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A PROPOSED

BUILDING CODE

FOR SMALL CITIES . . .

1953 Revision

Ordinance No. 506

BUREAU OF MUNICIPAL RESEARCH AND SERVICE
University of Oregon

in cooperation with
THE LEAGUE OF OREGON CITIES

A PROPOSED

BUILDING CODE

FOR SMALL CITIES . . .

(Second Revision)

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The proposed code was first published in June, 1946, and has since that time been adopted by a number of small cities in Oregon. The revisions contained in this edition were made in order to bring the code up to date and to improve and clarify certain provisions. In particular, changes in grading rules for lumber have required revision of allowable span tables. Cities that have adopted previous editions of the code should replace their present code with the new edition. Mr. Arnold M. Westling, Bureau planning consultant, assisted in the revision of the code.

Respectfully submitted,

HERMAN KEHRLI
Director,
Bureau of Municipal Research and
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A Proposed Building Code for Small Cities

Ordinance No. 506

An ordinance regulating the construction, alteration, repair, and moving of buildings within the city of Sherwood, Oregon; providing for permits and fees therefor; providing for penalties for violation thereof; and providing for the repeal of all ordinances or parts of ordinances in conflict herewith.

(Insert here the ordaining clause specified by charter or ordinance, or if none is specified, the one commonly used by the city.)

The City of Sherwood Does Ordain As Follows:

Part I—Administration

Section 1. CITATION

This ordinance shall be known and cited as "The Building Code of the City of Sherwood, Oregon."

Section 2. PURPOSE

The purpose of this code is to establish and enforce minimum standards of safe design and construction for all structures hereafter erected, altered, repaired, or moved within the limits of the city and to promote the public health, welfare, and safety. This code shall invoke the police power specifically or impliedly delegated to the city, and shall be liberally construed to effect its purposes. The requirements of this code shall be deemed to supplement the laws of the state and all ordinances, rules, and regulations pertaining to use, occupancy, fire hazard, safety, and sanitation.

Section 3. SCOPE

No structure or part of a structure shall hereafter be built, altered, repaired, or moved until a building permit therefor has been granted by the building official. All structures hereafter built, repaired, altered, or moved are subject to inspection by the building official. The building official shall have the right of entry at any convenient time for the purpose of enforcing the regulations contained in this code.

Section 4. BUILDING OFFICIAL

The office of building official is hereby created. The building official shall be appointed by the mayor with the consent of a majority of the council. He is hereby charged with the administration and enforcement of this code.

Section 5. APPLICATION FOR A BUILDING PERMIT

Application for a building permit shall be filed by the owner or his agent with the building official upon a form provided for the purpose and giving such information as the building official shall require. Such application shall be accompanied by two complete sets of plans and specifications including plot plans showing the relationship of the proposed building to abutting property lines and buildings. If, in the opinion of the building official, the character of the work is sufficiently described in the application, he may waive the filing of plans provided the cost of such work does not exceed one thousand dollars ($1,000).

Section 6. ISSUANCE OF PERMIT

If the building official finds that the proposed building will comply in every respect with this code and the laws of the state of Oregon, he shall

issue a building permit therefor, and shall write "approved" on one set of the plans and specifications, which shall be kept at the site of the proposed building. After issuance of the building permit, the plans and specifications shall not be altered unless such change is approved by the building official as conforming to this code.

STOP WORK ORDERS

Section 7.

The building official shall order a stoppage of work on any type of construction for which a permit is required at any time that he finds the provisions of this code, or plans and specifications approved under this code, are not being complied with. He shall post a copy of this order at the site of construction and serve a copy thereof upon the permittee or his agent. Upon receipt of this order the permittee or his agent shall forthwith cease work. The building official shall not lift such order until supplied with satisfactory evidence that the violation is corrected. The building official shall serve written notice upon the permittee or his agent that the stop work order has been lifted before work may be resumed. Stop work orders shall be in addition to other penalties provided for violations of this code.

LAPSE OF PERMIT

Section 8.

A building permit shall become void unless operations are commenced within six months from date thereof unless such time is extended by the building official.

INSPECTION

Section 9.

The building official shall be notified by the holder of the permit, and the building official shall inspect the building

1. When the foundations are ready to be placed.
2. When the structural frame is complete.
3. When the building is completed.

CHANGE IN USE

Section 10.

No change in the type of use of any structure shall be made without first applying for a building permit. Upon application for such permit, the building official shall inspect the structure and he shall issue such permit only if the building complies with the provisions of this code and the laws of the state of Oregon for the new use or if proposed alterations will result in such compliance. A change in the type of use shall be interpreted to mean a new use of an existing structure which will change its classification from Group I to Group II as described in Section 21 and 22 of this code or a use which will increase the design loading requirements as found in Section 23 of this code.

A permit may be issued for a change in type of use even though not complying completely with the above provisions if such occupancy change is determined by the city council to be less hazardous from the standpoint of life and fire risk than the existing use.

Section 11. BOARD OF APPEALS CREATED—APPOINTMENT

A building board of appeals is hereby created. It shall consist of three members who are qualified by experience and training to pass on matters pertaining to building construction. It shall be appointed by the mayor with the consent of a majority of the council, and shall hold office at the pleasure of the mayor. The building official shall act as secretary of the board of appeals, and shall keep a record of its decisions.

Section 12. APPEALS, DECISIONS, RECOMMENDATIONS TO COUNCIL

Any person who feels that an injustice has been done him by any order or ruling of the building official may appeal therefrom to the board of appeals by filing a written notice of his appeal with the building official within ten days after receipt of the order or ruling to which he takes exception. The decisions of said board shall be limited to the interpretation of the provisions of this code. It shall adopt rules of procedure for matters coming before it and its decisions shall be governed by a majority vote. It shall render its findings and decisions in writing, one copy thereof to be filed with the building official and one copy to be delivered to the appellant. The decisions of the board shall be conclusive except in case of mistake or fraud. The board may recommend to the city council any amendments to this code or new legislation that it may deem advisable.

Section 13. FEES

Before receiving a building permit for a Group I or Group II building as hereinafter defined, the owner or his agent shall pay the city recorder the following fees:

No fee for work the valuation of which is less than fifty (50) dollars.

$1.00 ..... dollars for work the valuation of which is more than fifty (50) dollars but less than five hundred (500) dollars.

$2.00 ..... dollars for work the valuation of which is more than five hundred (500) dollars but less than one thousand (1,000) dollars.

$2.00 ..... dollars for each additional one thousand (1,000) dollars or fraction thereof of total valuation up to fifteen thousand (15,000) dollars.

$1.00 ..... dollars for each additional one thousand (1,000) dollars or fraction thereof of total valuation over fifteen thousand (15,000) dollars.

$10.00 ..... dollars for moving a building.

The city, county, state, or the United States shall be exempt from paying fees for a building permit.

APPROVAL OF NEW MATERIALS

Section 14.

New materials, systems of construction, and devices may be approved by the building official when they are determined to be the equal of those required in this code. The building official shall be guided in such approval by the results of tests conducted by testing laboratories such as the U. S. Bureau of Standards, the Underwriters' Laboratories, Inc., or by any other testing agency deemed by the building officiial to be competent to conduct the respective tests.

ALTERATION, REPAIR, AND MAINTENANCE

Section 15.

Any alteration to the structural portion of any building shall conform to the requirements of this code. All buildings and structures now existing or hereafter erected shall be maintained in a safe condition.

MOVING A BUILDING

Section 16.

Every application for a permit to move a building shall designate the site of the building to be moved and the site to which the building is to be moved. Permission to use the public streets shall be obtained from the proper authority.

PENALTY

Section 17.

Any person, firm, or corporation who violates or refuses to comply with any provision of this code shall be deemed guilty of a misdemeanor and shall be punished by a fine of not more than $100.00 dollars, or by imprisonment of not more than 30 days, or both such fine and imprisonment, for each provision violated. It shall be the responsibility of the offender to abate the violation and each day that such violation is permitted to exist shall constitute a separate offense.

VALIDITY

Section 18.

Should any section or provision of this code be declared by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of the code as a whole or any part thereof other than the part so declared to be invalid.

CONFLICTING ORDINANCES REPEALED

Section 19.

All ordinances or parts of ordinances in conflict with the provisions of this code are hereby repealed.[1]

[1] If the city has a zoning ordinance, the following should be added: "Provided that the restrictions of the zoning ordinance shall not be deemed to be modified by any provision of this code; and such restrictions shall be controlling except insofar as this code imposes greater restrictions by reason of type of construction used, in which case the provisions of this code shall prevail."

If there are other known ordinances in existence which are in conflict with or are superseded by this code, they should be specifically repealed.

Part II—Definitions

Section 20. MEANING OF TERMS

In the interpretation of this code, the following definitions shall be used:

Alteration means any change or addition in construction or arrangement.

Building means any structure constructed for the shelter of persons, animals, or property of any kind.

Court means an unoccupied space extending to the sky from the ground or from the roof of a lower portion of a building, such space being adjacent to the building and enclosed on two or more sides by walls of the building.

Dwelling means a building or that part of a building arranged or occupied as the home or sleeping place of one or more persons.

Garage means a building which affords shelter to a motor vehicle using a volatile flammable liquid as fuel.

Grade of a building means the established or finished ground elevation. This is used in determining the number of stories and height of the building.

If a building wall is built up to or within five feet of a street lot line, the grade is determined by the sidewalk elevation at the center of the length of the wall fronting on such sidewalk. If the building has two or more such walls, the grade shall be the average of the sidewalk elevations at such center points.

If the building walls are more than five feet from the street lot line, the grade shall be the average of the finished ground elevation at each wall of the building, measuring each elevation of the ground at the center point of the length of the wall.

Habitable room means a room occupied or arranged for living, eating, or sleeping purposes, including kitchens for family units or individual households, but not including bath or toilet rooms, laundries, pantries, corridors, or recreation rooms.

Height of building means the vertical distance from the grade of the building to the highest point in the coping of a flat roof or to the deck line of a mansard roof or to a point halfway between the eaves and the highest ridge of a roof.

Loads. Live loads mean the load carried by a building or structure not including the weight of any part of the building or structure and not including any loads caused by wind, earthquake, and laterally exerted pressure of earth or other materials, liquids, or gases.

Dead loads mean the actual weight of roof, walls, floors, partitions, and other permanent parts of building.

Masonry means units of brick, stone, concrete, tile or terracotta laid in mortar and includes monolithic concrete.

Repairs means the reconstruction or renewal of any part of a building or structure for the purpose of its maintenance. The word "repair" does not apply to any change of construction. See alteration.

Story means that part of a building between the upper surface of a floor and the upper surface of the floor next above except the top story which is that part included between the upper surface of the top floor and the ceiling or if there is no ceiling, the underside of the roof.

Wall means the vertical structural members of a building which enclose it, form its courts, or form its vertical fire divisions.

Wall, bearing. Bearing wall means a wall which carries dead loads other than its own weight.

Wall, fire, means a wall of four-hour fire-resistive construction which divides a building or separates buildings for the purpose of restricting the spread of fire and which starts at the foundation and extends continuously through all stories to and above the roof. But where the roof is fire-proof or semi-fireproof the wall shall be carried up tightly against the underside of the slab.

Wall, non-bearing. Non-bearing wall means a wall which supports no load other than its own weight.

Wall, party. Party wall means a wall which separates two or more buildings or is built to be used jointly by separate buildings.

Part III—Classification

BUILDINGS COVERED

Section 21.

For the purpose of this code all structures shall be classified in one of two groups:

Group I. Those structures whose construction is completely covered by this code:

(a) *Residential*—Buildings used as single or two-family dwellings constructed of frame construction not exceeding two stories in height with or without an attic or of ordinary masonry construction not exceeding one story in height with or without an attic.

(b) *Commercial*—Buildings used for stores, offices, shops, or warehouse not exceeding one story or 25 feet in height and without basements.

(c) *Accessory*—Private garages not exceeding one story in height of frame or ordinary masonry construction with a capacity of not more than four (4) cars, woodsheds, chicken houses, and other similar buildings accessory to those allowed in parts (a) and (b) of this section.

(d) *Exceptions*—Dry-cleaning establishments, garages accommodating over four (4) cars, and places of assembly or detention shall be regulated as Group II buildings.

Buildings designated in parts (a), (b) and (c) of this section involving a ground area in excess of 4,000 square feet or the use of structural reinforced concrete, structural steel, heavy mill construction, or roof trusses, shall be regulated as Group II buildings, except that the incidental use of steel beams, columns, lintels and hangars and of reinforced concrete slabs shall be permitted in Group I buildings.

Group II. All structures not included in Group I shall be classified as Group II.

SPECIAL PROVISIONS FOR GROUP II BUILDINGS

Section 22.

All Group II buildings, unless otherwise provided in this code, shall conform to all of the provisions, except Part I (Administrative) and Part IV (Requirements Based on Location in Fire Zones), of the 1953 Edition of the *Uniform Building Code*, prepared by the Pacific Coast Building Officials Conference, which is hereby made a part of this code and adopted by reference. One copy of said code shall be placed on file in the office of the building official for public use and inspection and shall be marked "Official Copy."[2]

[2] Attention is called to the fact that the State Fire Marshal's Code and all his regulations pertaining to the construction and maintenance of buildings are statewide in scope and take precedence over any less restrictive regulations established by a municipality. Care has been exercised in drafting this code to eliminate any provisions which are in conflict with the state law. Such disparity may however exist in the Uniform Building Code.

Section 22

All Group II buildings shall be designed by, and their construction shall be supervised by an architect or engineer registered in the state of Oregon. Upon completion of a structure, such architect or engineer shall be required to make and file with the building official an affidavit stating under oath that the provisions of this code have been complied with.[3]

[3] In the event that a false statement is made in connection with the above provided for affidavit, it shall be the policy of the city to prefer charges with the state boards for the registration of architects and engineers.

Part IV—Standards of Design and Construction

Section 23. DESIGN LOADS

The minimum live loads per square foot for floors and roofs shall be as follows:

(a) Floors (Minimum live load in lbs. per square foot)

Private dwellings, dormitories, hotels, guest rooms, apartments, hospital rooms and school class rooms	40
Offices and assembly rooms with fixed seats	50
Public rooms, corridors, balconies, and public stairways	100
All floors other than the above shall be designed for actual loads, but in no case less than	100

(b) Roof load per square foot of horizontal projection[4]

Slope less than 4 in 12	25
Slope 4 in 12 and greater	20

Section 24. WOOD FRAME CONSTRUCTION—GENERAL

(a) All measurements of lumber given in this code are nominal.

(b) In frame construction, sills shall be anchored to the foundation walls at 6 foot intervals or less by bolts not less than ½ inch in diameter embedded at least 6 inches in the foundation walls.

(c) All wood shingles shall be nailed firmly with copper, zinc, zinc coated or commercially pure iron nails of at least No. 14 B&S gauge and not less than 1¼ inches in length. Each shingle shall be nailed with not less than 2 nails driven substantially into the supporting roof construction.

Maximum exposed length of wood shingles:

16 inch shingle	5" (5" to the weather)
18 inch shingle	5½"
24 inch shingle	7½"

Section 25. WOOD FRAME CONSTRUCTION—JOISTS, RAFTERS, BEAMS AND GIRDERS

(a) The minimum thickness of floor and roof beams, joists or rafters shall be 2 inches.

(b) The maximum allowable spans and spacings for joists, rafters and girders shall be determined in accordance with nationally recog-

[4] A load of 25 pounds per square foot can be caused by a depth of water or ice of about 5 inches or a depth of snow, after normal packing, of between 2 and 4 feet. Cities in areas subject to heavy snow may wish to give special consideration to the roof load requirements, particularly for roofs with parapets.

nized standards for the material and loading. The joist, rafter and girder spans in Tables 1 & 2 may be used for material equivalent to or better than the grades of material indicated without additional evidence of compliance with national standards provided the maximum allowable live loads do not exceed those specified in the tables. If flooring is to be installed over ceiling joist, they shall be considered as floor joist.

Table 1—Ceiling Joist and Rafter Spans

Table values are the maximum spans measured horizontally between points of support using 1100f or Number 2 grade Douglas Fir. Ceiling joists are to carry no live load. Roof loading of 25 pounds per square foot of horizontal projection for slopes of less than 4 in 12 and 20 pounds per square foot or horizontal projection for slopes of 4 in 12 or greater. Light roofing includes shingle roofing or types of similar weight. Heavy roofing includes tile, slate and five-ply felt and gravel. Regardless of roof pitch, rafters may be of an unsupported length sufficient to span the horizontal distances given in the table except that in no case shall the unsupported rafter length exceed 1.4 times the horizontal lengths found in the table.

SIZE	SPACING	CEILING JOIST	RAFTERS—HORIZONTAL SPAN			
			Slope less than 4 in 12		Slope 4 in 12 and Greater	
			Light Roofing	*Heavy Roofing*	*Light Roofing*	*Heavy Roofing*
2"x 4"	12"	11'– 0"	9'– 1"	8'– 5"	9'–11"	9'– 0"
	16"	10'– 1"	7'–11"	7'– 4"	8'– 8"	7'–10"
	24"	8'–11"	6'– 6"	6'– 0"	7'– 1"	6'– 6"
2"x 6"	12"	16'– 7"	13'–11"	12'–10"	15'– 1"	13'–10"
	16"	15'– 4"	12'– 2"	11'– 3"	13'– 3"	12'– 1"
	24"	13'– 8"	10'– 0"	9'– 3"	10'–11"	9'–11"
2"x 8"	12"	21'– 7"	18'– 3"	16'–11"	19'–10"	18'– 2"
	16"	20'– 1"	16'– 0"	14'–10"	17'– 5"	15'–11"
	24"	17'–11"	13'– 3"	12'– 3"	14'– 6"	13'– 2"
2"x10"	12"	26'– 9"	22'–10"	21'– 3"	24'– 9"	22'– 8"
	16"	25'– 0"	20'– 1"	18'– 8"	21'–10"	20'– 0"
	24"	22'– 5"	16'– 8"	15'– 5"	18'– 2"	16'– 7"

Table 2—Floor Joist and Girder Spans

Table values are the maximum spans for live loads of 40 pounds per square foot using 1100f or Number 2 grade Douglas Fir provided the floor panel is of ordinary wood joist and double wood floor construction or other construction of no greater weight.

JOIST SPANS				GIRDER SPANS		
Size	*Spacing*	*Plastered Below*	*Unplastered Below*	*Size*	*Spacing of Girders (Joist Span)*	*Span*
2"x 6"	12"	10'– 5"	11'– 6"	4"x4"	6'	4'–9"
	16"	9'– 1"	10'– 0"		8'	4'–3"
2"x 8"	12"	13'–10"	15'– 2"	4"x6"	6'	7'–6"
	16"	12'– 1"	13'– 3"		8'	6'–6"
	24"				10'	5'–9"
2"x10"	12"	17'– 5"	19'– 1"	4"x8"	6'	9'–9"
	16"	15'– 2"	16'– 8"		8'	8'–6"
	24"				10'	7'–6"
					12'	7'–0"
2"x12"	12"	20'–11"	22'–11"			
	16"	18'– 3"	20'– 1"			
2"x14"	12"	24'– 4"	26'– 7"			
	16"	21'– 4"	23'– 5"			
3"x 6"	12"	12'– 4"	14'– 5"			
	16"	11'– 3"	12'– 7"			
3"x 8"	12"	16'– 4"	18'–11"			
	16"	14'–11"	16'– 7"			
3"x10"	12"	20'– 6"	23'– 7"			
	16"	18'–10"	20'–10"			
3"x12"	12"	24'– 6"	28'– 2"			
	16"	22'– 7"	24'–11"			
3"x14"	12"	28'– 7"	(a)			
	16"	26'– 4"	28'–11"			

(a) over 30', the maximum practical limit of material length.

(c) The ends of joists, beams, rafters and girders entering masonry walls shall be beveled 3 inches in 12 inches from the vertical, with ½ inch air space on each side and on the top and shall have bearing not less than 3 inches in length upon solid masonry not less than 4 inches thick.[5]

(d) The maximum spacing of floor joist shall be 16 inches center to center unless the floor panel is adequately designed for wider spacing. No joist span shall exceed 8 feet between supports without crossbridging equivalent to 1" x 4" wooden members being installed at least every 8 feet of span.

(e) Joists supporting and parallel to partitions or supporting unusual loads shall be doubled.

(f) Joists and rafters not resting on masonry shall be supported by bearing partitions or by beams, girders, hangers or trusses except that where loads do not exceed 50 lbs. per square foot, a wooden strip at least 2" x 4", strongly spiked to the girder may be used to support the joist or rafter.[6]

(g) Joists and rafters may be notched at the support but neither the cut nor the notch shall exceed 1/5 of the total depth of the joist or rafter.

(h) Header joists over 6 feet long and tail joists over 12 feet long shall be hung in joist or beam hangers or secured by other devices affording equivalent support. Trimmer and header joists more than 4 feet long shall be doubled.

(i) All wood joists used to frame over unexcavated areas shall have a clearance of not less than 18 inches above the surface of the ground.

WOOD FRAME CONSTRUCTION—BEARING PARTITIONS

Section 26.

(a) The minimum size of an exterior wall or bearing partition stud shall be 2 inches by 4 inches.

(b) The maximum spacing between centers of studs shall be 24 inches.

(c) Flat studs shall not be used in exterior or bearing walls except where such walls are constructed double to receive a sliding door.

(d) The exterior stud walls of all wood frame buildings of more than one story in height shall be diagonally braced at the corners by notching into the studs a 1 inch by 4 inch brace at an angle of 45 degrees[7] except that it shall be optional to omit these braces if the studs are covered with boards applied diagonally.

(e) All partitions shall be framed solid at the corners[8] so that no lath may extend from one room to the other.

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[5] See figure 8 in Part VII.
[6] See figure 6A in Part VII.
[7] See figure 2A in Part VII.
[8] See figure 5 in Part VII.

(f) Frame buildings may be veneered with masonry but such veneer shall be not less than 4 inches thick and shall be anchored to the wood frame or backing at intervals not exceeding 18 inches vertically and 16 inches horizontally by approved galvanized wall ties. The height of such veneer construction shall in no case be more than 20 feet above the grade of the building, and shall be carried on the foundation wall.

Section 27. **FIRE STOPPING IN FRAME CONSTRUCTION**

Fire stopping shall be provided to cut off all concealed draft openings both vertical and horizontal, and to form an effective barrier between stories and between the top story and the roof space. It shall be used in specific locations[9] as follows:

(a) In exterior or interior stud walls at ceiling and floor levels.

(b) In all stud walls and partitions, including furred spaces, so placed that the maximum dimension of any concealed span is not over 10 feet.

(c) In furred masonry walls.

(d) Between stair stringers at least once in the middle portion of each run, at the top and bottom and between studs, along and in line with run of stairs adjoining such partition.

(e) Around top and bottom, sides and ends of sliding door pockets.

(f) Spaces between chimneys and wood framing shall be solidly filled with mortar, loose cinder, or other incombustible material which shall rest on incombustible supports.

(g) Any other location not specifically mentioned above, such as holes for pipes, shafting, etc., which could afford a passage for flames.

(h) Clothes chutes, wood hoists, and similar devices shall be equipped with self-closing doors at all access points.

Fire stops, when of wood, shall be 2 inches thick. If width of opening is such that more than one piece of lumber is necessary, there shall be two thicknesses of 1 inch material with joints broken.

Floor joists in all types of construction shall be fire stopped at the end, and over supports for the full depth of the joists.

No fire stopping shall be covered or concealed until inspected by the building official.

Section 28. **CHIMNEY CONSTRUCTION**

(a) Flue linings shall be manufactured from fire clay or other suitable refractory clays and shall have a softening point not lower than 1994° Fahrenheit. Flue linings shall have a minimum thickness of 5/8 inches and shall be carefully bedded upon one another in mortar with all joints left smooth on the inside.

[9] See figures 2, 3 and 4 in Part VII.

Masonry shall be laid up with mortar around each successive length of lining as it is set. All joints and spaces between masonry and lining shall be completely filled as each course of masonry is laid.

No defective linings shall be used. Linings shall start 8 inches below the smokepipe intake or in the case of a fireplace from the apex of the smoke chamber and shall be continuous to the top of the chimney. No smokepipe intake shall be cut into a flue lining which is already set in place.

(b) Mortar is defined as follows:

	Ratio by volume		
	Cement	*Lime*	*Sand*
Cement Lime Mortar	1	1	6
Portland Cement Mortar	1	¼	3

Mortar used between joints of flue linings and in portions of the chimney above the roof or otherwise exposed to the weather shall be Portland cement mortar.

Firebrick used for the lining of flues or facing of fireplaces shall be laid in fire clay mortar. Other parts of the chimney shall be laid up in cement lime mortar.

(c) All brick shall be laid with full, push filled cross and bed mortar joints and shall be struck smooth where exposed to the weather.

(d) Chimneys in dwellings and buildings of like heating requirements shall be constructed of solid masonry units or of reinforced concrete 3¾ inches in thickness if lined and 6 inches or more in thickness if not lined. In other buildings the thickness shall be not less than 8 inches and the chimney shall be lined.

(e) Stone chimneys may be used if lined but dressed stone chimneys shall be at least 8 inches thick and other stone chimneys shall be at least 12 inches thick.

(f) Masonry and concrete walls of buildings may form part of a chimney when the chimney walls are securely bonded into the walls of the building and when the flue is lined the same as in independent chimneys. Flues in party walls shall not extend beyond the center of the wall.

(g) Hollow tile or hollow concrete blocks shall not be used for the walls of an independent chimney, but may be used for chimneys built as a part of an exterior wall of hollow masonry, in which case the chimney walls shall be at least 8 inches thick, and shall be lined.

(h) Every chimney shall extend at least 3 feet above the highest point where it passes through the roof and at least two feet higher than the highest elevation of any portion of the building within ten feet of the chimney.

(i) Chimneys shall be built from the ground up and shall rest on

concrete or solid masonry foundations. The footing of an exterior chimney shall start below the frost line and shall rest on undisturbed soil. Such footings shall be at least 8 inches thick and extend at least 6 inches beyond the face of the chimney wall.[10]

(j) Corbeled chimneys shall be supported by solid masonry walls at least 12 inches thick and the corbeling shall not project more than 1 inch per course and not more than 6 inches in any case.

(k) No flue shall be built at an angle greater than 30° with the vertical.

(l) Not more than two lined flues shall be permitted in the same flue space and the joints of any such adjoining flue linings shall be staggered at least 7 inches.

(m) Fireplace walls shall be not less than 8 inches thick, and if built of stone, not less than 12 inches thick. The faces of all such minimum thickness walls exposed to fire shall be lined with firebrick, soapstone, cast iron, or other fire-resistive material. When lined with 4 inches of firebrick, such lining may be included in the required minimum thickness.

All fireplaces shall have trimmer arches, reinforced concrete cantilever slabs, or other approved fire-resistive construction supporting the hearth, and the hearth shall extend not less than 20 inches from the face of the chimney wall and shall be not less than 8 inches wider than the fireplace opening on either side.[11] The flue area of a fireplace shall be not less than 1/12th of the area of the fireplace opening.

(n) Minimum flue sizes:

	Rectangular lined flue	*Rectangular unlined flue*	*Circular flue*
Stoves, ranges, and room heaters	8"x 8"	10"x10"	8" dia.
Warm air furnaces, steam and hot water boilers	8"x12"	12"x12"	10" dia.

(o) Smokepipes shall enter the side of a chimney through a fire clay or metal thimble or flue-ring of masonry. The top of the smokepipe shall be at least 18 inches below the ceiling or joists. No woodwork shall be placed within 6 inches of a thimble. No intake pipe or thimble shall extend into the flue.

(p) No wooden beams, joists, rafters, or studs shall be placed within 2 inches of chimney walls and no woodwork shall be placed within 4 inches of the back of any fireplace. All spaces between chimneys and members of the wood frame shall be filled with incombustible material supported by strips of sheet metal or metal lath set in the brick work and nailed to the wooden members.[12]

[10] See figure 1 in Part VII.
[11] See figure 1 in Part VII.
[12] See figure 1 in Part VII.

(q) Gas appliances using more than 5000 B.T.U. per hour shall be connected to an effective flue or outlet pipe opening to the outer air. Such flue shall be either a lined chimney or an outlet pipe of incombustible, noncorrodible material with bell and spigot or other acceptable joints. Such pipes, when located inside frame walls, shall have 1 inch clearance from all wood construction and shall be encased in an incombustible jacket.

(r) The use of porcelain enamel or other types of flues, which are approved by the Underwriters' Laboratories, Incorporated, shall be permitted under this code, subject to the limitations imposed upon their use by the Underwriters' Laboratories, Incorporated.

MASONRY CONSTRUCTION

Section 29.

(a) The minimum thickness of exterior walls and bearing walls of masonry shall be as follows:

1. Cavity wall masonry ..... 10"
2. Stone masonry (Ashlar) ..... 12"
3. Stone masonry (Rubble) ..... 16"
4. Other masonry walls when used in one-story dwellings and buildings accessory to a dwelling not over 9' in height, provided that when gable construction is used, an additional 6' is permitted to the peak of the gable ..... 6"
5. All other masonry walls ..... 8"

(b) The minimum thickness of interior non-bearing partitions of masonry shall be 2 inches.

(c) The maximum height of exterior walls and bearing walls between horizontal lateral supports such as afforded by floor and roof members shall be 10 feet for cavity wall or stone masonry and 12 feet for other masonry walls of minimum thickness unless lateral support is provided by securely bonded crosswalls, piers or buttresses at intervals not exceeding 20 feet.

(d) Masonry walls shall be securely anchored to all tiers of wood joists, beams or girders bearing on them, other than the first floor tier, at maximum intervals of 4 feet. Masonry walls parallel to wood joists or beams shall be securely anchored to them at maximum intervals of 8 feet with all anchors engaging three joists or beams.

(e) Walls of hollow units shall be capped with a minimum of 4 inches of solid masonry or poured concrete.

(f) In plain masonry of brick, all stretcher courses shall be bonded by making vertical joints over the centers of stretchers. Every sixth course shall be a header course and in no case shall there be less than one header in every 72 square inches of wall surface. If the thickness of the wall is

greater than the length of one header, each header shall be covered by another header that breaks joints with the header below.

(g) In plain masonry of stone, the bond stones shall be uniformly distributed throughout the wall and shall comprise not less than 20 per cent of the wall surface. There shall be at least one bond stone for every five stretchers and each bond stone shall extend through the wall.

Section 30. **FOOTINGS, FOUNDATION WALLS AND RELATED ITEMS**

(a) Footings shall be constructed of solid masonry or of reinforced concrete and shall extend 6 inches below the frost line measured from the finished grade and to undisturbed soil, except that reinforced concrete footings may rest on fill when installed according to recognized good practice.

Footings shall be acceptable without computation of the unit pressure under them if they have a minimum projection of four inches from all faces of the wall, column or pedestal, and if their depth is at least equal to their projection and never less than 6 inches.

(b) Foundation or basement walls shall be at least as thick as the wall immediately above, except that a masonry veneer wall may project not more than ¾ inches beyond the outside face of the supporting wall. Such walls shall be not less than 8 inches thick except that 6 inch walls may be used to support a one-story wood frame dwelling if the walls are of poured concrete.

Any masonry in foundations or in walls in contact with the earth shall be laid with Portland cement mortar.

Foundation walls supporting wood or light steel structural members shall extend at least 6 inches above the finished ground level.

(c) Concrete floor slabs installed on the ground and driveway slabs shall be not less than 4 inches thick.

(d) The space beneath a building not having a basement shall be enclosed by a concrete or masonry wall resting on a footing. The wall shall extend at least 6 inches above the finished grade. Such space shall be ventilated by at least two screened openings arranged so that air can circulate. The area of such openings shall be not less than 2 square feet for each 25 lineal feet or fraction thereof of exterior wall.

Part V—Fire and Safety

Section 31. **FIRE ZONE**

There is hereby established a fire zone which shall embrace that portion of the city of ..... described as follows:

All of Blocks One (1) and Two (2); Lots One (1), Two (2), Seven (7) & Eight (8) of Block Three (3); Lots Seven (7) & Eight (8) of Block Four (4); Lots Five (5), Six (6), Seven (7) & Eight (8) of Block Five (5); Lots Five (5), Six (6), Seven (7) & Eight (8) of Block Six (6), Original Townsite of Sherwood, Oregon. According to the plat thereof on file in the office of the County Clerk, Washington County, Oregon

building when so rebuilt will conform to this code. When damage thereto is less than 50 per cent of the replacement value thereof as of the date of the damage, the structure shall not be rebuilt to an elevation higher than the highest part left standing after such damage shall have occurred, or so as to be in better state of repair or to occupy a greater space than before it was damaged. The extent of the damage that has been done to any such building by fire, decay, or otherwise, shall be determined by three disinterested persons, residents of the city of Sherwood, Oregon, one of whom shall be selected by the owner or agent of the building, the second by the city council or an authorized official, and the two so chosen to select a third. The persons so chosen shall fairly and impartially estimate the damage, and their decision shall be final and binding upon all persons concerned.

Whenever any building shall be found to be damaged to an extent of 50 per cent of the replacement value thereof, by fire, decay, or otherwise, notice of such finding shall be served in writing by the city council or an authorized official, on the owner or agent of said building, and thereafter said building shall be and the same is hereby declared, a public nuisance and shall be abated. Failure of the owner or agent of said building to remove the same within thirty (30) days after receipt of written notice of the finding hereinabove referred to, shall be fined in a sum not exceeding One hundred dollars. Each day the same shall be permitted to stand after the receipt of such notice in writing and the expiration of said 30-day period, shall constitute a separate offense. In case the owner after due notice fails to remove or abate the structure within sixty (60) days after service of notice, the city shall remove and abate said nuisance.

The council shall ascertain and declare the cost of said work, and assess the same against the property upon which said building is situated. Said assessment shall be declared by resolution, and it shall be entered in the docket of city liens, and shall thereupon be and become a

Part V—Fire and Safety

Section 31. FIRE ZONE

There is hereby established a fire zone which shall embrace that por-

Section 32. OLD AND DAMAGED BUILDINGS

Any existing building within the fire zone which becomes damaged to an extent of 50 per cent of the replacement value as of the date of the damage, by fire, decay, or otherwise, shall not be rebuilt unless the entire building when so rebuilt will conform to this code. When damage thereto is less than 50 per cent of the replacement value thereof as of the date of the damage, the structure shall not be rebuilt to an elevation higher than the highest part left standing after such damage shall have occurred, or so as to be in better state of repair or to occupy a greater space than before it was damaged. The extent of the damage that has been done to any such building by fire, decay, or otherwise, shall be determined by three disinterested persons, residents of the city of Sherwood, Oregon, one of whom shall be selected by the owner or agent of the building, the second by the city council or an authorized official, and the two so chosen to select a third. The persons so chosen shall fairly and impartially estimate the damage, and their decision shall be final and binding upon all persons concerned.

Whenever any building shall be found to be damaged to an extent of 50 per cent of the replacement value thereof, by fire, decay, or otherwise, notice of such finding shall be served in writing by the city council or an authorized official, on the owner or agent of said building, and thereafter said building shall be and the same is hereby declared, a public nuisance and shall be abated. Failure of the owner or agent of said building to remove the same within thirty (30) days after receipt of written notice of the finding hereinabove referred to, shall be fined in a sum not exceeding One hundred dollars. Each day the same shall be permitted to stand after the receipt of such notice in writing and the expiration of said 30-day period, shall constitute a separate offense. In case the owner after due notice fails to remove or abate the structure within sixty (60) days after service of notice, the city shall remove and abate said nuisance.

The council shall ascertain and declare the cost of said work, and assess the same against the property upon which said building is situated. Said assessment shall be declared by resolution, and it shall be entered in the docket of city liens, and shall thereupon be and become a

lien against said property, and the creation of said lien and the collection and enforcement of said cost shall be done in substantially the same manner as in the case of cost of street improvements, but irregularities or informalities in the procedure shall be disregarded.

LIMITATIONS WITHIN THE FIRE ZONE

Section 33.

Buildings hereafter erected, constructed, moved into or moved within the fire zone shall conform to the following minimum requirements :[13]

(a) *Four-hour* fire-resistive construction—Fire walls and party walls.

(b) *Two-hour* fire-resistive construction—Exterior walls except that exterior walls fronting on a street having a width of at least 50 feet may be of incombustible construction with all structural members having one-hour fire protection.

(c) *One-hour* fire-resistive construction—Floors, roofs, stairs, shafts, inner bearing walls, inner courts and permanent partitions separating tenants.

(d) *Roof coverings* shall be fire-retardant.[14]

(e) *Exceptions*—The following types of structures shall be allowed in the fire zone :

Buildings of one-hour fire-resistive construction or of all metal construction not exceeding 2,500 square feet in area nor one-story in height used as gasoline service stations provided no exterior wall is closer than 10 feet from any property line other than one abutting a street or alley of 20 feet or more in width.

Dwellings in compliance with this code if not over two stories in height and arranged for no more than two family living units provided no exterior wall is closer than 10 feet from any property line other than one abutting a street or alley of 20 feet or more in width and provided further that wood shingle roof coverings shall not be used. Exterior walls may be placed within 5 feet of the property line if all parts of such exterior walls between five and ten feet of the property line are of one-hour fire-resistive construction and have no openings therein.

Buildings in compliance with this code not over one story in height nor 500 square feet in area serving as accessory buildings to a dwelling provided no exterior wall is closer than 5 feet from any property line other than one abutting a street or alley of 20 feet or more in width and provided further that wood shingle roof coverings shall not be used.

DISTANCE FROM PROPERTY LINE

Section 34.

(a) In the fire zone, the distance between exterior walls and the near-

[13] For standards of fire-resistive wall and roof construction, see appendix A.
[14] For fire-resistive characteristics of roof coverings, see appendix A.

est property line other than a public thoroughfare of 20 feet or more in width shall be not less than that listed in the following table:

Less than one-hour fire-resistive or one-hour fire-resistive	Not permitted other than exceptions in Section 33 (e)
Two-hour fire-resistive	3 feet
Three-hour fire-resistive	2 feet
Four-hour fire-resistive	No restriction

(b) In the fire zone, there shall be no openings in firewalls, party walls, and exterior walls if within 5 feet of any property line other than one abutting a street or alley. Openings in exterior walls between 5 and 20 feet of such property lines or within 20 feet of the centerline of a street or alley shall not exceed a total width of 50 per cent of the total length of the wall and all such openings shall be protected by fire doors or fire windows which are approved by the Underwriters' Laboratories, Incorporated, or other recognized testing agencies.

(c) The exterior walls of buildings which are located outside the fire zone and which are built less than 5 feet from adjacent property lines other than one abutting a street shall have no openings therein and shall be not less than one-hour fire-resistive construction.

Section 35. **ELECTRICAL WIRING**

All electrical wiring shall conform to the provisions of the *Oregon State Electrical Code*, as provided for in *Oregon Revised Statutes*, chapter 447 (Title 112, Chapter 6, *O.C.L.A.*) and all amendments thereto.

Part VI—Sanitation and Health

Section 36. PLUMBING

All plumbing shall comply with the requirements of the plumbing code of the state of Oregon and the rules and regulations of the Oregon State Board of Health all as provided for in *Oregon Revised Statutes*, sections 479. 410 to 479. 450 (Title 99, Chapter 16, *O.C.L.A.*) and all amendments thereto and in the Oregon State Board of Health publications entitled *Oregon State Plumbing Laws and Rules and Regulations Governing Plumbing and Water Supply* and *Regulations Governing the Disposal of Domestic Sewage and Other Household Wastes.*

Section 37. SANITARY FIXTURES

Every dwelling unit to which running water and sewerage are available shall be provided with not less than one water closet, one bathtub or shower, one lavatory, and one kitchen sink.

Section 38. VENTILATION AND LIGHT

Every habitable room shall have openings to the exterior with an area through which light may pass of not less than 10 per cent of the floor area. Exterior doors and windows shall open to the extent of not less than 5 per cent of the floor area.

Windows shall face unobstructed, uncovered, horizontal areas of at least the extent of the glass of all windows opening thereon, no dimensions of which shall be less than 5 feet.

Every bathroom or water closet compartment shall be provided with an outside window or a skylight with an area of not less than one-eighth of the floor area with not less than 45 per cent of the area openable, but in no case shall the window sash area be less than 3 square feet.

Section 39. HABITABLE ROOMS

(a) *Minimum Area*

Living rooms shall have an area of not less than 150 square feet or not less than 160 square feet when dining space is included and not less than 220 square feet when dining and cooking space is included, provided that a living-dining-kitchen combination may be reduced to not less than 210 square feet when located in a dwelling unit having less than two bedrooms.

The area of the kitchen shall be not less than 60 square feet or not less than 90 square feet when dining space is included, provided that the area of the kitchen shall be not less than 50 square feet when located in a dwelling unit having less than two bedrooms.

The area of at least one bedroom shall be not less than 100 square feet.

The area of any other habitable rooms shall be not less than 70 square feet.

(b) *Minimum Height*
Habitable rooms shall have a clear height of not less than 7 feet 6 inches, provided that rooms in the half story shall have a clear height of 7 feet 6 inches, for at least one-half their area. In computing the area of rooms in half-stories, all portions less than 5 feet in height shall be disregarded.

(c) *Minimum Width*
Habitable rooms, except kitchens, shall be not less than 7 feet wide in every part.

(d) *Rooms Below Grade*
No room which has less than 50 per cent of its height above the average adjoining finished grade shall be occupied as a habitable room. This section shall not be construed to prohibit a play or recreation room below grade.

Part VII—Construction Details

Section 40. **FASTENINGS**

All material shall be securely fastened with nails, bolts or other recognized fastening devices. Nailing of joints in ordinary framing equivalent to that found in Table 3 is acceptable.

Table 3—Nailing Schedule

	No. or spacing of Nails	*Size of Nails*
Joist to sill or girder, toe nail	2	16d
Bridging to joist, toe nail each end	2	8d
1"x6" subflooring to joist, face nail	2	8d
1"x8" subflooring to joist, face nail	3	8d
2 inch subflooring to joist or girder	2	16d
Sole plate to joist or blocking	16" o.c.	16d
Stud to plate, end nail	2	16d
Stud to plate, toe nail	3	16d
	or 4	8d
Doubled studs, corner studs and angles	30" o.c.	16d
Top plates, spiked together	24" o.c.	16d
Top plates, laps and intersections	2	16d
Ceiling joist, to plate, toe nail	2	16d
Ceiling joist, laps over partitions	3	16d
Ceiling joist, to parallel alternate rafters	3	16d
Rafter to plate	3	16d
1 inch diagonal brace to each stud and plate	2	8d
1"x8" sheathing or less, to bearing	2	8d
Over 1"x8" sheathing, to bearing	3	8d

Section 41. **APPLICATION OF DRAWINGS**

The drawings on the following pages are for the purpose of illustration and are not to be construed as limiting building practices to the methods shown. Other methods and procedures which are commonly recognized by qualified persons as being satisfactory practice are acceptable provided they do not conflict with the provisions of this code. In any event, all construction shall be fabricated in a workmanlike manner so that the structure, as completed and during erection, will withstand expected loadings and other anticipated hazards.

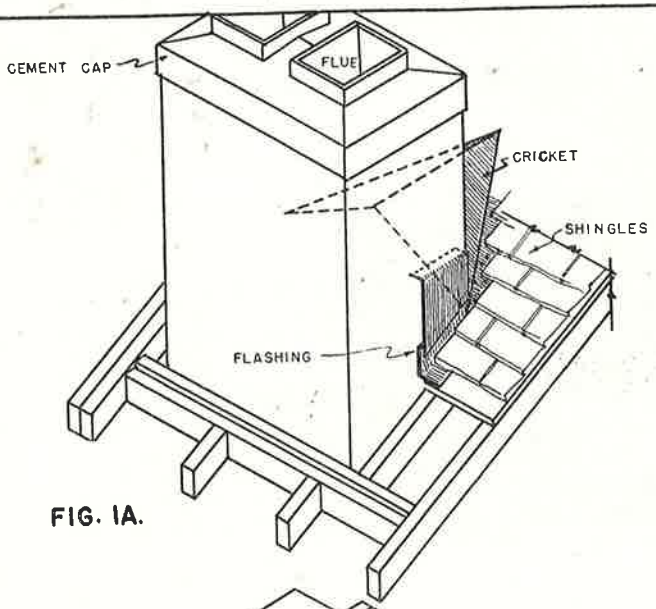


FIG. 1A.

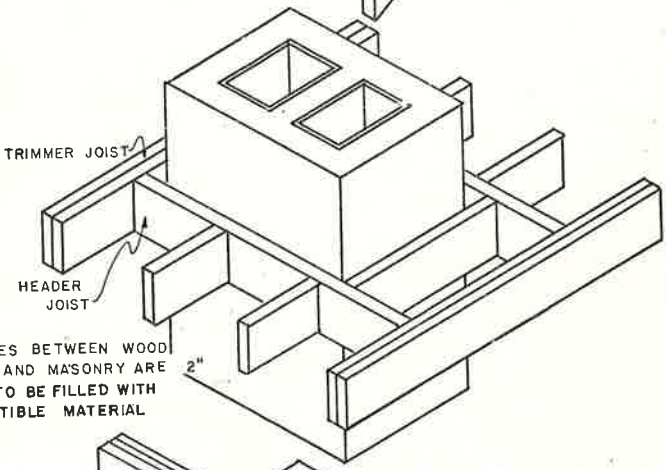


FIG. 1B

NOTE:
ALL SPACES BETWEEN WOOD MEMBERS AND MASONRY ARE AND ARE TO BE FILLED WITH INCOMBUSTIBLE MATERIAL

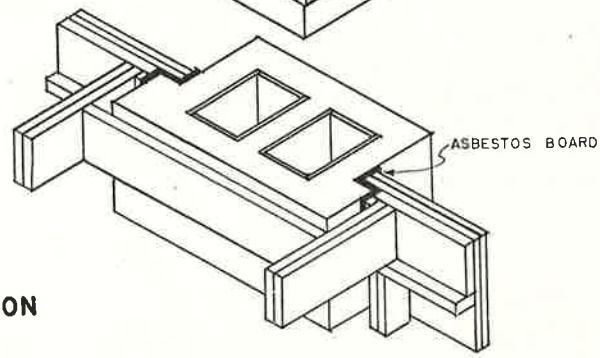
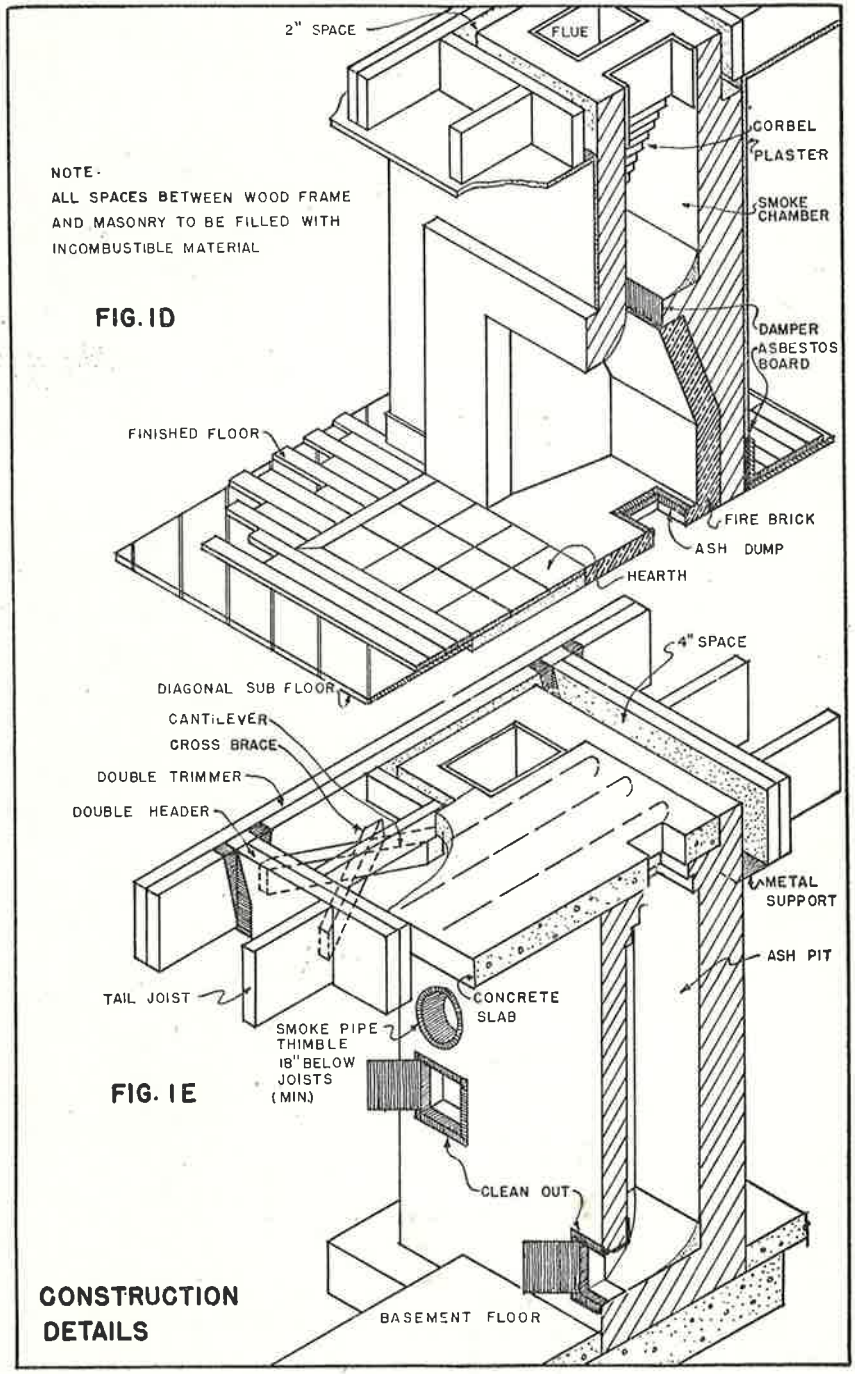


FIG. 1C

CONSTRUCTION DETAILS


2" SPACE
FLUE
CORBEL
PLASTER
SMOKE CHAMBER
NOTE-
ALL SPACES BETWEEN WOOD FRAME AND MASONRY TO BE FILLED WITH INCOMBUSTIBLE MATERIAL
FIG. ID
DAMPER
ASBESTOS BOARD
FINISHED FLOOR
FIRE BRICK
ASH DUMP
HEARTH
4" SPACE
DIAGONAL SUB FLOOR
CANTILEVER
CROSS BRACE
DOUBLE TRIMMER
DOUBLE HEADER
METAL SUPPORT
ASH PIT
TAIL JOIST
CONCRETE SLAB
SMOKE PIPE THIMBLE 18" BELOW JOISTS (MIN.)
FIG. IE
CLEAN OUT
BASEMENT FLOOR
CONSTRUCTION DETAILS

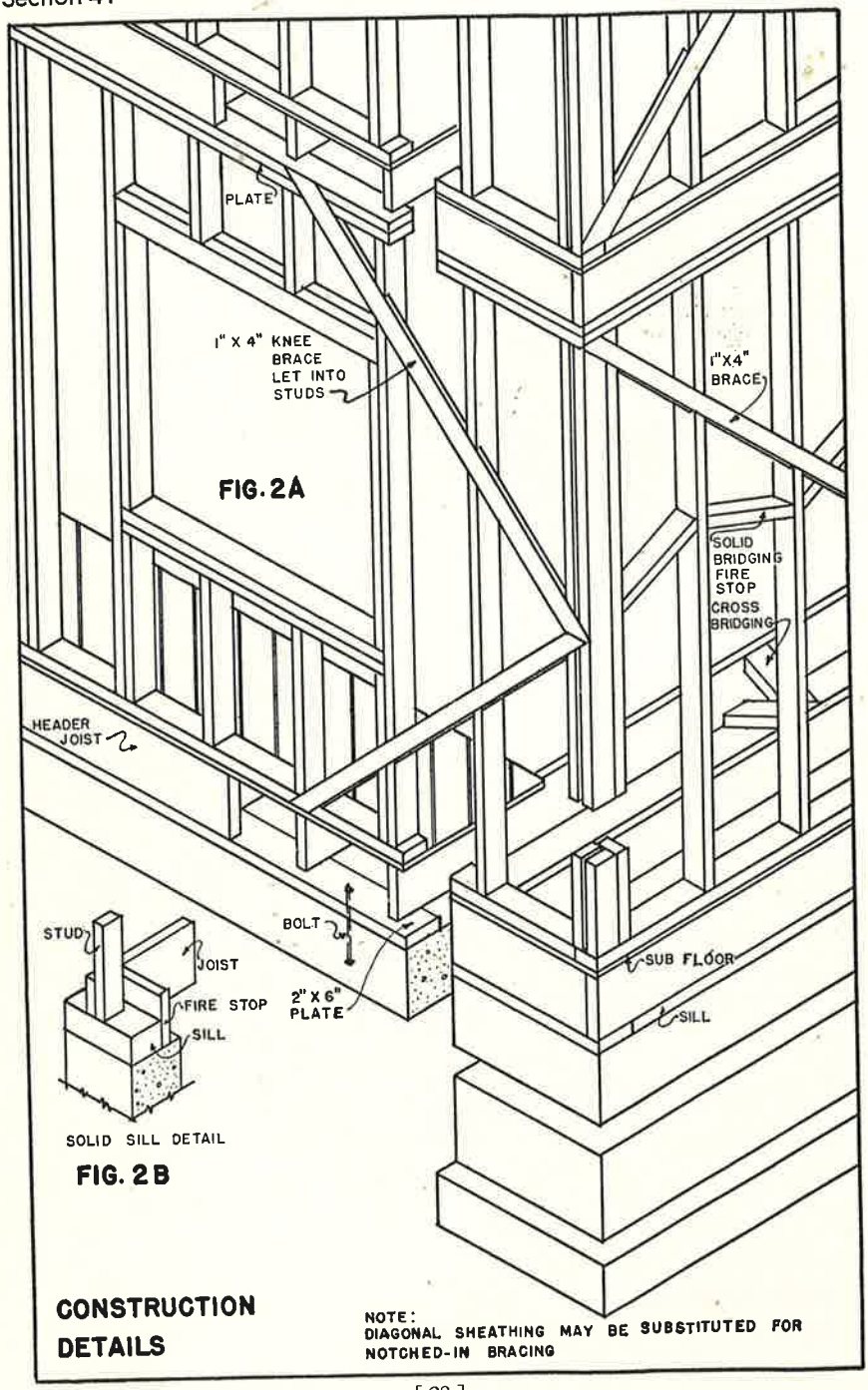
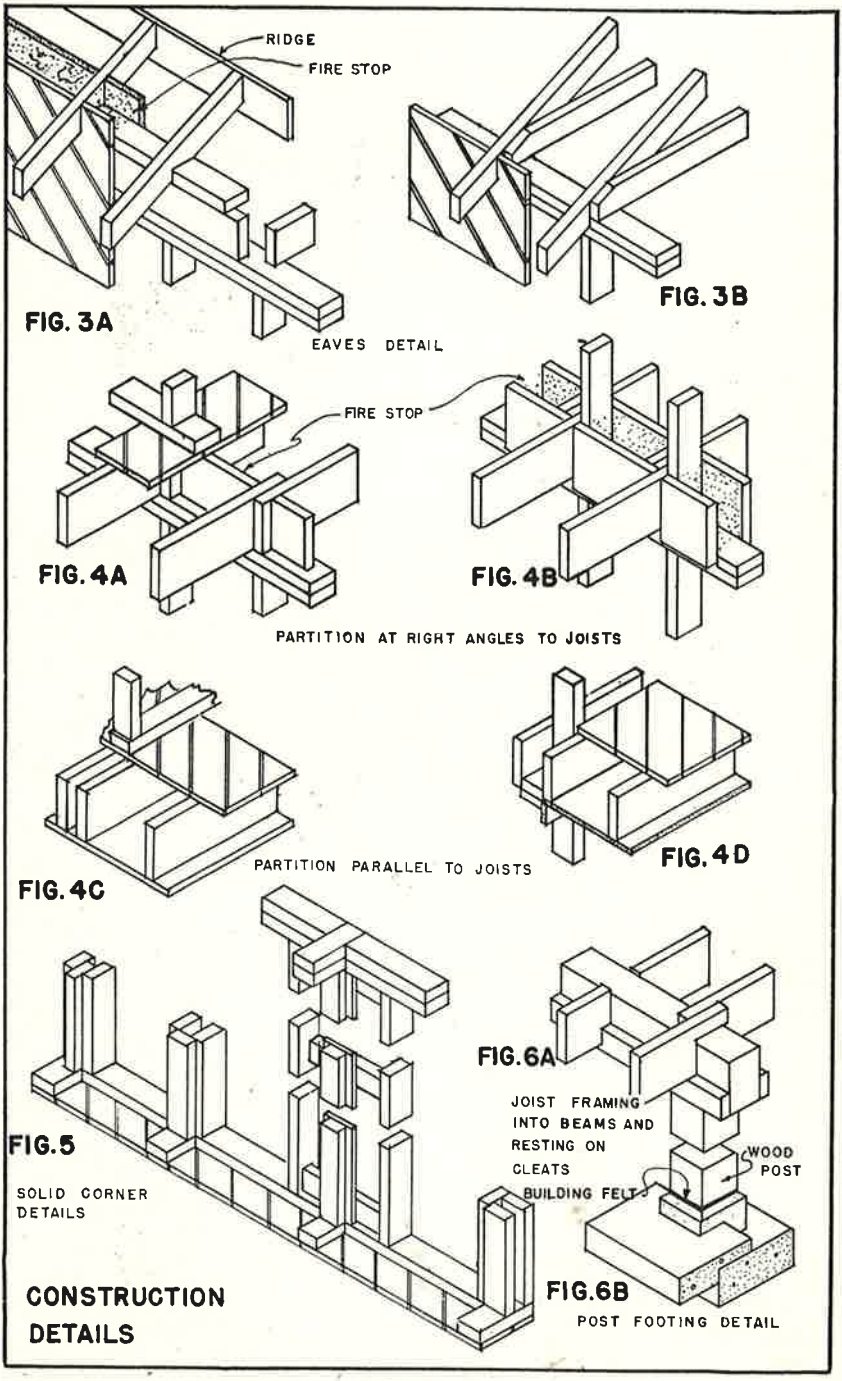


FIG. 2A

FIG. 2B

CONSTRUCTION DETAILS

NOTE:
DIAGONAL SHEATHING MAY BE SUBSTITUTED FOR NOTCHED-IN BRACING


RIDGE
FIRE STOP
FIG. 3A
FIG. 3B
EAVES DETAIL
FIRE STOP
FIG. 4A
FIG. 4B
PARTITION AT RIGHT ANGLES TO JOISTS
FIG. 4C
PARTITION PARALLEL TO JOISTS
FIG. 4D
FIG. 5
SOLID CORNER DETAILS
FIG. 6A
JOIST FRAMING INTO BEAMS AND RESTING ON CLEATS
WOOD POST
BUILDING FELT
FIG. 6B
POST FOOTING DETAIL
CONSTRUCTION DETAILS

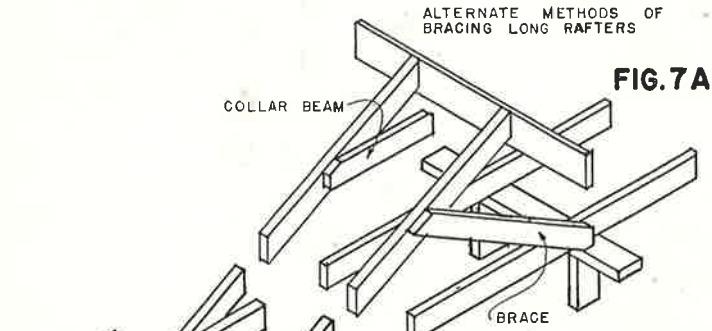


FIG.7A

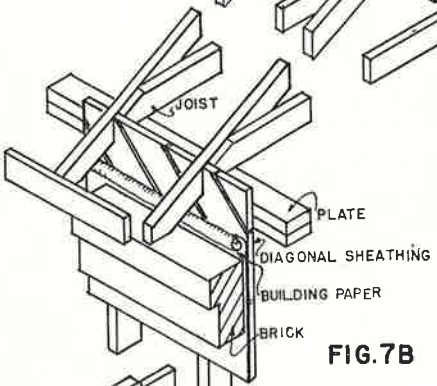
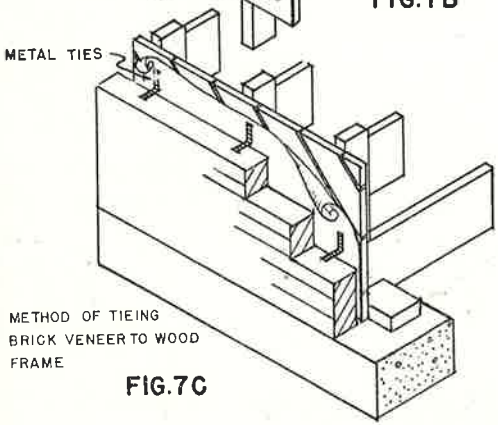


FIG.7B



METHOD OF TIEING
BRICK VENEER TO WOOD
FRAME

FIG.7C

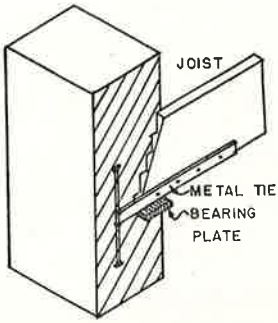


FIG.8

METHOD OF FRAMING WOOD JOISTS
INTO MASONRY WALLS

CONSTRUCTION DETAILS

Appendix

Appendix A

Fire-Resistance Standards

Standards of fire-resistive construction are to be based, as to materials and methods, on the standards and results of fire tests published by the Underwriters' Laboratories, Incorporated, the National Bureau of Standards, and other recognized agencies. The fire-resistance of walls, floors and roofs as commonly determined by standard tests will depend upon a number of factors particularly where combinations of materials are used. The tables on the following pages are based primarily on information found in the *National Building Code* but are condensed in form and do not cover all satisfactory materials and types of construction. For more detailed tables, reference should be made to other recognized publications. In particular, the following are suggested:

National Building Code, 1949 edition, (pp. 164-187) National Board of Fire Underwriters, 1014 Merchants Exchange Building, San Francisco, California. (free on request)

Fire Resistance Classification of Building Constructions, 1942, BMS92, Department of Commerce, National Bureau of Standards, (Available from Superintendent of Documents, Washington, D. C., Price 30¢.

WALL CONSTRUCTION

The minimum thickness of some types of wall construction for specified hourly fire-resistance ratings are listed in Tables A-1 and A-2.

FLOOR AND ROOF CONSTRUCTION

Some of the types of floor and roof construction suitable for specified hourly fire-resistance ratings are listed in Table A-3.

ROOF COVERINGS

Roof coverings are classified as "Fire-Retardant" and "Ordinary" roof coverings.

Fire-Retardant Roof Coverings:

(a) Any roof covering meeting the requirements of Class A and Class B specifications of the Underwriters' Laboratories, Incorporated.

(b) Roof coverings of asbestos shingles, slate, tile, concrete or metal.

(c) Any built-up composition roof covering whose component parts

Table A-1—Fire-Resistance Ratings

Thickness[15] of Walls in Inches for Specified Hourly Ratings

Material	*Details of Construction*	Thickness if Combustible Members Are Framed Into the Walls				Thickness if Incombustible or no Members are Framed into the Walls			
		Hours of Resistance				*Hours of Resistance*			
		4	3	2	1	4	3	2	1
Brick (concrete, clay, shale or sand-lime)	Solid walls, unplastered	12	12	8	8	8	8	8	3¾*
	Solid walls, plaster both sides	12	12	8	8	8	8	3¾*	3¾*
Solid Concrete Masonry Units	Volume of core space not over 25%	....	....	....	8	8	8	8	8
Plain Concrete	Solid Walls	12	12	8	8	7½	6½	5½	4
Stone Masonry	Solid Walls	16	16	12	12	12	12	12	8
Hollow Tile-Load Bearing		U indicates units and C, cells in wall thickness							
	Unplastered	16^{2U}_{4C}	16^{2U}_{4C}	12_{3C}	12_{3C}	12^{2U}_{4C}	12^{2U}_{3C}	12_{3C}	8_{2C}
	Plaster one side	16^{2U}_{4C}	12_{3C}	12_{2C}	8_{2C}	12^{2U}_{3C}	12_{3C}	8_{3C}	8_{2C}
	Plaster both sides	16^{2U}_{4C}	12_{3C}	12_{2C}	8_{2C}	12_{3C}	8_{2C}	8_{2C}	8_{2C}
Hollow Tile-Partition	Plaster both sides	....	....	....	....	....	....	....	4*
Brick faced Hollow Tile or Concrete Units	4" brick facing, thickness of tile only given, unplastered	....	....	8	4	8	4	4	4
	Same as above, plaster on tile side	....	12	8	4	4	4	4	4
Wood Studs	Each side of 2"x4" wood studs covered with one of the following—one hour protection: ¾" plaster on metal ½" gypsum plaster on ⅜" perforated gypsum lath Two layers of ½" gypsum wallboard with joints staggered Drop siding over ½" gypsum sheathing								
Hollow Concrete Masonry Units	See TABLE A-2, next page								

* Non-bearing

[15]The thicknesses given do not include plaster. The minimum thickness of a plaster surfacing is ½" of gypsum or Portland cement plaster.

have a total fire-retardant value of not less than 15 as given in Table A-4, with the top covering selected from either B, C or D of the table and with bituminous compound mopped solid between each layer of roofing.

Ordinary Roof Covering:

Any roof covering of asphalt or wood shingles and built-up roof coverings which do not meet the requirements of a fire-retardant roof covering.

Table A-2—Fire-Resistance Ratings

Hollow Concrete Masonry Units

CONSTRUCTION	MINIMUM BLOCK THICKNESS IN INCHES AND FACE SHELL THICKNESS FOR HOURS GIVEN			
	4-hour	3-hour	2-hour	1-hour
Pumice or Expanded Slag Aggregate				
Unplastered	8-1½	8-1¼		3*-1
Plaster one side			6 -1	
Plaster both sides			3*-1	
Burned Clay, Cinders or Limestone Aggregate				
Unplastered	12-1½	8-1½	8 -1¼	6 or 4*-1
Plaster one side		8-1¼		
Plaster both sides	8-1½			
Gravel Aggregate				
Unplastered	12-1¾		8 -1½	6 or 4*-1
Plaster one side				
Plaster both sides		8-1½	4*-1	

* Non-bearing

The above table considers only some of the common sizes of material. To determine the fire-resistance of other sizes, the method of equivalent thickness suggested by the National Board of Fire Underwriters can be used as illustrated below.

Table A-2—Fire-Resistance Ratings—continued

HOLLOW CONCRETE MASONRY UNITS—EQUIVALENT THICKNESS OF WALL IN INCHES FOR SPECIFIED HOURLY RATINGS				
Type of Course Aggregate Used in the Block	Minimum Equivalent Thickness[16]			
	4-hour	3-hour	2-hour	1-hour
Expanded slag or pumice	4.7	4.0	3.2	2.1
Expanded clay	5.7	4.8	3.8	2.6
Limestone, cinders or unexpanded clay	5.9	5.0	4.0	2.7
Calcareous (calcite, dolomite) gravel	6.2	5.3	4.2	2.8
Siliceous (quartz, chert, flint) gravel	6.7	5.7	4.5	3.0

[16] Equivalent thickness is the average thickness of the solid material in the wall. It may be found by taking the total volume of a wall unit, subtracting the volume of core spaces and dividing this by the area of the face of the unit. Where walls are plastered or faced with brick, the thickness of plaster or brick may be included in determining the equivalent thickness.

Where combustible members are framed into the wall, the wall must be of such thickness or be so constructed that the thickness of solid material between the end of each member and the opposite face of the wall, or between members set in from opposite sides, will be not less than 93% of the thickness shown in the table of equivalent thickness.

Table A-3—Fire-Resistance Ratings

Specified Hourly Ratings for Some Types of Floor and Roof Construction

Type of Construction	Hours of Resistance
Reinforced concrete slab 6 inches thick	2 hours
Reinforced concrete slab 4 inches thick	1 hour
Any of the following having a ceiling below plastered with at least ¾ inch of gypsum or Portland cement-asbestos fiber plaster on expanded metal lath or on perforated gypsum lath with all joints reinforced with 3 inch strips of metal lath:	
Solid masonry slabs or arches 2½ inches thick, adequately supported	2 hours
Hollow masonry slabs or arches 3 inches thick with a top covering or 1½ inches of solid masonry, adequately supported	2 hours
Wood joist construction, fire stopped, with double board flooring having building paper between the boards	1 hour

Table A-4—Fire-Retardant Value of Roofing Materials

Type of Material	Weight in lbs. per 100 sq. feet	Fire-Retardant Value
A. *Base Sheets*		
Asphalt saturated felt	14	3
Asphalt saturated asbestos felt	14	5
Asphalt saturated and coated dampcourse	18	4
Asphalt saturated felt	28	6
Asphalt smooth surfaced roofing	37	6
B. *Base or Cap Sheets*		
Asphalt saturated asbestos felt (2 layers minimum)	14 (each)	10
Asphalt saturated asbestos felt (Black Top)	41	9
Asphalt saturated asbestos felt (Black Top)	50	10
C. *Cap Sheets Only*		
Asphalt saturated asbestos roofing (White Top)	37	9
Asphalt saturated asbestos roofing (White Top)	52	10
Ilmenite surfaced roofing	55	7
Smooth surfaced cap sheet	50	6
Smooth surfaced cap sheet	60	7
Smooth surfaced cap sheet	68	9
Mineral surfaced asphalt cap sheet	83	10
Split sheet roofing (2 layers minimum)	53 (each)	12
D. *Gravel and Ceramic Material*	400	6

A total fire-retardant value of 15 for a built-up roofing is necessary for classification as a fire-retardant roof covering.

Definitions:

Asphalt Saturated Felt is roofing felt made up of organic or asbestos felt saturated with bituminous compound.

Base Sheets are one or more layers of roofing products over which is placed a cap sheet, asbestos shingles, composition shingles or mineral surfacing.

Cap Sheets are made up of asphalt saturated felt coated on both sides with a bituminous compound and surfaced with mineral granules, mica, talc, ilmenite, asbestos fibers or similar materials, except on the unexposed portions of split cap sheets.

Appendix B

Application for a Building Permit

City of.....Oregon

Date..... 19 ..... Application No.....

Application is hereby made to do work according to the following description:
Location of Premises: Lot..... Block..... Subdivision.....
Street Address .....
Dimensions of Lot.....x.....x.....x..... Size of Building.....x..... Height.....
Depth of Front Yard..... Width of Side Yards (....) (....) Depth of Rear Yard....
Type of Occupancy..... Type of Construction.....
The work is to consist of (mention auxiliary buildings if any).....
.....
The cost of the work is estimated to be..... The Permit Fee is.....

Owner ..... Address..... Phone.....
Architect ..... Address..... Phone.....
Builder ..... Address..... Phone.....

The undersigned agrees to execute the work in conformity to the above description and the accompanying plans and specification and the Building Code of the City of .....

Signed.....

Application approved .....19..... by.....
Permit No. ..... issued .....19..... by.....

Building Permit

City of.....Oregon

Date..... 19..... Permit No.....

Permission is hereby granted to.....
(owner's name and address)

for the construction described in application No..... to be located at.....

..... in the city of.....Oregon.
(address of new building)

.....
(Building Inspector)

Inspection Record: By .....

Foundations..... Frame..... Final.....

Note: Notify the Building Inspector by permit number when the building is ready for inspection.

Appendix C

Selected List of References and Agencies

Selected references which will be helpful to the building official in administering the *Proposed Building Code for Small Cities* are:

State of Oregon Publications

1. *Oregon State Fire Marshal Laws.* Office of the State Fire Marshal, Salem, Oregon. (Available on request)
2. *Plumbing Code.* Chief Plumbing Inspector, Oregon State Board of Health, State Office Building, Portland 1, Oregon. (Available on request)
3. *Electrical Code.* Chief Electrical and Safety Inspector, Oregon State Bureau of Labor, State Office Building, Portland 1, Oregon.

United States Government Publications. Order from Superintendent of Documents, Washington, D. C.

National Bureau of Standards, U. S. Department of Commerce, Washington, D.C.

1. *Fire Resistance Classifications of Building Constructions,* BMS92, Price 30¢
2. *Field Inspectors Check List for Building Construction,* BMS81, Price 30¢
3. *American Standard Building Code Requirements for Masonry,* M174, Price 10¢

Forest Products Laboratory, U. S. Department of Agriculture, Madison 5, Wisconsin

1. *Wood Handbook,* 1953.

National Housing Agency, U. S. Federal Housing Administration, Portland, Oregon

1. *Minimum Property Requirements for Properties of One or Two Living Units Located in the District Covered by the Portland Insuring Office.* (Available on request)
2. *Tables of Maximum Allowable Spans for Wood Floor Joists, Ceiling Joists, Rafters in Residential Construction.*

National Board of Fire Underwriters, 85 John Street, New York 7, New York. (All publications are available on request.)

1. *National Building Code,* 1949.

National Lumber Manufacturers Association, Washington, D. C.

1. *National Design Specifications for Stress Grade Lumber and its Fastenings.* Revised, 1952, Price 25¢
2. *House Framing Details,* Price 10¢

Other agencies engaged in setting standards for the use of building materials include:

1. American Concrete Institute, New Center Building, Detroit 2, Michigan.
2. American Iron and Steel Institute, 350 Fifth Avenue, New York 1, N. Y.
3. American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania.
4. American Standards Association, 70 East 45th Street, New York 17, N. Y.
5. Underwriters' Laboratories, Incorporated, 207 East Ohio Street, Chicago, Illinois.

Introduced and read the first time
April 6, 1956

Read the second time April 6, 1956

Read the third time and passed
April 6, 1956

H. L. VanDolah

Mayor of the City of Sherwood, Ore.

Attest:

N. G. Albert

Recorder of the City of Sherwood, Oregon

For Your Information...

BUILDING VALUATION DATA

Increased construction costs of approximately 25 per cent between 1950 and 1955 are indicated by building valuation data utilized to establish building permit fees. For example, wood frame dwelling construction in the Pacific Northwest has an average valuation per square foot of building area of $9.27 today as compared with a valuation of $7.38 in August, 1950 according to information published in Building Standards Monthly. Similar increases are indicated for other types of construction as given in the following tabulation:

Type of Building	Valuation per sq.ft. Aug. 1950	Aug. 1955	Per cent Increase 1950 - 1955
Assembly buildings, stadiums, schools			
Concrete or Steel	$15.40	$19.38	26%
Wood and Masonry	9.35	11.61	24
Hospitals, institutional homes, nurseries			
Concrete or Steel	16.94	21.35	26
Wood Frame	7.32	9.18	25
Commercial, industrial			
Concrete or Steel	7.03	8.82	25
Wood and Masonry	5.07	6.23	23
Steel Frame, Unplastered	4.43	5.59	26
Steel Frame, Plastered	4.88	6.13	26
Wood Frame	3.75	4.69	25
Apartment houses, hotels, dormitories			
Concrete or Steel	13.01	16.38	26
Wood and Masonry	8.67	10.79	24
Wood Frame	6.19	7.76	25
Dwellings			
Concrete Block	8.38	10.46	25
Wood Frame Siding	7.38	9.27	26
Stucco	7.15	9.01	26
Brick	10.26	12.83	25

Valuations used to establish building permit fees, while based on the construction cost estimates submitted by the permit applicant, are checked against comparative data for reasonableness. Although building costs vary to some extent geographically, the August, 1955 valuations given above are adjusted for the Pacific Northwest and reflect minimum quality and construction for the various types as nearly as a price can be given to the major buildings of a general catagory according to the September, 1955 Building Standards Monthly.

Compiled by:
Bureau of Municipal Research & Service
University of Oregon
September, 1955