

Industrial Designers

description of ID from
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Overview

Industrial designers develop a wide variety of manufactured products.

Every year the Industrial Designers Society of America awards companies medals for their breakthroughs in design. In 2006, Kodak received a gold medal for their EasyShare V570, the first dual lens digital still camera as well as the thinnest camera in the marketplace. Other products that received design awards included a tent that opens itself in two seconds flat (all you do is throw it into the air) and a smoke detector that uses a parent's recorded voice instead of a beeping noise to give children emergency instructions.

Industrial designers combine artistic skills and practical knowledge to create designs. They design cars and airplanes. They design home appliances, children's toys, and computers. They also design many types of medical, office, and sports equipment. Most designers concentrate on one area. For example, a designer might specialize in toys or kitchen appliances.

The first step in designing a new product is to find out the client's needs and how the product will be used. Designers talk to clients about what they want, and do research on products and design trends. For example, they read publications and study design styles. They also attend showings of new products in their field. To develop their designs, designers consider size, shape, weight, color, and materials to be used. To evaluate if a design is practical, they consider cost, ease of use, and safety. They also consider market conditions, or what is selling in the product area. In some cases, they are designing a series of products. Industrial designers make sure each product has the same look and feel of other products in the same line.

Next, industrial designers create sketches. They do this by hand or on a computer. Designers often use computer-aided design (CAD) tools to create products. CAD allows designers to create three-dimensional drawings of products. These drawings can be rotated, which helps designers better visualize the final product. Changes can quickly be made to CAD designs, which add speed and flexibility to the design process. This reduces design costs and cuts the time it takes to deliver a product to the market. Industrial designers often use computer-aided industrial design (CAID) to create their designs. Designers who work for manufacturing firms may use CAID to send their designs to automated production tools. These machines "read" the designs and create products.

Industrial designers present their sketches to the client or design team. They also consult with the product development team, which may include engineers or marketing staff. Designers make changes based on the feedback they receive. They then create detailed designs of the product. These may include drawings, small models, or computer simulations. Some designers create

full-sized prototypes of their products. In addition, designers prepare lists of the materials needed to produce the product. They also estimate costs.

Industrial designers may supervise assistants who carry out their designs. Designers who run their own businesses have administrative tasks. For example, they may do more product research than other designers. They may also hire and train new staff. In addition, they devote a great deal of time to developing new business contacts.

Specific Work Activities

The following list of occupational tasks is specific to industrial designers.

- Talk to clients to determine their needs and how the product will be used.
- Research product use, design trends, materials, and production methods.
- Evaluate design ideas for practicality. Consider use, costs, and market characteristics.
- Create sketches, drawings, and blueprints, by hand or on computer.
- Create detailed designs using drawings, models, computer simulations, or prototypes.
- Present designs. Consult with client, design committee, or product development team about changes.
- Design graphic material that will be used for advertising or decoration on new designs.
- Prepare a list of materials and estimated costs required to produce the product.
- Use computer-aided industrial design (CAID) to create designs. May use CAID to communicate designs to automated production tools.
- Direct and coordinate the making of models and samples.
- Create manufacturing procedures to make the new designs. Monitor the manufacturing process.
- May supervise assistants who carry out their design ideas.
- May develop new business contacts and perform administrative tasks.

Preparation

To work as an industrial designer, you must:

- complete a bachelor's degree in art or design;
- have good computer skills;
- be able to communicate with other people;
- be able to build models from sketches;
- have a good imagination; and
- be creative.

Formal Education

Industrial designers must have a bachelor's degree. Many four-year colleges and universities grant the Bachelor of Fine Arts (BFA) degree. In this program, art is the emphasis. You take courses in art, art history, principles of design, and designing and sketching.

Design programs are broader than art programs. In addition to art courses you study industrial design, materials, manufacturing methods, and computer software.

About 230 colleges and universities have approved programs in art and design. Most of these award a degree in art or fine art. Some award degrees specifically in industrial design.

Many schools do not allow formal entry into a bachelor's degree program until you have successfully completed a year of basic art and design courses. You may be required to submit sketches or other examples of your artistic ability.

Regardless of your major, you should take classes in computer-aided design (CAD) and manufacturing materials and processes.

Work Experience

Hands-on work in sculpting, woodworking, or sketching is good preparation for design work.

Industrial designers also prepare for their work by developing a portfolio. A portfolio is a collection of your best work. It demonstrates your skills to clients or employers. A portfolio may include hand drawings, computer images, photos, and print samples.

An internship is an excellent way to build your skills, demonstrate your talent, and make job contacts.

On-the-job Training

Beginning designers usually receive on-the-job training. As you gain experience, you work on more difficult tasks. You need from one to three years of experience before you can advance to better jobs.

Hiring Practices

Creativity is important in all design occupations. Employers look for designers who have an eye for color and detail, and a sense of beauty and proportion. Sketching skills are helpful for many jobs. A good portfolio (a collection of a person's best work) is often the deciding factor in getting a job.

Computer-aided design (CAD) increasingly is used in all areas of design. Many employers expect new designers to be familiar with the use of the computer as a design tool. This is particularly true in the aerospace, automotive, and electronics industries.

Employers look for designers who are imaginative and persistent. They seek designers who can communicate their ideas visually and verbally. Employers need designers who are well read, open to new ideas, and quick to react to changing trends. Problem-solving skills and self-discipline are also important.

Employers may take a criminal record into account in the hiring process. For most jobs, employers look at criminal records on a case-by-case basis.

Wages

Commercial and industrial designers (SOC 27-1021)

Location	Pay Period			
		Entry	Median	Top
Oregon	Hourly	\$18.53	\$19.63	\$29.90
	Monthly	\$3,211	\$3,402	\$5,182
	Yearly	\$38,532	\$40,836	\$62,184
United States	Hourly	\$21.57	\$26.08	\$38.29
	Monthly	\$3,451	\$4,500	\$6,126
	Yearly	\$44,866	\$54,257	\$79,642

Wages vary widely based on the designer's experience and job duties. The more years of experience a designer has, the higher the wages. Industrial designers in managerial positions earn much higher wages. In addition, wages vary by employer and area of the country.

Benefits vary by employer. Full-time industrial designers are likely to receive typical benefits. These include vacation, sick leave, and health insurance. Self-employed designers must provide their own insurance.

Employment

In Oregon, about 295 people work in this very small occupation. Many industrial designers not included in this number are self-employed.

Area of State	Employment	Size Category (In Region)
North and South Coast	10	Very small
Portland Metro	240	Small
Willamette Valley	45	Very small
Southern Oregon	30	Very small
Central Oregon and Columbia Gorge	20	Very small
Eastern Oregon	5 or less	Very small
Statewide	295	

Nationally, about 51,250 industrial designers work in this small occupation.

Major employers:

- Engineering and architectural consulting firms
- Design firms
- Manufacturers of a variety of products

About 30 percent of industrial designers are self-employed.

Outlook

In Oregon, the number of jobs for industrial designers is expected to grow about as fast as the average for all occupations through the year 2014. However, few job opportunities are expected because this is a small occupation in the state.

Nationally, the number of jobs for industrial designers is expected to increase about as fast as average through the year 2016.

Industrial designers will face keen competition for jobs. This is because many talented people are attracted to careers as designers.

Increased demand for industrial designers will stem from four factors. One, people will continue to want safe, good-quality products. Two, consumers will demand new products that are easy and comfortable to use. Three, companies will continue to develop high-technology products in medicine, transportation, and other fields. Four, global competition among businesses will continue to grow. All these factors will spur the demand for industrial designers. In addition, many job openings will result from the need to replace designers who leave the field.

	Employment		Employment Change	
	2006	2014	Number	Percent
National	51,250	56,650	5,400	11.0

Advancement

Beginning designers usually receive on-the-job training. They normally need one to three years of training before they advance to higher level jobs. Experienced designers in large firms may advance to chief designer, department head, or other supervisory positions. Some designers become teachers in design schools, colleges, and universities. Some experienced designers open their own firms.