

SANBORN MAPS—

WHAT THEY MEAN

AND

HOW THEY ARE MADE

AT SOME time during his career today's fire fighter is introduced to the standard plan symbols used in mapping the extent of fire protection in municipalities. Through the years such symbols and maps have been extremely useful to insurance organizations, engineers, inspectors and other persons or groups interested in fire protection. Recently, because of the stepped-up pace of inspections and pre-fire planning by fire departments, these colorful maps have become more and more important to fire prevention bureau personnel and other fire department members.

Perhaps the best use the fire department can make of such maps is in pre-fire planning of target hazards. The symbols can be studied and learned quickly, after which it is relatively simple to study a map and to determine the construction area, height, protection against exposure, fire protection, occupancy, special hazards, and other details of buildings and areas.

Actually, the well-trained fire officer can study the buildings in the portion of one of these maps and do a pretty good job in sketching in the placement of apparatus, ladders and heavy stream equipment and the movement of hand lines for controlling a hypothetical fire. Similarly, the members of a fire company can be briefed on the tactics and strategy for a given building or area. All that is needed is a blackboard, some colored chalk, a key to the standard plan symbols, and a fairly accurate sketch of the area to be studied.

For more than seventy years the largest producer of these fire protection maps has been the Sanborn Map Company, Incorporated, of Pelham, New York. This company maintains a continual service of developing and revising detailed maps of municipalities. Its publications number more than 11,000 including diagrams of every United States town of 2,000 or more population. It has also published 1,400 bound volumes of maps covering 400 of the largest U. S. cities or centers of population. Every city of over 50,000 population is re-

produced in maps bound in one or more volumes (averaging 85 sheets to the volume), and the bound maps are revised on an average of once every year. Sanborn's diagrams of approximately 10,000 smaller communities are revised at intervals of two years or more, depending on the size and building activity of the town covered. Cities and towns can purchase the maps and diagrams and will get revised copies after their communities have been resurveyed by Sanborn.

The standard Sanborn map shows the central portion of a municipality on a scale of 50 feet to the inch. Most residential areas are on a scale of 100 feet to the inch. Street names and widths, block and lot numbers and street addresses are shown. The size of the water mains, location of fire hydrants, the outline, height and construction of each building showing interior walls of masonry and many other details are included.

Color is used effectively to permit quick understanding of building construction and protection. Yellow indicates that a building has floors and roof supported by wood or other combustible material. A dark pink or light red means that the building has wood floors and roof supported by brick or hollow clay tile walls. The same color also indicates brick or hollow tile walls and unprotected steel floors, steel columns and beams, but notations give the details of construction. Blue means that the floors and roof of a building are supported by stone, concrete, or concrete without reinforcement. Grey indicates a non-combustible wall or roof, such as skeleton steel, metal lath and plaster. Fire-resistive construction is designated by brown or a buff color. The combinations of different types of construction are shown by combining the different respective colors. Reproductions of the symbols used by the Sanborn Map Co., Inc., are shown on the preceding page. Similar symbols will also be found in the *NFPA Inspection Manual* and the *NFPA Handbook of Fire Protection*. Fire department members are urged to

become familiar with such symbols and to make use of the up-to-date maps available to each municipality.

A field force of 70 surveyors corrects the city maps and town diagrams on regular schedules. Upon arrival in the municipality which is to be resurveyed, the surveyor goes to the local express office and picks up a copy of the map sent there from Sanborn's headquarters. His next stop is the police station, where he identifies himself and the type of work he will be doing in order to forestall the usual complaints about prowlers and "peeping toms." The actual revision of a map involves "walking each sheet," that is, re-inspecting each structure shown on the map and adding any new buildings. When a new building or an addition to an existing structure is found, the surveyor must measure its size and distance from other buildings and then, using a scale, draw its outline in proper location on the map sheet. The measuring is done by pacing. Each pace is usually 2.5 feet more or less depending on the individual surveyor. Diagrams of buildings under construction can usually be taken from architects' plans. Information concerning water pipes and new subdivisions is generally available at City Hall.

The surveyor usually starts his job in the principal business district of the city and works out into the residential areas. When he gets to the fringes of the mapped area he may run into the problem of adding a new sheet to the map because of a new high-value residential subdivision or a new industrial or commercial area, such as those now developing on the outskirts of so many of our large cities.

A new map sheet is made in much the same way as the original map was made. If official plans are available at the city or town hall, the surveyor can simply plot his street layout from these. If not, he has to measure the streets and draw a detailed sketch.

Once the streets are plotted, all buildings are measured by pacing so that the sketching of streets and the various buildings gives an accurate picture of what exists on the ground. The surveyor must go into each commercial and industrial building and collect information on fire walls, exterior wall thickness, windows or doors exposed to other buildings, automatic sprinklers, fire doors, elevators, skylights, occupancies and many

other details. Once his work is completed, the surveyor sends the map back to the company in Pelham, where his work is processed into revised maps.

At the main office, each surveyor's work is examined thoroughly for completeness, standard symbolization, legibility and accuracy. Next, the areas of change are outlined on the map, each outline representing an eventual revision slip. The lines and lettering printed on the slip tie in with the parts of the diagram adjacent to it, thus creating a continuously up-to-date diagram. An average bound volume revision will contain about 120 slips. Some may contain as many as 300 slips.

The Drafting Department traces all of the information within the slip limits so that the new finished drawing includes all of the information which the surveyor has indicated for that area. From each tracing, negatives are made, then lithographic plates, from which the correction slips are printed.

The printed edition of each revision slip is colored by hand from hand-cut stencils. Once all of the publishing operations have been completed the result is a collection of standard sheets with from 75 to 150 irregularly shaped slips on each sheet. This is cut apart by hand and all slips are collated into sets, with each set containing all corrections for one volume. These corrections are sent to customers' offices where a traveling corrector on a regular schedule pastes each slip in its proper position on that customer's map.

This system of municipal mapping demands accuracy and an enormous quantity of paper processing. In 1959 the revision of all copies of 1,954 publications called for the processing of 15,000,000 slips. The general acceptance of the accuracy of Sanborn maps reflects the high degree of control of all operations by Sanborn employees from initial surveying to printing, coloring, insertion in binders, and even the manufacturing of the binders.

The fire protection maps and diagrams constitute only one item on the list of Sanborn products. The Special Services Department of the company also produces a great variety of custom mapping projects, population studies, land use maps and computations, zoning maps and many other mapping services.