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Fire Service
Communications

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Objectives (1 of 3)

- Describe the roles of the telecommunicator and dispatch.
- Describe how to receive an emergency call.
- Describe how to initiate a response.
- Describe fire department radio communications.

2

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Objectives (2 of 3)

- Describe radio codes.
- Describe emergency traffic and emergency evacuation signals.
- Define the content requirements for basic incident reports.

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Objectives (3 of 3)

- Define how to obtain necessary information, required coding procedures, and the consequences of incomplete and inaccurate reports.
- Describe fire department procedures for answering nonemergency business and personal telephone calls.

4

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Introduction (1 of 2)

- A functional communications system links:
  - The public and the fire department
  - Fire fighters on the scene and the rest of the organization
  - The fire department with other agencies and facilities

5

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Introduction (2 of 2)

- Fire fighters must be familiar with the communications systems, equipment, and procedures used in their departments.
- Basic administration requires an efficient communications network.

6

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The Communications Center (1 of 2)

- Communications center is the hub of the fire department response system.
  - Central processing point for emergency incident information
  - Connects and controls the department's communications systems

7

3

The Communications Center (2 of 2)

- Size and complexity vary depending on department needs.
- Type of communications centers include:
  - Stand-alone
  - Regional
  - Co-located
  - Integrated

8

3

Telecommunicators (1 of 2)

- Personnel trained to work in a public safety communications environment.
  - Advanced training and professional certificates ensure competency

9

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Telecommunicators (2 of 2)

- Required skills:
  - Perform multiple tasks effectively and make decisions quickly
  - Communicate effectively to obtain critical information, even when caller is highly stressed
  - Operate all systems and equipment
  - Understand and follow operational procedures

3

Communications Facility Requirements

- Designed to ensure a very high degree of operational reliability
  - Well-protected against natural and man-made threats
  - Equipped with emergency generators
  - Secured to prevent unauthorized entry
- Should be a back-up center at a different location

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Communications Center Equipment (1 of 2)

- Dedicated 9-1-1 telephones
- Public telephones
- Direct-line phones to other agencies
- Equipment to receive alarms from public and/or private fire alarm systems
- Computers and/or hard copy files and maps to locate addresses and select units to dispatch

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Communications Center Equipment (2 of 2)

- Equipment for alerting and dispatching units to emergency calls
- Two-way radio system(s)
- Recording devices to record phone calls and radio traffic
- Back-up electrical generators

13

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Computer-Aided Dispatch (1 of 3)

- Automates functions required for receiving calls and dispatching and monitoring resources
- Shortens time required to take and dispatch calls

14

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Computer-Aided Dispatch (2 of 3)

- Some systems can track the exact location of vehicles using GPS technology.
- Some systems transmit information directly to station or apparatus computers.

15

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Computer-Aided Dispatch (3 of 3)

- Some systems provide immediate access to information such as preincident plans and hazardous materials lists.

16

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Voice Recorders and Activity Logs (1 of 3)

- Everything that happens in a communications center is recorded using either:
  - Voice recording system: audio record of what is said over phone lines and radios.
  - Activity logging system: written or computerized record of what happened.

17

3

Voice Recorders and Activity Logs (2 of 3)

- Time stamps record date and time of each event.
- These are legal records of the official delivery of a government service by the fire department.
- Records may be required for legal proceedings, sometimes years after the incident occurred.

18

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Voice Recorders and Activity Logs (3 of 3)

- Reasons for records and logs include:
  - Defending the department's actions
  - Demonstrating that the organization performed ethically, responsibly, and professionally
  - Reviewing and analyzing information about department operations

19

3

Call Response and Dispatch (1 of 2)

- Critical functions performed by most CAD systems:
  - Verifying an address
  - Determining which units should respond to an alarm

20

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Call Response and Dispatch (2 of 2)

- Generally accepted "answer-to-dispatch" performance objective is one minute or less.
- Most requests are made by telephone.

21

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Communications Center Operations (1 of 2)

- Basic functions performed in a communications center:
  - Receiving calls and dispatching units
  - Supporting unit operations
  - Coordinating fire department operations with other agencies
  - Keeping track of status of each unit at all times

3

Communications Center Operations (2 of 2)

- Basic functions continued:
  - Monitoring level of coverage and managing deployment of available units
  - Notifying designated agencies of particular events and situations
  - Maintaining records of all emergency-related activities
  - Maintaining information required for dispatch purposes

3

Receiving and Dispatching Emergency Calls

- Receiving and dispatching process:
  - Call receipt
  - Location validation
  - Classification and prioritization
  - Unit selection
  - Dispatch

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Call Receipt (1 of 2)

- Most communities use 9-1-1 to report emergencies.
- Telecommunicator conducts telephone interrogation.
  - Determines location of emergency
  - Determines nature of situation

25

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Call Receipt (2 of 2)

- Treat every call as an emergency.
- Do not allow gaps of silence to occur.
- Some departments may require telecommunicators to obtain additional information.

26

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Location Validation (1 of 2)

- Enhanced 9-1-1 systems have features that help the telecommunicator obtain information.
  - Automatic Number Identification (ANI)
  - Automatic Location Identification (ALI)

27

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Location Validation (2 of 2)

- Caller's location may not always be the actual location of the emergency incident.
  - Always confirm that the information is correct.
- Wireless phones can create challenges.
  - Can be difficult to determine the exact location of the incident
  - GPS technology is helping to resolve some of these issues.

28

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TDD/TTY/Text Phones

- Communications centers must be able to receive and process calls made by hearing-impaired callers.
- Special devices that display text rather than voice may be used.
  - TDD
  - TTY
  - Text Phones

29

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Tracing Calls

- ANI/ALI displays have practically eliminated the need to trace calls.
- If enhanced 9-1-1 or caller ID are not available, the telecommunicator may need to ask the phone company to trace the call.

30

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Direct Line Telephones/Walk-Ins

- Direct line telephones
  - Connect two predetermined points
  - Often link police and fire communications centers or two fire communications centers
- Walk-ins
  - People may come to the fire station seeking assistance.
  - Contact and advise the communications center of the situation.

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Municipal Fire Alarm Systems

- Most communities have fire alarm boxes or emergency telephones in public places.
- Fire alarm box transmits coded signals to the communications center.
- Major drawbacks:
  - High rate of false alarms
  - Not knowing the nature of the call

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Private and Automatic Fire Alarm Systems

- Connection used to transmit alarms from private systems to the communications center will vary.

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Call Classification and Prioritization

- Process of assigning a response category, based on the nature of the reported problem
- Nature of the call dictates which units or combinations of units should be dispatched.

34

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Unit Selection

- Process of determining which units to dispatch
- Run cards list units in proper order of response.
- Most CAD systems programmed to select units automatically

35

3

Dispatch

- Alerting selected units to respond and transmitting information to them
  - Verbal messages
  - CAD system alerts
  - Pagers, outdoor sirens, horns, or whistles

36

3

Operational Support and Coordination

- All communications between the units and the communications center during an entire incident
  - Progress and incident status reports
  - Requests for additional units or release of extra units
  - Notifications
  - Requests for information or outside resources

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Status Tracking and Deployment Management (1 of 2)

- Communications center must know location and status of every unit at all times.
- CAD systems allow status changes to be entered through digital status units or computer terminals.

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Status Tracking and Deployment Management (2 of 2)

- Communications centers must continually monitor availability of units in each geographic area and redeploy units when there is insufficient coverage.

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Radio Systems (1 of 2)

- Radios link the communications center and individual units.
- Radios link units at an incident scene.
- A radio is the fire fighter's only means to call for help in a dangerous situation.

40

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Radio Systems (2 of 2)

- Radios also used to transmit dispatch information to fire stations, to page volunteers, and to link mobile computer terminals
- Design, installation, and operation of two-way radio systems closely regulated by the FCC

41

3

Radio Equipment (1 of 2)

- Portable radio: hand-held radio small enough for a fire fighter to carry at all times
- Mobile radio: more powerful radios permanently mounted in vehicles

42

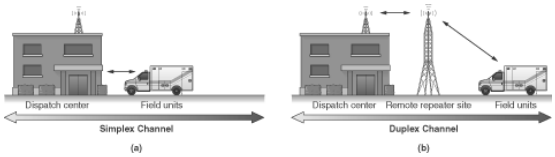
Radio Equipment (2 of 2)

- Base station radios: permanently mounted in a building
- Mobile data terminals: transmit data by radio

Technical Features of Radio Systems (1 of 6)

- A radio channel uses one or two frequencies.
  - A simplex channel uses only one frequency.
  - A duplex channel uses two frequencies.
  - Duplex channels are used with repeater systems.

Technical Features of Radio Systems (2 of 6)



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Technical Features of Radio Systems (3 of 6)

- U.S. fire service frequencies are in several ranges:
  - VHF low band: 33 to 46 MHz
  - VHF high band : 150 to 174 MHz
  - UHF band: 450 to 460 MHz
  - Trunked: 800 MHz band

46

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Technical Features of Radio Systems (4 of 6)

- A radio can be programmed to operate on several frequencies in a particular band, but cannot be used across different bands.

47

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Technical Features of Radio Systems (5 of 6)

- Communications over long distances require the use of a repeater.
- Simplex radio channel for on-scene communications sometimes called a talk-around channel

48

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Technical Features of Radio Systems (6 of 6)

- New radio technologies use trunking.
  - Link a group of frequencies
  - Messages transmitted over whatever frequencies available
  - Make eavesdropping of communications more difficult

49

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Using a Radio (1 of 5)

- Fire fighters must know how to operate any radio assigned to them, and how to work with the particular radio system(s) used by the fire department.
- Refer to training materials and department SOPs.

50

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Using a Radio (2 of 5)

- Familiarize yourself with department SOPs governing use of radios.
- Remember that radio communications are recorded.

51

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Using a Radio (3 of 5)

- NFPA standards recommend using clear speech.
- Arrival and progress reports should be given on a regular basis.
  - Usually the responsibility of the IC
  - Time marking allows IC to assess progress of the incident.

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Using a Radio (4 of 5)

- Emergency traffic is an urgent message that takes priority over all other communications.
  - Mayday is a fire fighter's call for help.
  - Discontinue all transmissions.
  - Listen to the emergency traffic for important information.
  - Stay off the radio until advised that the channel is available for normal radio traffic.

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Using a Radio (5 of 5)

- An evacuation signal notifies fire fighters to abandon a building.
  - Learn to recognize evacuation signals.
  - Evacuate immediately upon receipt of an evacuation signal.

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Records and Reporting (1 of 2)

- After each incident, the department must complete an incident report.
- Reports should include:
  - Where and when the incident occurred
  - Who was involved
  - What happened
  - How the fire started
  - The extent of damage
  - Any injuries or fatalities

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Records and Reporting (2 of 2)

- Incident reports can be paper-based or computerized.
- NFIRS is a voluntary reporting system widely used throughout the United States.
  - NFIRS data is used to help reduce loss of life and property by fire.

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How to Obtain Necessary Information

- Property owner and/or occupant is a primary source of information.
- Bystanders or eyewitnesses should also be questioned.
- Serial numbers and model numbers, should be noted on the scene.

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Required Coding Procedures

- Codes are used in reports to indicate incident type, actions taken, and property use.
- Written guides and/or computer programs provide codes and explanations of codes used in fire reports.

58

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Consequences of Incomplete and Inaccurate Reports

- Reports can become admissible evidence in a court case.
- Fire reports considered public records under the Freedom of Information Act.
- Incomplete or inaccurate reports may be used to prove that the fire department was negligent.

59

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Taking Calls

- Know how to answer telephones and use the station intercom according to department SOPs.
- Keep personal calls to a minimum.
- Use your department's standard greeting.
- Be prompt, polite, professional, and concise.
- Remember that an emergency call can come in on any fire department telephone line.

60

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Summary (1 of 3)

- Every fire fighter must have a working knowledge of the fire service communications system in use in his or her area.

61

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Summary (2 of 3)

- A good communications system is essential and includes:
  - A well-designed communications center
  - Properly trained telecommunicators
  - Well-maintained radio equipment
  - Fire fighters who are properly trained in radio use and in communications SOPs

62

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Summary (3 of 3)

- Communications also includes collecting and reporting relevant data about each incident using the reporting methodology adopted by the department.
- All fire fighters should learn how to use the telephone and intercom systems.

63