North Carolina Department of Labor
Occupational Safety and Health Division

Raleigh, North Carolina

Field Information System Standards Notice 56B

Subject: Heavy and Light Duty Pneumatic Staplers

A. **Standards.**

1. 29 CFR 1910.212(a)(3)(ii)—General Requirements for All Machines. The point of operation of machines whose operation exposes an employee to injury shall be guarded.

2. 29 CFR 1910.212(a)(3)(iv)(h)—General Requirements for All Machines. Lists portable powered tools as one type of machine which usually requires point-of-operation guarding.

3. 29 CFR 1910.243(a)(2)(ii)—Guarding of Portable Powered Tools; Switches and controls.

4. 29 CFR 1910.243(b)—Guarding of Portable Powered Tools; Pneumatic powered tools and hoses.

5. ANSI/ISANTA SNT-101- 2012, Safety Requirements for Portable, Compressed-Air-Actuated, Fastener Driving Tools.

B. **Discussion.**

29 CFR 1910.243(a)(2)(ii) and 1910.243(b) are the applicable general industry vertical standards for portable pneumatic powered tools. However, these standards are silent with regard to point-of-operation safeguarding. Under such circumstances, the NC OSH Division Field Operations Manual, Chapter IV, Violations, permits the application of horizontal standards, such as 1910.212(a)(3)(ii), where employee workplace hazards exist. 29 CFR 1910.212 (a)(3)(ii) is applicable to point of operation hazards associated with portable pneumatic powered staplers and/or nailers and the safeguarding device shall be in conformity with any appropriate standard.

The American National Standards Institute, Inc. (ANSI), and the International Staple, Nail and Tool Association (ISANTA) published ANSI/ISANTA SNT-101- 2012, Safety Requirements for Portable, Compressed-Air-Actuated, Fastener Driving Tools. The standard, developed by an industry consensus group, is applicable to portable hand-held compressed air powered tools for driving fasteners, such as nails and staples, into or through concrete, fabric, fiberboard, metal, plastic, wood, wood products, and other materials and is considered to be an appropriate standard within the meaning of 1910.212(a)(3)(ii). This standard establishes safety requirements for the design, construction, use, and maintenance of portable hand-held compressed air powered tools to guard against the injury of tool users and bystanders in the workplace.

The ANSI standard requires that all tools must be equipped with a trigger and the tool shall be designed so that the tool cannot be actuated when the trigger is in a released position (i.e., in an "off" position).

The operator and other persons in the area, within range of a flying staple or fastener, must wear personal protective eye and face protection. Where eye and face protective equipment is not used, a violation of 29 CFR 1910.133(a)(1) is applicable.

C. **Interpretation.**

1. "Heavy Duty" Pneumatic Staplers.

a. The ANSI standard pertains to portable pneumatic powered devices which drive fasteners made from material of cross sectional area equal to or greater than 16 gage per the American Steel Wire Gage (ASWG). (16 ASWG is equal to 0.0625 inch diameter wire). Tables 1A and 1B (attached) itemize the physical wire diameters relative to ASWG number.

b. The ANSI standard specifies that all tools, other than light-duty tools, must be equipped with a workpiece contact. Such tools shall be designed so that the tool cannot be actuated unless both the trigger and the workpiece contact have been activated. The purpose of this requirement is to prevent actuation of the tool when only the trigger is activated. The workpiece contact shall be designed so that it does not become deformed or inoperable under intended use. *(**Note:** The workpiece contact is defined as an operating control element or assembly on the tool intended to be activated by the material to be fastened.)*

c. It should be noted that the ANSI standard does not relate to the requirement of a workpiece contact element (interlocked safeguard) to the operating air pressure of the device, but rather to the size of the expelled fastener. Therefore, in general industry situations, prior interpretations which related to 100 PSI air pressure as a consideration, are not germane to heavy duty portable pneumatic tools within the scope of the ANSI standard.

d. Tables 1A, 1B and Table 2 are provided for use when evaluating the applicability of 29 CFR 1910.212(a)(3)(ii) to workplace situations in which portable pneumatic powered fastener tools are used.

e. It is further recommended that the following items be evaluated:

i. Assure that a pressurized tool is never left unattended.
ii. A quick disconnect coupling provided, of the shut-off type, at or adjacent to the tool for easy use of the operator and for tool depressurization when unattended.
iii. Full face protection provided for operators and persons in close proximity to stapler operations.
iv. Appropriate training provided with supervision of stapler tool operators.

2. "Light Duty" Pneumatic Staplers.

a. "Light Duty" Pneumatic Staplers are generally used during furniture manufacturing for applications such as: fastening of back panels and for mattress box spring construction. They are designed to fit into areas where space is limited.

b. Existing OSHA standards, such as 29 CFR 1910.243(b), do not address the operation of staplers requiring less than 100 pounds per square inch (PSI) pressure. Since these light duty pneumatically actuated tools require less than 100 PSI for proper operation, the use of these tools shall be acceptable if:

i A pressure regulator or other means is provided to assure that the tool operating air pressure does not exceed the maximum allowable pressure of the compressed air, as specified by the manufacturer for operating the tool.

ii The tool is designed to only drive fasteners which are 1 inch or shorter (nominal length) and are made from wire with cross sectional area less than 18 ASWG.

iii The operator and other persons in the area, within range of a flying staple uses appropriate eye or face protection against flying staples or particles.

c. In general industry application, when these tools are in use and the above procedures have not been adhered to, CSHOs will consider the provisions of 29 CFR 1910.212(a)(3)(ii). Where eye and face protective equipment is not used, a violation of 29 CFR 1910.133(a)(1) is applicable.

D. **Effective Date.**

Standards Notice 56A is canceled. This Standards Notice is effective on the date of signature. It will remain in effect until revised or canceled by the Director.

Signed on Original
Tom Savage
Safety Standards Officer

Signed on Original
Allen McNeely
Director

2/22/2016
Date of Signature

Table 1A

AMERICAN STEEL WIRE GAGE (ASWG) Equivalent Wire Size (Fastener size within the scope of ANSI/ISANTA SNT-101-- 2012)	
ASWG No. (gage)	**Wire Diameter (inches)**
0000000	0.4900
000000	0.4615
00000	0.4305
0000	0.3938
000	0.3625
00	0.3310
0	0.3065
1	0.2830
2	0.2625
3	0.2437
4	0.22253
5	0.22070
6	0.1920
7	0.1770
8	0.1620
9	0.1483
10	0.1350
11	0.1205
12	0.1055
13	0.0915
14	0.0800
15	0.0720
16	0.0625
17	0.0540
18	0.0475

Table 1B

AMERICAN STEEL WIRE GAGE (ASWG) Equivalent Wire Size (Fastener size too small for coverage under the ANSI standard)			
ASWG No. (gage)	**Wire Diameter (inches)**	**ASWG No. (gage)**	**Wire Diameter (inches)**
19	0.0410	35	0.0095
20	0.0348	36	0.0090
21	0.0317	37	0.0085
22	0.0286	38	0.0080
23	0.0258	39	0.0075
24	0.0230	40	0.0070
25	0.0204	41	0.0066
26	0.0181	42	0.0062
27	0.0173	43	0.0060
28	0.0162	44	0.0058
29	0.0150	45	0.0055
30	0.0140	46	0.0052
31	0.0132	47	0.0050
32	0.0128	48	0.0048
33	0.0118	49	0.0046
34	0.0104	50	0.0044

Table 2

WIRE NAIL SIZES RELATED TO ASWG*		
NAIL TYPE	***ASWG (Gage)***	***NAIL LENGTH (Penny)***
Barrel Nails	15-1/2 to 13	
Barbed Roofing Nails	13 to 9	
Barbed Dowel Nails	8	
Clout Nails	15 to 13	
Slating Nails	12 to 9	
Fine Nails	16 1/2 to 15	
Casing Nails	15 1/2 to 8	2d to 40d
Finishing Nails	16 1/2 to 10	2d to 20d
Clinch Nails	14 to 7	2d to 20d
Shingle Nails	13 to 12	2d to 5d
Flooring Nails	11 to 6	6d to 20d
Common Wire Nails & Brads	15 to 2	2d to 60d
Barbed Car Nails, Heavy	10 to 3	4d to 60d
Barbed Car Nails, Light	12 to 4	4d to 60d
Upholstery Tacks	18 to 15	
Carpet Tacks	18 to 15	

**Note:* Source of data - Marks' Mechanical Engineers Handbook, October 1958 edition, pages 8-222 through 8-224.

It should also be noted that all of the above are equal to or larger than 18 ASWG.