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## Prepress Technicians and Workers

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(O\*NET 51-5021.00, 51-5022.00)

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### Significant Points

- Most prepress technician jobs now require formal postsecondary graphic communications training in the various types of computer software used in digital imaging.
- Employment is projected to decline rapidly as the increased use of computers in typesetting and page layout requires fewer prepress technicians.

### Nature of the Work

The printing process has three stages: prepress, press, and binding or finishing. While workers in small print shops are usually responsible for all three stages, in most printing firms, formatting print jobs and correcting layout errors before the job goes to print is the responsibility of a specialized group of workers. *Prepress technicians and workers* are responsible for this prepress work. They perform a variety of tasks to help transform text and pictures into finished pages and prepare the pages for print.

Prepress technicians receive images from in-house graphic designers or directly from customers and see the job through the process of preparing print-ready pages to create a finished printing plate. Printing plates are thin sheets of metal that carry the final image to be printed. Printing presses use this plate to copy the image to the printed products we see every day. Once a printing plate has been created, prepress technicians collaborate with printing machine operators to check for any potential printing problems. Several plates may be needed if a job requires color, but advanced printing technology does not require plates.

For a long time, prepress workers used a photographic process to make printing plates. This is a complex process involving ultraviolet light and chemical exposure through which the text and images of a print job harden on a metal plate and become water repellent. These hard, water repellent portions of the metal plate are in the form of the text and images that will be printed on paper. More recently, the printing industry has largely moved to technology known as “direct-to-plate”, by which the prepress technicians send the data directly to a plating system, by-passing the need for the photographic technique.

The direct-to-plate technique is just one example of digital imaging technology that has largely replaced cold type print technology. Prepress technicians known as “preflight technicians” or production coordinators are using digital imaging technology to complete more and more print jobs. Using this technology, technicians take electronic files received from customers and check them for completeness. They then format the jobs using electronic page layout software in order to fit the pages to dimensions of the paper stock to be used. When color printing is required, the technicians produce an electronic image of the printed pages and then print a copy, or “proof,” of the pages as they will appear when printed. The technician then has the proofs delivered or mailed to the customer for a

final check. Once the customer approves the proofs, technicians use laser “imagesetters” to expose digital images of the pages directly onto the thin metal printing plates.

Advances in computer software and printing technology continue to change prepress work. Today, customers of print shops often use their own computers to do much of the typesetting and page layout work formerly done by prepress technicians. This process, called “desktop publishing,” provides printers with pages of material that look like the desired finished product. This work is usually done by desktop publishers or graphic designers with knowledge of publishing software. (Sections on desktop publishers and graphic designers appear elsewhere in the *Handbook*.) As a result, prepress workers often receive files from customers on a computer disk or via e-mail that contain typeset material already laid out in pages. Other more advanced technologies now allow prepress technicians to send printing files directly to the printer and skip the plate-making process altogether. Despite the shortcuts that technological advancements allow, workers still need to understand the basic processes behind prepress, press, and finishing operations. Some workers, known as *job printers*, perform prepress and print operations. Job printers often are found in small establishments where work combines several job skills.

**Work environment.** Prepress technicians and workers usually work in clean, air-conditioned areas with little noise. Some workers may develop eyestrain from working in front of a video display terminal or other minor problems, such as backaches. Those platemakers who still work with toxic chemicals face the hazard of skin irritations. Workers are often subject to stress and the pressures of deadlines and tight work schedules.

Prepress employees usually work an 8-hour day. Some workers—particularly those employed by newspapers—work night shifts. Weekend and holiday work may be required, particularly when a print job is behind schedule. Part-time prepress technicians made up 12 percent of this occupation in 2006.

### Training, Other Qualifications, and Advancement

Employers prefer workers with formal training in printing or publishing. Familiarity with the printing process, including



*Prepress technicians and workers increasingly use direct-to-plate technologies that eliminate direct contact with ink and chemicals.*

## Projections data from the National Employment Matrix

Occupational Title	SOC Code	Employment, 2006	Projected employment, 2016	Change, 2006-16	
				Number	Percent
Prepress technicians and workers .....	—	119,000	100,000	-19,000	-16
Job printers.....	51-5021	48,000	44,000	-4,500	-9
Prepress technicians and workers .....	51-5022	71,000	56,000	-15,000	-21

NOTE: Data in this table are rounded. See the discussion of the employment projections table in the *Handbook* introductory chapter on *Occupational Information Included in the Handbook*.

the technology used, and attention to detail are the qualities that employers will seek most in job applicants.

**Education and training.** Many employers consider the best candidates for prepress jobs to be individuals with a combination of work experience in the printing industry and formal training in the new digital technology. The experience of these applicants provides them with an understanding of how printing plants operate and demonstrates their interest in advancing within the industry.

Traditionally, prepress technicians and workers started as helpers and were trained on the job. Some of these jobs required years of experience performing detailed manual work to become skillful enough to perform the most difficult tasks. Today, however, employers expect workers to have some formal postsecondary graphic communications training in the various types of computer software used in digital imaging and will train workers on the job as needed.

For beginners, 2-year associate degree programs offered by community colleges, junior colleges, and technical schools teach the latest prepress skills and allow students to practice applying them. There are also 4-year bachelor's degree programs in graphic design aimed primarily at students who plan to move into management positions in printing or design. For workers who do not wish to enroll in a degree program, prepress-related courses are offered at many community colleges, junior colleges, 4-year colleges and universities, vocational-technical institutes, and private trade and technical schools. Workers with experience in other printing jobs can take a few college-level graphic communications courses to upgrade their skills and qualify for prepress jobs.

**Other qualifications.** Employers prefer workers with good communication skills, both oral and written. When prepress problems arise, prepress technicians and workers should be able to deal courteously with customers to resolve them. Also, in small shops, they may take customer orders. Persons interested in working for firms using advanced printing technology need to be comfortable with electronics and computers. At times, prepress personnel may have to perform computations in order to estimate job costs or operate many of the electronics used to run modern equipment.

Prepress technicians and workers need manual dexterity and accurate eyesight. Good color vision helps workers find mistakes and locate potential problems. It is essential for prepress workers to be able to pay attention to detail and work independently. Artistic ability is often a plus. Employers also seek persons who are comfortable with the pressures of meeting deadlines, using new software, and operating new equipment.

**Advancement.** Employers may send experienced technicians to industry-sponsored update and retraining programs to

develop new skills or hone current ones. This kind of prepress training is sometimes offered in-house or through unions in the printing industry.

### Employment

Prepress technicians and workers overall held about 119,000 jobs in 2006. Most prepress jobs are found in the printing industry, while newspaper publishing employs the second largest number of prepress technicians and workers.

The printing and publishing industries are two of the most geographically dispersed in the United States. While prepress jobs are found throughout the country, large numbers are concentrated in large printing centers such as Chicago, Los Angeles–Long Beach, New York City, Minneapolis–St. Paul, Philadelphia, Boston, and Washington, DC.

### Job Outlook

Employment of prepress technicians and workers is projected to decline rapidly through 2016, because of improvements in printing technology that require fewer of these workers. Despite this, job prospects are good for prepress technicians with good computer and customer service skills.

**Employment change.** Overall employment of prepress technicians and workers is expected to decline by 16 percent over the 2006-2016 period. Demand for printed material should continue to grow, spurred by rising levels of personal income, increasing school enrollments, higher levels of educational attainment, and expanding markets. But the use of computers and publishing software—often by the clients of the printing company—will result in rising productivity of prepress technicians, and thus halting the creation of new jobs.

Computer software now allows office workers at a desktop computer terminal to specify text typeface and style and to format pages. This development shifts traditional prepress functions away from printing plants into advertising and public relations agencies, graphic design firms, and large corporations. As page layout and graphic design capabilities of computer software have become less expensive and more user-friendly, many companies are turning to in-house desktop publishing. Some firms also are finding it less costly to prepare their own newsletters and other reports. At newspapers, writers and editors also are doing more composition using publishing software. This rapid growth in the use of desktop publishing software has eliminated most prepress typesetting and composition technician jobs associated with the older printing technologies. In addition, new technology is increasing the amount of automation that printing companies can employ, which leaves less work for prepress workers. The duties of prepress workers will likely begin to merge with those of other printing industry workers—

such as those of customer service representatives—which will also curb prepress job growth.

**Job prospects.** Despite a decline in the number of new prepress positions, opportunities will be favorable for workers with strong computer and customer service skills, such as preflight technicians who electronically check materials prepared by clients and adapt them for printing.

In order to compete in the desktop publishing environment, commercial printing companies are adding desktop publishing and electronic prepress work to the list of services they provide. Electronic prepress technicians, digital proofers, platemakers, and graphic designers are using new equipment and ever-improving software to design and lay out publications and complete their printing more quickly. The increasing range of services offered by printing companies using new digital technologies mean that opportunities in prepress work will be best for those with computer backgrounds who have completed postsecondary programs in printing technology or graphic communications. Workers with this background will be better able to adapt to the continuing evolution of publishing and printing technology.

### Earnings

While wage rates for prepress technicians and workers depend on basic factors such as employer, education, and location, the median hourly earnings of prepress technicians and workers were \$16.01 in May 2006, compared to \$13.16 per hour for all production occupations. The middle 50 percent earned between \$11.98 and \$20.69 an hour. The lowest 10 percent earned less than \$9.37, and the highest 10 percent earned more than \$25.71 an hour. Median hourly earnings in printing and related support activities, the industry employing the largest number of prepress technicians and workers, were \$16.44 in May 2006,

while workers in the newspaper, periodical, and book publishing industry earned \$15.17 an hour.

For job printers, median hourly earnings were \$15.58 in May 2006. The middle 50 percent earned between \$12.15 and \$19.83 an hour. The lowest 10 percent earned less than \$9.56, and the highest 10 percent earned more than \$24.70 an hour. Median hourly earnings in the industries employing the largest numbers of job printers May 2006 were \$16.19 in the newspaper, periodical, and book publishing industry and \$15.76 in printing and related support activities.

### Related Occupations

Prepress technicians and workers use artistic skills in their work. These skills also are essential for artists and related workers, graphic designers, and desktop publishers. Moreover, many of the skills used in Web site design also are employed in prepress technology. Prepress technicians' work also is tied in closely with that of printing machine operators.

### Sources of Additional Information

Details about training programs may be obtained from local employers such as newspapers and printing shops, or from local offices of the State employment service.

For information on careers and training in printing and the graphic arts, write to:

► Graphic Arts Education and Research Foundation, 1899 Preston White Dr., Reston, VA 20191-5468.

Internet: <http://www.makeyourmark.org>

► Graphic Communications Conference of the International Brotherhood of Teamsters, 1900 L St.NW., Washington, DC 20036-5007.

► Printing Industries of America/Graphic Arts Technical Foundation, 200 Deer Run Rd., Sewickley, PA 15143-2324.