North Carolina Department of Labor
Occupational Safety and Health Division

Raleigh, North Carolina

Field Information System Standards Notice 56A

Subject: Heavy and Light Duty Pneumatic Staplers

A. **Standards.**

1. 29 CFR 1910.212(a)(3)(ii) – Point of Operation Guarding. 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) lists portable power tools as one type of machine which usually requires point-of-operation guarding.

3. 29 CFR 1910.243(a)(2)(ii) – Portable Powered Tool, Switched and Controls.

4. 29 CFR 1910.243(b) – Pneumatic powered tools and hoses.

5. ANSI/ISANTA SNT-101-1983, Safety Requirements for Heavy-Duty, 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 OSHA Field Operations Manual, Chapter VII, 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 standards therefore.

The American National Standards Institute, Inc. (ANSI), and the International Staple, Nail and Tool Association (ISANTA) published ANSI/ISANTA SNT-101-1983, Safety Requirements for Heavy-Duty, Portable, Compressed-Air-Actuated, Fastener Driving Tools. The standard, developed by an industry consensus group, is applicable to heavy duty portable pneumatic powered staplers and/or nailers and is considered to be an appropriate standard within the meaning of 1910.212(a)(3) (ii). Publication of the standard has established industry recognition of the safeguards required.

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 18 gage per the American Steel Wire Gage (ASWG). (18 ASWG is equal to 0.0475 inch diameter wire, and ASWG was formerly Washburn & Moen or Roebling.) Tables 1a and 1b (linked at the bottom of the page) itemize the physical wire diameters relative to ASWG number.

b. The ANSI standard specifies that fastening devices which drive nails, staples, etc., and which utilize fasteners of 18 ASWG or greater shall be equipped with a "work-contacting element" (interlocked pressure foot) for the prevention of accidental fastener discharges. The ANSI standard also specifies certain exceptions under which these pneumatic tools may be operated without a work-contacting element installed. However, only safeguarded pneumatic tools are acceptable to OSHA where hazardous employee exposures are substantiated. Unsafeguarded devices may be acceptable if an employer can demonstrate that the same degree of safety is provided by other means, or if safeguarding is not feasible and all other means of protection are being utilized. (See Section 4.3.4 and 4.3.5 of ANSI/ISANTA SNT-101-1983).

c. It should be noted that the ANSI standard does not relate to the requirement of a work-contacting 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 the 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. Provide a quick disconnect coupling, of the shut-off type, at or adjacent to the tool for easy use of the operator and for tool depressurization when unattended.
iii. Provide full face protection of operators and persons in close proximity to stapler operations.
iv. Provide appropriate training and 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 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 100 PSI or the manufacturer's recommendation, whichever is lower.

ii The staples or fasteners are "light duty" type and do not exceed 18 gauge, .040 inch (American Wire Gage B. & S.) as specified by the tool manufacturers.

iii The operator and other persons in the area, within range of a flying staple (approximately 20 feet) are wearing personal protective eye equipment (safety glasses).

D. **Action.**

In general industry applications, when these tools are in use and the above procedures have not been adhered to, CSHO's will consider the provisions of NCGS 95-129(1) for issuance of a General Duty violation, and where eye and face protective equipment is not in use, a violation of 29 CFR 1910.133 is applicable.

E. **Effective Date.**

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

Signed on Original
Kevin O'Barr
Safety Standards Officer

Signed on Original
Allen McNeely
Director

8/09/05
Date of Signature

Table 1A

AMERICAN STEEL WIRE GAGE (ASWG) Equivalent Wire Size (Fastener size within the scope of ANSI/ISANTA SNT-101-1983)	
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.