**Chapter 4: Fire Service Communications**

**Chief Concepts**

* Every fire service depends on a functional communications system.
* The communications centre is the central processing point for all information relating to an emergency incident and all information relating to the location, status, and activities of fire department units. Depending on the size of the fire department, the communications centre may be a small room or a large building. The communications centre may serve one fire department or several public service agencies.
* Dispatchers receive information from citizens and process that information to correctly dispatch resources to an emergency incident.
* The following equipment is found in communications centres:
  + Dedicated 911 telephones
  + Public telephones
  + Direct-line phones to other agencies
  + Equipment to receive alarms from public or private fire alarm systems
  + Computers and/or hard-copy files and maps to locate addresses and select units to dispatch
  + Equipment for alerting and dispatching units to emergency calls
  + Two-way radio system(s)
  + Recording devices to record phone calls and radio traffic
  + Backup electrical generators
* CAD enables dispatchers to work more effectively. It tracks the status of units and assists the dispatcher in quickly dispatching units to an emergency incident. Some CAD systems transmit dispatch information directly to mobile data terminals.
* Most communications centres automatically record everything that is said over the telephone or radio. This feature can prove valuable if the caller talks very quickly, has a strong accent, hangs up, or is disconnected. The recordings also serve as legal records for the fire department. They can assist in reviewing and analyzing information about department operations as well.
* A communications centre performs the following basic functions:
  + Receiving calls for emergency incidents and dispatching fire department units
  + Supporting the operations of fire department units delivering emergency services
  + Coordinating fire department operations with other agencies
  + Keeping track of the status of each fire department unit at all times
  + Monitoring the level of coverage and managing the deployment of available units
  + Notifying designated individuals and agencies of particular events and situations
  + Maintaining records of all emergency-related activities
  + Maintaining information required for dispatch purposes
* There are five major steps in processing an emergency incident:

1. Call receipt—The process of receiving an initial call and gathering information.
2. Location validation—Ensuring that the address is valid.
3. Classification and prioritization—Assigning a response category based on the nature of the problem.
4. Unit selection—The process of determining exactly which unit or units to dispatch based on the location and classification of the incident.
5. Dispatch—The alerting of the selected units to respond and transmit information to them.

* Calls may be received via telephone, municipal fire alarm systems, private and automatic fire alarm systems, and walk-ins.
* Enhanced 911 systems may be able to display information about where a call originated and even the name and address of the caller.
* Fire service communications systems depend on twoway radio systems. A radio system is an integral component of the IMS because it links all of the units on an incident—both up and down the chain of command and across the organizational chart.
* Three types of fire service radios may be used:

1. Portable radio—A hand-held two-way radio that the fire fighter carries at all times. The battery of such a radio should be checked at the beginning of each shift.
2. Mobile radio—Two-way radios permanently mounted in vehicles and powered by the vehicle’s electrical system.
3. Base station—Radios permanently mounted in a building, such as a fire station, communications centre, or remote transmitter site. Public safety radio systems often use multiple base stations at different locations to cover large areas.

* Radios work by broadcasting electronic signals on certain frequencies. These frequencies are often programmed into the radio and can be adjusted only by a qualified technician.
* A radio channel uses either one frequency (simplex channel) or two frequencies (duplex channel). With a simplex channel, each radio transmits signals and receives signals on the same frequency, so a message goes directly from one radio to every other radio set to that frequency. With a duplex channel, each radio transmits signals on one frequency and receives messages on another frequency.
* In a repeater system, each radio channel uses two separate frequencies—one to transmit and the other to receive. When a low-power radio transmits over the first frequency, the signal is received by a repeater unit that automatically rebroadcasts it on the second frequency over a more powerful radio. All radios set on the designated channel receive the boosted signal on the second frequency. This approach enables the transmission to reach a wider coverage area.
* With a trunking system, a group of shared frequencies are controlled by a computer. The computer allocates the frequency for each transmission. The radio operator sets the radio on a talk group and communicates with the computer on a control frequency. When a user presses the transmit button, the computer assigns a frequency for that message and directs all of the radios in the talk group to receive the message on that frequency.
* The first-arriving unit at an incident should always give a brief initial radio report. This report should convey a preliminary assessment of the situation and give other units a sense of what is happening so that they can anticipate what their assignments may be when they arrive at the scene.
* Emergency traffic is an urgent message that takes priority over all other communications.
* When a unit needs to transmit emergency traffic, the dispatcher generates a distinctive alert tone to notify everyone on the frequency to stand by, so the channel is available for the emergency communication. Once the emergency message is complete, the dispatcher notifies all units to resume normal radio traffic.
* The most important emergency traffic is a fire fighter’s call for help. Most departments use “mayday” to indicate that a fire fighter is lost, is missing, or requires immediate assistance. If a mayday call is heard on the radio, all other radio traffic should stop immediately. The fire fighter making the mayday call should describe the situation, location, and help needed.
* An incident report describes where and when the incident occurred, who was involved, and what happened. Incident reports for fires should include details about the origin of the fire, the extent of damage, and any injuries or fatalities. Such reports can be completed and submitted on paper, although many fire departments enter them on computers and store the information in a computerized database.
* From a legal standpoint, records and reports are vital parts of the emergency. Information must be complete, clear, and concise, because these records can become admissible evidence in a court case.
* A fire fighter who answers the telephone in a fire station, fire department facility, or communications centre is a representative of the fire department. Use your department’s standard greeting when you answer the phone. Be prompt, polite, professional, and concise.