposure add 10)

Grinding-heavy Flying particles 1, 3, 7A, 8A (For severe exposure add 10)

Laboratory Chemical Splash, 2 (10 when in combination with 5, 6)

Glass breakage

Machining Flying particles 1, 3, 5, 6 (For severe exposure add 10)

Molten metals Heat, glare, sparks, splash 7, 8 (10 in combination with 5, 6, in tinted lenses)

Spot welding Flying particles, sparks 1, 3, 4, 5, 6 (Tinted lenses advisable; for severe ~~ex~~
~~posure~~exposure add 10)

Comment [jcs30]: Typo corrected.

Caution:

Face shields alone do not provide adequate protection.

Plastic lenses are advised for protection against molten metal splash.

Contact lenses, of themselves, do not provide eye protection in the industrial sense and shall not be worn in a hazardous environment without appropriate covering safety eyewear.

Welding and cutting filter shade selection guide

The function of the eye protection required in paragraph (D)(2)(a) (iii) of rule [4123:1-5-17](#) is to protect the wearer from injurious rays and light generated by welding and cutting operations. The table which follows shall not be construed as specific requirements, but shall serve as a guide in determining the shade of filter plate desirable for a given operation. The following shades of filter plates should be used as indicated below:

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Shade

Welding Operation Number

Shielded Metal-Arc Welding, up

to 5/32 in (4mm) electrodes 10

Shielded Metal-Arc Welding, 3/16 to 1/4 in

(4.8 to 6.4 mm) electrodes 12

Shielded Metal-Arc Welding, over

1/4 in (6.4 mm) electrodes 14

Gas Metal-Arc Welding (Nonferrous) 11

Gas Metal-Arc Welding (Ferrous) 12

Gas Tungsten-Arc Welding 12

Atomic Hydrogen Welding [10-14](#)

Carbon Arc Welding 14

Torch Soldering 2

Torch Brazing 3 or 4

Light Cutting up to 1 in (25 mm) 3 or 4

Medium Cutting, 1 to 6 in (25 to 150 mm) 4 or 5

Heavy Cutting, over 6 in (150 mm) 5 or 6

Gas Welding (Light) up to 1/8 in (3.2 mm) 4 or 5

Gas Welding (Medium) 1/8 to 1/2 in

(3.2 to 12.7 mm) 5 or 6

Gas Welding (Heavy over 1/2 in (12.7 mm) 6 or 8

*The choice of a filter shade may be made on the basis of visual acuity and may, therefore, vary widely from one individual to another, particularly under different current densities, materials, and welding processes. However, the degree of protection from radiant energy afforded by the filter plate or lens when chosen to allow visual acuity will still remain in excess of the needs of eye filter protection. Filter plate shades as low as shade 8 have proven suitably radiation-absorbent for protection from the arc-welding processes.

NOTE: In gas welding or oxygen cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the operation (spectrum).

Selecting laser safety glass

INTENSIT. ATTENUATION

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

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Deleted: Respirator Selection Guide¶
Hazard Respirator¶
OXYGEN DEFICIENCY Self-contained breathing apparatus.¶
Hose mask with blower.¶
Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.¶
GAS AND VAPOR Self-contained breathing apparatus.¶
CONTAMINANTS Hose mask with blower.¶
Immediately dangerous Air-purifying, full facepiece respirator to life or health. with chemical canister (gas mask).¶
Self-rescue mouthpiece respirator (for escape only).¶
Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.¶
Not immediately dangerous to life or health. Air-line respirator.¶
Hose mask without blower.¶
Air-purifying, half-mask or mouth piece respirator with chemical cart ridge.¶
PARTICULATE Self-contained breathing apparatus.¶
CONTAMINANTS Hose mask with blower.¶
Immediately dangerous to Air-purifying, full facepiece respirator life or health. with appropriate filter.¶
Self-rescue mouthpiece respirator (for escape only).¶
Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.¶
Not immediately dangerous Air-purifying, half-mask or mouth to life or health. piece respirator with filter pad or cartridge.¶
Air-line respirator.¶
Air-line abrasive-blasting respirator.¶
Hose mask without blower.¶
COMBINATION GAS, Self-contained breathing apparatus.¶
VAPOR, Hose mask with blower.¶
AND PARTICULATE Air-purifying, full facepiece respirator¶
CONTAMINANTS with chemical canister and appropriate filter (gas mask with filter).¶
Immediately dangerous to life or health. Self-rescue mouthpiece respirator (for escape only).¶
Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.¶
Not immediately dangerous to life or health. Air-line respirator.¶
Hose mask without blower.¶
Air-purifying, half-mask or mouth piece respirator with chemical cart ridge and appropriate filter.¶

Respirator Selection Guide

OXYGEN DEFICIENCY

Self-contained breathing apparatus
~~Hose mask with blower~~
Combination [air-line supplied air](#)
respirator with
auxiliary self-contained air supply ~~or~~
~~—an air-storage receiver with alarm~~

GAS AND VAPOR CONTAMINANTS Immediately dangerous to life or health

Self-contained breathing apparatus.
~~Hose mask with blower.~~
~~Air-purifying, full facepiece respirator~~
~~—With chemical canister (gas mask).~~
Self-rescue mouthpiece respirator
(for escape only).
Combination [air-line supplied air](#)
respirator with
auxiliary self-contained air supply ~~or~~
~~—an air-storage receiver with alarm~~

Not immediately dangerous to life or health

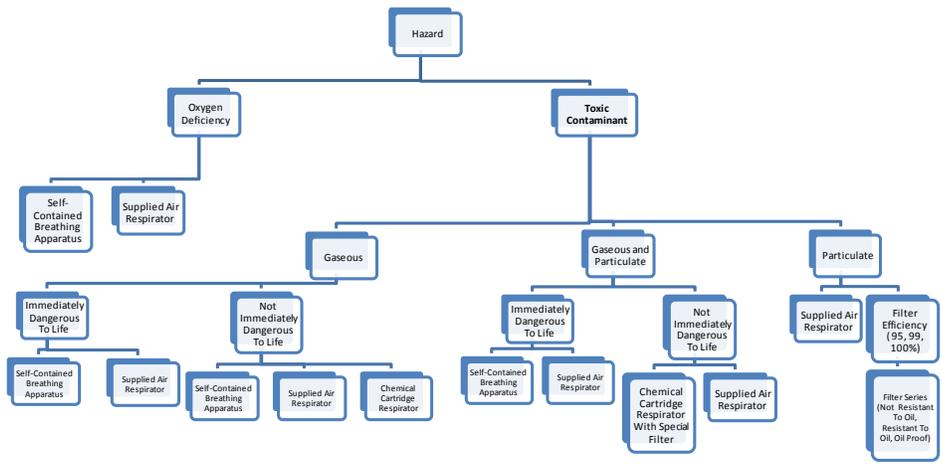
[Air-line Supplied air](#) respirator.
~~Hose mask without blower.~~
Air-purifying, half-mask or mouth
piece respirator with chemical
cartridge.

PARTICULATE CONTAMINANTS Immediately dangerous to Life or health

Self-contained breathing apparatus
~~Hose mask with blower.~~
~~Air-purifying, full face piece respirator~~
~~—with appropriate filter.~~
Self-rescue mouthpiece respirator (for
escape only)
Combination [air-line supplied air](#)
respirator with
auxiliary self-contained air supply ~~or~~
~~—an air-storage air supply with alarm~~

Not immediately dangerous to life or health

Air-purifying, half-mask or mouth-
piece respirator with ~~filter pad or~~
cartridge.
[Air-line Supplied air](#) respirator
~~Air-line abrasive blasting respirator.~~
~~Hose mask without blower.~~



~~Deleted:~~ For Figure - To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us
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Outline for selecting respiratory protective devices.

HISTORY: Eff 4-1-64; 8-1-77; 1-1-86; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.12](#), [4121.121](#), [4121.13](#)

Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

4123:1-5-18 Control of air contaminants. (Amend)

(A) Reserved.

(B) Reserved.

(C) Where employees are exposed to air contaminants, the air contaminants shall be minimized by at least one of the following methods:

(1) Substitute a non-hazardous, or less hazardous material;

(2) Confine or isolate the contaminants;

(3) Remove at or near source;

(4) Dilution ventilation;

(5) Exhaust ventilation; (for examples of exhaust ventilation, see rule [4123:1-5-992](#) of the Administrative Code).

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(6) Using wet methods to allay dusts. Note: Good housekeeping is of definite value in minimizing air contaminants created by dusts.

(D) Exhaust systems: machinery and equipment.

(1) Grinding, polishing and buffing.

(a) Abrasive wheels and belts.

(i) Abrasive wheels and belts shall be hooded and exhausted when there is a hazardous concentration of air contaminants.

(ii) This does not apply to abrasive wheels or belts:

(a) Upon which water, oil, or other liquid substance is used at the point of the grinding contact; or

(b) To small abrasive wheels used occasionally for tool grinding.

(b) Separate exhaust systems.

Abrasive wheel and buffing wheel exhaust systems shall be separate when the dust from the buffing wheel is of flammable material.

(2) Generation of toxic materials.

When toxic materials are generated in hazardous concentrations during their application, drying, or handling, they shall be minimized or eliminated by at least one of the methods described in paragraph (C) of this rule.

(3) Internal combustion engines.

Hazardous concentrations of air contaminants produced by internal combustion engines shall be exhausted.

(E) Exhaust systems – structural requirements.

(1) Exhaust or ventilating fan.

Each exhaust or ventilating fan located less than seven feet above the floor or normal working level shall be guarded.

(2) Ductwork.

Exhaust ductwork shall be sized in accordance with good design practice which shall include consideration of fan capacity, length of duct, number of turns and elbows, variation in size, volume, and character of materials being exhausted.

(3) Discharge.

The outlet from every separator or (collector) shall discharge the air contaminants collected by the exhaust system, in such manner that the discharged materials shall not re-enter the working area in hazardous concentrations.

(4) Location of air supply openings or inlets.

Air supply openings or inlets through which air enters the building or room in which the local exhaust system is in operation shall be isolated from any known source of contamination from outside of the building.

HISTORY: Eff 4-1-64; 8-1-77; 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-19 Manlifts of the endless belt type. (Amend)

Field Code Changed

(A) Reserved.

(B) Reserved.

(C) General requirements.

(1) Floor openings.

(a) Allowable size.

Floor openings for both the up and down runs shall be no less than twenty-eight inches nor more than thirty-six inches in width for a twelve-inch belt; no less than thirty-four inches nor more than thirty-eight inches for a fourteen-inch belt; and no less than thirty-six inches nor more than

forty inches for a sixteen-inch belt and shall extend no less than twenty-four inches, nor more than twenty-eight inches from the face of the belt.

(b) Uniformity.

All floor openings for a given manlift shall be uniform in size and shall be approximately circular, and each shall be located vertically above the opening below it.

(2) Landings.

(a) Vertical clearance.

The clearance between the floor or mounting platform and the lower edge for the conical guard above it required by paragraph (C)(3) of this rule shall be no less than seven feet six inches. Where this clearance cannot be obtained no access to the manlift shall be provided and the manlift runway shall be enclosed where it passes through such floor.

(b) Clear landing space.

The landing space adjacent to the floor openings shall be free from obstructions and kept clear at all times. This landing space shall be no less than two feet in width from the edge of the floor opening used for mounting and dismounting.

(c) Lighting of landings.

Adequate lighting, no less than 5-foot candles, shall be provided at each floor landing at all times when the lift is in operation.

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(d) Landing surface.

The landing surfaces at the entrances and exits to the manlift shall be constructed and maintained as to provide safe footing at all times.

(e) Emergency landings.

Where there is a travel of fifty feet or more between floor landings, one or more emergency landings shall be provided so that there will be a landing (either floor or emergency) for every twenty-five feet or less of manlift travel.

(i) Emergency landings shall be accessible from both the up and down runs of the manlift and shall give access to the ladder required in paragraph (C)(8) of this rule.

(ii) Emergency landings shall be completely enclosed with a standard railing and toeboard.

(iii) Platforms constructed to give access to bucket elevators or other equipment for the purpose of inspection, lubrication and repair may also serve as emergency landings under this rule. All such platforms will then be considered part of the emergency landing and shall be provided with standard guard railings and toeboards.

(3) Guards on underside of floor openings.

(a) Fixed type.

The ascending side of the manlift floor openings shall be provided with a bevel guard or cone meeting the following requirements:

(i) Slope.

The cone shall make an angle of no less than forty-five degrees with the horizontal. An angle of sixty degrees or greater shall be used where ceiling heights permit.

(ii) Extent.

The lower edge of this guard shall extend no less than forty-two inches outward from any handhold on the belt. It shall not extend beyond the upper surface of the floor above.

(iii) Material and construction.

The cone shall be made of no less than "No. 18 U.S. Gauge" sheet steel or material of equivalent strength or stiffness. The lower edge shall be rolled to a minimum diameter of one-half inch and the interior shall be smooth with no rivets, bolts or screws protruding.

(b) Floating type.

In lieu of the fixed guards specified in paragraph (C)(3)(a) of this rule, a floating type safety cone may be used, such floating cones to be mounted on hinges no less than six inches below the underside of the floor and so constructed as to actuate a limit switch should a force of two pounds be applied on the edge of the cone closest to the hinge. The depth of this floating cone shall not exceed twelve inches.

(4) Protection of entrances and exits.

(a) Guardrail requirement.

The entrance and exits at all floor landings affording access to the manlift shall be guarded by a maze (staggered railing) or a handrail equipped with self-closing gates.

(b) Construction.

The rails shall be standard guardrails with toeboards meeting the provisions of rule [4123:1-5-02](#) of the Administrative Code.

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(c) Gates.

Gates, if used, shall open outward and shall be self-closing. Corners of gates shall be rounded.

(d) Maze.

Maze or staggered openings shall offer no direct passage between enclosure and outer floor space.

(e) Except where building layout prevents, entrances at all landings shall be in the same relative position.

(5) Guards for openings.

(a) Construction.

The floor opening at each landing shall be guarded on sides not used for entrance or exit by a wall, a railing and toeboard or by panels of wire mesh of suitable strength.

(b) Height and location.

Such rails or guards shall be no less than forty-two inches in height on the up-running side and sixty-six inches in height on the down-running side. Rails or guards shall be located no more than one foot from the edge of the floor opening.

(6) Bottom arrangement.

(a) Bottom landing.

At the bottom landing the clear area shall be no smaller than the area enclosed by the guardrails on the floors above, and any wall in front of the down-running side of the belt shall be no less than forty-eight inches from the face of the belt. This space shall not be encroached upon by stairs or ladders.

(b) Location of lower pulley.

The lower (boot) pulley shall be installed so that it is supported by the lowest landing served. The sides of the pulley support shall be guarded to prevent contact with the pulley or the steps.

(c) Mounting platform.

A mounting platform shall be provided in front or to one side of the up-run at the lowest landing, unless the floor level is such that the following requirement can be met: the floor or platform shall be at or above the point at which the upper surface of the ascending step completes its turn and assumes a horizontal position.

(d) Guardrails.

To guard against employees walking under a descending step, the area on the down side of the manlift shall be guarded in accordance with paragraph (C)(4) of this rule. To guard against an employee getting between the mounting platform and an ascending step, the area between the belt and the platform shall be protected by a guardrail.

(7) Top arrangements.

(a) Clearance from floor.

A top clearance shall be provided of no less than eleven feet above the top terminal landing. This clearance shall be maintained from a plane through each face of the belt to a vertical cylindrical plane having a diameter two feet greater than the diameter of the floor opening, extending upward from the top floor to the ceiling on the up-running side of the belt. No encroachment of structural or machine supporting members within this space will be permitted.

(b) Pulley clearance.

(i) There shall be a clearance of no less than five feet between the center of the head pulley shaft and any ceiling obstruction.

(ii) The center of the head pulley shaft shall be no less than six feet above the top terminal landing.

(c) Emergency grab rail.

An emergency grab bar or rail and platform shall be provided at the head pulley when the distance to the head pulley is over six feet above the top landing, otherwise only a grab bar or rail is to be provided to permit the rider to swing free should the emergency stops become inoperative.

(8) Emergency exit ladder.

A fixed metal ladder accessible from both the up and down run of the manlift shall be provided for the entire travel of the manlift. Such ladder shall be in accordance with paragraph (C)(6) of rule [4123:1-5-03 of the Administrative Code](#), except that a safety cage shall not be provided, notwithstanding the provisions of paragraph (C)(6) of rule [4123:1-5-03 of the Administrative Code](#).

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(9) Superstructure bracing.

Manlift rails shall be secured in such a manner as to avoid spreading, vibration and misalignment.

(10) Illumination.

(a) General.

[Both runs of the manlift shall be illuminated at all times when the lift is in operation. An intensity of not less than 1-foot candle shall be maintained at all points.](#) (See paragraph (C)(2)(c) of this rule for illumination requirements at landings).

Comment [jcs31]: Missing period added.

Deleted: Both runs of the manlift shall be illuminated at all times when the lift is in operation. An intensity of no less than one lumen shall be maintained at all points.

(b) Control of illumination.

Lighting of manlift runways shall be by means of circuits permanently tied in to the building circuits (no switches), or shall be controlled by switches at each landing. Where separate switches are provided at each landing, any switch shall turn on all lights necessary to illuminate the entire runway.

(11) Weather protection.

The entire manlift and its driving mechanism shall be protected from the weather at all times.

(D) Mechanical requirements.

(1) Machines.

(a) Brakes.

Brakes provided for stopping and holding a manlift shall be inherently self-engaging, by requiring power or force from an external source to cause disengagement. The brake shall be electrically released, and shall be applied to the motor shaft for direct-connected units or to the input shaft for belt-driven units. The brake shall be capable of stopping and holding the manlift when the descending-side is loaded with two hundred fifty pounds on each step.

(b) Belt.

(i) Material.

The belt shall be of hard-woven canvas, rubber-coated canvas, leather, or other material meeting the strength requirements of paragraph (D)(1)(b)(iii) of this rule and having a coefficient of friction such that when used in conjunction with an adequate tension device it will meet the brake test specified in paragraph (D)(1)(a) of this rule.

(ii) Width.

The width of the belt shall be no less than twelve inches for a travel not exceeding one hundred feet, no less than fourteen inches for a travel greater than one hundred feet but not exceeding one hundred fifty feet and sixteen inches for a travel exceeding one hundred fifty feet.

(iii) Strength.

The strength of the belt shall be no less than one thousand five hundred pounds per inch of belt width for belts having a distance between pulley centers not in excess of one hundred feet, and one thousand eight hundred pounds per inch of belt width for belts having a distance between pulley centers of over one hundred feet but not in excess of two hundred feet; for over two hundred feet, two thousand four hundred fifty pounds per inch of belt width.

(iv) Belt fastenings.

Belts shall be fastened by a lapped splice or shall be butt-spliced with a strap on the side of the belt away from the pulley.

(a) For lapped splices, the overlap of the belt at the splice shall be no less than three feet where the travel of the manlift does not exceed one hundred feet and no less than four feet, if the travel exceeds one hundred feet. Where butt splices are used the straps shall extend no less than three feet on one side of the butt for a travel not in excess of one hundred feet and four feet for a travel in excess of one hundred feet.

(b) For twelve-inch belts, the joint shall be fastened with no less than twenty special elevator bolts, each of a minimum diameter of one-fourth inch. These bolts shall be arranged as to cover the area of the joint effectively.

(c) The minimum number of bolts for a belt width of fourteen inches shall be no less than twenty-three and for a belt width of sixteen inches, the number of bolts shall be no less than twenty-seven.

(v) Repairs prohibited.

A belt that has become torn while in use on a manlift shall not be spliced and put back in service.

(vi) Flush bolt heads.

All bolts used for splicing the belt or securing handholds or steps to the belt shall be installed and maintained so that the heads do not project beyond the inner surface of the belt.

(c) Pulleys.

Drive pulleys and idler (boot) pulleys shall have a diameter no less than given in the following table to this rule.

Table 19-1

BELT CONSTRUCTION — MINIMUM POUNDS PER INCH STRENGTH — PULLEY DIAMETER OF WIDTH INCHES

5 ply 1500 20

6 ply 1800 20

7 ply 2100 22

(The above values are based on thirty-two-ounce duck; three hundred pounds per linear inch per ply.)

(d) Pulley protection.

The machine shall be designed and constructed as to catch and hold the driving pulley in event of shaft failure.

(e) Belt location.

Manlift belts shall be centered in the floor openings.

(f) Pulley lagging.

All head pulleys shall be lagged (i.e., covered with non-slip material securely fastened in place).

(2) Speed.

No manlift designed for a speed in excess of eighty feet per minute shall be installed.

(3) Steps.

(a) Minimum depth.

Steps shall be **no** less than twelve inches nor more than fourteen inches deep, measured from the belt to the edge of the step.

Comment [jcs32]: Missing "no" added.

(b) Width.

The width of the step shall be no less than the width of the belt to which it is attached.

(c) Distance between steps.

The distance between steps shall be equally spaced and not less than sixteen feet measured from the upper surface of one step to the upper surface of the next step above it.

(d) Angle of step.

The surface of the step shall make approximately a right angle with the up and down run of the belt, and shall travel in the approximate horizontal position with the up and down run of the belt.

(e) Surfaces.

The upper or working surfaces of the step shall be of a material having inherent nonslip characteristics (coefficient of friction no less than 0.5) or shall be covered completely by a nonslip tread securely fastened to it.

(f) Strength of step supports.

When subjected to a load of four hundred pounds applied at the approximate center of the step, step frames or supports and their guides shall be of adequate strength to:

- (i) Prevent the disengagement of any step roller.
- (ii) Prevent any appreciable misalignment.
- (iii) Prevent any visible deformation of the step or its support.

(g) Prohibition of steps without handholds.

No step shall be provided unless there is a corresponding handhold above or below it meeting the requirements of paragraph (D)(4) of this rule. If a step is removed for repairs or permanently, the handholds immediately above and below it shall be removed before the lift is again placed in service.

(4) Handholds.

(a) Location.

Handholds attached to the belt shall be provided and so installed that they are no less than four feet nor more than four feet eight inches above the step tread. These shall be so located as to be available on both up and down run of the belt.

(b) Size.

The grab surface of the handhold shall be no less than four and one-half inches in width, no less than three inches in depth and provide two inches of clearance from the belt. Fastenings for handholds shall be located no less than one inch from the edge of the belt.

(c) Strength.

The handhold shall be capable of withstanding, without damage, a load of three hundred pounds applied parallel to the run of the belt.

(d) Prohibition of handhold without steps.

No handhold shall be provided without a corresponding step. If a handhold is removed permanently or temporarily, the corresponding step and handhold for the opposite direction of travel shall also be removed before the lift is again placed in service.

(e) Type.

All handholds shall be of the closed type.

(5) Up limit stops.

(a) Requirements.

Two separate automatic stop devices shall be provided to cut off the power and apply the brake when a loaded step passes the upper terminal landing. One of these shall consist of a split-rail switch or equivalent mechanically operated by the step roller and located no more than six inches above the top terminal landing. The second automatic stop device may consist of any of the following:

(i) A split-rail switch placed six inches above and on the side opposite the first limit switch.

(ii) An electronic device.

(iii) A switch actuated by a lever, rod or plate, the latter to be placed on the up side of the head pulley so as to just clear a passing step.

(b) Manual reset location.

After the manlift has been stopped by a stop device it shall be necessary to reset the automatic stop manually. The device shall be so located that a person resetting it shall have a clear view of both the up and down runs of the manlift. It shall not be possible to reset the device from any step or platform.

(c) Cut-off point.

The initial limit stop device shall function so that the manlift will be stopped before the loaded step has reached a point twenty-four inches above the top terminal landing.

(d) Electrical requirements.

(i) Where such switches open the main motor circuit directly they shall be of the multipole type.

(ii) Where electronic devices are used they shall be so designed and installed that failure will result in shutting off the power to the driving motor.

(iii) Where flammable vapors or dusts may be present all electrical installations shall be of a type approved for use in such locations.

(iv) Unless of the oil-immersed type, controller contacts carrying the main motor current shall be copper to carbon or equal, except where the circuit is broken at two or more points simultaneously.

(6) Emergency stop.

(a) Requirements.

An emergency stop means shall be provided.

(b) Location.

This stop means shall be within easy reach of the ascending and descending runs of the belt.

(c) Operation.

This stop means shall be so connected with the control lever or operating mechanism that it will cut off the power and apply the brake when pulled in the direction of travel.

(d) Rope.

If rope is used, it shall be no less than three-eighths inch in diameter. Wire rope, unless marlin-covered, shall not be used.

(7) Factor of safety.

All parts of the machine shall have a factor of safety of six based on a load of two hundred pounds on each horizontal step on the up and down runs.

(8) Instruction and warning signs and devices.

(a) Instruction signs at landings or belt.

Signs of conspicuous and easily read style giving instructions for the use of the manlift shall be posted at each landing or stenciled on the belt.

(i) Size and legibility.

Such signs shall be of letters no less than two inches in height and of a color having high contrast with the surface on which it is stenciled or painted (white or yellow on black or black on white or gray).

(ii) Inscription.

The instructions shall read approximately as follows: Face the belt. Use the handholds. To stop – pull rope.”

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(b) Top floor warning sign and light.

(i) Requirements.

At the top floor an illuminated sign shall be displayed bearing the following wording: “Top floor – get off”. The sign shall be in block letters no less than two inches in height. This sign shall be located within easy view of an ascending passenger and no more than two feet above the top terminal landing.

(ii) Additional warning light.

In addition to the sign required by paragraph (D)(8)(b)(i) of this rule, a red warning light of no less than forty-watt rating shall be provided immediately below the upper landing terminal and so located as to shine in the passenger's face.

(c) A visual or audible warning system shall be provided to alert passengers and others in the vicinity when a manlift is started or re-started.

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(d) Visitor warning.

A conspicuous sign having the following legend, "Authorized Personnel Only", shall be displayed at each landing. The sign shall be of block letters no less than two inches in height and shall be of a color offering high contrast with the background color".

(E) Recommended minimum instructions in the proper use of manlifts.

(1) Only authorized personnel, trained in their use, shall be permitted to use manlifts.

(2) When riding a manlift, the passenger shall stand squarely on the step, face the belt and grip the handhold securely. Jumping on the step, yanking on the handhold or engaging in horseplay of any kind is prohibited.

(3) No freight, packaged goods, pipe, lumber or construction materials of any kind shall be handled on any manlift.

(4) No tools, except those which will fit entirely within a pocket in usual working clothes shall be carried on any manlift.

(5) Before starting or re-starting the manlift, it shall be necessary to alert all passengers on the manlift and all others in its vicinity.

(F) Inspection and maintenance.

(1) Frequency.

All manlifts shall be inspected by a competent designated person at intervals of no more than thirty days. Limit switches shall be checked weekly. Manlifts found to be unsafe shall not be operated until properly repaired.

(2) Items covered.

The inspection shall cover but is not limited to the following items:

(a) Steps;

(b) Steps fastenings;

(c) Rails;

(d) Rail supports and fastenings;

- (e) Rollers and slides;
- (f) Belt and belt tension;
- (g) Handholds and fastenings;
- (h) Floor landings;
- (i) Guardrails;
- (j) Lubrication;
- (k) Limit switches;
- (l) Warning signs and lights;
- (m) Illumination;
- (n) Drive pulley;
- (o) Bottom (boot) pulley and clearance;
- (p) Pulley supports;
- (q) Motor;
- (r) Driving mechanism;
- (s) Brake;
- (t) Electrical switches;
- (u) Vibration and misalignment;
- (v) Skip on up or down run when mounting step (indicating worn gears).

HISTORY: Eff 12-1-79; 1-1-86; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.12](#), [4121.121](#), [4121.13](#)

Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

[4123:1-5-20 Roof car suspended platforms. \(Amend\)](#)

(A) Roof car.

- (1) The horizontal speed of a roof car shall be no more than fifty feet per minute.
- (2) A roof car may not be moved horizontally unless means are in place to prevent the car from moving outside the areas provided for roof car travel.
- (3) The roof car shall be designed and installed in such a manner as to remain stable and upright under every loading condition.
- (4) A roof car shall be so positioned and anchored to the structure as to insure that the working platform is placed and retained in proper position for vertical travel.
- (5) The operating device controlling movement of a roof car shall be of the continuous pressure weatherproof electric type and shall be located on the roof car, the working platform, or both. If located on both, such operating devices shall be interlocked so that control is possible only from one at a time.
- (6) The operating device controlling movement of a roof car shall not be operable until the working platform is at its uppermost position for travel and is not in contact with the building face or fixed vertical guides in the face of the building, and until all protective devices and interlocks are in a position for movement.
- (7) If the access to the roof car at any point of its travel is not over the roof area, standard guardrails with self-closing, self-locking gates shall be provided on the roof car.

(B) Working platforms.

- (1) The working platform shall be of girder or truss construction and shall be capable of supporting its rated load under any position of loading.
- (2) Each working platform shall bear the manufacturer's load rating plate, conspicuously posted and legible, stating the maximum permissible load.
- (3) The vertical speed of a working platform suspended by four or more hoisting ropes shall be no more than seventy-five feet per minute.
- (4) The vertical speed of a working platform suspended by less than four hoisting ropes shall be no more than thirty-five feet per minute.
- (5) The working platform shall be no less than twenty-four inches wide.
- (6) The working platform shall be provided with toeboards and with permanent guardrails no less than thirty-six inches high, and no more than forty-two inches high at the front (building side). At the rear, and on the sides, a standard guardrail and toeboard shall be provided. An intermediate guardrail shall be provided around the entire platform between the top guardrail and the toeboard.
- (7) The platform flooring shall be of the nonskid type.
- (8) Where access gates are provided, they shall be self-closing and self-locking. Such gates are required where access to the working platform is not over the roof area.

(9) A means shall be provided to prevent inadvertent horizontal movement of the working platform.

(10) The operating device controlling vertical movement of the working platform shall be located on the working platform and shall be of the continuous pressure weatherproof electric type.

(11) The operating device controlling vertical movement shall be operable only when all electrical protective devices and interlocks on the working platform are in normal operating position, and the roof car is at an established operating point.

Comment [jcs33]: Missing "be" added.

(12) On roof-powered platforms, an emergency electric operating device shall be provided near the hoisting machine for use in the event of failure of the traveling cable system. This emergency device shall be mounted in locked compartment and shall have a legend mounted thereon reading: "For Emergency Operation Only. Establish Communication With Personnel On Working Platform Before Use". A key for unlocking the compartment housing the emergency operating device shall be mounted in a break-glass receptacle located near the device.

(C) Hoisting equipment.

(1) Hoisting equipment shall consist of a power-driven drum or drums contained in the roof car (i.e., roof-powered platform) or contained on the working platform (i.e., self-powered platform).

(2) Hoisting equipment shall be power-operated in both up and down directions.

(3) Where exposed to contact, rotating shafts, drums, couplings, and other mechanisms and gears shall be guarded.

Comment [jcs34]: Missing "and" added.

(4) Friction devices or clutches shall not be used connecting the main driving mechanism to the drum or drums. Belt-or chain-driven machines are prohibited.

(5) Hoisting motors shall be electric and of waterproof construction.

(6) Hoisting motors shall be directly connected to the hoisting machinery. Motor couplings, if used, shall be of steel construction.

(7) Hoisting machines shall have two independent braking means, each designed to stop and hold the working platform with one hundred twenty-five percent of rated load.

(D) Hoisting ropes and winding drums.

(1) Each hoisting rope shall be made of wire and shall be no less than five-sixteenths-inch diameter.

(2) Working platforms shall be suspended by no less than two ropes with a safety factor of ten as calculated under the following formula:

$F = S \times N$? Where

S = manufacturer's rated breaking strength of one rope

N = number of ropes under load

W = maximum static load on all ropes with the platform and its rated load at any point of its travel

(3) Where winding drums are used, the rope shall be wound in level layers.

(4) Winding drums shall have no less than three turns of rope remaining when the working platform is at its lowest possible point of travel.

(5) Where the working platform is suspended by more than two ropes, the nondrum ends of the ropes shall be provided with individual shackle rods which will permit individual adjustment of rope lengths.

(6) The lengthening or repairing of wire ropes by splicing is prohibited.

(7) More than one reverse bend in the length of seven wire rope lays is prohibited.

(8) Wire rope shall not be used if, in any length of eight diameters, the total number of visible broken wires exceeds ten percent of the total number of wires, or if the rope shows other signs of excessive wear, corrosion, or defect.

(E) Electrical protective devices.

(1) Electrical protective devices and interlocks shall be of the weatherproof type.

(2) When a traveling cable storage reel is used, an electric contact shall be provided and so connected that it will cause the relay for vertical travel to open if the tension on the traveling cable exceeds safe limits.

(3) An automatic overload device shall be provided to cut off electrical power to the circuit in all hoisting motors for travel in the up direction, should the load applied to the hoisting ropes at either end of the working platform exceed one hundred twenty-five percent of its normal tension with rated load as shown on the manufacturer's data plate on the working platform.

(4) An automatic device shall be provided for each hoisting rope which will cut off electrical power to the hoisting motor or motors in the down direction and will apply the brakes if any hoisting rope becomes slack.

(5) Upper and lower directional limit devices shall be provided to prevent the travel of the working platform beyond the normal upper and lower limits of travel.

(6) Directional limit devices, if driven from the hoisting machine by chains, tapes, or cables, shall incorporate a device to disconnect the electric power from the hoisting machine and apply both the primary and secondary brakes in the event of failure of the driving means.

(7) On platforms with four or more ropes, final terminal stopping devices for the working platform shall be provided as a secondary means of preventing the working platform from over-traveling at the terminals.

(8) Emergency stop switches shall be provided in or adjacent to each operating device.

(9) Electrical cord strain relief anchors and grip or equivalent means shall be provided to prevent the electrical cord from pulling on the receptacle.

(F) Emergency communications.

A means of two-way communication shall be provided for each roof car suspended platform for use in emergency.

(G) Safety belts and lifelines.

[Employees on working platforms shall be protected by a personal fall arrest system meeting the requirements of appendix C, Section I, of 29 CFR 1910.66.](#)

HISTORY: Eff 1-1-83; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.12](#), Chapter [4121-121.](#), [4121.13](#)

Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

4123:1-5-21 Storage batteries. (Amend)

(A) Battery charging areas shall be designated for that purpose.

(B) Employees shall be instructed that:

(1) When charging batteries, acid shall be poured into water; water shall not be poured into acid;

(2) When charging batteries, make certain vent caps are functioning; vent caps shall be kept in place to avoid electrolyte spray, and covers shall be open to dissipate heat; and

(3) Smoking and open flames are prohibited.

(C) In designated battery charging and changing areas the employer shall:

(1) Provide personal protective equipment as required in rule [4123:1-5-17](#) of the Administrative Code;

(2) Provide fire protection;

(3) Provide protection to charging apparatus to prevent damage by trucks;

(4) Provide adequate ventilation for exhausting fumes;

(5) Provide racks, when needed for support, made of nonconductive materials with dielectric properties the equivalent of dry wood or made of other material coated or covered to achieve that objective;

(6) Provide material handling equipment, such as a conveyor, hoist, or similar equipment, for handling large batteries, such as those used in electrically powered industrial trucks;

Deleted: A safety belt or harness with means for attachment to a lifeline on the roof or to the working platform shall be provided for each employee on a working suspended by less than four wire ropes.¶

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(7) Provide a carboy tilter or siphon for handling electrolyte;

(8) Provide signs prohibiting open flames or smoking.

HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-22 Confined spaces. (Amend)

(A) No employee shall be required to enter into any confined space unless a confined space entry procedure, incorporating one of the following, is used (see appendix to this rule for recommended entry procedures):

(1) Air sampling shall be performed by qualified, trained personnel prior to and periodically during occupancy to determine that the atmosphere within the confined space contains an adequate quantity of oxygen (nineteen per cent), and any known or expected harmful atmospheric contaminants have been diluted to safe concentrations.

(2) A supplied-air respirator or self-contained breathing apparatus is provided and used.

(B) When the confined space has been exposed to, contained, or is likely to have combustible gases within its confines (such as sewage treatment plants), it shall not be entered unless the atmosphere contains a concentration of less than ten per cent of the lower explosive limit, (see rule [4123:1-5-991](#) of the Administrative Code).

(C) Appropriate control measures, which may consist of forced or natural ventilation, use of personal protective equipment, a combination of these, or other effective control techniques, shall be instituted if tests under paragraph (A)(1) or (B) of this rule indicate that the atmosphere in the space to be entered contains:

(1) Any concentration of flammable vapor or gas ten per cent or greater of the lower explosive limit; and/or,

(2) A hazardous concentration of any known or expected toxic contaminants; and/or,

(3) Less than nineteen per cent oxygen.

(D) Means of safe entry and exit shall be provided for entering or leaving a manhole, vault or other similar underground area.

(E) Where electrical equipment is used in confined spaces subject to combustible atmospheres, the permanent fixtures to which the lamp socket and plugs are attached shall be the type approved for that location. All extension cords shall be made of heavy duty cord. All lamps shall be guarded.

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Appendix TO RULE 4123:1-5-22

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Recommended Procedures for Confined Space Entry

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- (2) Post established entry procedures immediately adjacent to all confined space entry ports; other acceptable areas for posting would include the lid of the storage container or to post requirements for respiratory or testing equipment on crew trucks;
- (3) Provide periodic instruction and training in proper entry procedures to be used;
- (4) Standby personnel where provided shall be required at all times to be in communication with the worker within the confined space; an alarm or two-way radio system for the standby worker will be effective;
- (5) Approved rescue equipment should be available; since entry ports for confined spaces vary in size, precaution should be used in obtaining equipment of a proper size;
- (6) Establish procedures to prevent ignition of combustible atmospheres or re-entry of gases or liquids by locking out switches and blanking off transmission pipes; use nonsparking tools;
- (7) Prevent generation of contaminants by neutralizing or flushing out residual materials;
- (8) In testing for contaminants use only approved instruments maintained in proper working order;
- (9) Continual monitoring of oxygen and contaminant concentrations during occupancy;
- (10) If respiratory equipment is supplied by an air compressor piped system, this system shall meet the specifications of the "Compressed Gas Association," to assure a supply of uncontaminated air;
- (11) When supplied-air or self-contained respiratory apparatus is used, personnel should be trained in the proper use of such apparatus;
- (12) Many employers use tags to show that a confined space may be entered safely. An example of such a tag is as follows:

ENTRY PERMIT

PERMIT VALID FOR 8 HOURS ONLY. ALL COPIES OF PERMIT WILL REMAIN AT
JOB SITE UNTIL JOB IS COMPLETED

DATE: - - SITE LOCATION and DESCRIPTION _____

PURPOSE OF ENTRY _____

SUPERVISOR(S) in charge of crews Type of Crew Phone #

COMMUNICATION PROCEDURES _____

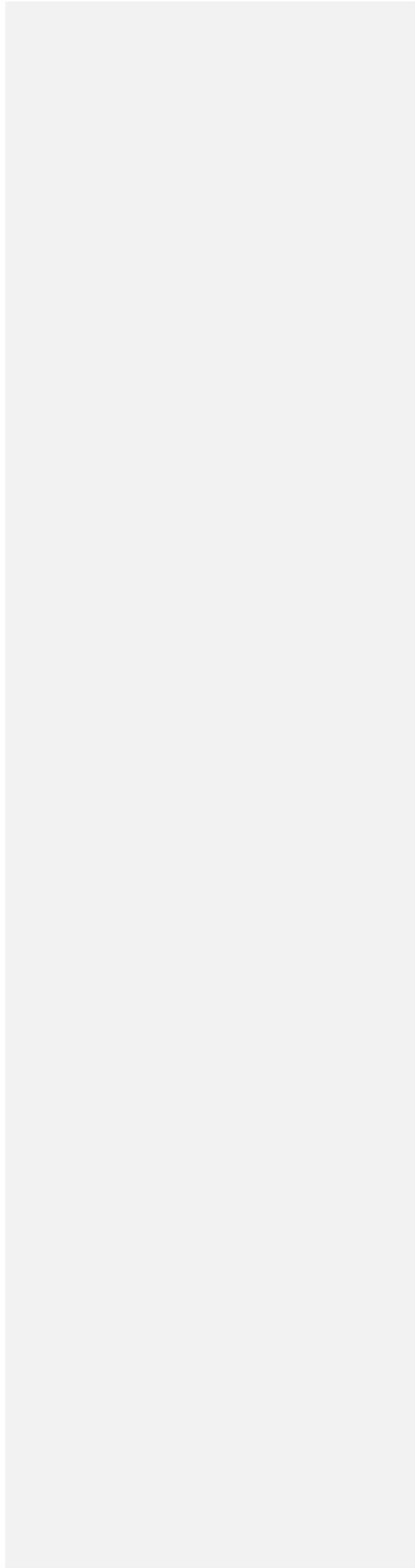
RESCUE PROCEDURES (PHONE NUMBERS AT BOTTOM) _____

* BOLD DENOTES MINIMUM REQUIREMENTS TO BE COMPLETED AND REVIEWED
PRIOR TO ENTRY*

REQUIREMENTS COMPLETED	DATE	TIME
Lock Out/De-energize/Try-out	_____	_____
Line(s) Broken-Capped-Blanked	_____	_____
Purge-Flush and Vent	_____	_____
Ventilation	_____	_____
Secure Area (Post and Flag)	_____	_____
Breathing Apparatus	_____	_____
Resuscitator - Inhalator	_____	_____
Standby Safety Personnel	_____	_____
Full Body Harness w/"D" ring	_____	_____
Emergency Escape Retrieval Equip	_____	_____
Lifelines	_____	_____
Fire Extinguishers	_____	_____
Lighting (Explosive Proof)	_____	_____
Protective Clothing	_____	_____
Respirator(s) (Air Purifying)	_____	_____
Burning and Welding Permit	_____	_____

Note: Items that do not apply enter N/A in the blank.

**RECORD CONTINUOUS MONITORING RESULTS EVERY 2 HOURS



CONTINUOUS MONITORING** Permissible _____
 TEST(S) TO BE TAKEN Entry Level
 PERCENT OF OXYGEN 19.5% to 23.5% _____
 LOWER FLAMMABLE LIMIT Under 10% _____
 CARBON MONOXIDE +35 PPM _____
 Aromatic Hydrocarbon + 1 PPM * 5PPM _____
 Hydrogen Cyanide (Skin) * 4PPM _____
 Hydrogen Sulfide +10 PPM *15PPM _____
 Sulfur Dioxide + 2 PPM * 5PPM _____
 Ammonia *35PPM _____

* Short-term exposure limit: Employee can work in the area up to 15 minutes.

+ 8 hr. Time Weighted Avg.: Employee can work in area 8 hrs (longer with appropriate respiratory protection).

REMARKS: _____

GAS TESTER NAME & CHECK #	INSTRUMENT(S) USED	MODEL &/OR TYPE	SERIAL &/OR UNIT #
_____	_____	_____	_____
_____	_____	_____	_____

SAFETY STANDBY PERSON IS REQUIRED FOR ALL CONFINED SPACE WORK

SAFETY STANDBY PERSON(S)	CHECK #	CONFINED SPACE ENTRANT(S)	CHECK #	CONFINED SPACE ENTRANT(S)	CHECK #
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

SUPERVISOR AUTHORIZING - ALL CONDITIONS SATISFIED _____

DEPARTMENT/PHONE _____

AMBULANCE 2800 FIRE 2900 Safety 4901 Gas Coordinator 4529/5387

(13) Emergency rescue procedures.

(a) In all cases when an employee is stationed outside a compartment, tank, or a confined space, as tender or standby person for the employees working inside, he shall have immediately available for emergency use all necessary personal protective equipment. The tender or standby person shall wear the personal protective equipment if he is exposed to the hazard.

(b) When an employee enters a toxic or flammable atmosphere, he shall be provided with and use an adequate, attended lifeline.

HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-23 Electrical conductors and equipment. (Amend)

(A) Unless the electrical conductors or equipment to be worked on are isolated from all possible sources of voltage or are effectively grounded, the employer shall provide protective equipment approved for the voltage involved, such as rubber gloves with protectors, rubber sleeves, hot line tools, line hose, line guards, insulator hoods, blankets, and access boards. Employees shall be instructed in the use of such tools and equipment and, when working on or when working within contact distance of an energized conductor, shall use such tools and equipment.

(B) Effective grounding devices shall be provided when work is performed on deenergized circuits or equipment. Employees shall be instructed in the use of such grounding devices.

(C) Protective devices and equipment shall be stored in a clean, dry compartment or box that will protect such equipment from punctures, snags, or moisture.

(D) Minimum clearance.

Before an employee moves or operates power cranes, shovels, backhoes or any other type of material hoisting equipment within ten feet of an energized electrical conductor, the employer shall:

(1) Assure that the conductor is deenergized and grounded, or

(2) Assure that the conductor is moved, or

(3) Assure that the conductor is guarded from accidental contact and an employee is designated to act as signalman to direct the operator in the movement of the equipment, or

(4) Assure that an insulated boom or an insulated type guard about the boom or arm of the equipment and a dielectric insulator link between the load and the block are installed and an

Deleted: CONFINED SPACE ENTRY PERMIT

Date _____

Area or Equipment to be Entered _____

Location _____

Purpose of Entry _____

Testing Instruments Used _____

Ventilation Equipment Used _____

Rescue Equipment Provided _____

Pipes Blanked Off & Switches Locked Out _____

Periodic Checks Prior to Entry – Time – Oxygen % – % LEL Reading – Tested By – Comments

1
2
3
4
5
6
7

THIS CONFINED SPACE HAS BEEN INSPECTED AND FOUND SAFE FOR ENTRY FOR PERIOD SHOWN.

Signed _____

(Person in Charge) Date/Time _____

employee is designated to act as signalman to direct the operator in the movement of the equipment.

(E) Approach distances to exposed energized conductors and equipment.

(1) The requirements of this paragraph apply only to the electric utility and clearance tree-trimming industries.

(2) No employee shall be required to approach or take any conductive object closer to any electrically energized power conductors and equipment than prescribed in table 4123:1-5-23(E) to this rule unless:

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(a) The employee is insulated or guarded from the energized parts (insulating gloves rated for the voltage involved shall be considered adequate insulation); or

(b) The energized parts are insulated or guarded from the employee and any other conductive object at a different potential; or

(c) The power conductors and equipment are deenergized and grounded.

(F) Approach distances to exposed energized conductors and equipment.

(1) The requirements of this paragraph apply only to the telecommunications industry.

(2) No employee shall be required to approach or take any conductive object closer to any electrically energized power conductors and equipment than prescribed in table 4123:1-5-23(F) to this rule unless:

Deleted: 4121

(a) The employee is insulated or guarded from the energized parts (insulating gloves rated for the voltage involved shall be considered adequate insulation); or

(b) The energized parts are insulated or guarded from the employee and any other conductive object at a different potential; or

(c) The power conductors and equipment are deenergized and grounded.

Table 4123:1-5-23(E)

Deleted: 4121

ALTERNATING CURRENT – MINIMUM DISTANCES

Voltage Range (phase to phase) kilovolt — — — — — Minimum Working and Clear Hot Stick Clearance

2.1 to 15..... 2 ft. 0 in.

15.1 to 35..... 2 ft. 4 in.

35.1 to 46..... 2 ft. 6 in.

46.1 to 72.5..... 3 ft. 0 in.

72.6 to 121..... 3 ft. 4 in.
 133 to 145..... 3 ft. 6 in.
 161 to 169..... 3 ft. 8 in.
 230 to 242..... 5 ft. 0 in.
 345 to 362.....*7 ft. 0 in.
 500 to 552.....*11 FT. 0 in.
 700 to 765.....*15 ft. 0 in.

*NOTE: For 345-362kv, 500-552kv, and 700-765kv, the minimum working distance and the minimum clear hot stick distance may be reduced provided that such distances are not less than the shortest distance between the energized part and a grounded surface.

Table [4123:1-5-23\(F\)](#)

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Approach Distances to Exposed Energized Overhead Power Lines and Parts

Voltage range (phase to phase, RMS) Approach distance (inches)

300 V and less.....(1)
 Over 300V, not over 750V.....12
 Over 750V not over 2kV.....18
 Over 2kV, not over 15kV.....24
 Over 15kV, not over 37kV.....36
 Over 37kV, not over 87.5kV.....42
 Over 87.5kV, not over 121kV.....48
 Over 121kV, not over 140kV.....54

1 Avoid contact.

(G) The requirements of paragraph (E) of this rule shall not apply to employees in insulated vehicle-mounted elevating and rotating work platforms.

HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-24 Poles. (Amend)

(A) Unsafe poles.

When, upon examination, evidence reveals a pole to be unsafe for climbing, employees shall not be required to climb such pole beyond the point where the unsafe condition begins, until the pole has been substantially reinforced.

(B) Foreign attachments.

The employee shall be required to remove all foreign attachments such as signs, notices, and posters, as he proceeds up the pole, except where such attachments cannot be legally removed.

(C) Tag or hand lines.

When raising or lowering poles and/or equipment, tag or hand lines shall be provided to maintain control of such pole or equipment.

HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-25 Vehicle-mounted elevating and rotating work platforms. (Amend)

(A) Vehicle stability.

The employer shall provide a vehicle that will assure a stable support for the aerial device.

(1) Alternative configuration.

(a) If the aerial device is capable of alternative configurations, these configurations, including the rated capacity in each situation, shall be stated on the operating instruction plate(s). Examples of alternative configurations requiring such a description on operating instruction plate(s) are as follows:

(i) Without extending outriggers vs. with outriggers extended to firm footing;

(ii) With spring lock-outs engaged vs. without spring lock-outs engaged.

(iii) With only one platform attached vs. with two platforms attached;

(iv) With digger attached to boom vs. with digger removed from boom;

(v) As a personal carrying device only vs. as a personnel carrying and material handling device.

(b) If the rated capacity of an alternative configuration is related to an angle which a boom makes with the horizontal, then a means shall be provided by which the operator can determine if the boom is at a safe angle, using permanent and legible characters where marking is necessary.

(2) Stability on level surface.

Each aerial device when mounted on a vehicle and used in a specific configuration, shall be capable of sustaining a static load one and one-half times its rated capacity when the vehicle is on a firm and level surface.

(3) Stability on slopes.

Each aerial device, when mounted on a vehicle and used in a specific configuration, shall comprise a unit capable of sustaining a static load one and one-third times the rated capacity for that specific configuration in every position in which the load can be placed within the definition of the specific configuration, when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning. If having the outriggers extended to a firm footing is a part of the definition of the configuration, then outriggers shall be extended to provide maximum leveling for the purpose of determining whether the unit meets the stability requirements. If other facilities, such as means of turntable leveling are provided to minimize the effect of sloping terrain, then those facilities shall be utilized for the purpose of determining whether the unit meets the stability requirement.

(B) Operating instruction plates.

Operating instruction plates shall be provided and attached to all aerial devices. The plate or plates shall be located in a readily accessible area, shall be clearly visible, and shall state the following: make, model and manufacturer's serial number; rated capacity; platform height, manufacturer's recommended operating pressure of pneumatic and hydraulic systems; caution and restrictions of operation; operating instructions and manufacturer's rated line voltage. Alternative configurations (see paragraph (A)(1) of this rule) shall require in addition to the above: chart, schematic or scale showing capacities of all combinations in their operating position, and caution and restrictions of operation of all alternate or combinations of alternate configurations.

(1) Mechanical ratings.

(a) Platform height.

Platform height shall be measured at its maximum elevation from the floor of the platform to the ground.

(b) Capacity.

The load, in calculating the capacity rating, shall be the platform load and supplemental loads which may be affixed directly to the boom. The capacity rating shall be designated with boom or

booms extended to the maximum horizontal reach attainable throughout full rotation of its pedestal. Capacities of the equipment in other positions must be specified separately.

(c) Reach.

Reach shall be measured from the center line of pedestal (rotation) to outer edge (rail) of the platform.

(2) Electrical ratings.

(a) Required statement.

The operating instruction plate(s) shall state whether the aerial device is insulated or noninsulated. A label (minimum one-fourth-inch letters) shall be placed at each operating control station.

(b) Rated line voltage.

In the case of insulated units, the operating instruction plate(s) shall clearly state the rated line voltage for which the aerial device is designed.

(C) Design.

(1) Structural factor of safety.

The basic structural elements of the aerial device which support the platform shall be designed such that the yield point of the materials used for any such elements shall not be exceeded with three times the rated load(s) on the aerial device. The same structural factor of safety shall apply to the platform.

(2) Controls.

Articulating boom and extensible platforms, specifically designed as personnel carriers, shall have both platform (upper) and lower controls. Upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. All controls shall be guarded or shall be of such type that they cannot be accidentally actuated. They shall be plainly marked as to their function.

(3) System protection.

Where the elevation of the boom or operation of the outriggers is accomplished by means of hydraulic cylinder assembly, a pneumatic system or an electrically operated system, pilot operated check valves or other appropriate "fail safe" devices shall be provided to prevent free fall of the boom or collapse of the outriggers in the event of power failure.

(4) Platform rail and toeboard.

Each platform shall be provided with a guardrail no more than forty-five inches and no less than thirty-nine inches above the floor of the platform, an intermediate rail, and a toeboard, or its equivalent, around the periphery.

(5) Bursting factor of safety.

All critical components of hydraulic or pneumatic systems shall withstand a pressure of no less than four times the normal operating pressure of the system. Critical components are those in which a failure would result in a free fall or free rotation of the boom. All noncritical components shall have a bursting safety factor of two.

(6) Insulated boom and platform specifications.

(a) The insulated boom and platform shall be constructed of an insulating material which will meet the test requirements specified and shall be of dielectric material which will not absorb moisture (fiberglass or equivalent). All components bridging the insulated portions of the boom structure shall have an equivalent electrical insulating value.

(b) Test electrodes.

Test electrodes shall be permanently located on the inside and outside surfaces of the insulated portion of the boom. Insulated units under sixty-nine kilovolts do not require permanent test electrodes. These electrodes shall be two to six inches from the metal portion of the lower end of the insulated upper boom. All hydraulic and air lines bridging the insulated portion of the boom shall have metallic couplings adjacent to the test electrodes. Couplings shall be insulated from the metal portion of the boom and electrically connected to the test electrodes.

(c) When insulated booms and platforms are not used in proximity to electrical conductors, the requirements of paragraphs (C)(6)(a) and (C)(6)(b) of this rule do not apply.

(D) Testing.

(1) Employees shall not be required to use aerial devices that have not been tested to withstand a static load of one and one-half the rated capacity through its entire range of motion.

(2) Employees shall not be required to use insulated boom aerial devices or basket liners near energized conductors or equipment unless such devices or liners will withstand approved electrical tests.

(3) Any equipment specified in this paragraph must be subjected to the same tests as prescribed in paragraphs (D)(1) and (D)(2) of this rule after any modification.

(E) Transfer to or from aerial basket.

Employees of the electric utility and telecommunications industries and their contractors and subcontractors shall not be required to transfer from an aerial basket to any object or structure, or from any object or structure to an aerial basket, while the aerial basket is elevated above the ground. This does not apply to operations where the aerial basket is extended over a flat surface and where the hazard of falling has been eliminated.

(F) Flasher lights.

Vehicles upon which elevating or rotating work platform are mounted shall be provided with flasher lights.

HISTORY: Eff 1-1-86; 4-1-99

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.12](#), [4121.121](#), [4121.13](#)

Rule amplifies: RC [4121.47](#)

119.032 review date: 3/1/03; 3/1/98

4123:1-5-26 Trenches and excavations. (Amend)

(A) General requirements.

(1) Utility companies and municipally owned utilities shall be contacted and advised of proposed work prior to the start of actual excavation. Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., sewer, telephone, water, fuel, electric lines, etc., will be encountered and, if so, where such underground installations are located.

(2) An employee shall not be required to use mechanical digging or trenching equipment within three feet of an energized underground electrical conductor whose location is known, unless the conductors are protected by concrete ducts or equivalent protection.

(3) Where trenches or excavations are made in locations adjacent to backfilled trenches or excavations or where trenches or excavations are subjected to vibrations from any source, such as railroad or highway traffic or the operation of machinery, additional precautions by way of shoring and bracing shall be taken to prevent slides or cave-ins.

(4) Undercutting of the exposed faces of trenches or excavations is prohibited unless the exposed faces of such undercutting are supported by one or more of the methods prescribed for the support of exposed faces of trenches.

(5) Material placement.

(a) Excavated material or other material shall be retained a minimum of twenty-four inches from the top edge of the trench or excavation.

(b) As an alternative to the clearance prescribed in paragraph (A)(5)(a) of this rule, the employer shall use effective barriers or other effective retaining devices in lieu thereof in order to prevent excavated or other materials from falling into the trench or excavation.

(6) Wells, pits, shafts etc.

(a) All wells, pits, shafts, etc., shall be barricaded or covered.

(b) Upon completion of exploration and similar operations, temporary wells, pits, shafts, etc., shall be backfilled.

(B) Trenches.

(1) The exposed faces of all trenches more than five feet high shall be shored, laid back to a stable slope, or some other equivalent means of protection shall be provided where employees may be exposed to moving ground or cave-ins. (See table 26-1 to this rule.)

(2) Sides of trenches in unstable or soft material, five feet or more in depth, shall be shored, sheeted, braced, sloped, or otherwise supported by means of sufficient strength to protect the employees working within them. (See table 26-1 and table 26-2 to this rule.)

(3) Sides of trenches in hard compact soil, including embankments, shall be shored or otherwise supported when the trench is more than five feet in depth and eight feet or more in length. In lieu of shoring, the sides of the trench above the five-foot level shall be sloped to preclude collapse, but shall not be steeper than a one-foot rise to each one-half-foot horizontal.

(4) Materials used for sheeting and sheet piling, bracing, shoring, and underpinning, shall be in good serviceable condition, and timbers used shall be sound and free from large or loose knots, and shall be designed and installed so as to be effective to the bottom of the trench.

(5) Minimum requirements – trench shoring.

(a) Minimum requirements for trench bracing and shoring shall be in accordance with table 26-2 to this rule. The vertical planks in the bracing system shall extend at least to the top of the trench face.

(b) Braces and diagonal shores in a wood shoring system shall not be subjected to compressive stress in excess of values given by the following formula:

$$S = 1300 - 20 L$$

D

maximum ratio : $L = 50$

–

D

where:

L = length, unsupported, in inches.

D = least side of the timber in inches.

S = allowable stress in pounds per square inch of cross section.

(6) When employees are required to be in trenches four feet deep or more, an adequate means of exit, such as a ladder or steps, shall be provided and located so as to require no more than twenty-five feet of lateral travel.

(7) When bracing or shoring of trenches is required, such bracing and shoring shall be carried along with the excavation.

(8) Cross braces or trench jacks shall be placed in true horizontal position, be spaced vertically, and be secured to prevent sliding, falling, or kickouts.

(9) Portable trench boxes, safety cages or sliding trench shields may be used for the protection of employees in lieu of a shoring system or sloping. Where such trench boxes or shields are used, they shall be designed, constructed, and maintained in a manner which will provide protection equal to or greater than the sheeting or shoring required for the trench and shall extend at least to the top of the trench face.

(10) Backfilling and removal of trench supports shall progress together from the bottom of the trench. Jacks or braces shall be released slowly, and, in unstable soil, employees shall clear the trench before pulling out the jacks or braces with ropes.

(C) Excavations.

(1) The walls and faces of all excavations in which employees are exposed to danger from moving ground shall be guarded by a shoring system, sloping of the ground, or some other equivalent means. (See table 26-1 and table 26-2 to this rule.)



Table 26-2.
TRENCH SHORING—MINIMUM REQUIREMENTS

Field Code Changed

Depth of trench	Kind or condition of earth	Size and spacing of members										
		Uprights		Stringers		Cross braces ¹					Maximum spacing	
						Width of trench						
		Minimum dimension	Maximum spacing	Minimum dimension	Maximum spacing	Up to 3 feet	3 to 6 feet	6 to 9 feet	9 to 12 feet	12 to 15 feet	Vertical	Horizontal
Feet	Inches	Feet	Inches	Feet	Inches	Inches	Inches	Inches	Inches	Feet	Feet	
5 to 10	Hard, compact	3x4 or 2x6	6		2x6	4x4	4x6	6x6	6x8	4	6	
	Likely to crack	3x4 or 2x6	3	4x6	4	2x6	4x4	4x6	6x6	6x8	4	6
	Soft, sandy, or filled	3x4 or 2x6	Close sheeting	4x6	4	4x4	4x6	6x6	6x8	8x8	4	6
	Hydrostatic pressure	3x4 or 2x6	Close sheeting	6x8	4	4x4	4x6	6x6	6x8	8x8	4	6

Shoring is not required in solid rock, hard shale, or hard slag.

Where desirable, steel sheet piling and bracing of equal strength may be substituted for wood.

(2) Supporting systems, i.e., piling, cribbing, shoring etc., shall be designed by a qualified person and shall meet accepted engineering requirements.

(3) Excavations sloped to the angle of repose shall be flattened when an excavation has water conditions, silty materials, loose boulders, and areas where erosion, deep frost action, and slide planes appear.

Deleted: substantially constructed to prevent cave-in and sliding.¶

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(4) Sides, slopes, and faces of all excavations shall meet accepted engineering requirements, by scaling, benching, barricading, rock bolting, wire meshing, or equally effective means.

Deleted: be made safe

(5) Materials used for sheeting, sheet piling, cribbing, bracing, shoring, and underpinning shall be in good serviceable condition, and timbers shall be sound, free from large or loose knots, and of proper dimensions. (See table 26-2 to this rule for proper dimensions.)

(6) Excavations below the level of the base of the footing of any foundation or retaining wall are prohibited, except in hard rock, unless the wall is underpinned and appropriate precautions are taken to ensure the stability of adjacent walls.

(7) If it is necessary to place or operate power shovels, derricks, trucks, materials, or other heavy objects on a level above and near an excavation, the side of the excavation shall be sheet-piled, shored, braced or sloped as necessary to resist the extra pressure due to such super-imposed loads.

(8) When mobile equipment is utilized or allowed adjacent to excavations, substantial stop logs or barricades shall be installed.

(9) Where employees or equipment are required to cross over excavations, walkways or bridges with standard guardrails shall be provided.

HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-27 Lasers. (Amend)

See paragraph (D)(5) of rule [4123:1-5-17](#) of the Administrative Code for eye protection required in laser operations.

Deleted: 4121

(A) Labeling of laser equipment.

The employer shall furnish equipment provided with labels containing the following minimum information for continuous-wave (CW) lasers:

- (1) Wavelength or wavelength range;
 - (2) Emergent beam size;
 - (3) Beam divergence;
 - (4) Maximum average power output;
 - (5) Maximum emergency beam irradiance;
 - (6) Manufacturer's name and address;
 - (7) Product identification number.
- (B) Posting.

The employer shall post notices in prominent locations in which lasers are being operated. (For examples see appendix to this rule.)

(C) Beam shutters or caps shall be utilized, or the laser turned off, when laser transmission is not actually required. When the laser is left unattended for a substantial period of time, such as during lunch hour, overnight, or at change of shifts, the laser shall be turned off.

(D) Atmospheric conditions.

The employer shall require the employee to keep away from the source, range, and target of the laser when there is exposure to rain or snow or when there is dust or fog in the air.

Appendix TO RULE [4123:1-5-27](#)

Deleted: 4121

For Appendix – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

[4123:1-5-28 Helicopters. \(Amend\)](#)

(A) Slings and tag lines.

Loads shall be balanced and securely fastened. Tag lines where used shall be of a length that will not permit their being drawn up into the rotors. Pressed sleeve, swedged eyes, or equivalent means shall be used for all freely suspended loads to prevent hand splices from spinning open or cable clamps from loosening.

(B) Cargo hooks.

All electrically operated cargo hooks shall have the electrical activating device so designed and installed as to prevent inadvertent operation. In addition, the cargo hooks shall be equipped with an emergency mechanical control for releasing the load. Hooks shall be tested prior to each day's operation to determine that the release functions properly, both electrically and mechanically.

(C) Personal protective equipment.

Personal protective equipment shall be provided and shall consist of complete eye protection and a hard hat secured by a chinstrap.

(D) Housekeeping.

Good housekeeping shall be maintained in all helicopter loading and unloading areas.

(E) Weight limitation.

The weight of an external load shall not exceed the helicopter manufacturer's rating.

(F) Signal systems.

The employer shall instruct the aircrew and ground personnel on the signal systems to be used and shall review the system with the employees in advance of hoisting the load. This applies to both radio and hand signal systems. Hand signals, where used, shall be as shown in illustration 28-1 to this rule, "Helicopter Hand Signals."

Illustration 28-1, Helicopter hand signals

For Illustration 28-1 – To obtain the appendix, table, image, etc. please call LSC's ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

(G) Communications.

There shall be constant reliable communication between the pilot and a designated employee of the ground crew who acts as a signalman during the period of loading and unloading. Where hand signals are used the signalman shall be clearly distinguishable from other ground personnel.

(H) Fires.

Open fires are prohibited in areas where they could be spread by the rotor downwash.

HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-29 Explosives and blasting. (Amend)

(A) Specific requirements for all blasting operations.

(1) No explosives shall be abandoned.

(2) Smoking, firearms ([except firearms carried by guards](#)), matches, open flame lamps, and other fire, flame, heat or spark-producing devices are prohibited in or within fifty feet of explosive magazines or while explosives are being handled, transported or used.

(3) Persons authorized to prepare explosive charges or conduct blasting operations shall use every reasonable precaution, including, but not limited to, warning signals, flags, barricades, or woven wire mats to protect employees.

(4) Before a charge is detonated, employees shall be instructed to leave the blasting area.

(5) Blasting operations in the proximity of overhead power lines, communications lines, utility services, or other services and structures, [the blaster shall notify the appropriate representatives of such utilities at least 24 hours in advance of blasting, specifying the location and intended time of such blasting. Verbal notice shall be confirmed with written notice.](#)

(6) Signs shall be posted warning against the use of mobile radio transmitters on all roads within three hundred fifty feet of blasting operations where electric blasting caps are used.

Deleted: shall not be carried on until the operators or owners have been notified and measures have been taken to protect the employer's employees.¶

(7) All blasting operations shall be suspended and employees removed from the blasting area during the approach and progress of an electrical storm.

(8) Empty boxes, paper, and fiber packing materials which have previously contained [explosive materials shall be disposed of in a safe manner, or reused in accordance with the Department of Transportation's Hazardous Materials Regulations \(49 CFR parts 177-180\).](#)

(9) Containers of explosives [shall not be opened in any magazine or within fifty feet of any magazine. In opening kegs or wooden cases, no sparking metal tools shall be used; wooden wedges and either wood, fiber or rubber mallets shall be used. Nonsparking metallic slitters may be used for opening fiberboard cases.](#)

Deleted: high explosives shall not be used again for any purpose but shall be destroyed by burning at a location approved by the blaster, and no employee shall be permitted closer than one hundred feet after the burning has started.¶

(10) Explosive materials that are obviously deteriorated or damaged shall not be used and shall be disposed of in accordance with the manufacturer's recommendation.

Deleted: shall not be opened within fifty feet of any magazine. In opening cases, nonsparking tools shall be used, except that metal slitters may be used for opening fiberboard boxes.¶

(B) Transportation of explosives.

Any vehicle used to transport explosives on the job site shall have a nonsparking floor and side members and shall carry at least two fire extinguishers, [each having a rating of at least 10-BC. Blasting caps or electric blasting caps shall not be transported over the highways on the same vehicles with other explosives, unless packaged, segregated, and transported in accordance with the Department of Transportation's Hazardous Materials Regulations \(49 CFR parts 177-180\).](#)

(C) Storage of explosives and blasting agents.

(1) Blasting caps, electric blasting caps, or other detonating devices shall not be stored in the same magazine with other explosives or blasting agents.

(2) Primed cartridges shall not be stored.

(3) All explosives stored on the job site shall be stored in approved storage facilities. All brush and combustible materials shall be kept clear of the magazine to a distance of no less than twenty-five feet.

(D) Loading of explosives or blasting agents.

(1) All drill holes shall be sufficiently large to admit freely the insertion of the packages of explosive materials.

(2) Tamping shall be done only with wooden rods without exposed metal parts, except that nonsparking metal connectors may be used for jointed poles. Violent tamping is prohibited. Primed cartridges shall not be tamped.

(3) No holes shall be loaded except those to be fired in the next round of blasting. After loading, all remaining explosives shall be immediately returned to the magazine.

(4) Drilling shall not be started until all remaining butts of old holes are examined with a wooden rod for unexploded charges, and, if any are found, they shall be refired before work proceeds.

(5) Drill holes which have contained explosives or blasting agents shall not be made deeper.

(6) No loaded holes shall be left unattended.

(E) Initiation of explosive charges.

(1) General.

(a) When fuse is used, the blasting cap shall be securely attached to it with a standard ring type cap crimper. All primers shall be assembled no less than fifty feet from any magazine.

(b) Primers for use in blasting shall be made up only as required for each round of blasting.

(c) No blasting cap shall be inserted in the explosive materials without first making a hole in the cartridge for the cap with a wooden punch of proper size or standard cap crimper.

(d) If there are any misfires while using cap and fuse, all employees shall be required to remain away from the charge for at least an hour. If electric blasting caps are used and a misfire occurs, this waiting period may be reduced to thirty minutes.

(2) Electric blasting caps.

(a) Blasters, when testing circuits to loaded holes, shall use only blasting galvanometers or other instruments which have been designed and approved for the purpose.

Deleted: approved for the hazard involved. Explosives and blasting caps shall not be transported in the same vehicle except that electric blasting caps in an approved container may be transported in the same vehicle with explosives.¶

Deleted: nonsparking punch

(b) Only the employee making the final check on the wire connections shall fire the shot. All connections shall be made from bore hole back to the source of firing current, and the leading wires shall remain shorted and not be connected to the blasting machine or other source of current until the charge is to be fired.

HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-99 Table of standard materials and dimensions.
(Amend)

Where required by Chapter [4123:1-5](#) of the Administrative Code, the following table to this rule shall be used.

TABLE OF STANDARD MATERIALS AND DIMENSIONS

<u>Material</u>	<u>Distance of opening from hazard zone (inches)</u>	<u>Maximum width of opening allowable (inches)</u>	<u>Minimum Gauge (U.S. Standard) or thickness</u>	<u>Minimum height of guard from floor or platform level (feet)</u>
<u>Woven wire</u>	<u>Under 4</u>	<u>* see table below</u>	<u>No. 16</u>	<u>7</u>
	<u>15-Apr</u>		<u>No. 12</u>	<u>7</u>
<u>Expanded metal</u>	<u>Under 4</u>	<u>* see table below</u>	<u>No. 18</u>	<u>7</u>
	<u>15-Apr</u>		<u>No. 13</u>	<u>7</u>
<u>Perforated metal</u>	<u>Under 4</u>	<u>* see table below</u>	<u>No. 20</u>	<u>7</u>
	<u>15-Apr</u>		<u>No. 14</u>	<u>7</u>
<u>Sheet metal</u>	<u>Under 4</u>	<u>* see table below</u>	<u>No. 22</u>	<u>7</u>

Deleted: For Table – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.¶

	<u>15-Apr</u>		<u>No. 22</u>	<u>7</u>
<u>Wood or metal strip not crossed</u>	<u>Under 4</u>	<u>* see table below</u>	<u>Wood ¾</u> <u>Metal No. 16</u>	<u>7</u>
	<u>15-Apr</u>		<u>Wood ¾</u> <u>Metal No. 16</u>	<u>7</u>
<u>Standard guard railing</u>	<u>Minimum 15</u> <u>Maximum 20</u>	-	-	-

<u>Distance of opening from hazard zone (inches)</u>	<u>Maximum width of opening allowable (inches)</u>
<u>0.5 to 1.5</u>	<u>0.25</u>
<u>Over 1.5 to 2.5</u>	<u>0.375</u>
<u>Over 2.5 to 3.5</u>	<u>0.5</u>
<u>Over 3.5 to 5.5</u>	<u>0.625</u>
<u>Over 5.5 to 6.5</u>	<u>0.75</u>
<u>Over 6.5 to 7.5</u>	<u>0.875</u>

<u>Over 7.5 to 12.5</u>	<u>1.25</u>
<u>Over 12.5 to 15.5</u>	<u>1.5</u>
<u>Over 15.5 to 17.5</u>	<u>1.875</u>
<u>Over 17.5 to 31.5</u>	<u>2.125</u>

HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II. Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-99.1 Toxic concentration, flash point, boiling point, explosive limits and vapor density of common flammable and toxic liquids and gases. (Amend)

Where required by Chapter [4123:1-5](#) of the Administrative Code, the following table to this rule shall be used.

[TOXIC CONCENTRATION, FLASH POINT, BOILING POINT, EXPLOSIVE LIMITS AND VAPOR DENSITY OF COMMON FLAMMABLE AND TOXIC LIQUIDS AND GASES](#)

[Substance –Occupational Exposure Limit ppm – Flash Point* 토평- Point – Boiling LOWER 토평- Flammable UPPER % – Limits Desinty % – Vapor Air = 1](#)

Deleted: 4121

[Acetone 1000 0 – 134 2.6 12.8 2.0](#)

[Amyl Acetate 100 77 300 1.1 7.5 4.5](#)

[benzene 1 12 176 1.3 7.1 2.8](#)

[\(n\)Butyl acetate 150 72 260 1.7 7.6 4.0](#)

[\(n\)Butyl alcohol \(butanol\) 100 84 243 1.4 11.2 2.6](#)

[2-butoxy ethanol \(Butyl cellosolve\) - skin 50 141 340 1.1 10.6](#)

[Carbon tetrachloride 10 none 170 none none 5.3](#)

[2-ethoxyethanol \(Cellosolve\) - skin 200 104 275 2.6 15.7 3.0](#)

[2-ethoxyethyl acetate \(Cellosolve acetate\) - skin 100 124 313 1.7 — 4.6](#)

[Chlorobenzene \(monochlorobenzene\) 75 85 270 1.3 7.1 3.9](#)

[Chloroform \(trichloromethane\) C50** none 142 none none 4.0](#)

[Cyclohexane 300 -4 179 1.3 8.0 2.9](#)

[Cyclohexanone 50 111 313 1.1@212? 3.4](#)

[1,2-Dichloroethylene 200 43 140 9.7 12.8 3.4](#)

[Ethyl acetate 400 24 171 2.2 11.0 3.0](#)

[Ethyl alcohol \(ethanol\) 1000 55 173 3.3 19.0 1.6](#)

[Ethyl ether 400 -49 95 1.9 48.0 2.6](#)

[Ethylene dichloride \(1,2-dichloroethane\) 50 56 183 6.2 16.0 3.4](#)

[\(n\)Heptane 500 25 208 1.0 6.7 3.5](#)

[\(n\)Hexane 500 -22 156 1.1 7.5 3.0](#)

[Aliphatic hydrocarbon gases, Alkanes \[C₁-C₄\]-1000 5.3 14.0 0.6](#)

[Methyl acetate 200 14 140 3.1 16.0 2.8](#)

[Methyl alcohol \(methanol\) 200 52 147 6.7 36.0 1.1](#)

[2-hexanone \(Methyl butyl ketone\) 100 79 262 1.2 8.0 3.5](#)

[2-methoxyethanol \(Methyl cellosolve\) -skin 25 105 255 2.5 14.0 2.6](#)

[2-methoxyethyl acetate \(Methyl cellosolve acetate\)-skin 25 111 292 1.7 8.2 4.1](#)

[Methyl chloroform \(1,1,1 trichloroethane\) 350 -** 165 10.5 15.5 4.6](#)

[2-butanone \(Methyl ethyl ketone\) 200 21 176 1.8 10.0 2.5](#)

[2-Hexanone \(Methyl isobutyl ketone\) 100 73 244 1.4 7.5 3.5](#)

[2-pentanone \(Methyl propyl ketone\) 200 45 216 1.5 8.2 3.0](#)

[Methylene chloride \(dichloromethane\) 25 none 104 - - 2.9](#)

[tetrachloroethylene \(Perchloroethylene\) 100 none 249 - - 5.7](#)

[Petroleum distillates Naphtha 500 under 100 212-320 0.9 6.0 4.3](#)

[Isophorone 25 184 419 0.8 3.8 4.8](#)

[Isopropyl acetate 250 40 194 1.8 8.0 3.5](#)

[Isopropyl alcohol 400 53 181 2.0 12.0 2.1](#)

[Styrene monomer \(phenylethylene\) 100 90 295 1.1 6.1 3.6](#)

[Toluene \(Toluol\) 200 40 232 1.2 7.1 3.1](#)

[Trichloroethylene 100 90 189 12.5 90.0 4.5](#)

[Turpentine 100 95 300 0.8 - 4.7](#)

[Xylene 100 63 291 1.1 7.0 3.7](#)

[*Closed Cup \(The temperature at which a vapor will ignite if it is in a closed container in contrast to an open container.\)*Non-flammable under ordinary conditions of temperature and pressure](#)

[** C50 is an allowable ceiling concentration of 50 ppm](#)

FLASH POINT – is the temperature at which vapors given off by flammable solvent will burn with a flash but will not continue to burn until more solvent has evaporated.

LOWER EXPLOSIVE LIMIT – is the lowest concentration of flammable vapor that will “flash” when ignited. The energy of the explosion is at a minimum because the mixture is “lean”.

UPPER EXPLOSIVE LIMIT – is the richest concentration of vapors that will flash when ignited. The energy of the explosion is low because the mixture is too “rich”. Concentrations of vapors above or below the explosive limits will not burn.

VAPOR DENSITY – is the weight of the vapors of a solvent compared with air. For example, all flammable solvent vapors are heavier than air and will tend to fall to the floor and accumulate in low places. Some gases are lighter than air and will rise – example, methane.

Deleted: TOXIC CONCENTRATION, FLASH POINT, BOILING POINT, EXPLOSIVE LIMITS AND VAPOR DENSITY OF COMMON FLAMMABLE AND TOXIC LIQUIDS AND GASES¶
Substance – Limit Value ppm – Flash Point* ¶- Point – Boiling LOWER ¶- Flammable UPPER % – Limits Desinty % – Vapor Air = 1¶
Acetone 1000 0 – 134 2.6 12.8 2.0¶
Amyl Acetate 100 77 300 1.1 7.5 4.5¶
(C)Benzol (benzene) – skin 10 12 176 1.3 7.1 2.8¶
(n)Butyl acetate 150 72 260 1.7 7.6 4.0¶
(n)Butyl alcohol (butanol) – skin 50 84 243 1.4 11.2 2.6¶
Butyl cellosolve (2-butoxy ethanol) 50 141 340 1.1 10.6¶
Carbon tetrachloride – skin 10 none 170 none none 5.3¶
Cellosolve (2-ethoxyethanol) 200 104 275 2.6 15.7 3.0¶
Cellosolve acetate (2-ethoxyethyl acetate) 100 124 313 1.7 – 4.6¶
Chlorobenzene (monochlorobenzene) 75 85 270 1.3 7.1 3.9¶
Chloroform (trichloromethane) 10 none 142 none none 4.0¶
Cyclohexane 300 -4 179 1.3 8.0 2.9¶
Cyclohexanone 50 111 313 1.1@212? 3.4¶
1,2-Dichloroethylene 200 43 140 9.7 12.8 3.4¶
Ethyl acetate 400 24 171 2.2 11.0 3.0¶
Ethyl alcohol (ethanol) 1000 55 173 3.3 19.0 1.6¶
Ethyl ether 400 -49 95 1.9 48.0 2.6¶
Ethylene dichloride (1,2-dichloroethane) 50 56 183 6.2 16.0 3.4¶
(n)Heptane 400 25 208 1.0 6.7 3.5¶
(n)Hexane 100 -22 156 1.1 7.5 3.0¶
Methane – Gas -259 5.3 14.0 0.6¶
Methyl acetate 200 14 140 3.1 16.0 2.8¶
Methyl alcohol (methanol)-skin 200 52 147 6.7 36.0 1.1¶
Methyl butyl ketone (2-hexanone)-skin 25 79 262 1.2 8.0 3.5¶
Methyl cellosolve (2-methoxyethanol)-skin 25 105 255 2.5 14.0 2.6¶
Methyl cellosolve acetate-skin 25 111 292 1.7 8.2 4.1¶
Methyl chloroform (1,1,1 trichloroethane) 350 -** 165 10.5 15.5 4.6¶
Methyl ethyl ketone (2-butanone) 200 21 176 1.8 10.0 2.5¶
Methyl isobutyl ketone (hexone)-skin 100 73 244 1.4 7.5 3.5¶
Methyl propyl ketone (2-pentanone) 200 45 216 1.5 8.2 3.0¶
Methylene chloride (dichloromethane) 100 none 104 - - 2.9¶
Natural Gas – Gas – 3.8-6.5 13-17 -¶
Perchloroethylene (tetrachloroethylene)-skin 100 none 249 - - 5.7¶
Petroleum distillates Naphtha – under 100 212-320 0.9 6.0 4.3¶

HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II. Sec. 35

119.032 Review Date: 3-1-03

4123:1-5-99.2 Examples of local exhaust ventilation.

(Amend)

(A) Prints which appear in this rule are copied from "Industrial Ventilation, A Manual of Recommended Practice," of the "American Conference of Governmental Industrial Hygienists." They are identified with the name of the organization.

Many of the examples have name changes as the examples have been updated.

(B) Index.

- (1) "Principles of Dilution Ventilation" Figure 2-1
- (2) "Principles of Exhaust Hoods" Figure 3-1
- (3) "Building Air Inlets and Outlets" Figures 5-31 & 5-32
- (4) "Principles of Duct Design" Figures 5-28 & 5-33
- (5) "Stackhead Designs" Figure 5-33
- (6) "Abrasive Blasting Ventilation" VS-80-01 and VS-80-02
- (7) "Auto Spray Paint Booth" VS-75-05
- (8) "Large Drive-Through Spray Paint Booth" VS-75-04
- (9) "Backstand Idler Polishing Machine" VS-80-32
- (10) "Bag Filling" VS-15-02
- (11) "Bag Tube Packer" VS-15-03
- (12) "Banbury Mixer" VS-60-10
- (13) "Rubber Calender Rolls" VS-60-11

- (14) "Barrel Filling" VS-15-01
- (15) "Bin and Hopper Ventilation" VS-50-10
- (16) "Bucket Elevator Ventilation" VS-50-01
- (17) "Circular Automatic Buffing" VS-80-34
- (18) "Soft Wheel Buffing Lathe" VS-80-31
- (19) "Straight Line Automatic Buffing" VS-80-33
- (20) "Buffing and Polishing" VS-80-30
- (21) "Conveyor Belt Ventilation" VS-50-20
- (22) "Core Grinder" VS-80-13
- (23) "Crucible Melting Furnace - High Toxicity Material" VS-55-06
- (24) "Dip Tank" VS-75-06
- (25) "Horizontal Double-Spindle Disc Grinder" VS-80-15
- (26) "Horizontal Single-Spindle Disc Grinder" No comparable example
- (27) "Vertical Spindle Disc Grinder" VS-80-14
- (28) "Dry Box or Glove Hood for High Toxicity and Radioactive Materials" VS-35-20
- (29) "Drying Oven Ventilation" VS-75-20
- (30) "Electric Rocking Furnace" VS-55-04
- (31) "Hood for Top Electrode Melting Furnace" VS-55-03
- (32) "Foundry shakeout Side-draft Hood and Enclosing Hood" VS-20-02 for side-draft and VS-20-01 for enclosing hood
- (33) "Double Side-draft and Downdraft Hood" Double side-draft is covered above in VS-20-02, downdraft hood is VS-20-03
- (34) "Exhaust Requirement" (Incorporated in VS-20-[1 thru 3])
- (35) "Service Garage Ventilation - Underfloor" VS-85-02

- (36) "Service Garage Ventilation - Overhead" VS-85-01
- (37) "Granite Cutting and Finishing" VS-65-02
- (38) "Grinder Wheel Hood Speeds Below 6500 SFM" VS-80-11
- (39) "Grinder Wheel Hood Speeds Above 6500 SFM" VS-80-10
- (40) "Downdraft Hoods and Booth-type Hoods" No comparable
- (41) "Push Pull Hoods" VS-72-01
- (42) "Jointers" VS-95-20
- (43) "Laboratory Hood" VS-35-01
- (44) "Kitchen Range Hoods" VS-30-10
- (45) "Kitchen Range Hood - Low Side Wall Hood" VS-30-11
- (46) "Indoor Pistol and Small Bore Rifle Range" VS-99-04
- (47) "Lathe Hood High Toxicity Materials" VS-45-05
- (48) "Melting Pot and Furnace Non-tilt" VS-55-05
- (49) "Melting Furnace Crucible Non-tilt" VS-55-01
- (50) "Melting Furnace - Tilting" VS-55-02
- (51) "Die Casting Hood" VS-55-20
- (52) "Die Casting Machine or Melting Furnace" VS-55-21
- (53) "Metal Polishing Belt" VS-80-35
- (54) "Metal Shears High Toxicity Materials" VS-45-03
- (55) "Metal Spraying" VS-90-30
- (56) "Milling Machine Hood High Toxicity Materials" VS-45-02
- (57) "Mixer and Muller Hood" VS-60-01
- (58) "Mixer and Muller Ventilation" Examples 57 & 58 are the same
- (59) "Upward Plenum, Downward Plenum, Central Slot" VS-60-02

- (60) "Pickling Tank, Semi-lateral, End Take-off" VS-70-01 & VS-70-02
- (61) "Design Data" 10.70.1 Tank Design Considerations, page 10-99
plus table 10.70.6 pages 10-103 thru 10-108
- (62) "Small Paint Booth" VS-75-02
- (63) "Large Paint Booth" VS-75-01
- (64) "Portable Chipping and Grinding Table" VS-80-19
- (65) "Portable Hand Grinding" VS-80-18
- (66) "Pouring Station" VS-55-10
- (67) "Shell Core Molding" VS-20-10
- (68) "Disc Sanders" VS-95-12
- (69) "Horizontal Belt Sanders" VS-95-13
- (70) "Multiple Drum Sander" VS-95-11
- (71) "Single Drum Sander" VS-95-10
- (72) "Abrasive Cut-off Saw Ventilation" VS-80-17
- (73) "Fluidized Beds" VS-99-05
- (74) "Band Saws" VS-95-01
- (75) "Swing Saws" VS-95-04
- (76) "Table Saw" VS-95-02 plus VS-95-05
- (77) "Radial Saw" VS-95-03
- (78) "Screens" VS-99-01
- (79) "Soldering and Arc Welding" VS-90-01 plus VS-90-02
- (80) "Solvent Degreasing Tanks" VS-70-20
- (81) "Swing Grinder" VS-80-16
- (82) "Table Slot" This is part of VS-70-02
- (83) "Trailer Interior Spray Painting" VS-75-03

- (84) "Tumbling Mills" VS-80-03
- (85) "Arc Welding" This is on the same example VS-90-02
- (86) "Torch Cutting Ventilation" VS-90-10
- (87) "Extractor Head for Cone Wheels and Mounted Points" VS-40-01
- (88) "Hood for Cup Type Surface Grinders and Wire Brushes" VS-40-02
- (89) "Pneumatic Chisel Sleeve" VS-40-03
- (90) "Extractor Head for Small Radial Grinders" VS-40-04
- (91) "Extractor Hood for Disc Sander" VS-40-05
- (92) "Extractor Tool for Vibratory Sander" VS-40-06

(93) "Typical System Low Volume High Velocity" VS-40-20 (C) Design data – open surface tanks.

- (1) Duct velocity = two thousand fpm minimum.
 - (2) Entry loss = 1.78 slot VP plus duct entry loss.
 - (3) Maximum plenum velocity = one-half slot velocity.
 - (4) Slot velocity = two thousand fpm unless distribution provided by well-designed fish-tail.
 - (5) Provide ample excess area at small end of plenum.
 - (6) If L exceeds six to ten feet, multiple take-offs are advisable.
 - (7) If W = twenty inches, slot on one side suitable. If W = twenty to thirty-six inches, slots on both sides desirable.
- If W is much greater than thirty-six inches, slots on both sides are necessary unless all other conditions are optimum.
- (8) Liquid level to be at least six inches below bottom of slot.
 - (9) Hood types A, C, D and E, are preferred — Plenum acts as baffle to room air currents.
 - (10) Provide enclosures or removable covers on tank if possible.
 - (11) Provide ductwork with clean-outs and drains, and corrosion resistant coating if necessary.

MINIMUM *EXHAUST VOLUME

Deleted: (B) Index.¶

- (1) "Principles of Dilution Ventilation"¶
- (2) "Principles of Exhaust Hoods"¶
- (3) "Building Air Inlets and Outlets"¶
- (4) "Principles of Duct Design"¶
- (5) "Stackhead Designs"¶
- (6) "Abrasive Blasting Ventilation"¶
- (7) "Auto Spray Paint Booth"¶
- (8) "Large Drive-Through Spray Paint Booth"¶
- (9) "Backstand Idler Polishing Machine"¶
- (10) "Bag Filling"¶
- (11) "Bag Tube Packer"¶
- (12) "Banbury Mixer"¶
- (13) "Rubber Calendar Rolls"¶
- (14) "Barrel Filling"¶
- (15) "Bin and Hopper Ventilation"¶
- (16) "Bucket Elevator Ventilation"¶
- (17) "Circular Automatic Buffing"¶
- (18) "Soft Wheel Buffing Lathe"¶
- (19) "Straight Line Automatic Buffing"¶
- (20) "Buffing and Polishing"¶
- (21) "Conveyor Belt Ventilation"¶
- (22) "Core Grinder"¶
- (23) "Crucible Melting Furnace – High Toxicity Material"¶
- (24) "Dip Tank"¶
- (25) "Horizontal Double-Spindle Disc Grinder"¶
- (26) "Horizontal Single-Spindle Disc Grinder"¶
- (27) "Vertical Spindle Disc Grinder"¶
- (28) "Dry Box or Glove Hood for High Toxicity and Radioactive Materials"¶
- (29) "Drying Oven Ventilation"¶
- (30) "Electric Rocking Furnace"¶
- (31) "Hood for Top Electrode Melting Furnace"¶
- (32) "Side-draft Hood and Enclosing Hood"¶
- (33) "Double Side-draft and Downdraft Hood"¶
- (34) "Exhaust Requirement"¶
- (35) "Service Garage Ventilation – Underfloor"¶
- (36) "Service Garage Ventilation – Overhead"¶
- (37) "Granite Cutting and Finishing"¶
- (38) "Grinder Wheel Hood Speeds Below 6500 SFM"¶
- (39) "Grinder Wheel Hood Speeds Above 6500 SFM"¶
- (40) "Downdraft Hoods and Booth-type Hoods"¶
- (41) "Push Pull Hoods"¶
- (42) "Jointers"¶
- (43) "Laboratory Hood"¶
- (44) "Kitchen Range Hoods"¶
- (45) "Kitchen Range Hood – Low Side Wall Hood"¶
- (46) "Indoor Pistol and Small Bore Rifle Range"¶
- (47) "Lathe Hood High Toxicity Materials"¶
- (48) "Melting Pot and Furnace Non-tilt"¶
- (49) "Melting Furnace Crucible Non-tilt"¶
- (50) "Melting Furnace – Tilting"¶

OPEN SURFACE TANK

Operation — CFM/sq. ft. of tank — Collector Recommended

Plating (Chrome, Cyanide solutions if needed). 150. X

Anodizing..... 120. X

Pickling:

— Cold Acid..... 120.

— Hot Acid..... 250. X

— Nitric and Sulfuric Acids..... 250. X

— Nitric and Hydrofluoric Acids..... 250. X

Cleaning:

— Caustic or Electrolytic-not boiling... 200.

— [41231](#)

Bright Dip-strong Nitric Acid..... 250. X

Stripping:

— Concentrated Nitric Acid..... 250. X

— Concentrated Nitric and Sulfuric Acids.. 250. X

Salt Baths (molten salt)..... 120. X

Salt Solution (Parkerize, Bonderize, etc.):

— Not boiling..... 120.

— Boiling..... 250.

Hot Water (if ventilation desired):

— Not boiling..... 120.

— Boiling..... 250.

*Values listed are the minimum satisfactory values under good plant conditions.

Figure: Small Paint Booth

[41231](#)– To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Large Paint Booth

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Portable Chipping and Grinding Table

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Portable Hand Grinding

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Figure: Pouring Station

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Shell Core Molding

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Disc Sanders

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Horizontal Belt Sanders

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Multiple Drum Sander

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Figure: Single Drum Sander

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Abrasive Cut-off Saw Ventilation

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Fluidized Beds

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Band Saws

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Swing Saws

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Table Saw

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Radial Saw

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Screens

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Soldering and Arc Welding

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Solvent Degreasing Tanks

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Swing Grinder

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Table Slot

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Figure: Trailer Interior Spray Painting

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Figure: Tumbling Mills

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Arc Welding

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Torch Cutting Ventilation

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Extractor Head for Cone Wheels and Mounted Points

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Hood for Cup Type Surface Grinders and Wire Brushes

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Pneumatic Chisel Sleeve

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Extractor Head for Small Radial Grinders

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Extractor Hood for Disc Sander

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Extractor Tool for Vibratory Sander

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

Figure: Typical System Low Volume High Velocity

For Figure – To obtain the appendix, table, image, etc. please call LSC’s ERF Helpdesk at 614-387-2078 or send an email to erfhelpdesk@lsc.state.oh.us.

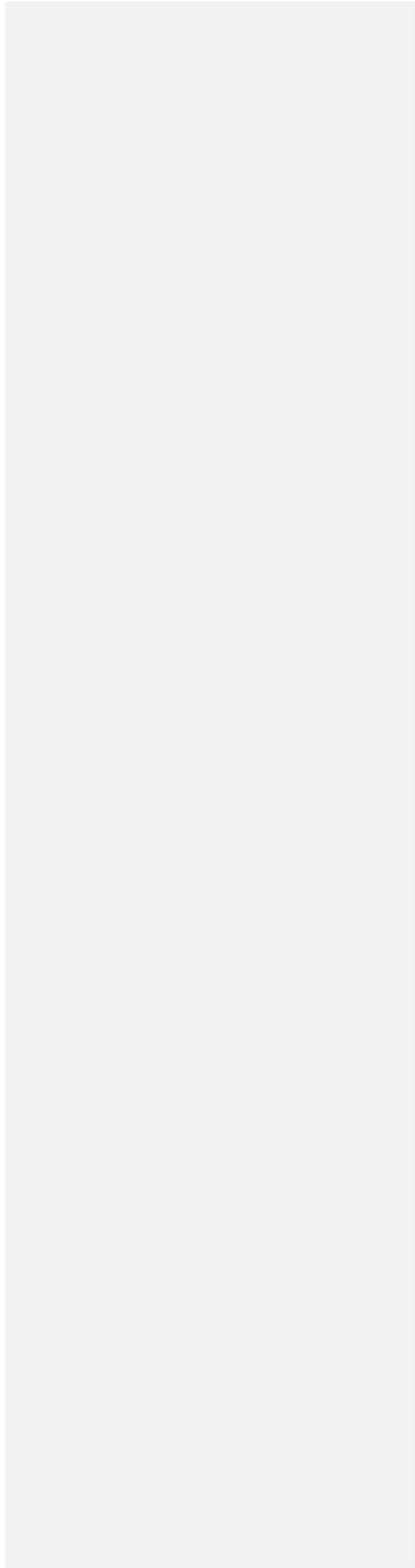
HISTORY: Eff 1-1-86

Rule promulgated under: RC Chapter 119.

Rule authorized by: RC [4121.13](#)

Rule created by: Const. Art. II. Sec. 35

119.032 Review Date: 3-1-03



OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
		4123:1-5-01 Scope and Definitions		
1	4123:1-5	Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
2	4123:1-5-01(A)	The purpose of this Chapter of the Administrative Code is to provide reasonable safety for life, limb, and health of employees. In cases of practical difficulty or unnecessary hardship, the Ohio bureau of workers' compensation may grant exceptions from the literal requirements of the rules of this chapter to permit the use of other devices or methods when, in the opinion of the bureau, the equivalent protection if thereby secured.	The purpose of this Chapter of the Administrative Code is to provide reasonable safety for life, limb, and health of employees. In cases of practical difficulty or unnecessary hardship, the Ohio bureau of workers' compensation may grant exceptions from the literal requirements of the rules of this chapter to permit the use of other devices or methods when, in the opinion of the bureau, the equivalent protection if <u>is</u> thereby secured.	Typo corrected ("if" to "is").
3	4123:1-5-01(B)(47)	"Exposed to contact" : the location of the material or object which, during the course of operation, is accessible to an employee in performance of his regular or assigned duty.	"Exposed to contact" : the location of the material or object which, during the course of operation, is accessible to an employee in performance of the his- <u>employee's</u> regular or assigned duty.	Language made gender neutral.
4	4123:1-5-01(B)(131)	"Standard guard railing" : a substantial barrier, constructed in accordance with paragraph (E) of rule 4121:1-5-02 of the Administrative Code.	"Standard guard railing" : a substantial barrier, constructed in accordance with paragraph (E) of rule 4121 <u>4123</u> :1-5-02 of the Administrative Code.	Typo corrected; deleted rule chapter number 4121 and replaced it with 4123 for correct agency reference.
		4123:1-5-02 Guarding Floor and Wall Openings		
5	4123:1-5-02 (C)(3)(a)(i)	(i) Wall openings shall be guarded by standard railings and toeboards, or with doors or gates or substantial screens which shall extend to a minimum height of fort-two inches measured from the floor or platform level.	(i) Wall openings shall be guarded by standard railings and toeboards, or with doors or gates or substantial screens which shall extend to a minimum height of forty- <u>two</u> inches measured from the floor or platform level.	Typo corrected ("fort-two" to "forty-two")
6	4123; 1-5-02 (C) (3)(b) Wall hole - guarding	Where the is a hazard of materials falling through a wall hole, and the lower edge of the near side of the hole is less than four inches above the floor, and the far side of the hole more than five feet above the next lower level, the hole shall be guarded by a toeboard, or an enclosing screen either of solid construction, or as specified in rule 4124:1-5-99 of the Administrative Code.	Where <u>there</u> is a hazard of materials falling through a wall hole, and the lower edge of the near side of the hole is less than four inches above the floor, and the far side of the hole more than five feet above the next lower level, the hole shall be guarded by a toeboard, or an enclosing screen either of solid construction, or as specified in rule <u>4123</u> :1-5-99 of the Administrative Code.	Typo corrected ("the" to 'there"; 4121 to 4123)

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
7	4123:1-5-02 (D) Elevated Platforms, runways and walkways (1) (a)	Elevated platforms, runways and walkways six feet or more above floor or ground level shall be guarded with standard railings and toeboards. All elevated runways, platforms and walkways, regardless of height, located over or adjacent to water, machinery, open vats, open soaking pits or open tanks shall be provided with standard railing and toeboards.	Elevated platforms, runways and walkways six four feet or more above floor or ground level shall be guarded with standard railings and toeboards. All elevated runways, platforms and walkways, regardless of height, located over or adjacent to water, machinery, open vats, open soaking pits or open tanks shall be provided with standard railing and toeboards.	ANSI Std A1264.1-2007 section 5.1 and 29 CFR 1910.23.C (1) [OSHA] general industry rule is 4 feet External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
8	4123:1-5-02 (D) Elevated Platforms, runways and walkways (3) Openings (drainage, ventilation, etc.)	Openings for drainage, ventilation, etc. in floors, elevated runways, platforms and walkways six feet or more above floor or ground level where employees are required to work below, shall not be greater than one inch in width.	Openings for drainage, ventilation, etc. in floors, elevated runways, platforms and walkways four feet or more above floor or ground level where employees are required to work below, shall not be greater than one inch in width.	ANSI Std A1264.1-2007 section 5.2 and 29 CFR 1910.23.C (1)[OSHA] general industry rule is 4 feet External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
9	4123:1-5-02(E)(1)	Top rail and uprights, one-and-one-fourth-inch diameter pipe, or one-and-one-half by one-and-one-half by three-sixteenths-inch angle; intermediate rail, one-by one-fourth-inch bar. Upright spacing not to exceed eight feet.	Top rail and intermediate railings, one-and-one-half-inch nominal diameter pipe, or two by two by three-eighths-inch angle. Upright spacing not to exceed eight feet	29 CFR 1910.23(e)(3)(ii) [OSHA] 29 CFR 1910.23(e)(3)(iii) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
10	4123:1-5-02(E) Standard Guardrailings, intermediate rail and toeboards (2)Wood	Top rail and uprights shall not be less than one and nine-sixteenths by three and nine-sixteenths inches; intermediate rails shall be not less than nine-sixteenths by five and nine-sixteenths inches. Uprights shall be spaced not to exceed six feet center to center. These measurements are net finished dimensions.	Top rail and uprights shall not be less than two inches by four inches (nominal) stock , intermediate rails shall be not less than two inches by four inches (nominal) stock . Uprights shall be spaced not to exceed six feet center to center. These measurements are net finished dimensions.	2x4 nominal size is consistent with OAC Chapter 3 Floors, stairways, railing and 29 CFR1910.23(e)(3)(i) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
11	4123:1-5-02 (E) Standard Guardrailings, intermediate rail and toeboards (3)Toeboards	“Toeboard” means a barrier not less than four inches in height, placed along the edge of a scaffold, platform, runway, floor opening, etc., and securely fastened thereto, with clearance between the bottom of the toeboard and the floor or platform level, not exceeding one-half inch.	A standard toeboard shall be 4 inches nominal in vertical height from its top edge to the level of the floor, platform, runway, or ramp. It shall be securely fastened in place and with not more than 1/4-inch clearance above floor level. It may be made of any substantial material either solid or with openings not over 1 inch in greatest dimension. Where material is piled to such height that a standard toeboard does not provide protection, paneling from floor to intermediate rail, or to top rail shall be provided.	ANSI A1264.1-2007 Section 5.7. Consistent with OAC Chapter 3 Floors, stairways, railings and 29 CFR 1910.23(e)(4) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
12	4123:1-5-02 (I) Handrails	Handrails shall be free of protruding nails or screws and not less than thirty inches, nor more than forty-two inches in height measured vertically above the line in the top surface of the tread over the face of the riser.	Handrails shall be free of protruding nails or screws and not less than thirty inches, nor more than thirty- four inches in height measured vertically above the line in the top surface of the tread over the face of the riser.	ANSI A1264.1-2007 Section 5.8 External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
		4123:1-5-03 Ladders and scaffolds		
13	4123:1-5-03(C)(2)(d)	Conductive or metal ladders shall be prominently marked as Conductive."	Conductive or metal ladders shall be prominently marked as "Conductive."	Quotation mark added.

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
14	4123:1-5-03(C)(4)(a) Stepladders height	Step ladders shall not exceed twenty feet in height.	Step ladders shall not exceed twenty feet in <u>length</u> .	OSHA rule references length, not height. Height is difficult to measure, whereas length can be measured with the stepladder lying on the ground. 29 CFR 1910.26(a)(3)(iii) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
15	4123:1-5-03(C)(4)(b) Spreader	A substantial spreader shall be provided on step ladders to hold the front and back sections in open position	A <u>metal</u> spreader shall be provided on step ladders to <u>securely</u> hold the front and back sections in open position	The OSHA rule is specific that the spreader must be metal and securely hold the front and back sections open. 29 CFR 1910.26(a)(3)(viii) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
16	4123:1-5-03(C)(5)(a) Length	Sectional ladders shall not exceed thirty-seven feet in extended length.	Sectional ladders shall not exceed <u>sixty</u> feet in extended length.	OSHA allows ladders to be up to sixty feet in length. 29 CFR 1910.26(a)(2)(ii) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
17	4123:1-5-03(C)(6) Fixed ladders height	All fixed ladders twenty feet or more in length shall be equipped with a ladder cage or ladder well. This requirement does not apply to ladders on smokestacks, towers, tanks, manholes, or bins used for storage or permanent fire ladders.	All fixed ladders <u>more than</u> twenty feet in length shall be equipped with a ladder cage or ladder well. <u>This requirement does not apply to chimney ladders.</u>	29 CFR 1910.27(d)(1)(i) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
18	4123:1-5-03(C)(6)(a)(i)	The minimum step-across distance shall be two and one-half inches. (See figure 4121:1-5-03(C)(6)(a)(i) to this rule.)	The minimum step-across distance shall be two and one-half inches. (See figure 4123:1-5-03(C)(6)(a)(i) to this rule.)	Typo corrected ; Changed chapter number from 4121 to 4123 to show correct agency affiliation.
19	4123:1-5-03(C)(6)(f)(i)	The pitch of fixed shall come in the range of seventy-five degrees and ninety degrees with the horizontal. (See figure 4123:1-5-03 (C)(6)(f)(i) of this rule).	The pitch of fixed <u>ladders</u> shall come in the range of seventy-five degrees and ninety degrees with the horizontal. (See figure 4123:1-5-03 (C)(6)(f)(i) of this rule).	Added missing word "ladders".
20	4123:1-5-03(C)(6)(g)(ii)(e)	Ferrous metal steps not painted or treated or resist corrosion shall have a minimum cross-sectional <u>dimension of one inch</u>	Ferrous metal steps not painted <u>or</u> treated <u>to</u> resist corrosion shall have a minimum cross-sectional <u>dimension of one inch</u>	Changed "or" to "to."
21	4123:1-5-03(C)(8)(a)	The width between the side rails a the the base of the trestle ladder and base sections of the extension trestle ladder shall be not less than twenty-one inches for all ladders and sections up to and including six feet.	The width between the side rails <u>at</u> the the base of the trestle ladder and base sections of the extension trestle ladder shall be not less than twenty-one inches for all ladders and sections up to and including six feet.	Changed "a" to "at", deleted duplicate "the"
22	4123:1-5-03(D)(1)(a)(ii) Dimensions, structural	Planks used in scaffolds shall be a minimum width of ten inches and a minimum thickness of two inches, scaffold grade, and shall be straight, close grained and free of visible defects, such as large knots, decay and shakes. Wooden materials of different sectional dimensions of equal strength or other material of equal strength may be used.	Planks used in scaffolds shall be a minimum width of <u>nine</u> inches and a minimum thickness of two inches, scaffold grade, and shall be straight, close grained and free of visible defects, such as large knots, decay and shakes. Wooden materials of different sectional dimensions of equal strength or other material of equal strength may be used.	OSHA sets the minimum width to be 9 inches. 29 CFR 1910.28(a)(9) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
23	4123:1-5-03(D)(1)(c)(iii)	(iii) When it is not practicable to install and use standard guard railing for employee protection on a scaffolds, as required by this paragraph, safety belts which are properly secured to a lanyard and lifeline or a safety net properly installed, may be used instead of standard guard railings.	(iii) When it is not practicable to install and use standard guard railing for employee protection on a <u>scaffold</u> , as required by this paragraph, <u>safety harnesses</u> which are properly secured to a lanyard and lifeline or a safety net properly installed, may be used instead of standard guard railings.	External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
24	4123:1-5-03(D)(1)(d)	Side screen shall be provided on all scaffolds more than ten feet in height that are adjacent to passageways, or where employees are employed within ten feet of the base of the scaffold, and where material is piled adjacent to and higher than toeboards. As a minimum, side screens shall be as high as the maximum height of material to be stored or piled on the scaffold. Side screens shall be made of substantial expanded metal or wire netting not larger than one-half-inch mesh, or other equivalent material, securely fastened in place.	<u>Scaffolds shall be provided with a screen between the toeboard and the guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. Standard Wire one-half-inch mesh or the equivalent, where persons are required to work or pass under the scaffolds. At a minimum, side screens shall be as high as the maximum height of material to be stored or piled on the scaffold. Side screens on scaffolds shall consist of No. 18 gauge U.S. Standard Wire one-half-inch mesh or the equivalent.</u>	29 CFR 1910.28(a)(17) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
25	4123:1-5-03(D)(1)(e)	At least one ladder or ramp shall be provided for access to stationary scaffolds four feet or more in height with the exception of suspended or swinging scaffold.	An access ladder or equivalent safe access shall be provided.	29 CFR 1910.28(a)(12) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
26	4123:1-5-03(D)(1)(j)(ii)	Only treated or protected fiber rope or its equivalent shall be used for on near any work involving the sue of corrosive substances or chemicals.	Only treated or protected fiber rope or its equivalent shall be used for, <u>on or</u> near any work involving the <u>sue use</u> of corrosive substances or chemicals.	Typo corrected ; Changed chapter number from 4121 to 4123 to show correct agency affiliation.
27	4123:1-5-03(D)(1)(k)	The sue of shore scaffolds or lean-to scaffolds is prohibited.	The <u>sue use</u> of shore scaffolds or lean-to scaffolds is prohibited.	Typo corrected (sue to use).
28	4123:1-5-03(D)(1)(m)	Scaffolds shall be secured to permanent structures, through use of anchor bolts, reveal bolts, or other equivalent means. Window cleaners' anchor bolts shall not be used.	Scaffolds shall be secured to permanent structures, through use of anchor bolts, reveal bolts, or other equivalent means. Window cleaners' anchor <u>bolts belts</u> shall not be used.	Spelling error (belts to bolts).

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
29	4123:1-5-03(D)(2)	Manually propelled mobile work platforms (ladder stands) and rolling platforms (towers) shall support at least four times the designed working load. The assembled components of all mobile work platforms (ladder stands) and rolling platforms (towers) shall provide a factor of safety of not less than four. Exposed surfaces shall be free sharp edges, burrs, or other projecting parts	Manually propelled mobile work platforms (ladder stands) and rolling platforms (towers) shall support at least four times the designed working load. The assembled components of all mobile work platforms (ladder stands) and rolling platforms (towers) shall provide a factor of safety of not less than four. Exposed surfaces shall be free <u>from</u> sharp edges, burrs, or other projecting parts	Missing word added (free "from").
30	4123:1-5-03(D)(2)(h)	Only the manufacturer of the scaffold or his qualified designated shall be permitted to erect or supervise the erection of scaffolds exceeding fifty feet in height above the base, unless such a structure is approved in writing by a licensed professional engineer, or erected in accordance with instructions furnished by the manufacturer.	Only the manufacturer of the scaffold or <u>its</u> qualified designated <u>designee</u> shall be permitted to erect or supervise the erection of scaffolds exceeding fifty feet in height above the base, unless such a structure is approved in writing by a licensed professional engineer, or erected in accordance with instructions furnished by the manufacturer.	Typo corrected (designated to designee) and gender neutral (his to its)
		4123:1-5-04 Mechanical power transmission apparatus		
31	4123:1-5-04(C)(1)(a)	(a) If upper part of belt is seven feet or less from floor level, the belt or pulley shall be enclosed on top, sides and ends. Note: In power or power development plants a standard guard railing may be used in lieu of this requirement.	<u>Where both runs of horizontal belts are seven feet or less from the floor level, the guard shall extend to at least fifteen (15) inches above the belt or to a standard height, except that where both runs of a horizontal belt are 42 inches or less from the floor, the belt shall be fully enclosed in accordance with rule 4123:1-5-99 of the Administrative Code. Note: In power or power development plants a standard guard railing may be used in lieu of this requirement.</u>	This change was necessary because compliance with OSHA could violate OAC. Extending a guard 15 inches above the belt is as effective but not the same as "enclosed on top". 29 CFR 1910.219(e)(1)(i)[OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
32	4123:1-5-04(C)(1)(b)	4121:1-5-99	4123:1-5-99	4121 is now 4123.
33	4123:1-5-04(C)(2)	4121:1-5-99	4123:1-5-99	4121 is now 4123.
34	4123:1-5-04(D)(1)(a)	...This does not apply to adjusting gears which do not normally revolve and are not power operated, or to adjusting gears which requires access to the gears for manual manipulation.	...This does not apply to adjusting gears which do not normally revolve and are not power operated, or to adjusting gears which require s access to the gears for manual manipulation.	Typo corrected.
35	4123:1-5-04(D)(1)(b)	4121:1-5-99	4123:1-5-99	4121 is now 4123.

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
36	4123:1-5-04(E)(2)	4121:1-5-99	4123:1-5-99	4121 is now 4123.
37	4123:1-5-04(E)(8)(C)	When the upper rim of fly wheel protrude through a working floor, it shall be entirely enclosed or surrounded by a standard guard railing and toeboard.	When the upper rim of a fly wheel protrudes through a working floor, it shall be entirely enclosed or surrounded by a standard guard railing and toeboard.	Added missing word ("a" flywheel). Also changed "protrude" to "protrudes"
		4123:1-5-05 Auxiliary Equipment		
38		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
		4123:1-5-06 Portable explosive-actuated fastening tools		
39	Table 4121:1-5-06(E)		Reformat the table for legibility.	
		4123:1-5-07 Hand tools, hand-held portable powered tools, other hand-held equipment and portable safety containers		
40	4123:1-5-07(H)(1)	Hand-held, power-driven woodworking tools shall be provided with a dead-man control, such as a spring actuated switch, valve, or equivalent device, so that the power will be automatically shut off whenever the operator release the control.	Hand-held, power-driven woodworking tools shall be provided with a dead-man control, such as a spring actuated switch, valve, or equivalent device, so that the power will be automatically shut off whenever the operator releases the control.	Typo corrections ("release" to "releases").
41	4123:1-5-07(H)(3) Use of Compressed Air	The employer shall instruct the employer that compressed air shall not be used	The employer shall instruct the <u>employees</u> that compressed air shall not be used <u>to clean themselves off.</u>	The rule specifies that personal cleaning of the body of employees, not the employer, is not permitted.29CFR 1917.154 [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
42	4123:1-5-07(M) Portable Safety Containers	Portable safety containers shall be provided for handling flammable liquids with a flash point (closed cup) below 138.2 degrees Fahrenheit in quantities of one gallon or more. The containers shall be legibly marked "flammable".	Portable safety containers shall be provided for handling flammable liquids with a flash point (closed cup) below 138.2 <u>100</u> degrees Fahrenheit in quantities of one gallon or more. The containers shall be legibly marked "flammable".	The definition of a flammable liquid by both OSHA and NFPA is below 100 degrees Fahrenheit, not 138.2. 29 CFR 1910.106(a)(19) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
		4123:1-5-08 Power-driven saws and knives		
43	4123:1-5-08(C) Bandsaws, band resaws, and band knives	All portions of the saw blade or band blade shall be enclosed or guarded, except for the working portion of the blade between the bottom of the guide rolls and the table. Bandsaw wheels shall be fully enclosed. The outside of periphery of the enclosure shall be solid. The front and back of the band wheels shall be either enclosed by solid material, or by wire mesh, or perforated metal, the dimensions and material of which shall be in accordance with rule 4121:1-5-99 of the Administrative Code.	All portions of the saw blade or band blade shall be enclosed or guarded, except for the working portion of the blade between the bottom of the guide rolls and the table. Bandsaw wheels shall be fully enclosed. The outside of periphery of the enclosure shall be solid. The front and back of the band wheels shall be either enclosed by solid material, or by wire mesh, or perforated metal. <u>Such mesh or perforated metal shall be not less than 0.037 inch (U.S. Gage No. 20), and the openings shall be not greater than three-eighths inch.</u>	Remove reference to table 1-5-99 of the Administrative Code as it is in direct conflict with OSHA. Insert specific guarding specs from OSHA. OSHA reference: 29 CFR 1910.213(i)(1) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
44	4123:1-5-08(D)(2)(a)	A hood-type guard shall be provided but need not rest upon the table nor upon the material being cut, but shall extend to a line not more than three-eighths of an inch above the plane formed by the bottom of the top feed rolls.	A hood-type guard shall be provided but need not rest upon the table nor upon the material being cut, but shall extend to a line not more than three-eighths of an inch above the plane formed by the bottom of the top feed rolls. <u>This distance (three-eighths inch) may be increased to three-fourths inch, provided the lead edge of the hood is extended to be not less than 5 ½ inches in front of the nip point between the front roll and the work.</u>	This exception exists in OSHA and causes discrepancy. Add OSHA exception. OSHA reference: 29 CFR 1910.213(f)(1) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
45	4123:1-5-08(D)(3)(a)	A hood-type guard shall be provided that will cover the exposed portion of the saw blade. When in use the hood-type shall automatically adjust to the thickness of and remain in contact with the material being cut when the stock encounters the saw, or may be a fixed or manually adjusted hood or guard, provided the space between the bottom of the guard and the material being cut does not exceed three-eighths of an inch at any time. This requirement shall not apply to circular cross-cut saws with stationary tables where the saw moves forward when cutting.	A hood-type guard shall be provided that will cover the exposed portion of the saw blade. When in use the hood-type shall automatically adjust to the thickness of and remain in contact with the material being cut when the stock encounters the saw, or may be a fixed or manually adjusted hood or guard, provided the space between the bottom of the guard and the material being cut does not exceed three-eighths of an inch at any time.	This exception is not mentioned in OSHA. Recommend deleting. OSHA reference: 1910.213(d)(1) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
46	4123:1-5-08(C)(5)(a)	Each swing cutoff saw shall be provided with a hood that will completely enclose the upper half of the saw the arbor end, and the point of operation at all positions of the saw.	Each swing cutoff saw shall be provided with a hood that will completely enclose the upper half of the saw <u>at</u> the arbor end, and the point of operation at all positions of the saw.	Added missing word ("at" the arbor end).

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
		4123:1-5-09 Wood working machinery		
47		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
		4123:1-5-10 Mechanical power presses		
48	4123:1-5-10(C)(5)(e)(vii)	Where presses are provided with a selection method of foot or hand controls the selection shall be made by a designated employee and controls other than those selected shall be inoperable.	<u>If foot control is provided, the selection method between hand and foot control shall be separate from the stroking selector and shall be designed so that the selection may be supervised by the employer.</u>	Control by employer. 29 CFR 1910.217(b)(7)(ix) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
49	4123:1-5-10(C)(10) Pressure Vessels	All pressure vessels used in conjunction with power presses shall conform to the requirements of the Ohio department of industrial relations, board of building standards.	<u>All pressure vessels used in conjunction with power presses shall conform to the American Society of Mechanical Engineers Code for Pressure Vessels, 1968 Edition.</u>	Change to agree with OSHA and move to ASME standard for pressure vessels rather than Industrial Relations. 29 CFR 1910.217(b)(12) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
50	4123:1-5-10(D)(3)(c)(v) Safety Distance	The safety distance (Ds) from the sensing field to the point of operation shall be greater than the distance determined by the following formula: Ds= 63 inches/second X Ts; where: Ds= minimum safety distance (inches); 63 inches/second = hand speed constant; and Ts= stopping time of the press measured at approximately 90°tion of crankshaft rotation (seconds).	<p>The safety distance (D(s)) from the sensing field to the point of operation shall be greater than the distance determined by the following formula:</p> <p>$D(s) = 63 \text{ inches/second} \times T(s)$</p> <p>where:</p> <p>D(s) = minimum safety distance (inches); 63 inches/second = hand speed constant; and</p> <p>T(s) = stopping time of the press measured at approximately 90 degree position of crankshaft rotation (seconds).</p>	<p>Bringing formulas into agreement and correcting typos. 29 CFR 1910.217(c)(3)(iii)(e) [OSHA] External Stakeholder Agreement</p> <p>Date : April 13, 2009</p> <p>In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association)</p> <p>Objecting : None</p>
51	4123:1-5-10(D)(3)(g)(iii) Safety Distance	The safety distance (Ds) from the sensing field to the point of operation shall be greater than the distance determined by the following formula: Ds= 63 inches/second X Ts; where: Ds= minimum safety distance (inches); 63 inches/second = hand speed constant; and Ts= stopping time of the press measured at approximately 90°tion of crankshaft rotation (seconds).	<p>The safety distance (D(s)) from the sensing field to the point of operation shall be greater than the distance determined by the following formula:</p> <p>$D(s) = 63 \text{ inches/second} \times T(s)$</p> <p>where:</p> <p>D(s) = minimum safety distance (inches); 63 inches/second = hand speed constant; and</p> <p>T(s) = stopping time of the press measured at approximately 90 deg. position of crankshaft rotation (seconds).</p>	<p>Reformatting text and correcting typos</p>

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
52	4123:1-5-10(D)(3)(h)(iii) Safety Distance	(iii) The safety distance (Dm) between the two-hand trip and the point of operation shall be greater than the distance determined by the following formula: $Dm = 63 \text{ inches/second} \times Tm$; where: Dm= minimum safety distance (inches); 63 inches/second = hand speed constant; and Tm= the maximum time the press takes for the die closure after it has been tripped (seconds). (iv) For full revolution clutch presses with only one engaging point, T mis equal to the time necessary for one and one-half revolutions of the crank shaft. For full revolution clutch presses with more than one engaging point, Tmshall be calculated as follows: $1 \text{ time necessary to complete } Tm = \{ ? + \frac{1}{\text{Number of engaging crankshaft (seconds) points per revolution}} \} \times \text{one revolution of the crankshaft}$	<u>The safety distance (D(m)) between the two hand trip and the point of operation shall be greater than the distance determined by the following formula: $D(m) = 63 \text{ inches/second} \times T(m)$; where: D(m) = minimum safety distance (inches); 63 inches/second=hand speed constant; and T(m) = the maximum time the press takes for the die closure after it has been tripped (seconds). For full revolution clutch presses with only one engaging point T(m) is equal to the time necessary for one and one-half revolutions of the crankshaft. For full revolution clutch presses with more than one engaging point, T(m) shall be calculated as follows: $T(m) = [1/2 + (1 \text{ divided by Number of engaging points per revolution})] \times \text{time necessary to complete one revolution of the crankshaft (seconds)}$.</u>	Reformatting text and correcting typos
		4123:1-5-11 Forging machines, other power machines and machine tools, hydraulic and pneumatic presses, and power press brakes.		
53	4123:1-5-11(C)(2)(a) Safety Cylinder Head	Steam or air hammers shall have a steam cushion, air cushion, spring head, or other effective means to prevent the piston from striking the top cylinder head.	<u>Every steam or airhammer shall have a safety cylinder head to act as a cushion if the rod should break or pull out of the ram.</u>	Agreement with OSHA. 29 CFR 1910.218(d)(1) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
54	4123:1-5-11(C)(2)(b) Shutoff Valve	Steam or air hammers shall be provided with a stop valve in the admission pipe line, which can be locked in closed position. The stop valve shall be within easy reach of the operator.	<u>Steam hammers shall be provided with a quick closing emergency valve in the admission pipeline at a convenient location. This valve shall be closed and locked in the off position while the hammer is being adjusted, repaired, or serviced, or when the dies are being changed.</u>	Agreement with OSHA. 29 CFR 1910.218(d)(2) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
55	4123:1-5-11(C)(4)(a) Board-type drophammers Guarding	A guard shall be provided around the boards above the rolls. This requirement shall not apply to hammers that have a clamp.	<u>A suitable enclosure shall be provided to prevent damaged or detached boards from falling. The board enclosure shall be securely fastened to the hammer.</u>	Agreement with OSHA. 29 CFR 1910.218(e)(2)(i) [OSHA] External Stakeholder Agreement Date : April 13, 2009 In Agreement : Diane Grote Adams (OMA), Sandra Bell (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
56	4123:1-5-11(D)(7)(b) Exception	Machinery covered expressly by requirements contained in other codes of specific requirements of the industrial commission of Ohio.	Machinery covered expressly by requirements contained in other codes of specific requirements of the <u>Ohio bureau of workers' compensation.</u>	Correct agency name
57	4123:1-5-11(D)(8)(b)	Machinery covered expressly by requirements contained in other codes of specific requirements of the industrial commission of Ohio.	Machinery covered expressly by requirements contained in other codes of specific requirements of the <u>Ohio bureau of workers' compensation.</u>	Correct agency name
58	4123:1-5-11(D)(10)(b)	Machinery covered expressly by requirements contained in other codes of specific requirements of the industrial commission of Ohio.	Machinery covered expressly by requirements contained in other codes of specific requirements of the <u>Ohio bureau of workers' compensation.</u>	Correct agency name
59	4123:1-5-11(D)(13)(b)	Machinery covered expressly by requirements contained in other codes of specific requirements of the industrial commission of Ohio.	Machinery covered expressly by requirements contained in other codes of specific requirements of the <u>Ohio bureau of workers' compensation.</u>	Correct agency name
		4123:1-5-12 Abrasive grinding and cutting, polishing and wire buffing equipment		
60		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
		4123:1-5-13 Motor vehicles, mobile mechanized equipment, and marine operations		
61	4123:1-5-13(C) General requirements for motor vehicles and mobil mechnaized equipment (3)	Equipment parked on inclines shall have the brakes set, and the blade, bucket,etc., fully lowered if the equipment is unattended (out of sight or more than twenty feet from the operator)	Equipment parked on inclines shall have the brakes set, and the blade, bucket,etc., fully lowered if the equipment is unattended (out of sight or more than twenty-five feet from the operator)	OSHA 1910.178, ANSI B56.1-2005, Section 5.2.10. OAC is more restrictive. Change twenty to twenty-five External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
62	4123:1-5-13 (C) General requirements for motor vehicles and mobil mechnaized equipment (5)	(5) All equipment which can contact power lines shall also comply with the requirements of paragraph (D) of rule 4121:1-5-23 of the Administrative Code.	(5) All equipment which can contact power lines shall also comply with the requirements of paragraph (D) of rule 4123:1-5-23 of the Administrative Code.	Change 4121 references to 4123. No other changes recommended.
63	4123:1-5-13 (D) Overhead protection (2)(a)	Where materials being handled are of such dimensions that objects could fallthrough the above protection, then substantial guarding, such as expanded metal, woven wire, or simular materials, shall be used in addition to the above (see rule 4121:1-5-99 of the Administrative Code).	Where materials being handled are of such dimensions that objects could fall through the above protection, then substantial guarding, such as expanded metal, woven wire, or simular materials, shall be used in addition to the above (see rule 4123:1-5-99 of the Administrative Code).	Change 4121 references to 4123. No other changes recommended.
		4123:1-5-14 Power-Driven Cranes and Hoists		

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
64	4123:1-5-14(C)(1)(a)	A brake designed to hold the maximum rated load at any point of the lift shall be provided on the hoist. A brake shall also be provided for the bridge.	<u> Holding brakes for hoist motors shall have not less than the following percentage of the full load hoisting torque at the point where the brake is applied. • 125 percent when used with a control braking means other than mechanical. • 100 percent when used in conjunction with a mechanical control braking means. • 100 percent each if two holding brakes are provided. Holding brakes on hoists shall be applied automatically when power is removed. </u>	Agreement with OSHA. 29 CFR 1910.179(f)(2) [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
65	4123:1-5-14(C)(1)(b)	A footwalk with standard guard railing and toeboards shall be placed along the cab access side of the bridge.	A footwalk with standard guard railing and <u>toeboards</u> shall be placed along the cab access side of the bridge.	Spelling error ("toeborads" to "toeboards")
66	4123:1-5-14(C)(1)(d)	Bumpers shall be provided on crane bridge to reduce effects of collision. Bumpers shall also be provided when two trolleys are operated on the same rails.	<u> A crane shall be provided with bumpers or other automatic means providing equivalent effect, unless the crane travels at a slow rate of speed and has a faster deceleration rate due to the use of sleeve bearings, or is not operated near the ends of bridge and trolley travel, or is restricted to a limited distance by the nature of the crane operation and there is no hazard of striking any object in this limited distance, or is used in similar operating conditions. The bumpers shall be capable of stopping the crane (not including the lifted load) at an average rate of deceleration not to exceed 3 ft/s/s when traveling in either direction at 20 percent of the rated load speed. A trolley shall be provided with bumpers or other automatic means of equivalent effect, unless the trolley travels at a slow rate of speed, or is not operated near the ends of bridge and trolley travel, or is restricted to a limited distance of the runway and there is no hazard of striking any object in this limited distance, or is used in similar operating conditions. The bumpers shall be capable of stopping the trolley (not including the lifted load) at an average rate of deceleration not to exceed 4.7 ft/s/s when traveling in either direction at one-third of the rated load speed </u>	Agreement with OSHA. 29 CFR 1910.179(e)(2)(i) and 29 CFR 1910.179(e)(3)(i) [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
67	4123:1-5-14(D)(2)(a)	A hoist holding brake designed to hold the maximum rated load at any point of the lift shall be provided on all jib cranes.	Holding brakes for hoist motors shall have not less than the following percentage of the full load hoisting torque at the point where the brake is applied. • 125 percent when used with a control braking means other than mechanical. • 100 percent when used in conjunction with a mechanical control braking means. • 100 percent each if two holding brakes are provided. Holding brakes on hoists shall be applied automatically when power is removed.	Agreement with OSHA. 29 CFR 1910.179(f)(2) [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
68	4123:1-5-14(E)(2)(d)	All power-driven hoists shall be provided with a braking system not dependent upon electrical current. On the hoist, a braking system designed to hold the maximum rated load at any point of the lift shall be provided.	Holding brakes for hoist motors shall have not less than the following percentage of the full load hoisting torque at the point where the brake is applied. • 125 percent when used with a control braking means other than mechanical. • 100 percent when used in conjunction with a mechanical control braking means. • 100 percent each if two holding brakes are provided. Holding brakes on hoists shall be applied automatically when power is removed.	Agreement with OSHA. 29 CFR 1910.179(f)(2) [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
69	4123:1-5-14(F)(2)(b)(i)	Bumpers and stops shall be installed at both ends of the crane runway.	A crane shall be provided with bumpers or other automatic means providing equivalent effect, unless the crane travels at a slow rate of speed and has a faster deceleration rate due to the use of sleeve bearings, or is not operated near the ends of bridge and trolley travel, or is restricted to a limited distance by the nature of the crane operation and there is no hazard of striking any object in this limited distance, or is used in similar operating conditions. The bumpers shall be capable of stopping the crane (not including the lifted load) at an average rate of deceleration not to exceed 3 ft/s/s when traveling in either direction at 20 percent of the rated load speed. A trolley shall be provided with bumpers or other automatic means of equivalent effect, unless the trolley travels at a slow rate of speed, or is not operated near the ends of bridge and trolley travel, or is restricted to a limited distance of the runway and there is no hazard of striking any object in this limited distance, or is used in similar operating conditions. The bumpers shall be capable of stopping the trolley (not including the lifted load) at an average rate of deceleration not to exceed 4.7 ft/s/s when traveling in either direction at one-third of the rated load speed	Agreement with OSHA. 29 CFR 1910.179(e)(2)(i) and 29 CFR 1910.179(e)(3)(i) [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
		4123:1-5-15 Hoistage and Hauling Equipment		
70		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
		4123:1-5-16 Cutting and Welding		
71	4123:1-5-16(E)(3)(i)	The color red shall be used for acetylene and other fuel gas hose. The color green shall be used for oxygen hose. The color black shall be used inert gas and air hose.	The color red shall be used for acetylene and other fuel gas hose. The color green shall be used for oxygen hose. The color black shall be used <u>for</u> inert gas and air hose.	Missing "for" added.

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
72	4123:1-5-16 (E)(3)(a)(ii)	Any length of hose in which a flashback has occurred and burned in the hose shall be taken out of service.	<u>Any length of hose in which a flashback has occurred and burned in the hose shall be taken out of service. Flashback protection shall be provided by an approved device that will prevent flame from passing into the fuel-gas system .</u>	Flashback should never occur. Rather than removing damaged hose after a flashback, take steps to prevent flashback. Remove existing language and replace with OSHA 1910.253(e)(3)(ii)(c)(3) [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
73	4123:1-5-16 (E)(3)(a)(v)	Hose showing leaks, burns, worn places, or other defects rendering it unfit for service shall have damaged portion removed.	<u>Hose showing leaks, burns, worn places, or other defects rendering it unfit for service shall have the damaged portion removed, repaired or replaced .</u>	Change to be consistent with OSHA 1910.253(e)(5)(v) [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
74	4123:1-5-16 (E)(3)(c)(i)	Oxygen and fuel gas pressure regulators, including their related gauges, shall be in proper working order while in use.	<u>(i) Oxygen and fuel gas pressure regulators, including their related gauges, shall be in proper working order while in use.</u>	If recommended change below is added, then this statement must be identified as (i) External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
75	4123:1-5-16 (E)(3)(c)(ii)	None	<u>(ii) Pressure-reducing regulators shall be used only for the gas and pressures for which they are intended .</u>	Consider adding language from OSHA 1910.253 (e)(6)(i) [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
76	4123:1-5-16 (F)(3)	Installation of are welding equipment	Installation of <u>arc</u> welding equipment	Typo ("are" to "arc")
77	4123:1-5-16 (F)(5)(a)	The operator shall report any equipment or defect or safety hazard to his supervisor and the use of the equipment shall be discontinued until its safety has been assured. Repairs shall be made only by authorized personnel.	The operator shall report any equipment or defect or safety hazard to his supervisor and the use of the equipment shall be discontinued until its safety has been assured. Repairs shall be made only by authorized, <u>qualified</u> personnel.	Consistent with OSHA 1910.254(d)(9)(i) [OSHA] . There is a significant difference between authorized and qualified. External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
78	4123:1-5-16 (F)(6)(c)(vi)	(vi) Safety blocks	<u>(vi) Safety blocks or pins.</u>	Passage allows for blocks or pins. Add pins to section title. External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
79	4123:1-5-16 (F)(8)	See rule 4124:1-5-17 of the Administrative Code, "Personal protective equipment."	See rule <u>41213</u> :1-5-17 of the Administrative Code, "Personal protective equipment."	Typo. Change code reference to 4123.
		4123:1-5-17 Personal Protective Equipment		
80	4123:1-17 Appendix A	Atomic Hydrogen Welding 12	Atomic Hydrogen Welding <u>10-14</u>	Agreement with OSHA. 29 CFR 1926.102 [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
81	4123:1-17 Appendix A	See Attached	<u>See Attachment 1</u>	Agreement with OSHA External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
82	4123:1-17 (D)(4)	<p>(a) Impact test. The lens shall withstand a one-inch diameter steel ball (weight approximately 2.4 ounces) dropped in free fall from a height of fifty inches onto the horizontal upper surface of the lens, impinging the lens within a circular area of five-eighths-inch diameter centered at the lens' mechanical center. (b) Penetration resistance test – plastic only. A plastic lens shall withstand a pointed projectile of suitable size, consisting of a new Singer number 25, size 135×7 needle, fastened into a holder weighing approximately 1.56 ounces freely dropped, pointed downward, from a height of fifty inches onto the outer surface of the lens. The projectile may be guided but not restricted in its fall by being dropped through a tube extending to within four inches of the lens.</p>	<p>(4) Material requirements for eye protection shall meet ANSI Z87.1 – 1968.</p>	<p>External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None</p>
83	4123:1-17 (D)(4)	<p>(c) Frames, flammability test. A section at least one inch long of the plastic components of the frame shall be exposed to a test for determining the flame-propagation rate. For this purpose the frame components (eyewire, temples, and sideshields) shall be ignited individually by holding one end of the specimen horizontally at the top of a luminous three-quarter-inch Bunsen burner flame in a draft-free room. The rate of propagation determined by a stopwatch shall be no less than twenty-four seconds per inch. A faster rate of propagation shall be cause for rejection. (d) Marking (i) Eye and face protection shall be distinctly marked in a permanent, legible manner with the manufacturer's trademark. (ii) Each filter lens shall be marked with the shade designation. Each glass filter lens shall be marked with the letter "H" to indicate treatment for impact resistance.</p>	<p>(4) Material requirements for eye protection shall meet ANSI Z87.1 – 1968.</p>	<p>External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None</p>

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
84	4123:1-17 (D)(5)	(5) Laser Protection (a) The employer shall provide laser safety goggles which will protect the employee from direct or reflected laser light equal to or greater than 0.005 watts (five milliwatts). The laser safety goggles shall provide protection for the specific wavelength of the laser and be of optical density (O.D.) adequate for the energy involved. The appendix to this rule lists the maximum power or energy density for which adequate protection is afforded by glasses of optical densities from five through eight. Output levels falling between lines in table shall require the higher density. (b) Labeling of eye protection All protective goggles shall bear a label identifying the following data: (i) The laser wavelengths for which use is intended; (ii) The laser wavelengths for which use is intended; (iii) The visible light transmission.	(4) Material requirements for eye protection shall meet ANSI Z87.1 – 1968.	External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
85	4123:1-17 (E)	Foot protection shall be made available by the employer and shall be worn by the employee where an employee is exposed to machinery or equipment that presents a foot hazard or where an employee is handling material which presents a foot hazard.	Foot protection shall be worn by the employee where an employee is exposed to machinery or equipment that presents a foot hazard or where an employee is handling material which presents a foot hazard.	Agreement with OSHA 29CFR 1910.136(b) External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
86	4123:1-17 (G)(2)	(2) Protective Helmets (a) Classes of Helmets (i) Protective helmets as defined in paragraph (B) of rule 4121:1-5-01 of the Administrative Code shall be of the following classes: (a) Class A – limited voltage protection. (b) Class B – high voltage protection. (c) Class C – no voltage. (d) Class D – limited voltage protection. Firefighters' service helmets with full brim only. (ii) Class C or any metallic helmet shall not be provided by employers or used by employees except where the other classes would be deteriorated by exposure to chemical action and provided there is no danger of contact with electrical current.	4123:1-17 (G)(1)(a)(i)(a) Where required, head protection shall meet the requirements of ANSI Z89.1 – 1969	External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
87	4123:1-17 (G)(2)	(b) Winter liners and chin straps. (i) All winter liners shall be fabricated of materials that will not support combustion. (ii) Winter liners and chin straps used in conjunction with class B helmets for protection from electricity shall not contain any metallic or other conductive material. (c) Physical requirement for helmets. (i) Impact Resistance Helmets shall be capable of withstanding the impact of an eight-pound steel ball, approximately three and three-quarters inches in diameter, dropped onto a center of the top of the helmet from a height of five feet without transmitting an average force of more than eight hundred fifty pounds.	4123:1-17 (G)(1)(a)(i)(a) Where required, head protection shall meet the requirements of ANSI Z89.1 – 1969	External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
88	4123:1-17 (G)(2)	(ii) Crown strap clearance. Crown straps shall not allow the distance between the top of the head and the underside of the helmet to be adjusted to less than one inch when a twenty-five-pound weight is placed on top of the helmet. Unless the manufacturer of that particular helmet specifies otherwise. (iii) Penetration resistance. Class A, B, and D helmets shall not be pierced more than three-eighths inch and class C helmets not more than seven-sixteenths inch, including the thickness of the shell material, when subjected to a one-pound steel plum bob with a point having an included angle of 35+1 degrees and a maximum point radius of 0.010 inch, dropped ten feet vertically onto the top of the helmet.	4123:1-17 (G)(1)(a)(i)(a) Where required, head protection shall meet the requirements of ANSI Z89.1 – 1969	External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
89	4123:1-17 (G)(2)	(iv) Insulation resistance. Class A and D helmets shall be capable of withstanding two thousand two hundred volts alternating-current sixty hertz (rms) for one minute, with leakage current not in excess of three milliamperes. This test is not applicable to Class C helmets. Class B helmets shall be capable of withstanding twenty thousand volts alternating-current sixty hertz for three minutes with leakage current not in excess of nine milliamperes.	4123:1-17 (G)(1)(a)(i)(a) Where required, head protection shall meet the requirements of ANSI Z89.1 – 1969	External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
90	4123:1-17 (G)(2)	(v) Helmet shell materials. (a) Materials used in class A and class B helmets shall be water resistant and slow burning. Materials in class D helmets shall be fire resistant (self-extinguishing) and nonconductors of electricity. (b) Class B headgear shall not have any holes of any sort in the shell nor shall it have any metal parts. (d) Bump Caps Bump caps or hats shall never be used as a substitute for safety helmets where there is danger from falling objects, flying particles, or electric shock.	<u>4123:1-17 (G)(1)(a)(i)(a) Where required, head protection shall meet the requirements of ANSI Z89.1 – 1969</u>	External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
91	4123:1-17 (I)(6)	(6) Safety belts, safety harnesses, safety straps, lifelines, and lanyards. (a) When required, lifelines shall be securely fastened to the structure. Safety belts, safety harnesses, safety straps, lifelines and lanyards shall be used only for employee safeguarding and shall sustain a static load of no less than five thousand four hundred pounds. Any safety belts, safety harness, safety strap, lifeline, or lanyard actually subjected to in-service loading, as distinguished from static load testing, shall be removed from service and shall not be used again for employee safeguarding.	<u>6) Safety belts, Harness lifelines and lanyards. (a) Lifelines, safety belts or harnesses and lanyards shall be provided by the employer, and is it shall be the responsibility of the employee to wear such equipment when exposed to hazards of falling where the operation being performed is more than 6 feet above the ground or above a floor or platform, except as otherwise specified in this chapter, and when required to work on stored material in silos, hoppers, tanks, and similar storage areas. Lifelines and safety belts or harnesses shall be securely fastened to the structure and shall sustain a static load of no less than three thousand pounds.</u>	Agreement with OAC 4123:1-3-03 External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
92	4123:1-17 (I)(6) (c)	Safety belt, harness, or strap lanyards shall be a minimum of one-half inch nylon, or equivalent, with a maximum length to provide for a fall of no more than six feet.	Safety belt, harness, or strap lanyards shall be a minimum of one-half inch nylon, or equivalent, with a maximum length to provide for a fall of no more than six feet. <u>The lanyard shall have a breaking strength of no more than three thousand pounds.</u>	Agreement with OSHA 29CFR1926.502(d)(12) and OAC 4123:1-3-03 External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
93	4123:1-17 (I)(6) (e)	All safety belt, harness, or strap and lanyard hardware shall be capable of withstanding a tensile loading of four thousand pounds without cracking, breaking, or becoming permanently deformed.	All safety belt, harness, or strap and lanyard hardware shall be capable of withstanding a tensile loading of <u>three</u> thousand pounds without cracking, breaking, or becoming permanently deformed.	Agreement with OAC 4123:1-3-03 External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
94	4123:1-17 (I)(7) (a)	Safety nets shall be provided when workplaces are more than twenty five feet above the ground, water, or other surface where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts is impractical.	Safety nets shall be provided when workplaces are more than <u>thirty</u> feet above the ground, water, or other surface where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts is impractical.	Agreement with OSHA 29 CFR 1926.502(c) External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
95	4123:1-17 (I)(7) (c)	Nets shall extend eight feet beyond the edge of the work surface where employees are exposed to falling and shall be installed as closed under the work surface as practical but in no case more than twenty-five feet below such work surface with the exception of bridge construction where only one level of nets is required. Nets shall be hung with sufficient clearance to prevent the falling employees' contact with the surface or structures below. Such clearance shall be determined by impact load testing.	Nets shall extend <u>outward from the outermost projection of the work surface in accordance with the following table to this rule</u> and shall be installed as close under the work surface as practical but in no case more than <u>thirty</u> feet below such work surface with the exception of bridge construction where only one level of nets is required. Nets shall be hung with sufficient clearance to prevent the falling employees' <u>employee's</u> contact with the surface or structures below. Such clearance shall be determined by impact load testing.	Agreement with OSHA 29 CFR 1926.502(c) External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
96	4123:1-17 (I)(7) (c)	Table	<u>Table (See Attachment 2)</u>	Agreement with OSHA 29 CFR 1926.502(c) External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
		4123:1-5-18 Control of Air Contaminants		
97		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Typo corrected
		4123:1-5-19 Manlifts of the endless belt type		
98	4123:1-5-19(C)(2)(c)	Adequate lighting, no less than five lumens, shall be provided at each floor landing at all times when the lift is in operation.	Adequate lighting, not less than 5-foot candles, shall be provided at each floor landing at all times when the lift is in operation.	Agreement with OSHA. 29 CFR 1910.68(b)(6)(iii) External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
99	4123:1-5-19(C)(4)(b)	The rails shall be standard guardrails with toeboards meeting the provisions of rule 4124:1-5-02 of the Administrative Code.	The rails shall be standard guardrails with toeboards meeting the provisions of rule <u>4123:1-5-02</u> of the Administrative Code.	Change 4121 references to 4123. No other changes recommended.
100	4123:1-5-19(C)(10)(a)	Both runs of the manlift shall be illuminated at all times when the lift is in operation. An intensity of no less than one lumen shall be maintained at all points. (See paragraph (C)(2)(c) of this rule for illumination requirements at landings).	Both runs of the manlift shall be illuminated at all times when the lift is in operation. An intensity of not less than 1-foot candle shall be maintained at all points.	Agreement with OSHA. 29 CFR 1910.68(b)(14)(i) [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
101	4123:1-5-19(D)(3)(a)	Steps shall be less than twelve inches nor more than fourteen inches deep, measured from the belt to the edge of the step	Steps shall be <u>no</u> less than twelve inches nor more than fourteen inches deep, measured from the belt to the edge of the step	Missing "no" added.
102	4123:1-5-19(D)(8)(a)(ii)	The instructions shall read approximately as follows: face of the belt. Use the handholds. To stop – pull rope.”	The instructions shall read approximately as follows: <u>F</u> ace the belt. Use the handholds. To stop – pull rope.”	Agreement with OSHA. 29 CFR 1910.68(c)(7)(i)(b) [OSHA] External Stakeholder Agreement Date : May 5, 2009 In Agreement : Diane Grote Adams (OMA), David Packer (AFSCME/OCSEA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
		4123:1-5-20 Roof car suspended platforms		
103		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
104	4123:1-5-20(B)(11)	The operating device controlling vertical movement shall operable only when all electrical protective devices and interlocks on the working platform are in normal operating position, and the roof car is at an established operating point.	The operating device controlling vertical movement shall <u>be</u> operable only when all electrical protective devices and interlocks on the working platform are in normal operating position, and the roof car is at an established operating point.	Missing "be" added.

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
105	4123:1-5-20(C)(3)	Where exposed to contact, rotating shafts, drums, couplings, other mechanisms and gears shall be guarded.	Where exposed to contact, rotating shafts, drums, couplings, <u>and</u> other mechanisms and gears shall be guarded.	Missing "and" added.
106	4123:1-5-20(G)	A safety belt or harness with means for attachment to a lifeline on the roof or to the working platform shall be provided for each employee on a working suspended by less than four wire ropes.	<u>Employees on working platforms shall be protected by a personal fall arrest system meeting the requirements of appendix C, Section I, of 29 CFR 1910.66.</u>	Agreement with OSHA. 29 CFR 1910.66 (J) [OSHA] External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
		4123:1-5-21 Storage batteries.		
107		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
		4123:1-5-22 Confined spaces.		
108		Appendix TO RULE 4121:1-5-22 (12) Confined Space Entry Permit	29 CFR 1910.146 Appendix D - 2 (See attachment 3)	Agreement with OSHA External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
		4123:1-5-23 Electrical conductors and equipment.		
109		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
		4123:1-5-24 Poles		

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
110		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
		4123:1-5-25 Vehicle-mounted elevating and rotating work platforms.		
111		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
		4123:1-5-26 Trenches and excavations.		
112		Table 26-1	Table 21-1 (See Attachment 4)	Agreement with OAC 4123:1-3-13 External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
113		Table 26-2	Table 26-2 (See Attachment 5)	Agreement with OAC 4123:1-3-13 External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
114	4123:1-26 (C) (2)	Supporting systems, i.e., piling, cribbing, shoring etc., shall be substantially constructed to prevent cave-in and sliding.	Supporting systems, i.e., piling, cribbing, shoring etc., shall be designed by a qualified person and shall meet accepted engineering requirements.	Agreement with OAC 4123:1-3-13 External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
115	4123:1-26 (C) (4)	Sides, slopes, and faces of all excavations shall be made safe by scaling, benching, barricading, rock bolting, wire meshing, or equally effective means.	Sides, slopes, and faces of all excavations <u>shall meet</u> <u>accepted engineering requirements</u> by scaling, benching, barricading, rock bolting, wire meshing, or equally effective means.	Agreement with OAC 4123:1-3-13 External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
		4123:1-5-27 Lasers.		
116		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
		4123:1-5-28 Helicopters.		
117		Change 4121 references to 4123. No other changes recommended.	Change 4121 references to 4123. No other changes recommended.	Corrected section reference
		4123:1-5-29 Explosives and blasting.		
118	4123:1-5-29 (A)(2)	Smoking, firearms, matches, open flame lamps, and other fire, flame, heat or spark-producing devices are prohibited in or within fifty feet of explosive magazines or while explosives are being handled, transported or used.	Smoking, firearms (<u>except firearms carried by guards</u>), matches, open flame lamps, and other fire, flame heat or spark-producing devices are prohibited in or within fifty feet of explosive magazines or while explosives are being handled, transported or used.	Agreement with OSHA 29CFR 1910.109(c)(5)(vii) [OSHA] External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
119	4123:1-5-29 (A)(5)	Blasting operations in the proximity of overhead power lines, communications lines, utility services, or other services and structures shall not be carried on until the operators or owners have been notified and measures have been taken to protect the employer's employees.	Blasting operations in the proximity of overhead power lines, communications lines, utility services, or other services and structures , <u>the blaster shall notify the appropriate representatives of such utilities at least 24 hours in advance of blasting, specifying the location and intended time of such blasting. Verbal notice shall be confirmed with written notice.</u>	Agreement with OSHA 29CFR 1910.109(e)(1)(vi) [OSHA] External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

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Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
120	4123:1-5-29 (A)(8)	Empty boxes, paper, and fiber packing materials which have previously contained high explosives shall not be used again for any purpose but shall be destroyed by burning at a location approved by the blaster, and no employee shall be permitted closer than one hundred feet after the burning has started.	Empty boxes, paper, and fiber packing materials which have previously contained <u>explosive materials shall be disposed of in a safe manner, or reused in accordance with the Department of Transportation's Hazardous Materials Regulations (49 CFR parts 177-180).</u>	Agreement with OSHA 29CFR 1910.109(e)(2)(i) [OSHA] External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
121	4123:1-5-29 (A)(9)	Containers of explosives shall not be opened within fifty feet of any magazine. In opening cases, nonsparking tools shall be used, except that metal slitters may be used for opening fiberboard boxes.	Containers of explosives <u>shall not be opened in any magazine or within fifty feet of any magazine. In opening kegs or wooden cases, no sparking metal tools shall be used; wooden wedges and either wood, fiber or rubber mallets shall be used. Nonsparking metallic slitters may be used for opening fiberboard cases.</u>	Agreement with OSHA 29CFR 1910.109(e)(2)(ii) [OSHA] External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
122	4123:1-5-29 (B)	Any vehicle used to transport explosives on the job site shall have a nonsparking floor and side members and shall carry at least two fire extinguishers approved for the hazard involved. Explosives and blasting caps shall not be transported in the same vehicle except that electric blasting caps in an approved container may be transported in the same vehicle with explosives.	Any vehicle used to transport explosives on the job site shall have a nonsparking floor and side members and shall carry at least two fire extinguishers, <u>each having a rating of at least 10-BC. Blasting caps or electric blasting caps shall not be transported over the highways on the same vehicles with other explosives, unless packaged, segregated, and transported in accordance with the Department of Transportation's Hazardous Materials Regulations (49 CFR parts 177-180).</u>	Agreement with OSHA 29CFR 1910.109(d)(1)(iv) and 1910.109(d)(2)(iii) [OSHA] External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
123	4123:1-5-29 (E)(1)(c)	No blasting cap shall be inserted in the explosive materials without first making a hole in the cartridge for the cap with a nonsparking punch.	No blasting cap shall be inserted in the explosives without first making a hole in the cartridge for the cap with a <u>wooden punch of proper size or standard cap crimper.</u>	Agreement with OSHA 29CFR 1910.109(e)(4)(iv) [OSHA] External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
		4123:1-5-99 Table of standard materials and dimensions.		
124		Replace table with attached.	Replace table with attached. (See Attachment 6)	External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
		4123:1-5-99.1 Toxic concentration, flash point, boiling point, explosive limits and vapor density of common flammable and toxic liquids and gases.		
125	4123:1-5-99.1	Threshold Limit Value, ppm	Occupational Exposure Limit, ppm	Threshold Limit Value is a registered trademark from the American Conference of Governmental Industrial Hygienists and needs to be changed to a generic name for allowable occupational exposure. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
126	4123:1-5-99.1	(C) Benzol (benzene) - skin 10	benzene 1	<p>Many substance names have been changed for consistency to the technical name that OSHA uses in 1910.1000 Tables 1 and 2. The ceiling designation (c) no longer applies after OSHA changed the standard (1910.1028) lowering the allowable concentration from 10 to 1 ppm.</p> <p>External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None</p>
127	4123:1-5-99.1	(n)Butyl alcohol (butanol) - skin 50	(n)Butyl alcohol (butanol) 100	<p>OSHA does not have a skin designation and the current OSHA limit is 100.</p> <p>External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None</p>
128	4123:1-5-99.1	Butyl cellosolve (2-butoxy ethanol)	2-butoxy ethanol (Butyl cellosolve) - skin	<p>The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. OSHA also has a skin designation for this chemical</p> <p>External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None</p>

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
129	4123:1-5-99.1	Carbon tetrachloride - skin 10	Carbon tetrachloride 10	OSHA does not have a skin designation for this chemical External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
130	4123:1-5-99.1	Cellosolve (2-ethoxyethanol)	2-ethoxyethanol (Cellosolve) - skin	The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. OSHA also has a skin designation for this chemical External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
131	4123:1-5-99.1	Cellosolve acetate (2-ethoxyethyl acetate) - skin	2-ethoxyethyl acetate (Cellosolve acetate) - skin	The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. OSHA also has a skin designation for this chemical External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
132	4123:1-5-99.1	Chloroform (trichloromethane) 10	Chloroform (trichloromethane) C50**	OSHA only has a ceiling concentration for this chemical. This is the only chemical on the list with a ceiling concentration, designated with the letter C. The double asterisk defines that the letter C designates a ceiling value for this exposure External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
133	4123:1-5-99.1	(n)Heptane 400	(n)Heptane 500	The current OSHA limit for this chemical is 500 ppm External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
134	4123:1-5-99.1	(n)Hexane 100	(n)Hexane 500	The current OSHA limit for this chemical is 500 ppm External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
135	4123:1-5-99.1	Methyl alcohol (methanol) - skin	Methyl alcohol (methanol)	OSHA does not have a skin designation for this chemical External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
136	4123:1-5-99.1	Methyl butyl ketone (2-hexanone) - skin 25	2-hexanone (Methyl butyl ketone) 100	The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. OSHA also has a skin designation for this chemical. OSHA does not have a skin designation for this chemical and the OSHA allowable exposure limit is 100 ppm External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
137	4123:1-5-99.1	Methyl cellosolve (2-methoxyethanol)	2-methoxyethanol (Methyl cellosolve) -	The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
138	4123:1-5-99.1	Methyl cellosolve acetate -	2-methoxyethyl acetate (Methyl cellosolve acetate)-	Added the technical name as found in OSHA 1910.1000 Table 1 External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
139	4123:1-5-99.1	Methyl ethyl ketone (2-butanone)	2-butanone (Methyl ethyl ketone)	The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
140	4123:1-5-99.1	Methyl isobutyl ketone (Hexone)-skin	2-Hexanone (Methyl isobutyl ketone)	The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. The misspelling of the technical chemical name has been corrected and OSHA does not have a skin designation for this chemical. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
141	4123:1-5-99.1	Methyl propyl ketone (2-pentanone)	2-pentanone (Methyl propyl ketone)	The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
142	4123:1-5-99.1	Methylene chloride (dichloromethane) 100	Methylene chloride (dichloromethane) 25	The exposure limit for this chemical is currently lower in the OSHA standard. The revised exposure limit is based on this newer value. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
143	4123:1-5-99.1	Natural Gas - Gas - 3.8-6.5 13-17 -	Deleted	OSHA has no exposure limit for natural gas. The methane exposure limit would be valid for this substance. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
144	4123:1-5-99.1	Perchloroethylene (tetrachloroethylene) - skin	tetrachloroethylene (Perchloroethylene)	The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. OSHA also does not have a skin designation for this chemical External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
145	4123:1-5-99.1	Petroleum distillates Naphtha -	Petroleum distillates Naphtha 500	OSHA has an exposure limit for this chemical which has been added. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
146	4123:1-5-99.1	Safety solvent - 100 & over 300-400 0.8 5.0	Deleted	OSHA has no exposure limit for safety solvent. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
147	4123:1-5-99.1	C Isophorone 5	Isophorone 25	OSHA has no ceiling limit (C) for this chemical. The exposure limit change is OSHA's exposure limit for a full shift exposure. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
148	4123:1-5-99.1	Isopropyl alcohol - skin	Isopropyl alcohol	OSHA does not have a skin designation for this chemical External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
149	4123:1-5-99.1	Toluol (Toluene) - skin 100	Toluene (Toluol) 200	The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. OSHA also does not have a skin designation for this chemical. The OSHA exposure limit is higher than the current value. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
150	4123:1-5-99.1	Xylol (Xylene) - skin	Xylene	The technical name as found in OSHA 1910.1000 Tables 1 and 2 has been placed first. OSHA also does not have a skin designation for this chemical. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
151	4123:1-5-99.1	None	** C50 is an allowable ceiling concentration of 50 ppm	This text has been added to the footnotes defining a ceiling concentration as C. External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None
		4123:1-5-99.2 Examples of local exhaust ventilation.		

OAC 4123:1-5

Change #	OAC Citation	Original Language	Recommended Change	Rationale and External Stakeholder Input
152		See Attachment 7	The previous versions used copywrited material from the ACGIH that we cannot use without permission. The ACGIH has agreed to give us permission to use the materials in exchange for a license fee. We are currently processing the payment of this fee.	External Stakeholder Agreement Date : June 8, 2009 In Agreement : Diane Grote Adams (OMA), Bill Crooks (USW/AFL-CIO), Dave Anderson (Ohio City/County Management Association) Objecting : None

Agency Rule Review

Chapter	Title	# of rules	Legal Authority			Type of Review		JCARR review	Staff Contact	Review due	Proposed Sched	Proposed Timeline						Filed
			S	J	O	5YRR	Non 5 YRR					complete internal review	complete external review	Senior Staff Review Date	BOD Bk. Ddln*	BOD 1st read	BOD Vote	
4123:1-7	Metal casting	14	x			x		Yes	M. Ely	2008	Mar-09	Complete	2/24/09	2/26/09	6-Mar	19-Mar	30-Apr	7/31/2009
4123:1-9	Steel Making, Manuf, & Fabrica.	5	x			x		Yes	B. Loughner	2008	Mar-09	complete	2/15/09	2/26/09	6-Mar	19-Mar	30-Apr	7/31/2009
4123:1-11	Laundry & Dry Cleaning	5	x			x		Yes	R. Gaul	2008	Mar-09	complete	2/24/09	2/26/09	6-Mar	19-Mar	30-Apr	7/31/2009
4123-5	Miscellaneous Provisions	6		x	x	x		Yes	K. Robinson	2009	Apr-09	complete		4/2/09	10-Apr	28-Apr	29-May	7/10/2009
4123-18	Rehab of Inj and Dis Workers	16	x			x		Yes	K.Fitsimmons, K Robinson	2008	Apr-09	complete	in process	4/2/09	10-Apr	28-Apr	29-May	7/10/2009
4123:1-1	Elevators	5	x			x		Yes	R. Gaul	2008	Apr-09	complete	2/24/09	4/2/09	10-Apr	28-Apr	29-May	7/31/2009
4123:1-13	Rubber & Plastics	4	x			x		Yes	M. Lampl	2008	Apr-09	complete	3/17/09	4/2/09	10-Apr	28-Apr	29-May	7/31/2009
4123:1-17	Window Cleaning	7	x			x		Yes	D. Feeney	2008	Apr. 09	complete	3/24/09	4/2/09	10-Apr	28-Apr	29-May	7/10/2009
4123-6-08	2009 Provider & Service Fee Schedule						x		Graff		Apr-09	3/15/09	4/10/09	4/2/09	10-Apr	28-Apr	29-May	
4123-14	Non-complying employer	6	x			x		Yes	D.C. Skinner	2008	May-09			4/30/09	8-May	29-May	29-Jun	7/10/2009
TBD	2009 Vocational Rehab Services Fee Schedule						x		K. Fitzsimmons, Graff		Jun-09	4/30/09	5/15/09	5/28/09	10-Jul	30-Jul	28-Aug	
4123-6-01 to 18	HPP- Program	49	x	x	x	x		Yes	F. Johnson, T. Mihaly	2009	Jun-09	4/6/09	5/7/09	5/28/09	5-Jun	18-Jun	TBD	
4123-6-50 to 73	HPP/QHP	24	x	x	x	x		Yes	F. Johnson, Leeper	2009	Jul-09	5/1/09	6/14/09	7/2/09	10-Jul	30-Jul	TBD	
4123-6-16.2	C9 Rule Change						x		Phillips		Jul-09	5/1/09	6/1/09	7/2/09	10-Jul	30-Jul	28-Aug	
4123-9	General Policy	12	x			x		Yes	J. Smith, TK, RM	2008	Jul-09		6/15/09	7/2/09	10-Jul	30-Jul	28-Aug	
4123:1-5	Workshops & Factories	32	x			x		Yes	M. Ely	2008	Aug-09	7/15/09	7/17/09	7/30/09	7-Aug	27-Aug	24-Sep	
4123-6-19 to 46	HPP- Provider	33	x	x	x	x		Yes	F. Johnson	2009	Sep-09			8/27/09	4-Sep	24-Sep	TBD	
4123-6-37.1	2010 Inpatient Fee Schedule						x		Graff, Casto		Sep-09	6/1/09	7/25/09	8/27/09	4-Sep	24-Sep	30-Oct	
4123 - 7	Payments to Health Care Prov.	30	x	x	x	x		Yes	F. Johnson	2009	Oct-09	7/15/09	9/15/09	10/1/09	9-Oct	29-Oct	20-Nov	
4123-6-37.3	2010 ASC Fee Schedule						x		Graff, Casto		Oct-09	7/15/09	9/1/09	10/1/09	9-Oct	29-Oct	20-Nov	
4123-6-37.2	2010 Hospital Outpatient Fee Schedule						x		Casto, TBD		Nov-09	8/15/09	9/30/09	10/22/09	31-Oct	19-Nov	17-Dec	
	total rules for 08-09	248																

S=Statutory
J=Judicial
O=Operational

* materials in final form

12-Month Governance Committee Calendar

Date	August 2009	Notes
8/27/2009	1. Five Year Rule Review	
Date	September 2009	
9/23/2009	1. Five Year Rule Review	
	2. 2010 Inpatient Fee Schedule (1 st reading)	
9/24/2009	1. Governance Guidelines (1 st reading)	
	2. Committee Charters (1 st reading)	
Date	October 2009	
10/29/2009	1. Five year rule review	
	2. 2010 ASC Fee schedule (1 st reading)	
	3. 2010 Inpatient Fee schedule (2 nd reading)	
Date	November 2009	
11/19/2009	1. Governance Guidelines (2 nd reading)	
	2. Committee Charters (2 nd reading)	
	3. 2010 Hospital Outpatient Fee schedule (1 st reading)	
	4. 2010 ASC Fee schedule (2 nd reading)	
Date	December 2009	
12/16/2009		
Date	January 2010	
1/21/2010		
Date	February 2010	
2/25/2010		
Date	March 2010	
3/25/2010		
Date	April 2010	
4/29/2010	1. Launch Administrator Review	
Date	May 2010	
5/27/2010	1. Finalize Administrator Review	
	2. Launch Board and Committee Self-assessment	

12-Month Governance Committee Calendar

Date	June 2010	
6/17/2010	1. Finalize Board and Committee Self-assessment	
	2. Committee membership recommendations	
	3. Develop Education Plan	
	4. Administrator's Objectives for FY 11	
7/29/2010	July 2010	

Rule Number	Title	Total Changes	Language & Admin.	Conforming Changes
4123:1-5-01	Scope and Definition	4	4	0
4123:1-5-02	Guarding Floor and Wall Openings	8	2	6
4123:1-5-03	Ladders	18	10	8
4123:1-5-04	Mechanical Power Transmissions	7	6	1
4123:1-5-05	Auxiliary Equipment	1	1	0
4123:1-5-06	Portable explosive actuated hand tools	1	0	1
4123:1-5-07	Hand tools	3	1	2
4123:1-5-08	Power saws	4	1	3
4123:1-5-09	Wood-working machinery	1	1	0
4123:1-5-10	Mechanical Power presses	5	1	4
4123:1-5-11	Forging machines (4 changes from IC to BWC)	7	0	7
4123:1-5-12	Grinding and Cutting	1	1	0
4123:1-5-13	Motor vehicles	3	2	1
4123:1-5-14	Cranes and hoists	6	1	5
4123:1-5-15	Hoistage and hauling	1	1	0
4123:1-5-16	Cutting and welding	9	2	7
4123:1-5-17	Personal protective equipment	17	0	17
4123:1-5-18	Air contaminants	1	1	0
4123:1-5-19	Man lifts (endless belt)	5	2	3
4123:1-5-20	Roof cars	4	3	1
4123:1-5-21	Storage batteries	1	1	0
4123:1-5-22	Confined spaces	1	0	1
4123:1-5-23	Electrical conductors and equipment	1	1	0
4123:1-5-24	Poles	1	1	0
4123:1-5-25	Vehicle mounted platforms	1	1	0
4123:1-5-26	Trenches and excavations	4	0	4
4123:1-5-27	Lasers	1	1	0
4123:1-5-28	Helicopters	1	1	0
4123:1-5-29	Explosives and blasting	6	0	6
4123:1-99	Materials and dimensions	1	0	1
4123:1-5-99.1	Toxic concentration	27	0	27
4123:1-5-99.2	Local exhaust ventilation	1	0	1
Totals		152	47	105

