

**STANDARD SCHEDULE FOR GRADING
CITIES AND TOWNS OF THE UNITED
STATES WITH REFERENCE TO THEIR FIRE
DEFENSES AND PHYSICAL CONDITIONS.
ADOPTED, DECEMBER 14, 1916**

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Standard Schedule for Grading Cities and Towns of the United States with Reference to Their Fire Defenses and Physical Conditions. Adopted, December 14, 1916 by National Board of Fire Underwriters

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NATIONAL BOARD OF FIRE UNDERWRITERS

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*Have
1915 ed.*

*This ed. not in
12/15/22
L.R.*

Standard Schedule

For

Grading

**Cities and Towns of the
United States**

With Reference

**To Their Fire Defenses and
Physical Conditions**

National Board of Fire Underwriters

New York

Adopted, December 14, 1916

L.Y.

INTRODUCTORY.

The Grading Schedule is based upon the plan of assigning to the various features of fire defense found in cities of the United States, points of deficiency depending upon the extent of variance from standards formulated from a study of conditions in more than 500 cities; the natural and structural conditions which increase the general hazard of cities, and the lack of laws or of their enforcement for the control of unsatisfactory conditions, are graded in the same way. The sum of the maximum points of deficiency totals 5,000 and is divided in accordance with the relative values of the features considered as given below.

RELATIVE VALUES.

	Points
Water Supply { Engine Stream Basis.....	1,700
{ Hose " "	2,000
Fire Department { Engine Stream Basis.....	1,500
{ Hose " "	1,200
Fire Alarm.....	550
Police	50
Building Laws.....	200
Hazards	300
Structural Conditions.....	700
	5,000

It is recognized that climatic conditions affect fire losses, by reason of the frequency of fires due to the heating hazard, by retarding the response of fire apparatus, by hampering effective fire fighting during cold weather and storms, by the increase in combustibility due to hot and dry weather, and by the greater probability of fires spreading at time of high winds. These elements are to a greater or less degree common to the whole country, and therefore no deficiency is considered in the Schedule for normal climatic conditions. Some sections of

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the country, however, are subject to abnormal climatic conditions, and to cities in these sections, a super-deficiency is applied, as given on page 79. This super-deficiency is to be added to the deficiency determined by the application of the Schedule proper.

A good water supply in connection with a poor fire department, or *vice versa*, is of less value than if both are good. In recognition of this, a modification of the better one of the two features is made, in accordance with the plan given on page 80, provided the divergence exceeds the equivalent of three classes.

The subjects considered in grading the various features are given on pages 4 to 8 and the details of grading on the pages following; the total of the points of deficiency is used in determining the class of the city or town graded, in accordance with the plan given on page 9.

In determining the points of deficiency to be applied to many of the items, it appears reasonable to use a graduated scale of points depending upon the per cent. of deficiency, with a lesser increment for the first 30 per cent. than for the remainder; that is, a deficiency of 10 per cent. in good or moderately good conditions has less actual effect than where conditions are poor. Such a scale has been prepared and is given below; either the full scale, a multiple or a fractional part thereof is used, depending upon the relative weight or importance of the item under consideration.

To save space, this Scale is printed in full on page 3, and reference is made to it under each item to which it applies.

In all items, the total required quantity or the total required number must be used as the basis in figuring the percentage of deficiency, except that under Water Supply, if there is a deficiency under Item 6, the quantity available on which this deficiency was obtained shall be used as a basis in figuring the percentage of deficiency of Items 7 to 16, inclusive, except for the Item on which the inadequacy occurs, in which case the total required quantity will be used. In Items 1, 2, 12, 15, 17, 19, 20, 21, 23, and 26 of Fire Department the deficiency shall be on the basis of existing companies.

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DEFICIENCY SCALE.

(Points of deficiency corresponding to per cent. deficient.)

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
0%	0	10	25	45	67	90	112	134	156	178	200
1%	1	12	27	47	70	92	114	136	158	180	POINTS
2%	2	13	29	50	72	94	116	138	160	182	
3%	3	15	31	52	74	97	119	141	163	185	
4%	4	16	33	54	77	99	121	143	165	187	
5%	5	18	35	57	79	101	123	145	167	189	
6%	6	19	37	59	81	103	125	147	169	191	
7%	7	21	39	61	83	105	127	149	171	194	
8%	8	22	41	63	85	108	130	152	174	196	
9%	9	24	43	65	88	110	132	154	176	198	

Where quantity or numbers cannot be used as the basis, as in Items 2, 7, 10, 11 and 17 of Water Supply and Items 3, 23, 25, 28, 29 and 31 of Fire Department, the degree of deficiency shall be graded approximately as follows: Slight, 10 per cent.; moderate, 25 per cent.; considerable, 50 per cent.; serious, 75 per cent., and total, 100 per cent. In considering the degree of such unreliability, the size of the community shall be considered; conditions which in a city would be considered as serious would in a village be only moderate or considerable, because of the less general probability of a fire occurring.

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SUBJECTS CONSIDERED IN THE SCHEDULE.

Water Supply.

Item

1. Appointment of Employees.
2. Efficiency of Executive.
3. Records and Plans.
4. Emergency Repair Provisions.
5. Receipt of Alarms by Department.
6. Normal Adequacy of Entire System.
7. Reliability of Source of Supply.
8. Sufficiency of Reserve Pump Capacity.
9. Sufficiency of Reserve Boiler Capacity.
10. Condition and Arrangement of Equipment.
11. Fuel Supply or Electric Power.
12. Construction of Pumping Station.
13. Fire Protection of Pumping Station.
14. Hazards of Pumping Station.
15. Exposures to Pumping Station.
16. Reliability of Supply Mains as Affecting Adequacy.
17. Reliability of Installation of Supply Mains.
18. Completeness of Arterial System.
19. Reliability of Installation of Mains.
20. Effect of Small Mains in the High Value District Considered.
21. 4-inch Mains in System.
22. Dead Ends—4- and 6-inch Mains.
23. Completeness of Gridiron of 6-inch Mains.
24. Quality and Condition of Pipe.
25. Electrolysis.
26. Spacing of Gate Valves.
27. Condition of Gate Valves.
28. Distribution of Hydrants in the High Value District Considered.
29. Ditto in Residential Districts.
30. Condition of Hydrants.
31. Size and Design of Hydrants.
32. Valves on Hydrant Branch.

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Fire Department.

- Item
1. Number of Officers.
 2. Number of Operators.
 3. Qualifications of Chief Officers.
 4. Tenure of Office of Chief.
 5. Appointment and Tenure of Office of Officers.
 6. Enlistment Requirements.
 7. Retirement Requirements.
 8. Number of Hose or Engine Companies (Apparatus.)
 9. Number of Ladder Companies (Apparatus).
 10. Distribution of Companies.
 11. Total Required Manual Strength of Department.
 12. Manual Strength of Existing Companies in the High Value District Considered.
 13. Engine Capacity.
 14. Reserve Engines.
 15. Condition of Engines and Hose Wagons.
 16. Fire-Boats.
 17. Powerful Steam Appliances.
 18. Chemical Equipment.
 19. Reserve Hose Wagons.
 20. Amount of Hose.
 21. Hose Larger than 2½-inch.
 22. Condition of Hose.
 23. Minor Equipment.
 24. Fuel.
 25. Repair Facilities.
 26. Horses.
 27. Suitability of Fire Stations.
 28. Discipline.
 29. Drills and Training.
 30. Responding to Alarms.
 31. Fire Methods.
 32. Conditions Affecting Fire Department Operations.
 33. Building Inspections.
 34. Records of Fires, etc.

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FIRE DEPARTMENT: SHORT METHOD OF GRADING FOR SMALL CITIES OR WHERE THERE IS NO ORGANIZED FIRE DEPARTMENT:

Fire Alarm.

Item

1. Qualifications of Management.
2. Adequacy of Maintenance Force.
3. Operators.
4. Headquarters Building.
5. Apparatus at Headquarters.
6. Circuit Protection.
7. Batteries.
8. Circuits Underground.
9. Condition and Material of Circuits.
10. Circuits Near High-Potential.
11. Open or Grounded Circuits.
12. Overloaded Circuits.
13. Alarms to Fire Stations.
14. Condition of Inside Wiring.
15. Type of Boxes.
16. Conspicuousness and Accessibility of Boxes.
17. Condition of Boxes.
18. Distribution of Boxes.
19. Tests and Records.
20. Speed of Alarms.
21. Fire Department Telephone System.
22. Transmission of Telephone Alarms.
23. Provisions for Transmitting Telephone Fire Alarms from the Telephone Exchange.
24. Method of Handling Telephone Fire Alarms at the Telephone Exchange.

Police.

1. Co-operation with Fire Department.
2. Patrol Wagons.
3. Signalling System.
4. Co-operation with Building Department.