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NFPA 1201 Organization for Fire Services 1984

National Fire Protection Association Batterymarch Park, Quincy, MA 02269

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Policy Adopted by NFPA Board of Directors on December 3, 1982

The Board of Directors reaffirms that the National Fire Protection Association recognizes that the toxicity of the products of combustion is an important factor in the loss of life from fire. NFPA has dealt with that subject in its technical committee documents for many years.

There is a concern that the growing use of synthetic materials may produce more or additional toxic products of combustion in a fire environment. The Board has, therefore, asked all NFPA technical committees to review the documents for which they are responsible to be sure that the documents respond to this current concern. To assist the committees in meeting this request, the Board has appointed an advisory committee to provide specific guidance to the technical committees on questions relating to assessing the hazards of the products of combustion.

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MGR-FM-83

Recommendations for the Organization for Fire Services

NFPA 1201-1984

1984 Edition of NFPA 1201

This edition of NFPA 1201, *Recommendations for the Organization for Fire Services*, was prepared by the Technical Committee on Fire Department Organization and acted on by the National Fire Protection Association, Inc. at its Fall Meeting held November 14-17, 1983, in Orlando, Florida. It was issued by the Standards Council on December 8, 1983, with an effective date of December 28, 1983, and supersedes all previous editions.

The 1984 edition of this document has been approved by the American National Standards Institute.

Origin and Development of NFPA 1201

Sections of this document were developed by the committee and adopted by the Association on a tentative basis in the years 1963, 1964, 1965, 1966 and 1967. In 1968, the entire document was adopted as NFPA 4B. The document was revised in 1971 and renumbered NFPA 4. In 1977, the document was completely revised and renumbered NFPA 1201.

The 1984 edition is a complete revision which incorporates new chapters on emergency management and emergency medical services. The existing material was expanded and reorganized into 18 chapters instead of the previous 13 chapters.

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This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred.

NOTE: Membership on a Committee shall not in and of itself constitute an endorsement of the Association or any document developed by the Committee on which the member serves.

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Recommendations for the Organization for Fire Services

NFPA 1201-1984

NOTE: Information on referenced publications can be found in Chapter 18 and in Appendix B.

Chapter 1 Purpose of a Fire Department

1-1 Control of Combustibles, Fire Prevention, and Preservation of Life.

1-1.1 Control of the Community Complex of Combustibles.

1-1.1.1 Purpose. The fundamental purpose of an "Organization for Fire Services" is the protection of people and property in an intricate society. The fire department program should be aimed at controlling the community complex of combustibles with which modern man surrounds himself and the preservation of life.

Society has long recognized its responsibility for extinguishment once combustibles are ignited. The responsibility of today's fire department has expanded beyond the extinguishment of combustibles to include a widening range of purposes which include the investigation of situations which result in fires and providing emergency medical services for on-scene patient stabilization, control of hazardous materials and the preservation of life in disasters or major emergencies.

1-1.1.2 Inspection Program. Every fire department should have a program under which its personnel should be constantly examining every part of the community where a fire problem may develop. The personnel should regularly inspect all property in the community with emphasis on identified high hazard occupancies.

1-1.1.3 Enforcement. Fire chiefs are required through state or provincial and local statutes to safeguard the public and its property from the dangers of fire and panic through prudent code enforcement. Case law has made it very clear that the fire chief, any authorized representatives, and other governmental agencies, must discharge the duties of their positions and are liable for not carrying out their legal obligations for fire prevention. It is essential that all members of the fire service realize that this is an important part of their activity. Many fire departments have developed a combination fire inspector and fire company inspection organization to accomplish their inspection goals. This approach has gained wide acceptance because it allows for both the technical expertise and the necessary personnel to maintain a regular inspection program throughout the community.

1-1.1.4 Consultation. A service of the fire department should be to consult with local individuals and organizations who have fire problems and assist in their solution. The availability of a fire protection engineer and other firesafety specialists would greatly assist in consultations with developers, architects, contractors and other engineers. In addition, such availability of expertise would enhance the on-going program of continued improvement of the fire defense system within the community. A number of fire departments have employed fire protection engineers on a full-time status.

The fundamental way to prevent large fires is to keep at one location only as much material as can be controlled if it catches fire. Concentration of too much combustible material at one location may make control of fire difficult or impossible. Many of these matters involve more than simple law enforcement and must be solved by a process of consultation among the representatives, agencies and individuals involved.

1-1.1.5 Education. Recent studies indicate that the majority of building fires are caused by carelessness and ignorance, and are preventable primarily through educational and motivational efforts. Reducing the number of life losses, casualties, dollar losses and fire incidents in this category is dependent on the fire department developing ongoing, comprehensive firesafety programs targeted at "high risk" populations. Public firesafety education is becoming an increasingly important and cost-effective element in the community fire protection system. It must be a planned program including needs assessment, determination of objectives, evaluation and allocation of sufficient resources.

1-2 Fire Suppression Services.

1-2.1 Scope of Services. The fire department should be organized to perform fire prevention and control and related emergency services to protect life and property. Other services demanded of the fire department, because of its availability and specialized training, should be undertaken only to the extent that they do not interfere with the department's basic purpose and are activities justifiably related to it.

1-2.2 Fire Suppression Capability. The fire department goal should be to prevent the propagation of fires. Except for fires in buildings, vehicles, aircraft, trains, ships and boats, the individual losses involved in calls answered by the fire department are often negligible. The majority of fires in buildings are held to small losses without requiring much more than first-aid fire fighting service because of early discovery and prompt response. A few large fires cause most of the total loss.

1-2.2.1 Pre-Fire Planning. One purpose of an inspection program should be to evaluate the potential fire conditions it finds and to plan how the fire department is to deal with these conditions. Plans should be developed as to how fires in specific properties are to be handled. Decisions should be made on the potential severity of the fire emergency, response to be provided, positions the fire companies may take, and on phases of personnel operations at fires. Such activities are necessary components for tactical training.

Effective fulfillment of operations as preplanned, requires serious and comprehensive training of all personnel concerned in the operations and frequent practice under critical direction. Fire emergencies are usually escalating situations.

1-2.2.2 Master Planning. Long-range planning should be undertaken to determine how a community can best meet its fire and emergency management needs. Master planning is a process by which this can be accomplished. It utilizes a systematic approach to evaluating and selecting technical options that best meet a communities fire and emergency management needs, given the available resources and involves community leaders in making fire and emergency management decisions. The process examines four areas to determine the options for fire and emergency management delivery systems. These areas are prevention, suppression, emergency response and administration. Each community is unique and must devise its own program by working through the analysis of its data and the master planning steps.

1-2.2.3 Mutual Aid Agreements. Every fire department should enter into agreements with its neighboring jurisdictions to provide additional resources to combat major fire and other emergencies. These "mutual aid" agreements should be in writing and need to include specifics on the empowering authority, resources to be made available and the designation of incident command. This will allow aid to be quickly mobilized and reduce misunderstandings. Having the agreement in writing will also aid in insurance and liability questions should any personnel be injured or equipment damaged while fighting fires outside a fire department's primary response district.

1-2.3 Other Emergency Services.

1-2.3.1 Hazardous Materials. The rising incidences of illegal disposal and accidental spillage of hazardous chemicals and the discovery of their many harmful effects on human beings has brought the hazardous materials problem into sharper focus. The responsibility for establishing control over hazardous material emergencies varies from one jurisdiction to another. In many communities it is the fire department that has primary responsibility over such incidents.

In order to deal effectively with this type of incident, the fire department must be well prepared. Quick response, communication capabilities, evacuation plans, reference data and materials, specialized protective clothing, breathing apparatus, and other necessary safety equipment must be available.

Expertise in the area of dealing with hazardous materials may be available in both the private and public sectors. The ability to remove and transport the hazardous substances are capabilities that the fire service usually does not have. Many private companies can provide this service and should be contacted in advance. Fire departments having the resources to do so should utilize specialized apparatus equipped to deal with hazardous materials and should provide specialists who can identify and evaluate the unknown substances. Jurisdictions must also establish "chemical spill response plans" to address the question of which agency has responsibility in the various places where an incident could occur.

1-2.3.2 Rescue Work. Preservation of human life should be a primary responsibility of the fire department in connection with fires and other emergencies. Departments also should be prepared to do rescue work and provide emergency care for the injured in connection with such incidents as traffic accidents, train wrecks, aircraft crashes, floods, windstorms and earthquakes.

All personnel in any fire department should complete the Department of Transportation Emergency Medical Technician (EMT) course in emergency care and transportation. Because of this specialized rescue capability and the EMT capability, the fire department is the logical agency to carry out the emergency medical care function.

1-3 Emergency Medical Services. It was the intent of the U.S. Emergency Medical Services Systems Act (1973) to address Emergency Medical Services (EMS) on a regional level. It is a comprehensive approach that, by design, involves all of the component resources available to contribute to an effective EMS system. These resources, comprised of any combination of both public agencies and private entities cooperate to reduce the frequency of death and injury within their respective regions.

One of the most readily available component resources in all regions is the fire department. With a sizable body of reliable, trained and disciplined personnel, operating within an existing command structure, possessing vehicles and communications located throughout the community, the local fire department is a natural source of medical aid responsibility.

Fire department involvement in EMS can vary greatly from one region to another. It can include: operation of the communications and dispatch network; training of personnel in basic life support; operation of Emergency Medical Technician-staffed, first-responder pumper and/or ladder companies; basic life support units with or without patient transportation; advanced life support units involving fire fighters or civilian paramedics; and public education through blood pressure screening and training the public in cardiopulmonary resuscitation (CPR).

1-4 Disaster Planning. Disaster planning activities include responses for everything from the small incident to the major disaster. Response plans should be in writing and provide for control and coordination of all public and private services called into action in such cases as explosions, air crashes, floods, building collapses, earthquakes and radiological incidents. Disaster coordination is a state or province responsibility and may be delegated to a municipal level.

1-5 Governmental Purpose.

1-5.1 Municipality or Local Agency.

1-5.1.1 Municipality. The term "municipality" is here and elsewhere used as a general term for units performing local government functions. It includes cities, towns, incorporated villages, and other terms which are defined by statute law of the various states and provinces. NFPA 1202, *Organization of a Fire Department*, provides discussion on the legal basis for a fire department and the establishment of a governing body for a fire department and should be used to clarify the fire department's role in the community.

1-5.1.2 Fire Department Is a Local Government Function. In North America, historically the fire department has been closely associated with local government.

1-5.1.3 Fire Department Should Use Other Local Government Services Available. The fire department should not try to be entirely self-sufficient. It should use the resources of other governmental services with which it is associated, in connection with financial and personnel management, purchasing and similar matters.

The fire department is assisted by other services such as water supply, building control, finance, police and city planning.

1-5.2 Province-Municipal or State-Municipal Relationships. Municipal charters, and also charters of townships, fire districts or counties which may perform the functions of a municipality in operating a fire department, are either special or general province-state laws. These furnish the legal authority for operation of the fire department. Even independent volunteer fire departments and fire associations which are not under local governmental operation are subject to province-state laws defining the operations of such departments or associations. Province-state laws also commonly provide authority to a fire department to operate outside of the municipal territory to which it is assigned and define the terms of such operation.

Fire investigation and fire prevention work are fire department functions authorized by province-state and local law. In most states in the United States and provinces in Canada, authority for these functions is vested in a state official (the state or provincial fire marshal) with the general provision that the local fire chief may act in a similar capacity within his particular municipal jurisdiction in accordance with state or provincial law.

There is also a class of legislation which imposes limits on the municipal officials. Example of this would be laws which specify the pay and working hours and other conditions of work for the members of fire departments. This type of legislation imposes specific limits on financial and operational management of a fire department by the municipalities.

One of the most important of province-state service functions performed for fire departments is the operation of a fire-service-oriented educational and training program. This is often administered by a state educational agency or institution cooperating with the individual fire departments and other organization in operating schools and training facilities.

1-6 Fire Protection Alternatives.

1-6.1 "Private" Protection.

1-6.1.1 A Management Responsibility. In any property, its management should evaluate its fire possibilities, institute a fire prevention program and provide various kinds of protection which are "private" as compared to the protection provided by a public fire department.

1-6.1.2 "Private" Fire Department. When fire protection for a specific piece of property includes a fire department, it should be described as "industrial" or "private" to distinguish it from one provided by a city or town or other governmental district.

Organization of employees for first-aid fire fighting is one form of private protection. In some cases, the property management will also provide a fire department for its own service within the property. Such a property is sometimes large enough so that the form of its fire department is similar to that of a fire department organized for the protection of a city or town.

The terms "public" and "private" do not quite accurately differentiate between the two types of fire departments under consideration. Many state and federal agencies maintain fire departments which are "public" in the sense that they are associated with a governmental agency but are "private" or "industrial" in character because of the area assigned to them. The fire protection organization for such properties, as in an industrial plant, is specialized. It may or may not conform in some details to the organization provided by a fire department for general community service. Management decisions for fire departments in such properties are made with the property and its personnel first in mind.

"Industrial" or "private" fire departments are discussed in other National Fire Protection Association publications. (*See Appendix B.*)

There are also "private" or independently owned and operated fire departments providing fire department services. In many areas of the United States, these departments generally contract with individual property owners to provide services in areas where there are no fire departments operating as a function of local government. In some areas fire districts and municipalities contract with "private" fire departments for services.

1-6.2 Other Fire Protection Alternatives. Many fire departments through the master planning process, are redefining and evaluating their communities' fire protection needs. This can result in proposing methods other than suppression that contribute to the level of fire protection. An example of this would be securing legislation requiring automatic sprinkler systems in buildings, thus providing a protection trade-off that reduces the level of need for more suppression/extinguishment resources.

Chapter 2 Planning and Research

2-1 General. Fire prevention and suppression are no longer considered the sole mission of a community's fire department. The complexities of special hazards, the ever-increasing congestion of urban areas, the growing awareness of needless life loss, and economic escalation in the costs of public services will not tolerate the perpetual enlarging of the department as changes in community character place greater demands upon the department's suppression forces. Communities must recognize the need for creation and implementation of a total concept master plan for a community-wide balanced fire control

strategy, including extensive utilization of built-in early smoke and fire warning detection and automatic suppression systems.

2-1.1 Approach. The fire chief must be concerned with both short-range planning of department internal operations and a planning involvement with all other community departments in anticipation of overall community growth. The community governing body should be encouraged by the fire chief to adopt procedures enabling the maintenance of an on-going, long-range community plan dedicated to the reduction of life and property loss from fire. (*See "America Burning," the report of the National Commission on Fire Prevention and Control. In Canada, the National Research Council's "Study on Fire Prevention and Control Systems in Canada."*)

2-1.2 Analysis. Where increased economic efficiency and program effectiveness are prime objectives in choosing between programs, cost-benefit analysis can be used to obtain a ranking of alternative programs and provide the basis for department planning. Assuming that the costs and benefits are correctly measured, programs can be ranked and justified if the benefits which will accrue as their consequence are greater than the costs incurred.

Program effectiveness should be evaluated along with the cost/benefit analysis. The ultimate criteria is the net effectiveness rather than the specific efficiency. Otherwise there is the danger of the triumph of technique over purpose to the detriment of the public that is served or the fire personnel that perform the protective services. The higher cost method may be the most effective although it is not the most cost efficient. In the emergency services, some value criteria must prevail over the mechanics of procedure such as life safety is more valued than property cost.

Cost-benefit analysis typically consists of five steps which draw heavily on systems analysis: determining need; developing objectives; developing the criteria for measuring effective accomplishment; generating alternatives and the analysis and selection of alternatives.

2-2 Department Staff and Procedures.

2-2.1 Planning and Research. The fire chief should provide procedures and staff for this purpose. The chief should initiate studies to assemble data for planning and for research of both a general and specific character, and not leave this initiative to public planning agencies.

Research has the strict connotation of the creating of new knowledge. The collection of information for planning is not research in this strict sense, but is often referred to as such. Planning and research may embrace studies of everything the fire department has and everything it does. General planning is just as important as specific planning. It is a management requirement for efficiency so that things are done at the most opportune time. Research is something more than noting the obvious. The department sets up a system of records and reports for the control of day-to-day operations and periodic budgeting. These reports are to furnish information which experience has found to be useful and necessary. Research goes beyond day-to-day recordkeeping to get additional information on subjects which may be lacking in the routine reports. In some departments, planning studies and research may have to be done by volunteers, committees, consultants, or by working parties set up by a municipal fire prevention committee or by the governing board responsible for the fire department.

2-2.2 Relation to Other Planning. The fire chief should be concerned with operations of the fire department itself, the relationship of the department with other government entities, and the overall community growth. The chief should be intimately aware of the overall planning for community development. The fire chief in a city which has a municipal research department systematically gathering and analyzing data applying to community growth should make use of the services of that department in connection with long-range planning. The details of things for which the fire department must spend money are for the most part known only to the fire department itself. However, urban renewal, street development, water department problems, school and civic building location and traffic control are all areas of concern.

2-2.3 Master Planning.

2-2.3.1 Purpose. A program of community improvement by proper enforcement of effective building and fire prevention codes together with public education should be undertaken to reduce fire situations to a reasonably manageable level.

A program of this nature will determine what kind of community, ten or twenty years hence, the fire department will have to protect. The costs of the fire department can only be kept reasonable by reducing both potential life hazards and the combustible features of the community. If, in the area served by the fire department, excessive area buildings without automatic sprinkler or other private fire protection are tolerated, the taxpayers must also accept a high level of fire department expense. The same is true of tolerance of other defects which set up a high conflagration hazard or present unreasonably difficult fire control problems. Some communities require automatic sprinklers for all buildings including residential buildings.

2-2.3.2 Economics of Municipal Fire Protection. The planning procedures should enable the fire chief to justify a recommended amount of money to be allocated annually for the fire department operation after cost/benefit and program effective analysis studies have been completed.

Some communities support a quality of fire department service which other communities have never had and therefore do not miss. Many fire departments do not receive good support simply because taxpayers have never been given a taste of valuable service which a good fire department can provide. Expenditure standards involve both technical questions and value judgments. There is usually no question as to whether fire department protection is to be provided. The annual operating cost of the fire department is largely established when the number of pumper and ladder companies it will maintain and the personnel required for these companies has been determined by an analysis of the degree of desired protection and the ability to provide financial support.

2-2.3.3 Economics of Private Fire Protection. The community should be informed that the money which must be annually appropriated for the fire department is closely related to how well property owners accept responsibility for better protection of their individual properties from fire. Water utility managers should be instructed by mayors and city managers to study the benefits of automatic sprinkler systems and other forms of private fire protection. They should be further instructed not to apply unnecessary requirements or added costs to connections for automatic sprinkler systems.

One of the most important ways private fire protection is accomplished is through the use of automatic sprinkler systems. The terms on which the water utility serving the community furnishes connections to such systems is a factor in how actively property owners will consider this self-protection. Local requirements often include flow detection devices, meters and exorbitant annual charges. Unnecessary requirements for sprinkler connections can bring relatively trivial income to the water utility and trivial savings from loss of water. In comparison, lack of private fire protection can result in large fire losses. These losses would cause citizens' demand for an increase of fire department expenditure over a period of years far in excess of the water utility income or savings.

2-2.3.4 Reduced Work Force. The curtailment of fire protection along with other municipal services may now be anticipated. It may be temporary as in the case of a strike, or permanent because of a reduction in the tax base. The result of such activities may range from slight inconvenience to total elimination of usual services. The fire department, unlike many community departments, provides an emergency service upon which may depend the saving of lives and control of major property destruction. The fire chief, in concert with community administration, should be prepared with practical contingency plans that may be implemented depending on the nature and degree of service curtailment. Local, state and federal regulations and agreements should be guiding factors when planning for any work curtailment.

2-2.3.5 Fire Prevention, Firesafety Education and Cleanup. Fire prevention, firesafety education and community cleanup programs are a general approach to the reduction of unnecessary fire department calls. On a short-term basis, they offer limited chance to affect fire department operating costs. However, they can be productive when programmed on a long-term basis.

2-3 Long-Range Plans.

2-3.1 Plans for Five and Ten Years. Research reports and analyses of fire loss and demographic information should form the basis for all long-range planning. Whenever possible computer software packages can be utilized to help determine optimum station locations, first-in companies and response routes.

2-3.1.1 Plan for Five Years. A statement should be prepared describing what the fire department hopes to accomplish during a minimum future period of five years. It should indicate budget requests planned for men, equipment, facilities and suggest how capital items should be taken care of, all based on management by objectives.

Over a period of several years, capital items may be spread out, by use of reserve funds or borrowing, if necessary. A five-year plan enables something to be done on an extended basis, but it usually is just a start.

2-3.1.2 Plan for Ten Years. A statement should be prepared describing potential master plan accomplishments during a future period of ten years. It should indicate how long-range programs of the department and the community may begin to reduce losses. It should plan how capital cost items for equipment and fire stations will be provided when needed.

On a ten-year basis, it is possible to provide for adequate and up-to-date equipment and fire stations at the lowest possible cost per year.

Chapter 3 Management Organization

3-1 The Top Management Components. The management organization of a fire department should be much the same as is provided by a well-run commercial or industrial business. It would have the same components. There would be a governing body corresponding to the board of directors in any enterprise. It would appoint a general manager who would be expected to manage the operations of the enterprise on a day-to-day basis.

3-1.1 The Governing Body.

3-1.1.1 Responsibility. The governing body has three primary responsibilities: establishing the scope and level of service provided by the fire department, providing the necessary funding, and providing for the necessary personnel and facilities.

The governing body should also be responsible for monitoring the completion of the management functions of the department. They include fire prevention, fire suppression, training, communications, maintenance and department administration.

3-1.1.2 Powers. There should be a governing body to set the management policies of the fire department. The powers necessary are either the powers conveyed by law to a municipality, or their equivalent, in that the governing body must have the power to levy taxes or solicit funding for the support of the service, to own property necessary to provide the service and to pay career personnel who perform the service.

3-1.1.3 Not an Administrative Agency. The governing body should be responsible for policy making only; it should not act as an administrative agency nor interfere in day-to-day management of the department.

3-1.2 The Fire Chief. Separate from the activites of the governing body are the management activities of the

department: The manager of the fire department is commonly designated as the fire chief and references to that title are intended to apply to the manager of the department even though he may be known by some other title.

3-1.2.1 Tenure. The fire chief should be appointed on a basis of merit and ability for an indefinite term, removable only for cause. NFPA 1021, *Fire Officer Professional Qualifications*, should be used as the basis of determining qualifications.

3-1.2.2 Appointment by Governing Body. In a fire department service area organized exclusively for fire department purposes, the fire chief should be selected and appointed by the governing body.

3-1.2.3 Appointment by Chief Executive of Municipality. In a municipal government, where there is a chief executive known as mayor, or city manager, etc., the chief executive should appoint the fire chief.

3-1.2.4 Relations of Fire Chief and the Municipal Chief Executive. The fire chief should communicate closely with the municipal chief executive. This is essential for budget preparation and control, purchasing, planning, and for support of other activities undertaken by the department. The municipal chief executive should be kept abreast of department performance and needs through regular reports submitted by the fire chief.

All contact between the fire department and the governing body of the municipality should be through the municipal chief executive.

3-2 New Trends. Budget constraints and the demands for increased levels of service have forced fire service management to seek ways to increase efficiency and effectiveness. There are many new management techniques available, which when combined with sound management principles, can achieve more effective operations. A sampling is listed below. Detailed explanations can be found in NFPA's *Management in the Fire Service* and other standard management text books.

3-2.1 Management by Objectives (MBO). This technique is considered a very effective management system. It seeks better output by defining objectives — or specific targets — which provide the basis for better planning, direction and coordination for all levels of an organization. The objectives should be quantifiable and should represent an integration of organizational objectives and the personal goals of the manager. MBO provides a refinement of the management cycle which clearly defines the planning, organization, implementation and follow-through stages. While the concept is initially simple, its implementation is a complicated process involving a commitment to participatory decision-making and the allocation of time and staff resources.

3-2.2 Organization Development (OD). This is a continuing long-ranged process to introduce planned change to an organization. It does this by involving all employees in decision making and action planning. This provides a sense of ownership among members of the organization which results in self-control and self-direction. The process complements a management by objectives program. And like MBO, it requires a dedicated commitment of time and resources to the concept of participatory management.

3-2.3 Pooled Operations. The need to improve efficiency and cost-effectiveness have led fire jurisdictions to look at alternatives to the concept of self-contained organizations. Contracting with other jurisdictions for such services as dispatch/communications, data processing and/or the joint staffing of companies is now a realistic and acceptable practice.

3-2.4 Contracting with Private Concerns. The practice of contracting with private companies for services which can be done more cost-effectively is another example of good management decision-making. Private contractors can be a source for everything from data analysis to full fire protection.

3-3 Operational Components.

3-3.1 Operating Units.

3-3.1.1 Organization of Operating Units. While the governing body of the fire department, by its authorization of activities and appropriations, determines the total equipment and personnel at his disposal, the fire chief should determine how operating units of the department should be organized into fire companies or response teams together with the number and distribution of such units. Where the term "fire companies" is hereinafter used, it will mean the principal response units of the department.

In practice followed in the United States and Canada, the basic unit of a fire department is traditionally the fire company. It is provided with at least one piece of fire apparatus and consists of personnel necessary to put the apparatus into service around the clock.

3-3.1.1.1 Pumper Companies. Companies equipped with apparatus with a pump are called pumper companies. One such company can do useful fire fighting, but even in an area of detached dwellings a minimum of two pumpers is desirable. There are other types of companies equipped with a vehicle to carry a great variety of special tools to assist pumper companies or perform other duties.

3-3.1.1.2 Ladder Companies. One type of company is known as a truck or ladder company, the latter term derived from mobile and fixed ladders carried on this vehicle. The ladder company is not limited to ladder work, but performs forcible entry, ventilation, rescue and salvage work and provides illumination at night fires. The duties of ladder company operations must be performed at fires even where there are no truck or ladder vehicles.

3-3.1.1.3 Special Companies. Some departments provide companies for special purposes such as salvage or rescue service. Special companies for pumping service, such as marine or aircraft fire fighting, can be considered special pumper companies. (*For further discussion, see Chapter 7, Operating Procedures.*)

3-3.1.2 Total Personnel Requirements. The fire department should keep accurate records of emergency response with the apparatus in order to know what the ratio of total personnel should be to emergency response personnel. The necessary total personnel should then be provided.

The work force with which management organization of the fire department is concerned is the total fire fighting roster needed in order to make possible appropriate response personnel of each company. Unfortunately, many fire departments identify more units as fire companies than can be adequately manned with the personnel provided. This results in weak companies which cannot make fully effective use of the apparatus and equipment provided.

The total number of personnel on a "fully employed" basis needed to produce proper response manning of companies depends on the number of hours in the work week for which the personnel are paid and the absence/off duty record of the department.

3-3.1.2.1 Provisions for 24-Hour Staffing. Fire departments in North America staff fire companies variously with career personnel on duty with apparatus, volunteer or paid personnel who respond when there is an alarm or a combination of these two. The determination of the mode of staffing tends to be a function of fire frequency and severity, ability of the community to afford career personnel and the availability of suitable volunteer or paid on call personnel. Some suburban communities have had to utilize a career force for response staffing by day because volunteers and paid on-call personnel are principally available only at night and on weekends/holidays.

3-3.1.2.2 Task Analysis. To determine adequate personnel requirements, it is necessary to define what needs to be done for small, medium and large emergencies. Each type of emergency should be analyzed with a detailed account of how the problem would be attacked. This detail will provide the information on which staffing levels can be determined.

3-3.1.3 Fire Company Personnel. The response personnel of a fire company should be comprised of the number necessary for safe fire fighter performance related to the expected life hazard, the characteristics of the service area (including, but not limited to, water supplies, built-in fire protection, building size, occupancy, condition, construction and accessibility, etc.), the type of tactics employed as standard procedure, the type of apparatus in use, and the accomplishment objective of the first due company as it relates to the total first alarm assignment.

Fire fighting personnel are of two categories. One consists of personnel on duty with their apparatus available for immediate response to fires. The other consists of personnel available for response to fire on call but who are not required to be on duty with apparatus for such response. The former have been traditionally referred to as "career," but the traditional distinctions are no longer clear. "Career" fire fighter may be redefined as one whose primary income is derived from a fire fighting job.

Response personnel refers to the number of physically able, competent and well-trained personnel always available to respond. NFPA 1001, *Fire Fighter Professional Qualifications*, NFPA 1002, *Fire Apparatus Driver/Operator Professional Qualifications*, and NFPA 1021, *Fire Officer Professional Qualifications* should be used as the basis for determining personnel qualifications.

3-3.1.4 Scheduling Response of Volunteer or Call Personnel. In departments which are principally composed of volunteers or call personnel, the response manning should be assured by designating personnel for scheduled response manning. This relatively simple management procedure has been applied in enough fire departments to demonstrate that response manning does not have to be left to chance.

3-3.1.5 Company Officers. Each company should have enough officers to provide a leader to command the company at time of response. Company officers should be included in the total personnel of companies.

3-3.1.6 Ranking of Company Officers and Personnel. A ranking company officer should be designated so the chief is able to hold one officer responsible for the management and operations functions a company must perform. Respective ranking of all personnel for management purposes should be assigned by the fire chief.

This is to make it perfectly clear who is responsible for the management and operations of the company in the absence or incapacity of the usual officers.

3-3.2 Chief Officers.

3-3.2.1 Line Organization. The officers described for fire companies and for response to command at fires should make up a "line" organization, the components of which are shown in a diagram herewith. Line officers may be assigned to staff assignments in accordance with the "Rank in the Man" concept. The management of a fire department should be handled by the chief of department and one or more assistants.

LINE ORGANIZATION OF A FIRE DEPARTMENT

Fire Chief
Deputy or Assistant Chiefs
Divisional Chiefs
District or Battalion Chiefs
Company Officers (Captains, Lieutenants)
Fire Fighters

3-3.2.2 Number of Chief Officers. Every fire department, even if there is only one company, should have a chief officer to provide a person in a managerial capacity for the department. The chief officer should also designate a second in command.

The number of chief officers required (as distinct from company officers) depends on the fire potential, emergencies the fire department must handle, and staff duties.

In departments of certain sizes the functions of chief officers below the rank of chief of department may be combined. In a department of one or two companies, a

ranking company officer can be designated second in command. (*See also 3-3.3, Staff Functions.*)

3-3.2.3 District or Battalion Chiefs. The management objective should be to provide a chief in command of the companies working at each fire or emergency. District or battalion chiefs should be provided as necessary considering geographical distribution and work load. Companies added to the department should be a reminder that additional district or battalion chiefs on a response basis may be necessary. At that time, the geography affecting the response distance of all the chief officers provided should be reviewed. This work load study will indicate the number of district chiefs needed in the particular department and the time at which they should be added.

A fire department which has four pumper companies and two ladder companies should be able to handle response to two separate fires in residential districts. Whenever there are as many as six companies working at a single fire, fireground direction should be divided between two chief officers, with one designated as being in overall command. In most departments, the chief of department or an assistant chief provides the second chief officer needed at an important fire. In larger departments, an alternate procedure is to schedule the response of a battalion chief from an adjoining district to any response involving as many as six companies.

3-3.3 Staff Functions. Staff functions should be covered by policies or regulations of the department.

Functions for which "staff" may be provided include financial management, personnel management, fire protection engineering, fire prevention, firesafety education, research and planning, maintenance, training, community relations, communications and other activities. Personnel from any level of the organization may be provided to make it possible for the staff personnel to perform their duties effectively and efficiently.

Battalion chiefs and other chief officers who have primary responsibility for directing companies at fires should be provided with aides. One obvious purpose of such aides is to enable the chief officer to communicate with companies at two sides of the fire. Such an aide does not have authority in the sense that a line officer has authority and direct responsibility. If the aide communicates orders, they are in the name of and for the line officer. This is one example of a staff function.

The chief of department has managerial functions to perform in connection with all the subjects covered in these recommendations. As soon as the chief of department begins to assign any of the functional areas to other officers or personnel for attention, these people assume staff responsibilities. These staff officers and personnel do not have "line" authority when performing "staff" functions. In dealing with line officers the staff person is acting in the name of and speaking for the chief of department or for the line officer to whom the staff person may be assigned. Especially in small departments, line officers may also have additional staff functions or assignments.

3-4 Intercommunity Organization. Only a few fire departments have reserves of personnel and apparatus enabling them to deal with a very large fire or to deal with more than one fire at a time. It is to be noted that only the larger departments have reserves enabling them to respond to two fairly large fires at once and still have some companies in service to protect the community from additional fires or incidents. To offset the inherent limitations of small fire departments it is necessary to provide mutual assistance to one another in fighting fires when any one of them does not have reserves to handle two fires at once or a very large fire. Unfortunately, many of these aid arrangements are on a casual, unprepared basis. Many departments have developed automatic aid plans and operations. This concept contemplates joint response of designated apparatus and personnel on a predetermined running assignment basis.

3-4.1 Joint or Regional Fire Departments. Whenever geography permits, the smaller departments should be combined with others to make a fire department of such total size that it is able to give the kind of protection which a fire department gives to the larger communities. This can be done by the creation of joint fire department districts by the municipalities concerned, or by transferring management of the fire department function to a regional government unit. If not politically acceptable, intergovernment cooperation should be considered in areas of communication, automatic aid, central purchasing, maintenance and training. There are enough examples of this sort of solution to the problem of the small fire department to demonstrate that it is both possible and practical.

3-4.2 Requirements for Mutual Assistance.

3-4.2.1 Personnel and Apparatus Available. In an effective "mutual aid" arrangement, each fire department should retain reserves of personnel and apparatus.

Frequently, the participating fire departments have no reserves at all, and can only receive aid. Mutual aid concepts should be considered on a regional basis.

3-4.2.2 Written Agreements. "Mutual aid" agreements should be in writing. They should address such issues as liability for injuries, cost of service, authorization to respond, staffing and equipment including percent of resources to be made available and the designation of the incident commander.

The objective is to prevent haphazard and unauthorized response of fire companies to fires and other emergencies. Some areas have met this by using common or coordinated dispatching and by an agreement that no fire companies shall be moved to assist an outside fire department except on direction of such an office. Management of response to assure firm and dependable fire fighting plans is difficult, but is made easier by development of a system of "running cards," and other advanced planning.

3-4.2.3 Officers. Officers of technical skill and experience and in sufficient numbers should be provided if "mutual aid" is to be effective.

3-4.2.4 Clear Line of Command. A clear line of command should be provided if "mutual aid" is to be effec-

tive. Traditionally and legally, overall command of the incident is vested with the senior officer of the jurisdiction having the emergency.

A number of chief officers from numerous small fire departments working independently at a fire cannot take the place of officers in a single line organization. The exact relationship of one chief officer to another should be known and recognized in advance. The authority of all officers should be known to all fire fighters.

3-4.2.5 Training and Methods. Mutual aid training of the personnel of all fire departments should be comprehensive enough and standardized enough to produce an effective fire force if "mutual aid" is to be effective. All personnel should have received sufficient training to assure uniform operations. Operational methods should be as uniform as practicable. Use of the NIIMS system will assist in achieving an Incident Command System (ICS). See Section 8-7.

3-5 Use of Other Resources.

3-5.1 Personnel, Examination of Duties. Municipalities should carefully examine the duties for which members of fire departments are paid. This is the only way that proper decisions can be made as to whether or not the time purchased for the fire service is productive.

3-5.2 Management.

3-5.2.1 Combining Municipal Departments. Municipal governments are being faced with rising costs and at the same time with increased demands for new and expanded municipal services. Sources of revenue to meet these costs are being taxed at or near capacity in many cities. This has prompted increased efforts to find means of keeping costs within the funds available.

One method proposed has been the combining of fire and police departments. The thought of using police for fire duty most commonly comes up in the community which is too small to have both an adequate fire department and police department. Combining these departments can be done providing the fundamental problems of simultaneous need for fire and police personnel and the unique training requirements of each service are adequately provided and managed. There should be no objection in many small communities for members of the police force to serve as volunteer or call personnel, provided service is limited to periods when they were definitely off duty as police and not subject to call-up for police emergency duty such as a fire might necessitate. Other municipal employees might be better utilized as volunteer or call personnel.

Another approach gaining acceptance is the formation of a fire district covering numerous small communities into a metropolitan area. For scattered suburban and rural areas such a district might be organized on the basis of an entire county, or part thereof. In such larger territorial areas, the cost of the fire fighting capability would be spread over a sufficiently large base so that the cost to any one community would be no more than that of their weak local fire organizations.

3-5.2.2 Fire and Police Department Cooperation. Police and fire departments should coordinate their efforts in locating fire hazards, communications, crowd and traffic control at fires and investigation of cases of false alarms and arson. Consideration of the effective utilization of personnel should not mar the fact that these two departments must cooperate to provide adequate community emergency service.

Chapter 4 Financial Management

4-1 Accounting and Budgeting.

4-1.1 Accounting.

4-1.1.1 System of Accounts. The fire chief should set up a system of accounts for financial administration. The system should keep a record of funds received by the department and funds expended. Furthermore, the system should enable the fire chief to constantly analyze how the money is spent to show how, if necessary, to change the department's operations to get better results for the money.

Traditional finance practices in government have been simply a few checks and balances to prevent illegal spending of public funds. Many fire departments still operate under such an obsolete financial system. The exact accounting records to be kept depend on whether the department keeps all the financial records or whether some of them are kept on a general basis by a municipality or a county of which the fire department is a part.

Two financial functions are performed by the department itself only when it operates in a fire department area not affiliated with any other unit of local government. This would be the case in a few jurisdictions where a local government is set up primarily to operate a fire department. These functions are those of "assessment" and "treasury." Assessment includes the business of obtaining the money to finance the department through taxes and other levies. Treasury is simply the custody and orderly disbursement of funds. Most fire departments are associated with a municipality or county, and the assessment and treasury functions are performed by the municipality or county.

4-1.1.2 Bookkeeping. The system of accounts should include books of original entry and ledgers. Books of original entry should include a general journal and register for cash receipts, purchase vouchers, contracts, material issued, and payroll. There should be a general ledger, and subsidiary ledgers for revenue, appropriation expenditures, stores, bank funds, and property. If, as an independent fire district, the fire department performs municipal functions, it should have additional books of original entry for bonds and interest, for investments, and for insurance. It should have additional ledgers for tax rolls, individual unit taxes, special assessments, bonded debt interest payable, and investments.

4-1.2 Budgeting.

4-1.2.1 Budget Preparation. The fire chief should prepare the preliminary figures for the department program in a performance budget format.

A budget is the work program of the fire department expressed in dollars and cents. One part lists the services, activities, and projects with the expense of each. The other lists the income to be used to meet the total expenses. Budgets are commonly for a fiscal year. A final budget is adjusted when the appropriation items are known. In a municipality, the final fire department budget requires approval of a mayor or city manager and the city council. In an independent fire department area, the chief would usually be required to submit the budget to a governing board.

Wages and hours will be a principal factor in determining cost of the service and the amount of money which must be appropriated and administered. The authority responsible for fiscal administration (city council, mayor or manager) should consult with the fire chief on wages and hours because they will hold the chief responsible for performance. There should be an established policy of periodic review of hours of work and wages to make sure that these keep in line with those of other fire departments regarding the quality of service provided to the community and the career opportunities of employees.

4-1.2.2 Relation to Planning. A good budget procedure should call for the analysis of conditions and operations between budgets. What is learned from this analysis should be reflected in the program on which the next budget is based. Since annual budgets will inevitably be affected by the financial arrangements which will be made over a period of years, an annual budget would be supplemented by a budget for longer periods. Fire department long-range budgets for five and ten years should be considered. Budgets for long periods should show the approximate priority of the financial needs and resources.

A budget for any current cycle is inevitably influenced by past commitments, established standards of service, existing organization structure, current methods of operating and future needs. The budget making process, being annual as a rule, provides a chance to appraise the importance of the established practices at intervals. (*See Chapter 2, Planning and Research.*)

4-1.2.3 Recurring Items. One of the most serious problems in a fire department is manning for effective fire fighting companies. In manning the fire fighting companies, the fire chief should allow for the absences (sick leave and vacations) so as not to run short of personnel. The chief should keep attendance records of individuals and analyze these to provide figures for the specific conditions in his department. To fill vacancies due to sickness, vacations and absences other than those taken care of by relief personnel or other arrangements, the fire chief should be authorized to employ available off-duty members and an item to pay for such duty of off-duty members should be included in the department budget.

The number of personnel required to fill a position may be determined by dividing 168 by the number of hours in the duty work week. Due allowance should be provided for anticipated sick-leave, absences, and vacations for personnel.

4-1.2.4 Capital Items. A list of capital projects should be made and studies and surveys undertaken to establish the priority of these projects.

In long-range budgets, a distinction has to be made between expenditures for normal continuing operations and those for capital improvements. The latter are long-term assets with larger costs. Once these two factors are identified, a fire department can set up a long-term operating budget which will keep the two types of cost coming along at a rate that can be met by a reasonable, uniform tax rate. The capital improvement program is the most difficult for most fire departments to work out. It is sometimes never achieved simply because no one takes the trouble to list the capital improvements likely to be needed in five or ten years. Various considerations affect the priority of capital projects. Some projects may be affected by what can be negotiated with neighboring or overlapping political units, or revision of state legislation. However, with judgment, the projects can be allocated to fit into budgets for five or ten years.

4-1.2.5 Revenue Programs. Revenue programs, pay-as-you-go, leasing, setting up of reserve funds, and the borrowing of funds, should be adapted to what is best for the individual department. The financing of physical facilities should be coordinated with the overall financial policies and capital improvement financing of the city. Large cities should handle all of their fire department financial programs on a planned, pay-as-you-go basis. In place of borrowing, communities should establish reserve funds. These funds could be set up by paying into them an agreed upon portion of the annual income assigned to the fire department. The funds should then be drawn on for the intended purchases.

Borrowing obviously adds to the cost of expenditures for fire stations, equipment and other physical facilities. If necessary, certain communities may finance the purchase of major equipment items by the issuance of short-term notes, renewable up to a maximum period of five years. Another possibility is the leasing of equipment (or purchasing it under a lease which eventually transfers the title to the city). Leasing or lease-purchasing may be the most expensive of the methods of financing capital improvements, but it may make facilities immediately available. Otherwise the community might not be able to have these facilities until money can be raised by borrowing or by building up a reserve fund.

4-1.2.6 Budget Control. The financial functions of budget control should be kept under the responsible direction of the fire chief in all departments, even the largest. Within a city's budget control operation, the fire chief should work closely with the municipal chief administrative officer and department of finance on budget matters affecting the department. For assistance, the fire chief should have administrative and other technical support in proportion to the department's operations.

4-2 Purchasing and Storing.

4-2.1 Purchasing.

4-2.1.1 Records. The fire department's record on purchases should be sufficiently detailed to permit the chief to have data available for actual cost estimates needed for

planning and budget purposes. Records should be maintained on requisitions, quotations received from bidders, purchase orders and general correspondence. Requisitions and purchase orders should be numbered and filed by number. A commodity price card file and a vendors' catalog file should be maintained.

The records that the fire department must keep on its purchasing operations will vary somewhat with the size of the department. In those jurisdictions where central purchasing is in effect, certain information may be available in central files. A commodity price card record file is particularly useful on fire department items. It tells how many of a given item are used, price experience with each item, and has a list of vendors from whom it would be useful to solicit bids at the time of a new purchase.

4-2.1.2 Specifications. Standard specifications should be used for the purchase of major items. The fire department should have a file of specifications which have been prepared by technical associations and testing laboratories to which reference can be made. (*See Chapter 15, Apparatus and Buildings.*)

It is a waste of time to attempt to standardize all articles purchased, particularly small items. However, specifications for major items help the fire department to define specific requirements and to enable it to tell whether it is getting what it paid for. On motorized fire equipment, hose and other items, the fire department expects to make, or have made, certain tests before acceptance. The seller knows exactly what is required if standard specifications covering these and other requirements are used.

4-2.1.3 Bids and Quotations. A standard form should be prepared to be used in invitations to bid or requests for quotations on items to be purchased. Such a form should contain all of the general conditions applying to the purchase. To it should be attached descriptions and specifications applying to each item. If it is required that the lowest or best value bids be accepted, the fire chief should be permitted to use judgment, within established guidelines, in deciding which bid be accepted. Considerations within such judgment decisions should include long-range cost of operations, maintenence, dependability of equipment, and reliability of supplier.

4-2.1.4 Acceptance. The fire chief should require a written report on goods received to show that they have been inspected and comply with the purchase order as to specifications and quantity and that they have complied with any test procedures specified.

4-2.2 Stores.

4-2.2.1 Custody. The storing routine should make it possible to know in whose custody major items are held. Items for consumption should be released from stores only on the basis of properly signed requisitions to assure authorized use. Departments with a maintenance shop should require the shop to keep inventory records on major equipment. Companies should be charged with equipment issued to them. Equipment purchases for, or issued to a training school, a communications office or other bureau should be charged to those bureaus.

4-2.2.2 Records of Property and Stores. There should be a record card or file on each parcel of land the fire department uses or has in custody, on each building, on major pieces of motor fire equipment, on small items of equipment and individual items of supplies. With each of these should be kept purchase records of vendors and prices. A physical inventory taken at least once each year should be checked against these basic records.

The function of storing in financial management is not limited in application to small items in a storeroom, but is the business of keeping track of all of the property of the fire department.

Chapter 5 Personnel Management

5-1 Personnel Standards.

5-1.1 Objective. The personnel standards of a fire department should establish and maintain a competent and well-trained force by attracting qualified personnel and providing an interesting and useful career from recruitment to retirement.

To accomplish this objective, hours of work, wages and working conditions for fire department personnel should be at least equal to skilled personnel in the community or other skilled employees of a municipality. In accomplishing this objective due consideration should be given to provincial, state and federal laws affecting such factors as age, race, sex and harassment.

5-1.1.1 Fire Chief's Function. The fire chief should execute the personnel standards of the department and issue the orders necessary for administering personnel procedures.

The fire chief may delegate authority to provide specific direction and control over members of the department and these delegations take care of most of the mechanics of personnel administration. The fire chief may assign an assistant or deputy chief to specialize in personnel administration in order to be a department personnel office. The specific personnel activities which might be conducted by the fire department depend to some extent on the character and extent of personnel services provided by municipal, state or federal personnel agencies. State and provincial legislation and the activities of independent municipal civil service commissions frequently affect the personnel policies of municipalities and fire departments.

Such legislation may set standards of pay, hours, working conditions and other features of personnel policy so as to limit the authority of the municipality and fire department. Final decisions affecting the personnel program for a fire department are properly made by the city council or other governing authority. The council or governing board defines the general policies of the department relative to salaries, methods of recruitment, conditions of employment, retirement and other separations from the service, within the scope of its responsibility. The

council's power to make financial appropriations gives it continuous control over the number and quality of department members.

The magnitude of the personnel problem in certain cities has made it desirable to handle the administration of certain personnel functions on a central basis for all departments. A competent central personnel agency can perform valuable services of a technical nature for the chief of the fire department.

5-1.1.2 Fire Chief's Authority for Assignments. The fire chief should have authority to decide station and platoon or work group assignment for each member of the department. The city council (or other governing board of the fire department), or the mayor, city manager or other executive officer of the municipality, should not limit the fire chief's authority for this function. This management authority is essential to the proper utilization of working forces: (1) to place the member in a position which will make the greatest use of his skill and knowledge, (2) to train members in different kinds of work by assigning them to a variety of positions so that they may later be advanced to more responsible work, (3) to bring about maximum productivity of the working forces by moving members about to take care of peak loads as they occur in various parts of the organization, and (4) to alleviate situations where there is a fundamental personality clash between a member and his supervisor which could be corrected by assignment to another supervisor. Great care must be taken not to make transfers punitive because this could adversely affect the morale of the entire department.

The company officers will make the actual work assignments within this general authority. There should be distinction between the permanent assignment to regular stations and work groups and "details" which are made by the appropriate assistant, deputy or battalion chiefs to take care of temporary situations such as absences. There is always a danger that a "permanent detail" will be made in cases where there is no budgetary provision for an essential position.

5-1.2 Standards Applying to All Members.

5-1.2.1 Attendance and Duties. Each member of the department should be kept informed of what is expected in the way of attendance and other duties. Each member should be provided with a personnel manual or set of departmental regulations in which are explained working hours, leaves, vacations, and the responsibility of the member for personal protective equipment issued by the department, such as helmets, coats and boots. The information on personal equipment may cover uniforms or uniform allowances, bedding, linen and laundry, depending on how the department handles these matters.

5-1.2.2 Annual Physical Examination. All members of the department should be furnished with an annual medical and physical examination. This should be performed by the same medical facility which gives such examinations to candidates for the department. The medical reports should establish the ability of each member of the department to perform the duties of his position. Physical defects uncovered should be corrected or recommendations should be made to move the member to another fire department position or assignment for which they are qualified.

5-1.2.3 Health Maintenance. There is a need to develop formal on-going physical maintenance programs that include medical standards by age and fire department activity. Personnel should be assisted in meeting the standards of such programs. It is advisable that fitness programs be made mandatory.

5-1.2.4 Safety. Members of the department should work safely. Safe work procedures should be stressed and emphasized throughout a person's career. Accidents and injuries should be investigated and the findings should be included in the member's personnel record and appropriate actions taken. Every supervisor is responsible for ensuring that their employees use and maintain safety equipment in accordance with provincial and federal legislation. The fire department should appoint a safety officer who has the duties and responsibilities as defined in NFPA 1501, *Standard for Fire Department Safety Officer*.

5-1.2.5 Ranks. A system of ranks should be established to provide officers for the department and budgetary provisions made for them. (The usual ranks for which provision should be made are Fire Chief, Assistant or Deputy Chiefs, District or Battalion Chiefs, Captain, Lieutenant and Fire Fighter.) If a position classification system is used, it should be correlated to these ranks. Pay scales for special assignments in a given rank should be established as appropriate for the qualifications required for the assignment and the work to be performed.

Officer ranks are necessary to establish command responsibilities. A proliferation of special ranks for special assignments is undesirable as it tends to require too many "civil service" examinations and procedures and to freeze personnel in specific jobs. The procedures most desirable are those where the chief can make special assignments with considerable freedom without prejudicing a member's opportunity for promotion. Ranks should reflect the level of responsibility and not specific detailed duties. The personnel concept of "Rank in the Man" should be used instead of "Rank in the Position." NFPA 1021, *Fire Officer Professional Qualifications*, should be used for determining the qualifications of personnel to fill any officer position.

5-1.2.6 Disciplinary Action. Disciplinary action should be administered by the fire chief and fire department officers rather than by outside agencies. Departmental regulations should describe the procedures to be followed in cases where disciplinary action is necessary. These should require officers of the department to take the initiative in disciplinary action for the successful administration of the department. There should be some relatively informal procedures for dealing with such matters as tardiness in attendance or in completion of routine duties or reports.

For serious violation of departmental regulations, such as willful violation of departmental regulations, formal disciplinary procedures should be adopted. An important objective of discipline is to maintain an effective level of performance by the members of the department. Good

leadership and management involves positive discipline and a minimum of punitive action. Outside boards of discipline sometimes exist because there has been a history of inept administration of disciplinary procedures. These are often cumbersome agencies which interfere with efficient management. If the department has its own well-considered procedures, including provision for appeal, most cases can be satisfactorily handled. Recourse to court procedures is available both to the department administrators and to any member of the department who may feel the disciplinary action is unreasonable. Performance rating systems are sometimes employed, but they should not be a substitute for directed leadership and positive discipline.

5-1.3 Personnel Records.

5-1.3.1 Personnel Record File. As soon as a new member is added to the department, a file should be set up for their personnel records. This file should include all papers with information about the individual person, including commendations and discipline records.

5-1.3.2 Ready Reference Record. The master file on each member of the department should be supplemented by a single sheet or card on which data is kept for ready reference. This data should include name, date of birth, height and weight, previous occupations, special aptitudes, work assignments, service records and records of performance at fire department training courses.

5-1.3.3 Attendance Record. Attendance records should be reported as a part of the procedures for preparing the payroll.

5-2 Selection, Promotion, Retirement.

5-2.1 Selection of Personnel. The same goals of personnel selection as outlined below can be achieved with equal or higher quality results at less cost by utilizing college pre-employment education and training programs. These college programs can provide personnel that meet education and training requirements, medical requirements and physical agility requirements before employment by a fire department. (*See Appendix C for a discussion of the College Program in Southern California.*)

5-2.1.1 Recruitment. The fire department should establish a recruitment program. It should be coordinated with procedures of municipal or other personnel or civil service agencies having jurisdiction. It must be in accordance with Federal and State requirements. It should be recognized that State regulations may vary and may be more restrictive than those of the Federal Government. The recruitment program should consist of the following steps:

(a) Conducting an active search for the best qualified persons available for membership in the department and encouraging them to apply for appointment. The recruitment process should include lateral entry of candidates meeting the respective qualification level as outlined in the Standards of the National Professional Qualifications System.

(b) Rejecting without examination candidates who show on their application form that they clearly fail to meet department standards for entrance.

(c) Interviewing each candidate and giving tests measuring aptitudes, physical agility and achievement motivation characteristics.

(d) Subjecting candidates to a thorough physical and medical examination which they should pass in order to fully perform fire department work.

(e) Investigating the character of candidates by interviewing former employers, personal references, neighbors, and others familiar with their record, taking fingerprints for police record checkings.

(f) Requiring applicants to complete an intensive program of work and training in the department's operations with a satisfactory rating. The rating should be based on reports from supervisors to whom they have been assigned and from the fire department training officer. A satisfactory rating should include passing an examination to discover the extent to which they have assimilated information on fire department practices and the extent to which they have responded to training and supervision. Any candidate failing to meet the qualifications should be discharged at this point.

5-2.1.2 Age. A maximum age limit should be specified for acceptance to membership on the fire department suppression force. This will provide personnel with acceptable physical qualities and mental flexibility. A maximum age limit should not be used for lateral entry candidates. A minimum age limit should also be specified to assure members who are mature physically and mentally.

NOTE: A maximum age limit may not be necessary if entry examinations are adequate.

5-2.1.3 Education. A high school education, or state recognized equivalent, should be required as a minimum. The wide variety of activities in which fire fighters now participate have made it desirable that recruits have higher levels of training and preparation than that which can be secured in elementary schools. It would be desirable that the high school requirement include English, public speaking and technical courses in physics, chemistry, algebra, plane and solid geometry and trigonometry. It is not practical to recognize experience in lieu of education because entry personnel for the fire service should be recruited at an early age which may limit their experience. Lateral entry personnel will bring higher levels of experience and training to the department. It is desirable to give preference to candidates that have taken Fire Science, Fire Technology and Public Administration college courses.

5-2.1.4 Character. The candidate's application should be required to give a full employment history and personal references. When candidates report for an interview or tests, photographs, fingerprints and signatures should be taken for identification purposes. The applicant's credit rating should be checked to eliminate irresponsible persons. Police and motor vehicle records should be obtained to eliminate anti-social behavior persons. The emphasis should be to delete poor candidates and to retain better candidates. Past personal history is a

strong prediction of future performance. However, the investigation of a candidate's background must be conducted in accordance with provincial and federal legislation.

5-2.1.5 Physical Requirements. Job related physical requirements should be stated in applications to eliminate candidates who are physically unqualified. A series of tests should be given after the medical examination to determine the applicant's strength, coordination, agility, dexterity and endurance. Samples of actual fire service tasks will provide job related physical requirement testing.

5-2.1.6 Medical Examination. The fire department should adopt job related medical standards unless those of a personnel agency serving it are adequate. It should require all applicants to pass an examination to reveal any physical handicaps, deformities, disease or organic deficiences which would prevent satisfactory performance of the duties of the specific position. It should designate the physical or medical facility which is to be responsible for the examination. All applicants should meet the medical requirements as outlined in NFPA 1001, *Fire Fighter Professional Qualifications*.

5-2.1.7 Testing. Job related written, oral and performance tests for aptitudes and intelligence should be given when such tests are available to the fire department. In most departments, aptitudes should be determined in a preliminary way at the time the candidate is interviewed, and from reports of supervisors and the training officer during a period of entry level or probationary training. Intelligence testing and measures of reading, thinking and deciding should be validated for job relatedness and freedom from illegal discrimination.

5-2.1.8 Adaptability. For a period of at least 12 months before permanent appointment to the department, applicants should be assigned to probationary training and supervision. Completion of Firefighter Levels I and II should be achieved before permanent appointment. Part of this same period should be assignment to a fire company for a test of how well they fit into fire department activities and routine. Written reports from their supervisors during this period and from the department training officer should be used to evaluate the cooperation and ability of the individual to be a successful member of the department.

Fire fighting is primarily a team function, especially in the case of a very large fire or emergency. Furthermore, the everyday life of a fire fighter is a group life and members must have a high degree of ability to get along with other people. It is desirable that the candidate work under at least three supervisors during probation and receive a satisfactory written rating from each supervisor before permanent appointment. Prior to permanent appointment, a review board composed of the employee's supervisors, should make recommendations as to the person's permanent appointment.

5-2.1.9 Appointment. Applicants should be kept in probationary status until all parts of the selection process are completed including the twelve month period of probationary training. The chief should dismiss any candidate at any point in the period of probation for unsatisfactory performance after reasonable written warning and notice.

The fire chief's authority may be limited to recommend action where a personnel agency outside the fire department has jurisdiction over probationers or where another agency makes the actual appointments. Where a pre-employment training procedure is not used, it often turns out that those who can meet physical and written tests for candidates cannot meet the actual performance requirements of department work. Many candidates voluntarily drop out when they find that they cannot handle the work during the probationary period. It is preferable to take advantage of pre-employment fire science courses and basic training academics before probationary employment is offered to a candidate. This is more equitable to the candidate and to the taxpayers.

5-2.2 Promotion. In addition to the traditional promotional program described below, fire departments should not overlook well organized and operated education programs available locally, regionally and nationally. Some of these may include community colleges, Universities, State Fire Academies and the (U.S.) National Fire Academy.

5-2.2.1 Promotion Program. The fire department should establish a documented job related personnel evaluation program for internal and lateral entry promotion to the various ranks. It should be coordinated with procedures of municipal or other personnel or civil service agencies having jurisdiction and should consist of the following steps:

(a) Preparing lists of members for in-service training for promotion to company officers, chief officers and to positions requiring special qualification.

(b) Arranging assignments so that officer candidates may have a variety of duties (in several companies or districts) and experience in various staff work such as fire prevention, training, maintenence and communications.

(c) Requiring a formal procedure whereby supervisors report on candidate's aptitudes, participation and ability to function as part of a company for the purpose of evaluating the candidates' qualifications for promotion. Evaluate lateral entry candidates for inclusion or rejection on merit.

(d) Requiring candidates to complete an in-service training program, based on a job analysis for each position, and the passing of an examination on such training. Lateral entry candidates may have already completed the required levels of preparation.

(e) Arranging assignments so that interested members may pursue courses for academic credit or college degrees at accredited and approved colleges and schools.

(f) Appointing candidates to positions after procedures of the fire department as well as those of personnel jurisdictions have been met.

5-2.2.2 Seniority. Seniority should never be the sole basis, nor a decisive factor, in promotion.

Some fire departments rely heavily on seniority as the determining factor in promotion. It is obvious that this has an adverse effect on members who have a capacity for more rapid advancement than their seniority would warrant or permit. At the same time, seniority may tend to push some members into positions beyond their ability with adverse effect to themselves, to the department and to the public. Seniority is recognized adequately if the fire department provides step raises of pay in grade. Older members do not need promotional credit as their exposure to more training and their experience can give them advantages over the younger members in promotional examinations. Where seniority is a major factor in promotion, ambitious individuals cannot consider fire department service as a career, nor will the interest of the public best be served by such a system.

5-2.2.3 Promotion to Company Officer. Internal and lateral entry candidates for company officer should demonstrate proficiency in the respective officer level to which they aspire as outlined in NFPA 1021, *Fire Officer Professional Qualifications*. In addition to service as a fire fighter, such candidates should have completed a significant tour of duty in at least one phase of staff work covering fire prevention, training, maintenance or communications. Questions in an examination for promotion, whether given by the fire department or a personnel agency, should be related to the principal duties of a company offficer which are:

(a) To act as leader and instructor of a small work unit of people and related equipment and vehicles;

(b) To respond to alarms to which the unit is assigned and to direct the operation of the unit;

(c) To have sufficient knowledge of fire strategy to be able, in the absence of a chief officer, to make a proper "size-up" or appraisal of a large emergency and assume initial command;

(d) To be familiar with the district to which assigned and to conduct and supervise inspections for fire hazards;

(e) To manage a fire station, supervising station maintenance, care of apparatus, and stores.

5-2.2.4 Promotion to Chief Officer. Internal or lateral entry candidates for chief officer should meet the respective designated officer level as outlined within NFPA 1021, *Fire Officer Professional Qualifications*.

5-2.2.5 Promotion to Positions Requiring Special Qualifications. Internal and lateral entry candidates for promotion to positions requiring special qualifications should have education and experience satisfactory to the fire department for the duties of the position. They should meet the requirements necessary for the effective performance of duties required of them. They should meet the professional qualifications of the specific position as contained in NFPA 1021, *Fire Officer Professional Qualifications*, NFPA 1031, *Professional Qualifications for Fire Inspector, Fire Investigator and Fire Prevention Education Officer*, and NFPA 1041, *Fire Service Instructor Professional Qualifications*.

5-2.3 Personnel Benefit Programs and Retirement.

5-2.3.1 Personnel Benefits. It is expected that personnel benefits programs normally available to the employees of the community will be extended to the fire service personnel.

5-2.3.2 Retirement Program. A retirement plan should be designed to aid recruitment by making the fire service more attractive to persons who might otherwise seek employment in private industry or in other governmental agencies providing retirement protection. The retirement plan should include vesting and reciprocity sections.

5-2.3.3 Compulsory Retirement Age. A job related compulsory retirement system should be considered. The system should discern ability to do the job in terms of mental and physical fitness, and the system should be enforced. It should not be confused with the voluntary retirement which is based on age and years of service.

It is important to recognize that age and ability, rather than length of service, are the important factors to be considered in fixing the time of retirement. A sound retirement system should provide for retirement on the basis of age, years of service, and physical and mental condition of members as related to the members' duties.

The annual medical examination furnished by the department can provide the basis for appropriate personnel decisions and actions.

5-3 Personnel Practices.

5-3.1 Personnel Relations. In the formulation of personnel standards, the fire chief should include the opinion of members of the fire department as individuals or as supplied by any employee organization where such exists. There should be procedures by which members may submit constructive suggestions and report grievances on working conditions. Members should also be consulted in the department's policies toward programs for the welfare of members such as group insurance, group medical and nursing care, credit unions, members' social and athletic clubs and recreational facilities. The practical reason for such consultation is that it helps in providing understanding and support for personnel standards and policies.

5-3.2 Continuing Dialogue. The fire chief should ensure that lines of communication are open within the department. Feedback from the ranks can head off a situation before it becomes a serious problem. A technique which can improve communications is the institution of an organizational development program which involves personnel in group communication and problem solving sessions. However, the best insurance for open communications is the attitude and example set by the fire chief.

5-3.3 Educational Programs for Department Personnel.

5-3.3.1 Scope. Educational programs for department personnel should be directed to all members of the department. They should be of a continuous ongoing nature capable of responding to changes in the commu-

nity's perception of the department. Departments should encourage and provide incentives for employees who continue their education to improve their fire science and management-related skills.

5-3.3.2 Objective. Educational programs should inform personnel of methods to communicate to the community served and to respond to their existing needs consistent with the objectives of the department. In addition, they should provide department members with the skills necessary to perform successfully in a rapidly changing fire service.

Chapter 6 Training

6-1 Functions of Chief and Staff Officers.

6-1.1 Functions of Chief and Line Officers.

6-1.1.1 Fire Chief. The fire chief is responsible for the training program of the department and should designate a chief officer to act in administering the program. The fire chief should budget for training facilities, expendable supplies, training aids, and training staff, including both in-house and guest instructors. The department should utilize training services provided by a state, provincial or regional training program where available.

For small departments, it may be possible to establish and staff a training facility for an appropriate region, such as a county. Such a training facility can be created by joint action of any group of departments. By joint contract or articles of association, the several departments can provide for the government of a joint facility. Each department supporting the facility would be expected to budget for its proportionate share of expenses for facilities, supplies, equipment and staff.

6-1.1.2 Chief Officers for the Line Organization. Battalion chiefs and other chiefs in the line organization should fully support and be required to see that the training activities as prescribed by the training officer are carried out within their respective commands. They should be required to coordinate training with other activities, to make reports on training done and to assist the training officer in evaluating the effectiveness of the program.

6-1.2 Functions of Staff Officers.

6-1.2.1 Staff Training Programs. The staff officers in charge of fire prevention, maintenance, communications and other staff bureaus should be responsible for special training needed by the personnel assigned to their particular staff function. They should coordinate this special training with the other programs of the department and with the training officer.

6-1.2.2 Assistance to Training Officer. All officers should assist the training officer in determining the subject matter, number of hours and other details of training related to their functions which must be given to all members of the department.

6-2 The Training Officer.

6-2.1 Responsibility for the Training Program.

6-2.1.1 Subject Matter. The training officer should recommend the subjects in which training is to be given. The program should be related to the personnel needs of the department, and should utilize all available resources within the community. See the NFPA-published Standards of the National Professional Qualifications System.

6-2.1.2 Training Schedules. The training officer should recommend the performance standards to be covered by the training program and develop schedules to assure that the respective members of the department meet the standards. Instruction should be either at the department's own facilities for training, in stations or at regional fire department training schools which may be available. There are often other facilities within the community that can be utilized for personnel training.

6-2.1.3 Effectiveness of Training. The effectiveness of department training should be continually evaluated by department staff, using fire critiques as an aid to such evaluation. At least annually, the program should be reviewed with a report to the chief suggesting new techniques or equipment for changing conditions. The training officer should witness operations at emergencies and at training sessions from time to time to determine progress and to see that training is uniform and that procedures are followed as directed.

6-2.1.4 Records of Training. Staff officers and company officers should make reports on training sessions to the training officer. The training officer should review statements of staff and company officers as to the performance of members of the department assigned to training under these officers. Performance records of members of the department taking instruction at a training school other than one operated by the department itself should be obtained. The training officer should evaluate the performance of members assigned for instruction at the department training facilities and should be responsible for seeing that proper records and evaluation of training completed are furnished to the chief for the personnel file of each member of the department.

6-2.2 Responsibility for the Department Training Facilities.

6-2.2.1 Training Staff Personnel. The training officer should be responsible for the work of department personnel assigned as instructors or assistants.

6-2.2.2 Training Equipment, Buildings, and Other Facilities. The training officer should be responsible for the operation of training equipment, fire service library, buildings, training aids and other facilities. Departmental rules should cover the use of shared facilities and equipment.

6-3 Company Officers.

6-3.1 Training of Company Members.

6-3.1.1 Company Officers. Company officers should be responsible for the training of members of the company assigned to them.

Members of a fire department are assigned to operating companies for most of their working periods. Most training must be done in company quarters, by the company officer, since the unit must work together as an effective team.

6-3.1.2 Training Schedule. Company officers should be required to complete the training scheduled, putting in the number of hours of training and covering the subject matter as developed by the chief and the training officer. They should coordinate the various daily company activities so that members assigned receive the scheduled training. They should be required to coordinate an individual's training with his off-days so that each man receives all required training in spite of sick leave and vacations. The training schedules of individual companies should be varied for effective use of available training aids.

6-3.2 Evaluation of Training.

6-3.2.1 Lesson Plans. Company officers should use lesson plans with a standard format so that each training session can be measured against a planned program of instruction.

Company officers should exercise versatility in using lesson plans varied according to the company's principal response district.

6-3.2.2 Evaluation. Company officers should periodically evaluate members assigned to their company, to determine that the training is actually effective and to provide a basis for evaluation of the performance of individuals.

6-3.2.3 Use of Experience at Fires or Drills. Company officers should evaluate the performance of assigned members at fires and drills for evidence that they are utilizing the techniques covered by the training program. Critiques of all company operations at fires should be held to discuss in general terms its performance as a team. Company officers should be alert to deficiencies of individuals or the company as a whole. They should repeat drill sessions as necessary to correct any deficiencies.

This requirement is one on which the training officer and chief should insist to avoid perfunctory training work.

6-3.2.4 Reports. Company officers should be required to furnish the training officer, through channels, reports on training sessions held, subjects covered and hours of training. Reports on the performance of members of the department receiving training should be made by the company officer and sent to the training officer for further evaluation.

6-4 Training Program.

6-4.1 Training of New Personnel.

6-4.1.1 Purpose of Training. New personnel should be given comprehensive training during the period they are required to serve as probationers. This should be a course of instruction for the probationer's personal safety and to make it possible for him to work effectively at fires. It should be a foundation for subsequent in-service training.

6-4.1.2 Subject Matter. The course of probationary training should be consistent with the performance objectives as stated for the designated fire fighter level within NFPA 1001, *Fire Fighter Professional Qualifications*.

6-4.1.3 Hours of Training. The course duration for new personnel instruction should be at least the minimum number of hours necessary to meet the performance objectives as stated within the designated fire fighter level of NFPA 1001, *Fire Fighter Professional Qualifications*. This entry training should be prior to serving as a member of a company during the probationary period.

6-4.1.4 Function of Training Officer. Probationary training should be under the direction of the training officer.

6-4.2 Training at Company Quarters.

6-4.2.1 Scheduled Training. At least two hours of each tour of duty (at least four hours where shifts are 24 hours) should be devoted to training activity. This activity should be in the form of classroom instruction, practice drills, familiarization inspection or pre-fire planning.

6-4.2.2 Function of Training Officer. The training officer should recommend the subject matter for each training session so that periodically all personnel in the department complete training in specified subjects. The training officer should generally supervise the training program and review and approve lesson plans prepared by company officers.

6-4.3 Group Training and Evaluation.

6-4.3.1 Purpose of Group Training. The group training should be provided to enable the training officer to evaluate the ability of each company group to properly use assigned equipment. It should be provided to update operating methods and to demonstrate, or provide practice, with new equipment or methods. It should also bring pumper and ladder companies together to enable the training officer to evaluate operations of companies as a group.

6-4.3.2 Training by Company Groups. Each shift of each company should be assigned to the training officer periodically for group training. This assignment should be for enough times, or a long enough single periods, so that each member can complete the program objectives.

Most fire departments have sufficient companies to meet this requirement.

6-4.3.3 Training Reports. Annually, or more often as appropriate, the training officer should furnish the fire chief with a report on the performance of each company in group training sessions.

6-4.4 Education and Training of Company Officers.

6-4.4.1 Making Education and Training Available. Courses for the education and training of personnel to meet minimum qualifications as company officers should be provided by the Training Officer. Of-

ficer candidates should be relieved of company duty for the hours during which such courses are given. Whenever possible the scheduling of such courses should not cause the member to miss regular training periods. Departments which do not provide comprehensive training courses should arrange for courses of training at any available educational institution or fire department training facility. See Appendix C.

6-4.4.2 Subject Matter. The subject matter of training courses should be designed to achieve the stated performance objectives within specific officer levels of NFPA 1021, *Fire Officer Professional Qualifications*.

Candidates should pass an examination on the above objectives as well as an examination on the complete training course. Candidates should be evaluated on the basis of their examination grades, class participation and in exercises to test their performance of officers' duties. See Appendix C.

This is primarily to measure the effectiveness of the instruction. These examinations and evaluations can serve the purposes of the fire department as part of the qualification for promotion, but where a separate personnel agency has jurisdiction, the candidate may also have to pass other examinations to satisfy the personnel agency concerned.

6-4.4.3 Function of Training Officer. The Training Officer should see that the subject content of courses for promotion is appropriate, handle the scheduling of courses, provide the necessary instructors and give the examinations. The training officer should also be required to advise the Fire Chief as to the candidate's overall performance in the training courses and in evaluation of the candidate's suitability for appointment as a company officer.

6-4.5 Other Training. Special and advanced training is desirable. Courses should be developed for individuals including special instruction and advanced training for all members to the extent that facilities, instruction personnel and time permits.

Examples are courses for prospective chief officers, chief officers' operators or aides, personnel for special duties and administration, fire prevention, fire investigation, firesafety education, communications and maintenance. Other examples are advanced courses for operators of pumps and special equipment and courses on advanced tactical operations.

Chapter 7 Operating Procedures

7-1 Organization.

7-1.1 Organizational and Operational Orders.

7-1.1.1 Principal Subjects of Orders. The fire chief should establish the organizational and operational procedures of the department by issuance of regulations and orders. These should be published and circulated to all department members.

7-1.1.2 Laws and Ordinances Which Are Basis for Orders. The fire chief should be governed in the formulation of regulations and orders by provisions of all laws or ordinances which apply. The chief should maintain a file of such documents.

Statutory law provisions by which fire departments may be organized include statutes such as the city charter or a special act under which the fire department area is created. In addition, there are provisions of the city or fire district which are expressed in ordinances, some of which apply to the fire department organization and operations. In some states and provinces, they include civil service provisions and provisions relating to working hours of members of the fire department.

7-1.1.3 Orders and Regulations. Departmental regulations and orders should be developed for the purpose of assuring uniformity of department actions and operations. Material circulated to members of the fire department for information should not be included in documents or communications identified as regulations or orders.

7-1.1.4 Departmental Regulations. Orders with which all members of the department are concerned should be identifed by general subject (codified) and published in a form appropriate for distribution. Such regulations should cover matters not requiring frequent changes and should be reviewed at least annually by a committee representing all department interests.

7-1.1.5 Special Orders. Orders which are special, in the sense that they apply to specific individuals or situations, should be in written form or otherwise appropriately recorded. The time that they should be preserved for record purposes should be included in such orders.

7-1.1.6 Channels for Orders. The departmental regulations should specify the channels through which orders are to be transmitted to maintain the effectiveness of officers directing operating units or companies, station, district and division jurisdictions. Officers having jurisdiction should not be by-passed in issuing orders, either for administrative purposes or at the fireground. Written orders should go through the established chain of command and it should be required that they be acknowledged in most cases. In reverse order, the chain of command should also be used for reports and other official communications from units to headquarters.

7-1.1.7 Handling of Orders by Companies and Other Units. The departmental regulations should require that all special orders issued in writing be read to members and that a roll call for this purpose be held when each working shift is coming on duty. The company or unit officer should maintain a file with such orders preserved consecutively. No order should be removed from this file unless it is updated or rescinded. All members should have access to the official order file of their unit. Orders should be periodically reviewed by the officers with the members of their units, and with company classes or meetings being held for that purpose.

7-1.1.8 Succession. Departmental regulations should state clearly the sequence in which all members succeed to command responsibility.

This is necessary to assure continuity of operations due to death, injury, disability or absence of individuals. Succession may include the designation "acting" in a different position or rank, but does not imply automatic reassignment or promotion.

7-1.2 Companies.

7-1.2.1 Identification of Companies. Personnel to respond to fires and emergencies should be organized in company units and appropriate related equipment assigned to such companies. The fire chief should determine what fire company units should be provided. All personnel except those assigned to staff units or those serving as chief officers should be assigned to a specific company unit.

The apparatus and responding personnel need to be designated so that they can be identified in orders for response. Such identification is necessary for the use of dispatchers and command/control at incidents. Good organization requires no more company units than actually are necessary. Too many small company units are produced if a company is organized for each of the pieces of special purpose apparatus a department is likely to have. It is the fire chief's responsibility to see that the best use is made of personnel and equipment and that the company organization provide as much as possible with respect to capability to respond to fire alarms and emergency calls in the community. The apparatus and related equipment assigned to an individual company may include equipment for use of company personnel responding from the station on the first alarm, pieces to be manned by off-duty personnel recalled and pieces provided as a reserve in case of breakdown of first-line equipment.

7-1.2.2 Responsibility for Equipment. Departmental regulations should specify the fire company officer responsible for all apparatus and equipment assigned to the unit including the care and specific maintenance of all such equipment. These should cover equipment both in active and reserve, records of use, tools and appliances assigned to it. The regulations should specify the regular inventory controls which should be exercised by the company officers.

7-1.2.3 Working Positions of Company Members. Departmental regulations should specify company officers as responsible for assigning individual members to the various working positions on the apparatus. They should require company officers to see that drivers, operators and other members have properly qualified under the department's training procedure for their assigned duties.

7-1.2.4 Training. Departmental regulations should specify fire company officers as responsible for training of members of their companies in use of all equipment and familiarity with hazards of serious importance apt to be encountered in their area. The operating methods and training routines covered in company instruction should be those issued by the department training officer.

7-1.2.5 Inspection Responsibilities. Departmental regulations should assign each company a district in which it is to be responsible for the programs of the department, including inspections. In such districts, the company officer should be responsible for familiarization with properties protected and its part in pre-fire planning operations.

7-1.2.6 Orders to Individuals. Orders addressed to individiual members of companies, particularly verbal orders or orders at fires or emergencies, should be transmitted through the company officers whenever possible. The company officer should transmit orders assigning personnel to assist another company, regularly or for an indefinite period. The officer to whom such personnel are assigned thereafter should issue orders to them for their return to original assignments. Such measures are essential to keep the chain of command functional, so that at any time each person knows to whom he is responsible and each company officer knows which personnel are at his direction.

7-1.2.7 Situation Reports. Departmental regulations should require the officer or member in charge of the first company to arrive at the scene of any fire or emergency to give a brief situation report to the dispatcher indicating the nature and extent of the emergency.

7-1.2.8 Run Reports. Departmental regulations should require the company officer to prepare a report on each run made, giving specified information. Company run reports should describe the location and nature of the fire or emergency and duty performed. They should include the names of the members responding with the equipment and the names of other members reporting for duty at the scene of the emergency to show what portion of the company strength is actually usable in the effective minutes.

The record of arrival time of all department units is particularly important. It is useful to show when fire station locations may be outdated by excessive response time. It helps to determine if notification arrangements are satisfactory for members on call and if their response is effective. Where companies are not required to report their arrival by radio, times stated may be approximate, but a rule requiring the situation report of first arriving company by radio is highly desirable. (*See 7-1.2.7.*)

7-1.3 Company Officers — Jurisdiction of Company Officers. Departmental orders or regulations should specify the jurisdiction of company officers so that they know at all times which personnel are under their direction and to which superior officer they are responsible.

7-1.4 Station Officers.

7-1.4.1 Station Officer in Charge. Departmental regulations should designate the officer, among those assigned to a station at a given time, who is to be responsible for each fire station and for the most effective use of the time of all the personnel assigned thereto. The chief officer having jurisdiction should be responsible for seeing that station officers in charge exercise proper management of their stations.

7-1.4.2 Apportionment of Company Duties. Departmental regulations should require the station officer to apportion the duties related to station and equipment maintenance among the companies sharing the station. Regulations should also require that the station officer and on-coming officers attached to the station meet at the changing of duty shifts for the purpose of coordinating duty assignments between the shifts.

7-1.4.3 Coordination of Company Activities. Departmental regulations should require each station officer to coordinate his company's activities to execute the various programs of the department, such as public education, fire prevention inspections, inspection of public hydrants and fire protection facilities, inspection of fire protection equipment in individual properties in the company inspection districts, training and pre-fire planning.

7-1.5 Chief Officers.

7-1.5.1 Designation of Chief Officer. A suitable number of chief officers should be designated and departmental regulations should provide that at least one of these is available to respond to direct operations at a fire or emergency. Such chief officers should supervise company training.

7-1.5.2 Battalion or District Chiefs. The assignment of Battalion Chiefs to specific districts should be considered whenever the number of companies makes it desirable or whenever geography makes long response distances. Department administrative regulations should indicate clearly the jurisdiction of battalion chiefs so that they know at all times what stations and company units are under their direction.

7-2 Duty Requirements.

7-2.1 Working Shifts.

7-2.1.1 Duty Periods. Departmental regulations should establish working groups or shifts so that a known proportion of the available force will have an on-duty status. This would include personnel assigned and present at a particular duty period. In departments where all or part of the force is volunteer or paid-on-call, a list of personnel required to be available for response for similarly defined duty periods should be provided.

7-2.1.2 Recall Status. Departmental regulations should define the recall procedure of all members. Procedures contemplated by the regulations should be periodically tested.

7-2.1.3 Defining when Duty Status Actually Changes. Departmental regulations should provide that individuals in on-duty status remain on duty until the individuals on the next duty shift are declared on-duty by the appropriate officer.

In general, these same arrangements may apply in departments which have volunteer or paid-on-call personnel. In all departments the duty roster should not be interpreted to automatically change duty status at a given time.

7-2.1.4 Responsibility for Temporary Assignments. Departmental regulations should indicate the on-duty strength to be maintained in each company. An appropriate officer should be charged with responsibility for making temporary assignments from one company to another and keeping records of the assignments. This officer may be the headquarters chief on each shift, a headquarters administrative officer or the battalion chief of each shift.

7-2.1.5 Administering Temporary Assignments. Departmental regulations should provide that no person should be temporarily assigned to another company for a substantial period. Any exchange of shifts between company members should require written approval of the chief or his designated administrative or personnel officer.

7-2.1.6 Relief Personnel. The working shift arrangements used in the department should be so chosen that all positions essential to effective operations are covered all the time. Because no working shift arrangements can always cover all positions at all times, relief personnel should be used to cover such vacancies.

For situations which occur frequently, the vacancies can be covered by individuals who are temporarily transferred from an off-duty position and paid where appropriate. Each department has its own history of vacancies which has to be reflected in the number of relief personnel budgeted for and employed.

7-2.2 Duty Regulations.

7-2.2.1 Duty Roster. Departmental regulations should provide for a duty roster and procedures for its maintenance. This roster should indicate the current assignments of every member of the department by name and rank. It should show assignments to staff work or special assignments, members on duty in companies assigned to respond to fires and emergencies, members on shifts or work groups, members off duty, members on regular leave or vacation and members on sick leave.

Response to fires and emergencies is haphazard without a duty roster and recognition of absences for sickness, vacation and time off.

7-2.2.2 Posting of Duty Roster. The master duty roster should be maintained at fire department headquarters. That part of the roster affecting companies and other units should be kept by the officers responsible for each unit and posted in unit quarters or fire stations. In departments with districts (battalions) or divisions, the district or division officers should maintain respective rosters for districts and divisions.

7-2.2.3 Personnel Officer. A personnel officer should be provided where the work involved in maintenance of a duty roster is beyond what the fire chief can do. Officers of each shift should be required to advise the fire chief or personnel officer, through channels, of assignments carried out and of changes in future assignments. The roster maintenance procedure should provide for consultation with officers of each shift regarding personnel regularly assigned to their platoon or group. Company officers, and district and division officers, in turn, for payroll purposes, should be required to report assignments carried out, report absences and the reason therefore, and for-

ward information as to sickness or other absences requiring modification of the regular duty schedule.

7-2.2.4 Vacations and Holidays. Departmental regulations should designate holidays and general vacation periods for department personnel. The roster maintenance procedure should provide for approval of the fire chief or personnel officer of the vacation and holiday schedule of every member and there should be a procedure for recognizing preferences of members for various time-off periods.

Vacations and holiday absences require adjustments in most work systems and an orderly procedure is necessary for keeping vital positions covered.

7-2.2.5 Absence Due to Sickness and Injury. Departmental regulations should set up a procedure for handling absences due to sickness and for avoiding unnecessary absences. The orders should specify that records of absence for sickness be entered in a medical file kept as part of the personnel file on each member. The fire department should prepare a program to promote physical fitness and health maintenance of all members.

The fire department should have one or more physicians on call for assistance in handling absences due to sickness and injury.

7-2.2.6 Seniority Roster. A fire department should keep a seniority roster. This should not be confused with the duty roster, the purposes of which are quite different. Seniority is used for ranking personnel for retirement, for order of authority, for direction of operations, for priorities in off-duty time and for other situations, details of which are not otherwise specified.

7-3 Response to Fires and Other Emergencies.

7-3.1 Response Orders.

7-3.1.1 Routine Response Orders. Response assignments or the equivalent should designate the assignment of company units and chief officers to fire and emergency calls, including those available as off-shift or out-of-city forces. The dispatcher at fire alarm headquarters should be responsible for knowing the location of all company units and chief officers and their availability for response to calls for fires and emergencies. The response assignment should be predetermined by fire department orders and should be available and used for instruction of all members of the department. Chiefs assigned to emergency duty should be held responsible for responding to fires and emergencies in accordance with the orders as shown in response assignments, and officers of company units should be held responsible for the efficient response of their respective units.

7-3.1.2 Preplanned Basis of Dispatch Orders. Orders to respond as shown in response assignments should be based on procedures developed by study of the situations for which response may be needed.

The response assignments reflect the work which is done in pre-fire planning and the planning for handling the emergency calls, the requirements for which can be anticipated. For all properties specifically covered by preplanned procedures, a separate response assignment is prepared. For properties such as those of residential or mercantile districts, response assignments based on the general response planned are prepared by zones or general locations. Where there are street fire alarm boxes, a response assignment is prepared for each box location. Even where there are no street boxes, points in the city may be given coded numbers identifying these points just as if street boxes were located at them. They are often described as "phantom" boxes. When telephoned alarms are received, it is usual to send response corresponding to the nearest street or phantom location.

7-3.2 Company Response — Deviation from Preplanned Response. The dispatchers should be given the response assignments showing the response schedule to be normally followed and instructions to use judgment, within departmental guidelines, when they observe conditions or a situation developing that requires modification of normal response.

The dispatchers can be given instructions to put into operation reduced assignments when an unusually high frequency of calls is experienced. The commitment of a certain percentage of companies on duty can be used as a yardstick to determine when this occurs. At a big fire, many calls are received which the operator cannot positively identify as additional fires. In such cases of doubt, he may be instructed to reduce first alarm response assignments. They can be furnished with special response schedules for certain areas during a brush or grass fire season. They should also be instructed as to the response which should be sent to calls out of the fire department area.

7-3.3 Response Requirements.

7-3.3.1 First Alarm Response. Individual response to a fire or emergency, usually described as first alarm response, should be a force able to perform something more than first-aid service. The exact response to be provided should be determined as a result of pre-fire planning which takes into account a large variety of conditions.

Where the water supply is such that water for fire fighting must be either trucked or supplied by pumpers in relay, additional pumper or mobile water supply apparatus should be provided in the initial equipment assignment.

7-3.3.2 Multiple-Alarm Response. When a fire or emergency requires forces additional to those responding on first-alarm, the exact response should take into account all foreseeable conditions as developed by actual pre-fire plans. Second-alarm response should ordinarily be equal to the first-alarm response but as a general rule this may be modified in plans by certain locations, times of day and other conditions.

7-3.3.3 Disaster or Unusual Emergencies. For unusual emergencies requiring the calling of large numbers of companies, and where such forces are available, the response orders should provide for calling companies in groups. It should be necessary for the chief at the fire emergency to give only one signal to the dispatcher for response and the dispatcher should have to

give only one signal to advise such companies of the required action.

7-3.3.4 Response of Off-Shift Forces. Situations for which recall of off-duty personnel is required should be defined in department regulations; and how it is to be accomplished should be stated.

7-3.3.5 Response of "Out-of-City" Forces. When companies from another municipality or fire district are to be employed in a response, a legally acceptable relationship should be established between the parties. Where out-of-city forces are utilized, they should be provided with adequate personnel and direction.

7-3.3.6 "Covering" Response. Procedures should include provisions for redistributing available companies within the community in such a manner as to provide the best possible protection in the event of calls additional to the first. Intelligent scheduling of response from and to designated stations can do much to give the fire department area the best coverage by available companies at all times.

Chapter 8 Emergency Management

8-1 Purpose. Emergency management may involve operations which vary considerably in their complexity and scale. The control of these incidents depends on the planned, systematic implementation of an effective fireground organization to accomplish identified objectives. Every fire department, regardless of size, needs a sound system to regulate and direct emergency forces and equipment at both routine and major incidents. On the basis of experience with large-scale brush fires and other studies, incident command systems have been developed.

Fireground command systems, designed to provide a standard approach to all types of incidents, have been developed and implemented by many fire departments. A basic principal of these systems is the incremental approach to building a command structure, starting with the first officer arriving at the scene of an incident The development of the command structure should coincide with the commitment of emergency forces to deal with the situation. There are differences in the specific methods used by fire departments throughout the country but the essential operational objectives remain consistent. The main distinguishing characteristics of the various incident command systems currently employed involve terminology and specific details of organization structures. The following summary describes the basic principles of fireground command systems and the development of effective fireground organizations. It also identifies the essential interrelationships among the different components of command structures.

8-2 Establishing Command. The arrival of fire department officers at the scene of an incident seldom coincides with the structure of the organizational hierarchy. Higher ranking personnel usually arrive after initial responding units have arrived and initiated operations. This results in the upward transfer of command responsibility to successively higher ranking personnel as the scale of an incident grows. For this reason, the first fire department unit or officer to arrive at the scene of an incident must assume the responsibility of command until relieved by a higher ranking officer. As the first link, that individual is responsible for initiating and developing an unbroken line of authority between the officer-in-command and those being commanded, while establishing a foundation of decisions that will interface with those of his/her superiors.

Upon arrival, the person assuming command should transmit a brief initial radio report to the alarm communications center. The message should identify the unit on the scene, confirm assumption of Command, describe the building or area involved, state any obvious fire conditions and describe the course of action initiated by that unit or company. In addition to this, the first officer to arrive must establish an effective command position, rapidly evaluate the situation (size-up), develop an action plan, assign other incoming units and, if necessary, call for additional assistance.

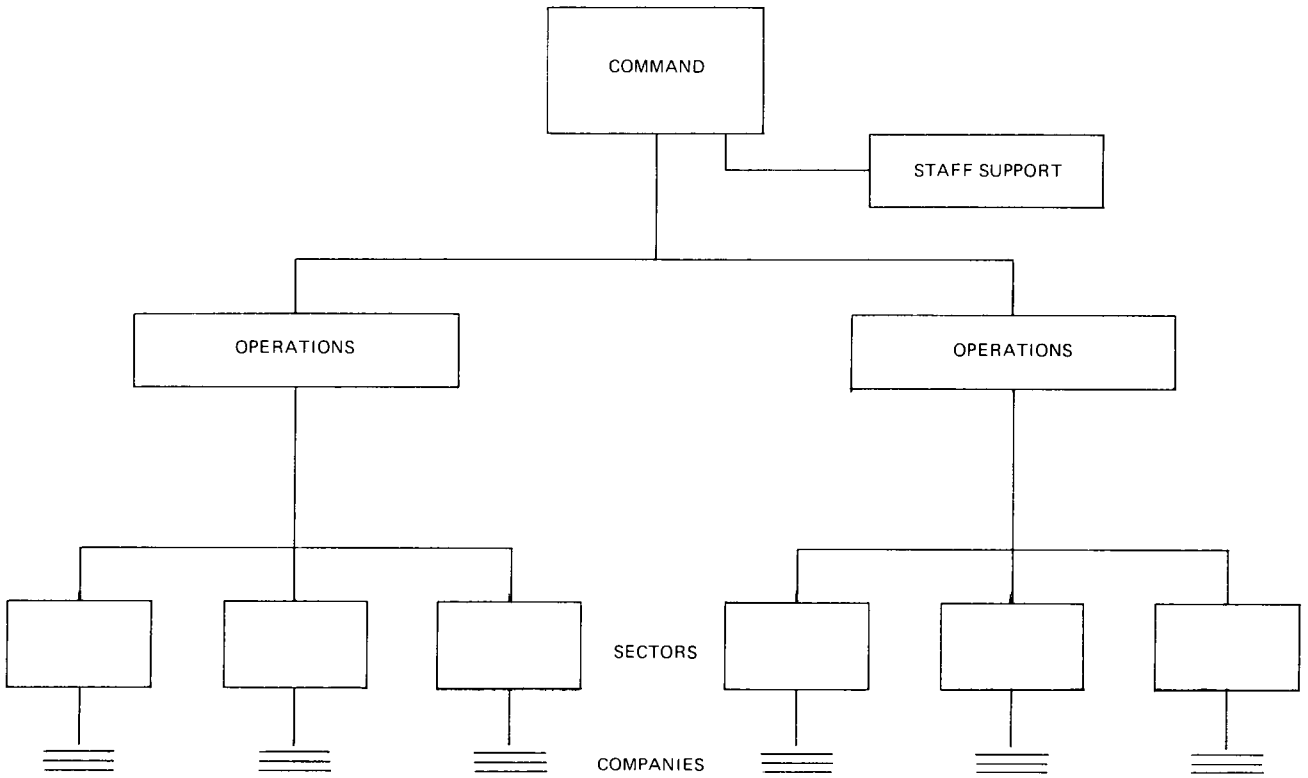
Later arriving companies, unless given a specific assignment, should automatically go into a standby or staging position. These units should stop short and remain uncommitted about a block from the scene until assigned by the Incident Commander. Staging positions should take into account access to potential operating positions, water supply and traffic conditions. The primary emphasis is to avoid the independent commitment of companies to tasks or positions which conflict with the Incident Commander's objectives. Once the initial command responsibilities have been completed, the Incident Commander should begin obtaining progress reports from operating units and begin to evaluate efforts. The initial action plan should then be revised or refined as necessary.

8-3 Transfer of Command. On a typical first alarm assignment, the chain of command is usually transferred on the arrival of a chief officer. The officer being relieved should be prepared to provide the superior with an assessment of the general conditions and tactical priorities, where companies have been assigned, what companies are available for assignment, and whether additional resources are needed.

Ideally, transfer of command involves face-to-face contact, but it may be accomplished by radio. The arrival of subsequent chief officers does not result in an automatic transfer of command. The identity of the officer-in-command may change during the course of an incident but the continuity of the command responsibility is maintained. The officer-in-command should remain at an identified command post location and use the radio designation of "Incident Command" (or IC) to avoid confusion.

8-4 Command Options. The situation faced by a company officer assuming initial command of an incident will dictate an operating mode in each case. The basic options available to that officer are:

(a) Nothing Showing Mode—The first arriving company officer investigates while all other units stand-by in



Model Command Structure

staging positions. The company officer assumes command responsibility.

(b) Fast Attack Mode—The first arriving company officer assumes command responsibility while leading an initial fast attack to stabilize the situation. This mode is effective when fast action is critical and will control the situation within a short duration.

(c) Command Mode—The first arriving company officer identifies a large complex situation and assigns resources while setting up a command post operation from the outset.

In each case the company officer assuming command is fully responsible for the identified tasks assigned to the command function. The degree of personal involvement in tactical actions varies in each mode.

8-5 Command Structures. The Incident Commander must delegate responsibility to others in order to personally concentrate on overall strategy. Therefore, as an emergency escalates, the number of staff and command positions will increase.

Developing a command organizational structure should begin with the implementation of initial tactical control measures. The size and complexity of the organization will be determined by the dimensions of the particular situation.

A model command structure for a large scale emergency should include four (4) levels of command plus staff support.

8-5.1 Command Level. This includes the functions necessary for overall control of operations and identification of strategic objectives. It is normally staffed by the highest ranking officers.

8-5.2 Operations Control Level. This provides an organizational element which may be implemented when Command finds it necessary to group tactical objectives together for coordination and to maintain span of control. This level is crucial at large scale incidents to provide coordination among sectors, and should be staffed by experienced command officers reporting directly to command.

8-5.3 Sector or Division Level. This provides the immediate tactical level that concentrates on more specific operating areas or functions to meet operational objectives. Several fire companies may be assigned to each sector or division directed by an assigned officer.

8-5.4 Task or Company Level. This level refers to evolution oriented functions at a company level. Each company officer supervises the efforts of a crew, under the direction of a sector or division officer. The combined efforts of these crews achieve the objectives of overall strategic plans.

8-5.5 Staff Support. Specific positions may be added to the Command structure as needs arise. Specific personnel should be designated to serve directly under command as "staff" or "aides." This is meant to relieve the

Incident Commander of the responsibility to supervise auxiliary activities not directly involved in the supervision of the emergency, and to provide detailed or specialized information that may directly support command functions or fireground operations. These positions may be filled by a variety of personnel, depending on the situation and specific needs.

8-6 Deployment of Resources. The responsibility for assigning fire companies at an emergency belongs to the Incident Commander, who must establish priorities and assign units based on identified objectives. Normally on a first alarm response, the first engine company and truck company will respond directly to the front of the emergency, while other responding units will stand by or stage until assigned to a particular task. Whenever an emergency situation demands extended operational activities, additional alarms should be effected to provide reinforcements at the scene and a reserve supply of personnel and equipment.

To avoid unnecessary confusion at complex field situations all responding multiple alarm companies should gather in a specific area designated by the Incident Commander. This formal staging area should be away from the emergency scene in order to provide adequate space for assembly of all responding apparatus. The first officer to arrive in this designated location should automatically assume control of the staging area. This officer will maintain an accurate log of available companies and, when requested by Command, verbally assign companies to report to specific sectors, divisions, or functions, telling them where and to whom to report.

8-7 Disaster Planning/Multi-Agency Coordination. It is a reality that communities survive disasters. Emergency procedures and guidelines are necessary to minimize death and injury and to ensure safety of the workers that are needed to manage the emergency.

8-7.1 Disaster Situations. A disaster plan should be broad enough to encompass all situations which a community might face. These could include: conflagrations, earthquakes, floods, nuclear war, nuclear generating plant accidents, transportation incidents (vehicle, railroad, aircraft, marine vessels), gas explosions, toxic material spills, tidal waves, hurricanes and any other event that would require multi-agency action to preserve life and property and to facilitate recovery from the event.

8-7.2 Organization for Emergency. The emergency organization requires a disaster plan. The disaster plan should have three parts: Planning, Decision Making, Operations.

8-7.2.1 Planning. The planning process should identify the potential problems, formulate objectives, determine resources required, review alternatives, select an action plan and implement that plan.

8-7.2.2 Decision Making. This part of the plan should isolate specific problems, gather specific information, and evaluate alternative solutions. The best solution should be chosen and an action plan implemented for the specific problem.

8-7.2.3 Operations. The operations part of the plan will list the purpose, policies, objectives, responsibilities, procedures, resources and a check list. Specific strategies should be selected to manage hazards based on the situation information received and adoption of methods to be used.

8-7.3 Authority to Act. The authority to take actions to protect lives and property and to preserve the well-being of the community will be in (a) federal laws, (b) state or provincial laws, (c) county laws and ordinances, (d) city laws and ordinances. These should be researched and included in the plan.

8-7.4 Coordination. Local disaster plans should be coordinated with county and state emergency plans as well as plans by federal agencies such as the Federal Emergency Management Agency.

8-7.5 Emergency Functions. The following emergency functions should be considered in the development of a disaster plan.

(a) Law and order
(b) Communications
(c) Public notification
(d) Fire protection
(e) Rescue
(f) Ambulance
(g) Engineering
(h) Public works
(i) Public utilities
(j) Private utilities
(k) Health and medical
(l) Emergency welfare services
(m) Personnel
(n) Finance
(o) Damage assessment
(p) Transportation
(q) Emergency public information
(r) Shelter (natural or nuclear)
(s) Legal
(t) Radiological defense
(u) Multi-agency cooperation.

8-7.6 Incident Command System. A model incident command system has been developed to manage all types of emergencies and all sizes of operations. The Federal Emergency Management Agency (FEMA) has assisted in the development of the National Interagency Incident Management System (NIIMS). This provides a standard terminology and methodology for accomplishment of similar functions for any agency and any type of operation. Information on NIIMS is available from the National Fire Academy, Emmitsburg, MD.

Chapter 9 Emergency Medical Systems

9-1 Introduction. Since the passage of the Emergency Medical Service System (EMSS) Act of 1973 (PL93-154) Congress has mandated that emergency medical care must utilize the "systems approach" for the provision of emergency care. The fire service has taken on a new and much broader meaning. Formerly all emergency services were designed and developed for ambulances and the local hospital emergency room. Since the passage of the EMSS Act, many fire service agencies have taken on the responsibility of supplying emergency medical care (EMC).

It was the intent of the Emergency Medical Service System Act of 1973 to deliver emergency medical services on a regional level. It is a comprehensive approach that involves all the component resources available to contribute to an effective EMC system.

9-2 Resources. The resources needed to provide an emergency medical care system may include any combination of both public agencies and private organizations cooperating to reduce the frequency of death and injury in their regions.

One of the most available component resources in all regions is the fire department. The local fire department is a natural source of medical aid responsibility with a sizable body of reliable, trained personnel operating in an existing command structure, possessing vehicles and communications and located throughout the community.

9-3 Involvement. Fire department involvement in EMC can vary from one region to another and can include operations of a communications and dispatch network, training of personnel in basic life support, operations of emergency medical technicians, and can provide first responders such as engine and/or ladder companies. The fire department can provide basic life support units with or without patient transportation, advanced life support units involving fire fighter/paramedics or civilian paramedics, public education in blood pressure screening and training programs, and training the public in cardio-pulmonary resuscitation (CPR). The pre-hospital care and transportation components of an EMC system may involve a variety of services and a variety of resources. Fire/police volunteer ambulance, private ambulance, municipal ambulance and hospital ambulances can band together to provide the most efficient cost/effective delivery system. The pre-hospital and transport phase of the EMC system is enhanced by the use of helicopters that are publicly or privately operated and can quickly deliver medical personnel and supplies to an incident scene as well as provide transportation of the patient to an acute care medical facility.

9-3.1 Command. The fire department is usually the first to arrive at the scene and the first to establish command. The capability to establish and maintain medical control as well as overall command of the incident is desirable operating and logistics objectives. The extent to which command can be established and maintained depends on the level of involvement and training that the fire department has in the regional EMC system.

9-3.2 Pre-Hospital Care. The fire service role in the system is limited to the pre-hospital care system and has contributed to advancements in extrication, communications and transportation techniques. If the patient's chances for survival are to be improved, the following services should be available:

(a) First arriving personnel should be EMT-1 trained to begin stabilization of medical conditions.

(b) A properly trained mobile intensive care unit with personnel arriving quickly.

(c) Proper equipment for transportation for acutely ill or injured patients.

(d) Proper direction of the pre-hospital team usually from a base station radio at a hospital by a specially trained nurse or physician.

9-3.3 Advanced Care. If the fire service is responsible for the Mobile Intensive Care Unit, commonly accepted as Advanced Paramedics (EMT-3), the following need to be available.

(a) Personnel — at least two paramedics with approximately 1000 hours or more of training, arriving by ambulance or by fire department vehicles such as engine companies or ladder companies.

(b) Ambulance — equipped with complete medical and communications equipment and equipment for rescue and extrication.

(c) Field Drug Kit — carried by paramedics containing all medicines, I.V. equipment, airway equipment, splints, bandages for the most acute injuries and illnesses including an obstetrical kit.

(d) Monitor Defibrilator — portable battery powered, capable of monitoring and defibrilating patients in the field.

(e) Communications equipment — capable of voice and telementry (EKG) communications with the base station hospital through a portable transceiver and modulator.

Chapter 10 Community Relations

10-1 Promoting Community Understanding of the Fire Department.

10-1.1 The Fire Department's Program to Earn Community Understanding and Cooperation.

10-1.1.1 Community Awareness. The fire department should apply special effort to earn a reasonable share of community attention through a positive community relations program. Such a program should be a continuing effort and should be a persistent, well-planned and well-organized activity to promote community understanding and appreciation of fire department services.

Community relations is a management function which identifies fire department activities with the various interests of the public. The fire department must justify their programs and resource needs with respect to other

municipal departments equally deserving attention of the public.

10-1.1.2 Management of Community Relations. The fire chief officer of every department should establish and maintain the program of community relations. Because of the nature of community relations, the fire chief should personally oversee the program. The overall effectiveness of the program is generally a direct reflection of the administrator's participation in the program. Whenever possible, a staff specialist should be assigned the responsibility for developing and implementing an organized program with its own objectives, timeframes and evaluation measures.

10-1.1.3 Participation of Fire Department Personnel. There should be a full understanding of the department's organization and functions by department personnel and of what each is expected to contribute to the department's program. The department should be administered with community awareness in mind, and the community relations program should be one in which all members of the department participate. Community relations begins with the conduct and appearance of individual department members. A vital part of a good program is the manner in which the personnel appear to the public both on duty and off duty, its attitude towards all citizens of the community generally, but especially during home fire prevention inspections and fire fighting operations.

10-1.2 Relations with the Community.

10-1.2.1 Service Needs. The department should attempt to identify the service needs of all segments of the community and perform these services for all citizens without discrimination.

10-1.2.2 Socio-Economic Makeup. In an effort to reflect the socio-economic makeup of the community, the department should actively recruit department candidates from within the community and all of its political subgroups.

10-1.2.3 Understanding. The department should promote public understanding through active liaison with its various citizens groups. Examples of which are: the Chamber of Commerce, service clubs, Parent Teachers Associations, senior citizens organizations, youth groups, ethnic groups and neighborhood associations.

10-1.3 Relations Within the Municipal Government.

10-1.3.1 Governing Boards. The fire department's program should make sure that the members of the municipal council, board or commission (or governing body of its fire district) are kept fully informed of the department's achievements, operations and problems.

It is important that governing bodies provide the fire department with an organizational setup which makes possible good public relations, and the financial support for these activities. It is first a matter of placing the administration in the hands of an officer who is free to apply such techniques. This requires selection of the best qualified persons, not only for the fire chief's position, but for all the other positions in the department as well.

10-1.3.2 Municipal Executives and Employees. The fire department should carry out its public relations and educational programs in such a way as to strengthen the position of all departments of the municipality with which it may be associated. The chief municipal executive (mayor or city manager), heads of principal municipal departments and municipal employees generally, should be kept informed of the fire department's operations and programs. Municipal department heads should be consulted in all programs which may affect their departments or where support of their departments may be helpful. The various planning agencies, water and building departments should receive particular attention.

A fire department is most commonly only one department in a municipal organization.

10-1.3.3 Intermunicipal Relations. Fire department public relations programs should be coordinated with those of neighboring communities especially as to the timing and scope of effort of education campaigns. They should also be tied in with area, county and state-wide fire protection activities and fire prevention programs, but it should be remembered that the main objective is to tell "the fire department story."

Public relations work has intermunicipal aspects, since the work of each fire department tends to support the others.

Chapter 11 Public Firesafety Education

11-1 Purpose. The majority of fires and fire-related deaths and injuries occur in residential occupancies which are more difficult to inspect because of social resistance. Fire officials now agree that public firesafety education is the most effective way to reduce these incidents. While firesafety education has been a part of fire service operations for many years it is only recently that it has become focused and emerged as a major component of fire protection management.

11-2 Firesafety Education Function. The firesafety education objectives focus on providing citizens with information to help them guard their own safety and property from fire. This differs significantly from the community relations objective of promoting community understanding and appreciation of fire department services.

11-2.1 Placement of Function in the Organization. The responsibility for public firesafety education should be under the direct control of the fire chief.

11-2.2 Staffing for Public Firesafety Education

11-2.2.1 Staff Officer or Specialist. The fire chief should appoint a public firesafety education officer to coordinate all firesafety education programs. This officer or specialist may also serve as spokesman for the depart-

ment if assigned the community relations responsibilities as well. The appointment provides for continuity and responsibility for the firesafety education function. The appointed officer should meet the professional qualifications of the position as contained in NFPA 1031, *Standard for Professional Qualifications for Fire Inspector, Fire Investigator and Fire Prevention Education Officer.*

11-2.2.2 Firesafety Education Committee. While a fire department can make effective contributions working alone, it should enlist the cooperation of individuals in the community. A community committee adds enormously to the staffs and resources available to do firesafety education work. This group may have administrative and/or policy responsibility.

11-2.2.3 Firesafety Education Planning Team. This group can be composed of representatives of the community and/or members of the fire department. It usually has staff responsibility for carrying out the program if there is no staff officer or specialist assigned.

11-3 Promoting Community Understanding of the Danger of Fire and its Potential for Injury.

11-3.1 Securing Community Cooperation.

11-3.1.1 Information Services. The fire department should provide for a flow of information to the citizens of a community to help them increase their firesafety awareness. All outlets for dissemination of information including neighborhood, ethnic, social and youth groups should be used.

Active concern for and understanding of the hazards of fire by the public is necessary for the success of fire departments. The great body of reports of individual fire departments confirms this. In a majority of cases, a significant factor contributing to the cause or spread of fire is human failure—failure to recognize hazards and take adequate preventive measures, failure to act intelligently at the outbreak of fire and failure to take action which would limit danger. The problem of personal firesafety is particularly acute. In an emergency, inspiration is seldom a substitute for forethought.

11-3.1.2 Consulting and Inspection Services. The fire department should offer consulting and inspection services tailored to best fit the needs of the various properties making up the community. The department should analyze the problem of reaching people in the homes, stores, institutions, industry and other groups in a community to determine how best to inform each group about the fire department services performed for them. Its community relations program should lay the foundation for citizens cooperation in the cases where the fire department must enter property for inspections by making sure that the purpose of the inspection is understood.

11-4 Firesafety Education Program Process. The same elements that produce sound fire service management planning also should apply to public firesafety education. These five planning steps or elements should be institutionalized and become a cyclical process which is completed every three to six months. Further information on the program process can be found in IFSTA Public Fire Education Manual; see Appendix B.

11-4.1 Identification. This step involves identifying important local fire problems so that the education effort can focus on them. This includes gathering information on high risk locations, victims, behaviors and hazards.

11-4.2 Selection. The selection step involves inventorying community resources, available materials and potential audiences then selecting the appropriate objectives that meet the community's needs and resources.

11-4.3 Program Design. The activities of design involve determining the content and format of the message and packaging the program for delivery to the community or high risk population.

11-4.4 Implementation. The fourth step includes producing and distributing materials, training personnel and involving the target audiences in the education process.

11-4.5 Evaluation. It is necessary to measure the impact of the program by comparing baseline (pre-implementation) and data after program completion on fire deaths, injuries, property losses and incidents. Pre and post program data on awareness, knowledge and behavior in the community should also be compared to determine the success of the program and how the program can best be modified for future implementation.

11-5 Techniques and Media Utilized in Message Delivery. The following are only a sampling of techniques available. Further information can be found in "A Guide to Fire Education Resources"; see Appendix B.

11-5.1 Mass Media. The fire department should use all the media of mass communication: newspapers, magazines, newsletters and house organs, radio and television stations, billboards and car cards.

Use of mass media is the basic approach to public education. More people can be reached by these means than any other. Distribution of educational literature, displays and exhibits also effectively reach large numbers of people.

11-5.2 Specialized Media. Recent improvements in data collection and analysis now allow pinpointing of neighborhood fire problems. Narrowly targeted campaigns are designed to utilize direct mail, face-to-face and telephone contact. These specialized campaigns have generally proved to be more effective than mass media campaigns.

11-5.3 Meetings and Talks. The fire department should provide speakers with demonstrations and films for the presentation to community organizations in as large numbers as resources will allow. However, it is important that subjects of such presentations correspond with the department's current firesafety education objectives.

11-5.4 Home Inspections. The fire department should organize a program of private home inspections. The approach should be an educational one designed to point out existing hazards with suggestions for their elimina-

tion. Such a program accomplishes direct elimination of fire hazards and has important educational aspects. Smoke detector information should be strongly emphasized as part of home inspection programs. During the inspection, pointers on other firesafety practices may be given. The program can possibly be staffed by volunteers or senior citizens and/or handicapped individuals. All home inspection personnel should be trained by and report to fire department officers.

11-5.5 Educating Children. Since children receive most of their formal education in schools, the elementary and secondary schools should be the focal point of their education and training in firesafety. The fire department should ensure that local schools are adequately supplied with information and materials. Pre-packaged programs such as NFPA's *Learn Not to Burn®* and the Project Burn Prevention program provide comprehensive, educationally sound curricula for grade levels kindergarten through high school. The fire department's responsibility is to convince local schools and school districts to institute such programs, help raise funds for materials and provide a fire fighter for classroom visits and assemblies to reinforce program messages. Smoke detector information programs are especially successful with school programs that utilize children to carry information home to share with their parents.

11-5.6 Employee Instruction. The fire department should encourage and assist industrial and commercial firms in instructing employees in fire-safe practices on and off-the job. It should also see that special efforts are made in hospitals, nursing homes, schools and other occupancies where a high life hazard may be involved. The minimum instruction is that all workers should have procedures explained to them as to how to use exit facilities and turn in a fire alarm. The fire department should encourage instruction by getting private firms and organizations to provide classes, demonstrations, bulletin board displays of posters and information material, folder distribution and publicity in house organs published for the employees. Fire exit drills should be periodically held where practicable.

11-6 Use of Special Dates to Promote Programs.

11-6.1 Fire Prevention Week. The fire department should make effective use of the nationally observed Fire Prevention Week, which annually is the full calendar week including October 9th, the date of the great Chicago Fire of 1871. The Fire Prevention Week campaign provides an opportunity to emphasize the year-round need for attention to firesafety and calls attention to current departmental programs such as smoke detectors.

11-6.2 Spring Cleanup. Spring cleanup campaigns should also be used. The fire department should make sure that firesafety is emphasized in any general program of home and civic beautification which is sponsored in the community.

A thorough cleaning out of rubbish and trash in homes, commercial establishments, and industrial plants is the objective of these campaigns.

11-6.3 Holiday Periods. Other seasonal opportunities to stress particular fire prevention messages should be undertaken by the fire department. At Christmas, information about the proper handling of Christmas trees, decorations, lighting sets and wrappings should be given. This is also a good opportunity for the fire department to recommend giving smoke detectors as Christmas presents. Fireworks hazards should be emphasized on the Fourth of July and other holiday periods when fireworks are used. Halloween is a time when parents should be alerted to the hazards of flammable costumes and sources of ignition, like bonfires and candles.

Chapter 12 Code Enforcement

12-1 General. Fire prevention is one of the major areas of responsibility for a fire department. Almost every major fire disaster underscores the need for good fire prevention. The fire chief is given the legal responsibility to establish and maintain fire and life safety throughout the community. Ultimately, the citizens depend on the fire chief to ensure that they are protected against the dangers of fire, panic, explosions, and other hazardous conditions which may occur within the jurisdiction or district.

12-2 Legal Authority.

12-2.1 Codes and Ordinances. The first task for an effective fire prevention program is the adoption of comprehensive fire and life safety laws. Many federal, provincial and state laws have direct impact on local fire departments. It is imperative to contact responsible legal authorities to determine the current status of the laws.

Some states or regions have pre-empted local authority by adopting laws for care facilities, schools, assemblies, high-rise buildings and other critical life safety occupancies. Notwithstanding, the fire chief must determine how his authority interfaces with other federal, state, provincial, and political subdivisional agencies. Once this has been determined, the local fire department should select and initiate the adoption of a complete local fire code. Most fire departments adopt one of the model codes which are developed by private code and standard development organizations. Sufficient time should be taken to carefully review each model code before adoption to ensure it meets the needs of the community. Model codes may be amended to adjust for local concerns and needs. The fire department should work closely with the local legal authority to draw up the adoptive ordinance for the code. It is critical that the public have an opportunity to review and comment on the proposed code before adoption.

12-2.2 Special Ordinances. In addition to codes, many communities have identified selected fire protective measures which are adopted by local ordinances. Some of the more predominant ordinances are listed as follows:

12-2.2.1 Fire Sprinkler Ordinances. Some communities have determined that certain types of occupancies, or buildings exceeding a specific square footage of floor area, should be required to install automatic fire sprinkler systems. Some communities have even gone as far as requiring automatic sprinklers in all buildings including residential buildings. The rationale behind such an ordinance is usually based on the amount of fire suppression services available and/or the amount of water available for fire operations. Therefore, a sprinkler ordinance would require automatic sprinklers to build in the protection rather than completely relying on fire suppression services. Such provisions have a direct impact on the size and cost of providing manual suppression forces. (*See 2-2.3, Master Planning.*)

12-2.2.2 Smoke Detector Ordinances. This type of ordinance is strictly based on life safety for residential living in apartments, hotels, motels, condominiums and single dwellings. Properly installed and maintained smoke detectors drastically reduce loss of life due to fire. This is the most cost-effective fire protection available and fire departments should be active in ensuring detector protection in all residential-type occupancies. Smoke detector ordinances should be retroactive for existing occupancies and for all new occupancies. Most model building codes currently require detectors in new residential occupancies, but local laws can make smoke detector requirements retroactive in order to protect the health and safety of the community.

12-2.2.3 Fire Lane Ordinances. In densely populated areas, and where large buildings are constructed, fire access roadways are frequently required to provide access for fire suppression vehicles. Fire lanes may become blocked or obstructed due to vehicle parking or storage. Some communities have developed fire lane parking citation ordinances to keep access roadways clear.

12-3 Enforcement Personnel. In the past, most fire prevention activities were limited to a small nucleus of full-time specialists who might be civilian or uniformed personnel. While it is still necessary to maintain full-time fire prevention personnel, the responsibilities of the fire department are greater than can be performed by specialists. Fire suppression personnel have been increasingly active in inspections and code enforcement. With proper training and support, suppression personnel are effective in performing code enforcement inspections. It is imperative that all fire personnel realize that education and prevention are part of the fire fighter's responsibilities.

12-4 Enforcement Administration.

12-4.1 Fire Company Inspection. The concept of utilizing fire companies for fire prevention inspection duties has been widely used in the fire service for the past decade. This practice has greatly expanded the ability of the fire chief to maintain fire and life safety in a broad range of critical occupancies. The fire chief can utilize most of the fire department personnel by incorporating fire prevention duties into fire company activities. In order for this concept to be effective several basic rules must be followed:

(1) The fire chief must thoroughly understand and fully support the concept.

(2) Each fire company member should receive adequate training on inspection procedures, basic code understanding, and departmental policy.

(3) Fire company inspection manuals should be developed and issued to all personnel to give general code violations and inspection procedures.

(4) Geographical areas of responsibility should be assigned to each fire company. These areas may correspond to first alarm suppression districts.

(5) Full-time fire prevention personnel should be assigned to assist the fire companies.

(6) Priorities should be established as to what occupancies are critical for life safety inspection (i.e., hospitals, schools, etc.).

(7) Fire companies must be held accountable for completion of their assigned responsibilities.

The advantages to this type of program include increased productivity for fire companies and more contact with the public. The ability to inspect far more occupancies reduces the need to expand full-time fire prevention positions and contributes to an increased level of service.

12-4.2 Fire Prevention Inspections. Due to the limited number of full-time fire prevention positions and the responsibility for firesafety, each community must decide what level of service the fire department should provide. Many departments have prioritized inspections based on life safety considerations in order to utilize their inspection staff in the critical areas. Once the priorities have been established, each inspector can work in the priority areas. This allows a community to receive a high level of service for the investment.

12-4.3 Inspection Frequency. Some fire codes and national standards suggest some occupancies to be inspected quarterly or semi-annually. Many states license care facilities and schools and require an annual inspection. Where inspections have compounded the workload, some fire departments have increased time periods between inspections on lower priority occupancies in order to allow more time to inspect the critical occupancies.

Another practice is to assign inspections on less complex occupancies to fire company inspectors. This allows full-time inspectors to concentrate on the more complex and new occupancies.

12-4.4 Education and Training. Fire prevention education and training should be an important part of the department's overall training goal. New employees should receive instruction in fire codes and inspection practices. Regular prevention education and training should be provided to keep abreast of new codes, policies, and interpretations. The training staff should use subject matter specialists to provide this training.

Some state fire marshals offer regular training classes for fire inspectors. Model code groups offer excellent courses for inspectors in fire codes, building codes and plans review. The National Fire Academy offers classes to the fire service in fire prevention. In addition to these, state fire chiefs and fire prevention officers associations

are good sources for information concerning special classes, seminars, tests, or demonstrations which may occur within the state or area. Local colleges may offer courses in fire technology or fire science.

12-4.5 Enforcement Assignments. Three basic organizational plans have developed within the fire service for prevention personnel. One utilizes the technical subject specialist. The second employs the generalist who inspects all occupancies. The third plan utilizes a combination of specialists and generalist inspectors.

12-5 Other Responsibilities.

12-5.1 Consulting and Technical Research. The fire prevention staff receives numerous inquiries concerning advanced planning for buildings and subdivisions, technical subjects, and code interpretation. The fire department should provide prompt and complete staff work in these technical areas.

12-5.2 Board of Appeals. All major model codes provide for an appeals procedure, whereby citizens have the opportunity to appeal code interpretations and alternative methods of compliance. It is important that provision for this service be established and maintained.

The Board of Appeals is composed of independent members of the community that have expertise to judge matters relating to fire and life safety standards. The fire chief or authorized representative is usually an ex-officio member. For efficiency and uniformity of interpretation, a single board hears both the fire code and building code appeals in many communities. The public should be advised by the fire department that the Board of Appeals is an acceptable method of resolving disagreements over code interpretation.

12-5.3 Plan Review. During the planning phase of construction, the fire department should meet and confer with architects, building owners and structural engineers to work out details on the design, type of use, arrangement, and integrity of exit systems, fire protection, and special agreements concerning the building. The resulting agreements should be in writing and become part of the permanent record of the occupancy. Should the representatives of the fire department determine that the matters being reviewed or discussed are beyond the expertise of the department, the owner should be requested to supply sufficient data by qualified persons to satisfy the fire department staff. Any expense in providing the data should be absorbed by the owner.

For the convenience of the public, many fire departments provide a walk-up counter to facilitate small or routine plan checks and to answer questions.

12-5.4 Maintenance of Files and Records. Accurate records should be kept and maintained of all complaints, permits, past inspections, legal action, investigations and special conditions. This is necessary because inspectors must review the history of the occupancies prior to making inspection. Also, in case of litigation, fire department records are subject to subpoena as evidence in court. In addition, the data from the records can assist in prioritizing and scheduling inspection work loads, and tracking violations in code compliance.

Chapter 13 Fire Investigation

13-1 Purpose. The investigation of fires is basic to good fire department management since it identifies the factors which can be used to lessen the number and severity of fires in the future. Data from fire investigations should be a part of the department's management information system.

The investigation of fires should provide a community with a sound basis for what is burning in that community. This information should be a valuable tool to use in setting priorities for buildings to inspect and what type of public education programs to develop. Once inspection programs and public education programs have been developed, fire investigation data provides a useful barometer for effectiveness of these programs.

All fires should be investigated. The objective of investigating a fire to determine exactly why the fire occurred, including possible criminal aspects, is important. It is the certainty of investigation which provides a powerful deterrent to a citizen for allowing a fire to occur, regardless of cause.

13-2 Organization.

13-2.1 Fire Investigation. If fires are going to be successfully investigated and arsonists convicted, a technical specialist is needed. These specialists should be specifically trained to investigate fires. This is a technical skill that requires individual training and experience at fire scenes. These specialists should also be qualified and trained as police detectives. Because these are two divergent skills, it is difficult to find individuals who possess both skills at high levels.

Teams have been established throughout the United States and Canada that are made up of members from both fire and law enforcement agencies. The most successful of these teams have taken the technical skills of the fire department investigator and law enforcement detective and blended them into a united team. Other members of this team may come from the district attorney's office, federal enforcement agencies, the insurance industry, and citizen action groups. It is the responsibility of the fire department to organize this team and direct its formation and activity.

The formation of a joint team will require interagency coordination to decide responsibilities. It is sometimes beneficial to have the mayor or some other high ranking local government official help define roles and responsibilities.

13-2.2 Alternate Staffing Methods. When the formation of a fire investigation-arson team is not practical and the volume of work in fire investigation goes beyond what the fire chief can handle or delegate, he should appoint fire investigating staff personnel including a chief officer for fire investigation. In communities where a fire investigating official may have been established prior to the formation of the fire department, the fire chief should recommend that the official be absorbed into the fire department. Whenever the fire department is in a position to provide qualified personnel for the purpose, and where such authority is lacking, the fire chief should

recommend that he and his staff be given statutory authority to subpoena witnesses and take testimony under oath for purposes of fire investigation.

The fire marshal or chief of the fire prevention bureau is also charged with fire investigation work in many departments. From a management point of view, fire prevention and fire investigation are different and justify personnel to perform each function separately. State fire marshals (and some county fire marshals) in the United States and provincial fire marshals in Canada also involved in fire investigation have authority to subpoena witnesses to determine the fire cause. They may delegate this to persons in the fire departments qualified in the handling of legal procedures. "Fire Marshal" has been widely used as a title for officials with fire investigation responsibilities, but other titles are also used. Any persons appointed to these positions should meet the appropriate professional qualifications as contained in NFPA 1031, *Professional Qualifications for Fire Inspector, Fire Investigator and Fire Prevention Education Officer*.

13-2.3 Release of Information to the Media. Control and release of all information about suspicious fires should be performed under the supervision of the fire chief, the supervisor of the fire investigation team or a public information officer. Information resulting from the investigation of a fire may have important implications in the development of a case against an arsonist. It is important that no information be released to the public until the cause of the fire has been firmly established. If the cause has been determined to be arson, then information should only be released upon the approval of the supervising fire investigator. Premature release of information can often damage an arson case. Only one individual should be responsible for the release of information to the media.

13-3 Reports for Fire Investigation. An information system must be established for efficient and effective retrieval.

13-3.1 Incident Reporting Systems. The department should establish systems to collect information that is needed for each incident. This is particularly true in the case of suspicious fires. Almost every member of a fire department participates in the recording of the sequence of events of a fire. The results of fire investigation are incorporated in various department reports and records. NFPA 901, *Uniform Coding for Fire Protection*, NFPA 902M, *Fire Reporting Field Incident Manual*, NFPA 904M, *Incident Follow-up Report Manual*, and the *National Fire Incident Reporting System (NFIRS)* from the Federal Emergency Management Agency, Washington, DC, all provide information incident reporting systems and should be used as the basis of development for an incident reporting system.

All information on each incident should be maintained at the fire department business office. A chronological list of all incidents should be kept. Reports should be cross-filed by street and number, owner/occupant and date as this enables the complete fire history of any particular building or location to be quickly identified.

13-3.2 Confidential Files. In some fire investigations, information is developed that should not be open to the public until some later time. These investigation files are regarded as confidential but must be kept in separate files in order to preserve that legal classification of confidential information. Otherwise any person could obtain copies of all records of fires and interfere with or prevent criminal investigations and prosecutions for arson and fire related crimes.

Chapter 14 Communications

14-1 Communication Facilities. All communications facilities and equipment should be installed and maintained in accordance with NFPA 1221, *Maintenance and Use of Public Fire Service Communications*.

14-1.1 Nonemergency Communications.

14-1.1.1 Business Communication Facilities. Facilities for communication between individuals and units of the department for nonemergency business should be provided. Department rules should define when such facilities may be used for personal calls by members, or a telephone should be provided at each station for personal use.

14-1.1.2 Business Telephone. A telephone number should be provided through which nonemergency calls from outside the fire department can be made.

14-1.2 Emergency Service.

14-1.2.1 Internal Emergency Communications. Facilities associated with the department's function of dealing with emergencies should be provided for handling messages within the department organization and for communications with other fire departments and agencies which may work with the fire department during emergencies.

14-1.2.2 Alerting Systems. The fire department should have a selective alerting system by which it can summon designated personnel at any hour of the day or night. Certain emergencies may require summoning the fire chief or other officers or members of an off-shift. Sirens or horns by which an alarm may be given are one means of alerting members of the department. In addition, radio receivers, pagers, or telephones can be provided for all personnel as in volunteer departments, or for selected officers and personnel in other departments. Through these instruments, a particular individual or group of individuals can be alerted without disturbing the general public or any of the unneeded personnel.

14-1.2.3 Public Reporting of Fires and Emergencies. Facilities or systems should be provided so that the public may notify the fire department of fires and emergencies.

Systems for this service include telephone, telegraph and radio equipment. Included are systems by which signals may reach the fire department from individual

properties. Buildings may be protected by alarm systems for water flow in piping supplying automatic spinklers or by automatic fire detection or manual fire alarm systems.

Provisions should be made for the vital link of receiving emergency information from the public in case of failure of the telephone system. A possible quick and effective plan would be to activate fire company patrols using vehicle radios, lookouts from high places using portable radios to relay visual discoveries, and use of other vehicle radios for reporting emergencies such as police, other city vehicles, and other radio networks such as utility companies, buses and taxicabs.

A telephone emergency reporting service, known as 911, has been designated by authorities and has been mandated in some jurisdictions. This service contemplates dialing only the digits 911 to report an emergency of any nature. A political subdivision is expected to provide the communications emergency reporting facility, together with the necessary retransmission channels and the operators attending the facility. The unit may serve an incorporated community, a county or a portion of a county. Geographic areas served by telephone wire centers will have a bearing upon territory that may be served by a given 911 center.

14-1.2.4 Alarm and Signaling Systems in Individual Properties. Property owners should be encouraged by the fire chief to provide proper alarm and signal systems. Properties in greatest need of such facilities are those of high life hazard, high fire hazard, or high value. Actually, any property is worthy of assessment for facility installation.

Although a private signaling company may provide desired system maintenance and supervision under contract with the individual property, fire department periodic inspection is essential, irrespective of any code requirements. The fire department communication center may serve as the point of supervised signal receipt.

14-1.3 Malicious False Fire Alarms.

14-1.3.1 Public Education. The fire department should sponsor a systematic public education campaign, particularly in the schools on the problems, dangers, results, and criminal penalties in connection with reporting false alarms.

14-1.3.2 Ordinance Provisions. There should be an ordinance providing suitable penalties for false alarms, for tampering with the fire alarm system or being in unauthorized possession of keys for operating fire alarm boxes.

14-1.3.3 Study of Street Boxes. When an individual street box is used repeatedly for false alarms, it should be studied for conditions peculiar to the box that might encourage surreptitious use. In extreme cases it may be necessary to remove a particular box.

14-1.3.4 Special Response Procedures. Special response procedures should be adopted for application to city areas where patterns of false alarms develop. Fire alarm control center operators should be given guidelines to reduce the number of companies dispatched when a false alarm epidemic develops in any part of the city and to send normal reponse only when simultaneous calls from the particular neighborhood confirm an emergency.

14-1.3.5 Cooperation with Police. Procedures should be established for notifying police patrols when a series of false alarms develops. Joint Fire-Police Teams should assist in rehabilitating persons responsible for false alarms.

14-1.3.6 Cooperation with Prosecutors. The fire department should actively assist prosecutors in court cases involving individuals accused of reporting false alarms.

14-1.4 Supervision of Communications. Where personnel are available, the fire chief should have a staff communications officer to prepare communication plans and procedures and carry them out under his direction.

14-1.5 Alarm Communication Center.

14-1.5.1 Location. An alarm communication center should be provided at which all calls by telephone, radio or from a fire alarm system are received.

14-1.5.2 Center Buildings. The alarm communication center should be in a building located so as to be unexposed in case of a sweeping fire and free from wind, earthquake or flood damage or suitably protected from such damage. The building should be accessible from at least two directions at points remote from one another. It should be possible to restrict access points from unauthorized persons. The building itself should be protected with automatic sprinklers and be of fire-resistive construction and, under best conditions, be used for alarm, communications center operations only. If located in a building devoted to other functions, such as a fire station, the alarm communication center should be in a space cut off from the rest of the building by fire-resistive wall, floor and roof construction. Such wall and floor construction should be without doors or openings and entrance should be by way of separate outside access. The building should be provided with an approved emergency standby electric power plant. The capacity of this plant should be sufficient to handle, at a minimum, all emergency lights and signal power requirements.

The floor space required for electrical equipment at the alarm communication center depends on the facilities provided. Accessibility of the building should not be overlooked if the alarm communication center is underground.

14-1.5.3 Operators. The alarm communication center should be manned by one or more operators 24 hours of every day. A procedure should be worked out so that when fires or emergencies occur, likely to impose an increased message load, additional supervisory personnel and trained persons respond to the alarm control center. Operators should participate in the annual medical examination program of the department.

In its most rudimentary form, the alarm communication center may be any location which is constantly attended. The message loads to be handled at the alarm

communication center determine the number of operators necessary to staff it and the total number of operators necessary to provide operational shift strength. Duties may require several operators on duty at one time in a busy center, although the number provided may be adjusted according to message loads, nighttimes versus daytimes, for example. In order to have one operator on duty around the clock, four usually have to be hired. This is a serious problem to small departments. Wherever possible, responding fire fighters should not serve in a dual capacity as alarm operators.

Operator competency and reliability are considered vital to efficient department operations. It is expected those assigned as operators will have received thorough indoctrination and training in department standard operating procedures and are qualified as to voice quality, diction and emotional stability. There are differences of opinion as to whether an operator should have had fire fighting experience. In general, it is recommended that persons having this qualification should take precedence. Where communications center arrangements permit, it is possible for some handicapped persons to be utilized especially injured fire personnel.

14-1.5.4 Regional Alarm Communication Centers. Fire departments which may not otherwise be able to provide satisfactory alarm communication center facilities should join with a number of neighboring fire departments to operate an alarm communication center for their joint use. They should appoint a regional communications officer to coordinate planning of communication in the region served and with other regions.

Small cities may deal with the problem of manning an alarm communication center by having one center for calls for all city departments. A regional fire alarm communication center is a superior alternative solution for this problem. A fire alarm communication center operated by a number of neighboring fire departments provides important operational advantages, particularly for keeping track of available fire department resources in the area, concentrating resources in problem areas, dispatching mutual aid between communities and facilitating back-up company movement. Savings are considerable in cost of operators, and savings can also be made in telephone service and in radio and fire alarm equipment and maintenance.

There are many regions, rural and suburban counties, for example, where no one fire department can afford to operate a really good alarm communication center. However, it is an increasingly common practice to establish a county or regional communication center and thereby share the expense. For example, the largest or most central fire department could provide the telephone radio and fire alarm headquarters and the other fire departments could agree to pay that department an agreed-upon share on an annual basis.

14-1.5.5 Alarm Communication Center Records. A record of each alarm received and alarm transmission sent should be kept in the alarm communication center. Use of modern recording devices provide an effective means of recording alarms and transmissions. Recording tape in conjunction with automatically activated recorders provide a vital and practical means of maintaining a record of voice transmissions, such as incoming alarm reports and outgoing dispatches. Pertinent taped information may be extracted and transferred for record storage for predetermined time periods.

In addition to the permanent alarm record, it is good practice for the alarm communication center to keep a journal or log of all activities, similar to the company diary kept at fire stations.

14-2 Computer Aided Dispatching and Data Systems.

14-2.1 Computerization in Emergency Operations. The management of a fire department should make use of modern data processing tools to expedite availability of information needed in the operational side of the fire department. Because of the great value of speed of data retrieval to emergency communications and operations, this should be associated with the radio communications and dispatching center. The size, type, and complexity of data systems appropriate to a department depend on the size and nature of the fire department and its workload. Computer equipment is available in a wide range of configurations. Smaller fire departments may find a desk top micro-computer providing visual retrievals of data resources quite adequate. A very large fire department with many fire companies, a high rate of emergency call frequency and many complex building hazards can appropriately utilize more elaborate facilities that include automatic processing of some of the dispatch and monitoring procedures.

14-2.2 Dispatching. Rapid processing of emergency calls by computerized data system should be utilized where the workload is substantial and efficient response can be enhanced by computerization. This includes the keeping track of the status of fire companies and the availability of personnel and other resources. Street address locations, routes of response and other features formerly done manually may now be computerized. Monitoring of radio frequencies and alarm systems in buildings may also be provided for. There are a number of actual procedures including automatic company status boards, radio frequency monitoring and various automatic displays that can easily be employed in the case of larger places having a greater emergency call incidence. A manual back-up system should always be available and tested at intervals for all dispatching procedures.

14-2.3 Operational Data Base Used in Operations. A variety of useful categories of data bases directly related to fireground needs is desirable in order to have readily available via the dispatch center system information for rapid retrieval by computer. These include such things as information on hazardous chemicals, pre-fire planning data, information on building locations and the availability of non-fire department emergency resources. Important computer data bases needed by fire departments for effective planning and performance measurementin the areas of arson incidents, fire prevention inspection data and in other areas useful in non-operational activity also provide data that may be valuable in emergencies by command officers. Such computer programs should be separated from computerized dispatching and radio control systems in order to

minimize dislocation in the case of a disruption in either system. This information should be available through the communications center system. The fire department should, if possible, utilize and ensure compatibility with already established data bases such as municipal property registers, geographic indices and public works street surveys and water supply information.

14-3 Message Procedure.

14-3.1 Standard Message Procedure.

14-3.1.1 Operating Procedure. The department should establish standard operating procedures to reduce the message load and adopt standard messages and a standard procedure for handling messages. All members should complete a course of training in message procedure and in how communication facilities provided are to be used.

The message load increases with the complexity of fire operations. If operations either in a general sense, or with respect to a specific situation, are standardized and planned, messages, too, can be chosen to bring about the desired operation with the most efficient use of the communications facilities provided.

The adoption of a standard use of words in voice communications is important for expeditious message transmission and avoidance of errors. With voice communication, it has been found necessary to so phrase messages that they will not be misunderstood. Voice communications in fire department practice are generally too haphazard. Study leading to better message procedure is needed in nearly every fire department. For radio, there are rules regarding the handling of messages which are for the convenience of all radio users and these must be obeyed. However, the fire department needs additional rules for radio discipline so far as its own message procedures are concerned.

In regions where numerous fire departments may be involved at an emergency, communications procedures should be formalized with all assisting departments. The use of abbreviated codes should be determined and priority of messages should be established.

14-3.1.2 Identification. The department's standard procedure should define how the person originating a message shall be identified, for example, by rank and name or code number.

14-3.1.3 Records of Messages. All messages to the alarm communication center should be automatically recorded including time documentation. Messages not automatically time-recorded should state the time whenever possible. Equipment should be provided to immediately play back pertinent telephone and radio communications reporting alarms or other voice messages relating to handling fires or emergencies.

14-3.1.4 Priority of Messages. Operators should be given direction as to priorities to be observed in the order of handling messages. First priority should be given to alarms and calls for additional companies.

14-3.2 Fireground Communications.

14-3.2.1 Initial Reports. The first unit to arrive at an emergency should notify the alarm communication center by radio of its arrival and give a brief description of the conditions visible and location of the incident. The responding chief officer should report arriving at the scene and should establish the command center at the fire or emergency.

14-3.2.2 Status Reports. As soon as conditions allow, the officer in charge should report supplementary information to the alarm communication center and should make additional status reports if operations keep the fire units at the emergency beyond a few minutes. Report intervals should be established and the communications center should initiate contact when no report is received during such intervals.

14-3.2.3 Command Officer Assistance. With many calls answered by the fire department, the operations performed are not extensive and communications operations are correspondingly simple. They impose no serious load on the officer-in-charge. However, the major fires and emergencies impose a complex command problem on the officer-in-charge, for which he needs operational support. The command officer may assign an aide to handle communications. If an aide is not available, a qualified person should be designated to handle communications. Such would include calls for multiple alarms, special companies and equipment.

Liaison should be provided for the command officer in charge with the public utility and staff representatives as they may be needed and with other officers assisting in command at the fire.

14-3.2.4 Special Fireground Communication Units. Large fire incidents may necessitate the use of a special fireground communications unit which responds to provide the chief officer in charge with additional facilities and communication officers when needed.

14-4 Radio.

14-4.1 Facilities. Radio is an integral part of a fire department's communication system and is essential for efficient operations. Radio keeps fire fighting units in touch with headquarters, facilitates the reporting of emergency situations back to headquarters, to request additional assistance, as well as to inform chief officers and other units of alarms with which they may be concerned. Radio is also needed for companies which are out on special duty work, such as in-service inspections.

14-4.1.1 Transmitters/Receivers. Transmitters/receivers should be provided at headquarters, in vehicles and at fire stations as needed.

Departments with a radio alerting system for notifying volunteers or recalling off-shift personnel should also have receivers (pagers) issued to members of the department.

14-4.1.2 Portable Radio Equipment. As a minimum, every chief officer and company officer assigned to emergency duty should be provided with a portable transmitter/receiver.

Fire departments can use portable radio equipment even though they have no base station or mobile units.

14-4.2 Frequencies.

14-4.2.1 Frequency Allocations. Frequency allocations must meet the requirements of the Federal Communications Commission in the United States and the Department of Transport in Canada. Multifrequency operation should be planned, even if facilities for such operation are not immediately provided. Messages on any one frequency are generally heard by all the units with receivers tuned to that frequency. However, receivers can be used which are turned on only by a broadcast signal to reduce messages heard by persons not required to act on them. Nevertheless, the message loads to be expected during operations determines the number of frequencies required. For example, a busy fire department might use one frequency for calls coming in to the alarm communication center and another for outgoing calls. Sometimes there is a separate frequency for chief officers and separate frequencies for portable radios.

Even though sufficient frequencies should be provided, they all cannot be justified if they are not put to good and proper use. In some localities, frequency demand may exceed availability (frequency squeeze) or may not be fully justified and alternate paths may have to be developed or arranged. The employment of frequency (channel) scanning equipment may be used to advantage.

14-4.2.2 Frequency at Large Fires or Emergencies. Sufficient frequencies should be provided so that one or more frequencies may be used for fireground communications (tactical channels).

14-4.3 Regional Facilities.

14-4.3.1 Group Operation. In arrangements for use of radio by a region or a group of municipalities, all base stations and mobile units should operate on a single common district frequency for coordination of responses under mutual aid arrangements. All fire departments operating their own radio service or fire departments or municipalities operating in a group should have one or more separate frequencies and additional frequencies where the radio traffic warrants. A group of cities and towns planning to operate radio for the group should draw up a set of rules of operating procedure to which all in the group should agree. Each such group should designate a chief communications officer to assist in planning intra-district communications.

If a single regional alarm communication center is desired, a suitable location must be selected for the communication center for the region. Each region should be allocated a common or intra-region frequency, and there may be one or more frequencies assigned for inter-region or inter-state communication.

14-5 Telephone.

14-5.1 Service by the Telephone Company.

14-5.1.1 Separate Listing of Phone Numbers. The telephone numbers of the fire department for emergency calls and those for other business should be different and separately listed in telephone directories.

14-5.1.2 Emergency Call Number. The number chosen for emergency calls from commercial telephones should be one that is easy to remember and simple to dial such as the 911 system.

14-5.1.3 Supervision of Telephone Company Operators. The telephone central offices should have arrangements so that a supervisor or other responsible employee will give special and prompt attention to all incoming alarms.

Most fire alarms are received by means of commercial telephones. Ideally, calls should come directly to the alarm communication center. However, many calls are placed to the operator. It is recognized that many persons will lift the receiver and dial "0" (zero), since this digit can easily be found on the telephone dial even in the dark.

14-5.1.4 Routing of Calls. The telephone central offices should take prompt steps to properly route calls placed to the operator which should have gone directly to the alarm communication center.

Telephone operators are trained in the handling of calls of emergency numbers and the operator will make every effort to route the call properly. In the case of emergency calls, the operator normally will give the caller one of the direct emergency lines to an alarm communication center. In some cases, it is necessary for the person calling to identify his address not only by street and number, but with the name of the emergency district, town or city, so that the operator can route the call to the proper fire department. This is true because telephone exchange boundaries are not necessarily consistent with areas served by the various fire departments. Regional dispatching may solve these boundary problems.

14-5.2 Telephone Service at Alarm Center.

14-5.2.1 Separate Fire Lines. Between the telephone central office and the alarm communication center there should be at least one line reserved for emergency calls, and in large cities there should be two or more lines reserved. These lines should be separate from the line or lines for ordinary business calls.

14-5.2.2 Street and Building Directory. To speed up the proper handling of alarms from commercial telephones, the fire department should provide visible index street directories at the alarm communication center. These directories should provide "criss-cross" entry by name or phone number and enable the fire alarm operator to identify the location of the call and the proper response assignment to use in dispatching companies.

14-5.3 Subscribers' Telephones. The fire department should encourage telephone subscribers to post the fire department emergency call number at each telephone. One method employed for this purpose is the furnishing, by the fire department, of a plastic coated message label with the number of the fire department to be placed on or at telephones in homes and other places.

Where there are no street numbers, fire department assigned building location numbers should be included on the message label.

14-6 Municipal Fire Alarm Systems.

14-6.1 Fundamental Crisis. Dependent upon the availability and reliability of telephones, the cost and types of alarm systems, and considering the social climate of a jurisdiction, the matter of cost/benefit of where and when municipal alarms should be installed, is a local concern.

14-6.1.1 Reliability of System. A municipal fire alarm system should incorporate the best physical protection against sweeping fires, windstorms, floods, earthquakes and other disasters, be arranged and operated so as to minimize interruption of service and be designed and arranged to that it can be promptly restored to service if physically damaged.

The character of the community will provide guidance as to what extent a system may be effective and the system type (telegraph, radio, telephone, etc.) resulting in the greatest reliability and service. The "system" may be comprised of components of various types as necessary to meet local need. All systems should be installed and maintained in accordance with NFPA 1221, *Public Fire Service Communications*.

14-6.2 Owned or Leased Systems.

14-6.2.1 Cost Factors. The rental and other charges of a leased system should be compared with the estimated annual costs to the fire department if it purchases and maintains its own equipment for equal service.

This is a cost accounting operation of some complexity, but if conscientiously performed, it would show what system, in the long run, is economically best for the area protected by the fire department.

14-6.2.2 Contract Provisions. Provisions of a contract for the rental of fire alarm system service should be reviewed to make sure that they do not modify existing contracts with utilities except in the interest of the municipality or fire department.

As an example, the terms of franchises under which some cities authorize telephone and electric utilities to install cable ducts in streets often specify the reservation of certain ducts for city-owned cables. How this type of provision might be modified would need consideration.

14-6.3 Alarm Circuits — Facilities for Internal Department Communication. The municipal fire alarm system should provide communication facilities between the alarm communication center and fire stations, mobile units and fire fighters.

This part of the municipal fire alarm system is generally referred to as the alarm circuits. Reliability is obtained in various ways, the most common being duplication of facilities.

14-6.4 Street Boxes.

14-6.4.1 Public Facilities for Calling Department. A municipal fire alarm system should provide street boxes for use by the public. These usually are provided in sections of the community where private telephones are normally not attended at all times (commercial and warehousing districts) and where high life hazard is a factor (hospitals, other life care facilities, etc.). (*See 14-6.4.3.*)

14-6.4.2 Boxes Identify Specific Locations. The operation of a street box should define a specific location for which response assignments should be prepared, put on response cards and used in dispatching. The entire area served by the fire department should be covered by a system of street box locations, even if no boxes are actually installed, to enable locations to be accurately defined for dispatching of response.

14-6.4.3 Box Locations. The fire department, not some other agency, should establish the individual physical location (site) of each street box. Boxes should be located for convenient use, conspicuously located and lighted. Location may relate to premises served by private signaling systems. Any system connected to a municipal fire alarm system should comply with the provisions of NFPA 72B, *Auxiliary Protective Signaling Systems*.

14-6.4.4 Boxes for Emergency Service Only. Fire department rules should restrict the use of facilities provided by emergency street boxes to emergency communications. Use of street boxes by other city departments and by the public should be restricted to the reporting of emergencies.

14-7 Communication Systems Maintenance.

14-7.1 Provision for Maintenance.

14-7.1.1 Maintenance Personnel. The fire department should assign personnel to the maintenance of communication equipment and facilities. This should be made the responsibility of the staff communications officer where one is provided. If fire alarm system service is furnished under contract, the fire department should provide personnel to make sure that maintenance is, in fact, carried out. Department personnel should be provided with training to keep up with developments in communication practice.

The size of the fire department maintenance force will depend somewhat on how many maintenance operations are performed under contract for leased service, such as telephone service.

14-7.1.2 Equipment for Maintenance. If the department elects to maintain its own equipment, it should provide its personnel with adequate equipment and instruments. The fire department should maintain sufficient alternate equipment so that the system may be restored to operation in the event of physical damage. The facilities available to the fire department for such restoration should be compared to those available under a contract for leased equipment.

14-7.1.3 Interruption of Communications by Strikes. The fire department should have plans for maintenance of its fire alarm system in the event that normal operations are affected by strikes of employees of the city or of the leasing utility.

14-7.2 Tests and Reports.

14-7.2.1 Kinds of Tests and Frequency. The fire department should determine the kinds and frequency of

tests needed for fire alarm system equipment in use. Such tests should at a minimum meet the requirements as outlined in NFPA 1221, *Public Fire Service Communications*.

14-7.2.2 Maintenance Reports. The fire chief should have a monthly report from personnel assigned to fire alarm systems maintenance which shows the construction, repair and trouble-shooting work done on the system.

Chapter 15 Equipment and Buildings

15-1 Fire Apparatus.

15-1.1 Fire Apparatus and Equipment Program.

15-1.1.1 Inventory and Summary of Inventory Information. Procedures should be instituted for maintaining a proper inventory of motor units and equipment. In addition, a summary of the inventory information should be prepared so that it can be used by the fire chief to establish the general situation of the department with respect to equipment for periodical reports and for approvals needed for an equipment program. On pumpers, ladder trucks, and other major pieces of equipment, the summary should show such information as age, downtime, annual maintenance costs being spent on each unit, and recommended replacement date. On smaller and more numerous items of equipment, the inventory summary should show expected replacement requirements due to use or loss as based on the department's experience or judgment on each item.

15-1.1.2 New Equipment Needs. A list should be made of new apparatus needed. This should be in the same general form as the summary of inventory information. The minimum should be a list for one year ahead. Lists covering five-year or ten-year periods should also be prepared based on the best estimates which can be made. In connection with the preparation of the budget, these lists should be reviewed annually and revised when necessary. Pumpers, ladder trucks and other major items should be itemized in such summaries and other items may be broken down or summarized as appropriate. Cost estimates for future years should be sure to recognize inflation of prices as this is a factor which could decide the year in which a purchase of some item could be made most advantageously. Lists for years ahead should recognize expected annexations of territory to the area served by the department, changes in the aid which can be obtained from neighboring communities as well as changes in organization or operations of the fire department itself which affect the equipment required. Adequate reserve vehicles should be included in all equipment lists.

15-1.1.3 Replacement and New Equipment Program. An orderly program for the replacement of equipment and for additional new equipment should be prepared. Additional fire apparatus to enable new companies to be formed should not be purchased unless personnel to man such apparatus is also considered. The fire chief should ask general approval of an apparatus and equipment program for five or ten years by the governing authority of the fire department area or municipality, and secure concurrence of any municipal administrator concerned. The fire chief should submit annual recommendations for replacement of equipment or purchase of new equipment, consistent with an approved long-range program. (*See 4-1.2.4, Capital Items, and Chapter 2, Planning and Research.*)

15-1.2 Purchasing of Equipment.

15-1.2.1 Specifications. Specifications should be prepared for the purchase of major pieces of motor fire apparatus and for minor equipment, as appropriate. By public advertisement and in accordance with State, Provincial or local laws, bids should be invited from all responsible suppliers. The specifications should be expressed in terms of emergency type use and reliable performance, avoiding reference to details which would tend to restrict bids to one or a few suppliers. In setting performance requirements, maintenance should be considered. The specifications should name a delivery date and state any tests to be performed at the point of delivery before acceptance. Tests should include road tests for all pieces of motor equipment, tests of pumps after delivery (regardless of reports required by the specifications for tests at factory), and operating tests of aerial ladder and elevating platform assemblies. For elevating platform assemblies, there should be also a test of the turret nozzle and water system. The specifications may include lists of tools and equipment to be provided with each piece, if the fire department decides to purchase some or all of the related equipment with the piece of motor apparatus. NFPA 1901, *Automotive Fire Apparatus*, and NFPA 1904, *Aerial Ladders and Elevating Platforms*, should be used as the basis of specifications for new apparatus.

15-1.2.2 Acceptance Tests. Forms should be prepared for recording the results of acceptance tests, and the fire chief should act on acceptance or rejection of the delivered motor apparatus only after studying the results. The chief should name individually qualified members of the department to carefully conduct the tests or assist in making them.

In departments having a maintenance officer, it would be customary for that officer to be responsible for the acceptance tests and named in the specifications as such.

15-1.2.3 Lease Option. Equipment leasing is an option employed by a growing number of departments. It releases funds formerly tied up in large capital outlay investments. Leasing to a municipal entity provides the leasor with a tax advantage which may result in more favorable terms for the fire department.

15-1.3 Maintenance.

15-1.3.1 Continuous Maintenance Procedures. Maintenance procedures should be performed to continuously verify that all the equipment is in proper working order and ready to respond.

Following any response, maintenance should be immediately performed to restore the equipment to ready

status in anticipation of another response. This should include replenishment of supplies used, restoration of ladders, tools and respiratory equipment utilized; and inspection of apparatus for damage sustained. Any unsatisfactory condition noted should be properly recorded and corrective action initiated.

15-1.3.2 Preventive Maintenance Procedures. In addition to daily inspections by the vehicle operator, a procedure for inspection of motor apparatus and related equipment in each station by competent personnel at scheduled intervals should be established. The fire department should provide qualified personnel for this work, or arrange for it by contract. In either case, written instructions should be prepared defining the work to be performed in this periodic inspection, and records and reports to be made of it. The manufacturer's recommendations for the service of each specific piece of apparatus should be used as the basis for defining the work and service to be performed on the apparatus.

15-1.3.3 Annual Tests. Pumps and ladders should be tested annually and after major repairs. Ladders should also be tested after any suspected overloading. The NFPA publication *Fire Department Pumper Tests and Fire Stream Tables* and NFPA 1904, *Testing Fire Department Aerial Ladders and Elevating Platforms*, should be the basis of the test procedure.

15-1.3.4 Cost Records. A file should be kept on each piece of motor fire apparatus and on major categories of other equipment. All repairs should be recorded in maintenance records and costs and out-of-service time thus identified. This information should be summarized at least annually.

Suggestions on forms and records, which can be readily adapted to fire department use, are given in the *Accounting Handbook for Government Owned and Operated Motor Equipment (See Appendix B).*

15-2 Hose.

15-2.1 Hose and Hose Couplings. A fire department should develop written specifications to provide equipment which meets its special needs. Consideration should be given to including labeling by a nationally recognized testing laboratory as a requirement. Once these specifications are developed, all hose and coupling purchases should comply with them. NFPA 1961, *Standard for Fire Hose*, and NFPA 1963, *Screw Threads and Gaskets for Fire Hose Connections*, should be used as the basis of specifications for purchase of fire hose and couplings.

15-2.1.1 Hose Inventory. Procedures should be instituted for maintaining an inventory of hose and hose couplings.

15-2.1.2 Amount of Hose for Each Piece of Apparatus. The department should adopt standards for the amount and size of hose carried on each piece of apparatus, depending on its operating practices. The standards should include 1½-inch, 1¾-inch, 2-inch, 2½-inch, 3-inch, 3½-inch and larger hose, and pumper hard/soft suction hose and booster hose. NFPA 1901, *Automotive Fire Apparatus*, should be used as a guide in determining the amount of hose to be carried.

15-2.1.3 Hose Couplings. Hose couplings and threads should be standardized throughout the department. Hose coupling threads should conform to the American National Fire Hose Connection Screw Thread as specified in NFPA 1963, *Screw Threads and Gaskets for Fire Hose Connections*. Where local hose coupling threads do not conform to the American National Fire Hose Connection Screw Thread, the fire chief should designate the threads to be used.

For situations where hose must be connected to other threads, adapter couplings should be provided.

15-2.2 Hose Maintenance and Records. Each length of hose and each hose coupling should be given a unique serial number for inventory purposes, and an inventory record kept for each length in service. Such a card is a convenient method of recording cost, service tests and general information on the service life of hose. All hose and couplings should be tested and maintained in accordance with NFPA 1962, *Care, Use and Maintenance of Fire Hose, including Connections and Nozzles.*

15-3 Personal Equipment.

15-3.1 Personal Equipment Program.

15-3.1.1 Personal Equipment to be Required. Members of the department should be provided with certain personal equipment or be required to provide it to conform to department regulations. A replacement policy should be established for each item of personal equipment required. This class of equipment covers items which must be fitted or tailored to the individuals. This should include certain items of protective clothing, work clothing and uniforms. The number of each item provided for each department member should recognize the number of changes each needs in order to be properly outfitted or clothed at all times on duty.

Pieces of equipment such as breathing apparatus, turnouts, flashlights, gloves and helmets are the components of personal protection. They must comply with current regulations and be properly maintained. It is important that fire department personnel be knowledgeable on OSHA and state regulations regarding the purchase, use and maintenance of breathing apparatus and other equipment. Information on these regulations can be obtained from the state fire marshal or by writing OSHA. (*See Appendix B.*)

15-3.1.2 Purchasing of Personal Equipment. Specifications should be prepared which provide an accurate and complete description of the personal equipment for members of the department.

It can be noted that policing of the specifications is simplified when the department controls the purchasing. When individuals are required to purchase the items specified, the department must have a procedure for determining that items so purchased conform to department standards.

15-3.2 Maintenance of Personal Equipment.

15-3.2.1 Washing and Cleaning. Procedures should be adopted for properly maintaining and inspecting personal equipment after fires or emergencies and after other specified periods of use. The procedures should describe the circumstances under which the department will provide such washing and cleaning and those under which the individuals shall provide the required cleaning and washing.

15-3.2.2 Repair. A procedure should be established for determining, in particular items, whether personal equipment should be repaired or replaced. Repairs should be subject to approval by the department.

Such a determination may need to be made when personal equipment is damaged by a particular use. It may also have to be made when an item is substantially damaged by ordinary wear before the period set for normal replacement of the items. Repair specifications may be useful on some items particularly in departments with a large number of members in service.

15-4 Fire Department Buildings.

15-4.1 Building Program.

15-4.1.1 Buildings Record and Summary. A file should be established for each fire station and other building occupied by the fire department. This file should include all papers in the custody of the department covering ownership of both land and buildings, original cost data, cost of alterations and improvements, expenditures for maintenance and other pertinent information. In addition, this information should be summarized so it can be used to establish the general situation of the department with respect to its buildings, for periodical reports and approval of a program for acquisition of any new buildings.

15-4.1.2 Programming New Buildings. A program should be prepared for any new buildings needed, including locations and land required. The fire chief should ask general approval of a program for five and ten years by the governing authority of the fire department and secure concurrence of any municipal officials concerned. The program should be updated annually and recognize expected annexations of territory to the area served by the fire department and changes in operations of the department which will affect the buildings and land required.

Many fire departments have a force less than that required to man the equipment needed. In general, these departments should not build additional stations until they are able to man them effectively. However, each fire department should prepare a plan for future station locations in accordance with the predictable growth of the area protected by the fire department.

15-4.2 Purchasing and Leasing.

15-4.2.1 Land. Land for fire department buildings should be purchased (or obtained on long lease) in accordance with a planned program so as to obtain it under the most favorable terms.

Where land has to be purchased, the most appropriate locations may be costly if the needs have not been anticipated well in advance. Some departments have built small stations with the idea of selling the land and building when a large station is needed. This type of program has not worked well because such sites do not sell readily and when larger and more strategically located lots are needed, they are not readily available except at excessive cost. Land requirements need to be estimated much more generously than has been customary. Small plots of land not only limit usefulness of a site while the fire department is using it, but limit other use affecting resale.

15-4.2.2 Buildings. The requirements to be met by any building should be determined before plans and specifications are prepared. These should be written comments solicited from the officers and personnel of the fire department most concerned with the proposed building. The final draft of such requirements should be as detailed as possible as to relations of one space in the building to another and as to dimensions. Given these particulars, plans and specifications should be drawn. Final plans and specifications should be approved by the fire chief. Building committees, if appointed, should have advisory functions only.

When new construction is initiated, consideration should be given to a type of construction requiring minimum maintenance.

Some departments have shop or storage buildings which are protected by automatic sprinklers. Attention is called to some advantages in providing such protection in all department buildings, including fire stations. An important advantage is in connection with first cost of the building. A building of sprinkled noncombustible construction is cheaper than one of fire-resistive construction. Many fire stations have to be built in communities where either fire-resistive or noncombustible construction is more expensive than wood frame construction because workmen and facilities for such construction have to be brought in from outside the community. A wood frame building, with proper limitation of combustible wall and ceiling finishes, protected by automatic sprinklers, is a quite acceptable choice of building construction for such a community. Even if construction with superior fire resistance is used, sprinklering the building is desirable. In addition, fire departments must train department personnel in the components of such systems. This can be most readily done with systems actually available in fire department buildings. Fire departments frequently have to recommend sprinkler protection for other important privately and publicly owned buildings in the community. If the department sets a good example in its own buildings, it makes its fire prevention work more effective.

15-4.3 Maintenance of Land and Buildings.

15-4.3.1 Maintenance Procedures. Maintenance procedures should be established for both land and buildings. These should include housekeeping operations both in and outside of buildings. Outside, they should cover paving, grass and other areas, including proper drainage. They should cover the building structure and exterior and interior finish. Inside, they should be appropriate for each major item of building equipment, plumbing, heating and ventilation, for example.

15-4.3.2 Cost Records. Maintenance to be performed should be defined in written orders. For minor maintenance items performed by fire department personnel, forms should be provided for recording time and materials involved and maintenance cost should be calculated from these records. Written orders for maintenance defining the work to be performed should be issued to any agency doing maintenance work on contract. In both cases, maintenance costs should be a matter of record.

Maintenance expense is a proper item to be identified for the fire department budget. If fire department personnel are used on maintenance, which can be done by others, such personnel may have less time for important fire department activities, such as training, pre-fire planning and fire prevention.

15-4.4 Fire Stations. Budget limitations and shifting population centers within a locality have caused fire departments to seek alternatives to the construction of permanent stations. Prefabricated buildings and residences as well as mobile homes are now being used as fire stations. They allow flexibility in station location planning and do not require a large capital investment.

15-4.4.1 Land Requirements. Land requirements for fire stations should be established. These requirements should specify land requirements for parking of automobiles by fire fighters and others, space for drill work by the company or companies occupying the station, space for a ramp at the front of the fire station and space for the station itself. The parking space and drill space should be located so that parking does not tend to interfere with drill space. Stations should be set back from the street with a ramp area in front so apparatus does not have a blind entry into a public way.

The station itself is likely to be the least of the land requirements. The other land requirements may be influenced by the access to the fire station lot provided by available streets and alleys. A realistic decision on parking space to be provided in the fire station lot is necessary. Both private and public occupancies are now often required to provide off-street parking so that the public and residents of neighborhoods will not be denied space by vehicles of municipal or other employees. The number of members of the fire department requiring parking space at one time is one of the governing factors. Consideration should be given to local practices of use of fire stations for various programs of public or neighborhood convenience. Space for drills would be about 20,000 sq ft (2,000 m^2) or about half an acre, and more where possible. Some departments use ramp space and the street areas for drill work; whether this is feasible or not depends on the neighborhood and the department's training practices.

15-4.4.2 Equipment Floor Space Requirements. Equipment floor space requirements should be established. The possibility of eventual housing of additional motor equipment should be provided in the way the apparatus floor is laid out with reference to the building lot. A type of building construction should be used to which additions can be economically made. Drive through vehicle floor designs may increase safety by avoiding backing up of vehicles.

The requirements for floor space for equipment in most departments quickly exceed those originally provided. In all departments, each vehicle is likely to be soon matched with a spare or reserve piece of motor equipment. Requirements, not recognized when the station is built, may develop for the housing of special equipment such as rescue trucks, ambulances, additional aerial ladders, elevated platform equipment and others.

15-4.4.3 Chief Officers' Cars Floor Requirements. Floor space in a fire station should be provided for chief officers' and staff officers' cars in addition to other motor equipment.

Chiefs' cars and the cars of locally quartered and visiting staff officers make up for the majority of comings and goings from a station. It adds to heating and air-conditioning costs if the large station doors have to be opened and closed for each of these movements. A space for these cars should be provided in the calculation of total space required, but the space should be such that it can be separate from the rest of the equipment floor and reached through doors the large apparatus does not use. Similar space for a station with ambulances would be a convenience.

15-4.4.4 Equipment Floor Facilities. Standards should be prepared for facilities to be provided in the equipment floor sections of fire stations. These should include a watch room near the front entrance, a storage room and shop for inspecting and cleaning equipment, space for storing and drying hose and salvage covers, and a shower facility for washing fire clothes so that dirt and soot will not be tracked into the living quarters. A water connection for filling equipment tanks should be provided. Fuel for vehicles should be stored in an underground tank and a fuel pump provided at a safe distance outside the buildings. It should be possible to operate doors manually, although electrical operation also may be provided. Suitable lighting, heating and air conditioning should be provided and ventilation should be good. An engine-driven electrical generator adequate to operate essential station electrical equipment should be provided in case of electrical power failure.

Vent connections may be provided to allow apparatus motors to be safely operated inside. Heating and cooling may be controlled by separate thermostats in the apparatus floor section and other parts of the building.

15-4.4.5 Construction of Equipment Floor Section. The framing and finish of the equipment floor section should be considered separately from the framing and finish of other parts of a fire station building. Headroom and doors should be adequate for the equipment housed.

An adequate equipment floor section of a fire station can be obtained by building it on solid fill with a paved floor. For such a section, walls can be of a lightweight construction and the roof can be on a frame requiring no vertical supports other than the walls so that the entire floor space can be used for movement of vehicles. The roof frame need to be no heavier than needed for snow