	NORTH CAROLINA DEPARTMENT OF LABOR	**No.** **27-1**
	OSH DIVISION	**Date:** **10/2009**
	OSHNC INDUSTRIAL DATA REPORT	**Pages:** **4**

Industry: **Printing**	Sub-Group: **Newspapers**
SIC: **2711**	NAICS: **322122**

PROCESS DESCRIPTION: Newspaper printing starts with the gathering and editing of news to be reported to the public. The newspaper acts as an educator and promoter, a bulletin board, a communications leader and most of all a protector of the freedom granted by the first amendment to the Constitution. Newspaper printing employs the three most widely used techniques among the graphic arts processes—letterpress, offset (the most recently introduced) and gravure (or photogravure).

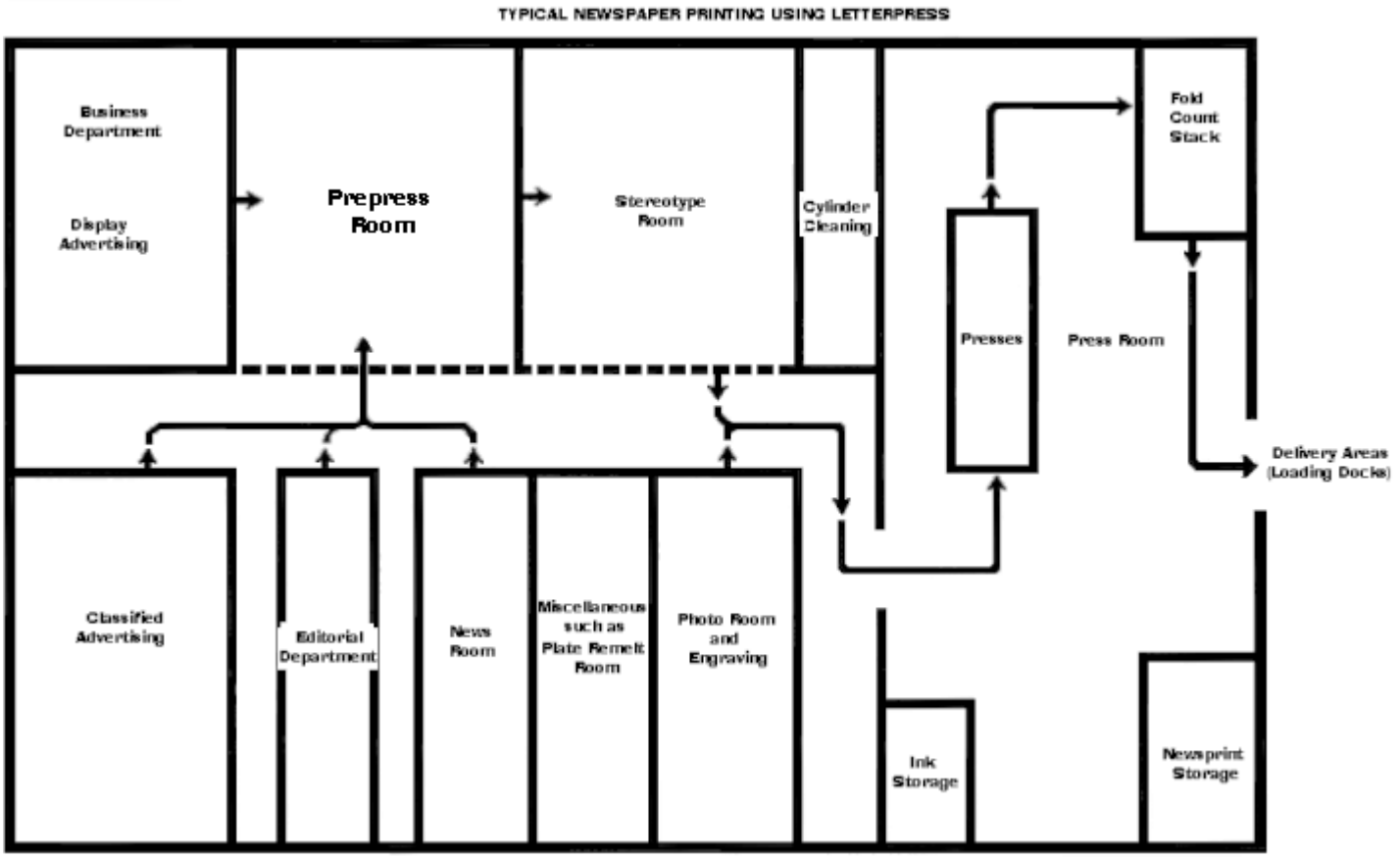
Letterpress, the oldest and most widely used, produces a printed image from a raised or relief surface which receives ink and then transfers it under pressure to paper. The news to be printed by letterpress operations is set in lead slugs in pages by a linotype typewriter and then sent to the stereotype room. The stereotype room then makes a cellulose fiber mat (which closely resembles heavy cardboard or paper-mache) by inserting the lead slug page into a mat rolling machine which brings heavy pressure against the typed form to produce the molded stereotype mat. The mat is then used as a mold for the printing plate which is cast from hot lead in the form of a half cylinder. The half cylinder goes by cart or roller conveyor to the press and is locked on a press cylinder into positions. A roll of paper is drawn swiftly through the press and receives the print of all page plates.

Offset printing transfers (or offsets) the printing ink image from a rubber press blanket on which the image has been deposited by the printing plate. The plate has been produced photographically by using a large reproduction and modification camera which can now change straight lines of copy into curves, circles or prospective, as well as reduce height and width independently. Offset presses have three printing cylinders and two sets of rollers (see diagram under comments). The plate is clamped to the top cylinder and as it rotates it passes first under the dampening rollers, then inking rollers. The dampeners wet the plate so the non-image area will repel ink. The inked plate prints on the rubber blanket of the second. The paper is then passed through between the rubber blanket and the third cylinder.

Gravure (or photogravure) printing seems to be the most photographic of all printing processes. The gravure image is formed in tiny dots below the surface of a printing cylinder. The dots are etched into the surface of a copper cylinder and become wells which are deepest for black areas and shallower for gray tones. The dots on the cylinder are filled with fluid ink, and then a “Doctor Blade” wipes the surface of the rotating cylinder clean leaving in the depressed wells amounts of ink which print as black or gray according to the depth of the dots. The inked cylinder, under heavy pressure, then deposits its pages of type and pictures on paper. Finally, the printed sheets in all printing processes are folded, cut and trimmed, counted, stacked, tied or fastened with metal bands or straps and delivered by chutes to delivery trucks or carriers for distribution to the public.

	NORTH CAROLINA DEPARTMENT OF LABOR	No. 27-1
	OSH DIVISION	Date: 10/2009
	OSHNC INDUSTRIAL DATA REPORT	Pages: 4

PROCESS FLOW:



Hazards Analysis

Major Hazards			Other Hazards		
Location	**Item**	**Hazard**	**Location**	**Item**	**Hazard**
Receiving, shipping areas	Rolls of newsprint paper	Improper storage techniques	Press room	Inks and solvents	Vapors and dermatitis,fire
Throughout	Housekeeping	Slips, trips and falls	Press cylinder cleaning area	Solvents	Inadequate ventilation and eye injuries from splashing of solvents

Press room	In-running nip points on press rollers and cylinders Noise	Crushed limbs and amputations from rotating parts on presses Hearing loss	Stereotype and press rooms	Lifting printing plates, rollers and rolls of paper	Strains
Composing, stereotype and press room	Exposed belts and pulleys, gears, chains and sprockets	Crushed limbs and amputations	Newsprint storage	Floor operated cranes	Falling potential of rolls of newsprint paper
Ink and solvent storage	Storage of flammable and combustible materials	Fires and explosion			
Composing room and stereotype	Handling of cylinders (lead) for press	Sharp edges of metal; bulky and heavy items with the potential of crushed limbs			

Key OSHNC Standards

Reference	29 CFR 1910 — General Industry Standards
ANSI B30.6	Overhead Underhung Hoists
Subpart D	Walking and working surfaces
Subpart E	Exit Routes, Emergency Action Plans, and Fire Prevention Plans
Subpart I	Personal protective equipment
Subpart O	Machinery and Machine Guarding
1910.94	Ventilation
1910.95	Occupational noise exposure
1910.106	Flammable and combustible liquids handling and storage
1910.147	Control of hazardous energy (lock-out/tag-out)
1910.176	Handling Materials - general
1910.178	Powered Industrial trucks
1910.179	Hoisting equipment properly used and maintained
1910.1000	Air contaminants
1910.1200	Hazard Communication

Inspection Analysis

The body of the inspection should begin in the composing room where the news is typed on linotype machines or photographically reproduced. The inspection should then follow into the stereotype room or area where the

printing plates are cast or molded, carefully checking areas around lead casting machines, lead saws, cutters and portable hand tools. Side trips can be made to lead remelting and cylinder cleanup areas checking for potential heat hazards and to the photo room areas where newsprint paper and inks are stored for proper storage techniques before passing to press operations. In checking the presses, note that all mechanical transmission apparatus, in-running nip points and points of operation are properly guarded. Inspect press room for adequate ventilation where inks and solvents are handled and used in press operations. Areas adjacent to press room where cylinders and plates are cleaned should also be checked for adequate ventilation. Check tag and lockout procedures when making repairs and adjustments on presses. Housekeeping must be checked for fire and tripping hazards and proper storage of flammable and combustible materials.

Other Pertinent Comments: