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Note:
Please remove all other amendments and insert in pocket in back of 1967 Edition of Building Code.

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The following sections of the 1967 Edition of the N. C. State Building Code, Vol. I, have been amended by the Building Code Council as follows:

CHAPTER I—ADMINISTRATION

Section 104.3—9-12-72—Meetings—Amend the first sentence to read as follows:
"The Building Code Council shall meet regularly the second Tuesday in March, June, September and December."

Section 109—3-13-73—Alternate Materials and Methods of Construction Substitute the following wording for Section 109 of Volume I and Section 33 of the Uniform Residential Code Volume I-B.
"Although a certain material, or a particular method of construction, is specifically prescribed by this Code, this Code is not intended to prevent the use of a material, or method of construction, different from the material, or method of construction specifically prescribed by the Code, provided any such alternate material or method of construction has been approved and its use authorized by the building official. The building official shall approve any such alternate material, or method of construction, provided the building official, in his sole discretion, finds that the proposed alternate material, or method of construction complies with the provisions of Chapter XII, and that the alternate material, or alternate method of construction is, for the purpose intended, at least the equivalent of that specifically prescribed by the Code in quality, strength, effectiveness, fire-resistance, durability and safety. The building official may require that sufficient evidence or proof be submitted to substantiate any claim that may be made regarding its use, and, if, in the opinion of the building official, the evidence and proof are not sufficient to justify his approval, the agrieved party may refer the entire matter to the Building Code Council."

CHAPTER II

Section 201—3-12-74—Revise the definition of Fire Retardant (Pressure treated) Wood, Page 2-4, by changing the last sentence to read:
"Fire Retardant (Pressure treated) Wood—means wood chemically impregnated in accordance with A.W.P.A. Specification C1-61 which must have a flame spread rating not exceeding 25, with no evidence of significant progressive combustion when tested for 30 minutes in accordance with 'Methods of Test for Surface Burning Characteristics of Building Materials, ASTM E 84-68.' All materials shall bear identification showing the fire performance rating thereof issued by an approved agency having a re-examination service and when exposed to the weather or sustained high humidity shall be identified as "Exterior". Exterior grade shall comply with the requirements of the Method of Test for Durability of Fire Retardant Treatment of Wood ASTM D 2898-70T." Subsequent to treatment, fire retardant treated lumber and plywood shall be dried to a moisture content of 19% or less for lumber and 15% or less for plywood.

Section 201.2—1-1-75—Add new definition as follows:
LISTED: Equipment or materials included in a list published by a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of

production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner. The means for identifying listed equipment may vary for each testing laboratory, inspection agency, or other organization concerned with product evaluation, some of which do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.

Note:. Refer to North Carolina General Statutes 66-23 through 66-27 entitled "Electrical Materials, Devices, Appliances and Equipment."

CHAPTER III

Section 304.2—9-12-67—Add the phrase "See definition of 'shed' and 'building' in Chapter II." Add new Section: "9. Also see Note (c) and (e) in Table 600."

CHAPTER IV

Section 402.3—3-9-71—Add a new paragraph to read as follows:
"(b) Where a 1-story automobile parking area (enclosed or open) of Type-I or II Construction, with grade entrance is provided under a building of Group A occupancy, the number of stories to be used in determining the minimum type of construction may be measured from the roof slab of such parking area."

Section 402.5—9-12-72—Add the following after the word "story": "unless used as habitable space."

Section 403.2—12-12-67—Reference to Section 403.6 in last sentence should be changed to "Section 403.4 and 403.7."

Section 403.4—12-12-67—Add the following sentence: "The area increases above apply when Section 901.7 requires sprinklers." Change the figures 200 and 300 to "100" and "200".

Section 403.5—12-12-67—Add the following: "Note: This section does not apply to Group A and D occupancy or to Group C and E occupancy over one story in height."

Table 402—9-14-71—Add Note (p) to Table 402 of Volume I of the State Building Code to apply to residential occupancies of wood frame construction.
(p) Wood frame one hour protected residential buildings may be three stories in height except when basement level is used as habitable space.

Table 402—9-11-73—under E-2 small assembly non-working stage add note (e) to Type IV unprotected and protected and Type III and Type V.

Section 403.6—9-12-67—Add the phrase "walls and partitions and" between the words "when" and "all."

Section 403.7—9-12-67—Add this phrase at the beginning of the sentence, "Outside the first fire district."

Table 402—9-12-67—Under Type IV, 1-Hour Protected for D-2 Occupancy, add "two story 12,000 Sq. Ft. per floor." Add under Note (o) in Table 402, "Type I and II construction are unlimited in area when completely sprinklered." Add Note (p) to Table 402 under Type VI; 1-Hour Protected as follows: "(p) Refer to Section 516.1 (b) which limits Nursing Homes and Boarding Homes to one story and 2500 Sq. Ft. in area."

Section 406.1—9-12-67—Add "Educational Buildings for Churches."

Section 407.1 scope—6-12-73—"Notes": Under "Group D-2—Institutional Occupancy"—shall include, among others, the following:
"Residential care facilities keeping ten or more adults who are mildly or moderately retarded or similarly developmentally disabled as determined by the state agency having licensure jurisdiction, trainable, ambulatory, and not involuntarily detained."

Under Section 407.2—Exception—"Residential care facilities keeping six to nine adults who are mildly or moderately retarded or similarly developmentally disabled as determined by the state agency having licensure jurisdiction, trainable, ambulatory, and not involuntarily detained shall be classified as Group A—Residential Occupancy."

Section 407.1 D-2—9-12-67—Add "Day Nurseries with cribs."

Section 407.2—12-12-67—Add the following wording to Section 407.2, "Temporary buildings housing work-release prisoners who are not restricted by lock and key may be of Type IV noncombustible construction when not more than one-story in height nor more than 10,000 square feet in area."

Section 409.1—9-12-67—Add under Group F Occupancy, "Public Parking Decks."

Section 412.5—12-12-72—Add the following under Group F—Storage: "Public (open air) Parking decks—2 hours."

CHAPTER V

Section 501.1 (f)—9-12-72—Change dates of standards as follows:
NFPA Standards for the storage, handling and use of flammable liquids (National Fire Codes, Volume 1, 1971-72 Edition), NFPA No. 30-1969.
NFPA Standards for spray finishing using flammable materials (National Fire Codes, Volume 1, 1966-67 Edition), NFPA No. 33-1966.
NFPA Standards for dip tanks containing flammable or combustible liquids (National Fire Codes, Volume 1, 1971-72 Edition), NFPA No. 34-1971.
NFPA Standards for the installation and operation of oxygen-fuel gas systems for welding and cutting (National Fire Codes, Volume 2, 1971-72 Edition), NFPA No. 51-1969.
NFPA Standards for the storage and handling of liquefied petroleum gasses (National Fire Codes, Volume 2, 1971-72 Edition) NFPA No. 58-1969.
NFPA Recommended good practice requirements for the installation and use of combustion engines and gas turbines (National Fire Codes, Volume 2, 1971-72 Edition), NFPA No. 37-1970.
NFPA Standards for the storage and handling of pyroxylin plastic in warehouses and wholesale jobbing and retail stores (National Fire Codes, Volume 3, 1971-72 Edition), NFPA No. 43-1967.

NFPA Standards for the storage, handling and use of pyroxylin plastic in factories making articles therefrom (National Fire Codes, Volume 3, 1971-72 Edition), NFPA No. 42-1967.
NFPA Standards for the storage and handling of combustible fibers (National Fire Codes, Volume 3, 1968-69 Edition), NFPA No. 44-1953.
NFPA Standards on the fundamental principles for the prevention of dust explosions in industrial plants (National Fire Codes, Volume 3, 1971-72 Edition), NFPA No. 63-1971.
NFPA Code for the prevention of dust explosions in the manufacture of aluminum powder (National Fire Codes, Volume 3, 1971-72 Edition), NFPA No. 651-1967.
NOTE: The above standards are published by the National Fire Protection Association in the several volumes of National Fire Codes and may be obtained from NFPA and 470 Atlantic Avenue, Boston, Mass. 02210. (See Appendix H).

Section 501.2 (1)—9-12-72—Change dates of Standards as follows:
National Fire Codes, Volume 1, 1971-72 Edition), NFPA No. 32-1970.

Section 501.3 (3)—9-12-72—Change dates of standards as follows:
National Fire Codes, Volume III, 1971-72 Edition), NFPA No. 40-1967.

Section 502 (g)—3-14-72—Delete Section 502(g).

Section 505 (b)—9-12-73—Add the following after the word "fire resistance": "or be of heavy timber construction."

Section 505—6-12-73—Automotive Service Stations. Revise Section 505 by adding a new Section (d) and (e) as follows:
Section 505
(d) Approved dispensing devices such as, but not limited to coin-operated card-operated and remote control types are permitted at self service stations.
(e) This Code does not include requirements for service station attendants.
NOTE: Several locally adopted fire prevention ordinances do require attendants for self service stations in accordance with Pamphlet No. 30 of the National Fire Protection Association.

Section 507.2-12-12-72—Substitute the following for Section 507.2 of Volume I:
"507-2—Public Parking Decks
(a) As defined in Section 201.2, Public Parking Decks may be constructed of Types I, II, III and IV Construction without exterior walls. When such structures are within ten (10) feet of common property lines they shall be provided with an enclosure wall along the common property line of not less than two (2) hours fire resistance without openings therein, except that doors opening to buildings adjacent thereto may be permitted provided that such door openings meet the requirements of Section 703.4.

(b) Type III structures shall be limited to a height of four (4) stories and an area limitation of 30,000 square feet per floor with roof parking permitted. Type IV structures shall be limited to a height of eight (8) stories and an area limitation of 30,000 square feet per floor with roof parking permitted except that Type IV structures shall not be limited in area when such structures are four (4) stories or less in height, are surrounded on all sides by a permanent open space of not less than thirty (30) feet, and provided with exterior walls at least 50% open on all sides, and the horizontal distance from any point on any level to an exterior wall does not exceed

200 feet. When Type I—Fireproof or Type II—Fire Resistive Construction, the height and area shall not be limited. When of Type III or IV Construction area increases may be allowed in accordance with Section 403. Section 507.2 (b)—9-12-67—Add "Public parking decks which do not have at least 50% of two sides open are limited in area and height in accordance with Table 402."

(c) Each floor of such structure shall have a continuous wheel guard not less than six (6) inches in height above the floor, with a clear passage of four (4) feet between the wheel guard and edge of structure. In such structures without exterior walls there shall be placed in addition to the wheel guard a continuous protective railing not less than three (3) feet six (6) inches above the floor around the entire outside perimeter of the structure.

(d) Exterior wall and interior fire protection requirements in Section 301.3 (a) and (e) shall not apply to Public Parking Decks.

(e) Note (m) in Table 402 shall not apply to Public Parking Decks."

Section 512.1—(b) and (c)—9-12-67—Substitute "Section 408.2 and Table 402" for Section 408.6."

Section 512.6—9-14-71—Insert the following wording between the first and second sentence:
"In restaurants, cafeterias, cafetoriums, gymnatoriums and similar multi-purpose places of assembly, the seats shall not be required to be fastened to the floor."

Section 512.6—9-12-67—Add new Section (k) as follows:
(k) Continental Seating

Section 512.7 (b) 5—12-10-74—Add new sentence to read as follows:
"For reverse folding and portable bleachers the horizontal swaying force applied to the seats in a direction perpendicular to the length of the seats shall be twenty pounds per linear foot of seats."

Section 512.7 (b)—Add new paragraph 8, 9 and 10 to read as follows:
"8—Reverse folding bleachers and portable folding bleachers (types which are not stabilized with wall attachments) when in open, partially open or closed position shall be so designed as to resist overturning of the units. The minimum design resisting moment shall be defined by 500 pounds located 18 inches from the extreme front or rear face of the assembly or a total overturning moment of 750 foot pounds per each 10 foot length of bleacher assembly. A factor of safety of 2 will be required making a total resisting moment of 1500 foot pounds per each 10 foot length of bleacher assembly which must either be produced by the dead weight of the bleachers or by other means."

"9—Back and side panels must be included on all reverse folding and portable bleachers to make climbing difficult."

"10—Other specifications shall be in accordance with NFPA No. 102, Section 4 "Folding and Telescoping Seating". If any conflict exists between these specifications and NFPA No. 102, the more severe requirements shall control."

(1.) With Continental seating, the spacing of rows of unoccupied seats shall provide a clear width between rows measured horizontally as follows (automatic or self-rising seats shall be measured in the seat-up position, other

seats shall be measured in the seat-down position): 18 inches clear width between rows of 18 seats or less; 20 inches clear width between rows of 35 seats or less; 21 inches clear width between rows of 45 seats or less; 22 inches clear between rows of 46 seats or more.

(2.) With Continental seating, the number of intervening seats between any seats and an aisle may be increased to 49 where exit doors are provided along each side aisle of the row of seats at the rate of 1 pair of exit doors for each 5 rows of seats. Such exit doors shall provide a minimum clear width of 66 inches.

512.9—1-19-71—Add the following: "It shall be unlawful to allow a number in excess of that posted in any place of assembly."

Section 512.13 (a)—9-12-72—Add the following after the word "place": "that has a working stage."

Section 512.14—9-12-72—Add the following after the word "occupancies": "that has a working stage."

Section 514.2—9-12-67—Substitute "Table 402" for "408.6."

Section 516.1 (c)—9-12-67—Add the following note at the end of the paragraph: "Note: Type I and Type II Construction, three stories or less in height are required to have sprinkler system or automatic fire detection system only in unoccupied areas such as, storage rooms, kitchens, recreation rooms, etc."

Section 516.2—Automatic Smoke Detectors

All institutional buildings (including hospitals, nursing homes, etc.), day care facilities and residential care facilities which are constructed after January 1, 1975, shall have installed in all corridors approved listed smoke detection devices, sensing visible and invisible particles of combustion. Such smoke detection devices shall be installed on or near the ceiling and in accordance with the listing and the manufacturers' recommendations, but in no case shall smoke detectors be spaced farther apart than 30 feet on centers in corridors or more than 15 feet from any wall.

Buildings which have corridors more than 75 feet in length must be provided with an approved listed smoke detection system to be electrically interconnected to the fire alarm system required by Section 1126. Buildings with corridors less than 75 feet in length may utilize the single station device approved for dwellings, but if two or more units are used, they must be interconnected.

Detectors shall have either a visible light to indicate operability or an audible trouble signal. Audible trouble signals shall be designed to operate at least every minute for seven consecutive days. The alarm signalling device shall, for the single station type, emit not less than 85 decibels at ten feet.

Detectors shall be electrically operated (non plug-in) and the primary source of power for detectors installed in new structures shall be taken from the house electrical current. Listed smoke detection devices may take the place of automatic fire detection devices provided they are interconnected. The term "listed" shall be as defined in Section 201.2.

NOTE: Test Standards for Automatic Smoke Detectors—All automatic smoke detectors shall be tested in accordance with the applicable require-

ments of "Standard for Smoke Detectors, Combustion Products Type for Fire Protective Signalling Systems, UL-167, April, 1974". The testing and listing must be by a nationally recognized testing laboratory as provided in the definition of "Listed" in Section 201.2.

Section 201.2—Add new definition as follows:
Listed: Equipment or materials included in a list published by a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner. The means for identifying listed equipment may vary for each testing laboratory, inspection agency, or other organization concerned with product evaluation, some of which do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.
Note: Refer to North Carolina General Statutes 66-23 through 66-27 entitled "Electrical Materials, Devices, Appliances and Equipment."

Section 516-2—3-10-70—Standards for Day Care Facilities (New Section)
"NOTE: If the inspector checks the "facility approved" blank on inspection forms, or thinks it should be checked, even though one or more questions are answered "NO", the inspector must explain in detail and give his recommendations on whether equivalent protection to the safety of the children is being provided for each question answered "NO"."

Section 519.1—Small Group Day Care Facilities (6-15 Children)
(a) All small group day care homes keeping 6-15 unrelated children must meet the requirements of the State Building Code for school occupancy, except that specially designated rooms of extended or modified family residences may be used under the following conditions:

(1.) The facility must be licensed by a state agency or under the jurisdiction of a city or county building inspector, fire prevention insepctor or fire chief, which has a responsibility to periodically reinspect the facility to make sure that the number of children being cared for is no more than the license calls for (or a maximum of 15 children whichever is less) and that the children use only the first floor or grade level rooms.

(2.) The building must meet the **Uniform Residential Building Code** for dwellings and not be over 2,500 square feet in area on any one floor and be not over two stories in height.

(3.) The **first floor rooms, or grade level rooms** with exit to outside at grade (located at grade or first floor level) may be used provided all walls and ceilings are covered with plaster, gypsum wall board or other noncombustible surfaces. All other rooms with a flame spread rating higher than 200 must be separated from the day care use rooms by one hour rated walls and solid core doors or paint such combustible surfaces with fire retardant paint.

(4.) Each room used for day care purposes must have **access to two remotely located outside exits.** Only one exit is required if an exterior exit door opens directly to the outside from each room to be used by the children. Access from the room door to the two remotely located outside exits must not have a dead end distance of more than 20 feet measured from the room door used by the children to the point at which two separate outside exits can be reached. A dead end occurs when a hall way is so arranged

that a person therein is able to travel in only one direction in order to reach either exit.

(5.) All stairs from the floor used by the children that lead to a floor above or below must be closed off with one hour walls and solid care core doors or equivalent.

(6.) Fuel burning space heaters, fire places, floor furnaces and portable electric space heaters are prohibited unless provided with a protective screen attached securely to substantial supports. Unvented fuel burning heaters of all types are prohibited.

(7.) All unoccupied spaces such as attics, basement workshops, furnace rooms, etc. must be provided with Underwriters' Laboratories labeled automatic fire detection devices.

(8.) The space to be used must have at least 10% of its floor area composed of windows with one half of these windows openable (or mechanically ventilated) and if space is partially below grade it must have exit direct to outside.

Section 519.1 (b)—3-13-73—Exception—"SMALL GROUP DAY CARE, FACILITIES MAY HAVE UP TO TWENTY-FIVE CHILDREN IF ALL ROOMS ARE EQUIPPED WITH OUTSIDE DOORS. Day Care Facilities with six to twenty-five children (with not more than 10 children under three years of age), which otherwise meet the Board's requirements, (with all children on the first floor) are not required to comply with the wall and ceiling requirements in Section 519.1-3 (Section IIB (3) or the stairway enclosure requirements in Section 519.1-5 (Section IIB (5) or the automatic fire detector requirements in Section 519.1-7 (Section IIB (7), if all rooms used for day care facilities have an exit door directly to the outside at or near grade level with proper ramp or steps to grade level. A manual fire alarm device which can be heard throughout the building shall be installed."

Section 519.2—3-10-70—Family Day Care Homes (less than 6 children)
All family day care homes keeping less than 6 unrelated children must meet the requirements of the Uniform Residential Building Code for dwellings and be limited to not more than 2,500 square feet in area per floor if of wood frame construction. Two story dwellings may be used provided the children are kept on the first floor.

Section 519.3—3-10-70——Day Care Centers (more than 15 children)
(a) All day care centers serving more than 15 children must meet the requirements of the State Building Code for Group C—schools except those keeping children less than three years old must meet Group D-2 Institutional Occupancy. Wood frame construction is restricted to one story in height and not more than 2,500 square feet in area. All walls and ceilings must have flame spread rating less than 200. The furnace room must be separated from the rest of the building with one hour rated walls and ceilings. An automatic sprinkler system or an automatic fire detection system and one hour rated walls and ceilings throughout are required for Group D-2 Institutional Occupancy. (See pamphlet on nursing homes and boarding homes for other applicable requirements for D-2 Institutional Occupancy. Minimum door widths are three feet in lieu of 44" as required in this pamphlet for nursing homes, etc. Minimum corridor widths are 44" in lieu of widths specified in nursing home pamphlets.)

Section 519.3 (b)—3-13-73—Exceptions—"All day care centers caring for children under three years old which do not have staff meeting the requirements of paragraph 519.5 below, or do not have an exit door directly to the outside for rooms used for children under three years of age must meet Group D-2 "Institutional Occupancy" of the State Building Code.

Section 519.4—9-12-72—North Carolina State Building Code Requirements for Day Care facilities (more than 15 children) in operation prior to 4-1-72.

(1) An occupancy permit is required before occupying an existing building for day care purposes. If an occupancy permit has not been issued, the inspections that are a prerequisite to issuance of that permit will be incorporated into the licensing procedure.

(2) All day care facilities must be located in buildings which do not have violations of the State Building Code applicable to general construction, plumbing, heating and electrical systems that would present hazards to the health and safety of the children.

(3) Alternative Requirements:
Amend Section 519.3 by adding the following: Section 519.3 Day Care Centers (more than 15 children): "Day care facilities in operation prior to April 1, 1972 are not required to comply with sections of this code which require one or more of the following:

1. One-hour fire rated walls and solid core doors.
2. One-hour fire rated ceilings.
3. Automatic sprinkler system.
4. Automatic fire detection system.

provided all rooms used for day care purposes are on the first floor for all types of construction and wood frame constructed buildings are limited to two stories in height with all children on the first floor. Such facilities must also comply with the following:

(A) Each room used for day care purposes must have access to two outside exits. Only one exit is required if an exterior door opens directly to the outside from each of the rooms to be used by the children. Access from the room door to the two remotely located outside exits must not have a dead end distance of more than 20 feet measured from the room door used by the children to the point at which two separate outside exits can be reached. A dead end occurs when a hallway is so arranged that a person therein is able to travel in only one direction in order to reach an exit.

(B) All rooms used for children under three years of age must have an exit door directly to the outside, when the building is of wood frame construction. All rooms used for children under three years of age must have an exit door in the immediate vicinity of an outside exit door if the building is of other than wood frame construction.

(C) All walls and ceilings (excluding doors and trim) of rooms and spaces used for day care facilities which are not protected with plaster, gypsum wallboard or other non-combustible materials must be painted with fire retardant paint.

(D) In buildings used for purposes not under the control of the day care operator, all rooms and spaces used for day care purposes must be separated from the rest of the rooms by one hour fire rated walls and solid core doors unless all walls and ceilings of such rooms are protected as required for rooms used for day care purposes.

(E) Each day care center shall formulate a plan, in cooperation with the local fire department, to evacuate in case of fire or when necessary, (Fire extinguishers shall not be used until the children are safely evacuated unless the facility has sufficient staff personnel to evacuate the children safely and use fire extinguishers simultaneously.) All employees shall be instructed and kept informed of their duties under the plan. There shall be at least one unannounced fire drill monthly.

(4) The following requirements also must be complied with:

a. The approaches to all exits, the exits themselves, and the path of travel from the exit into the street or open space shall be continuously free of all obstructions so that full and instant use in case of fire or other emergency is possible.

b. All doors to rooms with occupancy of more than 50 people must be hung to open out.

c. All stairways, hallways and other means of exit shall be kept adequately lighted at all times when the building is occupied. All required exits and the routes to them shall be identified by readily visible signs where the exits or the ways to reach them are not immediately obvious to the occupants. Exits signs are not required in one story buildings with a capacity of less than 30 persons.

d. The space to be used for day care purposes must have at least 10% of its floor area composed of windows with one half of these windows openable (or the rooms must be mechanically ventilated) and if the space is partially below grade it must have exit direct to outside.

e. Fuel burning space heaters and portable electric space heaters and floor furnaces are prohibited unless provided with a protective screen attached securely to substantial supports. All unvented fuel burning heaters of all types are prohibited. Each hazardous area must have a fire extinguisher in the immediate area. (Hazardous areas include repair shops, hobby shops, closets, rooms or spaces used for storage of equipment such as brooms, insecticides, paint, floor wax, mops, etc.)

f. Every day care facility must have a manually operated fire alarm or other sounding device which is audible throughout the area used. The alarm shall be identified as such.

g. At least one annual fire inspection by the local inspector or fireman is required.

h. At least one 2½ gallon water type extinguisher shall be required for every 2,500 square feet of floor space. An approved first aid fire appliance shall be installed at every kitchen and workshop. (2¾ pound dry chemical extinguisher or a six B-C rated extinguisher).

i. It is recommended that all combustible decorative material including rugs and curtains be rendered and maintained flameproof.

Section 519.5—3-14-72—Add the following paragraph

All day care centers (more than 15 children) regardless of age of children, must meet the requirements for State Building Code for Group C schools

instead of D-2, provided the facility is licensed by a state agency which enforces the following minimum staff-child ratio:

Age	Staff-Child Ratio	Maximum Groupings
Under 3 years	1 to 4	8 children
3 year olds	1 to 5	15 children
4 and 5 year olds	1 to 7	20 children
6 to 14 years	1 to 10	25 children

519.6—1-1-75—Automatic Smoke Detectors

All institutional buildings (including hospitals, nursing homes, etc.), day care facilities and residential care facilities which are constructed after Jan. 1, 1975, shall have installed in all corridors approved listed smoke detection devices, sensing visible and invisible particles of combustion. Such smoke detection devices shall be installed on or near the ceiling and in accordance with the listing and the manufacturers' recommendations, but in no case shall smoke detectors be spaced farther apart than 30 feet on centers in corridors or more than 15 feet from any wall.

Buildings which have corridors more than 75 feet in length must be provided with an approved listed smoke detection system to be electrically interconnected to the fire alarm system required by Section 1126. Buildings with corridors less than 75 feet in length may utilize the single station device approved for dwellings, but if two or more units are used, they must be interconnected.

Detectors shall have either a visible light to indicate operability or an audible trouble signal. Audible trouble signals shall be designed to operate at least every minute for seven consecutive days. The alarm signalling device shall, for the signal station type emit not less than 85 decibels at ten feet.

Detectors shall be electrically operated (non plug-in) and the primary source of power for detectors installed in new structures shall be taken from the house electrical current. Listed smoke detection devices may take the place of automatic fire detection devices provided they are interconnected. The term "listed" shall be as defined in Section 201.2.

NOTE: Test Standards for Automatic Smoke Detectors—All automatic smoke detectors shall be tested in accordance with the applicable requirements of "Standard for Smoke Detectors, Combustion Products Type for Fire Protective Signalling Systems, UL-167, April, 1974". The testing and listing must be by a nationally recognized testing laboratory as provided in the definition of "Listed" in Section 201.2.

Buildings which have corridors more than 75 feet in length must be provided with an approved listed smoke detection system to be electrically interconnected to the fire alarm system required by Section 1126. Buildings with corridors less than 75 feet in length may utilize the single station device approved for dwellings, but if two or more units are used, they must be interconnected.

Detectors shall have either a visible light to indicate operability or an audible trouble signal. Audible trouble signals shall be designed to operate at least every minute for seven consecutive days. The alarm signalling device shall, for the single station type emit not less than 85 decibels at ten feet.

Detectors shall be electrically operated (non plug-in) and the primary source of power for detectors installed in new structures shall be taken from the house electrical current. Listed smoke detection devices may take the place of automatic fire detection devices provided they are interconnected. The term "listed" shall be as defined in Section 201.2 (See Below)

NOTE: Test Standards for Automatic Smoke Detectors—All automatic smoke detectors shall be tested in accordance with the applicable, requirements of "Standard for Smoke Detectors, Combustion Products Type for Fire Protective Signalling Systems, UL-167, April, 1974". The testing and listing must be by a nationally recognized testing laboratory as provided in the definition of "Listed" in Section 200.

Section 201.2—Add new definition as follows:
Listed: Equipment or materials included in a list published by a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner. The means for identifying listed equipment may vary from each testing laboratory, inspection agency, or other organization concerned with product evaluation, some of which do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.

NOTE: Refer to North Carolina General Statutes 66-23 through 66-27 entitled "Electrical Materials, Devices, Appliances and Equipment."

Section 520—12-11-73—Residential Care Facilities—Add the following new section:
Section 520—Requirements for residential care facilities keeping as many as six and less than ten children who are dependent, neglected, abandoned, destitute, orphaned, delinquent, and not involuntarily detained. These requirements also apply to residential care facilities keeping six to nine adults who are mildly or moderately retarded or similarly developmentally disabled as determined by the state agency having licensure jurisdiction, trainable, ambulatory, and not involuntarily detained.

"NOTES": Under "Group D-2—Institutional Occupancy—shall include, among others, the following:
"Residential care facilities keeping ten or more adults who are mildly or moderately retarded or similarly developmentally disabled as determined by the state agency having licensure jurisdiction, trainable, ambulatory, and not involuntarily detained."

Under Section 407.2—Exception
"Residential care facilities keeping six to nine adults who are mildly or moderately retarded or similarly developmentally disabled as determined by the state agency having licensure jurisdiction, trainable, ambulatory, and not involuntarily detained shall be classified as Group A—Residential Occupancy."

Section 520.1—The facility must be licensed by a state agency which has a responsibility to periodocially reinspect the facility to ake sure that the number being cared for is no more than the license calls for.

Section 520.2—All residential care facilities keeping as many as six and less than ten persons not involuntarily detained, when of other than fireproof construction or semi-fireproof construction, **shall not exceed two stories in height and shall not exceed 1800 square feet per floor and if wood frame construction and one story in height shall not exceed 2500 square feet in area for existing buildings.** Any occupied attic shall be counted as an additional story in determining permissible building height. **Basement areas used as habitable space count as a story. A basement is not counted as a story if at least 50% of its clear height is below grade.** See North Carolina State Building Code whereby new buildings of 5000 SF maximum gross area require 1 hour protection.

Section 520.3—All walls, partitions, and ceilings shall be of non-combustible materials or of 1-hour fire resistance.

Section 520.4—Occupants must have access to two remotely located outside exits. Access from room doors to the two remotely located outside exits must not have a dead end distance of more than 20 feet measured from the room door to the point at which two separate outside exits can be reached. Occupants of all rooms above the first floor shall have unobstructed access to two separate and distinct ways to egress extending from the upper-most floor to the ground, such ways to egress to be so arranged in reference to rooms that in case of fire on one stairway the other stairway can be reached by the occupant without having to pass the stairway involved. Stairways must be enclosed on one floor level with one hour fire rated walls and a minimum of soild core door equipped with a self closer. Basement stairs, whether used for habitable space or not, shall be enclosed with one hour fire rated walls and solid core door equipped with self closer. (Exterior metal fire escapes meeting requirements of the North Carolina State Building Code are acceptable as exit stairs.)

All rooms for sleeping purposes shall have an outside window that can be opened without the use of tools to provide a clear opening not less than 16" in least dimensions and 432 square inches in area, or if of fixed glass, must be at least 24" x 24" with the bottom of the opening not more than 4' above the floor.

Section 520.5—If a residential care facility keeping six to nine persons is of other than fireproof or semi-fireproof construction, **occupants younger than six years of age shall sleep on the first floor with an adult.**

Section 520.6—Fuel burning space heaters, floor furnaces and portable electric space heaters are prohibited.

Section 520.7—When of other than fireproof or semi-fireproof construction, all residential care facilities keeping six to nine persons shall be equipped with U.L. approved smoke detection devices or a U.L. approved automatic fire detection system in addition to other requirements specified in Section 516.1 (c).

Section 520.8—All residential care facilities keeping six to nine persons must install a manual fire alarm or signal system which is audible throughout the building.

Section 520.9—For every 1800 square feet of floor area and for each floor there shall be at least one fire extinguisher. Fire extinguisher shall be provided

in accordance with the standards of the National Fire Protection Association for First Aid Fire Fighting Appliances. Fire extinguishers shall be inspected regularly and kept charged and filled at all times.

Section 520.10—All electrical and heating equipment shall be approved by Underwriters' Laboratories or other nationally recognized testing laboratories and shall be installed according to manufacturers' instructions and approved by the local inspector.

Section 520.11—Flammable liquids, such as gasoline, kerosene, fuel oil, etc... shall be stored outside the building.

Section 520.12—No locks, bolts or fasteners shall be installed on exit and room doors which would prevent occupants from getting out by the simple operation of a single knob or lever.

Section 520.13—All habitable rooms must have at least 10% of its floor area composed of windows with one-half of these windows openable.

Section 520.14—Every home shall formulate an evacuation plan (in cooperation with the local fire department) for the protection of all persons in the event of fire and for their evacuation to areas of refuge and from the building when necessary.

Section 520.15—1-175—Automatic Smoke Detectors
All institutional buildings (including hospitals, nursing homes, etc.), day care facilities and residential care facilities which are constructed after Jan. 1, 1975, shall have installed in all corridors approved listed smoke detection devices, sensing visible and invisible particles of combustion. Such smoke detection devices shall be installed on or near the ceiling and in accordance with the listing and the manufacturers' recommendations, but in no case shall smoke detectors be spaced farther apart than 30 feet on centers in corridors or more than 15 feet from any wall.

Refer to new section 521 High Rise under separate cover. 4-1-75

CHAPTER VI

Table 600—9-12-67—Add the following sentence to Note (k)—**"If the building has 20,000 Sq. Ft. or more of floor area where combustible materials could be displayed, this section does not apply."**

Table 600—9-12-67—Add Note (0) under Type VI Wood Frame Buildings for exterior bearing walls and exterior non-bearing walls as follows((o) **"Buildings over 3500 Sq. Ft. in area, 0 to 3 ft.—3 hours (20%); 3 to 20 feet—2 hours (30%); 20 to 30 feet—1 hour (40%).**

Table 600—3-13-73—Add to Note (1) to be placed underneath Type II Construction across from Trusses, Girders and Beams Supporting Roofs:
Note (1): **"In one story buildings, approved fire retardant treated wood may be used for structural members supporting roofs including the Trusses, Arches and Roof Decks."**

Chapter VI—Table 600—Add note (p) under Type I Fire Proof and Type II Fire Resistive for Partitions Interior Bearing as follows:
"(p) In buildings of Group A where either concrete or masonry bearing

partitions are not spaced more than 16'-0" clear and where each dwelling unit is limited to 1600 square feet, interior bearing partition shall provide 2 hour fire resistance."

Section 604.5—3-12-68—Roof Decks, Page 6-3 Modify this Section to read as follows:
"Heavy Timber roof decks shall be sawn or glue-laminated, splined or tongue and grooved plank, not less than 2", nominal, in thickness, one and one-eighths inch (1-⅛") thick Interior plywood (Exterior plywood (Exterior glue), or of planks not less than 3", nominal, in width, set on edge and spiked together, as required for floors. Other types of roof decking may be used that provide, equivalent fire-resistance, if not more combustible than two-inch (2") nominal wood sheathing, and is used within spans which have been proved structurally safe by approved tests."

Section 608.3—3-9-71—Add new Section 608.3 to read as follows:
608.3—Unusable Space
In one hour fire resistant construction the ceiling may be omitted over unusable space and flooring may be omitted where unusable space occurs above.

Section 610—12-12-72—Revise Section 610 to read as follows:
610—Unprotected Exterior Walls or Panels
Unprotected walls or panels may be permitted in exterior non-bearing walls under the following conditions:

(1) Provided such walls are of non-combustible material or of exterior grade Fire Retardant Treated Wood.

(2) Provided such walls face a street or permanent open space of 30 feet or more in width.

(3) Provided that in buildings three stories or more in height, exterior openings located in a story above a Group D, Institutional; Group R, Storage; Group G, Industrial; Group H, Hazardous Occupancy are separated from such an occupancy by a 2-hour fire resistive wall construction not less than 3 feet in height."

Section 610—6-12-73—Add new section:
"(4) Provided the requirements of Section 703.3 are met."

CHAPTER VII

Section 702.2—9-12-67—Group B—Business Buildings—Add the following: "Serving over 200 people," after the word "always" in the second line.

Section 702.2—12-12-72—Partitions Requirements—Delete the following sections and substitute the following:

Type I—Fireproof—Partitions, except as modified in this section, shall be of non-combustible material or Fire Retardant treated wood and of not less than one-hour fire-resistance construction.

Type II—Fire Resistive—Partitions except as modified in this Section, shall be of non-combustible material, fire retardant treated wood, or of 1-hour fire resistance.

Type IV—Non-Combustible—All partitions shall be of non-combustible material or of a 1-hour fire resistance rating.

Group B-1—Business Offices—Buildings more than one story in height partitions along public hallways serving over 200 people shall have a one-hour fire resistance rating. Floor areas occupied by multiple tenants in buildings of Type I and Type II Construction shall be separated into areas not in excess of 7,500 square feet by one-hour fire resistant partitions. Floor areas occupied by multiple tenants in Buildings of Type III, IV, V and VI Construction shall be separated into areas not in excess of 3,000 square feet by one-hour fire resistant partitions. These partitions and corridor partitions shall be continuous from the floor to the structure above and shall have all openings protected. U. L. listed wire glass in approved metal frames shall be permitted in corridor partitions of buildings of Type I and Type II Construction provided each glazed area does not exceed 36 square feet."

Group B-2—Business Mercantile Buildings—Partitions separating tenants shall have at least a one-hour fire resistance rating. Partitions within individual tenant spaces may be as prescribed for the type of construction required. (See Section 412 for mixed occupancy separation.)

Section 703.1 (a) (2) and (3)—9-12-67—Change the figure "30" to "15."

Section 703.3—6-12-73—In first line change "(exceeding 3 stories in height)" to read "(3 stories or more in height, excluding buildings whose floors are not required by Table 600 to be protected.)"

Add to the end of the last sentence:
. . . ., "and such wall space shall be of non-combustible materials having fire resistance of not less than 1-hour."

Add at the end of the Section:
"Verticle separation is not required by this section when:
(a) A horizontal barrier of non-combustible materials having fire resistance of not less than 1 hour in the level of the separating floor construction is provided, extending outward continuously a minimum of 30 inches from the exterior wall, or
(b) The building is fully sprinklered, or
(c) The higher of any two successive exterior openings under consideration is set inwardly from the plane of the lower opening a horizontal distance of not less than 3 feet.
Openings covered by this section include not only conventional penetrations of exterior walls such as by windows, glazed areas, and grills, but also unprotected exterior walls of glass."

Section 704.3—9-12-67—Add explanation note on finish materials as follows:
"Note: The flame spread rating required in this Table for wall and ceiling finishes applies to the surface finish. All non-combustible materials (see definition in Section 200) have a flame spread rating less than 25 even if they are not listed by U. L. Wood of heavy timber size could be considered at least Class C, and where tested and listed by U. L., the rating as listed would be used."

Section 711—12-12-72—Add the following to section 711:
"Section 711—Gutters, Leaders and Canopies on exterior walls
Canopies extending over public property shall comply with the requirements of Chapter XXVI.

Other non-load bearing permanent canopies may extend over adjacent open spaces and be of any material permitted by the code provided:

(a) That when located in the Fire District or less than thirty (30) feet from an interior lot line or other structure the canopy and its supports shall be of non-combustible material, fire retardant treated wood, wood of Type III sizes, or of one hour fire-resistant construction;

(b) The canopy has one long side open;

(c) the maximum horizontal width of the canopy does not exceed 15 feet;

(d) the fire resistance of exterior walls is not reduced."

Section 717.2—9-12-67—Change the number "712.2" to "717.2."

Section 717.2 (a) and (b)—9-12-67—The word "less" in the first and second paragraphs of (a) and the first paragraph of (b) should be "more."

Section 717.2 (b)—9-12-72—Delete 1 and 2 and reword (b) as follows: **"The access openings in each accessible side of a building over 65 feet in height shall be the same as "a" above or provide smoke towers spaced not over 100 feet on each accessible side."**

Section 718.1 (d) and (e)—9-12-67—Change the figure "30" to "15."
Section 718.1 (g)—9-12-67—Add the phrase **"and is at least 15 feet from the property line or other buildings on the same property."**

Section 719—1-1-75—**Foam Plastics Insulation**

a. General. Approved foam plastics shall be those which have a flame spread rating of 200 or less and a smoke density rating no greater than 450 when tested in accordance with ASTM E-84-1970.

b. Specific Requirements. The following requirements shall apply to all uses of foam plastic in or on walls, ceilings or both unless specifically approved. Such approval shall be based on acceptable diversified tests such as, but not limited to, tunnel tests conducted in accordance with ASTM E-84-1970, Standard Method of Test for Surface Burning Characteristics of Building Materials, full scale corner tests and an ignition temperature test.

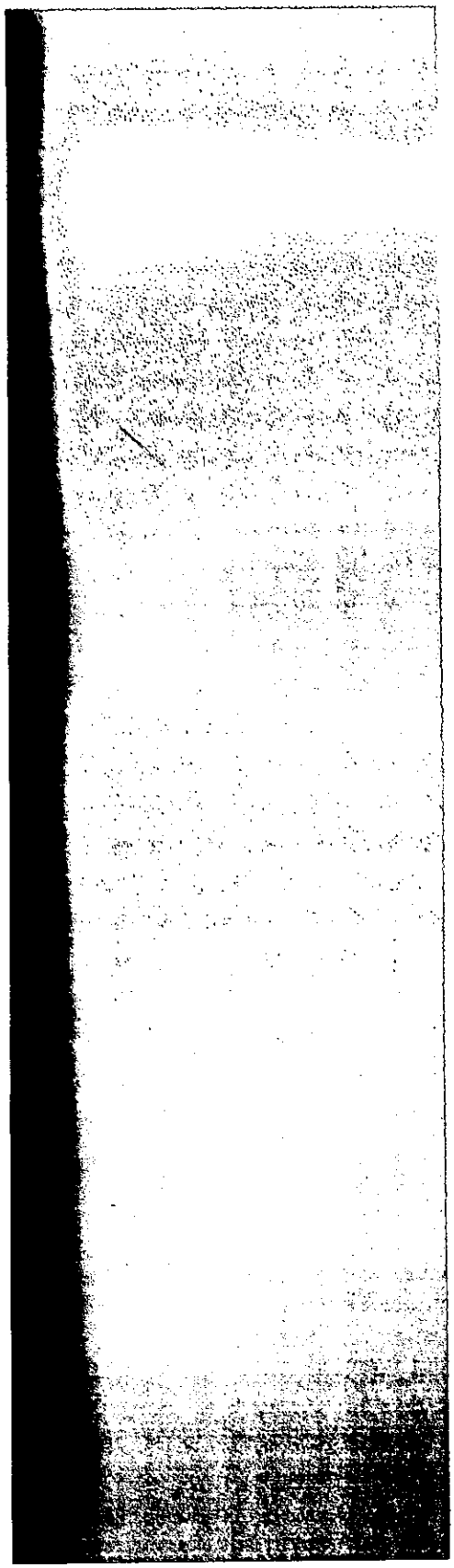
1. Foam plastic having a flame spread of 75 or less may be used in the following locations:

a) Within the cavity of a masonry or concrete wall.

b) On the room side surface of conforming walls or ceilings provided the foam plastic is fully protected from the interior of the building by a thermal barrier of ½ inch gypsum wallboard or other approved material having a finish rating of not less than 15 minutes installed so as to remain in place for the required period of time.

c) Within the wall cavity of combustible non-fire resistive wall construction provided the protection is applied as described in item (b) above.

d) Within the cavity of walls classified as combustible fire resistive construction provided fire tests are conducted in accordance with ASTM E-119-1971, Fire Tests of Building Construction and Materials, and the protection from the interior of the building is at least equivalent to that required in item (b) above.



2. Foam plastic insulation having a flame spread of 75 or less, when tested in a thickness of 4 inches, may be used in thickness up to 10 inches for use in cold storage rooms, food processing rooms, ice plants and the insulation is covered with ½ inch Portland cement plaster or other approved material having a finish rating of not less than 15 minutes. Thermal barriers shall be installed in a manner that will assure that they remain in place for the required period of time.

3. Foam plastic may be used as a roof covering if it is part of Class A, B or C roofing assembly.

Note: "Foam plastics" include "polystyrene foam" and "urethane foam" among others as described in NFPA No. 205 M-T-1973 entitled "Plastics in Building Construction", Chapter 4. The ½ inch gypsum wallboard or equivalent which is required to provide protection to persons in any room or space where "Foam plastics" are used in walls, ceilings or floors, must be mechanically fastened so as to remain in place for 15 minutes as specified in Section 719(b)(1)(b). This would require the wall, floor and ceiling construction to have at least a 15 minute fire resistance rating and require adequate furring strips to fasten the ½-inch gypsum wallboard.

CHAPTER IX

Section 901—9-11-73—Sprinklers
901.2 & 4—Change "NFPA Pamphlet No. 13—1966 Edition" to "NFPA Standard No. 13 1972 Edition".

Table 901.7 (3)—9-12-67—Add note to Table 901.7 (3)
"Open Air Parking Decks are not required to be sprinklered."

Section 902—9-11-73—Standpipes
902.1 Requirements.
In fifth line change "Pamphlet No. 14—1963-64 Edition" to read "Standard No. 14—1972 Edition".

Section 902.10—9-12-67—Add the following note:
"Note: Dry standpipes have no permanent water supply and should be labeled 'Dry Standpipe for Fire Department Use Only.' Where water supply is available, standpipe should be connected to the water supply with a cut-off valve which the fire department could use very quickly to let water into the standpipe system in lieu of using a dry standpipe where local authorities permit such use."

CHAPTER X

Section 1007.2—9-14-71—be changed as follows:
Section 1007.2—In multi-family houses having two or more dwelling units above the first story, every dwelling unit shall have access to at least two exitways except as may be provided for in Chapter XI for one exitway.

Add the following words at the end of Section 1007.4:

"Section 1007.4—Note: Metal Ladder Fire Escapes extending from second floor windows or doors which are already installed on existing buildings are not required to be replaced with stairway type fire escapes, provided such ladders are in good repair and do not serve more than 15 people."

CHAPTER XI

Section 1103.2 (c) (2)—9-12-67—Add the following note:
"Note: The 2-hour floor construction is not required for the street floor when there are no more than four apartments on the street floor between fire walls."

Change number "2" to the number "3" in the first line.

Section 1103.2 (c) (2a)—9-12-67—Add "floors" to "walls and ceilings" in the first line.

Section 1103.2 (c) (3)—9-12-67—Add "or Group B-2" after "Buildings in the first line.

Section 1103.2—9-12-67—Add new section (f) as follows:
(f) "Group F and G occupancy over 5000 Sq. Ft. in area on any floor must have two means of egress regardless of number of people occupying such floor."

Section 1104.1 (b)—9-12-67—Add the following note:
"Note: Institutional occupancy of less than 30 occupants may have corridors 6 feet in width and doors 42 inches in width."

Section 1104.1 (d)—9-12-67—Add new section (d) as follows:
(d) "All rooms for sleeping purposes in Group A and D (except jails) shall have an outside window that can be opened without the use of tools to provide a clear opening not less than 16" in least dimensions and 432 Sq. In. in area or, if of fixed glass, must be at least 24" x 24" with the bottom of the opening not more than 4' above the floor."

Section 1104.2—9-11-73—Fire towers required for buildings exceeding sixty feet in height. Delete the phrase "(except office buildings of light occupancy)".

Section 1104.4—9-12-67—Add the following note at the end of the first paragraph:
"Note: This section does not apply when all windowless classrooms open directly to an Exit corridor and have access (through an adjoining classroom) to an Exit corridor which is separated by 1-hour rated construction from the Exit corridor used as the primary Exit."

Section 1106.1 (b)—9-12-67—Delete the word "required" in the second line.

Section 1115.1 (a) (2)—9-11-73—Stairway Construction
After the word Group C, insert the word schools and delete the words "Public Owned" and other schools over two stories.

Section 1115.1—3-9-71—General Revise paragraph (a) (3) to read:
All other buildings over two stories in height or occupied by more than forty (40) persons above or below the first story at street or grade level, except 1 and 2 family dwellings and buildings of Type VI Construction.

Section 1117.1 (e)—9-11-73—Doorways
After the word provided in the 5th sentence delete all after and add **"they are held in the open position by electromagnetic holders activated by approved ionization type smoke detectors."**

Section 1120 (a)—9-12-72—Delete "of other than Type I, Fireproof or Type II, Fire Resistive Construction" in second line.

Section 1120 (c)—9-12-67—Add "with ladder" after scuttles.

Section 1127—Automatic Smoke Detectors

(d) In one and two family dwellings and in every dwelling unit within an apartment house, condominium and/or townhouse, an approved listed detector, sensing visible and invisible particles of combustion shall be provided and installed in accordance with the manufacturer's recommendation and listing. When actuated, the detector shall provide an audible alarm.

At least one listed detector shall be installed outside each sleeping area to warn occupants of the presence of any fire condition. Detectors shall have either a visible light to indicate operability or an audible trouble sign. Audible trouble signals shall be designed to operate at least every minute for seven consecutive days. The alarm signaling device shall emit not less than 85 decibels at 10 feet. Detectors shall be located on or near the ceiling and installed in accordance with the manufacturer's instructions. Detectors shall be electrically operated (non-plug-in) and the primary source of power for detectors installed in new structures shall be taken from the house electrical current.

The effective date shall be January 1, 1975. This shall be applicable to all units constructed after this date even though they are in the design stage between July 1, 1974 and January 1, 1975.

Note: Test Standards for Automatic Smoke Detectors—All automatic smoke detectors shall be tested in accordance with the applicable requirements of "Standard for Smoke Detectors, Combustion Products Type for Fire Protective Signalling Systems, UL-167, April, 1974". The testing and listing must be by a nationally recognized testing laboratory as provided in the definition of "Listed" in Section 201.2.

Note: Refer to North Carolina General Statutes 66-23 through 66-27 entitled "Electrical Materials, Devices, Appliances and Equipment."

Section 1127 (b)—9-12-67—Remove Group C from the last line and insert after Group B-1 on the next to the last line.

SECTION 11X—MAKING BUILDINGS AND FACILITIES ACCESSIBLE TO AND USABLE TO THE PHYSICALLY HANDICAPPED.

This Section of the Building Code is printed and is available as a separate pamphlet which is entitled:

"AN ILLUSTRATED HANDBOOK OF THE HANDICAPPED SECTION OF THE NORTH CAROLINA STATE BUILDING CODE"

This handbook contains all sections of the State Building Code applicable to the physically handicapped including all amendments adopted through December, 1973. The Building Code Council and the Engineering and Building Codes Division of the Department of Insurance are deeply indebted to Mr. Ronald Mace, Architect, who prepared the illustrated drawings which interpret each section of the handicapped section of the Building Code.

CHAPTER XII

Table 12E—9-12-67—Add the following:
"Catawba County—25 lbs/Sq Ft."

Figure 12A and Table 12E—9-12-67—Remove Guilford County from Table 12E and re-align Figure 12A so that Guilford County has a minimum live load of "20 lbs./Sq. Ft." for the entire county.

Section 1203.2 (a)—9-12-67—Add the following phrase at the end of the paragraph just after the word "pounds" "at any one time."

Section 1203.3—9-12-67—Strike the words "and the live load exceeds 150 lbs. per Sq. Ft. or twice the dead load."

Section 1206—7-21-70—Substitute wording
"Section 1206—Capacity Posted. Signs or Placards stating the maximum allowable number of occupants, as determined by the local inspection department, shall be conspicuously posted by the owner of the building of his representative in each assembly room, auditorium, or room used for a similar purpose where fixed seats are not installed. It shall be unlawful to remove or deface such notice or to permit more than the posted legal number of persons within such place."

Section 1207—9-12-67—Add the words "by a Registered Architect or Registered Engineer, at the end of the paragraph.

CHAPTER XIII

Section 1302.4 (b)—9-12-67—Dowels in second line, change "8 inches to "6 inches."

Section 1302.5 (a)—9-12-67—Substitute the word "required" for the word "permitted" in the third and last line at the end of the paragraph.

Section 1302.5 (b)—9-12-67—Change the figure 1-½ in the fifth line to "2."

Section 1303.1 (a)—9-12-67—Change the word "rock" in the second line to "Materials of classes I through 4."

Section 1303.1 (b) (1)—3-14-67—Substitute the word "non" for "more" in the first part of the paragraph so that it will read "non-cohesive."
Change the factor "K" in Section 1303.1 (b1) to read as follows:
K—a constant equal 0.2 for wood piles, for steel pipe piles, for monotube piles, and for rolled steel sections; a constant equal to 0.6 for precast concrete piles and for shell piles driven with a steel mandrel that is essentially solid.

Section 1303.1(b)—9-12-67—Add new paragraph (3) and (4) as follows:
"(3) For piles intended to carry more than 15 tons, it shall be demonstrated by soil exploration that the soil below the pile tips will not be overstressed by the action of the individual piles nor by the action of the pile clusters or groups."

"(4) Where a pile or group of piles is placed in subsiding fill or soil, the

effect of downward frictional forces shall be given consideration in the design."

Section 1303.1—9-12-67—Add the following paragraphs (e) and (f) as follows:
"(e) REDRIVING: (Heaved Piles). Observations and measurements shall be made during the process of driving piles to determine whether a previously driven pile has been lifted from its original seat by the action of adjacent piles. When such observations indicate that one or more piles have heaved, they shall be redriven to the originally specified resistance.

"(f) INSPECTION: Wherever any piles will receive a service load of more than 15 tons per pile, the owner shall engage a competent inspector qualified by experience and training to be present at the site during the driving and construction of the piles. The inspector shall certify that the piles were installed in accordance with the requirements of this code. The inspector shall make a record of the type and rated energy of the pile hammer used, and for each pile driven, the pile tip elevation, the pile cut-off elevation and the driving resistance for the final six inches of penetration."

Paragraph 1303.1—3-14-72—General Requirements

(1) Add paragraph (g) as follows:

"(g) Substantiation of higher allowable pile loads and stresses—allowable loads and stresses greater than those specified in Section 1303.3 and 1303.4 shall be permitted when substantiating data justifying such higher loads and stresses is submitted to the building official by a foundation designer knowledgeable in the field of soil mechanics and pile foundations and familiar with the locale of the proposed project. Such substantiating data will include adequate test borings, soil profiles, pile load tests and such other information as may be required by the building official."

Paragraph 1303.2 (b)—3-14-72—Steel Pipe Piles
Revise the following five (5) figures in the first paragraph.

(1) In the fourth (4th) line change the ASTM Designation to "A-252-69."

(2) In the sixth (6th) line change the figure 10¾ to "10".

(3) In the seventh (7th) line change the figure 0.30 to "0.25."

(4) In the fourteenth (14th) line change the figure 8⅝ to "8".

(5) In the fifteenth (15th) line change the figure 0.219 to "0.10".

In subparagraphs (b) (3) and (b) (4) delete 12,000 pounds per square inch and substitute therefore "45% of the minimum specified yield strength."

Paragraph 1303.2 (c)—3-14-72—Rolled Structural Steel Piles
Revise the following two (2) figures in the first paragraph.

(1) In the fourth (4th) line delete A7-61T and substitute therefore "A36-70a and A572-70a Grades 42 thru 60".

(2) In the eleventh (11th) line change ½ inch to "⅜ inch".

In subparagraph (c) (1), in the third (3rd) and tenth lines delete 12,000 pounds per square inch and substitute therefore "45% of the minimum specified yield strength".

Section 1303.3 (b)—9-12-67—Change the last phrase to read "maximum load in tons shall not exceed four times the square root (in inches) of the minimum cross-sectional area measured above the pile point."

Section 1303.4 (a)—9-12-67—Delete the words "Appendix C" and add "AWPAC-3-64."

Dection 1303.4—12-12-72—Revise to read as follows:

"1303.4—Wood Piles

(a) Wood piles used to support permanent structures shall be treated in accordance with this section unless it is established that the cut-off of untreated wood piles will be below lowest ground water level assumed to exist during the life of the structure.
When used in fresh water or land the treatment, preservative and minimum final retention shall be in accordance with American Wood Preservers Association Standard C-3.
When used in salt water the treatment, preservative and minimum final retention shall conform to American Wood Preservers Bureau Standard MP 1, MP 2 or MP 3 depending upon the degree or marine borer attack anticipated.
The treated pile cut-off shall have at least two (2) successive coats of the preservative liberally applied and 1) be encased in masonry footings so that no part of the pile will be exposed to the air or 2) the cut-off shall be exposed and accessible for inspection. The cut-off on all wood piles shall be along a horizontal plane.

(b) Wood piles shall conform to the 'Specification for Round Timber Piles' —ASTM D-25-70.

(c) The maximum allowable load on a timber pile shall meet the requirements of Section 1303.1(b) provided that the allowable working stresses of the timber is not exceeded.

ALLOWABLE WORKING STRESSES FOR PRESSURE TREATED TIMBER PILING; VALUES AT TIP OF PILE
(Allowable working stresses are determined in accordance with "Establishing Design Stresses for Round Wood Piles" ASTM D2899)

Species	Compression** Parallel to Grain, psi	Bending** psi	Shear** Horiz. psi	Compression** Perp. to Grain, psi	Modulus of Elasticity
Pacific Coast D. Fir*	1200	2150	110	260	1,600,000
Southern Pine*	1200	2150	130	260	1,600,000
Red Oak	1100	2000	150	400	1,500,000
Red Pine	850	1550	100	180	1,200,000

* Working stresses of Douglas Fir and Southern Pine shall be increased by 0.2 percent for

each foot of distance from the tip of the pile to the critical section. For compression parallel to grain, an increase of 2.5 psi per foot is recommended.

** The allowable stresses tabulated above have been reduced in accord with heat processes used to condition piling before pressure treatment. Where pressure-treated piles have been air dried, or where untreated piling are used, working stresses shall be increased by dividing tabulated values by the following factors:

Pacific Coast D. Fir, Red Oak, Red Pine	0.90
Southern Pine	0.85"

Section 1303.6 (b)—9-12-67—Add the following phrase at the end of the first sentence after the word "pile" "by the owner."

Section 1304.1 (a)—9-12-67—Add "No steel reinforcement is required in concrete filled caissons unless required by the loading imposed thereon."

Section 1304.2 (b)—9-12-67—The word "lines" between the words "wood" and "that" and after the word "smallest" should be "liners."

Section 1304.2 (c)—9-12-67—The word "trench" should be "tremies."

CHAPTER XIV

Section 1402.1—3-14-72—Brick: In the 3rd line, change, "(C55-64T)" to "(C55-71)".
In the 6th line, change "Grade A" to "Grade N".
In the last line, change "Grade A" to "Grade N".

Section 1402.4—Hollow and Solid Concrete Masonry Units: In sub paragraph (a) update referenced specifications as follows: C90-70; C145-71; C129-71.

Section 1402.11 (a)—Change "tentative" to "Standard"; and change "(C270-61T)" to "(C270-68)".

Section 1402.15—9-12-67—Strike the last five words and add the following: "Refer also to Section 1407.8."

Section 1402.16—9-12-72—Hollow concrete masonry units for one story dwellings, utility buildings, warehouses and commercial buildings and multiple dwellings may use surface bonding cement applied in approximately ⅛" thicknesses in lieu of conventional mortar joints under the following conditions:

(a) The pre-blended package mixture of portland cement and additives with glass fibers and a waterproofing agent must be mixed and applied according to the manufacturers instructions.

(b) The minimum material strengths "as shown by yearly independent testing reports shall be":

(1) Compressive	7 days	1500 psi
ASTM C109-73 or C349-72 (2" x 2" cubes)	28 days	2800 psi
(2) Flexural	7 days	500 psi
ASTM C348-72 (2" x 12" x ½" bars)	28 days	1000 psi

(c) "Rational design data for structure using surface bonding cement shall

be available on racking, compression and flexural stresses and shall be based upon data supplied by independent testing organizations."

Section 1403.7—7-21-70—Engineered brick masonry. Revise the date of the recommended Building Code requirements for Brick Masonry SCPI from May, 1967 to August, 1969, or "Specification For the Design and Construction of Load-Bearing Concrete Masonry", NCMA-1970."

Section 1404.2—9-12-67—Add new section (k) as follows:
(k) "Walls of Hollow Masonry Units. Load bearing walls of hollow masonry units shall not exceed 50 feet in height."

Section 1404.2 (c)—9-12-67—Add the following note at the end of the exception:
"Note: The 35 foot height limitation and lateral bracing requirement would apply to the 8" wall. The height limitations for 6" wall would be 20 feet."

Table 5—9-12-67—Strike the words "filled cell masonry."

Section 1411—3-14-72—Reinforced Masonry:
Change paragraph (a) to read as follows:
"(a) Reinforced concrete masonry shall conform to the provisions of "Specification For the Design and Construction of Load-Bearing Concrete Masonry:, NCMA-1970."
Renumber paragraph "(c)" as "(d)" and add new section "(c)" to read as follows:
"(c) Reinforced masonry of other units shall conform to the provisions of "Building Code Requirements for Reinforced Masonry" American National Standards Institute A41.2-1960 (Handbook 74)"

Section 1411 1—7-21-70—Engineered Brick Masonry
Revise the date of the recommended Building Code requirements for Brick Masonry SCPI from May, 1967 to August, 1969.

Section 1414.5—9-12-67—Add the following paragraph:
"All masonry veneer extending more than 35 feet from the ground shall be supported at each floor level with compressible joints below the supporting shelf angles."

CHAPTER XV—STEEL CONSTRUCTION

Section 1501—9-10-74—General
The quality, design, fabrication and erection of steel and iron used structurally in buildings or structures shall conform to the provisions of Sections 1502 through 1508 of this chapter.

Chapter XV—Steel Construction
(1) Section 1502—Structural Steel Construction.
After Supplement No. 1, thereto, effective November 1, 1970 add the following: ". . . . and Supplement No. 2, thereto, effective December 8, 1971."

Section 1505—Open Web Steel Joist Construction.
Revise specification dates as follows:
J & H Series, November 1, 1972

LJ & LH Series,	November 1, 1972
DLJ & DLH Series	November 1, 1972

(3) Section 1506—Welding
Revise the welding specification and add the latest revision as follows: **". . . . of the Structural Welding Code, AWS D1.1-72, and the revision thereto AWS D1.1-Rev. 1-73."**

(4) Section 1507—High Strength Bolts
Add a new and separate section to provide for High Strength Bolts as follows:
"The design and assembly of structural joints and connections using high-strength steel bolts shall conform to the "Sepcification for Structural Joints Using ASTM A325 or ASTM A490 Bolts" as approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation, April 18, 1972."

(5) Section 1508—Structural Steel Cables
Add new section 1508—Structural Applications of Steel Cables for Buildings as follows:
"The design, deflection, connections protective coatings, fabrication, erection and inspection of building construction utilizing steel cables shall conform to Part I of the "Criteria for Structural Applications of Steel Cables for Buildings," AISI—1973 Edition."

Section 1503—9-10-74—Cold-Formed Steel Construction
The design, fabrication and erection of cold-formed steel construction shall conform to the Specification for the "Design of Cold-Formed Steel Structural Members" of American Iron and Steel Institute, 1968 Edition.

All individual structural members and assembled panels of cold-formed steel construction, except where fabricated of approved corrosion-resistive steel or of steel having corrision-resistive metalic or other approved coating, shall be protected against corrosion with an acceptable shop coat of paint, enamel, or other approved protection.

Section 1504—9-10-74—Cold-Formed Stainless Steel Construction
The design, fabrication and erection of cold-formed stainless steel construction shall conform to the "Specification for the Design of Cold-Formed Stainless Steel Structural Members" of American Iron and Steel Institute, 1974 Edition.

Section 1505—3-12-74—Open Web Steel Joist Construction
The design, fabrication and erection of open web steel joist construction shall comply with the following specifications:

"Standard Specifications for Open Web Steel Joists" J- and H-Series" adopted by American Institute of Steel Construction and Steel Joist Institute, effective November 1, 1972.

"Standard Specifications for Longspan Steel Joists, LJ- and LH- Series, and Deep Longspan Steel Joists, DLJ- and DLH- Series" adopted by American Institute of Steel Construction and Steel Joist Institute, effective November 1, 1972.

SECTION 1506—3-12-74—Structural Steel Cables
The design, deflection, connections, protective coatings, fabrication, erection and inspection of building construction utilizing steel cables shall conform

to the "Criteria for structural Applications of Steel Cables for Buildings" of American Iron and Steel Institute, 1973 Edition.

Section 1507—3-12-74—Welding
Details of design, workmanship and technique for welding, inspection of welding and qualification of welding operators shall conform to the recommendations of the "Structural Welding Code" of American Welding Society, AWS D1.1-72 and the revisions thereto "AWS D1.1–REV. 1-73" and "AWS D1.1-REV. 2-74."

Section 1508—3-12-74—High Stength Bolts
The design and assembly of structural joints and connections using high-strength steel bolts shall conform to the "Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts" approved by the Research Council on Riveted And Bolted Structural Joints of the Engineering Foundation, April 18, 1972.

CHAPTER XVI

Section 1601—9-12-72—Up-date the building code requirements for reinforced concrete by substitution of "(ACI 318-71)" for (ACI 318-63).

Section 1604 (c) (2)—9-12-67—Add the word "tests" after the word "strength" in the next to last line.

CHAPTER XVII

Section 1700.1—9-9-69—General
(f) Change National Lumber Manufacturers Association to National Forest Products Association.

(f) Change date of National Design Specifications for Stress Grade Lumber from 1965 to 1968—with supplement.

(f) Under American Institute of Timber Construction Change AITC 200-63 to AITC 200-63 with supplement. Delete CS25-63 "Structural Glued Laminated Timber".

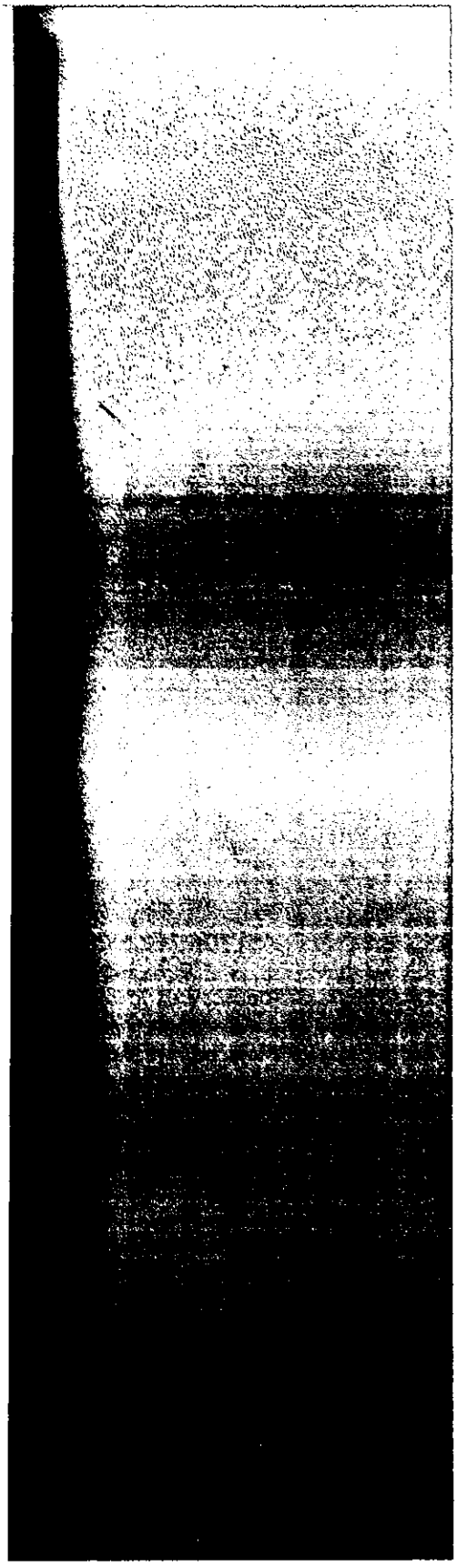
(f) Under American Plywood Association remove "Design of Plywood Lumber Structural Assemblies—1963" and replace with "Plywood Design Specification—APA-1966".

(f) Add new groupings as follows:
"Truss Plate Institute Inc."

Design Specifications for Light Metal Plate Connected Wood Roof Trusses —TPI-68.

Section 1700.1 (f)—3-9-71—Change edition date of the National Design Specifications for Stress-Grade Lumber and It's Fastenings from "1965" to "1968" with 1970 Supplement".

Add under American Institute of Timber Construction, "Standard Specifications for Structural Glued-Laminated Timber of Douglas Fir, Western Larch, Southern Pine, and California Redwood—1970".



Section 1700.1—12-12-72—Revise paragraph (f) to update the following standards:
National Design Specifications for Stress Grade Lumber and Its Fastenings —1971 and May 1971 Supplement"
Standard Specifications for Structural Glued Laminated Timber of Douglas Fir, Western Larch, Southern Pine and California Redwood AITC-117-71
Standard Specification for Hardwood Glued Laminated Timber AITC 119-71
Standard Specifications for Structural Glued Laminated Timber Using "E" Rated and Visually Grade Lumber of Douglas Fir, Southern Pine, Hem-Fir and Lodgepole Pine AITC 120-71
Timber Construction Standards—AITC 100-72
American Plywood Association:
Design Methods for Plywood-Lumber components (V815) APA 1972
Fabrication of Plywood-Lumber Components (V820) APA 1972
Plywood Construction Systems for Commercial and Industrial Buildings (P310) 1971
Plywood Construction Guide for Residential Building (V450) 1971
Plywood Gusset Truss Designs 64-650A through 64-660
"American Wood Preservers Institute:
Pole Building Design—1969
"National Particleboard Association
How to Install Particleboard Underlayment—1969
"Truss Plate Institute, Inc.
Design Specification for Light Metal Plate Connected Wood Roof Trusses, TPI-70
Span Tables for Light Metal Plate Connected Wood Trusses—1972"

Section 1700.2—12-12-72—Revise Section 1700.2(b) to read as follows:
"1700.2—Determination of required sizes—Page 17-2

(b) Where applicable as detemined by end use, allowable working stresses may be determined by 'Machine Stress Rating' as approved by the American Lumber Standards Committee."

Section 1700.2—9-9-69—Determination of Required Sizes

(b) Remove that part of the paragraph reading "or in accordance with ASTM D 2018-62T determining design stresses for load-sharing lumber members."

Section 1700.3—12-12-72—Revise Section 1700.3(a) to read as follows:
"1700.3—Quality of Materials
All lumber, including end-jointed lumber, used for load supporting purposes shall be identified by the Grade Mark of an approved Lumber Grading or Inspection Bureau or Agency. The glued joints in end-jointed lumber when used for load supporting purposes shall be certified to be in accordance with the appropriate provisions of the "Commercial Standard for Structural Glued Laminated Timber", CS253-63."

Section 1700.3—9-9-69—Quality of Materials.

(a) In the third and fourth lines remove the words "approved by the Board of Review of the American Lumber Standards Committee."
(e) Fiberboard for its various uses shall conform to the standards of ASTM C208-66 and ASTM C209-66. Fiberboard Nail Base Sheathing shall conform to the standards of IB Specification No. 2, 1969 (Superceding IBI Spec. No. 2, 1961). Fiberboard Insulating Roof Deck shall conform to the standards of IB Specification No. 1, 1969 (Superceding IBI Spec. No. 1, 1963).

Quality of Materials (c) (h) Modify this paragraph to read as follows:
"(c) All phywood when used structurally, including uses such as siding, roof and wall sheathing, subflooring, diaphragms, and built-up members, shall conform to the performance standards for its type in U. S. Product Standards PS 1-66 for Softwood Plywood, Construction and Industrial. Each panel or member shall be identified for grade and glue type by the trademarks of an approved testing and grading agency. Plywood components shall be designed and fabricated in conformance with the applicable standards listed in Section 1700.1(f) and identified by the trademarks of an approved testing and inspection agency, indicating conformance with the applicable standard. In addition, all plywood when permanently exposed in outdoor applications shall be Exterior type."

Section 1700.3—12-12-72—Add a new paragraph (h) as follows:
"Hardwood and decorative plywood shall be manufactured as required in (Voluntary Product Standard Hardwood and Decorative Plywood), PS 51-71" and properly identified for flame sprad rating by a nationally recognized testing agency.

Section 1700.4—12-12-72—Add the following new section 1700.4 and renumber the existing 1700.4 to 1700.5:
"1700.4—Minimum Lumber Grades
The minimum grade of lumber used for light frame construction shall be:

(a) For Joists and Rafters: Those obtained in 'Working Stresses for Joists and Rafters' as published by National Forest Products Association.

(b) For Load Bearing Studs: No. 3 Grade, Standard Grade, or Stud Grade, Utility Grade may be used to support roof and ceiling loads of one story buildings and the top story of multi-story buildings.

(c) For Non-Load Bearing Studs: Utility Grade."

Section 1702.10—3-12-68—Revise Section 1702.10—Approved Pressure Preservative Treatment as follows:
"The Standards of the American Wood Preservers Institute shall be deemed as "approved" in respect to pressure treated lumber."
(h) "All lumber and plywood required to be preservatively treated in Section 1702 shall bear an approved AWPI Quality Mark or that of an independent inspection agency that maintains continuing control, testing and inspection over the quality of the product as described in the Quality Control Standards listed in Appendix C."

Section 1705—12-12-72—Add a new section as follows and renumber all subsequent sections:
"1705—End-Jointed Lumber—Page 17-7
End-jointed lumber may be used interchangeably with solid sawn lumber of the same grade and species. Such uses shall include, but not limited to light framing, studs, joists, planks and decking."

Section 1705.1—3-9-71—Delete the last sentence.
Section 1705.2—9-9-69—Beams and Girders
Remove present section and rewrite as follows:
"Beams and girders shall be designed in accordance with Section 1700.1 (d) or 1700.2 (a)."
Section 1705.3 (a)—Change reference to "Simplified Span Tables for Joists and Rafters in Residential Construction," October 1966, to "Span Tables for Joists and Rafters, 1970".

Section 1705.3—3-14-72—Floor Joists by adding a new sentence after the first sentence of Section (a) as follows:

(a) Spans for Field-Glued Plywood/Lumber Floor Systems using approved adhesives shall be set forth in APA Glued Floor System, 1971, as published by the American Plywood Association. Approved adhesives for the APA Glued Floor System shall be those meeting the requirements of AFG-01, May, 1971, as published by the American Plywood Association. Buildings and structures, other than one or two family dwellings, which are to be field glued shall be designed by a registered architect or engineer and the local or state building inspector may require written design computations for any specific project."

Section 1705.3—3-9-71—Floor Joists.

(a) Revise paragraph (a) to read as follows:

"Maximum spans for floor joists shall be in accordance with the "Simplified "Span Tables for Joists and Rafters, 1970", as published by the National Forest Products Association; or may be designed in accordance with Section 1700.1 (d) or 1700.2 (a)."

Section 1705.3 (c)—3-9-71—Revise to read as follows:

(c) Except in Dwellings and Multiple Dwellings, floor joists, having a depth to thickness ratio exceeding 6 and/or the design live load is in excess of forty (40) pounds per square foot, shall be supported laterally by bridging or blocking installed at intervals not exceeding eight (8) feet.

Table 1705.6A—3-12-68—Change Table 1705.6A and Supplement to Chapter XVII as follows:

Modify footnote (5) by substituting one-half inch for the 32/16 appearing before the word "STRUCTURAL" at the beginning of the footnote onto Item 6 (1).

Section 1705.7—9-9-69—Plank and Beam Framing

(b) Delete present paragraph (b) and rewrite as follows:

"The allowable span for 2" planks shall be determined in accordance with Section 1700.1 or 1700.2 (a).

Section 1706.1 (a)—9-12-72—Add the following after the word inches in the last line:

"or 2 x 4 inches 12" on center or 2—2x4 inches spiked together spaced not more than 16" on centers.

Section 1706.2—12-12-72—Revise Section 1706.2(b) (5) by revising the first line so that it reads:

"Fiberboard sheathing, gypsum sheathing and particleboard sheathing as specified. . . ."

Revise subparagraph (d) by adding a paragraph (5) to read as follows:

"Particleboard when it conforms to Type 2-B-1 of the Commercial Standard CS236-66. Particleboard sheathing shall not be less than ⅜ inch thick on studs spaced not more than 16 inches on center."

Section 1706.4—9-9-69—Post and Beam Framing

(a) Delete present paragraph (a) and reword as follows:

"Where post and beam framing is used in lieu of stud and joist construction, the posts shall be located to support the beams above and shall be designed in accordance with Section 1700.1(d) or 1700.2 (a)."

Section 1706.5 (a)—9-12-72—Add the following after the word "inches" in the last line:
"or 2 x 4 inches 12" on center or 2—2 x 4 inches spiked together spaced not more than 16" on centers.

Section 1706.7 (c)—9-9-69—Strike "except as provided in Table 1705.6 (c)."

Section 1706.7—12-12-72—Insert the following new paragraph (f) and reletter the present (f) and all subsequent paragraphs:
"Particleboard siding shall be of the Exterior Type 2-B-1 conforming to the Commercial Standard CS236-66, not less than ⅜ inch thick when applied over acceptable sheathing on framing spaced 16 inches on centers; or not less than ⅝ inch thick when applied directly to framing spaced 16 inches on centers; or not less than ¾ inch thick when applied directly to framing spaced 24 inches on centers. Unless applied over 1 inch wood sheathing or ½ inch plywood sheathing joints shall occur over framing members and shall be covered with a continuous wood batt; or joints shall be lapped horizontally or otherwise made waterproof to the satisfaction of the Building Official."

Section 1707.1—9-9-69—Ceiling Joists and Rafters Framing.

(a) Remove in its entirety.

(b) Renumber as paragraph (a) and rewrite as follows:
"Maximum spans for ceiling joists and rafters shall be in accordance with "Simplified Span Tables for Joists and Rafters in Residential Construction", October, 1966, as published by National Forest Products Association; or may be designed in accordance with Section 1700.1 (d) or 1700.2 (a)."
Paragraph (c) (d) (e) (f) (g) and (h). Renumber as necessary.

Section 1707.1 (b)—3-9-71—Change reference to "Simplified Span Tables for Joists and Rafters in Residential Construction," October 1966, to **"Span Tables for Joists and Rafters, 1970".**

Section 1707.1 (i)—12-12-72—Add a new paragraph (i) to Section 1707.1 as follows:
"(i) Notches on the ends of joists shall not exceed one-fourth the depth. Holes bored for pipes or cable shall not be within 2 inches of the top or bottom of the joist and the diameter of any such hole shall not exceed one-third the depth of the joist. Notches for pipes in the top or bottom of joists shall not exceed one-sixth the depth and shall not be located in the middle third of the span."

Section 1707.2—9-9-69—Trussed Rafters.
Add new paragraph (d) as follows:
(d) The design of metal plate connected wood roof trusses shall comply with the following specifications: Design Specifications For Light Metal Plate Connected Wood Roof Trusses—TPI-68.

Section 1707.3 (a)—3-9-71—Change reference to "Simplified Span Tables for Joists and Rafters in Residential Construction," October, 1966, to **"Span Tables for Joists and Rafters, 1970"**

Section 1707.3—9-9-69—Roof Joists.
(a) Delete present paragraph (a) and rewrite as follows:
"Maximum spans for roof joists shall be in accordance with "Simplified

Span Tables for Joists and Rafters in Residential Construction", October, 1966, as published by National Forest Products Association or may be designed in accordance with Section 1700.1 (d) or 1700.2 (a)."

Section 1707.3—12-12-72—Add a new paragraph (c) to Section 1707.3 as follows:

"(c) Notches on the ends of joists shall not exceed one-fourth the depth. Holes bored for pipes or cable shall not be within 2 inches of the top or bottom of the joist and the diameter of any such hole shall not exceed one-third the depth of the joist. Notches for pipes in the top or bottom of joists shall not exceed one-sixth the depth and shall not be located in the middle third of the span."

Section 1707.4—9-9-69—Roof Sheathing

(a) Change the thickness of insulating roof deck from 1" to 1½ inches.

Section 1707.7—9-9-69—Access to Attic Space.

Change 2 feet by 3 feet to 20 inches by 36 inches.

Table 1704.1—12-12-72—Add the following new section to the existing schedule.

Particleboard Siding	
⅜" — ½"[1]	6d[2]
⅝"[3]	8d[2]
¾"[4]	8d[2]
Particleboard Wall Sheathing	
⅜"—½"	6d[5]
⅝"—¾"	8d[5]

1. Siding applies to 1-inch wood sheathing or ½ inch plywood or ½ inch particleboard sheathing.

2. Corrision resistant nails spaced 6 inches on center at edge and 8 inches on center at intermediate supports. Nails shall have a minimum edge distance of ⅜ inch.

3. Siding applied to studs spaced 16 inches on center maximum.

4. Siding applied directly to studs spaced 24 inches on center maximum.

5. Nails spaced 6 inches on center at edges and 12 inches at intermediate supports. Nails shall have a minimum edge distance of ⅜".

Table 1705.3—12-12-72—Delete the table entirely until the Code is reprinted.

Table 1705.6A—12-12-72—Add a new sentence to footnote 1 of Table 1705.6A as follows:

"Edges may be blocked with lumber or other approved type of edge support."

Amend the last sentence in footnote 5 so that it reads as follows:

"For other grades, a minimum thickness of five-eighths inch (⅝") 5 ply is required."

Table 1705.6C—12-12-72—Opposite panel siding and 303 sidings, change the thickness to read as follows:

⅜", ½"	6d
⅝" and thicker	8d

In footnote (2) change ½" to ⅜".

Supplement to Chapter 17—Modify the first sentence under design by inserting the words, "Tables II and Tables III" in place of "Table II" as in the present sentence.

Tables Number—9-9-69—Delete these tables in their entirety.
1705.2
1705.3
1705.7
1706.4

CHAPTER XX

Section 2002—9-10-68—Change the reference to Federal Specification DDG-451a to the most recent revision, to read as follows: **Federal Specification DDG-00451b.**

Section 2003.1—9-10-68—Change Section 2003.1—**Impact Loads**, paragraph (a) to read as follows:
(a) For safety, glazing in hazardous locations such as: swimging exit and entrance doors, storm doors, sliding doors, fixed glazed panels which may be mistaken for means of egress or ingress, shower doors, tub enclosures, shall meet the requirement set forth in Table 2006, or by comparative tests shall be proven to produce equivalent performance. Glazed doors and fixed panels not subject to frequent exposure to accidental human impact and those fixed panels and other openings which have a glazing sill of 18 inches or more from the finished floor or whose least dimension is less than 18 inches are exempt from these requirements.

Section 2003.2—9-10-68—Change last sentence of paragraph (a) to read as follows:
In the case of regular plate, float or sheet glass supported on four sides, the design factor shall be not less than 2.5.

Table 2009—9-10-68—Impact Loads—Glass—Change title and entire table to read as follows:

Table 2006

Impact Loads—Glazing

Glazing shall conform to these limits:

1. Annealed glass less than single strength (SS) in thickness shall not be used.

2. If short dimension is larger than twenty-four (24) inches, annealed glass must be double strength (DS) or thicker.

3.

For Specific Hazardous Locations	Size of Individual Glazed Areas	Requirements
Glazing in swinging exit and entrance doors	Over 6 sq. ft.	Each glazed area shall pass the test requirements of USAS Z97.1-1966[1] if not protected by a protective grille or push-bar[2] firmly attached to stiles on each exposed side.*

For Specific Hazardous Locations	Size of Individual Glazed Areas	Requirements
Glazing in fixed glazed panels which may be mistaken for means of egress or ingress	Over 6 sq. ft.	Each glazed area shall pass the test requirements of USAS Z97.1-1966[1] if not protected by a protective grille or push-bar[2] firmly attached to stiles on each exposed side.*
Glazing in patio type sliding doors (both fixed and sliding panels)	Over 6 sq. ft.	Each glazed area shall pass the test requirements of USAS X97.1-1966[1].
Glazing in storm doors	Over 4 sq. ft.	Each glazed area shall pass the test requirements of USAS Z97.1-1966[1] if not protected by a protective grille firmly attached to stiles on each exposed side.*
Glass in all unframed doors (swinging)	All Sizes	Shall be fully-tempered glass and pass the test requirements of USAS Z97.1-1966[1].
Glazing in shower doors and tub enclosures:	All Sizes	
(a) Obscure wired glass		(a) Not less than 7/32" nominal thickness. Must be protected by towel bar or push-bar[2] firmly attached to stiles on one exposed side.*
(b) Transparent wired glass or fully-tempered glass or laminated glass or transparent rigid plastic		(b) Shall pass the test requirements of USAS Z97.1-1966[1].

4.

For Application of Specific Glazing Materials Subject to Impact Loads	Size of Individual Glazed Area	Requirements
Annealed glass (regular plate, float, sheet, rolled or obscure)	Over 6 sq. ft.	Not less than 3/16" nominal thickness. Each glazed area must be protected by protective grille or push-bar[2] firmly attached to stiles on each exposed side.*
Annealed glass (Regular plate, float, sheet, rolled or obscure) surface sandblasted, etched or otherwise depreciated	Over 6 sq. ft.	Not less than 7/32" nominal thickness. Each glazed area must be protected by protective grille or push-bar[2] firmly attached to stiles on each exposed side.*
Full-tempered glass	All Sizes	Shall pass the test requirements of USAS Z97.1-1966[1].

Laninated glass	All Sizes	Shall pass the test requirements of USAS Z97.1-1966[1].
Wired glasses (a) Obscure, patterned (b) Transparent	All Sizes	(a) Not less than ¼" nominal thickness. (b) Shall pass the test requirements of USAS Z97.1-1966[1].
Transparent rigid plastic	All Sizes	Shall pass the test requirements of USAS Z97.1-1966[1].

* Building owners and tenants shall maintain towel bars, push-bars or protective grilles in safe condition at all times.
[1] United States of America Standard Performance Specifications and Method of Test for Transparent Safety Glazing Materials Used in Buildings.
[2] Shall be constructed and attached in such a manner so as to limit or prevent human impact from being delivered to glass surface.

CHAPTER XXI

Section 2103 (a)—3-12-68—Structural Design. Add second sentence.
"Load tests are not required for plywood components and other structural elements designed in accordance with applicable standards listed elsewhere in this code."

Section 2105—3-12-68—Change to read as follows:
"All plywood shall conform with the provisions of Section 1700.3 (c)".

Section 2105 B)—3-12-68—Plywood—Revise this section to read:
"Plywood shall conform to U. S. Product Standard PS 1-66, Softwood Plywood. Construction and Industrial. Plywood of species not covered in PS 1-66, when used structurally, shall be identified as to veneer grade and glue type by an approved agency and shall meet the performance standards in U. S. Product Standard PS 1-66 for its type."

CHAPTER XXII

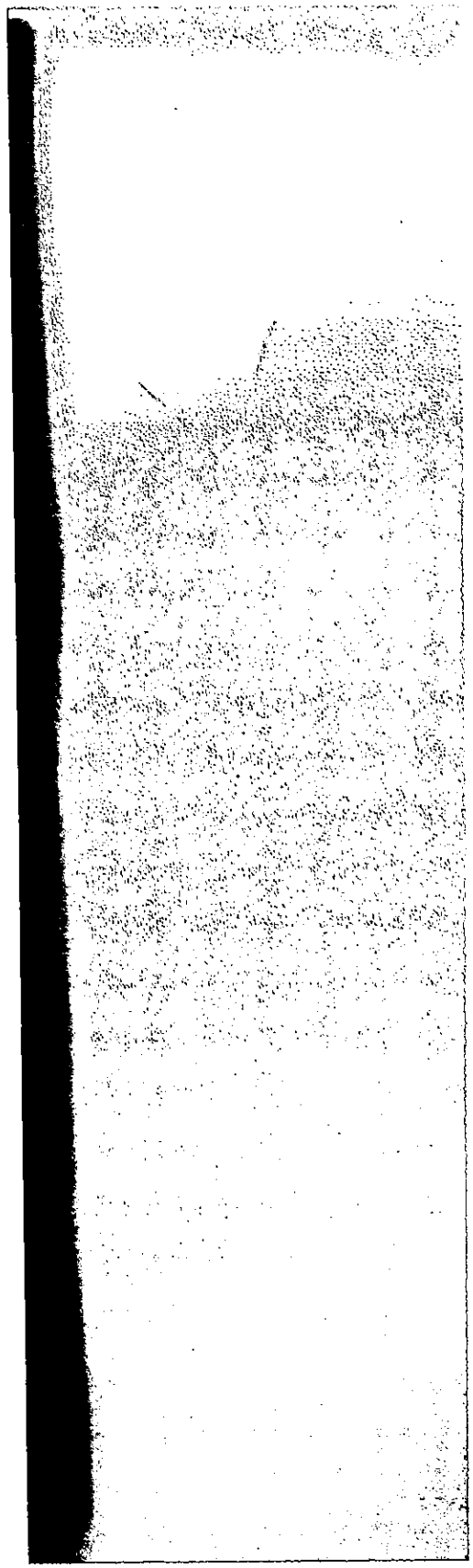
Section 2205.1 (a)—9-12-67—Add "Class A plastic may be used in Group E-Assembly occupancy with less than 1000 people."

CHAPTER XXIV

Section 2401.1—9-12-67—Add the following before paragraph (a) "if permitted by local governing authority."

CHAPTER XXVI

Section 2601.2—12-12-72—Revise the title to read:
"Marquees, Canopies or Fixed Awnings
Revise Sections 2601.2, 2601.4, 2601.5 and 2601.6 by including the words or canopy wherever the word marquee appears."



CHAPTER XXIX

Section 2900—9-14-72—The North Carolina State Building Code, Volume III—Heating, Air Conditioning, Refrigeration and Ventilation was adopted by the Building Code Council on September 12, 1971 to be effective on July 1, 1972.

Section 2901 (b)—12-12-67—Delete the words "of any input capacity installed" after the word "furnace" on the first line in Section 2901(b) and insert the words, "is required" in lieu thereof.

CHAPTER XXX

Chapter XXX—9-10-74—ELECTRICAL

The 1975 edition of the National Electrical Code published by the National Fire Protection Association was adopted by the Building Code Council on September 10, 1974 to be effective January 1, 1975 with the following section added.

Section 210.27—Automatic Smoke Detector Outlets Required—Residential Dwelling Units.

A minimum of one 120-volt outlet shall be installed outside each sleeping area in each dwelling unit within single-family dwellings, two-family dwellings, apartment houses, condominiums and/ or townhouses for the connection of approved fixed automatic smoke detectors (non plug-in) as is required in the State Building Code. Such outlets shall be located on or near the ceiling in accordance with the listing and the instructions of the manufacturer of the approved automatic smoke detector.

Exception: The 120-volt outlets specified in this section shall not be required when an approved automatic smoke detecting system, whose primary source of power is 120-volts, providing equivalent protection is installed.

The term "listed" shall be as defined in Section 201.2 of N. C. Building Code Volume I.

The North Carolina State Building Code, Volume IV Electrical was adopted by the Building Code Council on September 12, 1972.

CHAPTER XXXI

Chapter XXXI—9-12-72—ELEVATORS AND ESCALATORS

The North Carolina Building Code Council adopted the American Standard Safety Code for elevators, dumbwaiters and escalators—A17.1-71 on September 12, 1972.

CHAPTER XXXII

Add new Section 36 to Volume I-B and New Chapter XXXII to Volume I in accordance with the following:

CHAPTER XXXII—1-1-75—BUILDING INSULATION STANDARDS

Section 3200—General Requirements for Dwellings

These insulation requirements apply to all new one and two family dwellings specified in Section 1 of Volume I-B, and all new multiple family

dwellings three (3) stories in height and less (apartments and condominiums) specified in Section 400 or Volume I, which are constructed after January 1, 1975, regardless of the type fuel used.

It is imperative that close attention be paid to workmanship in the installation of the materials specified if the full benefits of these requirements are to be realized. The vapor-resistant facing furnished on blanket and roll-type insulation shall always face the interior of the structure and shall be wedged behind pipes and electrical outlets. If unfaced blankets or rolls are used, a vapor barrier shall be stapled to the studs or foil-backed gypsum board shall be used on the interior of the wall. Voids shall not exist at the top or bottom of the stud cavity. All cracks around windows and doors shall be filled with insulation with a vapor barrier properly installed. Vapor barriers shall be carefully checked to assure that no tears exist and any tear shall be patched. The manufacturers' installation procedures for all insulation shall be strictly adhered to.

On blanket and roll-type insulation furnished with a vapor resistant facing, the R-Value of the insulation shall be marked at three (3) foot intervals on the exposed facing. For unfaced blankets and rolls, the manufacturer shall furnish sufficient identifying markings to indicate the insulation R-Value.

Section 3201—Minimum "U" Values for Exterior Walls and Ceilings

All buildings which are heated or mechanically cooled shall have sections exposed to the exterior or unheated spaces constructed to comply with the maximum "U" value shown in Tables A and B. The "R" value shown is the minimum resistance value of insulation which must normally be installed in most types of construction presently being used in order to meet the thermal performance of the "U" value shown. Typical construction sections using the "R" values shown are detailed in the Appendix of this section.

Table A

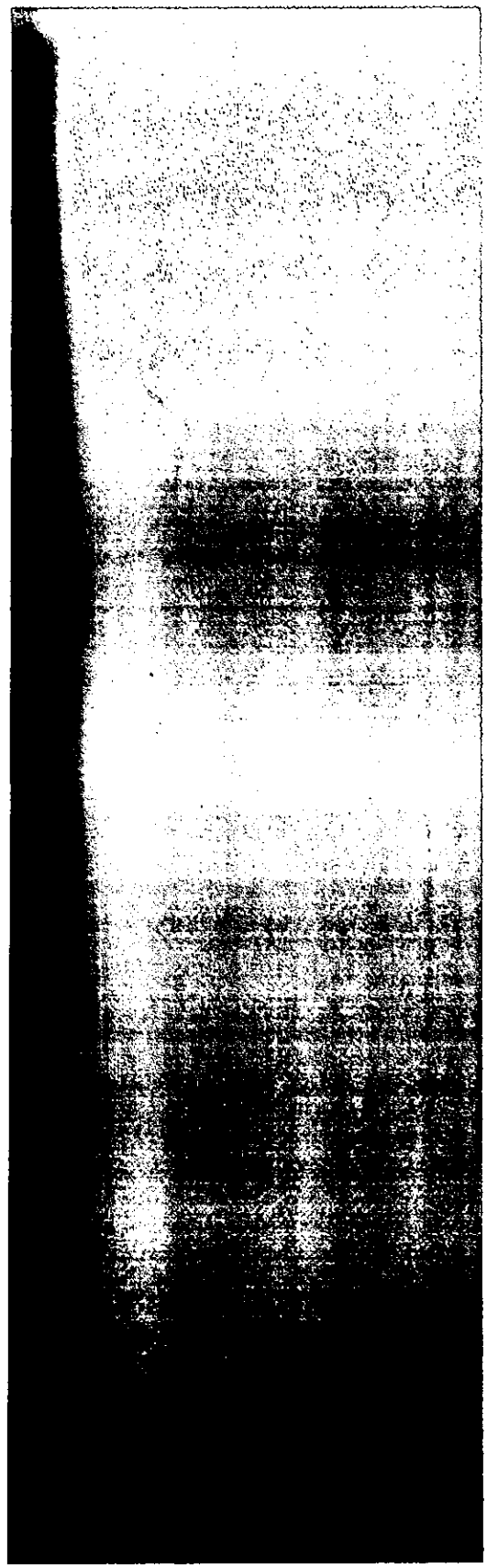
Maximum "U" Values of Ceiling and Wall Sections

Flat Roof Deck(a)	Masonry Wall Construction				Frame Wall Construction				Doors and Windows	
	Ceilings		Walls		Ceilings		Walls			
"U"	"U"	"R"	"U"	"R"	"U"	"R"	"U"	"R"		
.09	.05	R-19	.10	R-11	.05	R-19	.08	R-11	1.13(b)	

(a) Indicates construction with rigid roof insulation and exposed structural system. When ceiling cavity is available, use column for ceilings.

(b) In any room where 20% or more of the external wall is composed of glass, the maximum "U" value of the glass shall be 0.65. (This will require insulating glass and doors or storm windows and doors.)

Blown or poured type loose fill insulation may be used in attic spaces where the slope of the roof is a minimum of 2½ feet in 12 feet and there is at least 30 inches clear headroom at the roof ridge. (Clear headroom is defined as the distance from the top of the bottom chord of the truss or ceiling joists to the underside of the roof sheathing.) When eave vents are installed, adequate baffling of the vent opening shall be provided to deflect the incoming air above the surface of the material and shall be installed



at the soffitt on a 60 degree angle from horizontal. Baffles shall be in place at the time of inspection.

When loose fill insulation is proposed, the R Value of the material shall be determined in accordance with ASTM Standards C-687 and C-236. The "R" value shall be shown on the building plans together with the total number of bags required and net coverage per bag. Upon completion of the installation of insulation, an insulation certification card shall be furnished by the insulation applicator and posted at a conspicuous location within the structure. This certification shall indicate the R value, minimum thickness, maximum net coverage and weight per square foot of the insulation installed.

Section 3202. Minimum "U" Values for Floors.

For floors over unheated basements, unheated garages, breezeways or ventilated crawl spaces with operable vents the thermal value of the floor section shall not exceed the values shown in Table B.

Table B

Floor Section Maximum "U" Values

Structural Slab	Wood and Steel Framing	
U(a)	U (a)	R
.12	.08	R-11

(a) U Value for heat flow down

(b) A basement is considered unheated unless it is provided with a positive heat supply equivalent to at least 15% of the total calculated heat loss of the structure or is provided a positive heat supply to maintain a minimum temperature of 50°F.

Insulation may be omitted from floors over unheated areas if the foundation walls are insulated. The "U" value of insulated foundation walls shall not exceed .17. Foundation walls of heated basements (below grade) need not be insulated except where habitable rooms are provided. A ground moisture seal is required when the foundation walls are insulated.

Slab-on-grade floors shall be insulated around the perimeter of the floor with rigid type insulation having a minimum "R" value of 3.75 and specifically designed and recommended by the manufacturer for this service. This insulation may be installed vertically on the interior or the exterior of the foundation wall with the insulation extending 24 inches below the top of the slab. Insulation extending above grade shall be protected from physical damage. Insulation may also be installed horizontally under slab edge extending from foundation wall inward for a distance of 24 inches. With either method the entire slab edge thickness shall be insulated.

Section 3203—Weather Stripping of Exterior Doors and Windows.

All doors and windows opening to the exterior or to inconditioned areas such as garages shall be fully weatherstripped, gasketed or otherwise treated to limit infiltration. A non-hardening sealant shall be used to caulk around all window and door frames.

APPENDICES

Page A-23—Appendix "C" PRESERVATIVES FOR WOOD—Delete and add the following provisions: 3-12-68

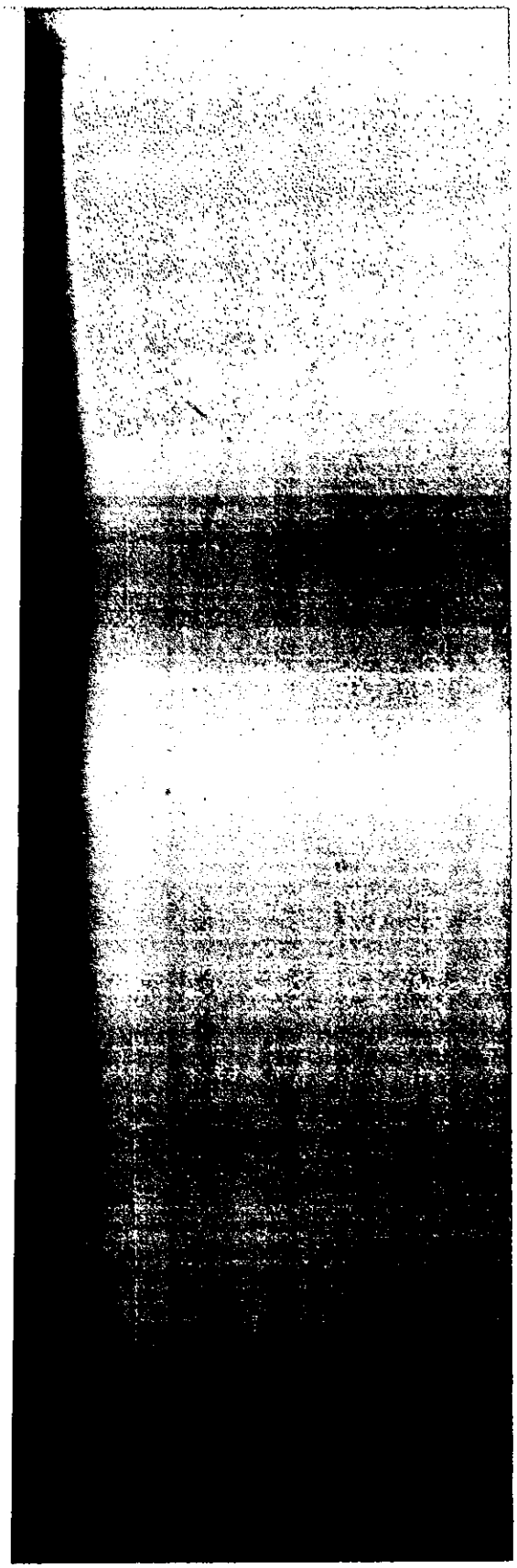
"Quality Control Standards published by the American Wood Preservers Institute for methods of treatment, by commodity, include the following:

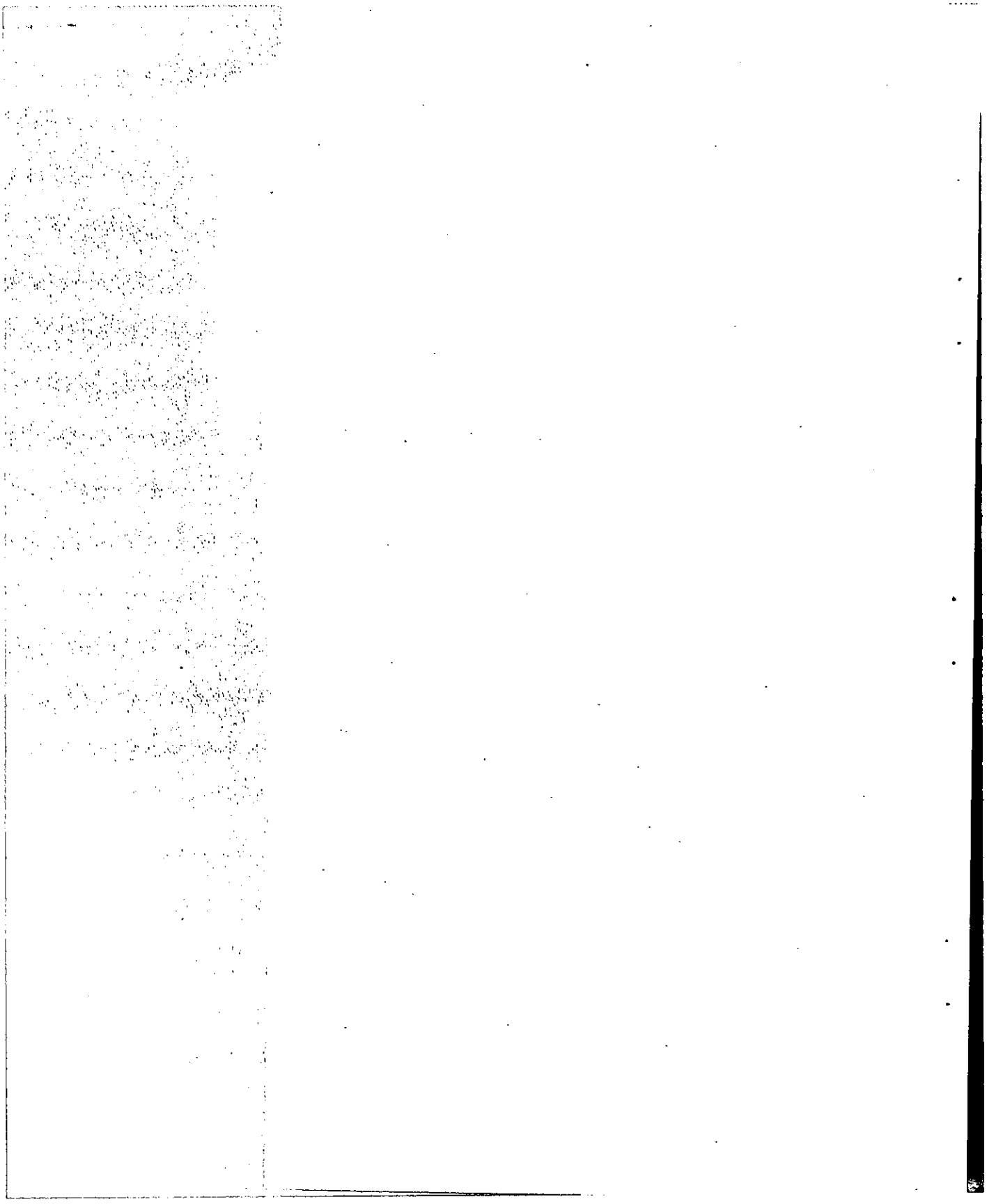
1) Lumber and Plywood Pressure Treated with Water-Borne Preservatives for above ground use—AWPI STD. LP-2.

2) Lumber and Plywood Pressure Treated with Light Petroleum Solvent-Penta Solution—AWPA STD. LP-3.

3) Lumber and Plywood Pressure Treated with Volatile Petroleum Solvent (LPG)—Penta Solution—AWPI STD. LP-4.

4) Lumber, Timber and Plywood Pressure Treated with Creosote and Creosote Solutions—AWPI STD. LP-5."





NORTH CAROLINA STATE BUILDING CODE

VOLUME I

GENERAL CONSTRUCTION

SECTION 521–SPECIAL PROVISIONS FOR HIGH RISE BUILDINGS

ADOPTED BY THE NORTH CAROLINA STATE BUILDING CODE COUNCIL
SEPTEMBER 11, 1974 EFFECTIVE APRIL 1, 1975

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NORTH CAROLINA STATE BUILDING CODE AMENDMENTS FOR HIGH RISE BUILDINGS

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ADOPTED BY THE NORTH CAROLINA STATE BUILDING CODE COUNCIL SEPTEMBER 11, 1974 EFFECTIVE APRIL 1, 1975

NORTH CAROLINA STATE BUILDING CODE AMENDMENTS FOR HIGH RISE BUILDINGS SECTION 521—SPECIAL PROVISIONS FOR HIGH RISE BUILDINGS

521.1—General Requirements

(a) **Purpose**—All buildings which exceed the limitations specified in Section 521.2 must be of Type I or Type II construction in accordance with Table 402 and Table 600 and based on height being about 60, 120 or 250 feet, be specifically designed to limit the danger to occupants and fire fighters from exposure to fire, heat and smoke in a building fire by providing:

(1) Sprinkler protection and smoke control; or
(2) Compartmentation and smoke control to provide "safe areas or refuge"; or
(3) Combination of both sprinkler protection, compartmentation and smoke control to provide safe areas of refuge; and
(4) Communication systems and smoke free stairways to provide directions for egress to outside of building or access to "safe area of refuge".

(b) **High Rise Requirements Preemptive**—All high rise buildings shall comply with the requirements of applicable Sections of Volume I, II, III and IV of the N. C. State Building Code and when there is a conflict, the provisions of Section 521 shall apply unless expressly stated otherwise.

(c) **Central References for High Rise Requirements**—The designers shall provide a central reference sheet indicating the sheet numbers and specifications sections which provide a summary of the description of the operation of and schematic drawings of required mechanical and electrical "life safety equipment" and otherwise how he proposes to comply with the provisions of this Section.

(d) **Maintaining Fire Resistive Integrity of Floors and Walls**—Plans for all buildings shall indicate the tested assembly fire resistive design numbers, if any, and how the required structural and fire resistive integrity will be maintained where a penetration of a required fire-resistive wall, floor or partition will be made for plumbing, mechanical, electrical and communication conduits and other pipes or systems and also indicate in sufficient detail how the fire integrity will be maintained where required fire-resistive floors abutt or intersect the exterior walls.

(e) **Materials in Concealed Spaces**—Materials used for piping, conduit, raceways, ducts and other systems including thermal or acoustical insulation and vapor barriers installed within shafts, floor and roof assemblies, walls and partitions and other concealed spaces communicating between two or more floors, shall qualify as noncombustible in accordance with the requirements of part (a) of the definition of noncombustible material contained in Section 201. When materials which do not meet this definition of noncombus-

tible and are used within a fire treated assembly as provided for in Section (d) above, such materials shall not penetrate required fire rated vertical shafts or required fire rated corridor walls and partitions or other fire rated walls and partitions required to extend to the floor slab. This provision does not apply to insulation provided as a part of approved electrical wiring nor to electrical conduit or piping entirely encased and embedded in concrete or masonry.

(f) **Design of Life Safety Equipment**—All electrical and mechanical equipment, central alarm and communications systems, smoke control measures and sprinkler systems as hereinafter specified must be designed by an engineer registered in the State of North Carolina in accordance with Chapter 89 of the General Statutes. The plans for the sprinkler system shall be submitted to the Engineering and Building Codes Division of the Department of Insurance and shall bear the seal of an engineer registered in North Carolina.

(g) **Filing of Test Reports on Life Safety Equipment**—The engineer performing the design for the electrical and mechanical equipment, including sprinkler systems, must file the test results with the Engineering and Building Codes Division of the Department of Insurance that such systems have been tested to indicate that they function in accordance with the standards specified in this Section and according to design criteria.

(h) **Occupancy Permit Required for Occupancy of Any Portion of Building**—Occupancy of building, or any portion thereof, shall not be permitted until all fire suppression and life safety equipment has been installed and is operative in the occupied areas, the means of egress leading therefrom and required refuge areas. (Refer to Section 105.2 (d) for issuance of occupancy permit.)

(i) Measures that relate to limiting or controlling the movement of smoke caused by a building fire are described in ACNBC Publication "Measures for Fire Safety in High Buildings". Adoption of these measures, as applicable, is considered to be an acceptable means of complying with the requirements of this Section. It is not, however, intended that these measures should be regarded as excluding any other equally effective measure that may be developed and submitted to the Engineering and Building Codes Division of the Department of Insurance for approval.

521.2—Scope—All buildings shall be classified as Class I, II or III according to the following table: (1) (3)

Table 521.2

SCOPE

Class (1)	Occupancy Group	Occupied Floor Above Average Grade Exceeding Height (3)
Class I	Group A—Residential Group B—Business Group F—Storage Group G—Industrial Group H—Hazardous	60' but less than 120'above average grade or 6 but less than 12 stories above average grade.
	Group C—Schools Group D—Institutional Group E—Assembly	36' but less than 60' above average grade or 3 but less than 6 stories above average grade.

Table 521.2—Continued

Class (1)	Occupancy Group	Occupied Floor Above Average Grade Exceeding Height (3)
Class II	Group A—Residential Group B—Business Group F—Storage Group G—Industrial Group H—Hazardous	120' but less than 250' above average grade or 12 but less than 25 stories above average grade.
	Group C—Schools Group D—Institutional Group E—Assembly	60' but less than 120' above average grade or 6 but less than 12 stories above average grade.
Class III	Group A—Residential Group B—Business Group F—Storage Group G—Industrial Group H—Hazardous	250' or 25 stories above average grade.
	Group C—Schools Group D—Institutional Group E—Assembly	120' or 12 stories above average grade.

NOTE 1: The entire building shall comply with this section when the building has an occupied floor above the height specified, except that portions of the buildings which do not exceed the height specified are exempt from this Section, subject to the following provisions:

(a) Low rise portions of Class I buildings must be separated from high rise portions by one hour construction.

(b) Low rise portions of Class II and III buildings must be separated from high rise portions by two hours construction.

(c) Any required exit from the high rise portion which passes through the low rise portion must be separated from the low rise portion by the two hour construction.

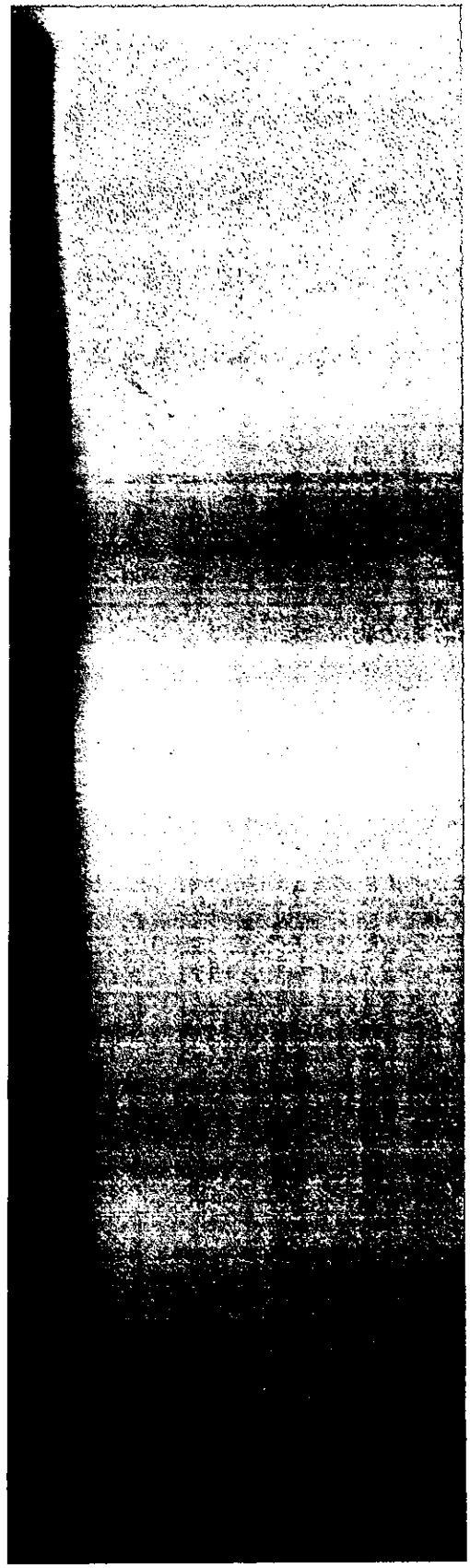
NOTE 2: The height described in Table 1008.1 shall be measured between the average grade outside the building and the finished floor of the top occupied story.

NOTE 3: Public parking decks meeting the requirements of Section 507.2 and less than 75 feet in height are exempt from the requirements of this Section when there is no other occupancy above or below such deck.

NOTE 4: Special purpose equipment buildings, such as telephone equipment buildings housing the equipment only, with personnel occupant load limited to persons required to maintain the equipment may be exempt from any or all of these requirements at the discretion of the Engineering and Building Codes Division provided such special purpose equipment building is separated from other portions of the building by two hour fire rated construction.

521.3—Areas of Refuge Utilizing Compartmentation and Smoke Control

(a) **Smoke Free Stairs and Elevator Shafts**—Buildings of Class I, II and III shall have smokeproof stairways and pressurized stairway shafts in accordance with Section 521.18 (a) and pressurized elevator shaft(s) as specified in Section 521.7(b)(6) to provide egress to outside or access to areas of refuge.



(b) **Required Areas of Refuge Every Fifth Floor**—Class III buildings shall be provided with a designated "area of refuge" on at least every fifth floor to be designed so that occupants above the ground floor can enter at all times and be safely accommodated in floor areas meeting the following requirements:

(1) **Identification**—Designate as "areas of refuge" on the plans and identify as such in the building.

(2) **Location**—At least one such area located at least every fifth floor.

(3) **Size**—Provide not less than 5 sq. ft. of floor space per ambulatory occupant and 16 sq. ft. of floor space per non-ambulatory occupant based on sq. ft. per occupant in Section 1105 for entire building. A minimum of 5% of the total number of occupants based on sq. ft. per occupant in Section 1105, shall be assumed to be non-ambulatory for all buildings except institutional occupancies. Institutional occupancies shall be assumed to have one-half the number of non-ambulatory occupants as there are beds furnished. Stairways meeting the requirements of Section 1115.7 may be used for ambulatory occupants at the rate of 3 sq. ft. of area of trends and landings per person, but in no case shall the stairs count for more than one-third of the total occupants.

(4) **Fire Resistive Separation**—Walls, partitions, floor assemblies and roof assemblies separating the area of refuge from the remainder of the building shall be non-combustible and have a fire resistance rating of not less than two hours. Duct penetrations of these walls shall not be permitted except for protected penetrations of duct shafts. Metallic piping and metallic conduit, where essential, may penetrate or pass through these walls only if the openings around the piping or conduit are sealed on each side of penetrations with impervious noncombustible materials sufficiently tight to prevent the transfer of smoke or combusion gases from one side of the wall to the other. The fire door serving as the horizontal exit between compartments shall be so installed, fitted and gasketed that it will provide a substantial barrier to the passage of smoke.

(5) **Penetrations**—The fire resistance of the floor or the floor-ceiling assembly shall extend to and be tight against the exterior wall so that the fire resistance and smoke integrity is maintained. No penetrations or other installations which will impair the fire or smoke integrity of the floor above and below the area of refuge are permitted.

(6) **Access Doors and Corridors**—Access doors leading to area or refuge from stairway or other areas of the building shall not have locking hardware. The corridor leading to each designated area of refuge shall be protected when required by Section 1104.7 and 702.2. Access corridor leading to each designated area of refuge shall provide one 22-inch unit of width for each 150 persons who may have to use such corridor to reach the designated area of refuge.

(7) **Access Stairs**—Doors leading to designated areas of refuge from stairways shall not have locking hardware.

(8) **Pressurized**—Except for roof "area of refuge", during a period of two hours after the start of a fire the "area of refuge" shall be pressurized so that it will not contain more than 1 percent of volume of contaminated air from the fire floor, assuming an outdoor temperature equal to the January design temperature of 97½ per cent basis in the ASHRAE Guide.

(9) **Live Load**—The structural system for the floor or roof area designated as area of refuge shall be designed for not less than 80 pounds per square foot live load.

(10) **Signs**—All designated areas of refuge shall be marked with appropriate directional signs inside and outside each stairway. Each entrance to each area of refuge shall be marked with appropriate designating sign indicating capacity of persons the area is designed for and that "this area of refuge meets the requirements of the North Carolina State Building Code for 'Areas of Refuge'."

NOTE: The requirements for areas of refuge may be met by conforming to either of the following measures described in ACNBC publication "Measures of Fire Safety in High Buildings"*

Measure K—Vertically Divided building with spatial separation
Measure L— Areas of Refuge with two such areas of refuge on each floor.

(c) **Compartmentation and Smoke Control Options**—Class I buildings shall be provided with one of the following methods of compartmentation and smoke control or sprinklers in accordance with Section 521.4:

Option No. 1—All Floor Areas Pressurized for "Areas of Refuge"—Compartmentation and smoke control Option No. 1 requires the building be designed so that during a period of two hours after the start of a fire, all floor areas that are above the lowest exit story will not contain more than 1 per cent by volume of contaminated air from the fire floor, assuming an outdoor temperature equal to the January design temperature on a 97½ per cent basis according to the ASHRAE Guide.

NOTE: The requirements of Option No. 1 may be met by conforming to either of the following measures described in ACNBC Publication "Measures of Fire Safety in High Buildings"*

Measure H— Building Fully Pressurized
Measure I— Building Core Pressurized

Option No. 2—"Area of Refuge" on at Least Every Fifth Floor—Compartmentation and smoke control Option No. 2 requires that the building be designed so that occupants above the ground floor can enter and be safely accommodated in floor areas that meet the requirements of Section 521.3 (b).

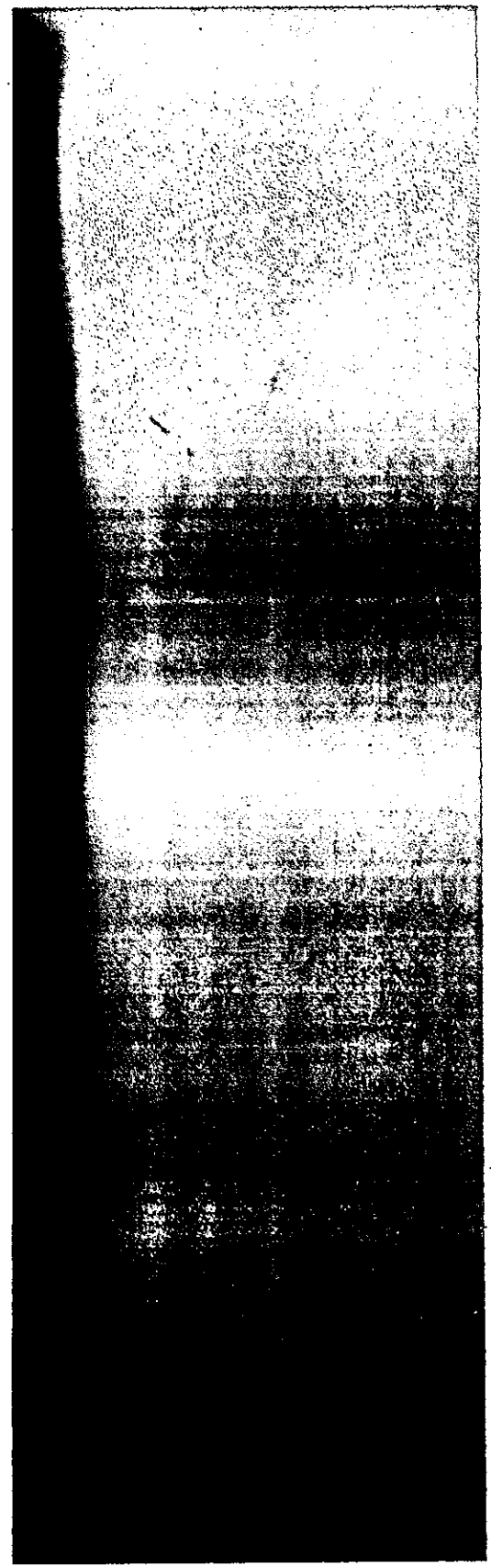
Option No. 3—Stairways for "Areas of Refuge"—Compartmentation and smoke control Option No. 3 requires that the building shall be designed so that the number of occupants of above grade stories does not exceed one third of the total area in square feet of treads and landings in the exit stairs serving these stories. Stairways shall meet the requirements of Section 521.18.

NOTE: The requirements of Option No. 3 may be met by conforming to either of the following measures described in ACNBC Publication "Measures for Fire Safety in High Buildings"*

Measure C—Open Air Exterior Corridor Access to Stairs and Elevators
Measure E—Protected Open Air Exterior Vestibule Access to Stairs and Elevators
Measure G—Pressurized Stair and Elevator Shafts

521.4—Sprinklers

(a) Class II and III buildings shall be completely sprinklered.
(b) Class I buildings of Group B-2, Group C and Group H occupancy shall be completely sprinklered.
(c) In all Class I, II and III buildings, every restaurant or facility serving food or beverages, including kitchen and storage facilities thereto, shall be sprinklered, and every story or part thereof used or intended to be used for the storage or handling of hazardous substances shall be sprinklered.



Note: All other buildings or parts of buildings shall be sprinklered when required by Section 901.

(d) Optionally, Class I buildings of Group A, Group B-1, Group D, E, F and G occupancy may be completely sprinklered in lieu of Option 1, 2 or 3 in Section 521.3 (c).

(e) When complete sprinkler system is provided as an option or required by Section 521.4, the following reduction in requirements shall be allowed in Class I, II and III Buildings:

(1) Compartmentation and smoke control measures specified by Section 521.3 (c) are not required.

(2) Type II Construction may be used where Type I may be required by Table 402.

(3) All Group B-1 office building partitions required to be of one-hour fire resistive construction may be of noncombustible construction without a fire resistive time period. Openings in exit corridor walls serving more than 200 people shall be protected by tight-fitting, self-closing, automatic latching solid core wood or noncombustible doors that need not have a fire resistive time period. This exception shall not apply to the elevator lobby protection or stairways and vertical shafts.

(4) The 1½" hose and nozzle is not required, however, the Fire Department risers and hose connections in required stairways are to be provided in accordance with Section 902.

(5) Remote operation of panels for smoke venting is omitted as per Section 521.5 (a) and the mechanical air handling equipment may be designed for smoke removal as per Section 521.5 (b).

(6) Flame spread ratings required by Section 521.8 and 704.3 may be one class lower.

(7) Protection of electrical conductors required by Section 521.12 may be omitted for Class I buildings.

(f) Sprinkler systems shall be in strict accordance with NFPA No. 13-1974 and the following requirements:

(1) The sprinkler system must be equipped with a water flow and supervisory signal system that will transmit automatically a water flow signal directly to the Fire Department or to an independent signal monitoring service satisfactory to the Fire Department.

Footnote: Refer to Section 1103.1 (a) for 50% increase in travel distance for exits for sprinklered buildings and refer to Section 903 for other code references for sprinklered buildings.

(2) Supervised shut off valves and water flow devices shall be provided at the sprinkler supply connections on each floor.

Exception: When sprinkler supply connections are not provided on each floor, such supervised shut off valves and waterflow alarms are required only at the supply connections provided.

(3) Standpipes for fire department use shall be provided in required stairwells.

(4) The minimum water supplies for a combined sprinkler and standpipe system for a light hazard building (completely sprinklered) shall be 500 gallons per minute. The minimum water supply for other buildings (completely sprinklered) shall be 1000 gallons per minute.

(5) Except for exhaust fans in kitchens, washrooms and bathrooms in dwelling units, and except for fans used for smoke venting to aid in fire fighting and fans providing for life support systems, air moving fans shall be stopped in any system that serves more than one story.

521.5—Smoke Venting

Natural and mechanical ventilation methods for the removal of products of combustion shall be provided in every story of Class I, II and II buildings and shall consist of one of the following:

(a) Panels or windows in the exterior walls which can be opened from an approved location other than the fire floor. Such venting facilities shall be provided at the rate of 20 square feet per 50 lineal feet of exterior wall in each story and distributed around the perimeter at more than 50 foot intervals. Such panels and their controls shall be clearly identified.

Exception: When a complete automatic fire sprinkler system is installed, windows or panels manually openable from within the fire floor may be used in lieu of the remotely openable, operated panels and windows.

(b) When a complete automatic sprinkler system is installed, the mechanical air handling equipment may be designed to accomplish smoke removal. Under fire conditions, the return and exhaust air shall be moved directly to the outside without recirculation to other sections of the building. The supply fans shall provide 100 per cent outside air. The area involved shall have a minimum of an air change every 10 minutes to meet this requirement.

(c) Any other approved design which will produce equivalent results and which is acceptable to the Building Official.

521.6—Requirements for Connecting Buildings

Where a Class I, II or III building is connected to any other building, measures shall be taken to limit the movement of contaminated air from one building into another during a fire by venting the connecting vestibule directly outside or pressurize the vestibule.

NOTE: The requirements for Connecting Buildings may be met by conforming to the following measure described in ACNBC Publication "Measures for Fire Safety in High Buildings"*

Measure N— Vestibules connecting Buildings to be Vented to Outdoors or Pressurized.

521.7—Elevators

(a) **Standards**—All elevators for Class I, II and III buildings shall comply with the "Safety Code for Elevators, Dumbwaiters, Escalators and Moving Walks", A17.1-1971, and shall also conform with the requirements of the supplement A17.1 b-1973.

(b) **Additional Requirements for Controls and Pressurization of Hoistways**—In addition to conforming to the ANSI A17.1 b-1973, the following additional requirements must be met:

(1) **Elevator Lobby Separation**—All public elevators on all floors shall

open into elevator lobbies which are separated from the remainder of the building by one-hour fire resistive construction.

(2) **Smoke Detectors in Elevator Lobbies**—Each elevator lobby or elevator entrance area shall be provided with an approved and listed smoke detector located on the ceiling. When activated by smoke detectors or other emergency devices, or when emergency power is activated, a minimum of one elevator at a time, in each group of elevators having common lobby, shall start automatically and return to the main floor lobby or to a smoke free lobby leading most directly to the outside, at full rated car speed with the exception of cars that are out of service. After all cars have returned to the main floor, a minimum of one car in each pressurized hoistway shall remain in operation on Emergency Power. (See Section 521.13 (a)(2).

(3) **Signs in Lobbies**—Each elevator lobby call station shall have an illuminated sign which is readable at all times and which flashes on and off to show the words "EMERGENCY—USE THE EXIT STAIRS" when any elevator lobby smoke detector is activated. The signs on all floors served by that group shall flash. The words shall be red in color and be in minimum ½" block letters.

(4) **Machine Room Protection**—Elevator hoistways shall not be vented into an elevator machine room. Cable slots entering the machine room shall be sleeved beneath the machine room floor to inhibit the passage of smoke into the machine room.

(5) **Primary Emergency Elevator**—At least one elevator car in each building serving all floors shall have a minimum inside car platform 4'3" wide by 6'8" front to back with a minimum clear opening width of 42" on the narrow side, unless otherwise designed to provide equivalent utility and access to accommodate an ambulance stretcher (minimum size 22" by 78") in its horizontal position. This elevator shall be identified as the "Primary Emergency Elevator" with signs both outside and inside the elevator. The identified "primary emergency elevator" shall be capable of providing transportation from all floor levels to the street level normally served by the elevator system that is above grade in the building and be located in a required pressurized hoistway.

(6) **Pressurized Hoistways**—At least one or a minimum of one-half of the hoistways containing public elevators, including the primary emergency elevator, whichever number is greater, must be pressurized so that, during a period of two hours after the start of a fire, they will not contain more than 1 percent by volume of contaminated air from the fire floor, assuming an outdoor temperature equal to the January design temperature on a 97½ per cent basis according to the ASHRAE Guide. Elevators in pressurized hoistways must be identified as "emergency elevators." Pressurized hoistways shall be placed in an approved protected location.

(7) **Sequential and Selective Operation**—In class I, II and III buildings, sequential operation of one elevator at a time on the emergency power source, as per Section 521.7 (b)(2), shall also be provided with overriding selective controls identified for emergency use. In class III buildings, selective controls shall allow the fire fighters to modify the sequence as per 521.7 (b)(2) and control elevator operation in emergencies.

(Note: This requirement may be met by Measure F in ACNBC "Measure for Fire Safety in High Buildings.")

(8) **Protection of Hoistways from Top Floor to Street Floor**—Where it is necessary to change elevators to reach any floor, the system shall be designed so that not more than one change of elevators is required when traveling from a street floor to any floor in the building and pressurization of the hoistways required above would include pressurization in the top level hoistway and the bottom level hoistway and the transfer lobby. (See Section 701.3 (b) for access openings required for bottom level hoistways.)

521.8—Interior Finish

(a) The interior finish for all walls, partitions, ceiling and floors including all rooms or spaces, service spaces and elevator lobbies of buildings of Classes I, II, and III shall have a flame spread rating and smoke developed classification conforming to Table 704.3 and Table 521.8.

Table 521.8
Interior Finish

Location	Maximum Flame—(1)(2)(5) Spread Rating			Maximum Smoke Developed Classification		
	Wall (3) Surface	Ceiling (3) Surface	Floor (3) Surface (4)	Wall Surface	Ceiling Surface	Floor Surface (6)
Exit stairways, vestibules to exit stairs & exit corridors	A	A	B	50	50	(6)
Corridors providing access to exit except within stairs	B	B	C	100	50	(6)
Elevator cars and lobbies	A	A	B	100	100	(6)
Assembly Rooms	A	A	B	50	50	(6)
Other rooms or spaces	B	B	(7)	(7)	(7)	(7)

Notes to Tables:

(1) See Section 704.3 for required flame spread ratings for each occupancy group and explanations for letter designations for flame spread ratings utilizing ASTM E-84.
(2) Trim, millwork and doors within any room may have a flame spread rating not exceeding 200, provided they do not exceed 10 per cent of the area of the wall or ceiling of the room in which they occur.
(3) The flame spread rating required in this table for wall, ceiling and floor finishes applies to the surface finish and in the case of carpet, it applies also to the underlayment. Wall, ceiling and floor covering materials listed by Underwriters' Laboratories in accordance with ASTM E-84 will meet these requirements.

(4) Floor covering materials listed by Underwriters' Laboratories with "Flame Propagation Index of 0-8 will meet these requirements. Ordinary hard, smooth floor covering not over ¼" in thickness which is attached directly to concrete floor decks will meet these requirements.
(5) All noncombustible materials conforming with (a) and (b) of definition of Noncombustible (See Definition in Section 200) has a flame spread rating of less than 25 even though they may be painted with ordinary house paint.
(6) Smoke developed classification limits for floor covering materials may be set pending evaluation of test results now being performed at the National Bureau of Standards.
(7) Smoke developed classification limits for wall, floor and ceiling surfaces and flame spread ratings for floor surfaces for other "Rooms and Spaces" may be set pending evaluation of test results now being performed at the National Bureau of Standards.

521.9—Central Alarm and Control Facility (Central Control Station)

All Class I, II and III buildings shall have a central alarm and control facility to house a central control station for fire department operations, separated from the remainder of the building by two hour fire resistive construction and be located in an area that is readily accessible to fire fighters entering the building and which takes into account the effect of background noise likely to occur under fire emergency conditions so that the facility can properly perform its required functions under such conditions.

(a) Central alarm and control facility for Class I buildings shall provide for:
  (1) The alarm and public address system panels.
  (2) Emergency communication panel to automatically transmit manual and automatic alarm signals to the Fire Department either directly or through a signal monitoring service.
  (3) Availability to fire department at all times.
  (4) Public service telephone adjacent to emergency panel.
(b) Central alarm and control facility for Class II buildings shall provide for:
  (1) Fire detection and alarm system annunciator panels to indicate the type of signal and the floor of zone from which the fire alarm is received.
  (2) Controls for **unlocking simultaneously all stairway doors** which are locked leading into buildings from the stairway side on each floor. Doors leading from the stairway side shall not have locking hardware on floors where there is a designated area of refuge.
  (3) Sprinkler valve and waterflow detector display panels.
  (4) Controls for manually starting and stopping emergency power supply.
  (5) Means to give an audible and visual fire alarm signal when any fire alarm, waterflow alarm or detection device is activated and a switch to silence the audible signal causing a visual signal to indicate that the audible signal has been silenced.
  (6) **Means to close fire doors** leading to stairways, elevator lobbies, smoke barrier partitions and areas of refuge automatically on receipt of an alarm signal, if these are normally held open, (unless this is effected automatically by proprietary smoke or fire detection or sprinkler system control equipment).
  (7) **Means to manually and selectively actuate the fire alarm** devices in the building and to silence them after they have operated initially for not less than 1 minute and to indicate by a visual

signal that the fire alarm has been silenced.

(8) Means to manually start and stop smoke control equipment provided under 521.3, 521.4, 521.5 and 521.18 or means to communicate with an auxiliary control center or centers controlling this equipment as appropriate to the measure for fire safety provided in the building.

(9) Two-way communication with all elevators.

(10) Elevator status indicator.

(c) Requirements for Central alarm and control facility for Class III buildings shall include items in (b) above and:

(1) Selective controls to override automatic sequential controls for elevators.

(2) Status indicators and controls for air handling systems.

(3) All buildings must be provided with full time surveillance.

521.10—Communication System for Occupants of Class I Buildings

(a) **One-way System for Occupants**—All class I buildings shall be provided with a one-way communication system. It shall operate from the Central Control Station and shall be established on a selective or general basis to the following terminal areas and designed to be clearly heard by all occupants of these areas:

(1) Elevators
(2) Elevator lobbies
(3) Corridors
(4) Exit stairways
(5) Rooms and tenant spaces exceeding 1,000 sq. ft. in area
(6) Dwelling units in apartment houses
(7) Hotel guest rooms or suites

(b) **Two-way System for Fire Department**—A two-way fire department communication system shall be provided in all buildings for Fire Department use. It shall operate between the Central Control Station and every elevator lobby, each entry to an enclosed exit stairways, in required exit corridors and each refuge area.

521.11—Two-Way Communication System for Class II and Class III Buildings

(a) All Class II and III buildings shall be provided with an approved voice communication system or systems operated from the Central Control Station and shall consist of the following:

(1) Selective one-way communication system as required by 521.10 (a) and two-way system as per 521.10 (b) for use of both fire fighters and occupants. The elevator communication system required as per 521.9 (b) (9) shall be incorporated in this system. (See Section 521.9 (b) (8).

(2) This system shall be designed so that in the event of one circuit or speaker being damaged or out of service, the remainder of the system shall continue to be operable.

(3) The system shall include provision for silencing the fire alarm devices when the loudspeakers are in use, but only after the fire alarm devices have operated initially for not less than 1 minute.

521.12—Protection of Electrical Conductors from Fire

(a) Conductors furnishing electrical power to the emergency equipment and

control circuits shall be protected by a two hour fire rated horizontal or vertical enclosure or structural element which does not contain any combustible materials. Such protection shall begin at the source of the electrical power and extend to the floor level on which the emergency equipment is located. It shall also extend to the emergency equipment to the extent that the construction of the building components on that floor permit, as required by Sections 521.3 (c), 521.7 (b), 521.4, 521.9, 521.10, 521.11, 521.13, 521.15, 521.16, 521.18.

521.13—Emergency Electrical Power Supply

(a) **Emergency Generator Capacity**—Class I, II and III buildings shall be provided with an approved emergency generator power supply, located in a 2 hour fire rated enclosure, properly ventilated to the outside. The emergency generator power supply shall be capable of operating under a full load for at least 2 hours and shall be automatically switched over in the event of failure of the normal source of power supply or manually operational for emergency power supply for:
   (1) **Pressurization Fans**—Fans to provide required pressurization, smoke venting or smoke control for elevator shafts and stairways and areas of refuge in 521.3 (c), 521.7 (b) and 521.18 (d).
   (2) **Two Elevators**—Every public elevator in a building, assuming only two elevators will operate at a time.
   (3) **Fire pumps**—Water supply for fire fighting when the supply is dependent on electrical power supplied to the building.
   (4) **Emergency illumination**, exit and elevator lighting.
   (5) **Emergency lighting.**
   (6) **Emergency Alarms and Communication Systems**—Power supply for fire alarm, fire detection, voice communication systems and central alarm and control facility.
   (7) Life support systems in all designated areas of refuge.

(b) **Automatic Transfer**—Provision shall be made for automatic transfer to emergency power in not more than ten seconds for (4), (5) and (6) above.

521.14—Maintenance of Emergency Systems

It shall be the duty and responsibility of the owner(s) of Class I, II and III buildings to maintain all fire detection, fire control, smoke movement and venting, as required by Section 521, and similar emergency systems in proper operating condition at all times. Periodic routine inspections are recommended. Annual certification of full-test and inspections of all systems shall be provided annually to the Fire Department. **Footnote:** (Section 521.14) Refer to the procedures described in Appendix C of ANCBC Publication "Measures for Fire Safety in High Buildings."*

521.15—Smoke Detection Systems

(a) In all Class I, II and III buildings, at least one approved smoke detector capable of detecting visible and invisible particles of combustion shall be installed as follows:
   (1) In every mechanical equipment, boiler, electrical, telephone, elevator equipment or similar room.
   (2) each opening where a return plenum or branch duct connects to a vertical shaft.
   (3) In the return air portion of every air conditioning and mechanical ventilation system that serves any floor other than the floor on which the equipment is located.

(4) In every elevator lobby.
(5) The actuation of any detector shall activate the alarm system, and shall cause such other operations as are necessary to prevent the recirculation of smoke and any other functions required by this code.
(6) Smoke detection system shall terminate at the Central Alarm and Control Facility and be so designed that it will indicate the fire floor and also indicate the zone on that floor.

521.16—Manual Fire Alarm System

(a) In all Class I, II and III buildings, there shall be installed an approved manually operated fire alarm system terminated at the Central Alarm and Control Facility (See Table 1125 and Section 1126 for other fire alarm requirements) and comply with the following requirements:
(1) Reporting stations shall be located in every elevator lobby and not more than 100 feet horizontally from every occupied space.
(2) The system shall be designed to report a fire by location of the station.
(3) Audible and visible signal shall be given in the zone in which the station is located.

521.17—Interior Partitions

In Class I, II and III buildings, all interior partitions including movable and relocatable partitions shall be framed and surfaced with materials which qualify as noncombustible in accordance with requirements of Part (a) and (b) of definition of noncombustible contained in Section 201. Surface finish materials may be applied to such partitions provided they meet the flame spread ratings specified in Section 521.8.

521.18—Special Exit Requirements

(a) **Smoke-Free Stairwells**—All Class II and III buildings shall be provided with a minimum of 50% of required exit stairways constructed as smokeproof stairways and all remaining required exit stairways must be pressurized so that during a period of 2 hours after the start of a fire do not contain more than 1 per cent by volume of contaminated air from the fire floor assuming an outdoor temperature equal to the January design temperature of 97½ per cent basis in the ASHRAE Guide.
Note: The requirement for pressurization of stairs may be met by Measure F in ACNBC publication "Measures for Fire Safety in High Buildings." (Section 1104.2 requires all buildings exceeding 60 feet in height to be provided with at least one stairway to be constructed as a smokeproof stairwell meeting the requirements of Section 1115.7).

(b) **Stairway Door Locks**—All stairway doors which can be locked from the stairway side shall have the capability of being unlocked simultaneously without unlatching upon a signal from the Central Control Station for Class III buildings. In Class I and Class II buildings, provision shall be made for access from the stairway side at least at every fifth floor level. Doors leading from the stairway side shall not have locking hardware on floors where there is a designated area of refuge. (See Section 521.3 (b) (7).

(c) **Outside Emergency Communication**—Emergency telephone or emergency signal device audible on the outside of the building and outside

the stairway shall be provided at not less than every fifth floor in each required stairway for all Class I, II and III buildings.

(d) **Stairs to Roof**—All required exit stairways in Class I, II and III buildings shall extend to the roof and in all cases where "areas of refuge" are designated on the roof, such stairways shall lead to the "areas of refuge" and they shall meet the requirements of Section 521.3(b).

(e) **Helicopter Hover Space on Roof**—All Class III buildings shall be provided with an area of refuge meeting the requirements of 521.3 (b) on the roof and a clear area not less than 80' by 80' shall be provided for a helicopter to hover, without landing, to provide this possible means of emergency rescue.

521.19—Gaseous Fuel Systems

(a) Gaseous fuel system mains shall be installed using welded piping located in two hour fire rated shaft that is mechanically ventilated to the outside. The piping shall be sleeved and sealed at all penetrations of the shaft.

(b) The gaseous piping entrance service shall be controlled with automatic Underwriters' Laboratories or American Gas Association Laboratories listed flow limiting valves and a remote fuel shut-off shall be provided for use in an emergency.

(c) The gas piping system shall be air tested to 100 pounds for one hour without a drop in pressure.

Footnote: Gaseous fuels should not be used in Class I, II and III buildings except in central building services equipment in one central location and minor uses generally used by tenants should be avoided elsewhere in the building where possible.

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* Copies of the ACNBC Publication "Measures for Fire Safety in High Buildings" are available from the Secretary, Associate Committee on the National Building Codes, National Research Council, Ottawa, K1A, OR6, price $1.00.

ACKNOWLEDGEMENTS

National Building Code of Canada (October, 1973 Amendments applicable to High Buildings)

National Research Council, Ottawa, KIA, OR6.

Southern Standard Building Code, 3617 8th Avenue, Birmingham, Alabama 35222

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