

Case Study 4.1

Six months ago you were hired as the safety director for ABC Steel, a small manufacturing facility with 70 employees. The facility manufactures ornamental iron railings. Over the past six months, you have started to initiate a safety program at the facility, one element of which is the completion of safety inspections.

During the past two inspections, you have noticed that most of the company's fire extinguishers appear to be in poor condition, some are not properly mounted, and most have no documentation of any monthly inspections. You discuss your observations with Sam Jones, maintenance supervisor, who indicates that XYZ Fire Extinguisher is the outside vendor that completes the yearly inspections of the fire extinguishers and, following the inspections, trains employees on how to use the extinguishers. Sam also indicates that no monthly inspection is currently being carried out on the fire extinguishers. You tell Sam that both NFPA and OSHA regulations require monthly inspections of extinguishers and that you would like to discuss an inspection program at the next managers' meeting. In preparing for this meeting, you have decided that the best approach is to develop a fire extinguisher inspection program that will use company iPads and the free iAuditor app from Safety Culture.

Case Study 4.2

ABC Steel is a manufacturer of ornamental iron railings. There are a total of 70 employees (10 office, 5 maintenance, 5 shipping and receiving, and 50 in the production area). The plant operates two shifts: an 8-hour day shift and an 8-hour night shift.

The railings range from 3 to 5 feet in height and from 4 to 10 feet in length. The railings are made of both steel and aluminum stock, with weight ranging from 25 to 75 pounds and the average being 50 pounds. The railings are currently spray-painted for both the priming coat and the finishing coat.

Plant management of ABC Steel has informed you, the safety director, that because of the waste and cost associated with upgrading the spray-painting area, spray painting is no longer a viable option. Therefore, plant management has decided to change to a paint-dipping procedure and has contracted with a dipping tank manufacturer to design and install dipping tanks and the accompanying ventilation and fire detection/suppression system. One dipping tank will hold a mixture of 20 gallons of VM&P Naphtha (Class 1A flammable liquid) and 200 gallons of the primer (Class 1B flammable), and the other tank will hold the same quantity of paint, which is also a Class 1B flammable.

The new paint-dipping operation will require a new storage area for additional Naphtha, paint, and primer. Specifically, eight 55-gallon drums for each of the primer and the paint and two drums of the Naphtha will be used in the dipping operation. The drums must be stored inside because of production demands and the need to keep the contents at temperatures above 40°F; see Figure 4-3.

Plant management has decided to build the new flammable liquid storage room in-house, and they want you to provide input into the design of this storage area for the 55-gallon drums. Specifically, they want you to present your recommendations at next week's managers' meeting.

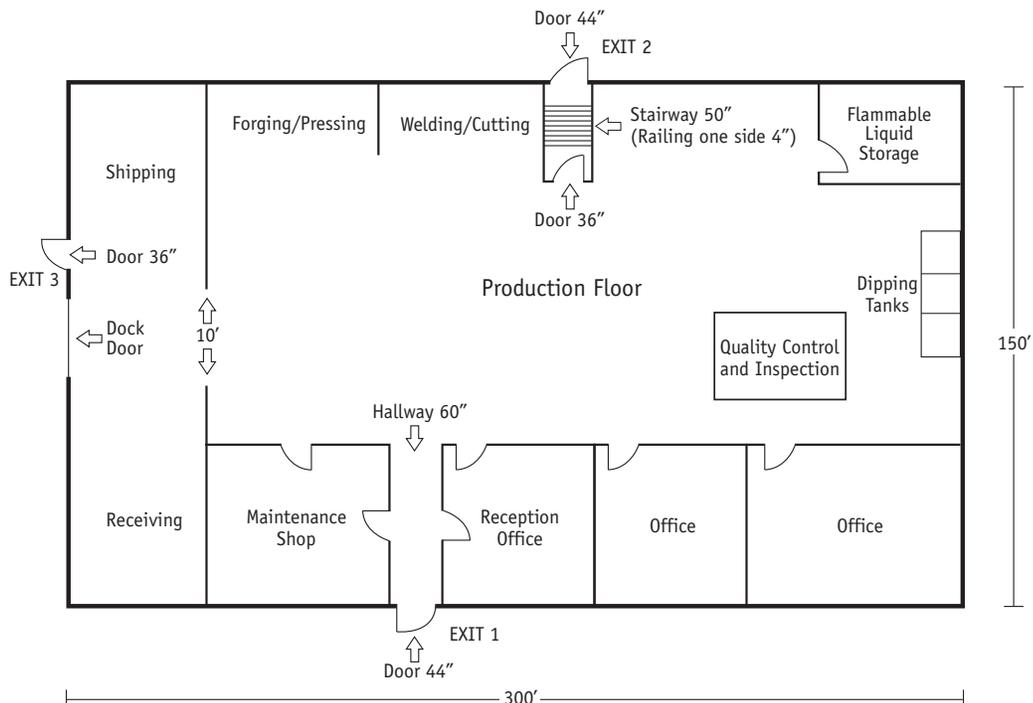


Figure 4-3. ABC Steel's original building layout

Case Study 4.3

Six months ago you were hired as the safety director for ABC Steel, a small manufacturing facility with 70 employees. The facility is involved in the manufacture of ornamental iron railings. Over the past six months, you have initiated a safety program at the facility. During your last inspection, the union president asked whether there were sufficient exits in the building based on current occupancy. You told the union president that you would get back to him, as you needed to research the requirements of NFPA 101, Life Safety Code, for determining egress capacity. The layout of ABC Steel is provided in Figure 4–4.

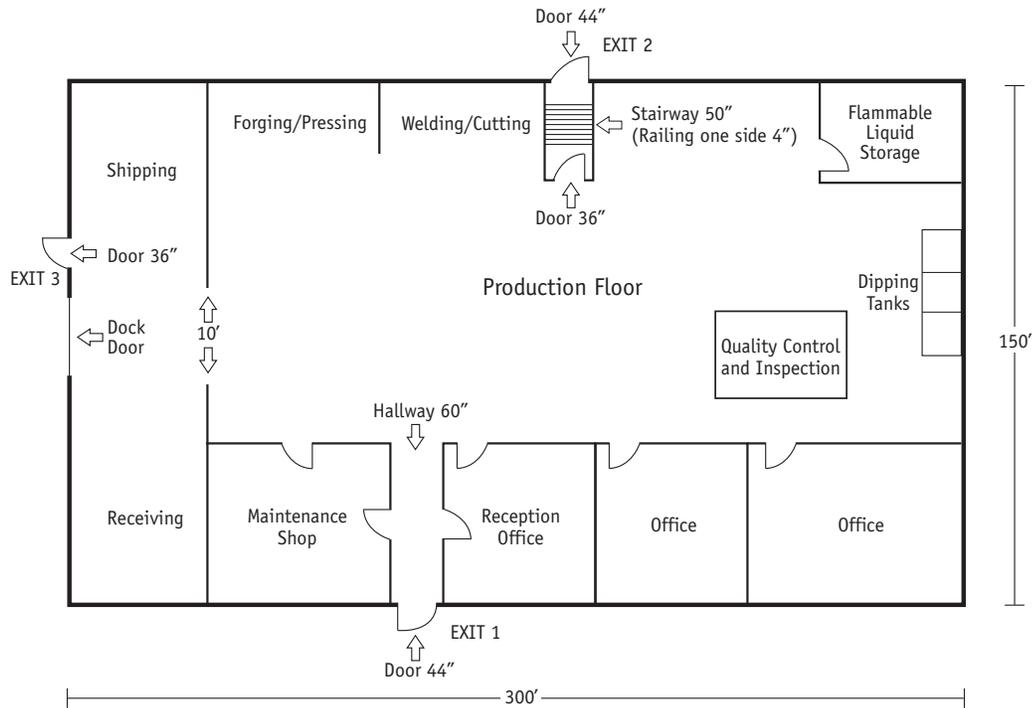


Figure 4–4. ABC Steel redesign

Appendix 4.1 Safety Precautions for Activities 4.1 and 4.2

1. All instructions must be read carefully before proceeding with either activity. The instructor should be familiar with the requirements of NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals.
2. Close attention must be paid to any warnings that the instructor gives.
3. Chemical splash goggles must be worn at all times while conducting these activities. The goggles must meet ANSI Z87.1 requirements.
4. All activities must be conducted inside the lab hood with the ventilation system operating.
5. Heat- and flame-resistant gloves must be worn by anyone handling the beakers and lighter.
6. A visual inspection of the fire extinguisher located next to the lab hood must be conducted before starting the activities.
7. All contaminated rags and paper towels must be placed into FM-approved waste containers that have self-closing lids. All contaminated liquids must be placed into FM-approved disposable waste containers.
8. Any flammable or combustible liquids, no matter how small the amount, that are spilled on the hands must immediately be washed off.
9. When a flammable liquid spill occurs, all open flames must immediately be extinguished, and the area must be immediately be evacuated.