

Screening and Surveillance: A Guide to OSHA Standards



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This informational booklet is intended to provide a generic, non-exhaustive overview of a particular standards-related topic. This publication does not itself alter or determine compliance responsibilities, which are set forth in OSHA standards themselves, and the *Occupational Safety and Health Act*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements, the reader should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

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Screening and Surveillance: A Guide to OSHA Standards

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The Occupational Safety and Health Administration (OSHA) receives many inquiries about the “medical surveillance” provisions of its standards. This guide is a quick reference to help you locate and implement the screening and surveillance requirements of the OSHA standards in *Title 29 of the Code of Federal Regulations (29 CFR)*.

The guide provides a general overview of OSHA requirements, but is not a legal authority for compliance with them. For full details of specific compliance requirements, please consult the appropriate OSHA standard in the *CFR*. You can access the medical surveillance provisions of the OSHA standards on the Internet at www.osha.gov.

NOTE TO EMPLOYERS:

Please remember, more than one standard may apply in your workplace. If so, you must meet all the screening and surveillance requirements for all the standards that apply. For further information, contact your Regional OSHA office listed at the end of this publication and on OSHA’s home page on the Internet at www.osha.gov.

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BP - blood pressure

BUN - blood urea nitrogen

CBC - complete blood count

FEF - forced expiratory flow

FEV₁ - forced expiratory volume one second

FSH - follicle stimulating hormone

FVC - forced vital capacity

HAZWOPER - Hazardous Waste Operations and Emergency Response

HBV - hepatitis B virus

LH - luteinizing hormone

MDA - methylenedianiline

PPE - personal protective equipment

PHS or **USPHS** - United States Public Health Service

SGOT - serum glutamic oxalacetic transaminase

SGPT - serum glutamic pyruvic transaminase

ZPP - zinc protoporphyrin

<i>Standard Requirements</i>	
<i>Acrylonitrile</i> <i>1910.1045(n)/1926.1145/1915.1045*</i>	
Pre-placement exam	Yes ¹
Periodic exam	Yes—annual ¹
Emergency/exposure examination and tests	Yes
Termination exam	Yes—if no exam within 6 months of termination
Examination includes special emphasis on these body systems	Respiratory, gastrointestinal, ¹ thyroid, skin, neurological (peripheral and central)
Work and medical history	Required for all exams ²
Chest x-ray	Yes
Pulmonary function test (PFT)	No
Other required tests	Fecal occult blood ¹
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician
Medical removal plan	No

Standard Requirements	
Arsenic (Inorganic) 1910.1018(n)/1926.1118/1915.1018*	
Pre-placement exam	Yes ¹
Periodic exam	Yes ¹
Emergency/exposure examination and tests	Yes
Termination exam	Yes—if no exam within 6 months of termination
Examination includes special emphasis on these body systems	Skin, nasal
Work and medical history	Required for all exams ² with focus on respiratory symptoms; includes smoking history
Chest x-ray	Yes
Pulmonary function test (PFT)	No
Other required tests	No
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician
Medical removal plan	No

<i>Standard Requirements</i>	
<i>Asbestos (General Industry) 1910.1001(I)</i>	
Pre-placement exam	Yes ^{1,3}
Periodic exam	Yes—annual ¹
Emergency/exposure examination and tests	No
Termination exam	Yes—within \pm 30 days of termination
Examination includes special emphasis on these body systems	Respiratory, cardiovascular, gastrointestinal
Work and medical history	Required for all exams ² ; standardized form required; see standard, Appendix D
Chest x-ray	Yes ¹ —B reader, board eligible/certified radiologist or physician with expertise in pneumoconioses required; see standard, Appendix E for x-ray interpretation and classification requirements
Pulmonary function test (PFT)	FVC, FEV ₁
Other required tests	No
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician; includes informing employee of increased risk of lung cancer from combined effect of smoking and asbestos exposure
Medical removal plan	No

Standard Requirements	
Asbestos (Construction and Shipyards) 1926.1101(m)/1915.1001	
Pre-placement exam	Yes ^{1,3}
Periodic exam	Yes — annual ¹ or more frequently if determined by physician
Emergency/exposure examination and tests	No
Termination exam	No
Examination includes special emphasis on these body systems	Pulmonary and gastrointestinal
Work and medical history	Required for all exams ² ; special emphasis on pulmonary, cardiovascular, gastrointestinal; standardized form required; see standard, Appendix D
Chest x-ray	Yes ¹ — B reader, board eligible/certified radiologist or physician with expertise in pneumoconioses required; see standard, Appendix E for x-ray interpretation and classification requirements
Pulmonary function test (PFT)	FVC, FEV ₁
Other required tests	No
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician; includes informing employee of increased risk of lung cancer from combined effect of smoking and asbestos exposure
Medical removal plan	No

<i>Standard Requirements</i>	
<i>Benzene</i> <i>1910.1028(i)/1926.1128/1915.1028*</i>	
Pre-placement exam	Yes ^{1,3,4}
Periodic exam	Yes—annual ^{1,4}
Emergency/exposure examination and tests	Yes ^{1,4} —includes urinary phenol test
Termination exam	No
Examination includes special emphasis on these body systems	Hemopoietic; add cardiopulmonary if respiratory protection used at least 30 days/year, (initially, then every 3 years)
Work and medical history	Required for initial and periodic exams (pre-placement exam requires special history) ²
Chest x-ray	No
Pulmonary function test (PFT)	Initially and every 3 years if respiratory protection used 30 days/year; specific tester requirements
Other required tests	CBC, differential, other specific blood tests; repeated as required; see standard
Evaluation of ability to wear a respirator	Yes—if respirators are used
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician
Medical removal plan	Yes

Standard Requirements	
Bloodborne Pathogens 1910.1030(f)	
Pre-placement exam	No—must offer Hepatitis B (HBV) vaccine unless already immune or vaccine contraindicated
Periodic exam	No
Emergency/exposure examination and tests	Specific post-exposure monitoring for employee and source; HBV vaccine; see standard
Termination exam	No
Examination includes special emphasis on these body systems	No
Work and medical history	No
Chest x-ray	No
Pulmonary function test (PFT)	No
Other required tests	Yes—post-exposure incident; follow US Public Health Service (USPHS) post-exposure protocols
Evaluation of ability to wear a respirator	No
Additional tests if deemed necessary	Yes—for post-exposure incident; follow USPHS post-exposure protocols
Written medical opinion	Yes—licensed health care professional to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by licensed health care professional; counseling re: HBV vaccine and post-exposure followup; see standard
Medical removal plan	No

<i>Standard Requirements</i>	
1, 3-Butadiene 1910.1051(k)/1926.1151*	
Pre-placement exam	Yes ^{1,3,4}
Periodic exam	Yes ^{1,4}
Emergency/exposure examination and tests	Yes ^{1,4} —within 48 hours of exposure
Termination exam	Yes ⁴ —if 12 months have elapsed since last exam
Examination includes special emphasis on these body systems	Liver, spleen, lymph nodes, and skin
Work and medical history	Required annually and for all examinations ² ; standardized form or equivalent; includes comprehensive occupational and health history; see standard, Appendices F and C
Chest x-ray	No
Pulmonary function test (PFT)	No
Other required tests	CBC with differential and platelet count, annually; also within 48 hrs after exposure in an emergency situation and repeated monthly for 3 more months
Evaluation of ability to wear a respirator	Yes—if respirators are used
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician or other licensed health care professional to employer and employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician or other licensed health care professional
Medical removal plan	No

Standard Requirements	
Cadmium 1910.1027(I)/1926.1127/1915.1027/1928.1027*	
Pre-placement exam	Yes ^{1,3,4}
Periodic exam	Yes ^{1,4}
Emergency/exposure examination and tests	Yes ^{1,4}
Termination exam	Yes ³ —see standard for time frame and other specifics
Examination includes special emphasis on these body systems	Respiratory, cardiovascular (BP), urinary, and for males over 40—prostate palpation ¹
Work and medical history	Required for preplacement and periodic exams ² ; standardized form required
Chest x-ray	Yes
Pulmonary function test (PFT)	FVC, FEV ₁
Other required tests	Annually, ¹ cadmium in urine, beta-2 microglobulin in urine, cadmium in blood, CBC, BUN, serum creatinine, urinalysis; see standard
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician; includes explanation of results, treatment, and diet, and discussion of decisions re: medical removal; see standard for details
Medical removal plan	Yes

<i>Standard Requirements</i>	
<i>Carcinogens (Suspect)</i> <i>1910.1003-1016(g)/1926.1103/1915.1003-1016*</i>	
Pre-placement exam	Yes
Periodic exam	Yes—annual
Emergency/exposure examination and tests	Yes ¹ —special medical surveillance begins within 24 hours
Termination exam	No
Examination includes special emphasis on these body systems	Exam includes determination for increased risk (e.g., treatment with steroids or cytotoxic agents, reduced immunological competence, pregnancy or cigarette smoking)
Work and medical history	Required for all examinations; includes family and occupational history, genetic and environmental factors
Chest x-ray	No
Pulmonary function test (PFT)	No
Other required tests	No
Evaluation of ability to wear	Yes—as specified in the respiratory protection standard 1910.134(e), if respirators are used
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer
Employee counseling re: exam results, conditions of increased risk	No
Medical removal plan	No

Standard Requirements	
Coke Oven Emissions 1910.1029(j)	
Pre-placement exam	Yes ¹
Periodic exam	Yes ¹
Emergency/exposure examination and tests	No
Termination exam	Yes—if no exam within 6 months of termination
Examination includes special emphasis on these body systems	Skin
Work and medical history	Required for all exams ² ; includes smoking history and presence and degree of respiratory symptoms
Chest x-ray	Yes
Pulmonary function test (PFT)	FVC, FEV ₁
Other required tests	Weight, urine cytology, urinalysis for sugar, albumin, hematuria
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes—see standard, Appendix B
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician; also, employer must inform employee of possible health consequences if employee refuses any required medical exam
Medical removal plan	No

<i>Standard Requirements</i>	
<i>Compressed Air Environments 1926.803(b)</i>	
Pre-placement exam	Yes
Periodic exam	Yes ¹
Emergency/exposure examination and tests	No
Termination exam	No
Examination includes special emphasis on these body systems	Not specified
Work and medical history	No
Chest x-ray	No
Pulmonary function test (PFT)	No
Other required tests	No
Evaluation of ability to wear a respirator	No
Additional tests if deemed necessary	No
Written medical opinion	No
Employee counseling re: exam results, conditions of increased risk	No
Medical removal plan	No

Standard Requirements	
Cotton Dust 1910.1043(h)	
Pre-placement exam	Physical exam not specified; other tests required
Periodic exam	Physical exam not specified; other tests required ^{1,4}
Emergency/exposure examination and tests	No
Termination exam	No
Examination includes special emphasis on these body systems	Not specified
Work and medical history	Medical history; standardized questionnaire required; see standard, Appendix B-1 ^{1,2,4}
Chest x-ray	No
Pulmonary function test (PFT)	FVC, FEV ₁ , FEV ₁ /FVC Employees with specific abnormalities are referred to specialists ^{1,4,5}
Other required tests	No
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	No
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician re: results of exam and any medical conditions requiring further examination or treatment
Medical removal plan	Yes—for inability to wear a respirator (6 months)

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<i>Standard Requirements</i>	
1,2-Dibromo-3-chloropropane 1910.1044(m)/1926.1144/1915.1044*	
Pre-placement exam	Yes
Periodic exam	Yes ¹
Emergency/exposure examination and tests	Yes—male reproductive; repeat in 3 months
Termination exam	No
Examination includes special emphasis on these body systems	Reproductive, genitourinary; see standard for details
Work and medical history	Required for all exams ² ; includes reproductive history; see standard, Appendix C
Chest x-ray	No
Pulmonary function test (PFT)	No
Other required tests	Sperm count, FSH, LH, Total estrogen (females); see standard, Appendix C for guidelines
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician
Medical removal plan	No

Standard Requirements	
Ethylene Oxide 1910.1047(i)/1926.1147*	
Pre-placement exam	Yes ¹
Periodic exam	Yes—annual ¹
Emergency/exposure examination and tests	Yes ¹
Termination exam	Yes ¹
Examination includes special emphasis on these body systems	Pulmonary, skin, neurologic, hematologic, reproductive, eyes
Work and medical history	Required for all exams; includes reproductive history and special emphasis on some body systems; see standard
Chest x-ray	No
Pulmonary function test (PFT)	No
Other required tests	CBC, white cell count with differential, hematocrit, hemoglobin, red cell count; if requested by employee, pregnancy testing and fertility testing (female/male) will be added to the exam as deemed appropriate by physician
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician
Medical removal plan	No

<i>Standard Requirements</i>	
<i>Formaldehyde</i> <i>1910.1048(I)/1926.1148/1915.1048*</i>	
Pre-placement exam	Yes ^{1,4}
Periodic exam	Yes ^{1,4}
Emergency/exposure examination and tests	Yes ⁴
Termination exam	No
Examination includes special emphasis on systems these body	Evidence of irritation or sensitization of skin, respiratory system, eyes; shortness of breath
Work and medical history	Required for all exams ² ; questionnaire required; see standard, Appendix D
Chest x-ray	No
Pulmonary function test (PFT)	FVC, FEV ₁ , FEF should be evaluated if respiratory protection is used
Other required tests	No
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician; includes information on whether medical conditions were caused by past exposures or emergency exposures
Medical removal plan	Yes

Standard Requirements	
HAZWOPER 1910.120(f)/1926.65*	
Pre-placement exam	Yes ¹
Periodic exam	Yes—annually or at physician's discretion ¹
Emergency/exposure examination and tests	Yes ¹
Termination exam	Yes—if no exam within 6 months of termination/reassignment
Examination includes special emphasis on these body systems	Determined by physician; see standard, Appendix D, reference 10 for guidelines
Work and medical history	Yes—with emphasis on symptoms related to handling hazardous substances and health hazards, fitness for duty and ability to wear PPE ²
Chest x-ray	No—unless determined by physician
Pulmonary function test (PFT)	No—unless determined by physician
Other required tests	No—unless determined by physician
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician
Medical removal plan	No

<i>Standard Requirements</i>	
<i>Hazardous Chemicals in Laboratories 1910.1450(g)</i>	
Pre-placement exam	When required by other standards
Periodic exam	When required by other standards
Emergency/exposure examination and tests	Yes ¹
Termination exam	No
Examination includes special emphasis on these body systems	Not specified
Work and medical history	When required by other standards
Chest x-ray	When required by other standards
Pulmonary function test (PFT)	When required by other standards
Other required tests	When required by other standards
Evaluation of ability to wear a respirator	Yes—when required by other standards
Additional tests if deemed necessary	When required by other standards
Written medical opinion	Yes—physician to employer
Employee counseling re: exam results, conditions of increased risk	Yes—by physician
Medical removal plan	No

Standard Requirements	
Lead 1910.1025(j)/1926.62*	
Pre-placement exam	Yes ^{1,4} except in construction industries; construction requires initial blood tests only
Periodic exam	Yes ^{1,4}
Emergency/exposure examination and tests	Yes ^{1,4}
Termination exam	No
Examination includes special emphasis on these body systems	Teeth, gums, hematologic, gastrointestinal, renal, cardiovascular (BP), neurological; pulmonary status if respiratory protection used
Work and medical history	Required for all exams ² ; includes reproductive history, past lead exposure, both work/non-work, and history of specific body systems; see standard
Chest x-ray	No
Pulmonary function test (PFT)	No—unless deemed necessary by physician
Other required tests	Hemoglobin, hematocrit, ZPP, BUN, serum creatinine, urinalysis with micro, blood-lead levels, peripheral smear morphology, red cell indices ^{1,5} ; if requested by employee, pregnancy testing and fertility testing (female/male)
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician; includes advising the employee of any medical condition, occupational or non-occupational, requiring further medical examination or treatment
Medical removal plan	Yes

<i>Standard Requirements</i>	
<i>Methylenedianiline 1910.1050(m)</i>	
Pre-placement exam	Yes ^{1, 3, 4}
Periodic exam	Yes—annual ^{1, 4}
Emergency/exposure examination and tests	Yes ^{1, 4}
Termination exam	No
Examination includes special emphasis on these body systems	Skin, hepatic
Work and medical history	Required for all examinations ² ; includes past work with MDA and other specific items; see standard
Chest x-ray	No
Pulmonary function test (PFT)	No
Other required tests	Liver function tests, urinalysis
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician
Medical removal plan	Yes

Standard Requirements	
Methylene Chloride 1910.1052(j)/1926.1152*	
Pre-placement exam	Yes ^{1,4}
Periodic exam	Yes ^{1,4}
Emergency/exposure examination and tests	Yes ⁴ —see standard for specifics
Termination exam	Yes—if no exam within 6 months of termination
Examination includes special emphasis on these body systems	Lungs, cardiovascular (including BP and pulse), liver, nervous, skin; extent of exam determined by examiner based on employee's health status, work, and medical history
Work and medical history	Required for all exams; example of work and medical history form provided in standard, Appendix B
Chest x-ray	No
Pulmonary function	No—unless deemed necessary by physician or other licensed health care professional
Other required tests	Laboratory surveillance may include tests as determined by examiner including “before and after shift tests”; see standard, Appendix B
Evaluation of ability to wear a respirator	Yes—as specified under the respiratory protection standard 1910.134(e)
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician or other licensed health care professional to employer and employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician or other licensed health care professional
Medical removal plan	Yes

<i>Standard Requirements</i>	
Noise 1910.95(g)/1926.52[†]	
Pre-placement exam	No physical exam but audiometric testing required
Periodic exam	No physical exam but audiometric testing required
Emergency/exposure examination and tests	No
Termination exam	No physical exam but audiometric testing required
Examination includes special emphasis on these body systems	No
Work and medical history	No
Chest x-ray	No
Pulmonary function test (PFT)	No
Other required tests	Initial and annual audiometric testing ^{1, 4, 5} ; see standard re: specific qualifications for the test administrator
Evaluation of ability to wear a respirator	No
Additional tests if deemed necessary	Yes
Written medical opinion	No
Employee counseling re: exam results, conditions of increased risk	Yes—if standard threshold shift or suspected ear pathology
Medical removal plan	No

Standard Requirements	
Respiratory Protection 1910.134(e)/1926.103*	
Pre-placement exam	Evaluation questionnaire or exam; followup exam when required ⁵
Periodic exam	Yes—in specific situations ⁵
Emergency/exposure examination and tests	No
Termination exam	No
Examination includes special emphasis on these body systems	Yes ⁵ —see standard, Appendix C
Work and medical history	Yes ² —see standard, Appendix C
Chest x-ray	As determined by physician or other licensed health care professional
Pulmonary function test (PFT)	As determined by physician or other licensed health care professional
Other required tests	As determined by physician or other licensed health care professional
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician or other licensed health care professional to employer and employee
Employee counseling re: exam results, conditions of increased risk	Yes—by physician or other licensed health care professional
Medical removal plan	No

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<i>Standard Requirements</i>	
Vinyl Chloride 1910.1017(k)/1926.1117*	
Pre-placement exam	Yes ¹
Periodic exam	Yes ¹
Emergency/exposure examination and tests	Yes
Termination exam	No
Examination includes special emphasis on these body systems	Special attention to detecting enlargement of the liver, spleen or kidneys, or dysfunction of these organs and abnormalities in skin, connective tissue, and pulmonary system; see standard, Appendix A
Work and medical history	Required for initial and periodic exams ² ; includes alcohol intake, history of hepatitis, exposure to hepatotoxic agents, blood transfusions, hospitalizations, and work history
Chest x-ray	No
Pulmonary function test (PFT)	No
Other required tests	Blood test for total bilirubin, alkaline phosphatase, SGOT, SGPT and gamma glutamyl transpeptidase
Evaluation of ability to wear a respirator	Yes
Additional tests if deemed necessary	Yes
Written medical opinion	Yes—physician to employer; employer to employee
Employee counseling re: exam results, conditions of increased risk	No
Medical removal plan	Yes

¹ Pre-placement and periodic examinations are dependent upon specific factors cited in the standard such as airborne concentrations of the substance and/or years of exposure, biological indices, age of employee, amount of time exposed per year. In addition, some standards require periodic exams to be conducted at varying time intervals. Refer to standard for complete details.

² Standard requires medical and work history focused on special body systems, symptoms, personal habits, and/or specific family, environmental or occupational history. Refer to standard for complete details.

³ No examination required if previous examination done within specified time frame (e.g., 6 months or 12 months) and provisions of standard met. Refer to standard for details.

⁴ Additional physician review: Some standards have provisions for referring employees with abnormalities to a specialist as deemed necessary by examiner. Other standards have provisions for multiple physician review. See specific standard for details.

⁵ Standard requires specific protocol. See standard for details.

*These Maritime and Construction standards are identical to 29 CFR 1910, General Industry standards.

†1926.52 requires an effective and continued hearing conservation program. OSHA has interpreted this to include audiograms when feasible. See letter of interpretation dated August 4, 1992.

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*These states and territories operate their own OSHA-approved job safety and health programs (Connecticut and New York plans cover public employees only). States with approved programs must have a standard that is identical to, or at least as effective as, the federal standard.