

11 F. Fayette - Fire Department

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FAYETTEVILLE,  
NORTH CAROLINA

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May, 1953

File No. 502

# NATIONAL BOARD OF FIRE UNDERWRITERS

COMMITTEE ON

FIRE PREVENTION AND ENGINEERING STANDARDS

REPORT

ON

## FAYETTEVILLE, N. C.

FIRE DEPARTMENT

FAYETTEVILLE, N. C.

TABLE 2.—FIRE FLOW TESTS.

District, Number and Location of Group *	Service	Discharge, Gallons per Minute				Pressure, Pounds		Quantity Gals. per Min. at 20 lbs.	
		Individual Hydrants			Total of Group	Hydrants Closed	Hydrants Open	Required	Available
PM 1. Hay and Winslow Sts. ....	Low	930	990	1000	2920	62	49	5500	5500
PM 2. Person and Greene Sts. ....	Low	960	960	1450	3370	61	53	5500	8100
PM 3. Franklin and Maxwell Sts. ....	Low	790	930	1410	3130	61	23	5500	3300
MM 4. Hay St. and Fort Bragg Rd. ....	High	760	780	820	2360	56	43	3000	4100
Ind. 5. River and King Sts. ....	Low	440	530	.....	970	61	17	2500	900
Ind. 6. Pine St. and Rachells Alley ....	Low	190	210	.....	400	59	39	4000	600
Ind. 7. Russel and C Sts. ....	Low	610	640	.....	1250	61	39	2500	1700
Ind. 8. Southern Ave. and Gill Alley ....	High	580	.....	.....	580	96	29	1500	600
Wh. 9. Robeson and Italy Sts. ....	High	610	1120	.....	1730	95	29	2500	1900
Ins. 10. Murchison Rd. and Newbold St. ....	High	430	560	.....	990	90	75	3000	2300
Res. 11. Campbell Ave. and Cool Spring St. ....	Low	630	680	.....	1310	65	23	2000	1400
Res. 12. Moore and Ramsey Sts. ....	Low	160	1260	1380	2800	62	55	2000	7400
Res. 13. Cumberland and Orange Sts. ....	High	360	520	.....	880	99	46	1500	1100
Res. 14. Ramsey and Langdon Sts. ....	High	620	690	.....	1310	70	42	1500	1800
Res. 15. Mason St. and Ray Ave. ....	Low	500	.....	.....	500	70	53	2000	900
Res. 16. Stedman and Calcutt Sts. ....	High	560	820	.....	1380	58	19	1500	1400
Res. 17. McNair Loop and Hull St. ....	High	730	.....	.....	730	52	25	2500	800
Res. 18. Roger Dr. and Stamper Rd. ....	High	1060	1270	.....	2330	62	30	1500	2700
Res. 19. Pecan Dr. and Bragg Blvd. ....	High	1160	1190	.....	2350	51	37	1500	3600
Res. 20. Queen St. and Cape Fear Ave. ....	High	480	530	.....	910	50	35	1500	1300
Res. 21. Woodland and Forest Drs. ....	High	620	710	.....	1330	56	37	2000	1900
Res. 22. Rowan St. and Woodside Ave. ....	High	500	980	.....	1480	84	47	1500	2000
Res. 23. Grove and B Sts. ....	Low	240	580	.....	820	61	11	1500	700
Res. 24. Old Wilmington Rd. and U. S. 301 ....	Low	270	.....	.....	270	61	11	1000	200

\* Location of Groups Shown on Accompanying Map by Corresponding Numbers.

Districts indicated as follows: PM-Principal Mercantile MM-Minor Mercantile Ind.-Industrial  
 Wh.-Warehouse Ins.-Institutional Res.-Residential.

concentrated in the older parts of the Low service.

The spacing of gate valves is a little wider than desired. There are no systematic inspections and condition is only fair; many valve boxes are below grade. Hydrant spacing is fairly wide in some parts of the principal mercantile district and very wide in most other areas. Hydrants are regularly inspected but are not regularly flowed; their condition is fair. Many are of small size and a large number cannot deliver good quantities.

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**ORGANIZATION.—General.**—The fire department has been full paid and on a two-platoon basis since August 1, 1947; members work an average of 84 hours a week.

Chief Carl A. Cain, 39, was appointed assistant chief in 1943 after serving as a volunteer for eight years, and was promoted to chief of the

department on October 15, 1950. He has general control of the department, personnel, apparatus and fire alarm system subject to the supervision of the city council and the city manager. The chief has the power to suspend for a period not exceeding 30 days any member who commits a flagrant violation of the rules of the department. Assistant Chiefs George R. Hutchinson, 55, and John A. Purdy, 41, were appointed to the department in 1941 and 1947, respectively, and both were promoted to their present position on January 1, 1951.

The total membership of 49 includes the chief, 2 assistant chiefs, 10 lieutenants, a lieutenant mechanic, 2 dispatchers, a fire prevention inspector and 32 firemen.

The average annual expense of the fire department, including fire alarm, for the past five years was \$151,722. Expenses for the fiscal year ending June 3, 1952 amounted to \$191,280 and included \$142,280 for salaries, \$47,800 for general maintenance and \$1,200 for the fire alarm

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system. Based on a population of 35,000 this amounts to a per capita cost of \$5.47. Fire alarm expenses for the past three years have averaged \$1,287.

**Appointment and Promotion.** — All appointments and promotions in the department are made by the city council upon the recommendation of the chief and with the approval of the city manager and the civil service commission.

A Civil Service Commission, consisting of five members appointed for four-year terms, was created by the General Assembly of North Carolina, effective July 1, 1945.

Applicants for appointment to the fire department must be between the ages of 21 and 35 with suitable weight and height requirements prescribed. The civil service commission provides the chief with an eligible list of those successfully passing physical and competitive mental and oral examinations. Two names are submitted for each existing vacancy, the chief having the power to select either name or rejecting both. The appointee must serve a two-year probationary period.

All promotions within the department to date have been made upon the recommendation of the chief; however, the chief has the power to request the civil service commission to call for an examination if he so desires.

The chief is appointed by the city council with the approval of the civil service commission and need not be a resident of the city at the time of his appointment. He is appointed for a four-year term and shall not be removed except for cause and then only after notice and full hearing and by the majority action of the civil service commission.

**Retirement and Pension.**—A city retirement plan provides that any member of the fire department who reaches the age of 60 years or more may voluntarily retire from the department, provided that he has been a member for at least 20 consecutive years prior to age 60, and is entitled to receive 50 per cent of the salary he was receiving at the time of retirement, providing that this amount does not exceed \$125 per month. Any member who becomes permanently disabled in the line of duty, and who has not had more than five years service prior to the time of his injury, may be retired with a monthly pension equal to one-third of his monthly salary at the time of injury, with this rate increased one per cent for each additional years service, but in no case can the member receive more than 50 per cent of his former salary with \$125 per month as maximum. This fund is financed by a three per cent assessment of a member's salary plus a lump sum of \$5,000 given annually by the city.

In case of sickness or injury a member receives an amount equal to his monthly salary, part be-

ing paid by the city and part by the North Carolina Firemen's Relief Fund. All members are protected by a hospitalization plan financed personally by the members.

Under a city plan the widow of a fireman being killed in line of duty receives the amount previously paid by the member into his retirement plan plus interest, with an additional sum of \$1,000 paid by the city. The North Carolina State Firemen's Association also pays a \$1,000 death benefit to widows; all members of the department belong to this association.

One assistant chief is 55 and one dispatcher is 70, all other members are under 46 years of age. Two men are on military leave but their names are not carried on the rolls. No one is on pension.

**COMPANIES.**—See Table 3.—Four engine and one ladder companies are in service in three stations. All companies have a lieutenant on duty at all times with the exception of sickness or during vacation periods when the driver assumes command of the company. All company members are trained as drivers and pump operators.

The chief is on duty at fire headquarters six days a week and is on call at all other times from his home, a one-story wing of Station 2. One assistant chief is on duty at headquarters with each platoon. Members are divided into two platoons, working alternate 24-hour shifts; roll call is held daily at 8 A.M. Vacation periods extend from February through December with all members receiving ten days off annually. Each member is entitled to fourteen days annual sick leave; during 1952 an average of one-half man per day was lost through sickness.

Continuous watch is maintained at headquarters but no watch is kept at either Stations 2 or 3. Off-duty members are notified by telephone in the event of a major fire requiring their assistance. All members are required to receive the permission of either the chief or assistant chief before leaving town during off-duty hours. In addition, a small number of the former volunteers would respond on call in case of a large fire.

Headquarters, with two engine companies and one ladder company, is located at the eastern edge of the principal mercantile district, while Engine Companies 3 and 4 are  $1\frac{1}{4}$  and 2 miles distant, respectively, from the district. All built-up sections of the city are within  $2\frac{1}{2}$  miles of an engine company, but some sections of the city are as far as four miles from the ladder company.

**APPARATUS AND EQUIPMENT.** — See Tables 3 and 4.. **Pumpers.**—There are four pumpers in service; one is equipped with a rotary gear and the remainder have centrifugal pumps. All

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TABLE 3.—FIRE COMPANIES—LOCATION AND EQUIPMENT.

Company	Location	Members on Duty	APPARATUS		HOSE			Ladders Carried	Water Tank Gallons
			Make and Type	Put in Service	Size, Inches	Carried Feet	Spare Feet		
Eng. 1 <sub>hv</sub>	{ Headquarters: Bow and Person Sts. .... }	4	{ Ford-LaFrance 500-gal. Pumper } Studebaker * Booster Truck with 500-gal. Pump	1948	{ 2½ 1½ ¾ }	{ 1300 200 200 }	{ 4300 1900 ..... }	{ 1—24' 1—12' }	200
				1949	1½	500	.....	{ 1—24' 1—12' }	610
Eng. 2 <sub>hv</sub>	With Engine 1 .....	4	{ Am.-LaFrance 750-gal. Pumper }	1952	{ 2½ 1½ 1 }	{ 1700 200 200 }	{ ..... ..... ..... }	{ 1—24' 1—12' }	250
Eng. 3 at Sta. 2	{ Olive Rd., bet. Fort Bragg and Morganton Rds. }	4	{ Ford-LaFrance 500-gal. Pumper }	1945	{ 2½ 1½ ¾ }	{ 1100 350 150 }	{ 1550 350 ..... }	{ 1—24' 1—12' }	200
Eng. 4 at Sta. 3	{ Hillsboro and Ramsey Sts. .... }	4	{ Ford-LaFrance 500-gal. Pumper }	1943	{ 2½ 1½ ¾ }	{ 1250 300 150 }	{ 1550 200 ..... }	{ 1—24' 1—12' }	150
Lad. 1 <sub>hv</sub>	With Engine 1 .....	4	{ Am.-LaFrance 100-ft. Aerial Truck }	1950	.....	.....	.....	11; Total Length, 330'	.....

\* Equipped with Turret Pipe.  
<sub>hv</sub> Company located in or near High Value District.

carry two 10-foot lengths of 4½-inch and one 10-foot length of 2½-inch hard suction and one length of 4½-inch soft suction.

Four pumps are in reserve. Two are of Sea-grave make of 1,000 and 750 gallons capacity, purchased in 1941 and 1926, and equipped with centrifugal pumps. One is loaded with 2,050 feet and the other with 1,500 feet of 2½-inch hose and each carries a fair amount of minor equipment. In addition, two American-LaFrance 750-gallon rotary gear pumps, purchased in 1923 and 1917, are in reserve at Stations 2 and 3, respectively. One carries 1,200 feet and the other 1,000 feet of 2½-inch hose, and a small amount of minor equipment.

Three pumps in service, the booster truck and three reserve pumps were tested at draft during the survey to determine their condition and the ability of the operators. The remaining pumper in service was given its acceptance test in 1952. Pumps 1, 3 and the booster truck were able to deliver their rated capacities at 120 pounds net pump pressure. Engine 4 and reserve pumps 24, 25 and 34 were only able to deliver 98, 93, 94 and 76 per cent of their rated capacities, respectively. During the pressure test pumps 1, 3 and 4 reserve pumps 24 and 25 were able to deliver one-third their rated capacities at 250 pounds net pump pressure but the booster truck and reserve pumper 34 were only able to build up net pump pressures of 207 pounds each. Operators in general performed their duties fairly well

but showed a definite need of further experience and training in operating pumps from draft.

**Booster Truck.**—A 1949 Studebaker booster truck, equipped with a 500-gallon Hale centrifugal pump powered by a Chrysler engine, and a 610-gallon water tank, is in service at headquarters. The apparatus carries two 10-foot lengths of 4½-inch and one 10-foot length of 2½-inch hard suction, and 500 feet of 1½-inch hose.

**Ladder Trucks.**—A 1950 American-LaFrance 100-foot aerial ladder truck is in service at fire headquarters; the aerial ladder is hydraulically raised and all ladders are metal. In addition to the aerial, it carries ten other ladders including a 50-foot and two 35-foot extension ladders, two ladder pipes, a 1,500-watt portable electric generator, and a good amount of minor equipment.

A 1941 Chevrolet service ladder truck is in reserve at Station 2. This truck carries 278 feet of ladders including a 50-foot and two 36-foot extension ladders, a foam generator and hopper with 650 pounds of foam powder and a fair amount of minor equipment.

**Utility Truck.** — A 1950 Dodge pickup truck is at fire headquarters, its use being shared by the mechanic, fire alarm maintenance personnel and the fire prevention inspector. It is equipped with an 80-gallon booster tank with 100-feet of ¾-inch booster hose, booster pump, a 2,500-watt fixed electric generator with four

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500-watt floodlights and a good supply of salvage materials.

**Chief's Cars.—Other Vehicles.—Fuel.**—A 1951 Hudson 4-door sedan and a 1951 Plymouth 4-door sedan, are provided for the chief and assistant chiefs; both cars are radio equipped on the police department frequency.

A 14-foot aluminum rowboat, equipped with a 5-horsepower outboard motor, is mounted on a trailer and kept in reserve at fire headquarters. In the event of an emergency requiring its use it would be towed to the scene by the utility truck.

Gasoline is of a good grade, stored in an underground tank of 1,000 gallons capacity at the rear of headquarters, and is dispensed by means of an electric pump located outside. Apparatus at Stations 2 and 3 and at large fires is refueled from 5-gallon cans transported in the utility truck. Gasoline from this tank is also used to refuel vehicles from several other city departments including the police department.

**Appliances.**—Minor equipment carried is generally uniform but somewhat incomplete. Items needed are listed under Recommendations. Each pumper carries two carbon dioxide hand extinguishers and there is one in each of the chief's cars. Appliances for heavy and special streams include 2 ladder pipes, one mounted and two portable turrets, 2 distributing nozzles, 7 siamese connections and a fair amount of spray nozzles. Foam equipment includes a foam powder generator and 2 foam aspirating nozzles with 800 pounds of foam powder and 75 gallons of liquid foam available. A portable electric generator carried on the ladder truck and a fixed generator on the utility truck provide power for 7 floodlights and 1 spot light; one portable electric generator and 3 flood lights are in reserve.

Emergency equipment includes 6 filter type gas masks and 7 self-contained breathing apparatus. A resuscitator is kept in reserve at fire headquarters. Salvage equipment includes 25 salvage covers, each pumper carrying 2 or 3 and the ladder truck carrying 8 covers. Mops, squeegees, buckets and roofing paper are carried on the utility truck.

**Hose.**—All 1½-inch and 2½-inch hose in service and reserve is double-jacketed cotton, rubber-lined, purchased under the usual guarantees; it is not tested upon receipt. It is reported that hose is tested annually to 200 pounds pressure; no records have been kept of these tests. However, during the course of the survey, all hose, both 1½- and 2½-inch, was tested to 200 pounds using a pumper to build up the pressure. Present plans call for continuing these tests each spring.

The average amount of 2½-inch hose per company, including the spare shift, is 3,187 feet. All

pumpers carry 1½-inch hose; average amount per company including the spare shift is 1,000 feet. Pumpers carry from 1,100 to 1,700 feet of 2½-inch hose and from 200 to 350 feet of 1½-inch hose. The booster truck carries 500 feet of 1½-inch but no 2½-inch hose.

Hose is shifted monthly on the apparatus. Records compiled since the survey indicate that of the 18,500 feet of 2½-inch hose in the department, 45 per cent is less than five years old, 15 per cent is between 5 and 7 years old and 40 per cent is over seven years of age. Station 1 is provided with a hose drying rack while Stations 2 and 3 have heated hose drying cabinets.

Hose couplings of Fayetteville and surrounding communities are of the usual screw type and of National Standard dimensions.

**Repairs.**—All repairs to apparatus and equipment are under the supervision of Lieutenant Mechanic John D. Edge. In the event additional manpower is required to perform the necessary repair work one or two men assigned to head-

TABLE 4.—SUMMARY OF APPARATUS.

	In Service	In Reserve
<b>Pumpers:</b>		
1000-gallon .....	0	1
750-gallon .....	1	3
500-gallon .....	3	0
<b>Booster Truck with 500-gallon Pumper .....</b>	<b>1</b>	<b>0</b>
<b>Ladder Trucks:</b>		
Aerial .....	1	0
Service .....	0	1
<b>Utility Truck .....</b>	<b>0</b>	<b>1</b>
Ambulance .....	0	1
Chiefs' Automobiles .....	2	0
Hose, 1½-inch .....	3,800'	600'
Hose, 2½-inch .....	12,750'	5,750'
Hose, 1 and ¾-inch for Booster .....	700'	700'
Ladders, Total Length .....	510'	434'
Ladders, Short, on Pumpers .....	10	8
Portable Extniguishers .....	19	6
Resuscitator .....	0	1
Water Tanks .....	5	5
<b>Gas Masks, Approved</b>		
Filter-Type .....	6	0
<b>Self-Contained Breathing Apparatus .....</b>	<b>7</b>	<b>0</b>
Salvage Covers .....	21	4
Portable Turrets .....	0	2
Mounted Turret .....	1	0
Siamese Connections .....	4	3
Ladder Pipes .....	2	0
Wyes .....	7	9
Distributing Nozzles .....	1	1
Generators, Electric, Portable .....	1	1
Generator, Electric, Fixed .....	0	1
Foam Generator .....	0	1
Foam Aspirating Nozzles .....	2	0

quarters would be detailed to assist. The mechanic normally works 5½ days a week and is on call at all other times from his home.

No repair shop is provided. A small room off the apparatus floor is used by the mechanic for the storage of parts and hand tools. The only power equipment available consists of a grinder and two electric drills. A fair amount of small hand tools and minor parts are provided.

Although annual pumper tests are not carried out as prescribed by the National Board of Fire Underwriters, an attempt is made to operate each pump under draft conditions about once a year, taking suction from a portable tank at the rear of headquarters.

Shop records at the time of the survey were very incomplete; however, during the survey the mechanic started compiling records of apparatus, repairs, inventory of equipment and a daily log of activities; indications are that these records will be kept up to date in the future.

**Stations.**—Three stations, ranging in height from one to two stories and in age from four to twelve years, are in service. Headquarters, a two-story building of fireproof construction, was erected in 1949. In addition to the apparatus floor, the first floor contains offices of the chief and assistant chiefs, watch room, kitchen and dining room, two store rooms and a photographic dark room. A large dormitory, classroom, wash-room and recreation room are on the second floor. Apparatus floors in all stations are concrete; all doors are overhead, manually operated. Two stations are heated by coal and one by oil; hose drying cabinets are provided at two stations with a hose rack at the third.

Stations are well located in relation to traffic, and apparatus enters into fairly wide streets. All stations are in good condition; housekeeping was good.

**OPERATION.—Discipline.** — Mimeographed rules and regulations were issued on August 1, 1947 at the time the fire department changed from part paid to full paid; the essential matters of operation and discipline are covered. Type-written special and general orders are issued from time to time by the chief. Any member who commits a flagrant violation of the rules and regulations may be suspended by the chief for a period not exceeding 30 days; the suspended member may appeal such suspension to the civil service commission. There were no cases of disciplinary action during 1952. Discipline appears to be good.

**Training and Instruction.** — Assistant Chiefs George R. Hutchinson and John A. Purdy are designated drillmasters on their respective platoons. The chief issues a weekly training bulletin outlining the program to be followed by the

various company officers who serve as instructors under the supervision of the drillmasters. The lieutenant mechanic is in charge of instructing the pump operators and drivers. Classes held five days a week at the various fire stations include instruction in ladder and hose evolutions, and fire alarm box, hydrant and street locations as well as frequent drills with apparatus. All officers in the department have received instruction at the state fire college. The North Carolina State Firemen's Association has adopted the Fire Service Training program of the Oklahoma A. & M. College and all instruction is based on these texts. There is no drill tower and no drill area.

Operations witnessed at several building fires and at exhibition drills held during the survey indicate that considerable benefit is being derived from the present training but that the program could be greatly expanded.

Company members do not normally make building inspections but they are made by a fire prevention inspector assigned to fire headquarters; however, each theatre in the city is visited each evening by a fireman from either headquarters or Station 2. Information gathered by the fire prevention inspector is used in training. For further information see Fire Prevention, page 16.

**Response and Methods.**—There are no printed running cards in the department; box locations are listed on a board mounted on a wall of the apparatus room in each station. The chief responds to all box alarms, to all telephone alarms for fires in buildings and to any other alarm of his choosing; the assistant chief on duty responds to all alarms. Response to box alarms from the principal mercantile district and to boxes located near a school or hospital is one ladder and two engine companies; response to all other box alarms is two engine companies. Response to telephone alarms for fires in buildings is the same as for a box alarm from the same vicinity. The nearest engine company is sent to all fires of a minor nature such as brush, automobile or rubbish. Members of Engine Company 1 at fire headquarters man two pieces of apparatus, a pumper and a booster truck, the type of fire determining which piece of equipment responds. There is no multiple alarm response scheduled and additional companies are dispatched as requested by the chief officer in charge at the fire. If there is need for flood lights or additional salvage equipment the chief officer at the fire radios for the utility truck which is manned by either the mechanic or one of the firemen assigned to headquarters.

An appeal for an inhalator or resuscitator is normally handled by placing the resuscitator kept in reserve at headquarters in the chief's car and responding with one or two men from headquarters.

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The dispatcher relocates companies when necessary so as to try and maintain uniform coverage of the city. An attempt is made to keep apparatus at Station 2 as long as possible as this is the only station to the west of all railroad tracks.

In addition to providing fire protection within the city limits, the department regularly responds to alarms in most sections of Cumberland County. A contract with the county provides that in return for an annual payment of \$7,500 the city will provide the necessary fire protection unless their own protection is seriously jeopardized. The nearest engine company is sent to all calls for assistance and, if upon arrival the officer in charge feels that a second engine company is needed, one would be dispatched in response to his radio call for additional help. If either Engine 3 or 4 is sent to the county, the dispatcher relocates Engine 1 to their quarters while they are out of service. The department attempts to restrict its response to building fires or to fires that threaten to extend to buildings. All calls reporting brush or woods fires are transferred to the state forest fire service; however, there have been many instances where response has been to brush fires where buildings were not involved.

In return for the Fayetteville fire department providing protection to the government reservation of Honeycutt, a military reservation within the city limits, the Ft. Bragg fire department responds to all fires in the Spring Lake section of the county. The only other organized fire protection in the county is a volunteer fire company located in Hope Mills; this company protects the village of Hope Mills and the immediate surrounding area.

Of the 307 building fires occurring during 1952, 101 were extinguished by means of 2½- and 1½-inch lines, 80 with booster lines, 62 by hand extinguishers and 64 were out on arrival. The usual operating procedure is for the first due engine company to stop in front of the fire building and immediately place its pre-connected 1½-inch lines in operation. The second due engine company proceeds to lay a 2½-inch hydrant line to the first pumper providing an unlimited supply of water to the 1½-inch lines. A 4-way valve is used in making the hydrant connection thus enabling the pumper to return and connect its pump with no interruption in the flow of water. Booster lines or pre-connected 1½-inch lines are used on fires of a minor nature. Good use is made of spray nozzles.

A general order issued on January 17, 1953 requires the second due engine company responding to a fire in a building equipped with a stand-pipe or sprinkler system to lay a 2½-inch line to the siamese connection, connect its pumper to the hydrant and await orders from the officer in charge before charging the line.

Rescue work and ventilation are carried out by members of the ladder company; if the ladder does not respond, this work is done by engine company crews. Salvage operations are undertaken by all firemen utilizing equipment carried on the apparatus as well as the utility truck. Salvage operations witnessed were very commendable.

The booster truck is usually sent to building fires in the county where full advantage is taken of its 610-gallon water tank and its four pre-connected 1½-inch lines.

**Reports and Records.**—All records are under the supervision of the chief but are maintained by Thomas D. Davis on one platoon and Lt. Thurmon C. Bishop on the other platoon. Both men are assigned to Engine Company 2 and perform fire duty in addition to their secretarial duties.

Each company maintains a daily log sheet where all data pertaining to that company is entered. Each assistant chief makes out a daily report of his activities and these reports along with the company log sheets are filed in a master file at headquarters. The dispatcher keeps a daily log of all radio communications and tests.

The dispatcher makes out the only fire report utilizing information gathered by the chief officers and the companies attending the fire. Information from this report is compiled in a master fire record book and the reports are then filed at headquarters by street index.

Records of apparatus and equipment are incomplete and some information is lacking in personnel records. At the time of the survey no records as to the age and quantity of hose were available; however, since the survey was made a hose record system has been installed and is presently being brought up to date.

The chief makes a monthly, semi-annual and an annual report of all fire department activities to the city manager. The records available are fairly good.

**CONCLUSIONS.**—The fire department is full paid and under competent chief officers. The department has made commendable progress since its reorganization from part-paid, part-volunteer in 1947. While original appointments are under suitable civil service regulations all promotions have been made upon the recommendation of the chief with seniority being the usual guide. Retirement provisions are only fair, and although there is no compulsory retirement age, no company member is over 55 years of age.

Engine companies are fairly well distributed but another such company is required to provide proper protection to the area within the city limits. The present agreement to provide fire protection to the remainder of the county, which at times seriously weakens the fire de-

fense of the city, requires additional engine companies for proper protection. Ladder protection to the high value districts is good with one more company required to bring all sections of the city within the proper distance of a ladder company.

Apparatus is fairly well equipped and in fairly good condition; however, several pieces of reserve apparatus are in fair to poor condition with their reliability in question. Since annual pumper tests are not carried out, the adoption of such a program would not only be a yearly test of the equipment but an opportunity for the pump operators to gain valuable experience in operating pumpers under draft conditions. While a competent mechanic is assigned his efficiency is greatly reduced by failure to provide adequate repair facilities. Shop records, incomplete at the time of the survey, have since been greatly improved.

A good supply of hose is available and while hose tests and records prior to this survey were inadequate, all hose was tested during the survey and records have since been brought up to date and completed, with present plans calling for the adoption of annual hose tests.

While the present training program carried out by the company officers, under the supervision of the chief officers, is of great value, the lack of proper drill facilities, including a drill area and tower, and a drillmaster, prevents the carrying out of a complete drill program.

Response to box alarms and for telephone alarms for fires in buildings is adequate. Fire methods in general are very good, with frequent use made of preconnected 1½-inch hose lines which are particularly applicable for inside fire fighting and for keeping water damage to a minimum. Salvage materials are fairly well distributed with operations witnessed at several serious fires during the survey very commendable.

While many fire department records were incomplete at the time of the survey, they have since been improved and are presently being greatly expanded.

## FIRE ALARM

**ORGANIZATION.**—The fire alarm system is a part of the fire department and is under the same supervision. The chief is superintendent but the system is maintained on one shift by Charles E. Young, a fireman assigned to Station 2, and on the other shift by Sherwood W. Hulon, a fireman assigned to Station 3; both men perform fire duty in addition to their fire alarm assignment.

Fire alarm headquarters is in a wing of Station 2, a one-story building of ordinary construc-

tion at Olive Road, between Ft. Bragg and Morganton Roads, erected in 1941. It contains the usual hazards of a fire station; outside exposures are mild. It consists of an operating room and battery room, separated from the rest of the fire station by a plastered wall and a plain wooden door; an outside door opens into the battery room.

### **EQUIPMENT.—Apparatus at Headquarters.**

—Equipment is of automatic type and Game-well make, installed in 1946, with provisions for operation by the ground return principle. It consists of an automatic switchboard with a master control panel, four box panels of two circuits each and one alarm panel of two circuits.

The control panel is equipped with meters for determining the voltage of the local battery, for ground and interline testing, and with trouble bell and timing relay equipment. Supervisory equipment, including pilot lights, is provided.

A punch register with time stamp, common to all circuits, is located at the watch desk of Station 2. The watch room at fire headquarters contains a Peerless, 4-figure manual transmitter, a punch register, vocalarm central control and amplifying equipment for the transmission of voice communication to all stations, a public address system for headquarters, two telephones reserved exclusively for fire emergency calls, two telephones for business calls, an A.D.T. supervisory panel for a rate-of-rise detection system installed at Sears-Roebuck Company store on Hay Street, and a remote control radio transmitting and receiving unit.

Circuits extend in conduit down a pole and enter the rear of Station 2 from underground to a metal line terminal and protector cabinet in the battery room. The lines then extend under the floor in conduit to the switchboard.

Circuits are protected where they enter headquarters by 3-ampere cartridge type fuses, inert gas lightning arresters and ½-ampere fuses. Two 3-ampere fuses are mounted on both the low rate and high rate rectifiers, batteries are protected by 3-ampere fuses in a metal box mounted on the end of the battery racks, 3-ampere fuses are provided on the operating panel, 15-ampere fuses are installed where the commercial power circuit enters the operating panel, and an inert gas lightning arrester is provided where the circuit enters the filter plant and the home of one of the assistant chiefs. Inert gas lightning arresters and 3-ampere fuses are installed where alarm circuits enter each fire station.

Current for operating the system is furnished by individual circuit rectifiers, supplied by an independent commercial circuit, with batteries floating. There are 252 cells suitably mounted on a step-type battery rack in the battery room



## FIRE DEPARTMENT AUXILIARIES

wheeled motorcycles in service. Other vehicles include a dog wagon and a paint truck; no patrol wagon is provided.

The radio system consists of a 150-watt base transmitter located at police headquarters with mobile units of 40 or 75 watts capacity each. A 207-foot steel antenna tower is located on Water Street near Person Street and is connected to the transmitter by means of leased telephone lines. All alarms of fire are broadcast over the radio system by the dispatcher on duty at fire headquarters and are received by the police department in this manner. There is no street signaling system.

Response to alarms of fire consists of the man on the beat in the vicinity, one cruiser and usually one motorcycle. Cooperation with the fire department is good. Police check building construction to determine if the proper permits have been issued.

**TELEPHONE SERVICE.** — The Carolina Telephone and Telegraph Company serves approximately 8,880 subscribers with 11,243 stations in the city of Fayetteville and surrounding areas. These include 1-, 2-, 4- and 8-party lines. In addition, there are 4,101 government telephones connected to the lines, having use of the local dial system, but are not maintained by the telephone company; the bulk of these are at Ft. Bragg.

Service is through three dial switching exchanges located in two buildings. Switching equipment for the two exchanges serving the city is in a two-story fireproof building just north of the principal mercantile district; a new wing was completed in 1951. All exterior windows are wired glass in metal frames. The building is seriously exposed on one side by a four-story hotel of ordinary construction. Switching equipment is installed on both the first and second floors of the old section with the battery room and offices occupying the new wing. A 40-kw diesel driven generator is provided for emergency power. Interior protection consists of carbon-dioxide hand extinguishers.

A one-story fireproof building, constructed in 1951 at Ft. Bragg, contains the switching equipment for the third exchange. The building is in an isolated area and has carbon-dioxide hand extinguishers provided for interior protection.

The operating room for all three exchanges is in the two-story toll building on McGulvary Street. Built in 1950, the building is equipped with a standpipe system with 200 feet of 1½-inch hose on each floor; additional fire protection consists of carbon-dioxide hand extinguishers. The battery room, storage space and heating system are on the first floor with the operating

room and offices on the second. A 60-kw diesel powered generator is provided as an emergency power source.

Most cable in the business district is underground while service in the residential areas is mainly aerial. Four trunk lines are provided to fire headquarters; two are reserved exclusively for fire emergency. Emergency calls received by the operator are immediately transferred to the fire department and are supervised and logged.

**PUBLIC SERVICE CORPORATIONS.** — The Carolina Power & Light Company responds to fires only upon request. An emergency crew is quickly available on a 24-hour basis.

**PRIVATE FIRE PROTECTION.**—Twenty-seven buildings or group of buildings are protected by automatic sprinkler systems and fifteen buildings are equipped with standpipes and hose. Six plants are provided with yard hydrants, in most cases equipped with hose, and about fifteen establishments have night watchman service. Hand extinguishers were noted to be generally well distributed and 40-gallon foam tanks on wheels were found in two or three plants.

Fire protection at the Fayetteville Municipal Airport consists of a Willys jeep equipped with a tank containing 300 pounds of nitrogen-expelled dry chemical and two 20-pound dry chemical hand extinguishers. The apparatus, manned by maintenance personnel at the field, is kept out of doors exposed to the elements.

A 1940 Howe 500-gallon pumper, loaded with 500 feet of 2½-inch hose, is provided at the Veteran's Administration Hospital and would be manned by guards at the hospital when necessary.

**FORT BRAGG FIRE DEPARTMENT.** — Fort Bragg, a military reservation located about 6 miles northwest of Fayetteville, has a full paid fire department under the direction of Chief Parker L. Vickery. One Ford-LaFrance utility truck and four 1942 American-LaFrance 750-gallon pumpers are in service in three stations. All apparatus and chiefs' cars are radio equipped.

In response to a call for assistance from the City of Fayetteville one pumper under the direction of an assistant chief would be dispatched. This pumper would be supplemented by a second one if required. A good supply of foam is also available at the reservation and would be sent into the city if needed.

In return for the City of Fayetteville providing fire protection to Honeycutt, a military reservation located within the city limits, the Fort Bragg

department answers all alarms of fire in the Spring Lake section of the county.

**OUTSIDE AID.**—Outside assistance is available from the Veteran's Administration Hospital adjoining the city limits to the north, Fort Bragg

Military Reservation 6 miles to the northwest, the volunteer departments of Hope Mills, Raeford and Dunn, 8, 22 and 26 miles distant, respectively, and the part-paid, part-volunteer department of Sanford, 25 miles to the northwest of the city.

## STRUCTURAL CONDITIONS AND HAZARDS

### BUILDING DEPARTMENT

**ORGANIZATION AND CONTROL.**—State and municipal laws provide for the supervision of construction, repair or alteration of all buildings by a building inspector. Duties of the office, which was created in 1940, include the enforcement of the building regulations, issuing permits and the inspection of buildings and plumbing installations. The building inspector is appointed by the council to serve at its pleasure; W. A. DePrater is the present incumbent, having been appointed to this position in October, 1951. A secretary aids with the office work of the building inspector and electrical inspector.

A permit must be obtained before the construction, alteration, repair or removal of any building may be started. Application is made on printed forms and must be accompanied by plans or at least sketches for smaller jobs; copies of applications are kept on file. If approved, a permit in card form is issued and must be posted on the job. Plans are kept on file for several years and then are either returned to the owner or destroyed. A record card is kept for each permit issued and all inspections made are noted thereon, the card being filed when the work is completed. The number of inspections made depends upon the nature and size of the construction. Items with which other departments are concerned are referred to those departments for approval. Records are kept in filing cases in the building inspector's office in the city hall, a building of ordinary construction.

**LAWS AND REGULATIONS.**—The North Carolina Building Code adopted in 1933 applies to all new buildings except dwellings, outbuildings, apartments with not more than two families, agricultural buildings not within the limits of incorporated municipalities and temporary buildings used for construction purposes. Good requirements are specified for the egress from buildings. Limitations of heights of buildings are fairly good but those for areas are very liberal. All windows above the first floor, except show windows, are required to be protected, regardless of exposure distance. Requirements for the protection of vertical openings are good; double approved fire doors are required for the protection of openings in fire walls. Frame con-

struction may not be erected within the fire limits. An amendment of December 11, 1950, requires that the thickness of all walls be based on the fire resistive ratings of the 1949 edition of the National Building Code. Parapets are required to be 18 inches in height. Specifications for chimney construction are good, but those for heating, ventilating and air conditioning are weak. Requirements for fireproof construction are fairly good; those for sprinkler protection are incomplete. Buildings found to be in a dangerous condition may be condemned.

A state act adopted April 5, 1947, with provisions for a three-year compliance period requires a fire alarm system in all hotels or buildings of like occupancy and watchman service in hotels, over two stories in height or containing over 20 rooms. Hotels, other than those of fire-resistive construction, when over three stories in height, must have automatic sprinkler protection or a fire detection system; likewise, buildings less than three stories and lacking in adequate means of egress must be sprinklered. In all hotels, stairways must be enclosed, decorations flame-proofed and fire extinguishers provided.

The municipality adopted the 1949 National Building Code on April 10, 1950, as the standard for construction. In addition, a zoning ordinance divides the city into one industrial, one heavy commercial, two business and four residential districts and prescribes certain regulations, including height of buildings, percentage of lot area that may be built upon, minimum depth and width of yards and off-street parking space.

The fire limits, as shown on the accompanying map, surround and properly protect the principal mercantile district. Frame construction is properly restricted within these limits and wooden shingle roofs are prohibited within the city.

An inspection of a number of buildings under construction or recently completed indicates that enforcement of the building regulations is satisfactory.

**LOCAL CONDITIONS.**—The principal mercantile district consists of 13 blocks or part blocks, containing 3 buildings of fireproof, 261 of ordinary and 7 of frame construction, exclusive of sheds and additions.