TITLE 8

BUILDING REGULATIONS[1]

1. See title 11, chapter 5 of this code for subdivision housing controls.

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CHAPTER 1

BUILDING CODE

SECTION:

8-1-1: **PURPOSE AND SCOPE:** Regulations are hereby adopted for the purpose of governing the construction, alteration, and repair of all buildings and structures, and parts and appurtenances thereof, prefabrication, equipment or appliance installation, and governing the maintenance thereof in a condition reasonably safe from the hazards of fire, explosion, collapse, contagion, and the spread of infectious disease; requiring permits; providing for administration; establishing rules and regulations in reference thereto; and imposing penalties for violations relating to residential use.

Chapters 2 and 3, the Lake Villa one- and two-family dwelling code, of this title shall govern one- and two-family dwellings, and chapter 4 of this title, adopting the 2006 international building code or its current edition, and other building codes, shall govern all other buildings and structures and shall also be applicable to any subject matter not addressed in this chapter. (Ord. 2008-09-01, 9-24-2008)

8-1-2: **GENERAL:** This chapter, including the rules and regulations adopted herein by reference, is entitled the *LAKE VILLA BUILDING CODE.* The "letter" and "number" designation used to set off or identify its various parts refer to articles, sections, subsections, paragraphs, rules, regulations, or other divisions as the text or arrangement may indicate. Reference to any one of these parts may be by such designation alone. (Ord. 2008-09-01, 9-24-2008)

8-1-3: **PERMITS AND SCOPE OF REGULATIONS:**

A. Permits Required: It is hereby required that any and all applicable permits be obtained in advance and all other requirements of the Lake Villa building code be complied with whenever a building or structure, or parts or appurtenances thereof, such as water supply, sewage disposal, plumbing installation, electrical installation, and heating equipment, located within the limits of the village and regulated by this chapter, is erected, installed, altered, converted, remodeled, reroofed, structurally repaired, moved, or changed.

B. Maintenance Required: All building(s) and/or structure(s) within the village, and parts and appurtenances thereof, both existing and hereafter erected or installed, shall be maintained in compliance with this chapter and the other applicable provisions of the village code so that the occupants and users thereof and others are reasonably safe from the hazards of fire, explosion, collapse, contagion and spread of infectious disease. If said building(s) and/or structure(s) are not so maintained, the respective owner(s) and occupants of such building and/or structure may be ordered to perform the necessary corrective work, repair, and/or replacement or may be ordered and required to demolish and remove said building(s) and/or structure(s).

C. Scope: These rules and regulations set forth requirements which are considered reasonable and are held in every instance to be the minimum for the promotion of public health, safety, and general welfare.

D. Requirements: No building permit as required by this chapter and/or the other applicable provisions of this village code shall be issued for a building to be constructed on any lot, piece, parcel or tract of land that does not conform with provisions of the plat act[1], in force from

1. 765 ILCS 205/0.01 et seq.

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time to time, and the subdivision regulations and requirements of the Lake County health department or the applicable regulations of other agencies concerning sewage disposal and water supply and other applicable village ordinances, including, but not limited to, the village of Lake Villa zoning ordinance, as amended from time to time.

E. Intent: It is the intent of this section to minimize the disruptive effect building activity has on neighboring properties and residents and to minimize the aesthetically displeasing nature of building activity by requiring completion of construction within reasonable periods of time.

1. As to principal structures, a building permit shall expire two (2) years from the date of issuance. In the event that the structure has not been completed and a certificate of occupancy issued by that date, a renewal building permit, which shall expire six (6) months after date of issuance, must be secured, provided, however, for good cause shown, or if the building officer determines that the exterior of the structure is substantially complete, including siding and trim work, so as to not constitute an eyesore, the expiration date of the original building permit may be extended six (6) months by the building officer. The fee for a renewal permit shall be equal to fifty percent (50%) of the original permit cost.

2. As to all nonprincipal structures, such as, but not limited to, freestanding garages or sheds, a building permit shall expire one year from date of issuance. In the event that the structure has not been completed and a certificate of occupancy issues by that date, a renewal building permit, which shall expire three (3) months after date of issuance, must be secured, provided, however, for good cause shown, the expiration date of the original building permit may be extended three (3) months by the building officer. The fee for a renewal permit shall be equal to fifty percent (50%) of the original permit cost.

3. As to nonprincipal structures, for all permits which have been previously issued for construction, which have not been completed and certificates of occupancy for completion issued, and said permits, had they been issued pursuant to this section would have expired, the permittee shall complete all construction within six (6) months.

4. The failure to complete a structure for which a permit shall have been secured within the time permitted by the original building permit as it may have been extended or renewed, or otherwise set forth in

this section, shall constitute a violation of this section and subject the permittee, upon conviction, to a fine of not less than two hundred dollars ($200.00) nor more than seven hundred fifty dollars ($750.00) per day for each day the structure is not completed after the permit lapses, until the structure is demolished or a certificate of occupancy or completion is issued for the structure. In the alternative to demolishing an incomplete structure, the permittee may apply for a penalty building permit to complete the structure within ninety (90) days, but the fee for a penalty permit shall be equal to three hundred percent (300%) of the original permit cost. Upon the issuance of a penalty permit, the daily fine shall not apply for the duration of the penalty building permit. (Ord. 2008-09-01, 9-24-2008)

8-1-4: **DEFINITIVE GUIDELINES:** The building officer shall be and is hereby authorized to promulgate and publish from time to time a current list and concise summary of guidelines for certain requirements of this Lake Villa building code. Such guidelines as promulgated and published from time to time by the building officer are simply that, guidelines, and are not intended as and shall not be used as a substitute for reference to the full text of this Lake Villa building code, which text shall always govern and prevail. (Ord. 2008-09-01, 9-24-2008)

8-1-5: **RULES ADOPTED BY REFERENCE:** The previously published books or pamphlets described and referred to in this chapter and the regulations and standards contained therein or in the described portions thereof, modified in some cases as noted herein, are hereby adopted by reference and made a part of this building code. In the event of a conflict between this chapter, or any part thereof, and such regulations and standards adopted by reference, the provisions of this chapter, and the other applicable provisions of the village code shall govern and prevail. (Ord. 2008-09-01, 9-24-2008)

8-1-6: **ENFORCEMENT:**

A. Office Of Building Officer: The office of building officer is hereby created in which is vested the power and duty to administer and enforce all the provisions of this chapter and such related regulations as are assigned to that office by the village's board of trustees. That officer is meant wherever in this chapter the term "building officer" is used.

B. Appointment Of Building Officer: The board of trustees shall appoint as building officer a person who is qualified by professional or practical training and experience to conduct the affairs and carry out the duties of that office, who may be either an employee of the village or an independent contractor. It shall also provide for the appointment of such assistants as employee(s) or as independent contractor(s) as are needed and qualified to carry out efficiently the duties and powers assigned to them by the board of trustees or building officer and the building officer shall not be removed from office except for cause and after full opportunity has been granted him to be heard on specific and relevant charges by and before the appointing authority.

C. Relief From Personal Responsibility: The building officer charged with the enforcement of this code, while acting for the village shall not thereby render himself liable personally, and he is hereby relieved from all personal liability for any damage that may accrue to persons or property as a result of any act required or permitted in the discharge of his official duties. Any suit instituted against any officer because of an act performed by him in the lawful discharge of his duties and under the provisions of the village of Lake Villa building code and zoning ordinance shall be defended by the legal representative of the village until the final termination of the proceedings. In no case shall the building officer or any of his subordinates be liable for costs in any action, suit, or proceedings that may be instituted in pursuance of the provisions of the village ordinances and resolutions, and any officer of the department of building and zoning, acting in good faith and without malice, shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of his official duties in connection thereto. (Ord. 2008-09-01, 9-24-2008)

8-1-7: **FEES:** All fees as may be established by resolution or ordinance of the village of Lake Villa board of trustees shall be collected by the building officer and by him promptly deposited with the village treasurer. (Ord. 2008-09-01, 9-24-2008)

8-1-8: **FINES; PENALTIES; COSTS:**

A. Fines: Any person, firm, or corporation who violates, disobeys, fails, neglects, or refuses to comply with, or who resists the enforcement of any of the provisions of this building code, or any provisions of this chapter, including, but not limited to, those provisions adopted

by reference, shall be punished by a fine of not less than two hundred dollars ($200.00) and not more than seven hundred fifty dollars ($750.00) for each offense, and each day upon which such violation continues shall constitute a separate offense.

B. Reporting Of Violations: A person, firm, or corporation licensed or registered by the state, or a subdivision thereof, engaged to perform any work regulated by this chapter or to render professional architectural or engineering service in connection therewith, who violates the law or ordinance under which licensed or registered, or who violates this building code while carrying out such work or rendering service in connection therewith, shall be reported by the building officer to the licensing authority.

C. Costs: Where a dispute arises regarding an engineering opinion furnished by the owner of property involved in any matter covered by this chapter, the village may engage the services of a qualified registered engineer and the owner of the property involved shall reimburse the village for the cost of such services. Where a permit is issued, such engineering expense shall be added to the permit fee. Where no permit is issued, such expense may be collected by civil action at law against the owner of said property. (Ord. 2008-09-01, 9-24-2008)

8-1-9: **ROAD BOND:** Prior to the issuance of a building permit for a principal structure, if the structure is to be located on property which is adjacent to and obtains or has access to or from a public street which has been accepted by the village or which the village maintains, then, in that event, the permit applicant shall deposit with the village a two thousand dollar ($2,000.00) cash or letter of credit road bond. The purpose of the road bond is to have funds available to the village to repair any damages to the public facilities, such as the roads, sidewalks, or parkways, caused during the course of construction of the structure. After the issuance of occupancy permit for the structure, the road bond shall be returned to the permittee less any sums determined by the village to be necessary to repair damages caused to the public facilities during the course of construction of said principal structure. (Ord. 2008-09-01, 9-24-2008)

8-1-10: **DRIVEWAY APPROACH PERMITS:**

A. Permits Required: Prior to starting any site work within the village, pursuant to a village building permit, every person must obtain a

driveway approach permit from the director of public works, or his designee. There shall be no fee for the issuance of said permit.

B. Application For Permit: All applications for such a permit shall be made to the village clerk on forms provided for said purpose. Said permit application shall be transmitted by the village clerk to the director of public works, or his designee, for his approval. The director of public works, or his designee, is empowered to require each application for a driveway permit to meet specifications that allow a proper installation of the driveway to the site in accordance with accepted building procedures.

C. Posting Permit: The director of public works, or his designee, shall affix a seal to the posted building permit to signify that a driveway approach permit has been issued. Start of construction prior to obtaining a driveway approach permit will be cause for the village's building officer to halt work on the site. (Ord. 2008-09-01, 9-24-2008)

8-1-11: HOUSE NUMBERING:

A. Number Required: All houses fronting on the public thoroughfares within the village shall be numbered in conformity with the following plan:

On all thoroughfares running easterly and westerly, the even numbers shall be on the north side and the odd numbers on the south side.

On all thoroughfares running northerly and southerly, the even numbers shall be on the west side and the odd numbers on the east side.

B. Baselines: Section line running north and south between section 32-33 shall be the base of dividing line for numbering houses fronting on any thoroughfares running northerly and southerly, and Grand Avenue shall be the base or dividing line for numbering houses fronting on any thoroughfare running easterly and westerly.

C. Standard Frontage For Numbers: The standard frontage for each number shall be thirteen and two-tenths feet (13.2') on all streets running at such an angle that they would intercept either base if extended, but not extending to the same. The same order of numbers shall be observed as though such street extended to the base or dividing line.

D. Placing Of Numbers: Each of the figures of every number shall be not less than three inches (3") in length, being so marked as to be distinguishable and easily read; said numbers shall be placed in a conspicuous place on the front side of or above the front door of the building.

E. Numbers Required: It shall be the duty of the owner of each building now constructed or each new building in said village to ascertain from the office of the village clerk the correct number to be placed upon his building and to place such number within thirty (30) days after the adoption of this chapter or within sixty (60) days after the completion of the building in case of new buildings.

F. Village Clerk To Keep Plat: It shall be the duty of the village clerk to enter upon a plat kept in his office the numbers authorized from time to time on all buildings, placed upon the lot for which such number shall have been issued.

G. Settlement Of Disputes: In case duplicate number is placed on any single street or block using the decimal system of not more than one hundred (100) numbers to each block, and the controversy shall arise with regard thereto, or any controversies in respect to the number on various residences, the village clerk is hereby vested with power to direct each of those involved as to the proper number for their respective buildings. Any person failing to comply with the directions as to number given by the village clerk shall be deemed to have violated this chapter. (Ord. 2008-09-01, 9-24-2008)

8-1-12: **SUBDIVISION IMPROVEMENTS:** For all residences to be located within a subdivision, no building permit shall be issued except as herein provided until all the public improvements within the subdivision are completed and accepted by the village or the village determines it has adequate security deposited to guarantee the completion of said improvements unless the applicant shall pay to the village sufficient funds as determined by the village engineer on a pro rata basis per lot to generate sufficient funds to pay for and guarantee the completion of all required public improvements within the subdivision. (Ord. 2008-09-01, 9-24-2008)

8-1-13: **REGULATIONS FOR ADMINISTRATION OF BUILDING CODE:** The following requirements apply to the administration and enforcement of this building code, other pertinent ordinances, and laws

applicable to any regulated building, structure, part, or appurtenance thereof.

A. Application For A Permit:

1. Prior to the commencement of any construction, the property owner or authorized agent of the property owner, shall submit to the building officer for his written approval application(s) for the respective necessary permit(s) on forms provided by building officer.

2. Said application(s) for permit(s) may be amended during the course of work, but any amendment thereto shall be subject to the written approval of the building officer prior to commencement of any construction on the portion of the project so modified.

3. Upon completion of any work pursuant to any permit issued by the building officer, any alterations and/or additions to the subject building(s) or structure(s) shall require application for and approval by the building officer of another permit.

B. Information To Accompany And Be A Part Of Application: The following information and/or material(s) shall accompany the application for any permit pursuant to this chapter:

1. Descriptive material, in drawn and written form, as to location and design of buildings, structures, water supply systems, sewage disposal system, plumbing and electrical installations, as required by the building officer to assure compliance with the rules and regulations of this chapter and the other applicable provisions of the village code.

2. Three (3) copies of plat of a building plot, unless shown on the construction plans, showing existing and proposed buildings, structures, and underground facilities.

3. For construction, alterations, and other work: three (3) copies of construction plans (more if required by building officer), specifications (if needed), tests (if needed), to show compliance with regulations. Scale of plans not less than one-eighth inch to the foot ($^1/_8$" = 1').

4. Plans may be waived for minor alterations not involving structural changes and for residential accessory buildings not over seven thousand five hundred (7,500) cubic feet in area, if sufficiently described in application.

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5. If any proposed construction includes the use of any truss(es), a truss diagram prepared and stamped by an architect or structural engineer licensed by the state of Illinois must be submitted.

6. Plans for any and all commercial and/or public buildings prepared and stamped by an architect or structural engineer licensed by the state of Illinois must be submitted.

7. Where construction is to occur within one hundred feet (100') of a designated floodplain area, the elevation of the lowest floor (including basement) of proposed building must be shown on the plans submitted to the building officer in relation to the high water elevation. No building floor shall be less than two feet (2') above the applicable high water elevation.

C. Fees: Payment of all applicable required fees must accompany any permit application.

D. Examination Of Application And Plans: Examination of any permit application and accompanying plans shall be made within a reasonable time by or under direction of building officer.

E. Action On Permit After Filing And Examination Of Application: The following action shall be taken within a reasonable time by the building officer, or his designee, on the application for a permit:

1. Permit shall be denied if plans or proposed work do not conform to requirements of this building code, or other applicable laws, ordinances, rules and regulations. Denial with reasons shall be given in writing upon request.

2. If the building officer finds that the proposed work conforms to requirements of this building code and other applicable laws, ordinances, rules and regulations, a permit shall be issued in writing to proceed with work, and one set of the approved plans and specifications, endorsed by building officer, shall be kept on the job site at all times.

3. A permit placard may be furnished with a permit and said placard or the permit itself, shall remain conspicuously posted on the premises during the course of work.

4. Upon completion of the work for which a permit is issued, the property owner and/or the property owner's agent, shall contact the building officer to schedule a final inspection of said work.

5. A certificate of occupancy shall be secured from the building officer before a building is occupied. If a final inspection of the subject property indicates that the work has been completed in accordance with the approved plans and specifications and that all construction is in compliance with this building code and said permit, the building officer shall issue the required certificate of occupancy.

6. A temporary occupancy permit may be issued by the building officer for a building or portion thereof if the building officer, at his sole discretion, finds that the condition of the building and the lighting, heating, water supply, sewage disposal, and other sanitary facilities necessary for the occupancy thereof, provide a reasonable degree of safety. Evidence or assurance of reasonably prompt completion shall be furnished by the property owner to the building officer. Said permit may be revoked if the remaining work is not diligently completed in a timely manner.

F. Nonconforming Building Or Structure:

1. Definition: An existing building or structure or part thereof not in conformance with this building code.

2. Any repair work on any nonconforming building or structure requires the submittal to the building officer of a written application for said work, together with any required submittals, and the approval by the building officer of a permit for said work. Said work shall be limited to necessary repairs only unless said building or structure or part thereof is made to conform in whole or part with the requirements of this chapter and any other applicable provisions of the village code and of the village of Lake Villa zoning ordinance.

3. Altering or enlarging of any nonconforming building or structure shall be prohibited unless the proposed alteration or enlargement shall render said building or structure to be a structure conforming with the provisions of this chapter, any other applicable provisions of the village code and of the village of Lake Villa zoning ordinance.

G. Duties And Authority Of Building Officer: The building officer shall:

1. Be responsible for the administration of this building code and other applicable provisions of this chapter and of the village of Lake Villa zoning ordinance.

2. Keep accurate records of the business and work of the building department, including, but not limited to, permit applications, survey

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plats and building plot plans, all construction plans and specifications, copies of permits and certificates issued, affidavits and certificates received, a record of inspections, copies of notices and orders issued, reports of tests made.

3. Keep any plans and specifications of building(s), structure(s) and/or accessory structure(s) until legal authority for their destruction has been granted. Survey plats and building plot plans, and those parts of plans for other buildings which may be useful for future periodic inspections, shall be kept until legal approval has been granted by the state of Illinois.

4. Make inspections of properties within the village and the structure(s) thereon, and for that purpose is hereby authorized to enter any buildings, structures, and premises within the village for the purpose of making said inspection(s).

5. Issue written stop work orders for any work being done on a premises that is contrary to the building permit issued therefor or this chapter. The building officer, or his designee, shall attempt to post such written stop work order on the premises involved and such stop work order, when posted on the premises, shall not be removed except by order of the building officer. Removal without such order shall constitute a violation of this chapter.

6. Revoke, by writing, a permit or approval issued for plans submitted and/or for work performed contrary to this chapter or based upon a false statement or misrepresentation in the application for same.

H. Hazardous Building Or Construction Condition: Upon written order of the building officer, or his designee, the owner of a property upon which there is a building or structure, or part or appurtenance thereof, or a construction site, the condition of which is found to be unsafe or hazardous for any reason shall take any necessary and lawful action to immediately correct, repair, replace, vacate, demolish or remove said hazardous building, structure, and/or condition and restore and/or put in safe condition the premises and/or work site on the premises within a reasonable period of time, as may be appropriate in each case, when such a finding has been made by the building officer in writing. Written notice of such findings and order shall be given to and/or served upon the property owner or his agent or the respective contractor, and except in emergencies, a hearing on said order may be held before the building officer upon a written request from any aggrieved party.

I. Required Notice For Inspections: The following listed inspections are required. At least twenty four (24) hours in advance of any required inspection, a property owner or his contractor shall contact the building department and request and schedule the designated inspection.

1. Footing And Setback: Inspections shall be made before poles or piers are set or after excavation for foundation or trenches and after forming for spread footings, but prior to placing concrete.

2. Damp Proofing Foundation: Inspection shall be made prior to backfilling of foundation.

3. Drain Tile: Inspection shall be made after drain tile is in place adjacent to footing, covered with #8 wash stone plus protective paper installed over the stone prior to placing any backfill adjacent to the foundation.

4. Rough Carpentry; Framing: Inspection shall be made prior to the application of any interior finish or the installation of any insulation material and before siding, etc., is applied to exteriors of building.

5. Rough Masonry: When walls are approximately one-third ($^1/_3$) up in height the ties and weep holes shall be inspected and approved by the building officer, or his designee. Where lintels are involved, the size and installation of such lintels shall be inspected and approved by the building officer, or his designee.

6. Rough Electrical: Inspection shall be made when electrical is completely roughed in and before insulation or any other materials are applied to walls or ceilings. (If partial inspection is wanted, it should be stated so.)

7. Rough Electrical In Concrete Slab: Inspection shall be made prior to the placing of concrete.

8. Rough Plumbing: Inspection shall be made when the plumbing is completely roughed in and before floor insulation or any other material if applied to walls or ceiling. (If partial inspection is wanted, it should be stated so.)

9. Rough Plumbing In Concrete Slab: Inspections shall be made prior to the placing of concrete.

10. Rough Heating And Air Conditioning: Inspection shall be made when heating or air conditioning is completely roughed in and before insulation or any other material is applied to walls or ceilings. (If partial inspection is wanted, it should be stated so.)

11. Other Inspections: In addition to the above stated inspections, the building department may make or require any other inspections to ascertain compliance with this building code and other applicable laws, rules and regulations.

12. Final Inspection (Certificate Of Occupancy): Shall be made after building is completed and ready for occupancy.

A certificate of occupancy, which shall be secured before a building is permanently occupied, is to be issued by the building officer when an inspection following the completion of the work shows that all construction is in compliance with this chapter, and any other applicable laws, rules and regulations, and the building permit which was issued therefor. A temporary occupancy permit may be issued for a building or a portion thereof if it is found that the condition of the building and the lighting, heating, water supply, sewage disposal, and other sanitary facilities necessary for the occupancy thereof provide a reasonable degree of safety and comfort. Evidence or assurance of reasonably prompt completion shall be furnished by the property owner to the building officer. Said permit may be revoked if the remaining work is not diligently completed in a timely manner.

Work shall not be done on any part of any building, structure, and/or premises beyond the point indicated in each successive inspection without first obtaining the written approval of the building officer, or his designee. Such written approval shall be given only after an inspection has been made of each successive step in the construction as indicated by each of the inspections required above. This approval shall take the form of the inspector's initials on the permit card posted on the premises.

J. Inspection Of Component Parts Of Prefabricated Structures: No closed wall construction shall be allowed. In order to permit the use of component parts in a structure erected on a site in the village which component parts are manufactured or fabricated at an off site location in such a manner as to comply fully with requirements of this chapter and the applicable provisions of the village code, but which arrive at the site of erection having inside wall covering already installed and, thus, rendering inspection thereof impossible or difficult, then, in such cases the inspection required by this

chapter at the time after the building is framed, roofed, and rough wiring and plumbing installed, but before any inside wall is installed, will be waived if the following conditions are first satisfied and the village board of trustees have given their written approval of the product:

1. Each manufacturer or manufacturer's representative shall arrange, at his expense, for the inspection by the building officer, or his designee, of the factory process involved in the fabrication of a typical model intended for sale and construction in the area under the jurisdiction of the building officer. It is necessary that this representative be afforded the opportunity of following the construction of a unit in detail as it passes through the various stages of manufacture.

2. Applicants for permits for construction shall state the name of the general contractor or other individual who is wholly responsible for the conduct of construction on the site.

3. A "master plan" for each model must be filed with the building officer incorporating all off site constructed aspects of the structure as well as its final site assembly down to the foundation.

4. The foundation plan shall include all work to be performed in the basement or crawl space area and not be limited to only those items provided by the modular home manufacturer. Additionally, this plan is not to be a "typical" foundation plan, but rather one prepared for the particular site to be occupied by the home.

5. All provisions of this chapter, as well as any other applicable laws, rules, and regulations shall be applicable to such prefabricated construction.

6. Each residential unit shall be constructed with a minimum of one frost proof hose bib conveniently located on the exterior of house. A complete plumbing riser diagram for both supply and drain waste and vent in isometric on the plans shall be provided to the building officer. This diagram must indicate sizes and materials.

7. A photographic record showing electrical and plumbing details shall be provided to the building officer.

8. The building officer shall be contacted at least twenty four (24) hours in advance of the arrival of a modular unit at any construction

site, and at that time detailed information regarding setting schedule shall also be provided to the building officer, or his designee.

9. A certificate of approval by an applicable approving agency shall be furnished with each prefabricated assembly, except where all elements of the assembly are readily accessible to inspection at the site. Placement of the prefabricated assemblies at the building site shall be inspected by the building officer to determine compliance with this chapter in all its aspects, and a final inspection shall be provided in accordance with subsection J11 of this section.

10. The contractor or other individual obtaining the permit for the transportation into the village and the erection and/or installation of a prefabricated unit will be held responsible once the unit arrives in the village for its total disposition including the arrangement for its immediate removal from the right of way once the unit arrives at the site. It is incumbent upon this individual to make adequate arrangements with the manufacturer and/or carrier to assure that roads and other property are not damaged while the unit is in transit through the village to the site, and further make arrangements for the immediate disposition of the unit at the construction site.

11. Every prefabricated residential unit shall have a state of Illinois certification approval, a copy of which must be presented/provided to the building officer before any occupancy of said structure. In all cases, the village board of trustees must approve the residential unit before an occupancy permit is issued.

K. Alternate Materials: The provisions of this chapter are not intended to prevent the use of any material or method of construction not specifically prescribed by this chapter, provided any such alternate materials and/or method has been approved in writing by the building officer, or his designee, prior to the commencement of any construction. The building officer may approve any such alternate materials and/or method provided he finds that the proposed design is satisfactory and complies with the accepted design criteria. The building officer may require that evidence or proof be submitted to substantiate any claims that may be made regarding its use. (Ord. 2008-09-01, 9-24-2008)

8-1-14: **DEFINITIONS:** For the purpose of this chapter, certain abbreviations, terms, phrases, words, and their derivatives shall be construed as defined in this section. Words used in the masculine gender include the feminine; and the feminine, the masculine.

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ACCEPTED ENGINEERING PRACTICE:	That which conforms to accepted principles, tests, or standards of nationally recognized technical or scientific authorities.
ACCESSORY STRUCTURE:	A building the use of which is incidental to that of the main building and which is located on the same lot.
ADDITION:	An extension or increase in floor area or height of a building or structure.
AIR CONDITIONING:	The treatment of air so as to control simultaneously its temperature, humidity, cleanness and distribution to meet the requirements of a conditioned space.
AIR DUCT:	A tube or conduit used for conveying air.
APARTMENT:	A dwelling unit within a building containing more than one dwelling unit sometimes having a common entrance to a common hallway.
APPROVED:	Approval by the building officer, or his designee, as the result of investigation, inspection and/or tests conducted by him, or by reason of accepted principles or tests by nationally recognized organizations.
APPROVED AGENCY:	An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when the building officer has approved such agency.
APPROVED MATERIAL, EQUIPMENT, AND METHODS:	Material, equipment and methods evaluated and approved by the building officer.
ATTIC:	The space between the ceiling beams of the top habitable story and the roof rafters.
ATTIC (HABITABLE):	A habitable attic is an attic which has a stairway as a means of access and egress and in which the ceiling area at a height of seven and one-third feet ($7^1/_3$') above the attic floor is not more

than one-third ($^1/_3$) the area of the floor next below.

AUTOMATIC DETECTING DEVICE: A device which automatically detects heat, smoke, carbon monoxide or other products of combustion.

BALCONY: An exterior floor projecting from and supported by a structure without additional independent supports.

BASEMENT: That portion of a building which is partly below and partly above grade, and having at least one-half ($^1/_2$) of its height above grade. (See definitions of Grade, Story and Cellar.)

BUILDING: Any one- and two-family dwelling or portion thereof, which is used, or designed or intended to be used for human habitation, for living, sleeping, cooking, or eating purposes or any combination thereof and shall include structures accessory thereto.

BUILDING (EXISTING): Existing building is a building erected prior to the adoption of this chapter, or one for which a legal building permit has been issued.

BUILDING OFFICER: The officer or other designated authority charged with the administration and enforcement of this building code, or his duly authorized representative.

BUILDING SERVICE EQUIPMENT: The mechanical, electrical, plumbing and elevator equipment, including piping, wiring, fixtures and other accessories, which provide sanitation, lighting, heating, ventilation, fire-fighting and transportation facilities essential for the habitable occupancy of the building or structure for its designated use and occupancy.

BUILDING SITE: The area occupied by a building or structure, including the yards and courts required for light and ventilation, and such areas that are

prescribed for setbacks and/or access to the street.

CEILING HEIGHT: Ceiling heights shall be the clear vertical distance from the finished floor to the finished ceiling.

CELLAR: That portion of a building which is partly or completely below grade and having at least one-half ($^1/_2$) of its height below grade. (See definitions of Grade, Story and Basement.)

CERTIFICATE OF USE AND OCCUPANCY: The certificate issued by the building officer which permits the use and/or occupancy of a building which has been completed in accordance with the approved plans and specifications therefor and which certifies compliance with the provisions of law for the use and occupancy of the building in its several parts together with any special stipulations or conditions of the building permit.

CHANGE OF USE: An alteration by change of use in a building heretofore existing to a new use group which imposes other special provisions of law governing building construction, equipment or means of egress.

CHIMNEY: A primarily vertical enclosure containing one or more passageways for conveying gas products of combustion to the outside atmosphere.

Factory Built Chimneys: A chimney that is composed of listed and labeled factory built components assembled in accordance with the manufacturer's installation instructions to form the completed chimney and listed by a nationally recognized testing or inspection agency, for venting gas appliances, gas incinerators and solid or liquid fuel burning appliances.

Masonry Chimney: A field constructed chimney of solid masonry units, bricks, stones, listed hollow masonry units or reinforced concrete lined with a suitable

chimney flue liner and built in accordance with nationally recognized standards.

Metal Chimney (Smokestack): A field constructed chimney made of metal and built in accordance with nationally recognized standards.

CHIMNEY CONNECTOR: A pipe which connects a fuel burning appliance to a chimney.

COMBUSTIBLE (MATERIAL): Applies chiefly to material which is of a nature that it catches fire easily and usually burns quickly. Any material not listed or identified as noncombustible by a nationally recognized testing or inspection agency or this building code.

CONCRETE: A mixture of cement, aggregates and water, of such proportions and manipulation as to meet specific requirements.

CONCRETE MASONRY UNIT: A building unit or block larger in size than twelve feet by four feet by four inches (12' x 4' x 4") made of cement and suitable aggregates.

CONFLAGRATION HAZARD: The fire risk involved in the spread of fire by exterior exposure to and from adjoining buildings and structures.

CONSTRUCTION EQUIPMENT: The vehicles, machinery, tools, derricks, hoists, scaffolds, platforms, runways, ladders and all material handling equipment, safeguards and protective devices used in construction operations.

CONSTRUCTION OPERATION: The erection, alteration, repair, renovation, demolition or removal of any building or structure; including, but not limited to, the excavation, filling, grading and regulation of land in connection therewith.

CONTROLLED MATERIALS: Materials which are certified by an accredited authoritative agency as meeting accepted

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engineering standards for quality and as provided in the 2006 international building code or current adoption.

COURT: A space, open and unobstructed to the sky, located at or above grade level on a lot and bounded on three (3) or more sides by walls or a building.

CRAWL SPACE: An uninhabitable area located beneath the bottom of floor joists and the ground below.

DEAD LOADS: The weight of all materials of construction incorporated into the building, including, but not limited to, walls, floors, roofs, ceilings, stairways, built-in partitions, finishes, cladding, and other similarly incorporated architectural and structural items, and fixed service equipment.

DECK: An exterior floor system supported on at least two (2) opposing sides by an adjoining structure and/or posts, piers, or other independent supports.

DRAFT: The pressure difference existing between the equipment or any component part and the atmosphere which causes a continuous flow of air and products of combustion through the gas passages of the appliance to the atmosphere.

Forced Draft: The pressure difference created by the action of a fan, blower or ejector which supplies the primary combustion air above atmospheric pressure.

Induced Draft: The pressure difference created by the action of a fan, blower or ejector which is located between the appliance and the chimney or vent termination.

Natural Draft: The pressure difference created by a vent or chimney due to its height and the temperature difference between the flue gases and the atmosphere.

DRAFT HOOD: A device built into a gas appliance or made a part of a chimney connector or vent connector from a gas appliance which is designed to:

A. Permit the ready escape of flue gases in the event of zero draft, a backdraft or stoppage in the vent beyond the draft hood;

B. Permit the ready relief of the back pressure from a backdraft so it does not enter the gas appliance; and

C. Neutralize the possible effects of excess draft (stack action) upon the operation of the appliance.

DRAFT REGULATOR: A device which functions to maintain a desired draft in the appliance by automatically reducing the draft to the desired value.

DRAFT STOP: A material, device or construction installed to restrict the movement of air within open spaces of concealed areas of building components such as crawl spaces, floor/ceiling assemblies, roof/ceiling assemblies and attics.

DUCT: A tube or conduit used for conveying or encasing purposes as specifically defined below:

Air Duct: A tube or conduit used for conveying air. The air passages of self-contained systems are not to be construed as air ducts.

Pipe Duct: A tube or conduit used for encasing pipe.

Wire Duct: A tube or conduit used for encasing either moving or stationary wire, rope, etc.

DUMBWAITER: A hoisting and lowering mechanism with a car of limited capacity and size which moves in guides in a substantially vertical direction and is used exclusively for carrying material.

DWELLING:	A building, exclusive of mobile homes, recreational vehicles, hotels, and motels as herein defined, containing as the principal use one or more dwelling units.
DWELLING, GROUP:	A building, exclusive of mobile homes, recreational vehicles, hotels, or motels, as herein defined, providing, as a minimum, living, sleeping, and toilet facilities for more than three (3) persons not comprising a family.
DWELLING, SINGLE-FAMILY:	A dwelling containing one dwelling unit.
DWELLING, TWO-FAMILY:	A dwelling containing two (2) dwelling units each with completely separate entrances.
DWELLING UNIT:	A room or group of rooms, providing living quarters for not more than one family.
DWELLING UNIT, ATTACHED:	A dwelling unit in a building having a principal use other than as a residence.
ELECTRICAL EQUIPMENT:	All installations of electrical conductors, fittings, devices and fixtures within or on public and private buildings.
ELECTRICAL SERVICE EQUIPMENT:	The equipment located at a point of entrance of supply conductors to a building which constitutes the main control of supply and means of cutoff of electricity, including circuit breaker, switches, fuses and electrical accessories.
ELEVATOR:	Hoisting and lowering mechanism equipment with a car or platform which moves in guides for the transportation of individuals or freight in a substantially vertical direction through successive floors or levels of a building or structure.
Freight Elevator:	A freight elevator primarily used for carrying freight on which only the operator and the

	persons necessary for loading and unloading and employees are permitted to ride.
Hand Elevator:	A freight elevator that is driven by manual power.
Hydraulic Elevator:	A power elevator in which the motion of the car is obtained through the application of force from liquid under pressure.
Passenger Elevator:	An elevator for the transportation of individuals.
Power Elevator:	An elevator in which the motion of the car is obtained through the application of force other than by hand or obtained through gravity.
Sidewalk Elevator:	A freight elevator which operates between a sidewalk or other area exterior to the building and floor levels inside the building below such area, which does not have a landing opening into the building at its upper limit of travel and which is not used to carry automobiles.
ELEVATOR REPAIRS:	All work necessary to maintain present elevator equipment in a safe and serviceable condition and to adjust or replace defective, broken or worn parts, with parts made of equivalent material, strength and design, and only where the replacing part performs the same function as the replaced part.
EMERGENCY ESCAPE AND RESCUE OPENING/ WINDOW:	An operable window, door or similar device that provides for a means of escape and access for rescue in the event of an emergency.
EXISTING BUILDING:	A building erected prior to the adoption of this building code, or one for which a legal building permit has been issued.
EXISTING EQUIPMENT:	Any equipment covered by this chapter which was installed prior to the effective date of this code or for which an application for permit to install was filed with the building officer prior thereto.

EXITWAY:	That portion of a means of egress which is separated from all other spaces of a building or structure by construction or equipment as required in this code to provide a protected way of travel to the exitway discharge.
EXITWAY ACCESS:	That portion of a means of egress which leads to an entrance to an exitway.
EXITWAY DISCHARGE:	That portion of a means of egress between the termination of an exitway and a public space.
EXITWAY DISCHARGE COURT:	An exterior unoccupied space which is open to the sky for its entire area, located on the same lot with a theater or other assembly building which it serves exclusively as an unobstructed passageway to the street or other public space.
FAMILY:	An individual or two (2) or more persons related by blood, marriage, or law, or a group of not more than three (3) persons (excluding servants), who need not be so related, living together in a dwelling unit.
FIRE GRADING:	The fire hazard classification of a building or structure in hours or fractions of an hour established for its use group and occupancy.
FIRE RESISTANCE:	That property of materials or their assemblies which prevents or retards the passage of excessive heat, hot gases or flames under conditions of use.
FIRE RESISTANT RATING:	The time in hours or fractions thereof that materials or their assemblies will resist fire exposure as determined by fire tests conducted in compliance with recognized standards.
FIRE SEPARATION, EXTERIOR FIRE EXPOSURE:	The distance in feet measured from any other building on the site, or from an interior lot line, or from the opposite side of a street or other public space to the building.

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FIRE SEPARATION WALL:	A fire resistance rated assembly of materials not having unprotected openings, designed to restrict the spread of fire.
FIREWALL:	A fire resistance rated wall, having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof.
FLAME RESISTANCE:	The property of materials or combinations of component materials which restricts the spread of flame as determined by the flame resistance tests specified in this chapter.
FLAME SPREAD:	The propagation of flame over a surface.
FLAME SPREAD RATING:	The measurement of flame spread on the surface of materials or their assemblies as determined by tests conducted in compliance with recognized standards.
FLAMMABLE:	Subject to easy ignition and rapid flaming combustion.
FLEXIBLE TUBING:	A gas conduit other than that formed by a continuous one piece metal tube.
FLOOR FILL:	The fill between the structural floor arch or slab and the finished flooring.
FLUE:	A passage for conveying flue gases from fuel fired appliances or their vent connectors, to the outside atmosphere.
FOUNDATION WALL:	A wall below the floor nearest grade serving as a support for a wall, pier, column or other structural part of a building.
FUEL OIL:	A liquid mixture or compound derived from petroleum which does not emit flammable vapor below a temperature of one hundred twenty five degrees Fahrenheit (125°F) in a tag closed cup tester (ASTM D56).

FURNACE:	
Floor Furnace:	A self-contained, connected or vented furnace designed to be suspended from the floor of the space being heated taking air for combustion outside the space being heated.
Forced Warm Air Furnace:	A furnace equipped with a blower to provide the primary means for circulating air.
Warm Air Furnace:	A solid, liquid or gas fired appliance for heating air to be distributed with or without duct systems to the space to be heated.
GRADE:	A reference plane representing the average of finished ground level adjoining the building at all exterior walls.
HABITABLE ROOM:	Any room meeting the requirements of this chapter for sleeping, living, cooking or dining purposes excluding such enclosed places as closets, pantries, bath or toilet rooms, hallways, laundries, storage spaces, utility rooms, and similar spaces.
HABITABLE SPACE, MINIMUM HEIGHT:	A clear height from finished floor to finished ceiling of not less than seven and one-half feet ($7^1/_2$'), except that in attics and top half stories the height shall be not less than seven and one-third feet ($7^1/_3$') over not less than one-third ($^1/_3$) the area of the floor when used for sleeping, study or similar activity.
HABITABLE SPACE, MINIMUM SIZE:	A space with a minimum dimension of seven feet (7') and a minimum area of eighty (80) square feet, between enclosing walls or partitions, exclusive of closet and storage spaces.
HANDRAIL:	A horizontal or sloping rail intended for grasping by the hand for guidance or support.

HEATING APPLIANCE: Any device designed or constructed for the generation of heat from solid, liquid or gaseous fuel or electricity.

Recessed Heater: A completely self-contained heating unit usually recessed in a wall and located entirely above the floor of the space it is intended to heat.

Unit Heater: A factory assembled device designed to heat and circulate air. Essential components are a heat transfer element, housing and fan with driving motor. Normally designed for free delivery of recirculated air.

HEIGHT, BUILDING: The vertical distance from the grade to the top of the highest roof beams of a flat roof, or to the mean level of the highest gable or slope of a hip roof. When a building faces on more than one street, the height shall be measured from the average of the grades at the center of each street front.

Court: The vertical distance from the lowest level of the court to mean height of the top of the enclosing walls.

Story: The vertical distance from top to top of two (2) successive tiers of beams or finished floor surfaces; and, for the topmost story from the top of the floor finish to the top of the ceiling joists, or where there is not a ceiling, to the top of the roof rafters.

Wall: The vertical distance from the foundation wall or other immediate support of such wall to the top of the wall.

HOT WATER: Water at a temperature of not less than one hundred twenty degrees Fahrenheit (120°F).

HOTEL: A building designed for transient occupancy containing rooms or suites accessible from a common hall or entrance, providing living, sleeping, and toilet facilities; a general kitchen and a dining room may be provided.

INDIVIDUAL SEWER (SEPTIC) DISPOSAL SYSTEM:	A system for disposal of sewage by means of a septic tank or mechanical treatment, designed for use apart from a public sewer to serve a single establishment or building.
INDIVIDUAL WATER (WELL) SUPPLY:	A supply other than an approved public water supply that serves one or more families.
JURISDICTION:	The government unit which has adopted this chapter under due legislative authority.
KITCHEN:	An area used, or designed to be used, for the preparation of food.
LISTED AND LISTING:	Terms referring to equipment which is shown in a list published by an approved testing agency qualified and equipped for the conduct or supervision of experimental testing and maintaining an adequate periodic inspection of current productions and whose listing shows that the equipment complies with the provisions set forth in this chapter.
LIVING SPACE:	Space within a dwelling unit utilized for living, sleeping, eating, cooking, bathing, and washing and sanitation purposes.
LOADS, LIVE AND DEAD:	Dead loads are the weight of the walls, partitions, framing, floors, ceilings, roofs and all other permanent stationary construction entering into and becoming a part of the building. Live loads are all loads except dead and lateral loads.
MOBILE HOME:	Any vehicle or similar portable structure designed, used or so constructed or modified so as to permit its being used as a dwelling for one or more persons.
MOTEL:	A building designed for transient occupancy containing rooms or suites with separate entrances, providing living, sleeping, and toilet facilities.

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MULTIPLE STATION SMOKE DETECTORS:	Two (2) or more smoke detectors, which are capable of interconnection such that the actuation of one causes all separate audible alarms to operate.
O.C.:	On center.
OCCUPANCY:	The purpose for which a building, or part thereof, is used or intended to be used.
OCCUPIED SPACE:	The total area of all buildings or structures on any lot or parcel of ground projected on a horizontal plane excluding permitted projections as allowed by this chapter.
OWNER:	Any person, agent, firm or corporation having a legal or equitable title to and/or interest in the property.
PERMIT:	An official document or certificate issued by the authority having jurisdiction authorizing performance of a specified activity.
PERSON:	Shall mean and include any individual, corporation, partnership, association, or any other legal entity.
PLATFORM CONSTRUCTION:	A method of construction by which the floor framing bears on load bearing walls that is not continuous through the story levels or floor framing.
PREFABRICATED:	Construction materials or assembled units fabricated prior to erection or installation in a building or structure.
PREFABRICATED BUILDING:	The completely assembled and erected building or structure, including the service equipment, of which the structural parts consist of prefabricated individual units or subassemblies using ordinary or controlled materials; and in which the service equipment may be either prefabricated or at site construction.

PREFABRICATED SUBASSEMBLY:	A built up combination of several structural elements designed and fabricated as an assembled section of wall, ceiling, floor or roof to be incorporated into the structure by field erection of two (2) or more such subassemblies.
PREFABRICATED UNIT:	A built up section forming an individual structural element of the building, such as a beam, girder, plank, strut, column or truss, the integrated parts of which are prefabricated prior to incorporation into the structure, including the necessary means for erection and connection at the site to complete the structural frame.
PREFABRICATED UNIT SERVICE EQUIPMENT:	A prefabricated assembly of mechanical units, fixtures and accessories comprising a complete service unit of mechanical equipment, including bathroom and kitchen plumbing assemblies, unit heating and air conditioning systems and loop wiring assemblies of electric circuits.
PRESERVATIVE TREATMENT (TREATED MATERIAL):	Unless otherwise noted, is impregnation under pressure with a wood preservative. Wood preservative is any suitable substance that is toxic to fungi, insects, borers, and other living wood destroying organisms.
PROFESSIONAL ENGINEER OR ARCHITECT:	An individual technically and legally qualified to practice the profession of engineering or architecture.
PUBLIC SEWER:	A common sewer directly controlled by a public authority.
RAMP:	A walking surface that has a running slope steeper than one unit vertical in twenty (20) units horizontal. Maximum slope for a handicap ramp shall be one unit vertical in twelve (12) units horizontal.
REGISTERED DESIGN PROFESSIONAL:	An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the

	professional registration laws of the state of Illinois.
REPAIR:	The reconstruction or renewal of any part of an existing building for the purpose of its maintenance.
REROOFING:	The process of recovering or replacing an existing roof covering.
REQUIRED:	Shall be construed to be mandatory by provisions of this chapter.
RETURN AIR:	Air removed from an approved conditioned space or location and recirculated or exhausted.
SHALL:	The term, when used in this chapter, shall be construed as mandatory.
SMOKE DETECTOR:	An approved, listed detector sensing visible or invisible particles of combustion.
SOLID MASONRY:	Masonry consisting of solid masonry units laid contiguously with the joints between the units filled with mortar, or consisting of plain concrete.
SOLID MASONRY UNIT:	A masonry unit whose net cross sectional area in every plane parallel to the bearing surface is seventy five percent (75%) or more of its gross cross sectional area measured in the same plane.
STAIRWAY:	One or more flights of stairs, and the necessary landing and platforms connecting them, to form a continuous and uninterrupted passage from one floor to another. A flight of stairs, for the purpose of this chapter, must have at least three (3) risers.
STORY:	That portion of a building included between the upper surface of a floor and upper surface of the floor or roof next above except that topmost story shall be that habitable portion of a building

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included between the upper surface of the topmost floor and the ceiling or roof above.

STORY ABOVE GRADE: Any story having its finished floor surface entirely above grade, except that a basement shall be considered as a story above grade where the finished surface of the floor above the basement is:

A. More than six feet (6') above grade.

B. More than six feet (6') above the finished ground level for more than fifty percent (50%) of the total building perimeter.

STRUCTURE: That which is built or constructed.

TOWNHOUSE: A dwelling containing more than two (2) dwelling units each having a complete separate entrance at ground level.

TRUSS DESIGN DRAWING: The graphic depiction of an individual truss, which describes the design and physical characteristics of the truss.

UTILITY ROOM: Room or area enclosed or unenclosed where major housekeeping appliances, laundry facilities and water heating devices are located.

VENEERED WALL: A wall having a facing of masonry or other weather resisting noncombustible materials securely attached to the backing but not so bonded as to exert common action under load.

WALLS: Shall be defined as follows:

Load Bearing: A wall supporting any vertical load in addition to its own weight.

Nonload Bearing: A wall, which does not support vertical loads other than its own weight.

WINDOW: A glazed opening, including portions of glazed door.

YARD: An open, unoccupied space, other than a court, unobstructed from the ground to the sky, except where specifically provided by this chapter, on the lot on which a building is situated. (Ord. 2008-09-01, 9-24-2008)

8-1-15: **APPEALS:** An appeal may be made to the village of Lake Villa zoning board of appeals hereinafter called "zoning board", by any person aggrieved from any order, requirement, decision or determination made by the building officer related to any of the provisions of this title. Within fifteen (15) days of the date of the action which is being appealed, an aggrieved party must file with the building officer and with the zoning board a notice of appeal, specifying the grounds thereof. The zoning board shall thereupon set a reasonable date, time, and place certain for a hearing of said appeal, and shall cause written notice thereof to be mailed to the appealing party, or his attorney, and to the building officer.

The zoning board may reverse or affirm, in whole or in part, or may modify the order, requirement, decision or determination of the building officer, and to that end shall have all the powers of the building officer.

The concurring vote of five (5) members of the zoning board shall be necessary to reverse, in whole or in part, or to modify, any orders, requirements, decisions or determinations of the building officer.

The zoning board shall keep minutes of its proceedings hereunder, showing the vote of each member upon every question, or, if absent or failing to vote, indicating such fact, and shall keep records of its examinations and other official actions.

All decisions of the zoning board hereunder shall be reduced to writing and filed in the office of the village clerk, and a copy thereof mailed to the appealing party and to the building officer. (Ord. 2008-09-01, 9-24-2008)

8-1-16: **PENALTIES:** Any person who shall violate any of the provisions of this title shall, upon conviction, be fined not less than two hundred dollars ($200.00) nor more than seven hundred fifty dollars ($750.00) for each violation. A separate offense shall be deemed to occur for each day a violation occurs or continues. "Person", for the purposes of this chapter, shall mean and include any individual, corporation, partnership, association, or any other legal entity. (Ord. 2008-09-01, 9-24-2008)

CHAPTER 2

ONE- AND TWO-FAMILY DWELLING CODE MINIMUM PLANNING REQUIREMENTS

SECTION:

8-2-1: **SCOPE AND GUIDELINES:** The following rules and regulations shall be applicable to all buildings and structures and portions thereof used for single-family residences, not over two (2) stories and an attic in height; duplex houses; two (2) units side by side; two-family apartments not over two (2) stories in height; buildings customarily accessory to the foregoing; and residential portions of office, store, and other business buildings, not higher than the second floor, subject to such additional requirements as may apply to such buildings; and the following rules and regulations. (Ord. 2008-09-01, 9-24-2008)

8-2-2: **LIGHT AND VENTILATION:**

A. General:

1. Install windows in outside walls to provide natural light and ventilation in all habitable rooms.

2. Windows in habitable rooms, whose areas provide the light and ventilation necessary to comply with the following requirements, are

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considered required windows. All windows in addition to these, and also windows in rooms other than habitable rooms, are considered nonrequired windows.

3. The area of glazed portions of doors located in exterior walls may be included when necessary in determining compliance with the above requirements.

4. Provide natural light and ventilation in all rooms, as required below.

B. Habitable Rooms: Habitable rooms are rooms designed to be used for living, sleeping, eating, or cooking.

1. Total glass area, including glass walls, glass blocks, windows and exterior glazed doors, not less than eight percent (8%) of floor area of room. Ventilating area, not less than four percent (4%) of floor area of room. Under covered porches, increase area to not less than six percent (6%) of floor area of room. Kitchens shall be provided with natural light of not less than seven percent (7%) of floor area, including area occupied by equipment. Under covered porches adjacent to kitchen, increase glass floor area of kitchen. Ventilation area in kitchen shall be not less than 3.5 percent of entire floor area of room. When kitchen is not located on outside wall, artificial lighting may be used.

2. Forced ventilation or air conditioning may be substituted if it provides one complete air change every thirty (30) minutes.

C. Borrowed Light And Ventilation Between Rooms:

1. Unless separately lighted and ventilated by windows which provide the required areas, the floor area of two (2) habitable rooms may be combined in computing required light and ventilation areas.

2. The common wall between such rooms shall contain an opening, the area of which shall be not less than sixty percent (60%) of the area of the wall separating these rooms.

D. Bathroom And Water Closet Compartments:

1. Window in an exterior wall or skylight. Glass area for bathroom only, minimum of eight percent (8%) of floor area but not less than three (3) square feet or artificial lighting may be used.

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2. The ventilating area must be a minimum of four percent (4%) of the floor area or gravity or mechanical exhaust connected to outside louvered vent must be installed. Vents must be in or near ceiling. Minimum duct dimension for gravity ventilation, three and one-half inches ($3^1/_2$"); minimum area thirty five (35) square inches. For mechanical ventilation exhaust one CFM per each square foot of floor area.

E. Basements: Basements provide light and ventilation by windows or doors in exterior walls, with both glazed and ventilating area, not less than two percent (2%) of the floor area. An escape access is required (see subsection 8-2-4C of this chapter).

F. Recreation Rooms: Recreation rooms provide light and ventilation by windows or glazed doors in exterior walls.

1. When located in a separately enclosed space in the basement, the glazed and ventilating area shall be not less than four percent (4%) of floor area. Artificial lighting and ventilating can be substituted.

2. When located above basement level, glazed area shall not be less than eight percent (8%) of floor area, ventilating area not less than four percent (4%) of floor area.

3. Provided, that an air exhaust of one-half ($^1/_2$) CFM per each square foot of floor area may be substituted.

G. Utility Rooms: A utility room is a room or area enclosed or unenclosed where major housekeeping appliances, laundry facilities, and sometimes including water heating devices, are located.

1. Windows or doors, in exterior walls with ventilating area not less than four percent (4%) of floor area, or

2. Duct or ducts to outside area, minimum total free area two percent (2%) of floor area.

3. Laundry chutes and dumbwaiters shall be provided with self-closing doors or dampers.

H. Heater Rooms:

1. Required Combustion Air: The required combustion air provides fixed combustion air to any confined space which encloses heating

equipment by means of ducts arranged to supply air from outside of the confined space. Ducts shall be located: one 12-inches from the top of the space and one 12-inches from the bottom of the space and sized based on the Btu input rating of all equipment located in the space.

Exception: Louvered door may be substituted for the required ducts provided that the louvered door has sufficient openings and the adjacent space is large enough to provide the required combustion air supply.

2. Screening: Duct shall be screened and have free area at least equal to free area of flues or vents to which the equipment is connected. Other requirements pertaining to heating requirements see NFPA pamphlet no. 31 for oil and "Metalbestos Gas Vent And Chimney Sizing Handbook".

I. Basementless Spaces (Crawl Spaces): Area beneath the bottom of floor joists and the ground below.

1. Provide a sufficient number of foundation wall vents to assure a total ventilating area equivalent to one square foot for each fifteen (15) linear feet of exterior wall.

2. Number of vents, minimum of two (2).

3. Locate vents to provide cross ventilation wherever possible.

4. No vents required for crawl spaces, one side of which, exclusive of structural supports such as piers, chimney foundations, etc., is to open to a ventilated basement, provided the total area of ventilating openings is two percent (2%) of the basement area plus the area of the basementless space.

5. In each vent opening install corrosion resistant screening, maximum one-eighth inch ($^1/_8$").

6. Crawl space depth minimum twenty four inches (24") between bottom of floor joists and/or girders and finish ground area below (see subsection 8-3-2F3 of this title).

J. Attics And Air Space Between Ceiling And Flat Roofs:

1. To eliminate the problem of moisture condensation on roof framing in cold weather and to permit the escape of heat in hot

weather, screened ventilation of all attic and air spaces between ceiling and flat roofs is required.

2. Provide effective fixed ventilation in all spaces between roofs and top floor ceilings by replaceable or nonferrous screened louvers.

3. Net ventilation area for each separate space to be not less than one-three hundredths ($^1/_{300}$) of area of house at top plate. Where possible, locate vents to provide effective cross ventilation (see section 8-3-24, figure A-1, of this title).

4. For flat roofs, blocking and bridging shall be arranged as to not cause interference with the movement of air. (Ord. 2008-09-01, 9-24-2008)

8-2-3: MINIMUM SPACE REQUIREMENTS:

Apartment minimum size	1 bedroom, 540 square feet; 2 bedroom, 600 square feet
Additional habitable room	80 square feet
Duplexes minimum size	750 square feet each unit, total of 1,500 square feet

A. Living Unit: A living unit shall provide at least one bathroom, one bedroom, and space for living, dining, cooking, storage, utility, and heating, as follows:

1. Living: Living, dining and cooking, when in one room, including area occupied by equipment, minimum area: two hundred twenty (220) square feet; living, dining, when in one room, minimum area: one hundred eighty (180) square feet; living only in one room, when dining space is provided in kitchen or separate room, minimum area: one hundred sixty (160) square feet; kitchen, cooking only, including area occupied by equipment, minimum area: sixty (60) square feet; provide at least thirty (30) square feet additional area usable for dining purposes when dining space is included in the kitchen.

2. Sleeping: At least one bedroom shall be provided, separate from other spaces, with a minimum area of one hundred (100) square feet. When additional bed is provided and is located in living room, area of living room shall be a minimum of two hundred fifty (250)

square feet, or a bed storage closet or alcove containing not less than thirty (30) square feet shall be provided.

3. Bathroom: Bathroom size shall be adequate for water closet, lavatory, and tub or shower. The water closet may be located in a separate compartment adjoining the bathroom. Every water closet, bathtub or shower required by this chapter shall be installed in a room which will afford privacy to the occupant. Each water closet compartment shall be not less than thirty inches (30") in width and there shall be not less than twenty one inches (21") clear space in front of each water closet. Shower compartment floors and walls shall be finished with a smooth, hard, and nonabsorbent surface to a height of not less than six feet (6') above the floor. Doors and panels of shower and bathtub enclosures shall be substantially constructed from approved shatter resistant materials. Glazing in doors and panels of shower and bathtub enclosures shall comply with the requirements set forth in section 8-3-24, table no. 2-A, of this title. In no case shall a water closet be installed without a lavatory in close proximity.

4. Size: In no case can a single-family dwelling be less than one thousand two hundred (1,200) square feet.

B. Additional Habitable Rooms (See Subsection 8-2-2B Of This Chapter): Minimum floor area shall be eighty (80) square feet.

C. Storage Space:

1. Volume: Minimum volume of storage space shall be: two hundred fifty (250) cubic feet, unless basement or attic storage is provided.

2. Height: Space less than four feet (4') in clear height will not be considered as providing storage space under these requirements.

3. Allowable Space: Bedroom closet space must be not less than ten (10) square feet per bedroom. Bedroom closet space in excess of ten (10) square feet per bedroom may be included as storage space. That portion of utility or heater rooms, which is necessary for equipment, fuel storage, passage, and work space, may not be included as storage space. Portions of attached garage, in addition to the area for vehicle storage, may be considered as storage space.

4. Hallways: Hallways shall have a minimum width of three feet (3') between finished walls.

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D. Space For Heating Units:

1. Space shall be provided within the building for heating unit or system.

2. Such space for heating units shall provide clearances for maintenance and repair.

3. Such space for heating units shall provide clearances for fire safety, determined by insulation of heater and combustibility of walls, floor, and ceiling. Heat generated shall not raise the surface temperature of combustible walls, floor, or ceiling above one hundred sixty degrees Fahrenheit (160°F). Also provide clearance as per manufacturer's specifications.

4. Heating unit in basement, minimum requirement one and three-eighths inches ($1^3/_8$") hollow core door at top or bottom of stairs unless unit is completely enclosed and a door is installed in basement area. One-half inch ($^1/_2$") sheetrock shall be applied to the exterior studs of heating unit partition only.

E. Heating Requirements:

1. Heating Unit Capabilities: A heating unit capable of heating dwelling from minus ten degrees (-10°) to seventy two degrees Fahrenheit (72°F) shall be provided: fifteen (15) miles per hour outside wind with heat loss calculated in accord with American Society of Heating and Ventilating Engineers standards.

2. Heating Unit Construction: Heating unit shall be constructed and installed in strict accordance with the applicable current published standard requirements and recommendations of the National Fire Protective Association, National Board of Fire Underwriters, American Standards Association, and the American Society of Mechanical Engineers. Labeling and listing by the following shall be accepted as conforming to equipment design standards: Underwriters Laboratories, Inc., American Gas Association, or American Society of Mechanical Engineers.

3. Clearance: Clearance shall be provided for all heating equipment for access, repair and maintenance.

4. Smoke Pipes: Smoke pipes where extreme heat is hazardous to human occupancy shall be insulated from furnace to chimney with a fire resistance rating material.

5. Insulation: Insulation of all heat producing devices shall be such that temperature rises of surrounding frame construction will not exceed one hundred sixty degrees Fahrenheit (160°F).

6. Equipment:

a. Every gravity or forced air warm air heating plant shall be figured on the basis of the manufacturer's capacity rating and is to be sized as prescribed herein.

b. The heating plant shall be placed to give adequate accessibility to all mechanical parts and the placement of said heating plant shall adhere to the recommendations of the National Fire Protection Association governing all clearances to flammable substances.

c. Fuel oil storage tanks, where required, shall be placed no less than seven feet (7') from the warm air heating plant, or as prescribed by the National Fire Protection Association.

7. Supply Lines:

a. Supply lines from the furnace to the register may be round or rectangular. There shall be no standardization in the size of supply lines when differentials of requirements occur. Each supply line, whether extending directly from the mixing chamber or from extended master duct, shall be sized in accordance with CFM requirements.

b. When the warm air heating system is designed with a main supply line or main duct, which in turn supplies heated air for the branch supply lines or branch ducts leading to various rooms, this main supply line shall be of sufficient size to bring enough warm air to adequately feed all branches connected to it.

Beginning at the extreme end of any main supply line, the said main supply line shall increase in size and capacity as each branch is added to it. The required increased capacity of the main supply line is equal to the capacity of the branch supply line, plus ten percent (10%). The aforesaid rules of installation concerning trunk and branch sizes of supply lines must be followed so as to avoid the undersizing of supply lines and ducts and to prevent the air in said supply lines and ducts from becoming hotter than required; thereby preventing overheating in the supply lines and ducts.

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As a further means to ensure against overheating, all warm air heating plants shall be equipped at the bonnet with a limit switch, which will put the heater out of operation whenever bonnet temperature reaches two hundred degrees (200°) on a forced air system or when it reaches three hundred seventy degrees (370°) on a gravity system.

c. All supply lines extending into or through unheated areas shall be insulated.

d. Full pressure or semipressure supply lines shall be permitted. When such supply lines are used, each branch must be supplied with a damper in an accessible position and said damper shall indicate "open" and "shut" position.

e. Where buried supply lines are employed for perimeter systems, access shall be provided for periodic cleaning. Supply lines so installed shall be insulated and protected against collapse as prescribed by the American Society of Heating and Ventilating Engineers.

f. In bilevels and trilevels in that portion of a building that has a concrete slab floor for living quarters; heat shall be embedded in concrete slab in all new construction and additions, and/or an acceptable alternate which would supply adequate heat to the above area.

8. Return Air Ducts:

a. Return air ducts shall be sized in accordance with length and resistance.

b. Where joist sheeting is utilized, it shall be installed in the following manner:

(1) All openings between floor joists must be caulked and sheeting nailed with not more than two inch (2") centers.

(2) All connections shall be fitted and tightened in a mechanical manner extending through entire line to intake plenum.

c. Where air diffusing supply grilles are placed in the baseboards or immediately above on interior walls, air velocities shall not exceed three hundred feet (300') per minute; where air

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grilles are placed in the baseboard or immediately above on exterior walls, air velocities shall not exceed five hundred feet (500') per minute. Where placement of grilles is above head level, velocity shall be from five hundred feet (500') to seven hundred feet (700') per minute. All living quarters shall be supplied with at least twelve (12) minute air changes and supply grilles are to be directly connected to either heating unit or master duct line.

d. No return duct of a mechanical warm air heating system shall recirculate air from one dwelling unit to another dwelling unit. This shall apply to new construction only.

9. Return Air:

a. Return air is required from all living quarters, except for kitchens and bathrooms and in alterations to existing buildings.

b. In all installations of a warm air heating plant covered by this title, the furnace should have returned to it, cold air from the various rooms in an amount equal to the amount of warm air taken from the furnace. Velocity at the return air grille is not to exceed three hundred feet (300') per minute.

10. Air Velocities In Supply Lines:

a. For a residential air system, main or master supply line shall be sized for an air velocity not to exceed one thousand feet (1,000') per minute.

b. All branch lines shall be sized for an air velocity not to exceed six hundred feet (600') per minute.

11. Installations In Home Without Basements:

a. Installations for homes on slabs shall have supply lines from the furnace to the registers imbedded and anchored in the provided slab on which the building is erected.

b. In homes erected over a crawl space, the warm air supply lines may extend from the furnace to the registers through said crawl space.

c. In all cases the furnace must be connected to the registers with nonflammable piping.

d. Ductwork in attic with down flow registers is permitted.

F. Minimum Dwelling Size: The minimum dwelling unit size is one thousand two hundred (1,200) square feet. (Ord. 2008-09-01, 9-24-2008)

8-2-4: HABITABLE BASEMENT ROOMS:

A. Generally: Habitable basement rooms shall comply with all requirements for habitable rooms generally.

B. Finished Floor: Finished floors shall not be more than three feet six inches (3'6") below the adjoining outside finished grade at required windows.

C. English Basements: Provide direct access to outside at grade by a door or a window having an opening at least two feet (2') wide and thirty inches (30") high, with windowsill not more than three feet six inches (3'6") above floor.

D. Sleeping Rooms: Sleeping rooms shall have at least one openable window or exterior door to permit emergency exit or rescue. Where windows are provided they shall have a sill height of not more than forty eight inches (48") above the floor and shall provide not less than five (5) square feet of openable area with no dimension less than twenty inches (20").

E. Areaways: Minimum width measured at right angle to face of building, two feet (2'). Increase one inch (1") for every inch of depth over two feet (2'). Head of window, in all cases, to be at or above top of area wall.

F. Drains: See subsection 8-3-5I of this title.

G. Exits: All habitable basements must have a direct exit to the outside at grade level. (Ord. 2008-09-01, 9-24-2008)

8-2-5: PRIVACY AND ACCESS:

A. Access:

1. Living Units: Each living unit shall be provided with two (2) means of access without passing through any other living unit. Whenever

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more than one means of exit is required from a room, space or floor of the building, they shall be placed as remote from each other as practicable, and shall be arranged to provide direct access in separate directions from any point in the area served.

2. Attics: Means of access to attic space shall be provided by a minimum twenty two inches by twenty two inches (22" x 22") access panel located in a hall or open room near an entrance to a stair landing. Closets are not generally acceptable for such means of access unless in a larger walk-in closet approved by the building officer.

3. Crawl Spaces: Provide a minimum twenty two inches by twenty two inches (22" x 22") access panel to all crawl space areas located in a hall or open room. Closets not acceptable.

4. Basement: Provide direct access to outside at grade by a door or window having an opening at least two feet (2') wide and thirty inches (30") high, with windowsill not more than three feet six inches (3'6") above floor. Where basement stairway is within five feet (5') of exterior entrance door, this will constitute direct access.

5. Window Wells: For escape windows shall be a minimum of nine (9) square feet in area. The minimum horizontal projection shall be three feet (3') and the minimum width shall be three feet (3'), provided, however, a ladder or steps are permitted to encroach a maximum of six inches (6") into the minimum dimensions of the window well or bulkheads.

6. Window Well Ladder Or Steps: Window wells that are greater than forty four inches (44") below the adjoining grade shall have either a ladder or steps to allow exiting. Ladders provided shall be permanently affixed and be usable with the window in the fully open position. The minimum rung width shall be twelve inches (12") and the ladder shall have a minimum of three inches (3") between the ladder and the wall of the window well. Ladder rungs shall be spaced a maximum of eighteen inches (18") on center.

7. Bars, Covers, Grilles, And Screens: Bars, covers, grilles, and screens are permitted to be installed over emergency escape windows provided that the bars, covers, grilles or screens do not decrease the required size of the escape window or bulkhead. Security devices shall be able to be released or removed from the inside without the use of keys or tools or requiring a force greater than the normal operations of the window or door.

B. Privacy:

1. General: Exterior openings shall be located appropriately in relation to exterior conditions, including existing or possible future adjacent buildings or other living units. Consideration shall be given to the interior arrangements of rooms, particularly with respect to bedrooms, bathrooms, and toilet compartments.

2. Bedroom Privacy: Each bedroom shall have access to a bathroom without passing through another bedroom. Each habitable room shall have access to each other habitable room without passing through a bedroom or bathroom.

3. Sole Access Through Bathroom: Sole access through bathroom to any other room shall not be acceptable.

4. Bathroom Opening Into Kitchen: Sole bathroom opening directly into kitchen shall not be acceptable.

5. Bathroom In Basement: Bathroom in the basement as the only one serving a living unit shall not be acceptable. (Ord. 2008-09-01, 9-24-2008)

8-2-6: CEILING HEIGHTS:

A. Basements: Basements shall have a minimum ceiling height of seven feet six inches (7'6") clear under joists.

B. Main Floor: The main floor of any living unit shall have seven feet six inches (7'6") clear for at least seventy five percent (75%) of the floor area.

C. Under Sloping Roofs: Under sloping roofs having seven feet six inches (7'6"), for not less than fifty percent (50%) of floor area having five feet (5'), or more, headroom shall be provided. (Ord. 2008-09-01, 9-24-2008)

8-2-7: DOORS:

A. Exterior Doors: The minimum sizes for main entrance doors shall be three feet zero inches (3'0") wide, and for service entrance doors, two feet eight inches (2'8") wide, height six feet eight inches (6'8").

B. Interior Doors:

1. An interior door shall be provided for each opening to a bedroom, bathroom, and toilet compartment.

2. Minimum sizes for all habitable rooms shall be two feet six inches (2'6") wide by six feet six inches (6'6") high. Bathrooms, two feet (2') wide.

3. Closet doors of any size but shall provide accessibility to closet area.

4. Sliding patio doors will be acceptable as a rear or secondary entrance. (Ord. 2008-09-01, 9-24-2008)

8-2-8: STAIRWAYS, PORCHES AND TERRACES:

A. Design And Location: Stairways, porches, and terraces shall provide for safety of ascent and descent; install proper artificial light in addition to any natural light; and provide an easy run by proper proportioning of tread width to the riser height and shall meet the following requirements:

1. Headroom: Continuous clear headroom measured vertically from front edge of tread to a line parallel with stair run. Minimum: six feet six inches (6'6").

2. Width: Main stairs: Minimum two feet nine inches (2'9") clear of handrail.

3. Treads: All stairs with closed risers: nine inches (9") plus one and one-fourth inch ($1^1/_4$") nosing. All stairs with open risers: nine inches (9") plus one-half inch ($^1/_2$") nosing.

4. Risers: Eight inches (8") maximum. All riser heights to be same in any stair stringer.

5. Concrete Stairs: Minimum ten inches (10") tread.

6. Stairways: (See section 8-3-24, table 2-B, of this title.)

7. Winders: Winder treads shall have a minimum tread depth of ten inches (10") measured from the nose of the tread at a point twelve inches (12") from the converging end. Winders shall have a minimum

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tread depth of not less than six inches (6") at any point (see section 8-3-24, tables 2-C-1 and 2-C-2, of this title). Tread width, eighteen inches (18") from converging end, shall at least equal tread width on straight stair run.

8. Circular Stairs: In addition to all the other requirements for stairs, circular stair treads shall have a minimum tread depth of ten inches (10") measured from the nose of the tread at a point twelve inches (12") from the converging end. Circular stairs shall have a minimum tread depth of not less than six inches (6") at any point (see section 8-3-24, table 2-C-3, of this title).

9. Spiral Stairs: In addition to all the other requirements for stairs, spiral treads shall have a minimum tread depth of seven and one-half inches ($7^1/_2$") measured from nose of the tread at a point twelve inches (12") from the narrow end. The minimum width of spiral stairs shall be twenty six inches (26") (see section 8-3-24, table 2-C-4, of this title).

10. Landing: A landing shall be provided on each side of an exit door and shall have a minimum width and depth of three feet (3'), provided, however, a landing is not required where the exit door does not swing over the stair. The landing over which a door does not swing shall be located not more than seven and one-half inches ($7^1/_2$") below the threshold level. The landing over which the door swings shall be located not more than one and one-half inches ($1^1/_2$") below the threshold level.

11. Handrails And Guardrails: Handrails having minimum and maximum heights of thirty inches (30") and thirty eight inches (38"), respectively, measured vertically from the nosing of the treads shall be provided on at least one side of stairways of three (3) or more risers. Where there are no partitions on either side of the stairway, handrails are required on both sides of stairways in accordance with this section and subsection A13 of this section.

12. Decks, Porches And Balconies: Porches, balconies, or raised floor surfaces located more than thirty inches (30") above the floor or grade below shall have guardrails not less than thirty six inches (36") in height (see section 8-3-24, table 2-E and tables 3-A through 3-G, of this title; building department distributes these requirements with any deck permit application).

13. Handrails And Guardrails; Additional Regulations: Handrails and guardrails on open sides of stairways shall have intermediate rails or

ornamental closures which do not allow passage of an object four inches (4") or more in diameter. Guards shall not have an ornamental pattern that would provide a ladder effect. Guardrails on open sides of stairways shall be a minimum of thirty six inches (36") high. (Ord. 2008-09-01, 9-24-2008)

8-2-9: **DIVIDING WALLS AND CEILINGS:** Dividing walls and ceilings shall provide a minimum of two (2) hour combustible walls without openings between two (2) living units side by side. Eight inch (8") masonry wall without opening between living units in row housing of three (3) or more living units when one story in height shall be provided. In multiple-family dwelling, a minimum of two (2) hour combustible wall without opening between living units from top of foundation to underside of roof sheathing shall be provided. In all cases, the soffit and/or roof overhang shall be fire stopped at each dwelling unit. In all cases, one hour fire resistive ceiling shall be provided. (Ord. 2008-09-01, 9-24-2008)

8-2-10: **STORAGE OF MATERIALS:** All materials and equipment required in construction operations shall be stored and placed so as not to endanger the public, the workmen or adjoining property.

A. Design Capacity: Materials or equipment stored within the building or on sidewalks, sheds or scaffolds shall be placed so as not to overload any part of the construction beyond its design capacity, nor interfere with the safe prosecution of the work.

B. Special Loading: Unless the construction is designed for special loading, materials stored on sidewalks, sheds and scaffolds shall not exceed one day's supply. All materials shall be piled in an orderly manner and height, to permit removal of individual pieces without endangering the stability of the pile.

C. Pedestrian Walkways: No materials or equipment shall be stored on the street without a permit issued by the administrative official having jurisdiction. When so stored they shall not unduly interfere with vehicular traffic, or the orderly travel of pedestrians on the highways and streets. The piles shall be arranged to maintain a safe walkway not less than four feet (4') wide, unobstructed for its full length, and adequately lighted at night and at all necessary times for the use of the public.

D. Obstructions: Material and equipment shall not be placed or stored so as to obstruct access to fire hydrants, standpipes, fire or police

alarm boxes, utility boxes, catch basins, or manholes, nor shall they be located within twenty feet (20') of a street intersection, or so placed as to obstruct normal observations of traffic signals or to hinder the use of street car loading platforms. (Ord. 2008-09-01, 9-24-2008)

8-2-11: **REMOVAL OF WASTE MATERIAL:** No material shall be dropped by gravity or thrown outside the exterior walls of a building during demolition or erection. Wood or metal chutes shall be provided for this purpose and any material which in its removal will cause an excessive amount of dust shall be wet down to prevent the creation of a nuisance. (Ord. 2008-09-01, 9-24-2008)

CHAPTER 3

ONE- AND TWO-FAMILY DWELLING CODE MINIMUM CONSTRUCTION REQUIREMENTS

SECTION:

8-3-1: GENERAL:

A. Construction Materials And Methods: These requirements specify minimum acceptable construction materials and methods. Alternate

materials and methods not specified herein may be approved for use by the building officer upon the submission of evidence satisfactory to him that their performance in use will be at least equivalent to that of the materials and methods specified herein. It is required that such evidence include adequate reports and test data from a disinterested and qualified testing laboratory, or proven long term service records, or analysis of performance made in accordance with well established principles of mechanics, or professional disinterested sources. Compliance with the standard specifications and test methods listed in this chapter will be required. All work to be executed in a neat, workmanlike manner.

B. Loads:

1. All parts of dwellings and accessory buildings and structures shall be designed, constructed, and maintained to support safely their own weight and all other loads and forces to which they may be subjected.

2. Assumed minimum live loads, uniformly distributed, for design purposes:

Ceiling or attic floor joists, no storage	None
Attic floors, limited storage only	20 pounds per square foot
Living area floors	40 pounds per square foot
Girders	Dead loads of floor, partition and ceiling constructions plus 50 percent of assumed live loads of floor plus combined dead and live loads of roof
Roofs, either pitched or flat	30 pounds per square foot normal to the roof surface

3. Wind loads on vertical faces: 30 pounds per square foot horizontally, any direction. Roofs or parts with slopes higher than 30 degrees: 30 pounds per square foot acting inward normal to surface, on windward slope only. Lifting force: 30 pounds per square foot. To prevent sliding or overturning, anchor roofs to walls and columns, and walls and columns to foundations.

C. Special Conditions And Tests: When special conditions exist or arise during construction, which necessitate additional precautions, the building officer may require work in excess of these requirements. Building officer may require tests in accordance with this chapter, at expense of owner. (Ord. 2008-09-01, 9-24-2008)

8-3-2: EXCAVATION, BACKFILL AND GRADING:

A. Site Preparation: No excavation, stripping of organic material, removal of vegetable matter shall be done before drawings with elevations are submitted to the building officer for his approval to ensure that the adjacent property and/or public against drainage, soil erosion and sediment damage.

B. Retaining Walls And Partition Fences: When the adjoining grade is not higher than the legal level, the person causing an excavation to be made shall erect, when necessary, a retaining wall at his own expense and on his own land. Such wall shall be built to a height sufficient to retain the adjoining earth, shall be properly coped as required, and shall be provided with a guardrail or fence not less than 4' in height.

C. Retaining Walls: Where retaining walls with differences in grade level on either side of the wall in excess of 4' are located closer than 2' to a walk, path, parking lot, or driveway on the high side, such retaining walls shall be provided with guards. Guards shall be at least 42" in height measured vertically above the adjacent walking surface. Open guards shall have balusters or be of solid material such that a sphere with a diameter of 4" cannot pass through any opening. Guards shall not have an ornamental pattern that would provide a ladder effect.

D. Adjacent Property, Public Property, Roads, Alleys, And Easements: Adjacent property, public property, roads, alleys, and easements shall be kept clean of any dirt or debris to ensure public safety, health and welfare.

E. Foundations, Trench Walls, Chimneys, And Piers:

1. Portions of foundations, trench walls, chimneys, and piers shall be extended to solid ground beamed between bearings. Footings shall not be placed on filled ground.

2. The bottom of footings shall be not less than 3'6" below finished grade, except where placed on solid rock.

3. Foundations, trench walls, chimneys, and piers shall be protected against freezing, and no concrete shall be placed on frozen ground.

4. A sufficient wing wall, and/or a foundation wall, is required under all stoops. Wing wall shall have 1 no. 4 rebar located not more than 6" beneath top edge of concrete and extending downward into foundation wall not less than 2'.

5. The outer perimeter of the stoop shall not project out beyond the wing walls more than 12".

6. A foundation wall shall be required under all stoops supporting a roof.

7. A patio abutting a stoop may be a floating slab (see subsection 8-3-5K of this chapter).

8. Exterior open wood porches may be supported on piers in accordance with subsections 8-3-5H and 8-3-6D of this chapter.

9. Attached deck (see section 8-3-24, tables 3-A through 3-G, of this chapter).

F. Space Without Basement:

1. For space without basement, all debris, sod, tree stumps and other organic matter shall be removed within area occupied by dwelling.

2. Membrane waterproofing shall be provided directly on top of cleared ground area, which shall be at least 30 pound felt, lapped 4", or other approved vapor barrier.

3. At least 3" of sand or pea gravel or 2" of concrete shall be installed on top of vapor barrier. The distance between top of said sand, pea gravel, or concrete and bottom of joists and girders shall be not less than 24" and not more than 48".

4. Where ground level of crawl space is below finished grade, drain tile shall be installed around inside or outside of foundation to provide for disposing of water.

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G. Backfill:

1. Backfill shall be placed adjacent to foundation walls in a compacted manner.

2. Debris shall not be used for backfilling (see subsections F and G1 of this section and subsection 8-3-5D5 of this chapter).

3. Foundation walls, when cracked due to improper backfilling, shall require replacement, if required by the building officer.

H. Grading:

1. Grading or drainage, or both, shall be performed so that water shall drain away from the building on all sides and off the lot in a manner which shall provide a reasonable freedom from erosion and pocketed surface water. Construction such as walks, driveways and retaining walls shall be installed so that they will not interfere with drainage. Slope of driveways, walks and ramps shall not to exceed 1' in 8'.

2. No person, persons, or firm shall cause the change of the existing level of the land in such a way or fill into such a degree as to cause a drainage nuisance or any other nuisance to the owners or occupants of adjacent premises, or to the public by reason of discharging any surface or roof water into, onto, or across any adjacent building, premises or public thoroughfare. This nuisance shall be abated by the owners of the improperly drainaged area; and the building official shall require the drainage to be disposed of in accordance with accepted good engineering practices. A retaining wall, proper swale, connection to a dry well, connection to existing storm sewer, etc., may be acceptable engineering practice depending upon the situation and the approval by the building officer.

3. Where the adjoining grade is not higher than the legal level, the person causing an excavation to be made shall erect, where necessary, a retaining wall at his or her own expense and on his or her own land. Such wall shall be built to a height sufficient to retain the adjoining earth, shall be properly coped and shall be provided with a guardrail or fence not less than 42" in height. (Ord. 2008-09-01, 9-24-2008)

8-3-3: **EROSION CONTROL:** Effective erosion control practices shall be followed during all earth moving, storage and placement operations so as to prevent sediments leaving the site as required by the Lake Villa zoning ordinance, article four, section nine and the Lake Villa watershed and site development regulation. In addition, the construction process shall be so organized and conducted so as to prevent equipment from dragging or carrying mud or dirt onto public streets. Where this may accidentally occur, the builder or his responsible agent shall immediately clean the road surface. (Ord. 2008-09-01, 9-24-2008)

8-3-4: **MASONRY MATERIALS:** Masonry materials standards described below shall be applicable to all masonry and concrete work. All specifications shall be current editions.

A. Cement:

1. Portland Cement: The specifications for Portland cement shall comply with ASTM C1157 (performance specification for hydraulic cements) current edition.

2. Prepared Masonry Cement For Mortar: The specifications for prepared masonry cement mortar shall comply with ASTM C270 (specification for mortar for unit masonry) and ASTM C207 (specification for hydrated lime for masonry purposes) current edition.

3. Pozzolanic Materials: Pozzolanic materials such as fly ash shall not be substituted for any portion of cement without the knowledge and consent of the building officer. When approved as a replacement for cement, the pozzolanic materials shall be in compliance with ACI 318 (American Concrete Institute standard for building code requirements for structural concrete).

4. Portland Cement, Air Entrained: Air entrained Portland cement shall have not less than 5% and not more than 7% by volume.

5. Portland Blast Furnace Slag Cement: Portland blast furnace slag cement shall be in compliance with ACI 318 (American Concrete Institute standard for building code requirements for structural concrete).

B. Aggregate:

1. Sand: Sand used for concrete shall be clean, hard and sharp, free from harmful materials and graded according to the intended use.

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2. Concrete Aggregate: Concrete aggregate shall be in compliance with ACI 318 (American Concrete Institute standard for building code requirements for structural concrete).

3. Masonry Mortar Aggregate: Masonry mortar aggregate shall comply with the requirements of ASTM C270 (specification for mortar for unit masonry).

4. Coarse Aggregate (Crushed Stone Or Gravel): Hard, strong crystalline rock, properly graded, clean and free from shale or other soft material (see ASTM C33, current edition).

5. Lightweight Aggregate For Structural Concrete, Etc.: Concrete aggregate shall be in compliance with ACI 318 (American Concrete Institute standard for building code requirements for structural concrete).

C. Water: Clean and free of deleterious amounts of acids, alkalies, or organic materials.

D. Lime:

1. Hydrated Lime: See ASTM C207, current edition, type S.

2. Quick Lime: Quick lime shall be thoroughly slaked (see ASTM C5 specification for quick lime for structural purposes).

E. Mortar: See ASTM C270, current edition.

F. Brick:

1. Face Brick: See ASTM C216, current edition.

2. Common Brick: See ASTM C62, current edition.

a. Selected hard burned common brick may be used for facing of exterior and interior walls.

b. Salmon or soft brick may be used in interior walls when not exposed, and for backup work.

3. Firebrick: Firebrick shall comply with the specifications of ASTM C27 (specifications of fireclay and high-alumina refractory brick) or ASTM C1261 (specifications for firebox brick for residential fire-

places). Mortar shall comply with the specification of ASTM C207 (specifications for hydrated lime for masonry purposes).

4. Concrete Brick: See ASTM C55, current edition.

5. Secondhand Materials: Masonry units may be reused when thoroughly clean, whole, and conforming to other provisions of this standard, except that the maximum allowable wall heights shall be limited to 50% of that permitted for walls of new masonry units, unless approved by building officer.

G. Structural Hollow Clay Tile:

1. Sound, Kiln Burned Units: Kiln burned structural hollow clay tile shall be free from defects that would impair the strength or permanence of the construction.

2. Load Bearing Tile: Load bearing structural hollow clay tile shall comply with the specification of ASTM C34 (specification for structural clay load-bearing wall tile).

3. Nonload Bearing Tile: Nonload bearing hollow clay tile shall comply with the specification of ASTM C129 (specification for non-load bearing concrete masonry units and related units).

4. Glazed Or Unglazed Facing Tile: Facing tile either glazed or unglazed shall comply with the following standards:

a. ANSI A108.1 (installation of ceramic tile in the wet-set method, with Portland cement mortar).

b. ANSI A108.4 (installation of ceramic tile with organic adhesives or water cleanable tile-setting epoxy adhesive).

c. ANSI A108.5 (installation of ceramic tile with dry-set Portland cement mortar or latex-Portland cement mortar).

d. ANSI A108.6 (installation of ceramic tile with chemical resistant, water cleanable tile-setting and grouting epoxy).

e. ANSI A137.1 (American national standards specification for ceramic tile).

H. Concrete Masonry Unit: Concrete masonry units shall comply with the specifications of ACI 530 (building code requirements for

masonry structures), ACI 530.1 (specifications for masonry structures), ASTM C90 (specifications for solid load bearing concrete masonry units), TMS 402 (building code requirements for masonry structures) and TMS 602 (specification for masonry structures). Concrete masonry units shall be sound and thoroughly cured.

I. Stone:

1. Rubble: Rubble and cut stone shall be of a good quality building stone.

2. Cast Stone: Cast stone shall be installed in accordance with the manufacturer's recommendation.

J. Flue Lining: Glazed fireclay and vitrified tile shall be free from crack or other defects and comply with the specification of ASTM C315 (specification for clay flue linings).

K. Glass Block:

1. Standard Unit: Standard unit glass block shall be a minimum thickness of $3^{7}/_{8}$".

2. Thin Unit: Thin unit glass block shall have a minimum thickness of $3^{1}/_{8}$" if hollow or 3" if solid.

3. Glass Thickness: The minimum thickness of glass sides for hollow units shall be $^{3}/_{16}$".

4. Mortar: Mortar for setting of glass block shall be type S or type N. All surfaces of the glass block that has contact with the mortar shall be coated with polyvinyl butyryl or latex paint.

5. Reuse: The reuse of glass block is prohibited unless approved by the building officer. (Ord. 2008-09-01, 9-24-2008)

8-3-5: CONCRETE WORK:

A. General:

1. Materials: See section 8-3-4 of this chapter.

2. Water content not to exceed 7 gallons of water per bag of cement, including moisture in the aggregate.

3. Retempering of concrete not permitted.

4. Maximum slump: 6".

5. Calcium chloride may be used as an accelerator, but shall not exceed 2 pounds per bag of cement, and shall be introduced in solution as part of the mixing water. Calcium chloride shall conform to ASTM D98-59.

B. Plain Concrete:

1. Minimum mix: 1 part Portland cement, $2^1/_2$ parts sand, 4 parts coarse aggregate; or 1 part Portland cement, 5 parts pit run aggregate; or, controlled mix having minimum compressive strength at 28 days of 2,000 pounds per square inch.

2. Batching method: 1, $2^1/_2$, 4 mix.

3. Ready mix: 5 bags.

a. Mixing period shall not exceed beyond $1^1/_2$ hours.

C. Reinforced Concrete:

1. Design: See section 8-3-24, appendix A, of this chapter.

2. Minimum mix: 1 part Portland cement, $2^1/_2$ parts sand, 4 parts coarse aggregate; or, controlled mix having minimum compressive strength at 28 days of 2,000 pounds per square inch.

3. Reinforcing: New billet steel bars, rail steel bars, welded wire fabric, or cold drawn wire (see section 8-3-24, appendix A, of this chapter).

D. Forms:

1. Double forms required for all basement concrete foundation walls.

2. Side forms required for footings where soil conditions prevent sharp cut trenches.

3. Build tight, straight, plumb, and brace rigidly.

4. Do not remove until concrete has thoroughly set.

5. Remove all forms, spreaders, and stakes before backfilling.

6. On step up footings, run lower forms tight to excavation edge unless foundation is reinforced and approved by the building officer.

E. Placing:

1. Place continuously unless otherwise allowed by building officer.

2. When not placed continuously, clean, score and wet the top surface of the concrete before continuing. Key all vertical joints.

3. Spade, rod, or vibrate concrete thoroughly in for work. Place in horizontal layers not more than 12" thick.

F. Protection:

1. In hot weather, protect concrete to prevent too rapid drying.

2. In freezing weather, maintain the temperature of the concrete above freezing until thoroughly set.

3. Calcium may be used as accelerator, not to exceed 2 pounds per bag of cement.

G. Loading: Allow sufficient time for strength of concrete to develop before subjecting to loads or traffic.

H. Footings:

1. General: Design for proper distribution of superimposed loads. Material: cast in place concrete. Bear on solid, unfilled ground. Reinforce with steel bars where footings cross or bear on filled trenches or other unstable soil. Footing dimensions listed below are based upon soils of average bearing capacity (3,000 pounds per square foot); for solid of lesser bearing capacity or where unusual loading conditions exist, larger footings will be required.

2. Wall Footings: Minimum depth 42" below finished grade (see section 8-3-24, figure A-2, of this chapter). Minimum dimensions for spread footings shall be in accordance with the following table:

Number Of Stories And Types Of Construction	Thickness Of Footing (Inches)	Project Each Side Of Wall (Inches)
1 story (without basement):		
Frame	8	4
Masonry veneer on frame	8	4
Masonry	8	4
1 story (with basement):		
Frame	8	4
Masonry veneer on frame	8	4
Masonry	8	4
Over 1 story (with or without basement):		
Frame	8	4
Masonry veneer on frame	8	4
Masonry	12	6

Omission of footings for one-story frame dwellings containing no basement permitted, provided the foundation walls are poured concrete with bottoms splayed equally on each side to provide the same width as required in this subsection H2, and tops are equal in width to the walls supported.

3. Piers, Post And Column Footings: Masonry (see subsection 8-3-6D of this chapter) one-story dwellings: minimum area, 4 square feet; thickness, $1^1/_2$ times the projection. Minimum 12". Dwellings over one-story: minimum area 6 square feet; thickness, $1^1/_2$ times the projection. Minimum 12". Minimum pier for deck 8".

4. Chimney Footings: One-story dwellings: minimum thickness, 12"; minimum projection, each side, 4". Dwellings over one-story: minimum thickness, 12"; minimum projection, each side, 6". Pour integral with wall footing when chimney occurs in outside wall or inside bearing wall.

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I. Footing Drain Tile: (See section 8-3-24, appendix A, of this chapter.)

1. Footing tile must be installed either around the outside or the inside of the foundation leading to a sump pump which should discharge into approved drainage facilities or natural drainage may be provided on all basements and when encompassing a habitable space.

2. Footing tile must be covered with 12" of #8 washed stone or gravel and provide a 2' wide strip of rosin paper or similar material over the gravel.

3. All areaways shall be provided with a direct connection to the footing drain tile with either a vitrified clay tile fitted with a grate, or with perforated tile or plastic drain with the top end sealed and surrounded by coarse gravel from the floor of the areaway to the top of the drain tile.

4. In no case shall footing drains be connected to any sanitary sewer system, or septic system.

J. Concrete Foundation Walls Cast In Place: For masonry unit foundation walls see subsection 8-3-6B of this chapter.

1. General: Materials: (See section 8-3-4 of this chapter.) Walls supporting frame construction: extend concrete not less than 6" above adjoining finished grade. Walls supporting masonry veneered wood frame: extend foundation so that wood portion of wall is not less than 4" above outside finished grade.

2. Minimum Thickness: 8", masonry veneered 10" with 5" left to support veneered solid masonry not less than that of wall supported. Supporting porch slabs and steps (see subsection N of this section). Interior walls not subject to lateral pressure, 8" minimum. All other walls, 8" minimum.

3. Girder Pickets: Provide 4" end bearing on main wall for girder. Form pocket for wood girder 1" wider than girder.

4. Sill Anchor Bolts To Be Installed: Diameter, $^1/_2$" minimum. Minimum length, 10". Provide washer under nuts on bolts. Spacing, not more than 8' on center; minimum 2 bolts in each piece.

5. Anchorage For Intersecting Walls And Slabs: Provide dowel bar anchorage for porch and terrace slabs, concrete or masonry steps

and area walls, which adjoin foundation walls. For basementless portions and attached garages, embed 4 $^{1}/_{2}$"-round hooked bars 4' long in main wall, 2 near top and 2 near bottom of attached wall.

6. Chimney Foundations: Start at level of lowest adjacent foundation wall footings.

7. Special Soil Conditions: If special or unforeseen soil conditions warrant, the building officer may require either reinforcement of wall or increased thickness.

8. Damp Proofing And Waterproofing: See subsection 8-3-6C of this chapter.

K. Concrete Floor Slabs On Ground:

1. Construction: Fill under slabs: gravel, sand, screenings, or crushed rock, minimum thickness 4", with earth under-fill thoroughly leveled and free from vegetable matter, thoroughly tamped. Wire mesh reinforcing: when required, minimum weight 40 pounds per 100 square feet. Bottom of slab not lower than top of footing, with at least 4" bearing on footing.

2. Cement Floor Finish: Finish basement slab with steel trowel. Integral finish on concrete slab.

3. Slabs On Ground Used As A Base For Floors Or As A Finish Floor In Habitable Rooms: Minimum thickness, 4". Provide membrane waterproofing directly under slab, at least 30 pound felt, lapped 4". Insulation between slab and foundation wall, $^{3}/_{4}$" minimum.

4. Basement Floor Slabs: Minimum thickness 4".

5. Garage Floor Slabs: Minimum thickness 4".

6. Terrace And Porch Floor Slabs: Minimum thickness 4". If reinforced, fill may be omitted. Install metal flashing between slabs and all wood construction (see subsection 8-3-11F of this chapter).

7. Slabs And/Or Grade Beam On Ground: Used to support interior bearing walls or partitions. Thicken to at least 10" for a width of 20".

8. Concrete Slabs For One-Story Detached Garages And/Or Accessory Buildings: Minimum thickness 4" with 6" x 6" no. 10 wire mesh installed within the slab and the complete exterior and/or outer

perimeter of the slab at a thickness not less than 14" (see section 8-3-24, figure A-3, of this chapter, interior footing for detached garage and/or accessory building).

L. Exterior Wood Stairs: Wood construction shall be at least 2" above walk or finished grade. Comply with subsection 8-2-8A of this title.

M. Reinforced Concrete Floor On Precast Joist:

1. Minimum bearing of joists: 3".

2. When span exceeds 15', shore at midspan until slab is set.

3. Structural design based on T-beam action not acceptable when metal lath or paper backed mesh is used for slab forms.

N. Exterior Concrete Stoops And Porches: All exterior stoops, stairs, or stair landings shall be supported on haunches or wing walls poured integrally with the foundation wall. Stoops, stairs, stair landings, porches, etc., with any dimension greater than 8'0" shall be supported on a surrounding wall extending to frost depth either poured integrally with the foundation or bonded to it with proper reinforcing steel (see subsection 8-3-2E4 of this chapter). Exterior wood porches, see subsections 8-3-2E8 and E9 of this chapter. (Ord. 2008-09-01, 9-24-2008)

8-3-6: MASONRY WORK:

A. General:

1. Materials: See section 8-3-4 of this chapter.

2. Mortar: Masonry below grade: Portland cement mortar consisting of 1 part Portland cement and 3 parts sand by volume; lime, not more than 25% of the cement by volume may be added.

All other masonry: Portland cement mortar (see above) or cement-lime mortar, consisting of 1 part Portland cement, prepared masonry cement mortars; 1 part masonry cement, 3 parts sand by volume, with no other materials added other than sand and water. Retempering of mortar not permitted.

3. Joints: Maximum thickness: $^1/_2$", with all joints to be uniform in thickness. Solid masonry units: Fill joints solid. Hollow masonry

units: No through mortar joints. Point all joints solid both sides of wall. Weather or tool outside and exposed inside joints unless otherwise acceptable to the building officer.

4. Bonding: Brick masonry: Header course consisting of alternate through header and stretcher every seventh course, or 1 through header in every 240 square inches, uniformly placed throughout wall. Rubble stone masonry: Bond stones at least 4" thicker than other stones. Minimum: 20% of wall area. Stagger vertical joints. Intersecting concrete and masonry walls: bond together.

5. Closed Cell Hollow Units: Use for rough openings, corners and wall intersection. Filling exposed ends of cells not permitted.

6. Protection: Provide frost protection, acceptable to building officer, when temperature falls below freezing, except that no masonry work shall be done in temperatures below 20° Fahrenheit.

7. Loading: Allow sufficient time for strength of masonry to develop before subjecting to loads.

B. Masonry Unit Foundation Walls: (For cast in place concrete foundation walls, see subsection 8-3-5J of this chapter.)

1. General Materials: (See section 8-3-4 of this chapter.)

Walls supporting wood frame construction: Extend so that wood portion of wall is not less than 4" above adjoining outside finished grade.

Wall supporting masonry veneered wood frame: Extend foundation so that wood portion of wall is not less than 4" above outside finished grade.

Wall of hollow units: Cap with minimum of 4" of solid masonry, concrete, or fill upper course with concrete, or, use approved top course bearing block.

Concentrated loads: Under ends of girders bearing on hollow masonry unit foundation walls, support on minimum of 4" solid masonry or concrete, or, fill upper 2 courses with concrete.

2. Minimum Thickness: Not less than that of wall supported. Masonry unit walls, minimum thickness, 8", except when total height of foundation wall and masonry wall supported exceeds 30' at eaves

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and 35' at ridge in gable end, when minimum shall be 12". Rubble stone: 16".

3. Girder Pockets: Provide 4" end bearing for girder. For wood girder, leave $^1/_2$" space each side.

4. Sill Anchor Bolts To Be Installed: Diameter: $^1/_2$" minimum. Minimum length in masonry unit walls: 15". Provide washer under nuts on bolts. Spacing: Not more than 8' on center: minimum 2 bolts in each piece. Top 2 courses to be completely filled with concrete.

5. Anchorage For Intersection Walls And Slabs: Provide anchorage for concrete area walls with $^1/_2$" dowel bars at 10" on center.

6. Chimney Foundations: Start at a level of lowest adjacent foundation wall footings.

7. Special Soil Conditions: If special or unforeseen soil conditions warrant, the building officer may require either reinforcement of wall or increased thickness.

C. Damp Proofing And Waterproofing:

1. Damp proof basement unit masonry walls on exterior side from finished grade to outside edge of footing using $^1/_2$" thick Portland cement plaster coating, forming a cove at footing over which apply at least 1 heavy coat of undiluted hot tar, asphalt or compound, acceptable to the building officer. Not required where entire area is basementless.

2. Concrete walls cast in place: Apply at least 1 heavy coat of undiluted hot tar, asphalt or compound on exterior from finished grade to outside edge of footing acceptable to the building officer.

D. Piers:

1. Masonry piers supporting exterior walls acceptable only for open porches. Provide adequate girders for support of floor and wall loads between piers.

2. Materials: Masonry units or cast in place concrete (see section 8-3-4 of this chapter).

3. Minimum size in inches: Masonry: 12" x 12". Plain concrete: 10" x 10", or 8" in diameter if round.

4. Maximum spacing: Exterior wall piers supporting floor joists: 8' on center. Exterior wall piers in line parallel to joists and interior piers: 12' on center.

5. Minimum height above grade: 6".

6. When of hollow masonry units, cap with at least 4" solid masonry or concrete, or fill upper 2 courses with concrete (see subsection B1 of this section).

7. Sill anchor bolts, dowels or pier brackets to be installed.

E. Exterior Masonry Walls Above Grade:

1. Materials: Masonry or cast in place concrete (see section 8-3-4 of this chapter).

2. Minimum thickness: 8".

3. Maximum for 8" thickness: 22' from grade to eaves; or 30' from grade to ridge in gable ends. For greater heights, minimum thickness 12" except top 22".

a. In all cases the height cannot exceed 18 times the width of the block and/or wall without installing intermediate support at that height either by a floor system and/or ceiling roof combination.

b. The length cannot exceed 75 times the width of the block and/or wall without installing intermediate support at that length either by interior partitions and/or pilasters.

4. Backing, when used, solid or hollow masonry units, minimum thickness, bonded to facing: 4". Facing and backup bonded with masonry bond or other substantial ties (excluding sheet metal ties).

5. Furring, if necessary, when interior finish is applied. Not less than 1" wood strips. Spacing as permitted for interior finish (see section 8-3-13 of this chapter). Install horizontal furring strips at ceiling and floor to form fire stops and prevent convection. Exterior walls to be moisture proofed if plaster is applied directly thereon.

6. Lintels: Size to be determined by span in each case. No concentrated loads over nonreinforced lintels. Lintels may be precast concrete, brick reinforced, stone, masonry arch, steel, or wood (see

section 8-3-24, appendix A, of this chapter). Minimum bearing: 4" in length on each end.

7. Rafters plate anchor bolts to be installed. Diameter, $^1/_2$", minimum. Minimum length in masonry unit walls: 15". Poured concrete walls: 10". In masonry walls, washer and 3" square plate on bolts. Spacing not more than 8' on center.

8. Radiator recesses: Construct at time wall is built. Maximum recess depth: 4" in 8" walls; 8" in 12" walls. Back and side of recess to be waterproofed and insulated. Width under windows not greater than rough opening.

9. Vertical chases: Construct at time wall is built. Maximum length for chases, where wall thickness is 8" or less: 4'. Maximum chase depth: 4".

10. Horizontal chases: Not acceptable unless wall thickness is at least 4" greater than thickness required under subsection E2 of this section. Maximum depth: 4".

F. Masonry Veneer:

1. Minimum thickness: Brick: $3^3/_4$". Ashlar stone masonry: 4". Rubblestone masonry, uncoursed (field stone): 12". Mosaic or random: 12", coursed, one-story: 8"; over one-story: 12".

2. Masonry veneered wood frame construction: Veneer applied over sheathing with air space between.

Air space: $^3/_4$" between masonry veneer and sheathing.

Base flashing: Saturated asphalt felt not less than 15 pounds per square or copper extending over top of foundation wall from outside face wall, and not less than 12" up on sheathing (base flashing may be omitted if foundation is offset at least 2"). Apply water resistant building paper, or saturated asphalt felt over sheathing; lap base flashing at least 4".

Bonding: Corrosion resisting metal ties spaced not more than 15" vertically and 32" on center horizontally. When other than wood board sheathing is used, secure ties through to studs with corrosion resisting nails of length sufficient to penetrate wood at least 1".

Lintels: Size to be determined by materials and span in each case; bearing at least 4"; arches permitted.

G. Cavity Walls:

1. Minimum thickness: Facing (outer leaf): $3^3/_4$". Backing (inner leaf): $3^3/_4$". (Total, with cavity: 10".)

2. Maximum height above grade for minimum thickness: 22' to eaves. 30' to ridge at gable ends.

3. Lay units with full flat bed and vertical joints.

4. Tie each square foot of facing to backing with approved rigid, corrosion resistant tie bars, at least $^3/_{16}$" in diameter. Embed ties in horizontal joints. Also locate not more than 3' apart within 12" of perimeter of all openings. "Z" bars shall have 6" shank length and 3" legs bent to 90° angles. Ties used with hollow units with cells vertical shall be rectangular in shape.

5. Flash with a corrosion resistant metal sheet over tops of all openings, at window sills, and at bottom of cavity wall.

6. Provide weep holes along flashing. Keep cavity clear of mortar droppings.

H. Interior Masonry Walls:

1. Material: Masonry or cast in place concrete.

2. Pipe recesses: Construct at time walls are built.

3. Party and fire walls: Minimum thickness, cast in place concrete: 6". Masonry units: 8". Chases or recesses not permitted. Flat roofs: Extend above roof, flash and cap with stone, concrete, vitrified tile, or terra cotta. Under pitched roofs: Build masonry solid to underside of roof sheathing, unless carried above roof.

4. Bearing partitions: Minimum thickness: Plain concrete, 6". Masonry units, 8". Sections of walls with distance between opening 2' or less. Solid masonry reinforced concrete or, masonry arches, minimum, 4" bearing upon solid masonry at least 4" thick. Girder bearing: Solid masonry at least 8" thick.

5. Nonbearing partitions: Minimum thickness: 3". Lintels: Steel, reinforced concrete, or, masonry, or, masonry arches.

I. Chimneys:

1. Required; Exception: Provide masonry chimney except as provided in subsection I8 of this section. Separate flue required for each fireplace and heating appliance, unless combined flue is specifically approved by the building officer.

2. Materials: Solid masonry with footing of concrete cast in place, except as provided in subsection I8 of this section.

3. Effective Flue Area: At least as recommended by the manufacturer of equipment connected to chimney but in no case shall chimney flue be smaller in area than that of the area of the connector from the appliance. Minimum diameter for house heating flue, 8". For fireplace, type of flue: Round lined $^{1}/_{12}$ of fireplace opening area but not less than 50 square inches. Square or rectangular lined $^{1}/_{10}$ of fireplace opening area but not less than 64 square inches. Lined with firebrick or unlined $^{1}/_{8}$ of fireplace opening area but not less than 100 square inches.

4. Chimney Linings, Withes, And Walls: Glazed fireclay flue lining required in all chimneys for liquid and solid fuels: When gas is used as fuel, provide flue lining of stainless steel, porcelain enameled iron, asbestos cement, or glazed fireclay lining or vitrified tile lining, bell and spigot type, bell end up, all with joints made with acid resisting mortar; provide drain to dispose of condensation. 2 flues may be grouped without withes provided joints of linings are staggered, $3^{3}/_{4}$" minimum thickness. Walls, minimum thickness, $3^{3}/_{4}$" in addition to lining.

5. Height Of Chimney: As recommended by equipment manufacturer, shall extend at least 3' above the adjacent roof, and at least 2' above any roof ridge within 10' thereof. If the height above the roof is more than 4 times the minimum dimension, the chimney shall be braced and anchored to the roof framing and not less than 3' above the ridge of the roof that the chimney penetrates and not less than 2' above the highest ridge within 15' of the chimney.

6. Cap Of Chimney: Cap of chimney to form wash from flue to outside edge, minimum thickness, 2".

7. Metal Thimbles And Cleanout Doors: Metal thimbles and cleanout doors to be built in at the time chimney is constructed.

8. Other Than Masonry: Chimneys, flues, and vents, other than masonry, may be used when approved by the National Board of Fire Underwriters for the kind of fuel to be used.

9. Factory Built Chimneys: Factory built chimneys and additional information, see 2006 international building code, section 2111.13.1 or current adoption.

J. Fireplace:

1. Smoke Chambers And Dampers: Smoke chambers and dampers required in all fireplaces.

2. Minimum Wall Thickness: 8", in addition to the lining.

3. Ash Dump: When provided, empty into concrete or masonry chamber provided with metal cleanout door.

4. Lining: Firebrick or other approved material.

5. Hearth: Support on masonry or concrete. Width: At least 8" wider than fireplace opening on each side. Material: Incombustible. Combined thickness of hearth and support: 6".

6. Fireplace Opening Lintel: Use brick arch, concrete, stone, or steel.

7. Facing: Masonry: no combustible material closer than $7^1/_2$" to fireplace opening.

8. Minimum Dimensions:

MINIMUM DIMENSIONS FOR FIREPLACES

Fireplace Component	Minimum Dimension
Hearth slab thickness	4"
Hearth slab reinforcement	Reinforce sufficiently to carry its own weight plus any imposed weight

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Fireplace Component	Minimum Dimension
Hearth side extensions (each side)	8" for openings less than 6 square feet
	12" for openings for 6 square feet or more
Hearth front extension	16" for openings less than 6 square feet
	20" for openings 6 square feet or more
Construction of firebox wall	10" solid brick or 8" firebrick lining. All joints to be $^1/_4$" maximum
Distance from opening to throat	8"
Smoke chamber wall thickness	6"
Unlined walls	8"
Horizontal reinforcement of chimney	$^1/_4$" ties at 18" on center and 2 ties at each bend in vertical steel
Lintel	Shall be noncombustible material
Chimney walls with flue lining	Solid masonry or hollow masonry (grouted solid) minimum 4" thick
Chimney walls without flue lining	8" solid masonry
Distance between adjacent flues	A masonry with minimum of 4" and bonded into the walls of the chimney
Flue area (based on area of fireplace opening)	See subsection I3 of this section
Clearances:	
Combustible materials	2"
Mantel and trim	Minimum of 6" from the opening. Combustible materials within a foot of the opening cannot project out more than $^1/_8$" for each inch in distance of the opening
Above roof	Minimum 3' at the roof line and 2' within 10' of the roof penetration

Fireplace Component	Minimum Dimension
Footings	See subsection 8-3-5H4 of this chapter

(Ord. 2008-09-01, 9-24-2008)

8-3-7: STRUCTURAL STEEL AND IRON:

A. Structural Steel Construction:

1. The design, fabrication and erection of structural steel for buildings shall conform to the requirements of the "Specification For The Design, Fabrication And Erection Of Structural Steel For Buildings" of American Institute of Steel Construction adopted (current edition).

2. Bearing: On walls, minimum, 4".

3. Bearing plates:

a. Design to distribute load, minimum thickness, $^{5}/_{16}$".

b. Bed in Portland cement mortar.

c. Plates may be omitted under wide flange type steel beam if width of flange provides sufficient bearing area so that allowable compressive stress of supporting material is not exceeded.

4. See section 8-3-24, appendix A, of this chapter.

B. Light Gauge Cold Formed Steel Construction:

1. The design of light gauge cold formed steel construction shall conform to the "Specification For The Design Of Light Gauge Cold-Formed Steel Structural Members" of American Iron and Steel Institute (current edition).

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

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3. See section 8-3-24, appendix A, of this chapter.

C. Open Web Steel Joist Construction:

1. The design, fabrication and erection of open web steel joist construction shall comply with the following specifications:

a. "Standard Specifications For Open Web Steel Joists, J-Series" adopted by the Steel Joist Institute, current edition.

b. "Tentative Specifications For Open Web Steel Joists H-Series" adopted by the Steel Joist Institute, current edition.

c. "Standard Specifications For Open Web Steel Joists, Longspan Or LA-Series" adopted by the American Institute of Steel Construction and the Steel Joist Institute, current edition.

d. "Standard Specifications For Open Web Steel Joists, High Strength Longspan Or LH-Series", adopted by the American Institute of Steel Construction and the Steel Joist Institute, current edition.

2. See section 8-3-24, appendix A, of this chapter.

D. Welding:

1. Details of welding technique, inspection of welding and qualification of welding operators shall conform to the recommendations of the "Standard Code For Arc And Gas Welding In Building Construction" of the American Welding Society, current edition.

2. See section 8-3-24, appendix A, of this chapter.

E. Beams And Girders:

1. Connections: Design to carry superimposed loads, rivet, bolt, or weld.

2. Bearing: On walls, minimum, 4".

3. Bearing plates: Design to distribute load, minimum thickness, $^{5}/_{16}$". Bed in Portland cement mortar. Plates may be omitted under wide flange type steel beams if width of flange provides sufficient bearing area so that allowable compressive stress of supporting material is not exceeded.

4. A column as defined in this section must be installed under all steel beams and girders where the steel beam and girder is connected into or resting on top of any wood framing unless the steel beam and girder is fastened to the wood framing with proper lag screws in order to tie them together as a unit.

F. Columns:

1. Material: Standard shape steel, or, cast iron. Concrete filled steel pipe, new materials, standard weight, or, heavier (boiler tubing not acceptable).

2. Bases And Caps: Steel or cast iron. Caps: rivet, bolt, or weld to steel girders (spike or lag screw to wood girders). Bases: anchor by bolts or embed in concrete.

3. Shims: Metal (loose shims not acceptable). (Ord. 2008-09-01, 9-24-2008)

8-3-8: WOOD CONSTRUCTION:

A. Lumber:

1. Stress Grade Lumber: Except as otherwise specifically provided in this code, "National Design Specifications For Stress Grade Lumber And Its Fastenings NLMA", current edition, shall be accepted as good engineering practice covering design and use of stress grade lumber, of glue laminated timber and of their fastenings (see section 8-3-24, appendix A, of this chapter).

2. Seasoned Lumber: All lumber shall be well seasoned. Lumber 2" thick, and less, shall have moisture content not to exceed 19% at the time dwelling is enclosed.

3. Plywood: All plywood used structurally shall bear the identification of an approved testing agency as to type and grade of plywood, species of veneer, and conformance with the appropriate U.S. commercial standard (see section 8-3-24, appendix A, of this chapter).

4. Lumber Dimensions:

a. Wood structural members shall be of sufficient sizes to carry the dead and live loads without exceeding the allowable working stresses hereinafter specified.

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b. Computations to determine the required sizes of lumber members shall be based on the net dimensions (actual size) and not on the nominal sizes.

c. Where minimum sizes of lumber members are required by this code, they shall be construed as meaning nominal sizes. For sawn lumber, the dressed sizes established in American lumber standards shall be accepted as the minimum net sizes confirming to such nominal sizes. For glue laminated timber, the net sizes established in the national design specification shall be accepted as the minimum sizes conforming to such nominal sizes.

d. The sizes and the allowable unit stress, or the species and the grade of lumber, used for structural design purposes shall be shown on the plans or given in a statement filed therewith. If rough sizes or finished sizes greater or smaller than the American lumber standard dressed sizes are to be used, the actual sizes shall be specified.

Nominal sizes are given in these requirements unless noted otherwise. Minimum dimensions for boards and framing lumber, which shall comply with American lumber standards, are as follows:

DIMENSIONS IN INCHES

Nominal	Actual
1	$^{3}/_{4}$
2	$1^{1}/_{2}$
3	$2^{1}/_{2}$
4	$3^{1}/_{2}$
5	$4^{1}/_{2}$
6	$5^{1}/_{2}$
8	$7^{1}/_{4}$
10	$9^{1}/_{4}$
12	$11^{1}/_{4}$

B. Framing (General):

1. Structural Framing Members: Splicing between bearing points, not permitted, except when continuous laminated beam construction is used. When structural strength is impaired by cutting, drilling, or by inherent defects, replace or reinforce members. Permitted notching and holes of floor joists, see section 8-3-24, table 2-F, of this chapter.

2. Framing At Chimney: Bearing of framing members on chimney masonry is not acceptable. Piers built integral with chimney may be used for girder bearing, provided end of girder is at least 2" away from chimney masonry. Framing members: Not closer than 1" to chimney masonry.

3. Fire Stopping: Fire stop all furring, partitions, and outside stud walls at level of each floor or ceiling, and juncture of roof rafters and wall. Wood or masonry tightly fitted.

C. Floor Framing:

1. Columns and posts:

Structural steel or iron, (see section 8-3-7 of this chapter). Wood posts: bear on concrete base, resting on footing; top of base: 3" above finish floor. Securely fasten top of post to girder. If necessary for bearing, install bearing plate or cap secured to both post and girder.

2. Girders: Materials: Structural steel, reinforced concrete, solid wood, or, built up wood. Spans of wood girders: Determine in accordance with sound engineering practice. Joints of solid and built up wood girders to be made over pier or column supports only. Air space each side of wood girders framing into masonry: $^{1}/_{2}$".

3. Sills: Level and grout with Portland cement mortar. All shims must be placed under the sill directly beneath each joist, bearing point or studs. Sill sealer may be used in lieu of grouting providing the foundation is level and does not require an excess amount of shimming. Wood shingles or similar material are not acceptable for permanent shims.

4. Joists:

a. Maximum Spans: Maximum spans for wood are as follows, except that different dimensions shall be allowed if they meet the load requirements of subsection 8-3-1B of this chapter.

MAXIMUM ALLOWABLE SPANS FOR FLOOR JOISTS OF OTHER THAN STRUCTURAL STRESS GRADED AND MARKED LUMBER ONE- AND TWO-FAMILY DWELLING

Lumber Sized In Inches Nominal And Actual	Spacing Center To Center (Inches)	Maximum Allowable Spans (Clear) Living Area Floors, Finished Ceiling Below. Assumed Live Load 40 Lbs. Per Sq. Ft.
2 x 6 ($1^5/_8$ x $5^5/_8$)	24	6' 9"
	16	8' 4"
	12	9' 7"
2 x 8 ($1^5/_8$ x $7^1/_2$)	24	9' 2"
	16	11' 2"
	12	12'11"
2 x 10 ($1^5/_8$ x $9^1/_2$)	24	11' 6"
	16	14' 2"
	12	16' 3"
2 x 12 ($1^5/_8$ x $11^1/_2$)	24	14' 9"
	16	17' 1"
	12	19' 9"
3 x 8 ($2^5/_8$ x $7^1/_2$)	24	11' 7"
	16	14' 2"
	12	16' 5"
3 x 10 ($2^5/_8$ x $9^1/_2$)	24	14' 8"
	16	18'11"
	12	20' 9"

b. Framing Into Headers Or Side Of Wood Girders: Use steel joist hangers or wood ledgers at least 2" x 3". Notch joists not more than $^1/_4$ of joist depth.

c. Framing Into Side Of Steel Girders: Allow $^3/_4$" clearance over top of top flange. Secure to girder or to opposite joists, or, bridge joist firmly at girder ends if other ends are fixed. Notch for bearing, not more than $^1/_4$ of joist depth.

d. Framing Into Masonry: Minimum bearing, 3". Fire cut or bevel, a minimum of 3" or whatever the bearing is. In no case shall the top part of the member be inserted into the masonry. Second-story floor joists parallel with masonry: tie to masonry with metal straps extending over and secured to at least 1 joist and not more than 8' on center.

e. Butt Or Lap Joists Over Girders And Bearing Partitions: Butting: Center, and tie with metal straps, or, 2 pieces plywood ties, at least 2' long. Lapping: At least 4"; spike together, maximum projection beyond bearing: 1'.

f. Double Joists: Under all bearing partitions and under plaster finished, nonbearing partitions when parallel to floor joists. Where piping or ductwork occurs, block joists apart at 4' intervals. Under heading partitions, more than 2 joists may be required by the building officer, depending upon loading conditions.

g. Headers And Trimmers: Headers, 4' or less in length, may be single. Headers receiving 3 or more tail beams: Support in steel hangers, or, on ledger boards not less than 2" x 3". If header is over 7' in length, secure ledger to trimmer with lag screws. For openings at end of joist span, with headers 4' or less, trimmers may be single. Use double framing under all other conditions.

h. Cutting Of Floor Joists: Notching top or bottom for piping and ductwork is permitted not more than to $^1/_6$ minimum required joist depth, except no notching in middle third of span; otherwise install header. See section 8-3-24, table 2-F, of this chapter.

i. Cross Bridging Maximum Spacing: 8', minimum size, 1" x 3". Double nail at each end. Bridging split in nailing not acceptable. Rigid metal bridging may be used.

j. Cantilever Construction: Submit detail drawing. All cantilevered construction must have a 3:1 ratio; underside of cantilevered

construction must have double wall construction same as exterior walls. Pop out for chimney, fireplaces, bay windows, etc., and any cantilever which results in the underside of the cantilever being less than 18" from finish grade shall have a full foundation (see section 8-3-24, tables 2-D and 2-E of this chapter).

5. Subflooring: (Required except as below.)

a. Wood boards: Thickness: 1". Maximum width: 8", unless triple nailed. If end match (tongue and groove boards), no 2 adjoining boards to break joints over same joist space; each board to bear on at least 2 joists. Maximum joist spacing for 1" subflooring: 16" on center.

b. Plywood:

(1) Moisture resistant or exterior type, apply with face grain perpendicular to supports and panels continuous over 2 or more spans.

(2) Minimum thickness, for indicated joists spacing; Douglas fir, western larch, or exterior C-C or structural interior C-D grades of western softwood group 1.

$^1/_2$" (3-ply or 5-ply)	16" o.c.
$^3/_4$" (5-ply)	24" o.c.
$1^1/_8$" (7-ply)	48" o.c.

(3) Minimum thickness, for indicated joist spacing; western softwood group 2 and western softwood group 1 in grades other than C-C and C-D.

$^5/_8$" (5-ply)	16" o.c.
$^3/_4$" (5-ply)	24" o.c.
$1^1/_8$" (7-ply)	48" o.c.

(4) Minimum recommended width of girders, supporting floor loads for $1^1/_8$" plywood at 48" o.c. is 4". Recommended sizes and spans for girders are:

4 x 6	8'0"
4 x 8	11'0"
4 x 10	14'0"
4 x 12	17'0"

(5) On all single floors where no underlayment is installed provide 2" x 4" nailing blocks between joists under plywood joists.

(6) 2" x 4" blocks may be omitted where underlayment for tile, linoleum, parquet, or carpeting (minimum $^1/_4$" thick) is applied, or where wood finish flooring is to be used.

(7) $^5/_8$" 5-ply tongue and groove touch and sanded plywood is accepted as single flooring and any other single flooring may be permitted when it meets the structural load requirements as provided in subsection 8-3-1B of this chapter.

c. At chimneys: Lay $^1/_2$" clear of masonry.

d. Provide $^1/_2$" clearance between subfloor and/or sheathing and any masonry wall.

D. Ceiling Framing:

1. Joist: For no attic storage: Minimum access opening is 22" x 22" located in a hall or open room near an entrance or stair landing (closets not acceptable); with larger access opening, design for limited attic storage; with permanent or disappearing stair, design according to floor joist table in subsection C4a of this section.

2. Maximum spans for ceiling or attic floor joists where there is a limited or no attic storage space are as follows, except that different dimensions shall be allowed if they meet the requirements of subsection 8-3-1B of this chapter.

MAXIMUM ALLOWABLE SPANS FOR CEILING JOISTS OF OTHER THAN STRUCTURAL STRESS GRADED AND MARKED LUMBER

Lumber Sized In Inches Nominal And Actual	Spacing Center To Center (Inches)	Maximum Allowable Spans (Clear)	
		Less Than 3/12 Pitch. No Attic Storage. Assumed Live Load, 0	Limited Attic Storage. Assumed Live Load 20 Lbs. Per Sq. Ft.
2 x 4 ($1^5/_8$ x $3^5/_8$)	24	8' 9"	6' 0"
	16	10' 9"	7' 4"
	12	11' 0"	8' 5"

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Lumber Sized In Inches Nominal And Actual	Spacing Center To Center (Inches)	Maximum Allowable Spans (Clear)	
		Less Than 3/12 Pitch. No Attic Storage. Assumed Live Load, 0	Limited Attic Storage. Assumed Live Load 20 Lbs. Per Sq. Ft.
2 x 6 ($1^5/_8$ x $5^5/_8$)	24	13' 7"	9' 3"
	16	15' 8"	11' 4"
	12	17' 1"	13' 1"
2 x 8 ($1^5/_8$ x $7^1/_2$)	24	18' 1"	12' 5"
	16	20'11"	15' 2"
	12	22'10"	17' 6"
2 x 10 ($1^5/_8$ x $9^1/_2$)	24		15' 8"
	16		19' 3"
	12		22' 1"

3. Use ceiling joists as ties for rafters whenever possible.

4. Bridging: Solid, 2" thick full depth of joists, staggered for end nailing. Joists 8" and over: 1" x 3" cross bridging or rigid metal bridging may be used; maximum spacing, 8' on center. A 2" x 6", 8' on center, lay flat and nailed to the top of ceiling joists, may be used in lieu of solid bridging, for ceiling joists in extreme situations a stiffback may be required.

5. Framing and ceiling joists over girders and bearing partitions: As required for floor joists (see subsection C4a of this section).

6. Hung ceilings, flat roof construction: Minimum size: 2" x 4" on edge, separated by wood or metal hangers, not more than 10' on center. Ceiling joists bridging not required.

E. Roof Framing:

1. General:

a. Headers And Trimmers: Headers 4', or less, in length, may be single. When chimney is at ridge or eaves and header is 4', or less, trimmers may be single; use double framing under all other condi-

tions. Dormer windows not supported on partitions, double headers and rafters.

b. Anchor Wall Plates: Anchor wall plates for rafters and roof joists on masonry wall (see subsection 8-3-6E7 of this chapter).

2. Pitch Roofs:

a. Minimum pitch: See subsection 8-3-10A2 of this chapter.

b. Maximum rafter spans are as follows (except that different materials and dimensions shall be allowed if they meet the load requirements of subsection 8-3-1B of this chapter):

MAXIMUM ALLOWABLE SPANS OF RAFTERS AND FLAT ROOF JOISTS OF OTHER THAN STRUCTURAL STRESS GRADED AND MARKED LUMBER

Between plate and ridge of intermediate support for wood or asphalt shingles or built up roofing (collar beams designed as compassion members may be accepted as intermediate supports).

Lumber Sized In Inches Nominal And Actual	Spacing Center To Center (Inches)	Maximum Allowable Spans (Clear)		
		Greater Than 3 In 12 Measured On Slope. Roofing Material Weight 5 Lbs. Per Sq. Ft. Or Less	3 In 12 Or Less Measured Horizontally	
			Supporting Finished Ceiling	Nonsupporting Finished Ceiling
2 x 4 ($1^5/_8$ x $3^5/_8$)	24	7' 6"		
	16	9' 2"		
	12	10' 0"		
2 x 6 ($1^5/_8$ x $5^5/_8$)	24	11' 8"	8' 7"	10' 2"
	16	14' 3"	10' 6"	12' 6"
	12	16' 5"	12' 1"	14' 4"
2 x 8 ($1^5/_8$ x $7^1/_2$)	24	15' 6"	11' 5"	13' 6"
	16	19' 0"	14' 0"	16' 7"
	12	22' 0"	16' 2"	19' 2"
2 x 10 ($1^5/_8$ x $9^1/_2$)	24	19' 9"	14' 6"	17' 1"
	16	24' 1"	17' 9"	21' 1"
	12	27'10"	20' 6"	24' 2"

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c. Rafters: Cut for level bearing and spike to wall plate; no portion of cut end of rafters to project beyond inside edge of wall plate: frame rafters opposite at ridge; provide tie for rafters to prevent thrust.

d. Collar ties: Minimum size 1" x 6" or 2" x 4"; maximum spacing 4' on center. When ceiling joists do not serve as rafter ties at plate line or are not below lower third of rafters, install ceiling joists (collar beams) same size as rafters on each pair of rafters, and make special provisions for tying the lower end of rafters to the floor or wall construction. When collar beams are installed above lower third of rafters, engineer's detail is required.

e. Ridge boards: Not required for simple gable roofs where rafters frame opposite each other. All other types, use 2" member with depth 2" larger than rafter but in no case less than cut end of rafter.

f. Valley rafters: Minimum thickness: 2", minimum depth, 2" larger than rafter but in no case less than cut end of jack rafters. Maximum unsupported length of single valley rafters, 8'; all common rafters must be installed in a hip roof plus at each end of the ridge.

g. All common rafters must be installed in a hip roof including at each end of the ridge.

h. In cathedral and flat roof construction, the minimum depth of the rafter shall be 8" to provide for proper insulation and venting, provided, however, if a proper built up roof system is used, venting and insulation is not required.

i. Mansard roof shall be fire stopped at each corner, provide inspection access panel to those areas enclosed by the mansard by means of removing a portion of the overhang and/or soft by thumb screw. Minimum area (width of soffit 18" long), but in no case larger than 14" x 18" or by providing an inspection access panel to the same area enclosed by the mansard on the interior part of the structure; minimum size 14" x 18". Inspection panel may be located in a closet wall, attic access. (See subsection 8-2-5A2 of this title.) (See wood construction, subsection B3 of this section.) Install solid blocking between each joist at the wall line beneath the sole plate, blocking to be same thickness and depth as joist.

j. Gambrel roof, same requirement as mansard.

k. Crickets or chimney saddles same as rafters (see subsection E2b of this section).

3. Flat roofs: Roof joist spans: See subsection E2b of this section.

a. Cross bridging: Minimum size: 1" x 3". Maximum spacing: 8' on center.

b. Joist supporting hung ceilings: See subsection D2 of this section.

c. Framing of roof joists over girders and bearing partitions: As required for floor joists (see subsection C4e of this section).

4. Roof trusses of wood or steel may be used in place of rafter construction when the design is approved by building officer.

F. Exterior Wall And Bearing Partition Framing:

1. Studs: Continuous lengths without splicing.

a. Minimum size: 2" x 4".

b. Maximum spacing for all construction: 16" on center. One-story detached accessory buildings: 24".

c. Maximum length for balloon frame: 20'; notch studs at second floor to receive 1" x 4" ribbon. Nail joists to studs.

2. Corner Posts: Not less than 3, 2" x 4", set to receive interior finish.

3. Bracing: 1" x 4", let into outside face of studs and plates, set approximately at 45°, extend from sill to plate. Attaching ends of braces to blocks nailed to studs or plates not acceptable. May be omitted in one-story buildings with horizontal wood sheathing boards and in buildings of more than one story with wood sheathing laid diagonally. Also when other approved sheathing is applied vertically in panels of not less than 4' x 8' in area, run continuously and nailed in accordance with the nailing schedule in section 8-3-24 of this chapter. When sheathing is applied in such a manner that the vertical and horizontal seams are not nailable and the horizontal seams are or are not interlocking, wind bracing and sheathing paper shall be installed.

a. Openings near corner: Use 1" x 4" knee braces, extending from corner post to sill and to top plate. Extend over at not less than 3 stud spaces.

b. Openings at corner: Brace as in subsection F3a of this section, set as near opening as possible.

4. Sill Construction:

a. Sill anchorage: See subsections 8-3-5J4 and 8-3-6B4 of this chapter.

b. Sills and girders on top foundation walls and piers; level and grout with Portland cement mortar; wood chips not to be used for permanent shims.

c. Other methods may be used if detailed on drawings submitted with application and acceptable to building officer.

5. Window And Door Openings:

a. Inner studs on jambs: Extend in 1 piece from header to bearing and nail to outer stud.

b. Headers for usual loading conditions: 2" x 4", 4'0" maximum span. 2" x 6" on edge, 6'0" maximum span. 2" x 8" on edge, 8'0" maximum span. 2" x 10" on edge, 10' x 0" maximum span. 2" x 12" on edge, 12'0" maximum span.

c. Where headers support concentrated loads or are subjected to other unusual loading conditions, the header shall be specially designed.

d. If desired, truss construction may be used. A stamped truss design is required by a structural engineer licensed in the state of Illinois.

6. Plates:

a. Top plates: 2" x 4". Lap at corners and at least 2' separating splices between the top plates. Single 2" x 2" x 4" acceptable for interior bearing partitions when studs occur directly under joists. All exterior walls must have double plates. When plates are cut for piping or ductwork, install steel angles on each side of plate not less than $1^1/_2$" x $1^1/_2$" x $^1/_8$" to serve as plate ties and bearing for joists.

Spike angles to joists and plates, using not less than 3 nails at each end. Alternate method for reinforcing cut plates: Solid full depth 2" header and metal tie $^1/_2$ by 12-gauge with 3 heavy nails or screws at each end.

b. Single plates: See subsection 8-3-15B of this chapter, detached garage.

c. Sole plates: Minimum thickness 2"; exterior wall studs may bear on the sill or on a sole plate on top of subfloor.

7. End Studs: On bearing partitions connecting to masonry walls: Anchor with bolts or spikes.

8. Wood Bearing Partitions: Wood bearing partitions in cellars or basements are not acceptable unless the proper foundation is installed.

9. Studs To Be Continuous: Studs to be continuous (balloon frame) when exterior is to have continuous stucco finish with proper fire stops.

G. Foundation Studs:

1. Foundation studs shall have a minimum length of 14" and shall be not less in size and spacing than the studding required for exterior walls, and when exceeding 4' in height shall be of the size required for an additional story.

2. Foundation studs of exterior walls and bearing partitions shall be thoroughly and effectively braced in accordance with subsection F of this section.

3. Column bases shall be protected against decay or corrosion except when approved wood of natural decay resistance or treated wood as set forth in subsection H of this section is used, except for basement posts or columns supported by piers projecting 2" above finish floor and separated therefrom by an approved impervious barrier.

4. The columns shall be adequately anchored to prevent lateral displacement at either their top or the bottom. Wood columns shall be not less in nominal size than 4" x 4" and steel columns shall be not less than 3" diameter standard pipe or approved equivalent.

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H. Protection Against Decay And Termites: In areas subject to termite or decay damage, the following locations shall require the use of an approved species and grade of lumber, pressure treated with an approved preservative, or decay resistant heartwood of redwood, cypress, black walnut, catalpa, chestnut, osage orange, red mulberry, white oak or cedar lumber or equivalent. Heartwood of bald cypress, redwood and eastern red cedar shall be considered termite resistant.

1. Wood joists or the bottom of wood structural floors and wood girders closer than 24" to exposed earth in crawl spaces or excavated areas. This shall apply to existing structures also when remodeled or added onto.

2. Sills which rest on concrete or masonry walls and are less than 8" from exposed earth.

3. Sills or sleepers on concrete or masonry slabs which are in direct contact with the earth.

4. Ends of wood girders entering masonry or concrete walls and having clearances of less than $^{1}/_{2}$" on the tops, sides and ends.

5. Wood siding having a clearance of less than 6" from the earth.

6. Pressure treated wood embedded in grade. Lumber and plywood required to be preservatively treated in accordance with this chapter and as set forth in section 8-3-24, appendix A, of this chapter shall bear the quality mark of an approved inspection agency.

I. Nonbearing Partition Framing:

1. Studs: Use continuous lengths without splicing.

2. Partitions:

a. Exceeding 6' of unsupported length containing openings: size and spacing same as bearing partitions.

b. Less than 6' unsupported length with openings:

Minimum Size	Maximum Spacing
2 x 4s (2" thickness)	16" on center
2 x 4s (4" thickness)	16" on center

c. 6 feet or over in length without openings:

Minimum Size	Maximum Spacing
2 x 4s (2" thickness)	16" on center
2 x 4s (4" thickness)	16" on center

d. Intersecting walls must be firmly secured at top, bottom and at midway point.

3. Openings:

a. In 2" thick partitions, inner stud on jamb 2" x 2". Extend in 1 piece from header to bearing, and nail to outer stud, or single frame with 2" x 6" jambs continuous from top plate to sole plate with header notched 2" into each jamb not to exceed 10' in length.

b. In 3" and 4" thick partitions: Single framing permitted, provided opening does not exceed 3' in width and header is secured by spiking through jamb studs 3" partitions not to exceed 10' in length.

4. Headers:

Opening width, 3' or less:

2" thick partitions	2" x 4" on edge
3" thick partitions	2" x 3" flat
4" thick partitions	2" x 4" flat

Opening width, over 3':

2" thick partitions	2" x 4" on edge
3" thick partitions	2" x 3" flat
4" thick partitions	2" x 4"

5. Top and sole plates: Minimum thickness: 2". Lap top plate at outside walls and at bearing partitions.

6. Wardrobes, cabinets or casework: Acceptable as nonbearing partitions.

7. Solid plaster partitions:

a. Maximum Unsupported Length: 16'.

b. Core: $^{3}/_{8}$" or $^{1}/_{2}$" gypsum lath continuous from floor to ceiling and full width of door frames. Set in grooves of wood sill and plate members and jambs and heads of door frames. Grooved member not required at intersection of walls to be plastered. At masonry wall intersections, tie or lace cornerite through lath core with wire. Butting units may be fastened as recommended by manufacturer.

c. Sill And Plate Members: Finished thickness: $1^{1}/_{4}$", minimum. Securely nail to floor and structural framing.

d. Door Frames: Mill built as finished frame. Thickness $1^{5}/_{8}$" minimum. Prime coat, all sides. Secure to floor framing and sill members. Provide anchor for plaster by driving 8d nails on each side of lath, $^{3}/_{8}$" out from groove, at 30° angle with plane of lath, on $^{1}/_{2}$" centers, staggered, then, bend back against lath.

e. Pipes And Conduits: Plumbing pipes, not permitted. Moisture resistant electrical conduit (tie securely to face of lath). Use shallow outlet box.

f. Coats: Coat core both sides with gypsum plaster to overall thickness of 2", 3 coats or 2 coat double-up work.

J. Wall Sheathing:

1. Sheathing may be omitted on one-story detached accessory buildings when frame is well braced.

2. Wood boards may be used under any exterior finish material.

a. Minimum Thickness: 1" (3/4: 8" wide unless triple nailed. Maximum stud spacing: 16") on center, except in one-story detached accessory buildings.

b. Break Joints: Break joints over center of studs unless end matched (tongue and groove) boards are used. No 2 adjoining end matched boards to break joints over same stud space and each board to bear on at least 2 studs.

c. Application: When laid diagonally, extend at 45° in opposite direction from each corner. Apply horizontally under stucco finish.

3. Plywood: Moisture resistant or exterior type may be used under any exterior finish material.

a. Minimum thickness: $^{5}/_{16}$". Maximum stud spacing: 16". $^{3}/_{8}$" minimum thickness where 24" maximum stud spacing is permitted.

b. Types of finish which affect the minimum thickness of plywood used: Under wood shingles: If $^{5}/_{16}$" plywood is used, apply shingles over 1" x 2" horizontal nailing strips, using copper or galvanized nails for attaching shingles (nailing strips may be omitted if barbed nails are used for attaching shingles). Under asbestos cement shingles and siding: If $^{5}/_{16}$" thick plywood is used, apply siding or shingle material with barbed nails (do not apply over wood nailing strips).

4. Fiberboard minimum thickness $^{1}/_{2}$" (see subsection F3 of this section). Structural (see section 8-3-24, appendix A, of this chapter).

a. Under wood shingle siding: Apply 1" x 2" nailing strips over sheathing, spaced according to shingle exposure.

b. Asbestos-cement siding or asbestos-cement shingles shall be attached with special metal fastening devices. $^{1}/_{2}$", minimum thickness. 16" maximum stud spacing. $^{3}/_{4}$" minimum thickness where 24" maximum stud spacing is permitted.

5. Gypsum board (see section 8-3-24, appendix A, of this chapter):

a. Asbestos-cement siding or asbestos-cement shingles shall be attached with special metal fastening devices.

b. Minimum thickness: $^{1}/_{2}$". Maximum stud spacing: 16".

c. Under wood shingle siding: Apply 1" x 2" nailing strips over sheathing, spaced according to shingle exposure.

K. Sheathing Paper:

1. Material: Water resistant building paper or asphalt saturated felt. Vapor resistance shall be less than that of vapor barrier provided on inside of wall.

2. Application: Use over all types of sheathing except as noted in subsection K3 of this section. Apply shingle fashion, 4" lap. Lap 4" over paper strips around openings. Use 6" wide strips behind exterior trim of all exterior openings.

3. Exception: Paper not required over gypsum or fiberboard, factory treated to be moisture resistant and each piece marked "Water-Repellant". Sheathing paper shall be used behind masonry veneer and stucco, and necessary corner and opening cuts are caulked with elastic waterproof caulking material; corner joists may be protected with 18" widths of sheathing paper applied shingle fashion. At heads of openings, bottom edge of board is located to permit head flashing to be extended under and turned up behind sheathing, and joint between head flashing and board is caulked. All exterior wood shall be covered with sheathing paper.

L. Roof Sheathing:

1. Wood boards may be used under any roofing material.

a. Minimum Thickness: 1" (3/4). Maximum width: 10", provided lumber is dry and each board is triple nailed at each rafter. Maximum rafter spacing: 24" on center.

b. Break Joints: Break joints over center of rafters unless end matched (tongue and groove) boards are used (no 2 adjoining end matched boards to break joints over same rafter space and each board to bear on at least 2 rafters).

c. Application: Lay closed under all roof material except wood shingle. Under wood shingles, use 1" x 4" shingle lath, spaced according to shingle exposure.

2. Plywood: Moisture resistant or exterior type may be used under any roofing material.

a. Minimum Thickness:

Roofing Materials	Rafters Maximum Spacing	Plywood Minimum Thickness
Wood and asphalt shingles	16"	3/8"
	24"	1/2"
Slate, tile asbestos-cement	16"	1/2"
	24"	5/8"
Flat roofs	16"	5/8"

b. Under Wood Shingles: Under wood shingles apply 1" x 2" nailing strips over plywood less than $^1/_2$" thick, spaced according to shingle exposure.

c. Protect Exposed Edges: Protect exposed edges of sheathing along eaves and rake of roof with moldings or sheet metal flashing. Flashing along eaves may be integral with gutters. If gutters are not installed, form the flashing to provide a drip.

3. Fiberboard is not acceptable for roof sheathing. All roofs shall have sheathing paper installed beneath roof covering.

4. Fiberboard, with minimum thickness on $1^1/_2$", for built up roofs, if approved by section 8-3-24, "Appendix A Building Materials Standards", of this chapter.

M. Stair Stringers:

1. Provide solid bearing at top and bottom.

2. Effective depth of wooden stringers, minimum $3^1/_2$".

3. Open basement stairs: Minimum stringer thickness, 2".

4. Third stringer: Install if treads are less than $1^1/_8$" thick and stair is more than 2'6" wide.

N. Caulking:

1. Caulk around exterior openings in masonry or masonry veneer walls.

2. Caulk at intersections of wood and masonry except when flashed. This does not apply to tops of foundations. Caulk around exterior openings in wood siding application.

3. See subsection O3d of this section.

O. Insulation Requirement For All Residential Construction:

1. Exterior Requirements: In masonry veneered wall; the entire wall, except windows and door openings, shall be covered with a 15 pound felt, foil, or equivalent to be applied from top of top plate to bottom of plate that is resting on the masonry, concrete or block foundation. Installation shall be in such a manner that it will shed any moisture that could penetrate the final wall covering. Installation

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to be applied on the outside of the structure after the exterior sheeting has been applied.

2. Ceilings: Ceilings shall be insulated with material with an R factor of not less than 30.

3. Walls: Walls shall be insulated with a material having an R factor of not less than 13.

a. Warm air supply plenums or pipes will not be allowed in the outside walls of a two-story, tri-level, split-level, or raised ranch, provided, however, when outside wall is 2" x 6" stud size and an R13 insulation rating can be achieved.

b. Plumbing pipes and electrical conduits not exceeding 2" in diameter will be permitted in the outside walls. Insulation to be installed between exterior sheathing and pipes. Electrical boxes, when installed, shall have insulation installed between exterior sheathing and boxes.

c. All box joists shall be insulated the same as the wall.

d. All openings, plumbing pipes, electrical conduits, heating, air conditioning, chimney, etc., shall be fire stopped with approved caulking.

e. Facings: All vapor retarders, whether integral or applied separately, shall be installed on the warm side of the building element, and shall have a permeance not exceeding 1 perm. Where insulation materials are installed in concealed spaces (such as wall, floor or ceiling cavities), attics or crawl spaces in buildings of types 3, 4 and 5 construction, the flame spread and smoke developed index limitations do not apply to facings, provided that the facing is installed behind and in substantial contact with the unexposed surface of the ceiling, floor or wall finish.

4. Exterior Doors:

a. All exterior doors shall have an R factor not less than 3.33.

b. Frames, jambs, and thresholds, if other than wood, shall have a thermal barrier.

c. Air filtration shall not exceed 1.0 CFM per crack foot, or a storm door and full weather stripping will be accepted in place of a CFM.

5. Service Door (Between Garage And Occupied Area):

a. All service doors shall have an R factor of not less than 3.33.

6. Patio Doors (Sliding):

a. Air filtration not to exceed 0.50 CFM per square foot of opening.

b. Glass shall be insulated.

c. Frames, jambs, and thresholds, if other than wood, shall have a thermal barrier.

7. Glass: All glass in habitable area shall be double glazed or insulated. (Single glazed with storm windows will be accepted in place of the double glazed glass.)

Glazing Location	Size Of Individual Panels	Minimum Thickness And Type Of Glass Permitted[1]						
		.115" Annealed	3/16" Annealed	1/8" Annealed	3/16" Annealed	1/4" Annealed	1/4" Annealed	1/8" Approved Plastic
Entrance and exit door and adjacent panels which may be mistaken for doors	Over 6'	No	Yes	No	Yes	Yes	Yes	Yes
Sliding door	All sizes	No	No	No	Yes	Yes	Yes	Yes
Storm door	All sizes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shower doors and bathtub enclosures	All sizes	No	No	No	Yes	Yes	Yes	Yes

Notes:

1. Glass shall conform to section 8-3-24, appendix A, of this chapter, glazing materials. Annealed glass shall be protected by grilles on both exposed sides.
2. Safety glazing materials shall conform to section 8-3-24, appendix A, of this chapter, glazing materials.
3. All windows over bathtubs, etc., shall be of safety glazing material.
4. All windows in bedrooms between 18" and 24" from the floor shall be of safety glazing material.
5. No bedroom window shall be less than 18" off of finished floor, if window can be opened.

8. Unheated Crawl Spaces:

a. Hot and cold water lines shall be insulated with a material having an R factor not less than 7. All heating and cooling pipes and plenums (supply and/or return) shall be insulated with a material having an R factor not less than 7.

b. The framed floor above all unheated crawl spaces shall be insulated with a material having an R factor not less than 13.

9. Heated Crawl Spaces:

a. Provide a minimum of 2 heat runs which must be spaced in such a manner as to distribute the heat equally through the crawl space, or

b. Install 2, 6" x 10" grilles on either side of the main trunk line which supplies the heat to the floor area above the crawl space. These grilles also shall be spaced in such a manner as to distribute the heat equally throughout the crawl space area.

10. No Heat For Crawl Spaces: No heat required for crawl spaces when 1 side of which, exclusive of structural supports such as piers, chimney foundation, etc., is open to a heated basement. (Ord. 2008-09-01, 9-24-2008)

8-3-9: **EXTERIOR WALL FINISH:** See subsection 8-3-8H of this chapter.

A. Wood Siding:

1. Use well seasoned material. Moisture content not to exceed 15%.

2. Nails at each bearing with hot dipped galvanized or cement coated nails.

3. Beveled siding: Finish dimensions to comply with the following limitations as to minimum top and butt thickness:

Nominal Width	Thickness At Top	Thickness At Butt
4" to 6"	$^{3}/_{16}$"	$^{7}/_{16}$"
8"	$^{3}/_{16}$"	$^{9}/_{16}$"
10" to 12"	$^{3}/_{16}$"	$^{11}/_{16}$"

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Minimum headlap:

1" for 4" width
$1^1/_4$" for widths over 4"

Nail near butt only (do not nail through board underneath).

4. Rustic and drop siding: Minimum thickness: $^3/_4$" (finished). Maximum width: 8" (nominal).

5. Shiplap or matched siding: Minimum thickness: $^3/_4$" (finished). Maximum width: 12" (nominal). Triple nail all boards over 8" width. When boards are applied vertically, edges must be painted prior to installation.

B. Wood Shingle Siding:

1. Shingle grades: Single course siding, no. 1, or no. 2. Double course siding, no. 1 for exposed shingles. Under course may be no. 1, or no. 2.

2. Minimum size: Length: 16"; (thickness: 5 butts in 2"). Length: 18"; (thickness: 5 butts in $2^1/_4$"). Length: 24"; (thickness: 4 butts in 2").

3. Maximum exposure:

Shingle Length	Single Course Exposure	Double Course Exposure
16"	$7^1/_2$"	12"
18"	$8^1/_2$"	14"
24"	11"	16"

4. Nailing: Nails: Copper, or, hot dipped galvanized. Butt nail double coursing (exposed nails may be small headed).

C. Asbestos-Cement Siding And Shingles: See subsection 8-3-8J4b of this chapter.

1. Material: (See section 8-3-24, appendix A, of this chapter.)

2. Application: Apply clapboards and shingles in accordance with manufacturer's recommendations.

3. Nails: Noncorrodible. Minimum thickness: $^1/_8$".

D. Plywood:

1. Material: All panels shall be identified by a grade mark or certificate of inspection. All panels shall be in compliance to the United States department of commerce standard DOC-1 (construction and industrial plywood) or United States department of commerce standard DOC-2 (performance standard for wood-based structural-use panels).

2. Grade Mark: Grade mark, for exterior use, on each sheet of plywood.

3. Sheathed Walls: Plywood, $^3/_8$" may be used on sheathed walls. If sheathing other than wood is used, install solid blocking between studding as provided in subsection D4 of this section.

4. Installation:

a. Protect edges, prior to erection, with water resistant paint, or approved sealer.

b. Vertical joints: To occur over studs.

c. Horizontal joints: Install solid blocking between studding for nailing.

d. Corner boards: Apply over plywood or butt plywood against boards at all corners.

e. Nails: Cement coated or hot dipped galvanized, flat head. Minimum spacing: On edge: 6" on center; at intermediate bearings: 12" on center.

E. Stucco: (See subsections 8-3-8F9 and H5 of this chapter.)

1. Lath for stucco: (See section 8-3-24, appendix A, of this chapter.)

a. Wood Lath: Wood lath not acceptable. Expanded metal lath, painted; with large openings; 1.8 pounds per square yard.

b. Nails: Electrolytic zinc coated furring nails.

c. Metal Lath: Held at least $^1/_4$" away from sheathing. Furring strips not permitted.

d. Material: (See sections 8-3-4 and 8-3-24, appendix A, of this chapter.)

e. Mixture: 1 part Portland cement, 3 parts sand, and hydrated lime equal to 10% of cement by volume; or prepared Portland cement stucco, used in accordance with manufacturer's recommendations.

f. Thickness: 3 coat work; 1" total. 2 coat work; $^3/_4$" total.

g. Application: 3 coat work; over wood frame. 2 coat work; over masonry surfaces. Finish coat may be trowel coat of prepared exterior Portland cement stucco. Thoroughly cover and embed lath in stucco. Keep wet 2 days after application of each coat. Drying time before application of finished coat: 7 days. Stucco not to be applied when temperature is lower than 4° Fahrenheit.

F. Exterior Weather Boarding, Veneer And Condensation: To secure weather tightness in framed walls and other unoccupied spaces, the exterior walls shall be faced with an approved weather resisting covering properly attached to resist wind and rain. The cellular spaces shall be so ventilated as not to vitiate the fire stopping at roof, attic and roof levels or shall be provided with interior noncorrodible vapor type barriers complying with the approved rules; or other means shall be used to avoid condensation and leakage of moisture. The following materials shall be acceptable as approved weather coverings of the nominal thickness specified:

Aluminum clapboard siding	0.024"
Asbestos-cement boards	$^1/_8$"
Asbestos shingles	$^5/_{32}$"
Brick masonry veneers	2"
Clay tile veneers	$^1/_4$ to 1"
Exterior plywood (with sheathing)	$^5/_{16}$"
Formed steel siding	29-gauge (0.017")
Hardboard siding, vinyl siding	$^1/_4$"
Precast stone facing	$^5/_8$"

Protected fiberboard siding	$^1/_2$"
Stone veneers	2"
Stucco or exterior plaster	$^3/_4$"
Wood shingles	$^3/_8$"
Wood siding (with sheathing)	$^1/_2$"
Wood siding (without sheathing)	$^5/_8$"

G. Metal Siding:

1. Aluminum clapboard siding:

Thickness: 0.024" minimum.

Thickness: 0.024" may be unbacked only when the flat areas are 5" or less in the narrow dimension.

2. Formed steel siding: Thickness: 29-gauge, minimum.

H. Protected Combustible Fiberboard Siding: Minimum thickness: $^1/_2$".

I. Hardboard, Masonite And Vinyl Siding: When meeting requirements as set forth in section 8-3-24, appendix A, of this chapter, but with a minimum thickness of $^1/_4$" and providing required outside sheathing is first installed on outside of studs.

J. Manufactured Brick Siding: Install as per manufacturer's specifications. (Ord. 2008-09-01, 9-24-2008)

8-3-10: ROOF COVERING:

A. General:

1. Ice Barrier: All roofs shall have an ice barrier that consists of at least 2 layers of asphalt saturated underlayment, a minimum of 30 pounds per 100 square feet cemented together, a self-adhering polymer modified bitumen sheet or equivalent. The ice barrier shall extend from the eave edge to a point a minimum of 24" inside the interior wall line.

2. Roof Slope:

a. Tile roof (except porches): 5 in 12 minimum.

b. Tile roof of porch or attached garage: 3 in 12 minimum.

c. Built up roofs (gravel or slag surface): 3 in 12 minimum.

d. Built up roof with mineral surface cap sheet may be flat.

e. When materials and method of application provide precautions in excess of these 4 minimum requirements to assure a weather tight roof, above roof slopes may be reduced, subject to the acceptance by building officer.

3. Double Starting Row: Double starting row on all shingle applications.

4. Nails For Attaching Roof Covering: Copper, hot dipped, galvanized nails, or, aluminum nails.

B. Asphalt Shingles:

1. Fire underwriters class C label on each bundle.

2. Asphalt shingles may be used as follows: Shingles of not less than 235 pounds weight per square may be laid on slopes of not less than 2 in 12 pitch, provided that underlayment is not less than 2 layers of 15 pound saturated felt applied to the deck with a 19" lap. Started course of 12", 15 pound felt shall be covered with asphalt cement, and each succeeding course which lies from the eaves to a point on the roof 24" inside the inside wall line of the building. Underlayment to be secured to deck by either $^{3}/_{4}$" staples or $^{3}/_{4}$" roofing nails, using only enough fasteners to hold the material in place until the shingles are applied. Tabs shall be less than 3 in 12 pitch, cementing not required, and single underlayment of 15 pound saturated felt permitted.

3. Asphalt shingles of not less than 235 pounds weight per square may be laid at not less than 3 in 12 pitch, minimum 2" head lap, with single underlayment. Dutch lap method will require clips.

4. Reroofing (no more than 2 layers) without architect's written approval.

C. Wood Shingles:

1. Edge grain: Tapered shingles (no. 1 grade).

2. Minimum size:

Length: 16"; thickness: 5 butts in 2"
Length: 18"; thickness: 5 butts in $2^1/_4$"
Length: 24"; thickness: 4 butts in 2"

3. Maximum exposure:

Slope Of Roof		Exposure For Shingle Length (Inches)		
Rise	Run	16	18	24
3 to 7	12	4	$4^1/_2$	6
7 to 18	12	5	$5^1/_2$	$7^1/_2$

4. Underlay not permitted.

D. Asbestos-Cement Shingles:

1. Quality: Dense, hard structure, and thoroughly seasoned (see section 8-3-24, appendix A, of this chapter).

2. Fire underwriters' class A and B label on each bundle.

3. Underlay: 1 layer asphalt saturated felt, approximately 30 pounds per 100 square feet.

4. American method:

Standard shingle:

Minimum weight per square: 470 pounds.

Length: 16" inches; maximum exposure: 7".

Length: 15"; maximum exposure: $6^1/_2$".

Length: 12"; maximum exposure: 5".

Strip shingle:

Minimum weight per square: 250 pounds.

5. Dutch method:

Minimum weight per square: 265 pounds.

Minimum head lap: 3".

Minimum side lap: 4".

6. French or hexagonal method:

Minimum weight per square: 25 pounds.

Minimum overlap: 2 edges, 3.

7. Minimum pitch: 5 in 12.

E. Tile Roofing:

1. Quality: Hard burned roofing tile.

2. Underlay: 1 layer asphalt saturated felt, approximately 30 pounds per 100 square feet.

3. Shingle tile, American method:

Length: 16"; maximum exposure: 7".

Length: 15"; maximum exposure: $6^{1}/_{2}$".

Length: 14"; maximum exposure: 6".

Length: 12"; maximum exposure: 5".

4. Interlocking tile and curved tile: Lay in accordance with manufacturer's recommendations.

F. Slate Shingles:

1. Quality: Free from knots or knurls and of reasonably smooth cleavage. (See section 8-3-24, appendix A, of this chapter.)

2. Underlay: Asphalt saturated felt approximately 30 pounds per 100 square feet.

3. Laid American method:

Minimum thickness: $^{3}/_{16}$".

Length: 18"; maximum exposure: $7^{1}/_{2}$".

Length: 16"; maximum exposure: $6^{1}/_{2}$".

Length: 14"; maximum exposure: $5^{1}/_{2}$".

Length: 12"; maximum exposure: $4^{1}/_{2}$".

Length: 10"; maximum exposure: $3^{1}/_{2}$".

4. Minimum pitch: 5 in 12.

G. Built Up Roofs:

1. Asphalt or tar and gravel coverings, including flashings: Comply with requirements of Underwriters Laboratories, Inc. Built up roof coverings: Minimum 3-ply.

2. Apply according to manufacturer's directions.

3. Each ply of felt: Minimum weight: 15 pounds per 100 square foot.

4. Surface with roofing gravel or crushed stone, approximately 400 pounds per 100 square feet; or crushed slab, approximately 300 pounds per 100 square feet.

5. Top ply of felt and crushed stone or slab surfacing may be replaced with 1 layer of mineral surfaced cap sheet, minimum weight: 85 pounds per square.

6. Asbestos felt built up roofs may be smooth surface, if applied according to manufacturer's directions.

H. Metal Roofs:

1. Materials: (See section 8-3-24, appendix A, of this chapter.) Galvanized sheet metal: 26-gauge sheets, 1.25 ounce (total weight both sides) zinc coating per square foot. Copper: 16 ounce soft

(roofing temper). Roofing tin: 40 pound coating. Lead: sheet lead, $2^1/_2$" pounds per square foot.

2. Nails: Hard copper or copper alloy, for copper roofs. Hot dipped, galvanized, for galvanized sheet metal roofs.

3. Seams: Flat or standing. Flat seams; locked and soldered.

I. Roof Coverings: Roof coverings such as aluminum, metal shingles, canvas or roll roofing, may be used when the type and weight of material, and method of application are acceptable to the building officer. (Ord. 2008-09-01, 9-24-2008)

8-3-11: FLASHING:

A. Materials: (See section 8-3-24, appendix A, of this chapter.)

1. Copper: 16 ounce soft (roofing temper).

2. Galvanized Sheet Metal: 26-gauge, 1.25 ounce (total weight both sides) zinc coating per square foot.

3. Lead: Hard lead, 2 pounds. Soft lead, 4 pounds.

4. Tin: 40 pound coating, painted both sides.

5. Aluminum: Of suitable weight.

6. Copper And Zinc: Copper and zinc flashings, gutters, and downspouts not to be used in conjunction with each other.

B. Openings Not Protected By Overhang:

1. Heads of openings, wood frame walls: Sheet metal extended behind finish siding material and turned down over outside edge of head trim, unless drip cap extends behind and above bottom of finished material or 3 ounce copper coated building paper may be used, provided flashing is not exposed to weather more than 2". Extend behind siding. Blind tack at outside edge of drip cap, 1" on center.

2. Heads and sills of openings, masonry veneered wood frame walls: Material: Sheet metal or membrane waterproofing material acceptable to building officer. Head flashing: Extend from front edge

of lintel and up and over top of lintel and up on sheathing under building paper. Sill flashing: Extend under masonry sill, up on sheathing and under wood sill.

3. Heads and sills of openings, masonry walls: Material: Sheet metal or membrane waterproofing material acceptable to building officer. Head flashing: Extend from front edge of lintel, up and over top of lintel, through wall and run up 1" on inside surface. Sill flashing: Extend under and behind masonry sill.

4. Heads of openings, stuccoed wood frame walls: Material: Sheet metal. Drip: Form drip on front edge of drip cap and extend flashing up behind building paper underneath stucco.

C. Intersections:

1. Provide sheet metal flashing for all horizontal and vertical intersections of stucco with other materials.

2. All flashing in connection with masonry walls shall have flashing or counter flashing built into masonry not less than 1".

D. Valleys:

1. Rigid shingle roof covering: Flash with sheet metal. Flashing on roof slopes, less than 7 in 12: Width, 18". On roof slopes 7 in 12, or more: Width 12".

2. Asphalt shingle roof covering: Flash with sheet metal; or 2 thicknesses of mineral surfaced roll roofing material, cut from rolls weighing not less than 85 pounds per square. Bottom strip, 18" wide, top strip at least 12" wide. Single strip, 18" wide, may be used under closed valleys.

E. Roof And Wall Intersections:

1. Sloping roof: Sheet metal flashings.

2. Flat roof: Sheet metal or same material as roof covering. When sheet metal is not used, install 45° cant-strip at roof and wall intersection.

F. Terrace Or Porch Slabs:

1. Flashing material: Sheet metal.

2. Extend flashing at finish floors of terrace or porch from 14" outside exterior face of finish, turn up 4" behind exterior finish, then turn down and extend 4" below top of outside of foundation.

G. Chimneys:

1. All chimney and roof intersections, sheet metal flashing.

2. Cricket or saddle covering. Sheet metal. (Ord. 2008-09-01, 9-24-2008)

8-3-12: **GUTTERS AND DOWNSPOUTS:** Install gutters and downspouts on all dwelling and attached accessory structures, including pop out bay, bay windows and chimney; each of them which may have a roof.

A. Materials: (See section 8-3-24, appendix A, of this chapter.)

1. Copper: 16 ounce, hard (cornice temper).

2. Galvanized sheet metal: 26-gauge sheets, 1.25 ounce (total weight both sides) zinc coating per square foot.

3. Solid wood gutters: Paint inside with 2 coats pitch or 3 coats lead and oil, after installation.

4. Aluminum: Of suitable weight.

B. Basket Strainers:

1. Material: Copper wire for copper gutters, heavily galvanized wire for all other gutters.

2. Install strainers in all gutter outlets to downspouts. (Ord. 2008-09-01, 9-24-2008)

8-3-13: **INTERIOR WALL AND CEILING FINISH:** None shall be applied when moisture content of framing lumber remains over 19%.

A. Interior Covering: All interior wall and ceiling surfaces shall be covered with a minimum of $^{1}/_{2}$" gypsum wallboard or approved equal, except that $^{3}/_{8}$" gypsum wallboard may be used as backup for

plywood paneling, behind fiberglass or plastic tub or shower recess or as backup behind cabinets where the wallboard is not subject to mechanical damage. No backup is required for nominal 1" solid paneling.

B. Lath And Plaster: (See section 8-3-24, appendix A, of this chapter.)

1. Wood Lath: Maximum stud spacing, 16" on center.

a. Lath, no. 1, $^{5}/_{16}$" thick.

b. Space lath $^{1}/_{4}$" to $^{3}/_{8}$" apart. Break joints every seventh lath, nail at each bearing.

2. Expanded Metal Lath: Minimum weights; maximum spacing of supports.

	Pound Per Yard	Stud Spacing	Joist Spacing
Wall, all dwellings	2.5	16"	
Wall, one-story dwellings	4.0 (flat rib)	24"	
Wall, one-story dwellings	3.0 (high rib)	24"	
Ceilings	2.75 (flat rib) 3.4 3.4 (high rib)		16" 16" 24"

3. Insulating Fiberboard Lath:

a. Minimum thickness: $^{1}/_{2}$".

b. Lath size: 18" x 48". Lath 24" x 48" may be used, provided joints at right angles to the framing members are covered with continuous strips of metal lath and ends of laths are nailed to solid bearing (framing members) at approximately 4" on center, including intermediate supports.

c. Maximum stud or joist spacing: 16" on center.

d. Apply in accordance with manufacturer's directions.

4. Gypsum Lath:

a. Minimum thickness: $^3/_8$".

b. Size: 16" x 48".

c. Maximum stud or joist spacing: 16" on center.

d. Apply in accordance with manufacturer's directions.

5. General Instructions (Lath):

a. Heads of openings: Install lath so vertical joints of first course of lath above head will not occur on jamb studs.

b. Corner beads: Galvanized metal for all external corners.

c. Corner and joint reinforcing: Metal lath: $2^1/_2$" lap on each surface.

d. Over solid wood surfaces: Install metal lath on strips or use fluting nails. Lap metal lath on adjoining lath surfaces.

6. Plaster:

a. Mixing: Mix all plaster (lime and prepared) according to manufacturer's recommendations.

b. Quick Lime: Slake thoroughly.

c. Minimum Thickness: $^1/_2$" over lath base. Finish all ceilings level, and walls and corners, plumb and straight.

d. Drying Period: Allow sufficient time for plaster to dry thoroughly before applications of trim.

C. Ceramic Tile:

1. Materials: (See section 8-3-24, appendix A, of this chapter.)

2. Grade: To be at least "standard grade".

3. Installation:

a. Stud covering: 15 pound asphalt saturated felt, applied shingle type (unless metal lath is paper backed).

b. Metal lath: (See subsection B2 of this section for types and weights.)

c. Scratch coat: Portland cement plaster, minimum $^{5}/_{8}$" thick, integrally waterproofed. Scratch thoroughly. Allow to dry before installing tile.

D. Shower Walls:

1. Material: Dense and water repellant. Exposed lime plaster not acceptable.

2. Installation: Install in accordance with manufacturer's instructions. Minimum height: Not below showerhead. Caulk and protect joints at corners, bathtub, top edges of wainscot, and at intersections of wainscot and other materials. Use moldings or other materials designed for the purpose.

E. Heater Room:

1. Materials: $^{1}/_{2}$" gypsum wallboard or approved equal.

2. Installation: Apply over all combustible materials, including ceiling area. Insulation of all heat producing devices shall be such that temperature rise of surrounding frame construction will not exceed 160° Fahrenheit.

3. Basements: In basements where the heating unit is not enclosed, provide a metal covering around all openings which penetrate the floor system. When such openings are larger than required for the items which penetrate the floor system, a fire stop is to be provided. (Ord. 2008-09-01, 9-24-2008)

8-3-14: FINISH FLOOR:

A. Cement floors:

1. Mix: (See subsections 8-3-5B and K of this chapter.)

2. Heater room floors on wood construction where solid or liquid fuel is used: Minimum thickness 4".

a. Use sheet metal over tops of joist for concrete forms or cut in 1" boards flush with top of joists. If wood boards are used, remove after the slab has set.

b. Reinforce slab with wire mesh weighing not less than 30 pounds per 100 square feet, or with $^1/_4$" bars spaced 1' on center each way.

3. Heater room floors on wood construction where gas burning equipment raises temperature of floor to above 160°, comply with the provisions set above (see section 8-3-24, appendix A, of this chapter).

B. Wood floors: (See subsection 8-3-8C5 of this chapter.)

1. Materials:

a. Flooring kiln dried material.

b. Strip flooring: Hardwood or softwood; minimum thickness: $^{23}/_{32}$". Maximum width: $2^1/_4$" for hardwood; $3^1/_4$" for softwood. $^3/_8$" thickness may be used where laid directly on a subfloor. Wider widths (plank flooring) and parquet flooring may be used when precautions are taken to prevent warping or cupping.

c. Nails: Maximum spacing: 12" on center.

d. Wood block floorings on concrete: Set blocks in mastic and install in accordance with flooring manufacturer's directions.

C. Ceramic tile:

1. Materials: (See section 8-3-24, appendix A, of this chapter.)

2. Grade: Not less than "standard grade".

3. Setting bed: Mix 1 part Portland cement, 4 parts sand; or 1 part Portland cement, 2 parts sand and 4 parts pea size aggregate. Minimum thickness: $1^1/_4$", if reinforced with wire mesh; 3", when installed below top of chamfered joists, with finish tile surface at least $1^1/_2$" above top of joists.

4. When applied over wood subfloor: Install asphalt saturated felt over subfloor underneath the wire mesh.

5. Where other methods are used, follow manufacturer's specifications.

D. Rubber tile, asphalt tile, and linoleum:

1. Rubber tile, linoleum or asphalt tile may be used on slabs bearing on the ground, provided the slab area where the tile are to be applied has first been covered with membrane waterproofing.

2. Install according to manufacturer's instructions.

3. Install over lining felt, approximately 1 pound per square yard, when applied over wood subflooring.

4. Hardboard, plywood or similar underlayment leveler having a nominal thickness of $^1/_4$", shall be used over wood subfloors to provide a smooth, flat surface for the finish floor covering (including wall to wall carpeting) where needed. Apply in accordance with manufacturer's recommendations.

5. Vinyl tile flooring: (See manufacturer's installation recommendations.) (Ord. 2008-09-01, 9-24-2008)

8-3-15: GARAGES AND ACCESSORY BUILDINGS:

A. Attached and built in garages:

1. Construction: Same as required for the dwelling. Where ceiling is not to be installed in attached garage, ceiling joists may be placed not less than 4' center to center, but size of joists must comply with table in subsection 8-3-8C of this chapter.

2. If door opening occurs between garage and dwelling, provide 6" curb at the door or construct garage floor 6" lower than adjoining floor. This also applies to stairwells leading to basement from a garage.

3. Installation of house heating unit in garage space not permitted unless it is isolated by an enclosure lined with 1 hour rated type X fire code sheetrock and a 1 hour rated door with the floor of this space set 6" above the garage floor and provided with its own

combustible air source. This heating unit must be so designed as to totally isolate the combustible chamber from the garage area. Approved garage heating appliance shall be installed not less than 18" above the floor; such appliances shall be located, or reasonably protected, so that they are not subject to physical damage by a moving vehicle.

4. Wood frame walls and doors common to dwelling and garage. Finish on garage side to be fire resistive when garage ceilings are left unfinished. Finish on garage side to be fire resistive from garage floor to underside of roof sheathing. Provide fire stops in overhand and/or soffit at house garage wall where applicable. Such walls, doors, and frames to have fire resistance rating of not less than 1 hour. An exterior door frame complete with sill and draft proof threshold will be allowed. When rooms occur over garage, ceiling and all walls shall be constructed in the same manner as to 1 hour fire resistance.

5. Floor drains for garage must have a separate sump crock and an explosion proof motor, switch and other accessories, provided, however, where floor drain is by gravity to the outside.

6. Garage separated from frame residence by a breezeway with a distance of not less than 10' between residence and garage, may be of unprotected frame construction, but, the junction of garage and breezeway shall be fire stopped. Where separation by breezeway between residence and garage is less than 10', comply with subsection A4 of this section. If door opening occurs between garage and dwelling, provide 6" curb at service door or construct garage floor 6" lower than adjoining floor.

B. One-story detached garages: Comply with construction requirements for one-story dwellings with the following exceptions: Bottom of concrete footing of frame garages, unless supported on slab, not less than 42" below grade. May be constructed on a slab foundation (see subsection 8-3-5K8 of this chapter). Sheathing and building paper may be omitted. Corner post may be 2" x 4" or a 4" x 4". Top plate may be single, provided rafters occur over studs and plate at corners is lapped to provide tie. Rafter ties at eaves not less than size of rafter, maximum spacing 6' on center. Corner bracing is required, except where wood sheathing is used, and may be applied on the inside surface of studs. Flooring may be gravel. If concrete, see subsection 8-3-5K8 of this chapter. Factory built storage buildings with floor systems included, 200 square feet or less shall be fastened to a 4" concrete post hole pier or an approved durable

or treated post, minimum size 4" to a depth not less than 2' at each corner. Factory built storage buildings without a floor system shall set on top of a concrete slab, minimum thickness of 4" and fastened at each corner. (Ord. 2008-09-01, 9-24-2008)

8-3-16: SMOKE DETECTOR:

A. Required: Each dwelling shall be provided with an approved, listed and labeled smoke and carbon monoxide detector sensing visible or invisible particles of combustion installed in a manner and located consistent with its listing. When actuated, the detector shall provide an alarm suitable to warn the occupants within the dwelling. These detectors shall be located within each sleeping room.

B. Location: Smoke alarms shall be installed in the following locations:

1. In each sleeping room.

2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.

3. On each additional story of the dwelling, including basements but not including crawl spaces and uninhabitable attics. In dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than 1 full story below the upper level.

When more than 1 smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of 1 alarm will activate all of the alarms in the individual unit. (Ord. 2008-09-01, 9-24-2008)

8-3-17: ELECTRICITY:

A. Permit: No electric wiring for light, heat, or power in a building or structure, nor shall an alteration or extension of an existing electric wiring system be made, except in conformity with the provisions of this title and rules that may be adopted and promulgated by the building officer under the provisions of this code, and a permit first secured, a fee for which shall include the inspection thereof when completed.

B. Electric Wiring And Apparatus: Adopted by reference, including those amendments thereto adopted and set forth in chapter 4 of this title, and applicable to all regulated buildings, structures, and developments as rules and regulations, are the standards for electrical connection(s), disconnection(s), wiring and apparatus set forth in: the national electrical code, current edition.

Said electrical code is now on file in the office of the county clerk of Lake County, Illinois, as provided by state statute, and also in the office of the building officer.

C. Wiring Layout With Application: Where construction or alteration work is of such size or importance that plans are required to be submitted as a part of the application for a permit, applicant shall furnish with the plans a wiring layout unless such layout is provided in general plans, showing the number and location of outlets, the size of wire to be used, the location of the control boxes, and the proposed location of the service head.

D. Connection For Occupant's Service: Any utility company connecting or disconnecting electrical service to a premises and/or supplying electricity may make the connection for and/or disconnection of the occupant's service in compliance with the provisions of section 8-4-2 of this title on a premises constructed or altered when a permit covering the electrical wiring has been issued by the building officer and the company's requirements for the supply of electric service have been satisfied. The utility company shall not consider this to be the final connection until a certificate of satisfactory completion has been issued by the proper village official.

E. Electric Service Attachments: Electric service attachments shall be installed in compliance with the provisions of section 8-4-2 of this title and in accordance with the requirements for the supply of electric service of the utility company and shall be approved by the building officer. It shall be the responsibility of the general contractor to have the service attachments installed at such locations in compliance with the provisions of section 8-4-2 of this title as may be agreed upon by the utility company and the electrical contractor.

F. Nonmetallic Sheathed Cable: Nonmetallic sheathed cable is not permitted. (Ord. 2012-08-03, 8-8-2012, eff. 8-24-2012)

8-3-18: **PLUMBING:**

A. Permit: No plumbing shall be installed in a building or structure, nor shall an alteration or extension of any existing plumbing system be made, except in conformity with the provisions of this chapter and rules that may be adopted and promulgated by the building officer under the provisions of this chapter, and a permit first secured, a fee for which shall include the inspection thereof when completed.

B. Plumbing And Apparatus: Adopted by reference and applicable to all regulated buildings, structures, and developments as rules and regulations, are the standards for plumbing and apparatus, set forth in the Illinois state plumbing code, 77 Illinois administrative code 890, as amended from time to time.

C. Exceptions To The Illinois State Plumbing Code: Notwithstanding anything contained in the Illinois state plumbing code to the contrary, the following exceptions or amendments to such code shall be applicable, and to the extent of any inconsistencies with the Illinois state plumbing code or the other provisions of this code, the more restrictive regulations shall govern and control.

1. Plastic hot water distribution line when approved shall have proper hanger installed every 2'.

2. Water softener must be discharged into the sanitary system when a private or community sewage system exists.

3. Water softener shall not discharge into a septic system.

4. Shower drain pea traps cannot be larger than the fixture opening.

5. A wash machine and/or sump pump cannot be discharged into the same drain with another fixture having a drain of $1^1/_2$" unless drain is increased at the point of entrance 1 size because the fixture discharges are under pressure.

6. All plastic and fiberglass laundry trays shall be fastened to a wall and/or floor in such a manner as to make them secured.

7. Cannot install galvanized nipples into any brass mixing valves when the water distribution lines are copper.

8. 2" cast iron under concrete floors for drains cannot exceed 9' in length.

9. No neoprene gasket installed in a hub can be used above the concrete, except when a drain is imbedded in a ditch.

10. All rough-ins for future baths shall be completed regarding waste and vents and/or all wastes and vents capped in such a manner as not to release any sewer gas.

11. The following water efficient plumbing fixtures based on a pressure at the fixture of 40 to 50 psi shall be installed in all new construction and in all repair or replacement of fixtures or trim:

Fixtures	Maximum Flow
Water closets, tank type	3.5 gallons per flush
Water closets, flushometer type	3.0 gallons per flush
Urinals, tank type	3.0 gallons per flush
Urinals, flushometer type	3.0 gallons per flush
Showerheads	3.0 gallons per minute
Lavatory, sink faucets	3.0 gallons per minute

12. All lavatories for public use in new construction or remodeling shall be equipped with metering or self-closing faucets.

13. All newly constructed or remodeled car wash installations shall be equipped with a water recycling system. (Ord. 2011-05-01, 5-11-2011, eff. 5-20-2011)

8-3-19: HEATING:

A. Permit: No heating shall be installed in a building or structure, nor shall an alteration or extension of any existing heating system be made, except in conformity with the provisions of this chapter and rules that may be adopted and promulgated by the building officer under the provisions of this chapter, and a permit first secured, a fee for which shall include the inspection thereof when completed.

B. Heating And Apparatus: Adopted by reference and applicable to all regulated buildings, structures, and developments as rules and regulations, are the international standards for heating and apparatus, set forth in the 2006 international mechanical code or current adop-

tion along with the provisions spelled out in section 8-2-3 of this title. (Ord. 2008-09-01, 9-24-2008)

8-3-20: **AIR CONDITIONING AND APPARATUS:**

A. Adopted by reference and applicable to all regulated buildings, structures, and developments as rules and regulations, are the standards for heating and apparatus set forth in the 2006 international mechanical code, or current adoption.

B. Notwithstanding anything contained in the 2006 international mechanical code to the contrary, the following exceptions are amendments to such code and shall be applicable, and to the extent of any inconsistencies with the 2006 international mechanical code or the other provisions of this code, the more restrictive regulations shall govern:

Closed system air conditioning shall be required in all new construction and in all remodeling. (Ord. 2011-05-01, 5-11-2011, eff. 5-20-2011)

8-3-21: **APPLIANCES AND APPARATUS:** Adopted by reference and applicable to all regulated buildings, structures, and developments as rules and regulations, are the standards for heating and apparatus set forth in the 2006 international mechanical code or current adoption. (Ord. 2008-09-01, 9-24-2008)

8-3-22: **SWIMMING POOLS:**

A. Private: Private, see 2006 international building code or current adoption.

B. Public Or Semiprivate: Public or semiprivate, see 2006 international building code or current adoption.

C. Permit Required: The requirements for this section shall regulate the installation of private swimming pools located on residential property and a permit shall be obtained prior to any installation. Permit application shall be accompanied with 2 sets of plans and specifications of the proposed pool with 3 plot plans showing the location of the pool in relationship with lot lines and other structures on the

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property. If the property is serviced with a well and/or septic field, approval from the Lake County health department will be required.

D. Compliance: Private swimming pools, spas and hot tubs shall comply with this section.

E. Definitions: The words shall, for the purpose of this section, have the meaning as stated.

ABOVEGROUND/ BELOWGROUND SWIMMING POOL:	Any structure that contains water that is more than 24" in depth and is used for swimming. Such pool shall only be available to the family and/or guests of the household. For the purpose of this chapter, hot tubs and spas are considered the same as a swimming pool.
BARRIER:	A fence, wall, wall of a building, the wall of an aboveground pool (provided it is a minimum of 48" high) or any combination of these which surrounds the swimming pool, hot tub or spa and prohibits unapproved access to the pool.
SAFETY COVER:	A cover that is placed over the water area of a pool, hot tub or spa.
SAFETY COVER (POWER):	A cover that is placed over the water area of a pool, hot tub or spa and is opened and closed with a mechanical system (can be electrical or mechanical).

F. Structural Requirements: All inground or aboveground pools, hot tubs or spas shall be designed and built to withstand the forces to which the pool, hot tub or spa will be subjected.

G. Inground Pools: Inground pools shall comply with the following:

1. Slope Of The Wall: From top to a depth of 2'9" the slope of the wall shall not exceed 1:5.

2. Slope Of The Floor:

a. Shallow End: On the shallow side of the pool transition the floor shall not exceed a slope of 1:7. The depth of the shallow side shall not exceed 5' deep.

b. Deep End: The slope from the deepest part of the pool to the shallow transition point shall not exceed 1:3.

3. Cleaning: All inground swimming pools shall have a recirculating skimmer or overflow gutter to remove scum and foreign particles from the water.

4. Skimmers: There shall be a minimum of 1 skimmer per 1,000 square feet of water surface or any fraction.

5. Overflow Gutters: If overflow gutters are used they shall be a minimum of 3" deep and pitched to slope 1:48 towards the drains. Gutters shall be constructed in such a manner to be safe, cleanable and any foreign matter entering the gutter cannot be washed out by surges of water.

6. Accessory Structures: All accessory structures relating to the inground pool (equipment building, showers, dressing rooms, etc.) shall be constructed with all the applicable sections of this chapter.

7. Minimum Depths: Minimum depth requirements for pools equipped with a diving board shall comply with table 322-1 of this section.

WATER DEPTH REQUIREMENTS FOR POOLS
EQUIPPED WITH A DIVING BOARD

TABLE 322-1

Height Of Diving Board Above Pool Deck	Minimum Depth Directly Under The End Of The Diving Board	Distance Between The Minimum Depth Under A Diving Board And The Deepest Part Of The Pool	Minimum Depth At The Deepest Part Of The Pool
1'8"	6'0"	7'0"	7'6"
2'2"	6'10"	7'6"	8'0"
2'6"	7'5"	8'0"	8'0"
3'4"	8'6"	9'0"	9'0"

H. Inground Pools And Aboveground Pools: All inground pools and aboveground pools shall comply with the following:

1. Overhead Electrical Service: All overhead electrical service to a pool shall be installed in accordance with the national electrical code, current adoption and tables 322-2-A and 322-2-B.

2. Underground Electrical Service: Underground wiring shall not be permitted under the pool or within an area extending 5' horizontally for the inside wall of the pool. Where space limitations prevent wiring from being installed 5' or more from the pool, such wiring shall be permitted where installed in rigid metal conduit, intermediate metal conduit or a nonmetallic raceway system. All metal conduit shall be corrosion resistant and suitable for the location. The minimum depth of burial shall be in accordance with the national electrical code, current adoption.

3. Access: All swimming pools shall have a minimum of 1 access that has a slip resistant surface. Access shall be provided by either steps or a ladder.

4. Water Supply: All swimming pools shall be provided with a potable water supply complying with the state of Illinois plumbing code.

5. Circulation: The water supply of all swimming pools shall be circulated to achieve a complete turnover every 12 hours.

6. Filtering: The circulation system shall be equipped with a hair and lint filter installed ahead of the pump.

7. Drainage: The swimming pool and all equipment shall have the ability to be drained. Water that is drained from the pools shall not create any problems on neighboring properties.

8. Safety Enclosure: All inground or aboveground swimming pools, spas or hot tubs shall have a safety enclosure consisting of fences, solid barriers or walls that complies with the exception of a spa or hot tub with an approved safety cover.

9. Height: An approved barrier shall be a minimum of 48" above the grade on the side away from the pool. The maximum dimension from grade to the bottom of the barrier shall not exceed 2". If the sides of an aboveground pool are not 48" above grade, a barrier at grade or attached to the top of the pool shall be installed to provide the minimum 48" barrier.

10. Fences: No opening in a fence shall allow the passage of a 4" sphere. If the fence is constructed with vertical and horizontal members the minimum dimension between horizontal members shall be 45". Horizontal members shall be located on the pool side. If a chainlink fence is provided the maximum opening of the squares

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shall be $1^1/_4$". Barriers that are made from lattice fence shall not have an opening larger than $1^3/_4$".

11. Gates: Access gates located in a swimming pool barrier shall comply with all the requirements of fences or solid barriers and in addition shall:

a. Gates used for pedestrian access shall open outward away from the pool and be self-closing and have a self-latching device.

b. Gates other than for pedestrian use shall be equipped with a self-latching device.

c. When the self-latching device is located less than 54" from the bottom of the gate, the releasing mechanism and openings shall comply with the following:

(1) The release mechanism shall be located on the pool side of the gate and be a minimum of 3" below the top of the gate.

(2) The gates and barrier, within 18" of the releasing mechanism, shall not have any openings greater than $^1/_2$".

12. Solid Barriers: If solid barriers are provided there shall be no indentations or protrusions that would provide toe holds for climbing.

13. Walls Of Structures: Where the wall of a house is used as part of the pool barrier and has door(s) opening directly to the pool area the door(s) shall comply with 1 of the following:

a. Doors located in the wall that serve as part of the barrier shall be equipped with an alarm that will activate when the door is opened.

(1) Alarm shall be set to activate a maximum of 7 seconds after the door is opened and shall sound for a minimum of 30 seconds.

(2) The alarm shall produce an alarm having a minimum of 85 decibels and shall be different from any other alarm located in the residence.

(3) Alarms may have a temporary deactivation mechanism to silence the alarm for a maximum of 15 seconds.

b. All doors in the wall that serve as part of the barrier shall be self-closing and self-latching devices. The latch release device shall be a minimum of 54" above the finished floor elevation.

c. A power or manual safety cover shall be installed on the pool, spa or hot tub. Pool cover shall be capable of supporting a minimum of 485 pounds, be capable of draining water on top of the cover and if the cover has opening shall not have openings larger than 4". Mechanically operated covers shall be installed in accordance with the national electrical code, current adoption and any controls shall be located a minimum of 54" above the finished floor. All mechanical controls shall be spring or contact type that requires continued operation by a person. All controls shall be within sight of the entire pool structure.

14. Access: Fixed ladder, removable ladder or steps for access to an aboveground pool shall be provided with a barrier as required by this section. Removable ladder shall not be acceptable as a barrier to an aboveground pool.

15. Doors As Part Of The Barrier: All walls surrounding an indoor pool that have a door located in them shall comply with subsection H13a, H13b, or H13c of this section.

16. Barrier Locations: Barrier shall be placed in locations that will not allow any other structure, equipment or other object to be used to climb over the pool barrier. (Ord. 2008-09-01, 9-24-2008)

8-3-23: OTHER BUILDING REGULATIONS, PRINCIPLES, METHODS, AND STANDARDS FOR THE CONSTRUCTION OF ONE- AND TWO-FAMILY DWELLINGS:

A. Scope And Purpose: Applicable to all buildings and structures and portions thereof used for residential purposes are the following rules and regulations set forth in this section.

B. Adopted By Reference: Adopted by reference and applicable to one- and two-family dwellings:

"Information And Requirements For The Supply Of Electric Service Of The Commonwealth Edison Company"; current adoption.

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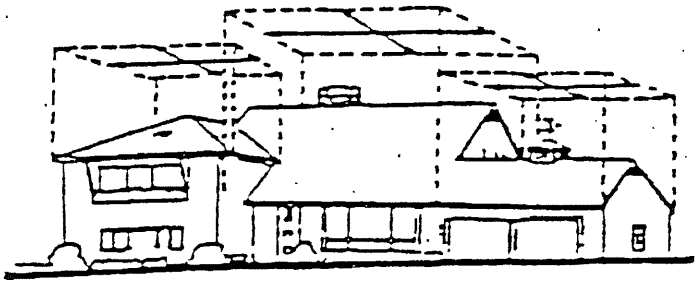
National fuel gas code, NFPA no. 54, National Fire Protection Association, 470 Atlantic Avenue, Boston, MA 02210; current adoption.

"Metalbestos Gas Vent And Chimney Sizing Handbook", bulletin no. 25-136-0274, Metalbestos Systems, 10435 West Seymour, Franklin Park, IL 60131; current adoption.

Said rules and regulations as set forth above are on file in the office of the village clerk of the village of Lake Villa, and also in the office of the building officer. (Ord. 2008-09-01, 9-24-2008)

8-3-24: FIGURES; TABLES; APPENDIX A:

FIGURE A-1



FREE AREA SELECTION CHART

To find the exact free area needed to properly ventilate a home, find the length of the area to be ventilated in the vertical column and the width of the area in the horizontal column. Where these two columns intersect is the total free area of ventilation (in square inches) needed for that structure. The sum of the free area of all the ventilators should equal the total free area required. Chart utilizes 1/300 ratio.

WIDTH (In Feet)	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50
Length (In Feet)																
20	192	211	230	250	269	288	307	326	346	365	384	403	422	441	461	480
22	211	232	253	275	296	317	338	359	380	401	422	444	465	485	506	528
24	230	253	276	300	323	346	369	392	415	438	461	484	507	530	553	576
26	250	275	300	324	349	374	399	424	449	474	499	524	549	574	599	624
28	269	296	323	349	376	403	430	457	484	511	538	564	591	618	645	662

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WIDTH (In Feet)	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50
Length (In Feet)																
30	288	317	346	374	403	432	461	490	518	547	576	605	634	662	691	720
32	307	338	369	399	430	461	492	522	553	584	614	645	675	706	737	768
34	326	359	392	424	457	490	522	555	588	620	653	685	717	750	782	815
36	346	380	415	449	484	518	553	588	622	657	691	726	760	795	829	864
38	365	401	438	474	511	547	584	620	657	693	730	766	803	839	876	912
40	384	422	461	499	538	576	614	653	691	730	768	806	845	883	922	960
42	403	444	484	524	564	605	645	685	726	766	806	847	887	927	968	1008
44	422	465	507	549	591	634	676	718	760	803	845	887	929	971	1013	1056
46	442	486	530	574	618	662	707	751	795	639	883	927	972	1016	1060	1104
48	461	507	553	599	645	691	737	783	829	876	922	968	1014	1060	1106	1152
50	480	528	576	624	672	720	768	816	864	912	960	1008	1056	1104	1152	1200
52	499	549	599	649	699	749	799	848	898	948	998	1048	1098	1148	1198	1248
54	518	570	622	674	726	778	830	881	933	985	1037	1089	1141	1192	1244	1296
56	538	591	645	699	753	807	860	914	967	1021	1075	1130	1184	1237	1291	1345
58	557	612	668	724	780	835	891	946	1002	1058	1113	1170	1226	1282	1337	1392
60	576	634	691	749	807	864	922	979	1037	1094	1152	1210	1267	1324	1382	1440

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WIDTH (In Feet)	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50
Length (In Feet)																
62	595	655	714	774	834	893	953	1012	1071	1131	1190	1250	1309	1369	1428	1488
64	614	676	737	799	861	922	983	1045	1106	1168	1229	1291	1352	1413	1475	1536
66	634	697	760	824	888	950	1014	1077	1140	1204	1268	1331	1394	1458	1522	1585
68	653	718	783	849	914	979	1045	1110	1175	1240	1306	1371	1436	1501	1567	1632
70	672	739	806	874	941	1008	1075	1142	1210	1276	1344	1411	1478	1545	1613	1680

*Note – No exhaust fan of any type may be vented into an attic. They must be vented directly into the outside.

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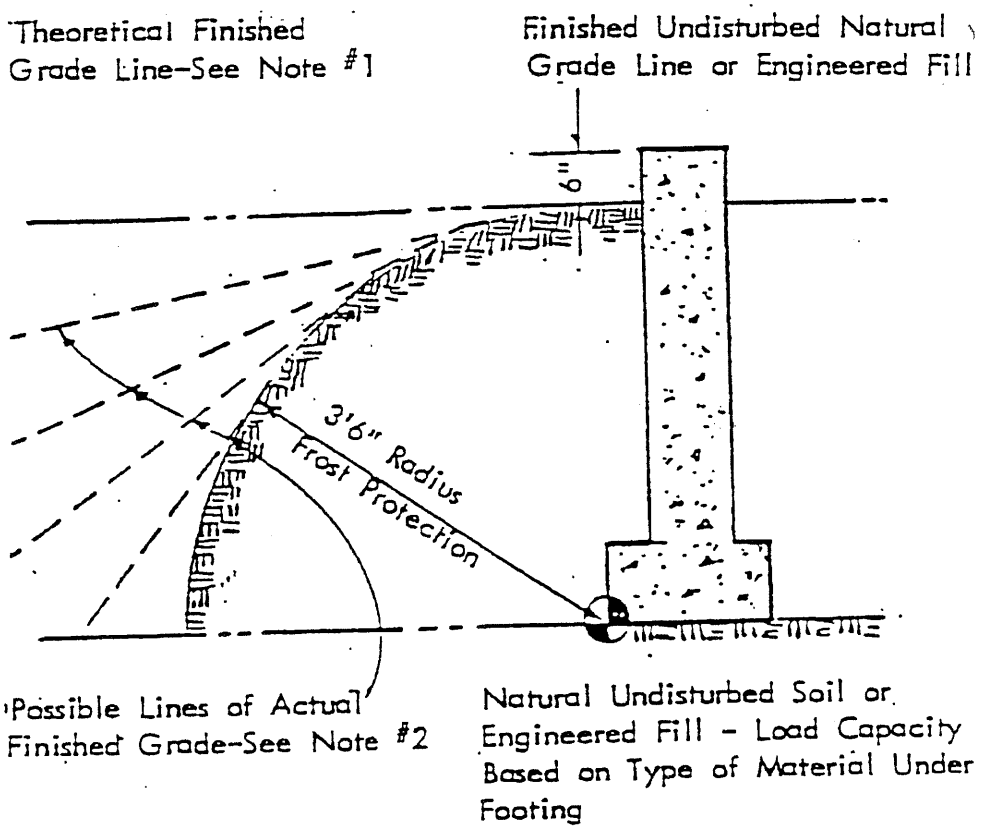
FIGURE A-2



FOUNDATION COVER

Note #1
The theoretical finished grade line would be a line so constructed that the bottom of the footing is at all times protected by a minimum of 3'6" of soil or fill for this protection need not be engineered fill.

Note #2
The actual finished grade line can take any position tangent to the theoretical finished grade line, providing the 3'6" minimum soil cover for frost protection of the footing is maintained.

The actual finished grade line would be influenced by the type of ground cover, ease of walking, lawn mowing, surface water drainage, etc., but these are considerations dictated by practical or aesthetical reasons and will not change the basic frost protection requirements.

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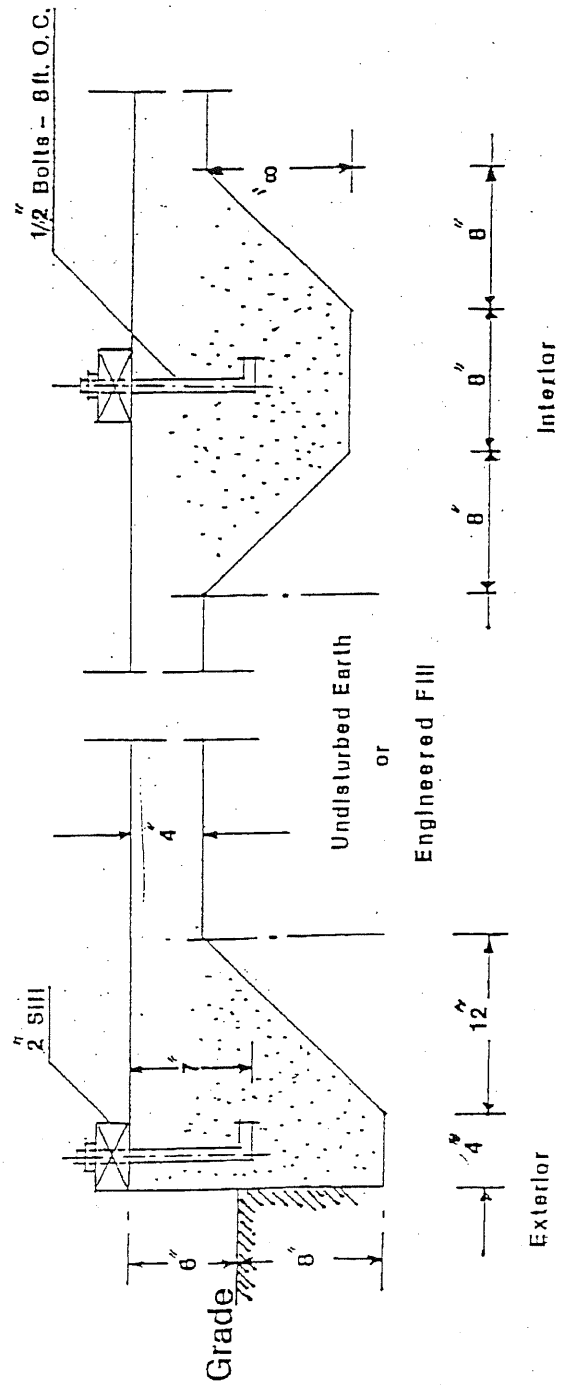
FIGURE A - 3

MINIMUM FOUNDATION REQUIREMENTS

(Accessory Building Only)



Concrete Slab Footings

TABLE NO. 2-A

A – Doors and panels of shower and bathtub enclosure shall be substantially constructed from approved shatter resistant materials. Glazing in doors and panels of shower and bathtub enclosure shall comply with the requirements set forth in table no. 2-A.

B – Glazing in entrance and exit doors and fixed glazed panels immediately adjacent to doors, sliding glass doors, storm doors and similar glazed openings which may be subject to frequent and recurrent accidental human impact shall comply with table no. 2-A.

Exception: Fixed glazed panels 19 inches or less in width or located not less than 18 inches above the adjacent finished floor or walking surface.

GLAZING REQUIREMENTS

Glazing Location	Size Of Individual Panels	Minimum Thickness And Type Of Glass Permitted[1]						
		115" Annealed	3/16" Annealed	1/8" Tempered	3/16" Tempered	1/4" Laminated	1/4" Wired	1/8" Approved Plastic
Entrance and exit door and adjacent panels which may be mistaken for doors	Over 6'	No	Yes	No	Yes	Yes	Yes	Yes
Sliding doors	All sizes	No	No	No	Yes	Yes	Yes	Yes
Storm doors	All sizes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shower doors and bathtub enclo-sures	All sizes	No	No	No	Yes	Yes	Yes	Yes

1. Glass shall conform to appendix A, glazing materials. Annealed glass shall be protected by grilles on both exposed sides.
2. Safety glazing materials shall conform to appendix A, glazing materials.

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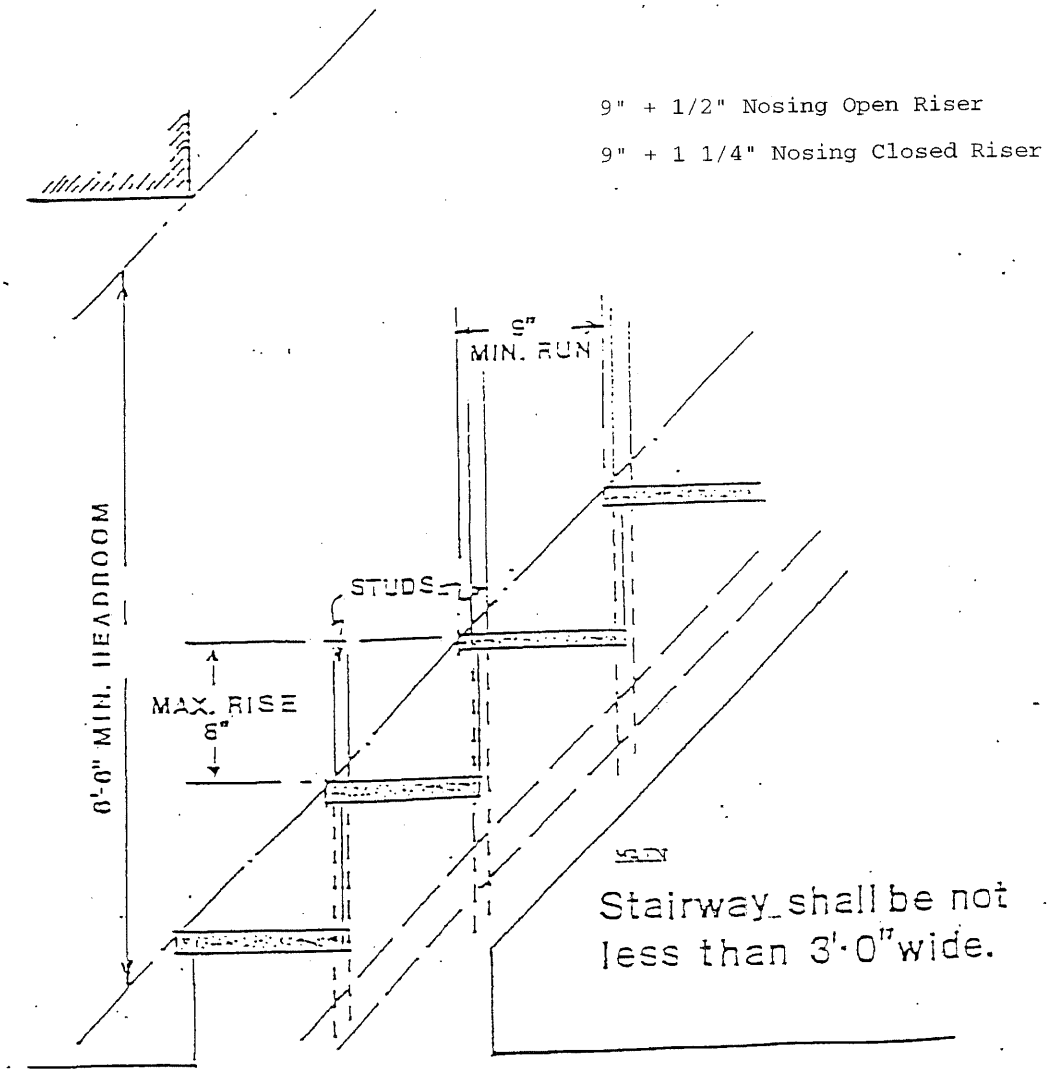
TABLE 2-B STAIRWAYS



STAIR DETAIL

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TABLE 2-C-1

WINDERS STAIRS

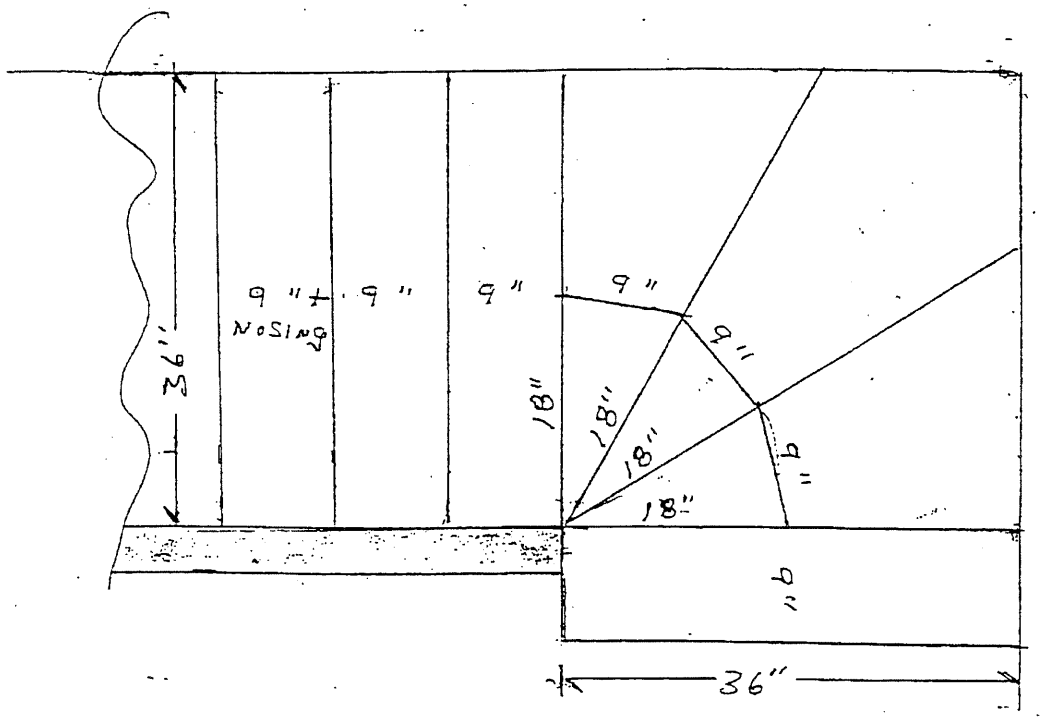

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TABLE 2-C-2

WINDER STAIRS

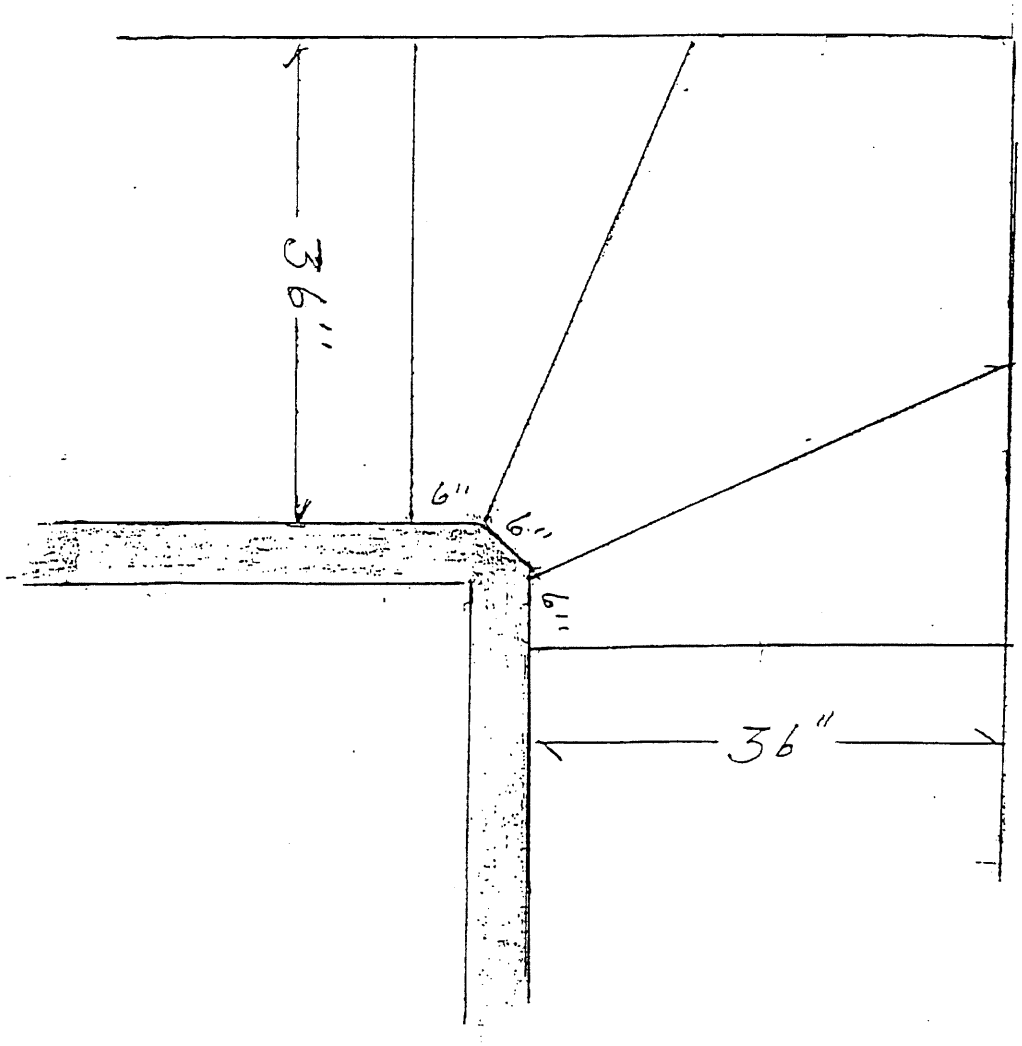

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TABLE 2-C-3

CIRCULAR STAIRS

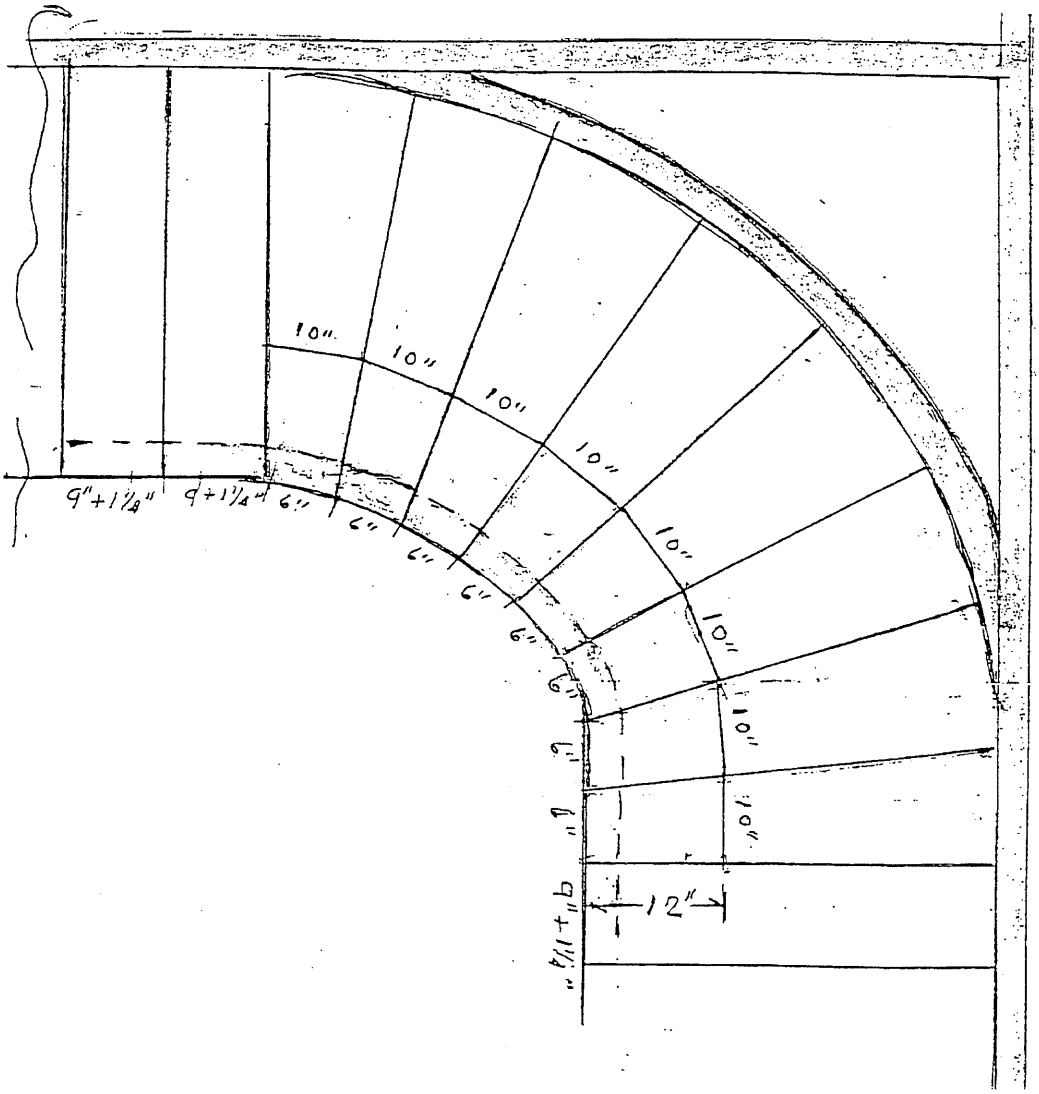

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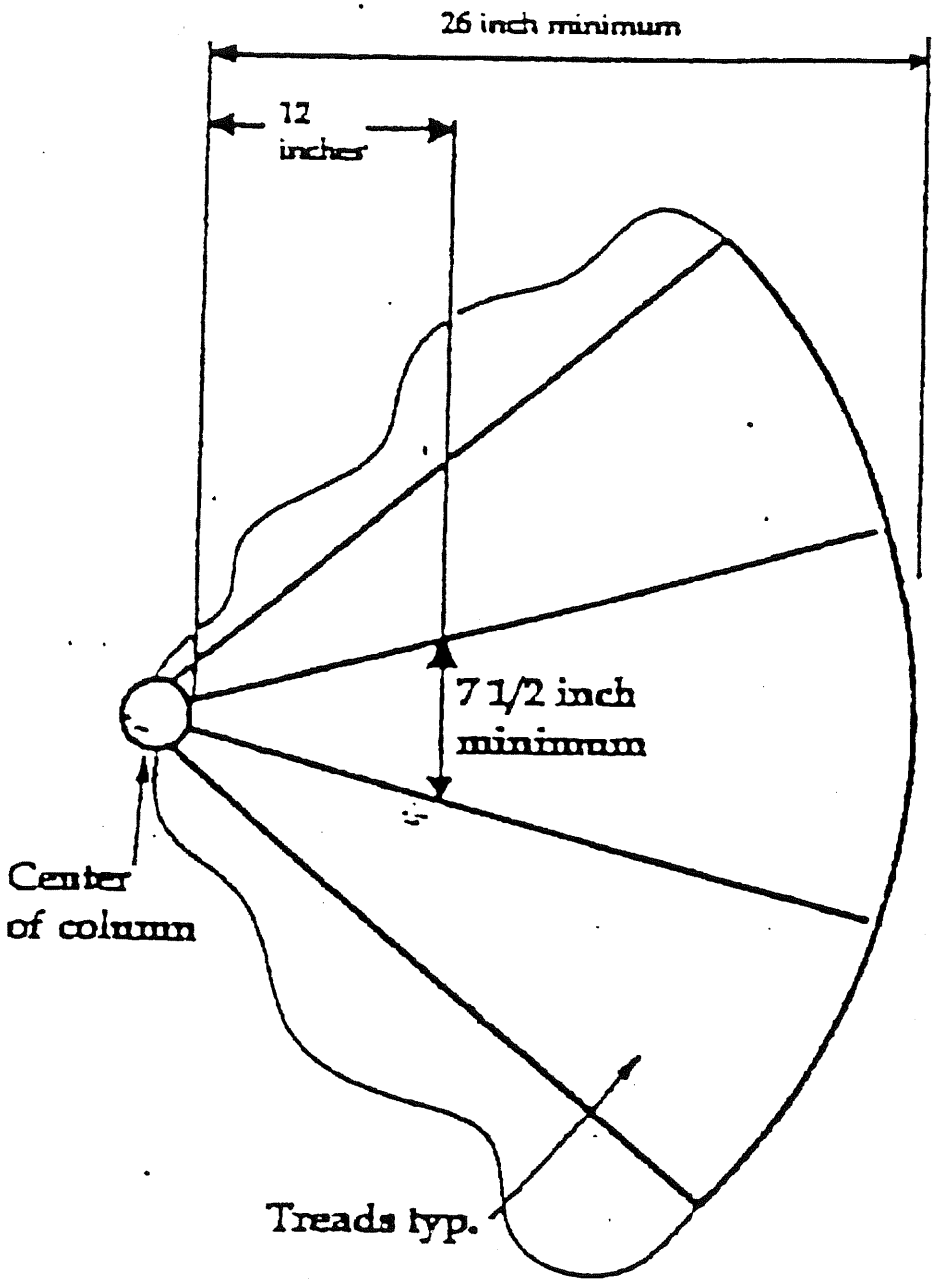
TABLE 2-C-4

MINIMUM DIMENSIONS FOR SPIRAL STAIRS



8-3-24

TABLE 2-D

CANTILEVER SPAN FOR LIGHT FRAME
EXTERIOR WALLS AND FLAT ROOFS ONLY

	Roof Width		
Joist size/spacing	2'	32'	40'
2" x 8" - 12" o.c.	18"	N/P	N/P
2" x 10" - 12" o.c.	34"	22"	16"
2" x 10" - 16" o.c.	26"	18"	N/P
2" x 12" - 8" o.c.	–	48"	38"
2" x 12" - 12" o.c.	–	37"	27"
2" x 12" - 16" o.c.	36"	29"	21"

Notes:

1. Spans are based on no. 2 grade lumber of Douglas fir, larch, hemp-fir, southern pine, and spruce-pine fir (3 or more member repetition).
2. 3 to 1 ratio (back span to cantilever).
3. Connections at the back span shall resist any uplift forces.
4. A full depth rim joist shall be installed at the cantilever end of the joists.
5. Solid blocking shall be provided at the cantilever support.

TABLE 2-E

CANTILEVER SPAN FOR EXTERIOR BALCONY (NO ROOF)

Joist Size	Spacing	Maximum Cantilever
2" x 8"	12" o.c.	39"
2" x 8"	16" o.c.	34"
2" x 10"	12" o.c.	57"
2" x 10"	16" o.c.	49"
2" x 10"	24" o.c.	40"
2" x 12"	16" o.c.	67"
2" x 12"	24" o.c.	54"

Notes:

1. Spans are based on no. 2 grade lumber of Douglas fir, larch, hemp-fir, southern pine, and spruce-pine fir (3 or more member repetition).
2. 3 to 1 ratio (back span to cantilever).
3. Connections at the back span shall resist any uplift forces.
4. A full depth rim joist shall be installed at the cantilever end of the joists.
5. Solid blocking shall be provided at the cantilever support.

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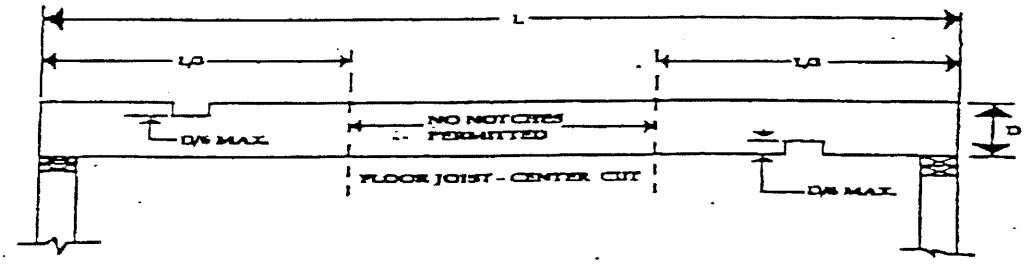
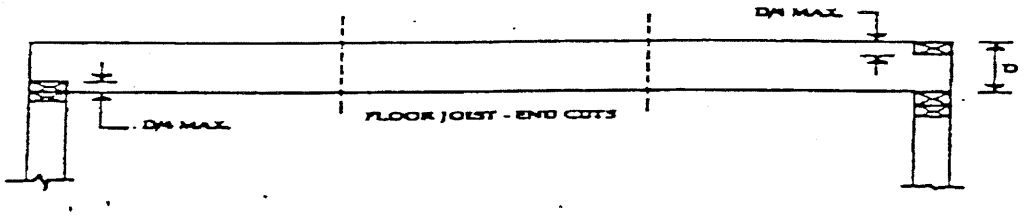
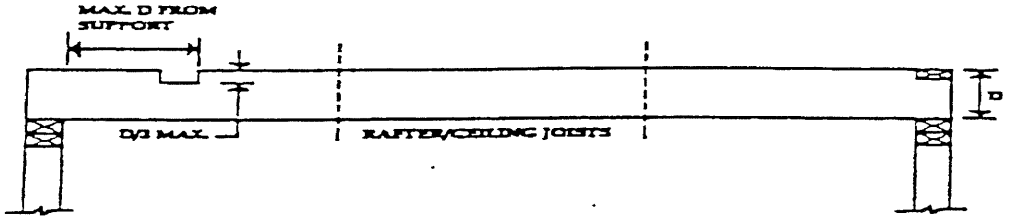
TABLE 2-F

PERMITTED NOTCHING AND HOLES OF FLOOR JOISTS







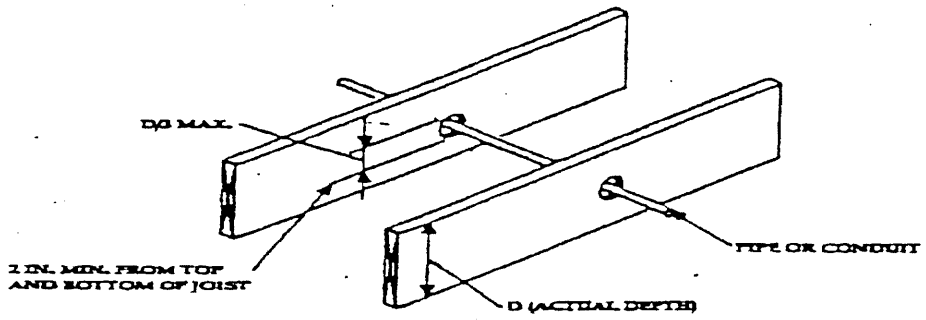


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TABLE 3-A

DECK

- Porches and balconies - Porches, balconies, or raised floor surface located more than 30" above the floor or grade below, or have three stair risers, shall have guardrails not less than 36" in height.

- Handrails and guardrails - Handrails having a minimum and maximum height of 30" and 38", respectively, measured vertically from the nosing of the treads shall be provided on at least one side of stairways of three or more risers. Where there are no partitions on either side of the stairway, handrails are required on both sides.

- Handrails and guardrails on open sides of the stairway shall have intermediate rails, or ornamental closures, which will not allow passage of an object 4" or more in diameter.

- Piers - if the deck is attached to the house, the piers must be 42" deep into the ground.

The deck must meet 40# per live load. See attached spans table.

Needed for permit:

1. Plat of Survey showing where you will be putting the deck.

2. Detailed plans, showing the beam, post, and joist sizes. The position of the piers must be noted. Please fill out the enclosed deck information on pages 3 and 4, and submit them with your application.

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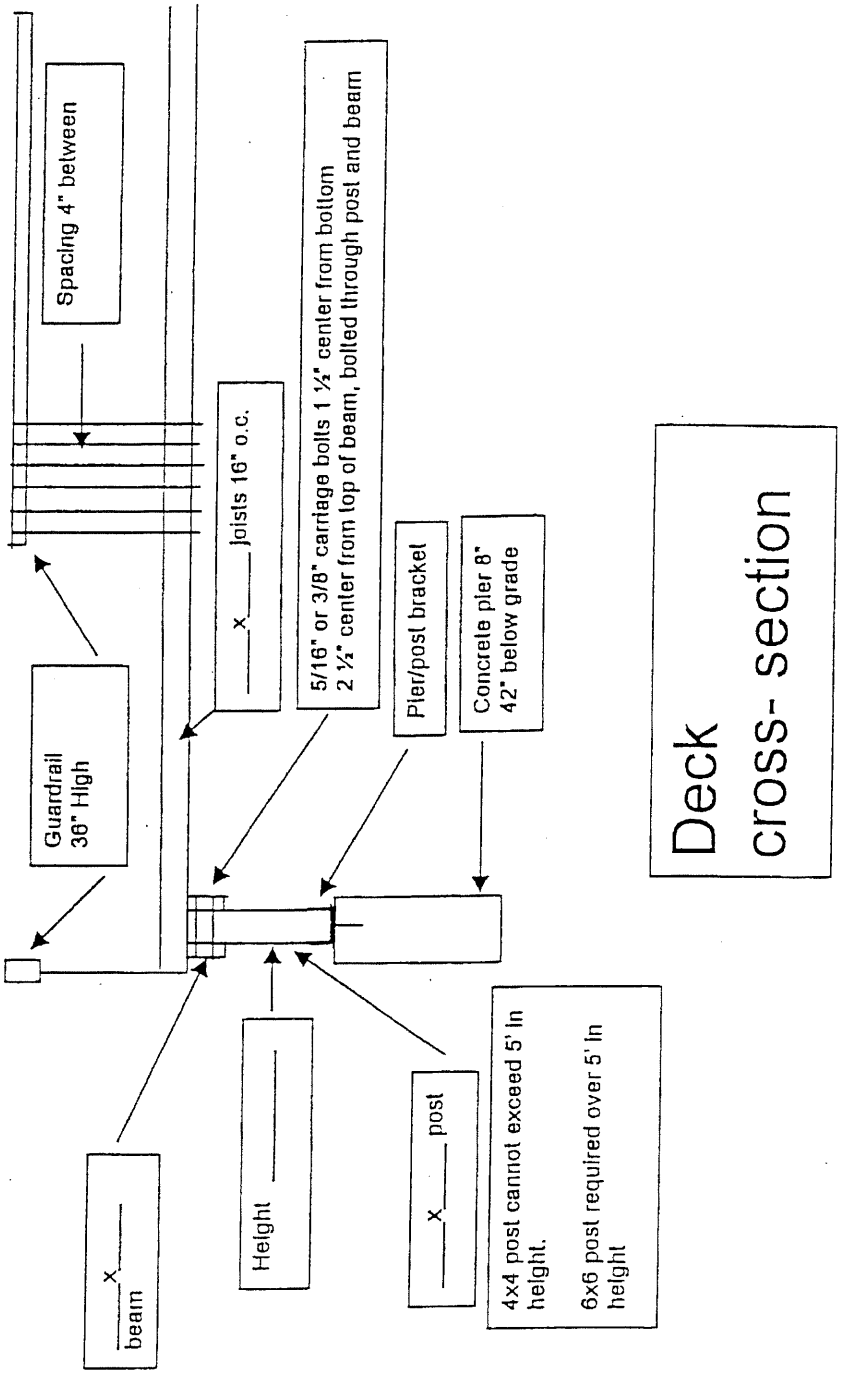
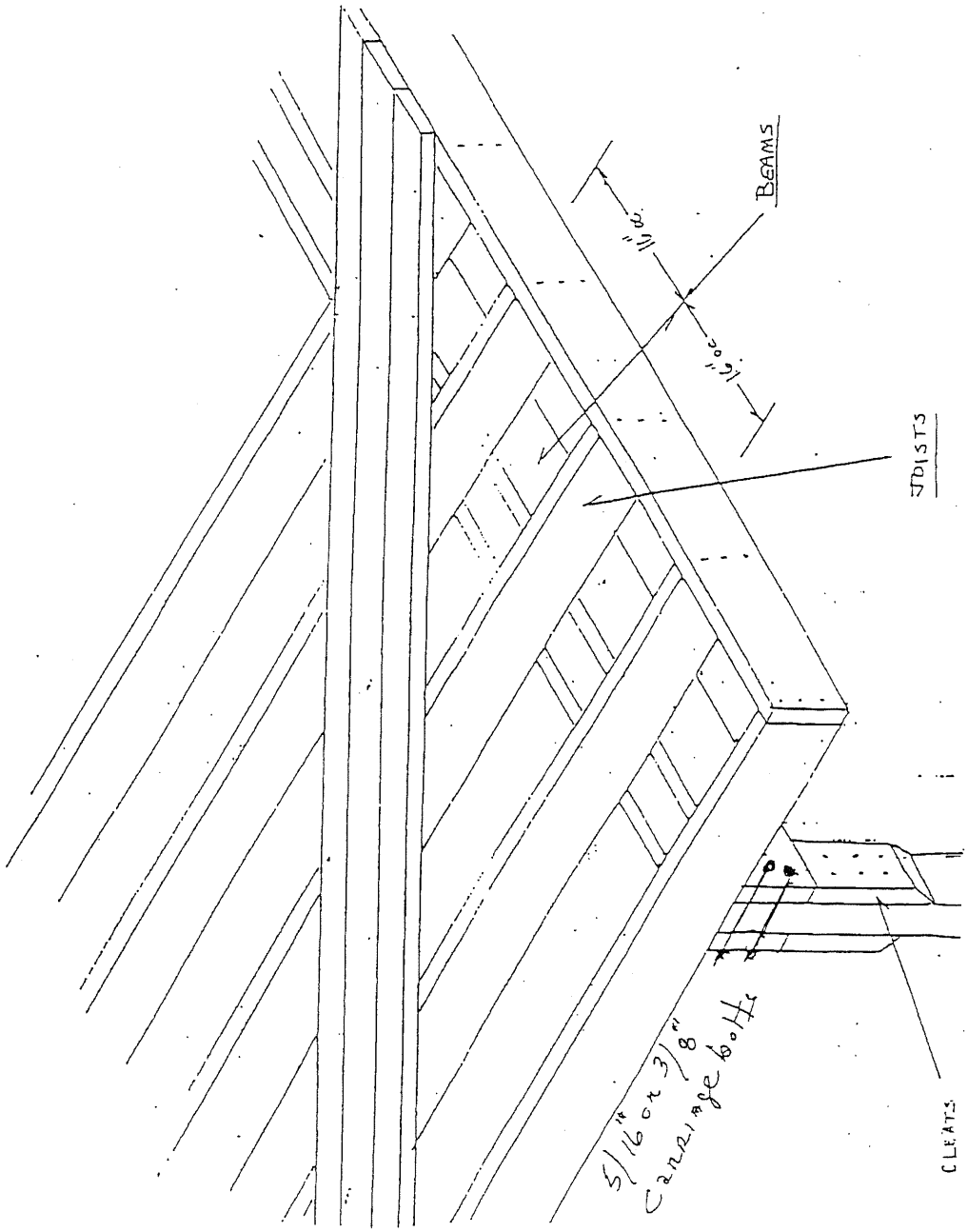
TABLE 3-B



8-3-24

TABLE 3-C



8-3-24

TABLE 3-D

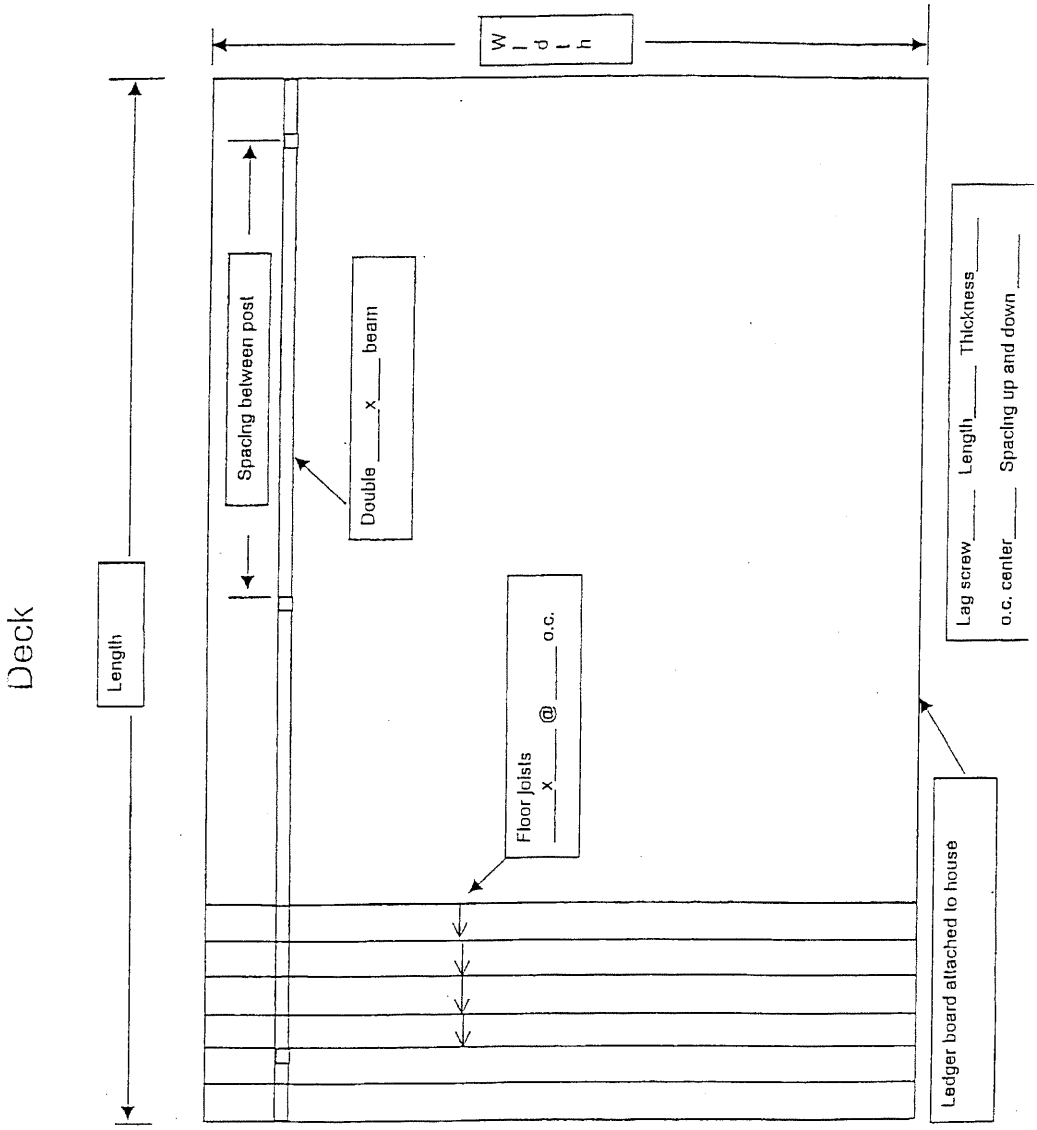


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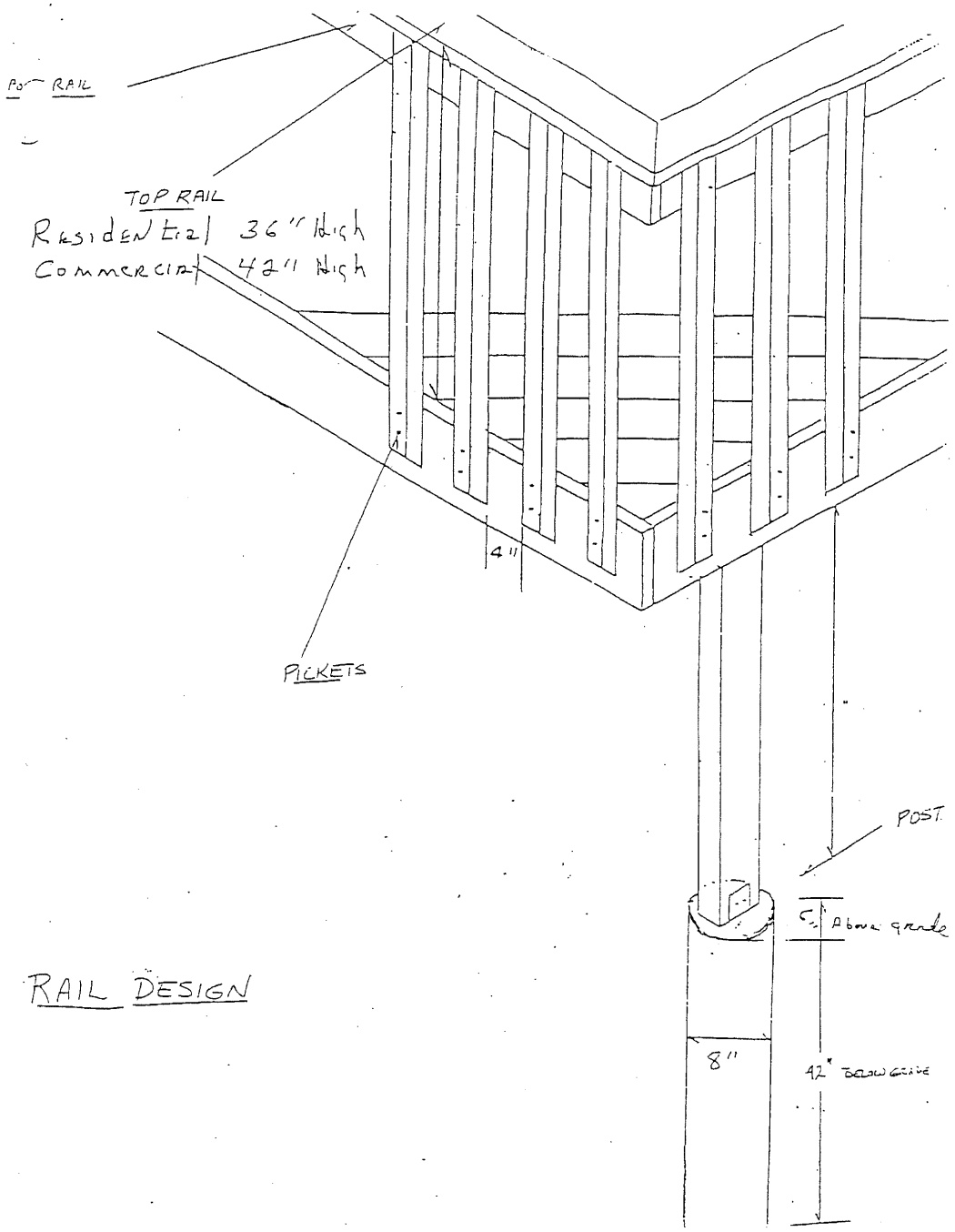
TABLE 3-E



RAIL DESIGN

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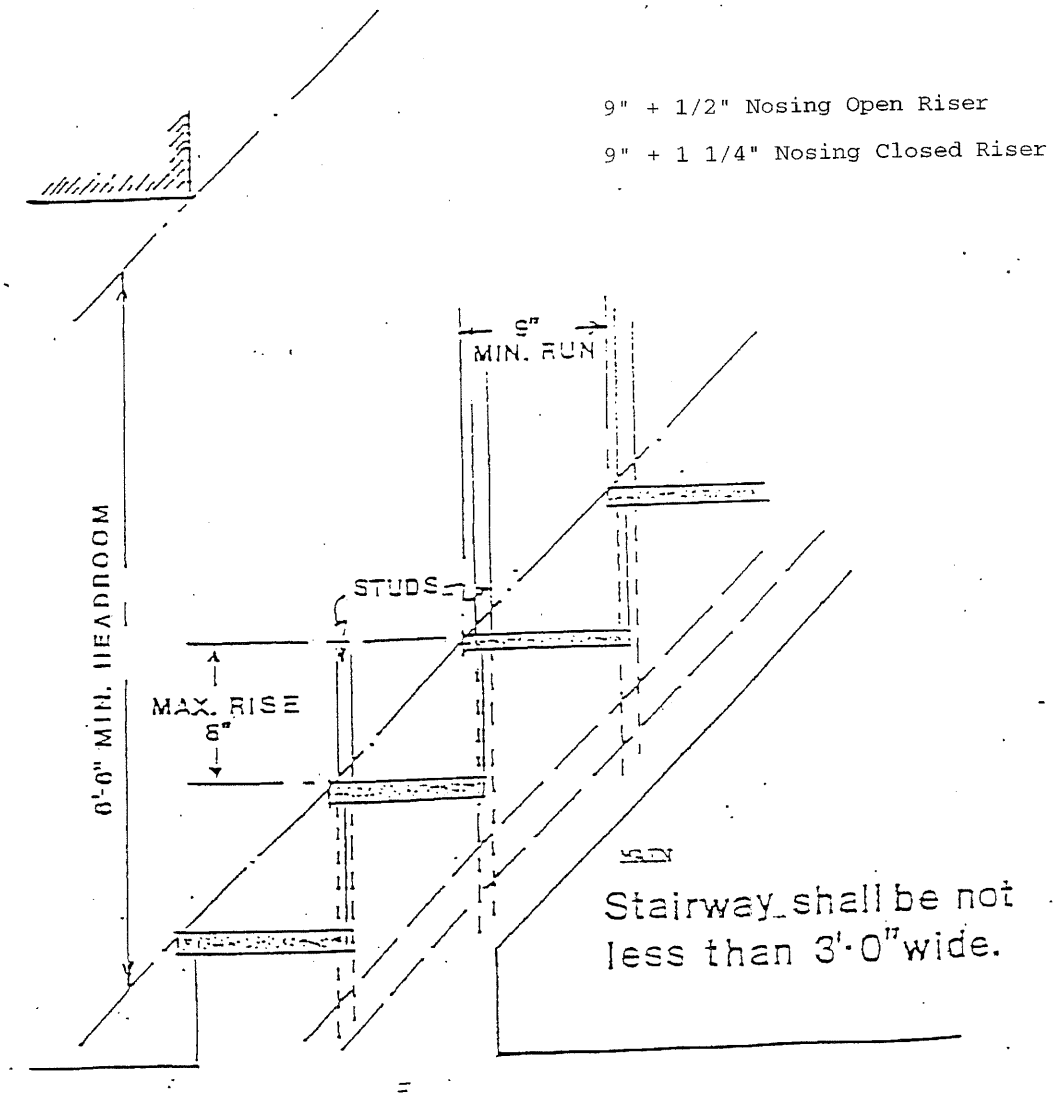
TABLE 3-F

TABLE 2-B STAIRWAYS



STAIR DETAIL

TABLE 3-G

DECKS, ACCESSORY STRUCTURE

Maximum Allowable Spans For Floor Joists Of Other Than Structural Stress-Graded And Marked Lumber

Lumber Sized In Inches Nominal And Actual	Spacing Center To Center (Inches)	Maximum Allowable Spans (Clear)	
		Living Area Floors, Finished Ceiling Below. Assumed Live Load 40 Lbs. Per Sq. Ft.	Other Floors And Conditions. No Finished Ceiling. Assumed Live Load 30 lbs. Per Sq. Ft.
2 x 6 ($1^5/_8$ x $5^5/_8$)	24	6' 9"	7' 7"
	16	8' 4"	9' 8"
	12	9' 7"	10' 9"
2 x 8 ($1^5/_8$ x $7^1/_2$)	24	9' 2"	10' 1"
	16	11' 2"	12' 5"
	12	12'11"	14' 3"
2 x 10 ($1^5/_8$ x $9^1/_2$)	24	11' 6"	12'10"
	16	14' 2"	15' 8"
	12	16' 3"	18' 1"
2 x 12 ($1^5/_8$ x $11^1/_2$)	24	14' 9"	15' 6"
	16	17' 1"	18'11"
	12	19' 9"	21'11"
3 x 8 ($2^5/_8$ x $7^1/_2$)	24	11' 7"	12'10"
	16	14' 2"	15' 4"
	12	16' 5"	16'11"
3 x 10 ($2^5/_8$ x $9^1/_2$)	24	14' 8"	16'3"
	16	18'11"	19'4"
	12	20' 9"	21'4"

Beam span between post

Two 2 x 4s on edge, 4'0" maximum span
Two 2 x 6s on edge, 6'0" maximum span
Two 2 x 8s on edge, 8'0" maximum span
Two 2 x 10s on edge, 10'0" maximum span
Two 2 x 12s on edge, 12'0" maximum span

Where beam is subject to other unusual loading, the beam shall be specifically designed.

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RECOMMENDED NAILING SCHEDULE

Building Element	Nail Size And Type	Number And Location
Stud to sole plate	8d common	4 toe-nail
Stud to cap plate	16d common	2 toe-nail
Double studs	10d common	12" o.c. direct
Corner studs	16d common	24" o.c. direct
Sole plate to joist or blocking	16d common	16" o.c.
Double cap plate	16d common	16" o.c. direct
Cap plate laps	16d common	2 Direct
Ribbon strip - 6" or less	10d common	2 each Direct bearing
Ribbon strip - 6" or more	10d common	3 each Direct bearing
Roof rafter to plate	8d common	3 Toe-nail
Roof rafter to ridge	16d common	2 Toe-nail
Jack rafter to hip	10d common	3 Toe-nail
Floor joists to studs	10d common	5 Direct or
(No ceiling joists)	10d common	3 Direct
Floor joists to studs (With ceiling joists)	10d common	2 Direct
Floor joists to sill or girder	8d common	3 Toe-nail
Ledger strip	16d common	3 each Direct joist
Ceiling joists to plate	16d common	3 Toe-nail
Ceiling joists to parallel rafters	16d common	3 Direct
Ceiling joists (laps over partition)	16d common	3 Direct
Collar beam	10d common	3 Direct
Bridging to joists	8d common	2 each Direct end
Diagonal brace (to stud and plate)	8d common	2 each Direct bearing
Tail beams to headers	20d common	1 each End
(when nailing permitted)		4 sq. ft. floor area
Header beams to trimmers	20d common	1 each End
(when nailing permitted)		8 sq. ft. floor area
1" roof decking	8d common	2 each Direct rafter
(6" or less in width)		

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Building Element	Nail Size And Type	Number And Location
1" roof decking (over 6" in width)	8d common	3 each Direct rafter
1" sub-flooring (6" or less)	8d common	2 each Direct joist
1" sub-flooring (8" or more)	8d common	3 each Direct joist
2" sub-flooring	16d common	2 each Direct joist
1" wall sheathing (8" or less in width)	8d common	2 each Direct stud
1" wall sheathing (over 8" in width)	8d common	3 each Direct stud
Plywood roof and wall sheathing ($^1/_2$" or less)	6d common	6" o.c. Direct edges and 12" o.c. intermediate
Plywood roof and wall sheathing ($^5/_8$" or greater)	8d common	6" o.c. Direct edges and 12" o.c. intermediate
($^5/_{16}$", $^3/_8$", or $^1/_2$")	16 ga. galvanized wire staples, $^3/_8$" minimum crown; length of 1" plus plywood thickness	4" o.c. edges and 8" o.c. intermediate
($^5/_8$")	Same as immediately above	$2^1/_2$" o.c. edges and 5" o.c. intermediate
Plywood sub-flooring		
($^1/_2$")	6d common or 6d annular or spiral thread	6" o.c. Direct edges and 10" o.c. intermediate
($^5/_8$" or $^3/_4$")	8d common or 6d annular or spiral thread	6" o.c. Direct edges and 10" o.c. intermediate

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Building Element	Nail Size And Type	Number And Location
(1", $1^1/_8$")	10d common or 8d ring shank or 8d annular or spiral thread	6" o.c. Direct edges and 6" o.c. intermediate
($^1/_2$")	16 ga. galvanized wire staples	4" o.c. edges and 7" o.c. intermediate
($^5/_8$")	$^3/_8$" minimum crown, $1^5/_8$" length	$2^1/_2$" o.c. edges and 4" o.c. intermediate
Built up girders and beams	20d common	32" o.c. Direct
Continuous header to stud	8d common	4 Toe-nail
Continuous header - two pieces	16d common	16" o.c. Direct
$^1/_2$" Fiberboard sheathing	$1^1/_2$" galvanized roofing nail or 16 gauge staple, $1^1/_8$" long with minimum crown of $^7/_{16}$"	3" o.c. exterior edge, 6" o.c. intermediate
$^{25}/_{32}$" Fiberboard sheathing	$1^3/_4$" galvanized roofing nail or 8d common nail or 16 gauge staple, $1^1/_2$" long with minimum crown of $^7/_{16}$"	3" o.c. exterior edge, 6" o.c. intermediate
Gypsum sheathing	12 gauge $1^1/_4$" large head corrosion-resistive	4" o.c. on edge, 8" o.c. intermediate
Particleboard ($^3/_8$" – $^1/_2$")	6d common	6" o.c. direct edges and 8" o.c. intermediate
($^5/_8$" – $^3/_4$")	8d common	6" o.c. direct edges and 8" o.c. intermediate

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Building Element	Nail Size And Type	Number And Location
($^3/_8$" – $^1/_2$")	6d common	6" o.c. direct edges and 12" o.c. intermediate
($^5/_8$" – $^3/_4$")	8d common	6" o.c. direct edges and 12" o.c. intermediate
Shingles, wood*	No. 14 B&S corrosion-resistive	2 each bearing
Weather boarding	8d corrosion-resistive	2 each bearing

*Shingle nails shall penetrate not less than $^3/_4$ inch into nailing strips, sheathing or supporting construction except as otherwise provided.

APPENDIX A

BUILDING MATERIALS STANDARDS

The following recognized standards shall serve as a guide in determining the acceptability and use of materials associated with this ordinance, provided the standards are not in conflict with specific requirements of this ordinance.

AAMA

American Architectural Manufacturers Association
1827 Walden Office Square, Suite 550
Schaumburg, IL 60173
http://www.aamanet.org

Standard Number	Year	Name
101/IS2	1997	Voluntary specifications for aluminum, vinyl (PVC) and wood windows and glass doors
101/IS2/NAFS	2002	Voluntary performance specification for windows, skylights and glass doors

ACI

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48333
Phone: 248-848-3700
Fax: 248-848-3701
http://www.concrete.org

Standard Number	Year	Name
318	2002	Building code requirements for structural concrete
530	2002	Building code requirements for masonry structures
530.1	2002	Specifications for masonry structures

ACCA

Air Conditioning Contractors of America
2800 Shirlington Road, Suite 300
Arlington, VA 22206
Telephone (703) 575-4477
Fax (703) 575-4449
www.acca.org

Standard Number	Year	Name
318	2002	Building code requirements for structural concrete
530	2002	Building code requirements for masonry structures
530.1	2002	Specifications for masonry structures

AFPA

American Forest and Paper Association
111 19th Street, NW, Suite 800
Washington DC 20036
Telephone 1-800-878-8878
E-mail: info@afandpa.org

Standard Number	Year	Name
NDS	2001	National design specification for wood construction (with 2001 supplement)
WFCM	2001	Wood frame construction manual for one and two family dwellings
AFPA	1993	Span tables for joists and rafters
T.R. No. 7	1987	Basic requirements for permanent wood foundation systems

AHA

American Hardboard Association
1210 West Northwest Highway
Palatine, IL 60067
Telephone: 847-934-8800
Facsimile: 847-934-8803
E-mail: http://www.hardboard.org

Standard Number	Year	Name
A135.4	1995	Basic hardboard
A135.5	1995	Pre-finished hardboard paneling
A135.6	1998	Hardboard siding
A194.1	1985	Cellulosic fiber board

AISI

American Iron and Steel Institute
1140 Connecticut Ave., Suite 705
Washington, DC 20036
Phone: 202.452.7100
http://www.steel.org

Standard Number	Year	Name
Header	2001	Standard for cold formed steel framing - header design
PM	2001	Standard for cold formed steel framing - prescriptive method for one and two family dwellings
Truss	2001	Standard for cold formed steel framing - truss design

AITC American Institute of Timber Construction
7012 S. Paul Revere Parkway, Suite 140
Englewood, CO 80112
Telephone: 303-792-9559
Fax: 303-792-0669
http://www.aitc-glulam.org

Standard Number	Year	Name
AITC A 190.1	1992	Structural glued laminated timer

ANSI American National Standards Institute
25 West 43rd Street, 4th Floor
New York, NY 10036
1.212.642.4900
http://www.ansi.org

Standard Number	Year	Name
A108.1A	1999	Installation of ceramic tile in the wet-set method, with Portland cement mortar
A108.1B	1999	Installation of ceramic tile, quarry tile on a cured Portland cement mortar setting bed with dry-set or latex Portland mortar
A108.4	1999	Installation of ceramic tile with organic adhesives or water cleanable tile-setting adhesive
A108.5	1999	Installation of ceramic tile with dry-set Portland cement mortar or latex Portland cement mortar
A108.6	1999	Installation of ceramic tile with chemical resistant, water cleanable tile-setting and tile-grouting epoxy
A108.11	1999	Interior installation of cementitious backer units
A118.3	1999	Chemical resistant, water cleanable tile-setting and grouting epoxy and water cleanable tile-setting epoxy adhesive
A136.1	1999	Organic adhesives for installation of ceramic tile
A137.1	1988	Specifications for ceramic tile
A208.1	1999	Particleboard
LC1	1997	Interior fuel gas piping systems using corrugated stainless steel tubing
Z21.1	2000	Household cooking gas appliances
Z21.5.1	1999	Gas clothes dryers - volume I - type I clothes dryers

Standard Number	Year	Name
Z21.8	1994	Installation of domestic gas conversion burners
Z21.10.1	2000	Gas water heaters - volume I - storage, water heaters with input ratings of 75,000 Btu per hour or less
Z21.10.3	1998	Gas water heaters - volume III - storage, water heaters with input ratings above 75,000 Btu per hour
Z21.11.1	1991	Gas-fired room heaters - volume I - vented room heaters with 1993 addendum
Z21.11.2	1996	Gas fire room heaters - volume II - un-vented room heaters - with addendum A-97 and addendum B-98
Z21.13	1999	Gas-fired low pressure steam and hot water boilers
Z21.15	1997	Manually operated gas valves for appliances, appliance connector valves and hose end valves
Z21.22	1999	Relief valves for hot water supply systems
Z21.40.1	1996	Gas-fired heat activated air conditioning and heat pump appliances with Z21.40.1a (1998) addendum
Z21.40.2	1996	Gas-fired work activated air conditioning and heat pump appliances (internal combustion) with Z21.40.2a (1997) addendum
Z21.47	2000	Gas-fired central furnaces with addendum Z21.47a (2000)
Z21.48	1992	Gas-fired gravity and fan-type floor furnace with addendum A (1993)
Z21.49	1992	Gas-fired gravity and fan-type vented wall furnaces with addendum B (1994)
Z21.50	2000	Vented gas fireplaces with addendum A (1999) and addendum B (1999)
Z21.56	1998	Gas-fired pool heaters with addendum Z21.56a (1999)
Z21.58	1995	Outdoor cooking gas appliances with addendum Z21.58a (1998)
Z21.60	2000	Decorative gas appliances for installation in vented fireplaces

Standard Number	Year	Name
Z21.84	1999	Manually-listed, natural gas decorative gas appliances for installation in solid fuel burning fireplaces
Z21.86/CSA 2.32 M98	1998	Gas-fired vented space heating appliances
Z21.88	1999	Vented gas fireplace heaters
Z83.6	1990	Gas fired infrared heaters
Z83.8	1996	Gas-fired unit-heaters with addendum Z83.8a (1997)
Z97.1	1984	Safety glazing materials used in buildings - safety performance specifications and methods of test
Z124.1	1995	Plastic bathtub units
Z124.2	1995	Plastic shower receptors and shower stalls
Z124.4	1996	Plastic water closet bowls and tanks
Z124.6	1997	Plastic sinks

APA

APA - The Engineered Wood Association
P.O. Box 11700
Tacoma, WA 98411-0700
7011 So. 19th, Tacoma, WA 98466
Telephone 253-565-6600
Fax: 253-565-7265
email: help@apawood.org

Standard Number	Year	Name
APA E30	2001	Engineered wood construction guide

ASCE

American Society of Civil Engineers (Washington)
101 Constitution Avenue, NW, Ste. 375 East
Washington, DC 20001
800-548-ASCE (2723) ext. 7850
202-789-7850 Government Relations Department
202-789-7859 Government Relations fax
http://www.asce.org

Standard Number	Year	Name
5	2002	Building code requirements for masonry structures
6	2002	Specifications for masonry structures

Standard Number	Year	Name
7	2002	Minimum design loads for buildings and other structures
32	2001	Design and construction of frost protected shallow foundations

ASHRAE

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
1791 Tullie Circle, N.E.
Atlanta, GA 30329
Toll-free for Customer Service: (800) 527-4723 (U.S. and Canada only)
Telephone: 404-636-8400
Fax: 404-321-5478
http://www.ashrae.org

Standard Number	Year	Name
34	2001	Designation and safety classification of refrigerants
ASHRAE	2001	ASHRAE Fundamentals Handbook

ASME

American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990
800-843-2763 (U.S/Canada)
Email: infocentral@asme.org

Standard Number	Year	Name
B16.33	1990	Manually operated metallic gas valves for use in gas piping systems up to 125 psig (sizes $^{1}/_{2}$ through 2)
B36.10M	2000	Welded and seamless wrought-steel pipe
CSD-1	1996	Controls and safety devices for automatically fired boilers
PBVC	1998	Boiler and pressure vessel code (sections I, II, IV & VI)

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
Phone: (610) 832-9585
Fax: (610) 832-9555
http://www.astm.org

Standard Number	Year	Name
A36/A36M	2001	Specification for carbon structural steel
A53/A53M	2001	Specification for pipe, steel, black and hot-dipped, zinc-coated welded and seamless
A106	1999	Specification for seamless carbon steel pipe for high temperature service
A153	2001	Specification for zinc coating (hot dipped) on iron and steel hardware
A167	1999	Specification for stainless and heat-resisting chromium-nickel steel plate, sheet and strip
A510M	2000	Specification for general requirements for wire rods and coarse round wire, carbon steel metric
A525	1987	Specification for steel sheet zinc-coated (galvanized) steel wire
A539	1999	Specification for electronic-resistance-welded coiled steel tubing for gas and fuel oil lines
A615/A 0615M	2001	Specification for deformed and plain billet-steel bars for concrete reinforcement
A641/A 0641M	1998	Specification for zinc-coated (galvanized) carbon steel wire
A653/A 0653M	2000	Specification for steel sheet, zinc-coated (galvanized) or zinc-iron alloy coated (galvanized by the hot-dip process)
A706M	2000	Specification for low-alloy steel deformed and plain bars for concrete reinforcement
A755M	1999	Specification for steel sheet, metallic coated by the hot-dip process and pre-painted by the coil-coating process for exterior exposed building products
A792M	1999	Specification for steel sheet, 55% aluminum-zinc coated by the hot-dip process
A951	2000	Specification for masonry joint reinforcement

Standard Number	Year	Name
A966/A966M	2000	Specification for rail-steel and axle-steel deformed bars reinforcement for concrete
B42	1998	Specification for seamless copper pipe, standard sizes
B43	1998	Specification for seamless red brass pipe, standard sizes
B75	1999	Specification for seamless copper tube (metric)
B88	1999	Specification for seamless copper water tube
B101	1996	Specification for lead-coated copper sheet and strip for building construction
B135	2000	Specification for seamless brass tube (metric)
B209	1996	Specification for aluminum and aluminum-alloy sheet and plate
B227	1998	Specification for hard-drawn copper-clad steel wire
B251	1997	Specification for general requirements for wrought seamless copper and copper-alloy tube
B280	1999	Specification for seamless copper tube for air conditioning and refrigeration field service
B302	2000	Specification for thread-less copper pipe, standard sizes
B306	1999	Specification for copper drainage tube
B370	1998	Specification for copper sheet and strip for building construction
B633	1998 (01)	Specification for electrodeposited coatings of zinc or iron and steel
B813	2000 (01)	Specification for liquid and paste fluxes for soldering application of copper and copper alloy tube
C5	1979 (97)	Specification for quicklime for structural purposes
C27	1998	Classification of fireclay and high-alumina refractory brick
C28/C28M	2000	Specification for gypsum plasters
C34	1995 (2001)	Specification for structural clay load-bearing wall tile

Standard Number	Year	Name
C35	1995 (2001)	Specification for inorganic aggregates for use in gypsum plaster
C36/C0036M	2001	Specification for gypsum wallboard
C37/C0037M	2001	Specification for gypsum lath
C55	2001	Specification for concrete brick
C59/C0059M	2000	Specification for gypsum casting and molding plaster
C61/C0061M	2000	Specification for gypsum Keene's cement
C62	2001	Specification for building brick (solid masonry units make from clay or shale)
C67	2002	Test methods of sampling and testing brick and structural clay tile
C73	1999	Specification for calcium silicate face brick (sand and lime brick)
C79	2001	Specification for treated core and non-treated core gypsum sheathing board
C90	2001	Specification for load-bearing concrete masonry units
C129	2001	Specification for non-load-bearing concrete masonry units and related units
C140	2001 (2001)	Test methods of sampling and testing concrete masonry units and related units
C143/C0143M	2000	Test method for slump of hydraulic cement concrete
C145	1985	Specification for solid load-bearing concrete masonry units
C199	1984 (2000)	Test method for pier test for refractory mortar
C207	1997	Specification for hydrated lime for masonry purposes
C208	1995 (2001)	Specification for cellulosic fiber insulating board
C216	2001	Specification for facing brick (solid masonry units made from clay or shale)
C270	2001	Specification for mortar for unit masonry
C315	2000	Specification for clay flue linings
C406	2000	Specification for roofing slate

Standard Number	Year	Name
C411	1997	Test method for hot-surface performance of high-temperature thermal insulation
C475	2001	Specification for joint compound and joint tape for finishing gypsum wallboard
C476	2001	Specification for grout for masonry
C514	2001	Specification for nails for the application of gypsum wallboard
C557	1999	Specification for adhesives for fastening gypsum wallboard to wood framing
C578	2001	Specification for rigid, cellular polystyrene thermal insulation
C587	1997	Specification for gypsum veneer plaster
C588/C0588M	1999	Specification for gypsum base for veneer plasters
C630/C630M	2001	Specification for water-resistant gypsum backing board
C631	2000	Specification for bonding compounds for interior gypsum plastering
C645	2000	Specification for non-structural steel framing members
C652	2001	Specification for hollow brick (hollow masonry units made from clay or shale)
C836	2000	Specification for high solids content, cold liquid-applied elastomeric waterproofing membrane for use with separate wearing course
C843	1999	Specification for application of gypsum veneer plaster
C844	1999	Specification for application of gypsum base to receive gypsum veneer plaster
C847	2000	Specification for metal lath
C887	1979 (1996)	Specification for packaged, dry combined materials for surface bonding mortar
C897	2000	Specification for aggregate for job-mixed Portland cement-based plasters
C931	1997	Specification for exterior gypsum soffit board
C933	1996 (2001)	Specification for welded wire lath

Standard Number	Year	Name
CC954	2000	Specification for steel drill screws for the application of gypsum panel products or metal plaster bases to steel studs from 0.033 in. to 0.112 in. in thickness
C955	2001	Specification for load-bearing transverse and axial steel studs, runners tracks and bracing or bridging for screw application of gypsum panel products and metal plaster bases
C957	1993 (1998)	Specification for high-solids content, cold liquid - applied elastomeric waterproofing membrane for use with integral wearing surface
C960	2001	Specification for pre-decorated gypsum board
C1002	2001	Specification for steel drill screws for the application of gypsum panel products or metal plaster bases
C1029	1996	Specification for spray-applied rigid cellular polyurethane thermal insulation
C1032	1996	Specification for woven wire plaster base
C1047	1999	Specification for accessories for gypsum wallboard and gypsum veneer base
C1063	1999	Specification for installation of lathing and furring to receive interior and exterior Portland cement-based plaster
C1157	2000	Performance specification for hydraulic cements
C1167	1996	Specification for clay roof tile
C1177/C1177M	2001	Specification for glass mat gypsum substrate for use as sheathing
C1178/C1178M	2001	Specification for glass mat water-resistant gypsum backing panel
C1186	1999	Specification for flat non-asbestos fiber cement sheets
C1261	1998	Specification for firebox brick for residential fireplaces
C1278/C1278M	2001	Specification for fiber-reinforced gypsum panels
C1283	2000 2001	Practice for installing clay flue lining
D2824	1994	Specification for aluminum-pigmented asphalt roof coatings, non-fibered, asbestos fibered and fibered without asbestos

Standard Number	Year	Name
D2837	1998	Test method for obtaining hydrostatic design basis for thermoplastic pipe materials
D2829	1994 (1999)	Test methods for accelerated weathering of fire-retardant treated wood for fire testing
D3019	2001	Specification for lap cement used with asphalt roll roofing, non-fibered, asbestos fibered, and non-asbestos fibered
D3035	2001	Specification for polyethylene (PE) plastic pipe (DR-PR) based on controlled outside diameter
D3161	1999	Test method for wind resistance of asphalt shingles (fan induced method)
D3201	1994 (1998)	Test method for hygroscopic properties of fire-retardant wood and wood-base products
D3550	2001	Specification for polyethylene plastic pipe and fitting materials
D3462	2001	Specification for asphalt shingles made from glass felt and surfaced with mineral granules
D3468	1999	Specification for liquid-applied neoprene and chlorsulfanated polyethylene used in roofing and waterproofing
D3679	2001	Specification for rigid poly (vinyl chloride) (PVC) siding
D3737	1999	Practice for establishing allowable properties for structural glued laminated timber (glulam)
D3747	2001	Specification for emulsified asphalt adhesive for adhering roof insulation
D3909	1997	Specification for asphalt roll roofing (glass felt) surfaced with mineral granules
D4022	1994 (2000)	Specification for coal tar roof cement, asbestos containing
D4318	2000	Test methods for liquid limit, plastic limit and plasticity index of soils
D4434	1996	Specification for poly (vinyl chloride) sheet roofing
D4479	2000	Specification for asphalt roof coatings - asbestos-free
D4586	2000	Specification for asphalt roof cement - asbestos-free

8-3-24

Standard Number	Year	Name
D4601	1998	Specification for asphalt-coated glass fiber base sheet used in roofing
D4637	1996	Specification for EPDM sheet used in single-ply roof membrane
D4829	1995	Test method for expansion index of soils
D4869	1988 (1993)	Specification for asphalt-saturated (organic felt) underlayment used in steep slope roofing
D4897	2001	Specification for asphalt coated glass-fiber venting base sheet used in roofing
D4990	1997	Specification for coal tar glass felt used in roofing and waterproofing
D5019	1996	Specification for reinforced non-vulcanized polymeric sheet used in roofing material
D5055	2000	Specification for establishing and monitoring structural capacities of prefabricated wood I-joists
D5516	1999	Test method for evaluating the flexural properties of fire-retardant-treated softwood
D5643	1994 (2000)	Specification for coal tar roof cement asbestos-free
D5664	2001	Test methods for evaluating the effects of fire-retardant treatments and elevated temperatures on strength properties of fire-retardant-treated lumber
D5665	1999	Specification for thermoplastic fabrics used in cold-applied roofing and waterproofing
D5726	1998	Specification for thermoplastic fabrics used in hot-applied roofing and waterproofing
D6083	1997	Specification for liquid applied acrylic coating used in roofing
D6162	2000	Specification for styrene butadiene styrene (SBS) modified bituminous sheet materials using a combination of polyester and glass fiber reinforcement
D6163	2000	Specification for styrene butadiene styrene (SBS) modified bituminous sheet materials using glass fiber reinforcements

Standard Number	Year	Name
D6164	2000	Specification for styrene butadiene styrene (SBS) modified bituminous sheet materials using polyester reinforcements
D6221	2000	Specification for reinforced bituminous flashing sheets for roofing and waterproofing
D6222	2000 2001	Specification for atactic polypropelene (APP) modified bituminous sheet materials using polyester reinforcement
D6223	2000 2001	Specification for atactic polypropelene (APP) modified bituminous sheet materials using a combination of polyester and glass fiber reinforcement
D6298	1998	Specification for fiberglass reinforced styrene-butadiene-styrene (SBS) modified bituminous sheets with a factory applied metal surface
D6305	1998	Practice for calculating bending strength design adjustment factors for fire-retardant-treated plywood roof sheathing
E84	2001	Test method for surface burning characteristics of building materials
E96	2000	Test method for water vapor transmission of materials
E108	1999	Test methods for fire tests of roof coverings
E119	2000	Test methods for fire tests of building construction and materials
E136	1999	Test method for behavior of materials in a vertical tube furnace at 750 degrees C
E152	1995	Methods of fire tests of door assemblies
E330	1997	Test method for structural performance of exterior windows, curtain walls and doors by uniform static air pressure difference
E814	2000	Test method for fire tests of through-penetration firestops
E970	2000	Test method for critical radiant flux of exposed attic floor insulation using a radiant heat energy source
E1602	1994	Guide for construction of solid fuel burning masonry heaters

Standard Number	Year	Name
F1055	1998	Specification for electrofusion type polyethylene fittings for outside diameter controlled polyethylene pipe and fittings

AWPA

American Wood Preservers' Association
P.O. Box 388
Selma, AL 36702-0388
Telephone: 334-874-9800
Facsimile: 334-874-9008
Email@awpa.com

Standard Number	Year	Name
C1	2000	All timber products - preservative treatment by pressure processes
C2	2001	Lumber, timbers, bridge ties and mine ties - preservative treatment by pressure processes
C3	1999	Piles - preservative treatment by pressure processes
C4	1999	Poles - preservative treatment by pressure processes
C9	2000	Plywood - preservative treatment by pressure processes
C15	2000	Wood for commercial - residential construction preservative treatment by pressure processes
C20	1999	Structural lumber - fire-retardant treatment by pressure processes
C22	1996	Lumber and plywood for permanent wood foundations - preservative treatment by pressure processes
C23	2000	Round poles and posts used in building construction - preservative treatment by pressure processes
C24	1996	Sawn timber used to support residential and commercial structures
C27	1988	Plywood - fire-retardant treatment by pressure processes
C28	1999	Standard for preservative treatment by pressure process of structural glued-laminated members and laminations before gluing

Standard Number	Year	Name
C31	2001	Lumber used out of contact with the ground and continuously protected from liquid water - treatment by pressure processes
C33	2000	Standard for preservative treatment of structural composite lumber by pressure processes
M4	2001	Standard for the care of preservative-treated wood products
P1/P13	2001	Standard for creosote preservative
P2	2001	Standard for creosote solutions
P3	2001	Standard for creosote-petroleum solutions

CDA

Copper Development Association, Inc.
260 Madison Avenue, New York, NY 10016
Phone: 212/251-7200
Fax 212/251-7234
Email: questions@cda.copper.org

Standard Number	Year	Name
4050		Copper in architecture - design handbook

CPSC

Consumer Product Safety Commission
4330 East-West Highway
Bethesda, Maryland 20814-4408
Telephone: (800) 638-2772
Fax: (301) 504-0124 and (301) 504-0025
E-mail: info@cpsc.gov

Standard Number	Year	Name
16 CFR Part 1201	1977	Safety standard for architectural glazing
16 CFR Part 1209	1979	Interim safety standard for cellulose insulation
16 CFR Part 1404	1979	Cellulose insulation

CSSB

Cedar Shake and Shingle Bureau
P.O. Box 1178
Sumas, WA 98295-1178
Telephone 604-820-7700
Fax 604-820-0266
http://www.cedarbureau.org

Standard Number	Year	Name
CSSB - 97		Grading and packing rules for western red cedar shakes and western red shingles of the cedar shake and shingle bureau

DOC

United States Department of Commerce
100 Bureau Drive Stop 2100
Gaithersburg, MD 20899

Ms. Aubrey Covey
National Center for Standards and Certification Information
National Institute of Standards and Technology
100 Bureau Drive, MS-2160
Gaithersburg, MD 20899-2160
Telephone: 301-975-4040
Fax: 301-926-1559
Email: ncsci@nist.gov
Internet: http://ts.nist.gov/ncsci/

Standard Number	Year	Name
PS 1	1995	Construction and industrial plywood
PS 2	1992	Performance standards for wood-based structural-use panels
PS 20	1999	American softwood lumber standard

FM

Factory Mutual Global Research
Standards Laboratories Department
1151 Boston Providence Turnpike
Norwood, MA 02062

Standard Number	Year	Name
4450	1989	Approval standard for class 1 insulated steel deck roofs - with supplements through July 1992
4880	2001	American national standard for evaluating insulated wall or wall and roof/ceiling assemblies, plastic interior finish materials, plastic exterior building panels, wall/ceiling coating systems, interior or exterior finish systems

GA

Gypsum Association
810 First Street, Northeast Suite 510
Washington, DC 20002-4268
Telephone 202-289-5440
Fax 202-289-3707
E-mail info@gypsum.org

Standard Number	Year	Name
GA253	1999	Recommended standard specification for the application of gypsum sheathing

HPVA

Hardwood Plywood and Veneer Association
1825 Michael Faraday Drive
Reston, VA 20190-5350
Phone: (703) 435-2900
Fax: (703) 435-2537
E-mail: hpva@hpva.org

Standard Number	Year	Name
HP-1	2000	The American national standard for hardwood and decorative plywood

NAIMA

North American Insulation Manufacturers Association
44 Canal Center Plaza, Suite 310
Alexandria, VA 22314
Telephone: (703) 684-0084
Fax: (703) 684-0427
Web site: http://www.naima.org

Standard Number	Year	Name
AH 116 06	2002	Fibrous glass duct construction standards

NCMA

National Concrete Masonry Association
13750 Sunrise Valley Drive
Herndon, VA 20171-4662
Phone: 703.713.1900
Fax: 703.713.1910
Web site http://www.ncma.org

Standard Number	Year	Name
TR 68 - A	1975	Design and construction of plain and reinforced concrete masonry and basement and foundation walls

NFPA

National Fire Protection Association
Batterymarch Park
Quincy, MA 02269
Telephone 617 770-3000
Fax 617 770-0700
Web site http://www.nfpa.org

Standard Number	Year	Name
13D	1999	Insulation of sprinkler systems in one and two family dwellings and manufactured homes
31	2001	Installation of oil-burning equipment
58	2001	Liquefied petroleum gas code
70	2002	National electrical code

SAE

Society of Automotive Engineers
400 Common Wealth Drive
Warrendale, PA 15096
Telephone 248/273-2494
Web site http://www.sae.org

Standard Number	Year	Name
J78	1998	Steel self-drilling tapping screws

SMACNA

Sheet Metal and Air Conditioning Contractors National Association, Inc.
4201 Lafayette Center Drive
Chantilly, Virginia 20151-1209
Tel (703) 803-2980
Fax (703) 803-3732
info@smacna.org

Standard Number	Year	Name
SMACNA	1992	Fibrous glass duct construction standards

TMS

The Masonry Society
3970 Broadway, Suite 201-D
Boulder, CO 80304-1135
Telephone 303-939-9700
Fax 303-541-9215
E-mail: info@masonrysociety.org

Standard Number	Year	Name
402	2002	Building code requirements for masonry structures
602	2002	Specification for masonry structures

TPI

Truss Plate Institute
583 D'Onofrio Drive, Suite 200
Madison, WI 53719
Telephone 608-833-5900
Fax 608-833-4360
Web site www.tpinst.org

Standard Number	Year	Name
TPI 1	2000	National design standard for metal-plate-connected wood truss construction

UL

Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062-2096 USA
Phone: +1-847-272-8800
Fax +1-847-272-8129
Web site http://www.ul.com

Standard Number	Year	Name
17	1994	Vent or chimney connector dampers for oil-fired appliances - with revisions through September 1999
58	1996	Steel underground tanks for flammable and combustible liquids - with revisions through July 1998
80	1996	Steel inside tanks for oil-burner fuel
103	1998	Factory-built chimneys for residential type and building heating appliances - with revisions through March 1999
127	1999	Factory-built fireplaces - with revisions through November 1999
174	1998	Household electric storage tank water heaters - with revisions through October 1999
181	1996	Factory-made air ducts and air connectors - with revisions through December 1998
181A	1995	Closure systems for use with rigid air ducts and air connectors - with revisions through December 1998
181B	1998	Closure systems for use with flexible air ducts and air connectors - with revisions through December 1998

Standard Number	Year	Name
325	1995	Door, drapery, louver and window operations and systems - with revisions through June 2001
343	1997	Pumps for oil-burning appliances - with revisions through December 22, 1999
441	1998	Gas vents
536	1997	Flexible metallic hose - with revisions through October 2000
641	1995	Type L, low-temperature venting systems - with revisions through April 1999
726	1998	Oil-fired boiler assemblies - with revisions through January 1999
727	1998	Oil-fired central furnaces - with revisions through January 1999
729	1998	Oil-fired floor furnaces - with revisions through January 1999
730	1998	Oil-fired wall furnaces - with revisions through January 1999
732	1995	Oil-fired storage tank water heaters - with revisions through January 1998
737	1996	Fireplaces stoves - with revisions through May 1998
790	1998	Tests for fire resistance of roof covering materials - with revisions through July 1998
834	1998	Heating, water supply and power - electric - with revisions through November 1998
896	1993	Oil-burning stoves - with revisions through November 1999
959	2001	Medium heat appliance factory-built chimneys
923	1995	Microwave cooking appliances - with revisions through July 1998
1040	1996	Fire test of insulated wall construction - with revisions through April 2001
1256	1998	Fire test of roof deck construction - with revisions through March 2000
1261	1996	Electric water heaters for pools and tubs - with revisions through November 25, 1998

Standard Number	Year	Name
1479	1994	Fire tests of through-penetration firestops
1482	1998	Solid-fuel type room heaters - with revisions through January 2000
1715	1997	Fire test of interior finish materials
1738	2000	Venting systems for gas-burning appliances, categories II, III and IV - with revisions through December 2000
1777	1998	Chimney liners - with revisions through July 1998
1995	1998	Heating and cooling equipment - with revisions through August 1999
22158A	1996	Outline of investigation for clothes dryer transition duct

WDMA Window and Door Manufacturers Association
1400 East Touhy Avenue, Suite 470
Des Plaines, IL 60018
Telephone 847-299-5200
Fax 847-299-1286
Web site www.wdma.com

Standard Number	Year	Name
101/I.S.2	1997	Voluntary specifications for aluminum, vinyl (PVC), and wood windows and glass doors
101/I.S.2/NAFS	2002	Voluntary performance specification for windows, skylights and glass doors

Table 322 – 2 – A

Minimum Clearance of Overhead Conductors

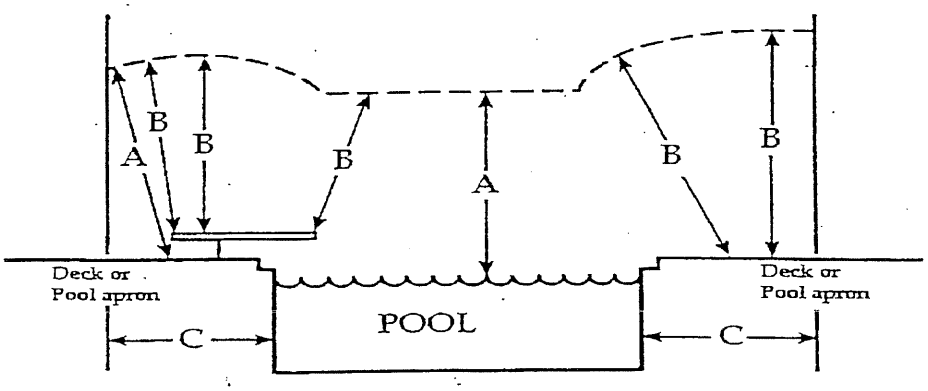

TABLE 322-2-B

MINIMUM CLEARANCE OF OVERHEAD CONDUCTORS

	Insulated service drop cables, 0–750 volts to ground, supported on and cabled together with an effectively grounded bare messenger or effectively grounded neutral conductor	All other supply or service-drop conductors voltage to ground	
		0 – 15 kV	Greater Than 15 – 50 kV
A - Clearance in any direction to the water level, edge of water surface, base of diving platform	22 feet	25 feet	27 feet
B - Clearance in any direction to the diving platform or tower	14 feet	17 feet	18 feet
C - Horizontal limit of clearance measured from inside wall of the pond	Not less than 10 feet		

(Ord. 2008-09-01, 9-24-2008)

CHAPTER 3A

RENTAL UNITS

SECTION:

8-3A-1: **PURPOSE:** To ensure that dwelling units are habitable and safe for tenants, an inspection for compliance with applicable building code provisions to ensure there are no life safety violations is necessary and desirable. (Ord. 99-7-1, 7-14-1999)

8-3A-2: **DEFINITION:** For the purposes of this chapter, "life safety violations" shall be any condition of the building which is a violation of the applicable building code and the existence of the violation constitutes a risk of harm to an occupant, as reasonably determined by the inspector. (Ord. 99-7-1, 7-14-1999)

8-3A-3: **CERTIFICATE OF OCCUPANCY REQUIRED:** For each dwelling unit which is to be occupied by a tenant pursuant to a written or oral lease, prior to the dwelling unit being occupied by said tenant, the owner shall request and obtain an inspection from the Lake Villa building department and thereafter obtain a certificate of occupancy. (Ord. 99-7-1, 7-14-1999)

8-3A-4: **INSPECTION:** The Lake Villa building department, upon request, shall make the necessary inspection. If there are no life safety violations of the building code, a certificate of occupancy shall be issued. If there are life safety violations, a written list of such violations

shall be provided to the owner. The owner can then request a reinspection after having such violations corrected. There shall be charged a fee of fifty dollars ($50.00) for each inspection. There shall be no charge for the issuance of the certificate of occupancy. (Ord. 99-7-1, 7-14-1999)

8-3A-5: **APPLICATION:** This chapter shall apply to all dwelling units which are leased to a tenant and which are contained in buildings which consist of three (3) or less dwelling units. A certificate of occupancy shall be required prior to the tenant taking possession. A separate certificate of occupancy shall be required prior to each successive tenancy. (Ord. 99-7-1, 7-14-1999)

8-3A-6: **EXISTING TENANCIES:** This chapter shall not apply to tenancies in dwelling units which exist as of July 14, 1999, but shall thereafter apply to each successive tenancy in said dwelling units. (Ord. 99-7-1, 7-14-1999)

CHAPTER 3B

COMMERCIAL BUILDING CERTIFICATE OF OCCUPANCY

SECTION:

8-3B-1: **PURPOSE:** To ensure that commercial buildings are habitable and safe, an inspection for compliance with applicable building code provisions to ensure there are no life safety violations is necessary and desirable. (Ord. 2001-2-1, 2-14-2001)

8-3B-2: **DEFINITION:** For the purposes of this chapter, "life safety violations" shall be any condition of the building which is a violation of the applicable building code and the existence of the violation constitutes a risk of harm to an occupant, as reasonably determined by the inspector. (Ord. 2001-2-1, 2-14-2001)

8-3B-3: **CERTIFICATE OF OCCUPANCY REQUIRED:** For each commercial building prior to the building being occupied and prior to each subsequent change of occupancy, the owner shall request and obtain an inspection from the Lake Villa building department and thereafter obtain a certificate of occupancy. (Ord. 2001-2-1, 2-14-2001)

8-3B-4: **INSPECTION:** The Lake Villa building department, upon request, shall make the necessary inspection. There shall be charged an inspection fee of one hundred dollars ($100.00). If there are no life safety violations of the building code, a certificate of occupancy shall be issued. If there are life safety violations, a written list of such violations

shall be provided to the owner. The owner can then request a reinspection after having such violations corrected. If more than two (2) inspections are necessary, there shall be an additional fee of one hundred dollars ($100.00) for each additional inspection. There shall be no charge for the issuance of the certificate of occupancy. (Ord. 2001-2-1, 2-14-2001)

8-3B-5: **APPLICATION:** This chapter shall apply to all commercial buildings. For the purposes of this chapter "commercial" shall mean each building which is to be occupied and utilized for nonresidential purposes. A certificate of occupancy shall be required prior to occupancy and each subsequent different occupancy. A separate certificate of occupancy shall be required prior to each successive occupancy. (Ord. 2001-2-1, 2-14-2001)

8-3B-6: **EXISTING TENANCIES:** This chapter shall apply to all occupancies which begin after March 15, 2001. (Ord. 2001-2-1, 2-14-2001)

CHAPTER 4

OTHER BUILDING CODES ADOPTED

SECTION:

8-4-1: BUILDING CODE ADOPTED:

A. Adoption: The international building code, 2006 edition (IBC), of the International Code Council, is hereby adopted, except for such amendments, deletions, and/or substitutions as herein provided, as part of the Lake Villa building code (hereinafter sometimes referred to as the "international building code").

B. Amendments: The following amendments, deletions, additions and/or modifications are hereby made to the international building code as adopted in subsection A of this section:

Page 1, section 101.1. Insert the words "the village of Lake Villa" to replace [Name Of Jurisdiction].

Page 1, section 101.2. Exception. Delete all words that are after "detached one and two family dwellings".

Page 2, section 103. Delete the words "Department Of Building Safety" and insert the words "department of building and zoning".

Page 2, section 103.1. Delete the words "department of building safety" and insert the words "department of building and zoning".

Page 2, section 103.3. Delete the last sentence with no substitution.

Page 3, section 105.1.1. Delete the subsection with no substitution.

Page 3, section 105.1.2. Delete the subsection with no substitution.

Page 3, section 105.2. Building.

Amend item #1. "Playhouses and similar uses; provided the floor area does not exceed 120 square feet".

Item #6. Delete the words "and are not part of an accessible route" at the end of the paragraph.

Delete with no substitution items 2, 3, 4, 5 and 8.

Page 4, section 105.3. Item #6. Delete the word "applicant" and "applicant's" and insert the word "owner" and "owner's".

Page 5, section 106.1. Delete the words "one or more" and insert the word "three".

Page 5, section 106.1.1. Delete the words "Electronic media documents are permitted to be submitted when approved by the building official." and insert:

"Scale of plans shall be not less than $^{1}/_{8}$ inch to a foot or more than $^{1}/_{4}$ inch to the foot. Exception: Sections or sketches drawn to a larger scale for clarity."

Page 5, section 106.2. In the first sentence delete the words "a site plan" and insert the words "three site plans".

Page 5, section 106.3.1. Delete the words "as reviewed for code compliance" with no substitution.

Page 8, section 110.2. Delete the words "that contain the following." and all of the numbered items with no substitution. Insert a sentence that reads:

"The certificate of occupancy shall be as prescribed by the building official."

8-4-1

Page 8, section 112. Delete the entire section. The provisions of section 8-1-15 of the village code shall govern and control the means of appeal.

Page 8, section 113.4. Delete the words "penalties as prescribed by law" and insert the words "a fine of not less than $200.00 nor more than $750.00 per day. Each day shall constitute a separate offense."

Page 9, section 115.6. Add a new section that reads:

> 115.6 Boarding Up. Boarding up a vacant or unsafe structure is considered a temporary measure until a decision can be made as to what remedy the owner wants to pursue as provided in this section, but in no case can a building be boarded up for more than six (6) months or a time as the building official may deem necessary to protect public safety and welfare.

Page 34, section 310.1. Under the R-3 group add a paragraph that reads:

> "All two (2) hour fire separation assemblies between R-3 residential units shall not contain any mechanical or plumbing systems, unless the mechanical or plumbing system is part of a tested assembly. Electrical systems shall be allowed in accordance with the 1999 national electrical code."

Page 40, section 403.1. Add a sentence to the end of the paragraph that reads:

> "The height of the building for fire department access shall be measured from the average grade elevation to the highest finished floor level."

Page 43, section 406.1.4. After the word "$^1/_2$ inch" insert the words "type C or $^5/_8$ inch type X".

Page 43, section 406.1.4. Add a new number 4 to read:

> "The sills of all door opening between private garages and adjacent interior spaces shall be raised not less than six (6) inches above the garage floor. The common foundation wall between the garage and the adjacent living area shall have no less than six (6) inch elevation difference."

Page 52, section 411.1. Change the existing exception to number 1 and add another exception to read:

2. A temporary use permit (not to exceed 30 days) may be issued for a haunted house in an existing structure provided the following criteria is approved.

A. A special inspection has been conducted and the report is in the office.

B. A plot plan showing sufficient parking for the anticipated customers and all structures on the property.

C. A floor plan showing the existing and proposed layout of partitions, windows and means of egress.

D. A list of all interior finishes and materials to be used for decorations and their flame spread and smoke generation ratings.

E. Plans showing permanent, temporary and emergency lighting.

F. Methods of assuring continuous movement of occupants through the amusement such as but not limited to:

(1) Permanently stationed supervisory personnel.

(2) Directional arrows.

(3) Other means.

G. Method of assuring fire protection such as but not limited to:

(1) An automatic sprinkler system.

(2) Fire detection/alarm system.

(3) Portable fire extinguishers.

Page 77, section 505.3. Delete the words "section 907.2.12.2" and insert the words "state of Illinois accessibility standard".

8-4-1

Page 174, section 903.2.1.1. Group A-1. Change "12,000" to read "10,000".

Page 174, section 903.2.1.3. Group A-3. Change "12,000" to read "10,000".

Page 174, section 903.2.1.4. Group A-4. Change "12,000" to read "10,000".

Page 174, section 903.2.2. Group E. Change the number "20,000" to read "7,200".

Page 174, section 903.2.3. Group F-1. Change "12,000" to read "10,000" and change "24,000" to read "20,000".

Page 175, section 903.2.6. Group M. Insert the "group B" and change "12,000" to read "10,000" and change "24,000" to read "20,000".

Page 175, section 903.2.8. Group S-1. Change "12,000" to read "10,000" and change "24,000" to read "20,000".

Page 182, section 906.1. Amend the current section to read:

> 906.1. General. Portable fire extinguishers shall be provided in occupancies and locations as required below:
>
> 1. In new group A, B, E, F, H, I, M, RI, R2 and S occupancies.
>
> Exception: In group A, B and E occupancies equipped throughout with quick response sprinklers, portable fire extinguishers shall only be required in locations specified in items 2 through 5.
>
> 2. Within 30 feet of commercial cooking equipment.
>
> 3. In areas where flammable or combustible liquids are stored, used or dispensed.
>
> 4. On each floor of structures under construction, except group R-3 occupancies.
>
> 5. Special hazard areas including but not limited to laboratories, computer rooms and generator rooms where required by the building code official.

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Page 182, section 907.1.2. Equipment. Add another paragraph at the end to read:

> "New fire alarm control panels shall be addressable unless otherwise approved by the building code official. The equipment shall be capable of having the audio signal silenced without resetting the fire alarm control panel. All fire alarm control panels shall have an approved method of placing the system in trouble mode at the location of the alarm panel."

Page 185, section 907.2.10. Single- And Multiple-Station Smoke Alarms. Add to the end of paragraph:

> "and in accordance with the state of Illinois smoke detector act."

Page 188, section 907.5. Add paragraphs to read:

> 1. Wire Size: The minimum wire size for all audio-visual devices shall be 14-gauge solid. For all other devices the minimum wire size shall be 18-gauge solid wire. The maximum I/R drop for all indicating circuits shall not exceed 10% of the rated voltage.
>
> 2. Fire Alarm Control Panels: All fire alarm control panels shall be capable of having the audio signal silenced without resetting the fire alarm control panel.

Page 188, section 907.8. In the first sentence change the number "22,500" to read "10,000".

In the second sentence change the number "300" to read "100".

Page 188, section 907.9. Add a sentence to the end of the section to read:

> "All automatic fire alarm system notification devices shall be of an approved audio, visual or audio-visual type that complies with the Illinois accessibility code."

Page 199, section 913 (new).

913.0. Key Boxes

913.1. Approval: The authority having jurisdiction shall approve all key lock boxes.

913.2. Where Required: All new occupancies having automatic fire alarm systems shall have a key lock box installed in a location approved by the authority having jurisdiction.

913.3. Supervision: Where required by the authority having jurisdiction, the key lock box shall be electronically supervised and connected to the automatic fire alarm system.

913.4. Contents Of Key Box: The key lock box shall contain all keys for locked areas of the building as required by the authority having jurisdiction. Said keys shall include but not be limited to all areas of the building, automatic fire alarm system and manual pull box resetting tool.

913.5. Key Maintenance: The authority having jurisdiction shall be notified immediately of the change of locks and/or keys for the building to allow for the placement of new keys in the key lock box.

Page 205, section 1006.1. Illumination Required. After the words "exit discharge" insert the words "and toilet rooms".

Page 205, section 1007.0. Delete the entire section and insert the "Illinois Capitol Development Board, Accessible Standards."

Page 210, section 1008.1.4.1. Add new subsection to read:

1008.1.4.1. Grade Exit Discharge Doors: Where required to swing in the direction of egress travel, all required grade exit doors shall be provided with a hard surfaced area underneath the door swing.

1008.1.4.2. Stoop Surface: The exterior surface shall have a slip resistant surface that has a slope not greater than 1:50 in any direction.

1008.1.4.3. Support: Sufficient wing walls and/or foundation wall is required under all stoops. Wing walls shall have a minimum of one (1) number 4 reinforcing bar located not more than six (6) inches beneath the top edge of concrete and extending downward into the foundation wall not less than two (2) feet.

1008.1.4.4. Stoop Extension: The outer perimeter of the stoop shall not project out beyond the wing wall and/or foundation wall more than twelve (12) inches in any direction.

Page 217, section 1013.3. Add a sentence to the end of the section to read:

"Guards shall not have an ornamental pattern that would provide a ladder effect."

Page 235, chapter 11. Delete the entire chapter and insert the "State of Illinois Accessible Standards"

Page 289, section 1608.1. Add to the end of paragraph:

In no case shall the design snow load be less than 30 pounds per square foot.

Page 289, section 1609.1. Add to the end of paragraph:

In no case shall the design wind load be less than 20.7 pounds per square foot.

Page 346, section 1805.2.1. Delete from item #1 the words:

"below the frost line of the locality" and insert the words "a minimum of forty-two (42) inches measured from adjacent finished grade level".

Page 354, section 1805.5.2.1. Add:

"Item 7. Concrete foundation walls shall be a minimum of six (6) inches higher than the adjacent finished grade level."

Page 354, section 1805.5.2.2. Add:

"Item 8. Masonry foundation walls shall be a minimum of six (6) inches higher than the adjacent finished grade level."

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Page 357, section 1806 (new). Add Retaining Walls:

Retaining Walls And Partition Fences

General: Where the adjoining grade is not higher than the legal level, the person causing an excavation to be made shall erect, where necessary, a retaining wall at his or her own expense and on his or her own land. Such wall shall be built to a height sufficient to retain the adjoining earth, shall be properly coped as required and shall be provided with a guardrail or fence not less than 42 inches (1067 mm) in height.

Guards: Where retaining walls with differences in grade level on either side of the wall in excess of 4 feet (1219 mm) are located closer than 2 feet (610 mm) to a walk, path, parking lot or driveway on the high side, such retaining walls shall be provided with guards.

Height: The guards shall be at least 42 inches (1067 mm) in height measured vertically above the leading edge of the tread or adjacent walking surface.

Exception: Guards along open-sided floor areas and along stairs located less than 30 inches (762 mm) above the floor or grade below shall not be less than 36 inches (914 mm) in height.

Opening Limitations: In occupancies in use groups A, B, E, H-4, I-1, I-2, M and R, and in public garages and open parking structures, open guards shall have balusters or be of solid material such that a sphere with a diameter of 4 inches (102 mm) cannot pass through any opening. Guards shall not have an ornamental pattern that would provide a ladder effect.

Exceptions:

1. The triangular openings formed by the riser, tread and bottom rail at the open side of a stairway shall be of a maximum size such that a sphere 6 inches (152 mm) in diameter cannot pass through the opening.

2. At elevated walking surfaces for access to and utilization of electrical, mechanical, or plumbing systems or equipment,

guards shall have balusters or be of solid materials such that a sphere with a diameter of 21 inches (533 mm) cannot pass through any opening.

In occupancies in use groups I-3, F, H-1, H-2, H-3, S (other than *public garages* and open parking structures), and along open-sided floor areas located less than 30 inches (762 mm) above the floor or grade below, balusters, horizontal intermediate rails or other construction shall not permit a sphere with a diameter of 21 inches (533 mm) to pass through any opening.

Page 521, table 2902.2. Delete the entire table and insert:

"Table B" from the state of Illinois plumbing code.

Page 524, section 2902.6 (new). Add a new section to read:

2902.6. Waste Lines. All plumbing waste lines that are located in, under or goes through concrete shall be cast iron.

Exception: Waste lines that go through the foundation wall shall be ductile iron and extend on the outside of the foundation wall a minimum of five feet.

Page 525, section 3002.4. Amend the present section to read:

Insert the word "new" after the word "where" in the first sentence.

Delete the words: "four or more stories above grade plane or four or more stories below grade plane".

At the end of the section insert the words "The cab shall have a minimum of 5 foot x 7 foot platform and a minimum 2500 pound lifting capacity. The cab shall have a minimum of a 42 inch side slide door. The hand rail shall be set at 36 inches above the walking surface of the elevator cab."

Page 541, section 3401.3. Delete the words:

"International fire code, international fuel gas code, international mechanical code, international plumbing code, international property maintenance code, international private sewage disposal code, international residential code and ICC electrical code."

Replace with the words:

> "Shall comply with all building codes currently adopted by the village of Lake Villa."

General amendments to the international building code:

ICC Electrical Code
Any and all references to the ICC electrical code (section 101.4.1, 107.3, 414.5.4, 415.8.2.8.1, 904.3.1, 907.5, 909.11, 909.12.1, 909.16.3, 1205.4.1, 1405.10.4, 2701.1, 3401.3) are hereby deleted and replaced by references to N.F.P.A. national electrical code 1999 or the edition currently adopted by the village.

ICC International Energy Conservation Code
Any and all references to the ICC international energy conservation code or chapter 13 and (sections 101.4.7, 1203.3.2, 1301.1.1, 1403.2) are hereby deleted and replaced by references to the state of Illinois energy conservation code currently adopted by the state of Illinois.

ICC International Plumbing Code
Any and all references to the ICC international plumbing code (sections 101.4.4, 201.3, 415.6.4, 717.5, 903.5, 912.5, 1206.3.3, 1503.4, 1807.4.3, 2901.1, table 2902.1, 2902.1.1, 3305.1, 3401.3) are hereby deleted and replaced by references to the state of Illinois plumbing code, 2004 or the edition currently adopted by the state of Illinois.

ICC International Property Maintenance Code
Any and all references to the ICC international property maintenance code are hereby deleted and replaced by references to the 1993 BOCA national property maintenance code or the edition currently adopted by the village.

ICC International Private Sewage Disposal Code
Any and all references to the ICC international private sewage disposal code (sections 101.4.4, 2901.1, 3401.3) are hereby deleted and replaced by references to the Lake County board of health ordinance, article V, as currently adopted by Lake County.

ICC International Residential Code
Any and all references to the ICC international residential code are hereby deleted and replaced by references to the village of Lake Villa one and two family dwelling code.

C. Penalty: Any violation of the provisions of the international building code as adopted in this section shall be considered a violation of this chapter. (Ord. 2008-09-01, 9-24-2008)

8-4-2: ELECTRICAL CODE ADOPTED:

A. Adoption And Amendments: Pursuant to 65 Illinois Compiled Statutes 5/1-3-2 and all other applicable authority, the village of Lake Villa hereby adopts by reference the NFPA national electrical code, 1999 edition, as published by the Building Officials And Code Administrators International, Inc., in entirety, excluding any penalty provisions contained therein, and the same is hereby adopted as ordinance provision of the village, subject to the following amendments.

B. Amendments: The following amendments, deletions, additions, and/or modifications are hereby made to the national electrical code as adopted in subsection A of this section:

Section 90-10, "Means Of Appeal" shall be and is hereby deleted and in lieu thereof the following sentence is hereby substituted:

> "The provisions of section 8-1-15 of the village code shall govern and control the means of appeal."

Page 70-28, section 110-26 Spaces About Electrical Equipment: Add to the end of the section the following:

> "Electrical service equipment must be a minimum of three (3) feet from sump or ejector pump pits and piping. Measurement shall be from the edge of the panel to the edge of the pit."

Page 70-40, section 210-8(b) Other Than Dwelling Units: After the word "specified" delete the word "below" and insert the words "in, section 210-8-(a) and rooftops".

Page 70-40, section 210-11 Branch Circuits Required: Insert at the end of the first paragraph words to read:

> "Distribution centers, in new construction, shall have a minimum of 15 percent of the total available circuit spaces left unused for future circuits."

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Page 70-40, section 210-11(a) Number Of Branch Circuits: Add to the end of the section the following:

> "The total number of openings for any branch circuit shall not exceed 9 openings for a 15 ampere circuit or 12 openings for a 20 ampere circuit."

Page 70-61, section 230-2 Number Of Services: Add to the end of the paragraph the following:

> "Service equipment shall be located a minimum of three (3) feet from any gas meter."

Page 70-64, section 230-43 Wiring Methods For 600 Nominal, Or Less: Add a new number seventeen (17) to read:

> "(17) For overhead service entrance cables on the outside of one and two family dwelling, only items 3, 4 or 5 above are allowed."

Page 70-66, section 230-70F Service Equipment - Disconnecting Means (a) Service Location: All location of service entrance equipment shall be at the closest entry point of the principal structure to the electrical utility source. The most direct route along the property lines or within the prescribed easements shall be utilized for the installation of the service lateral, provided, however, diagonal installation across the lot or parcel is strictly prohibited.

Page 70-107, section 300-5(b) Protection From Damage: Add a paragraph to the end of the section to read:

> "Underground installation of an electrical service cannot be located in the same trench with plumbing or gas service(s) unless the minimum distance between utility services located in the same trench, shall be a minimum of twelve (12) inches measured in a horizontal dimension. Utility services located in separate trenches shall be located a minimum of twelve (12) inches apart horizontally."

Page 70-156, section 333-4 Uses Not Permitted: Add a new number (9) to read:

> "In any occupancy other than one and two family dwellings."

Page 70-159, section 336-4 Uses Permitted: Delete items (2) and (3) with no substitution.

Page 70-159, section 336-5 Uses Not Permitted: Delete item (1) and renumber the remaining items accordingly.

C. Governing Provisions: Wherever the national electrical code, 1999 edition, is in conflict with the other provisions of this chapter, the other provisions of this chapter shall govern and prevail.

D. Permit Required: No electrical equipment shall be installed, altered or changed in any building or structure within the corporate limits of the village until a permit for such installation, alteration, or change shall have been obtained from the village. Applications for a permit shall be in accordance with this code and the Lake Villa electrical code. After the permit shall have been issued, no change or modification in the plans or specifications shall be made unless such change shall first have been submitted to and approved by the village.

E. Penalty: Any violation of the provisions of the NFPA national electrical code, 1999 edition, as adopted in this section, shall be considered a violation of this chapter. (Ord. 2012-08-03, 8-8-2012, eff. 8-24-2012)

8-4-3: MECHANICAL CODE ADOPTED:

A. Adoption And Amendments: Pursuant to 65 Illinois Compiled Statutes 5/1-3-2 and all other applicable authority, the village of Lake Villa hereby adopts by reference the international mechanical code, 2006 edition, as published by the International Code Council, in entirety, excluding any penalty provisions contained therein, and the same is hereby adopted as ordinance provisions of the village, subject to the following amendments.

B. Amendments: The following amendments, deletions, additions, and/or modifications are hereby made to the international mechanical code as adopted in subsection A of this section:

Page 1, section M-101.1 Title: Delete the words "[Name Of Jurisdiction]" and insert the words "village of Lake Villa".

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Page 3, section M-106.3.1 Construction Documents: In the third (P) line delete the words "two or more" and replace with the words "three sets".

Page 4, section M-106.5.2 Fee Schedule: Delete the words "as indicated in the following schedule" and "[Jurisdiction To Insert Appropriate Schedule]". Insert the words "the currently effective fee schedule as adopted by the village of Lake Villa".

Page 6, section M-109 Means Of Appeal: Delete the entire section and, in lieu thereof, the following sentence is added:

> "The provisions of section 8-1-15 of the village code shall govern and control the means of appeal."

Page 43, section M-602.3 Stud Cavity And Joist Space Plenums: Add a new number six (6) to read:

"6. Such cavities or spaces shall be panned with sheet metal of at least #30 US gauge or #26 B&S gauge aluminum."

Page 45, section M-603.15 Registers, Grilles And Diffusers: Delete the words "or at each individual duct register, grille or diffuser." and insert the words "closest to the main supply air duct."

Page 56, section M-803.9 Chimney Connector Construction: Insert a new sentence between the first and second sentence to read:

"Single wall connectors are not allowed for low-heat, fan assisted exhaust appliances."

Page 135, appendix B, Recommended Permit Fee Schedule: Delete with no substitution.

C. Penalty: Any violation of said provisions of the international mechanical code, 2006 edition, as adopted in this section, shall hereinafter be considered a violation of this chapter. (Ord. 2008-09-01, 9-24-2008)

8-4-4: FIRE CODE ADOPTED:

A. Pursuant to 65 Illinois Compiled Statutes 5/1-3-2 and all other applicable authority, the village of Lake Villa hereby adopts by reference the international fire code, 2006 edition, as published by the International Code Council, in its entirety, excluding any penalty provisions contained therein, and the same is hereby adopted as ordinance provisions of the village, subject to the amendments set forth in subsection B of this section.

B. The following amendments, deletions, additions, and/or modifications are hereby made to the international fire code as adopted in subsection A of this section:

Any reference to the term "fire code official" or "building official" shall be and refer to the "building officer" or "code official".

Chapter 1, "Administration":

101.1 - Title: Insertion of the village of Lake Villa.

101.2.1 - Appendices: Delete this section in its entirety and add:

"All appendices are adopted as part of this code".

104.2.1 - Plan Review, Site Inspection, And Testing Fee Schedule, add:

"Fees shall be as established by the corporate authorities of the village from time to time."

104.2.1.2 - Fees for the inspection and approval of a certificate of occupancy shall be as established by the corporate authorities of the village from time to time.

Chapter 9, "Fire Protection Systems":

901.2.2 - Hydraulic Calculations, add:

"Provide a minimum of 10% or 5 psi safety factor in the fire protection system hydraulic calculation."

901.4.1.1 - Additional Restrictions, add:

"The following restrictions will apply.

a. Thin wall pipe is not approved for sprinkler installations.

b. Flexible type sprinkler head connections are not approved for sprinkler installations.

c. The reduced backflow preventer (RPZ) shall be installed without meter by-pass.

d. Galvanized piping shall not be installed prior to the RPZ.

e. Saddle heads and saddle valves are not approved."

901.6.2 - Records, Additional: A tag shall be used to indicate that a system has been tested with current test data, appropriate for the type of system, attached to the fire alarm control unit for fire protection system.

903.2 - Automatic Sprinklers - Where Required, delete and add:

Group A-1, change "12,000" to read "10,000"

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Group A-3, change "12,000" to read "10,000"

Group A-4, change "12,000" to read "10,000"

Group E, change "20,000" to read "7,200"

Group F-1, change "12,000" to read "10,000" and change "24,000" to read "20,000"

Group M, insert the group B and change "12,000" to read "10,000" and change "24,000" to read "20,000"

Group S-1, change "12,000" to read "10,000" and change "24,000" to read "20,000"

"Exceptions":

1. Structures being converted from use group R-3 (except townhouses) to use group B (professional office) or use group M (mercantile) that are less than 4,000 square feet total space and have an approved detection system which also complies with section 907.1.

903.4.2.1 - Audio Visual Devices, add as addendum:

There shall be a white horn/strobe unit installed in an approved weatherproof housing above each fire department connection for each automatic sprinkler system.

In a new multi-occupancy structure, an additional amber strobe shall be installed at an approved exterior location for each unit. These devices shall activate on all alarms within that unit.

903.4.3 - Floor Control Valves - delete this section and add:

"Approved supervised indicating control valves with water flow switches:

1. In new buildings and structures three or more stories above or below grade, provide at the point of connection to the riser on each floor.

2. In new single story buildings with six or more tenants, or where there are fire areas of 6,000 square feet or more,

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provide in each tenant space or area at the point of connection to the riser."

905.1.1 - Standpipe Requirement, add:

"Wherever class I, II, or III standpipes are required in this code, class I shall be installed."

907.1 - General, add:

"Fire alarm and detection systems must:

1. Be capable of transmitting three distinctly different signals (true fire, trouble, and supervisory).

2. All signals must be automatically transmitted to the designated dispatch center for Lake Villa fire protection district.

3. Duct detectors and tamper switches must transmit a supervisory alarm.

4. Location of duct detector test/reset switch shall be on visible wall located at a height of 5 feet, clustered together at a designated location per the fire official.

5. A manual fire alarm system shall be installed in accordance with NFPA 72 in all occupancies with automatic sprinkler systems and shall be connected to the building fire alarm system."

912.2 - Fire Hydrants, add:

"A fire hydrant, minimally able to supply system requirements, shall be located within 100 feet of the fire department connection (FDC)."

"Board of appeals" appendix A, pp. 391, shall be deleted and, in lieu thereof, the following sentence is added:

"The provisions of section 8-1-15 of the village code shall govern and control the means of appeal."

C. Any violation of the provisions of the international fire code, 2006 edition, as adopted in this section, shall be considered a violation of this chapter. (Ord. 2008-09-01, 9-24-2008)

8-4-5: **PLUMBING CODE ADOPTED:**

A. Adopted: The Illinois plumbing code (77 Ill. adm. code 890), as amended from time to time, is hereby adopted as the plumbing code of the village for the control of the construction, installation, maintenance and repairs of all plumbing fixtures and equipment, subject to the amendments set forth in subsection B of this section.

B. Amendments: The following amendments, deletions, and/or modifications are hereby made to the Illinois plumbing code as adopted in subsection A of this section:

Pursuant to the 17 Ill. adm. code 3730.307(c)(4) and subject to the Illinois plumbing code (77 Ill. adm. code 890) and the lawn irrigation contractor and lawn sprinkler system registration code (77 Ill. adm. code 892), be it hereby ordained that in the village of Lake Villa, all new plumbing fixtures and irrigation controllers after the effective date of this ordinance shall bear the WaterSense label (as designed by the U.S. environmental protection agency WaterSense program), when such labeled fixtures are available.

C. Violations: Violations of the Illinois plumbing code shall be referred to the Illinois department of public health. (Ord. 2015-09-01, 9-9-2015)

8-4-6: **INTERNATIONAL PROPERTY MAINTENANCE CODE; ADOPTION:** The international property maintenance code, 2012 edition, and all appendices, which shall sometimes be referred to herein as the "Lake Villa property maintenance code" or as the "property maintenance code", which code and appendices have been on file for inspection and/or for copying by the public in the office of the village clerk for at least thirty (30) days prior to the adoption hereof, is hereby adopted by reference, and made a part of this title except for such deletions or substitutions of sections as hereinafter provided, and the following additions and/or amendments to the Lake Villa property maintenance code shall also be and are hereby adopted and approved:

A. General Amendments:

1. In all chapters and sections of the property maintenance code where the "name of jurisdiction" is written, insert "village of Lake Villa", and where "chief appointing authority" is written, insert "mayor and board of trustees";

2. In all chapters and sections of the property maintenance code the village administrator, or his designee, is designated as the code official;

3. In all chapters and sections of the property maintenance code where "international handicapped accessibility code" is written, insert "currently adopted state of Illinois accessibility code";

4. In all chapters and sections of the property maintenance code where "ICC electrical code" is written, insert "the national electrical code - 1999 edition as adopted".

5. In all chapters and sections of the property maintenance code where "international plumbing code" is written, insert "the state of Illinois plumbing code as adopted".

B. Administration: The international property maintenance code, 2012 edition, as hereby adopted, shall be amended as follows:

(1) Section 102.3 of the international property maintenance code is hereby deleted, and in lieu thereof, a new section 102.3 is hereby adopted, which shall provide as follows:

> "102.3, Application Of Other Codes. Repairs, additions or alterations to a structure, or changes of occupancy, shall be done in accordance with the procedures and provisions of the title 8, "Building Regulations", of the Lake Villa village code, and such codes as adopted therein from time to time. Wherever this property maintenance code refers to the inter-

national zoning code, such reference shall be construed to mean the Lake Villa zoning ordinance. Nothing in this property maintenance code shall be construed to cancel, modify or set aside any provision(s) of the Lake Villa zoning ordinance."

(2) Section 103.1, "General", shall be amended to read as follows:

"103.1, General. The executive official in charge thereof shall be known as the code office, or the village administrator, or his designee."

(3) Section 103.5, "Fees", shall be amended to read as follows:

"103.5, Fees. In addition to any other fees charged by the village, there shall be an inspection fee charged of fifty dollars ($50.00) per inspection for any inspection conducted by the code official pursuant to this property maintenance code."

(4) Section 106.4 of the international property maintenance code is hereby deleted, and in lieu thereof, a new section 106.4 is hereby adopted, which shall provide as follows:

"106.4, Violation Penalties. Any person who shall violate any provision of this property maintenance code or shall fail to comply with any of the requirements thereof or who shall erect, construct, alter or repair a building or structure in violation of an approved plan or directive of the code official, or any officer or employee of the village duly authorized by the village administrator, or his designee, or of a permit or certificate issued under the provisions of any building regulations adopted by the village from time to time, and/or any person who shall fail to maintain a building or structure in compliance with this code shall be guilty of a petty offense, punishable by a fine as specified from time to time in section 8-1-8, "Fines; Penalties; Costs", of title 8, "Building Regulations", of the Lake Villa village code. Each day that a violation exists and/or continues shall be deemed a separate offense."

(5) Section 108.2, "Closing Of Vacant Structures", is hereby amended by the addition of a new section 108.2.2, "Boarded Up Structures", which shall read as follows:

"108.2.2, Boarded Up Structures. Boarding up a structure is considered a temporary measure until a decision can be made as to what remedy the owner wants to or is required by

the village to pursue as provided in this property maintenance code, but such board-up cannot exceed six (6) months unless an extension of an additional six months is granted in writing by the code official. Any structure boarded up in excess of six (6) months (or in excess of twelve (12) months, if the code official has given written approval for an extension), shall be considered abandoned and a public nuisance, and the village may pursue whatever action is afforded to it under this property maintenance code, other appropriate ordinances, and state statutes, to cause the abatement of the said public nuisance."

(6) Section 110.1, "General", shall be amended to read as follows:

"110.1, General. The village may demolish, repair, or enclose, or cause the demolition, repair, or enclosure of dangerous and unsafe buildings or uncompleted and abandoned buildings within the territory of the village and further recover its costs in connection therewith pursuant to the provisions of section 11-31-1 of the Illinois municipal code, 65 ILCS 5/11-31-1, and other applicable Illinois statutes."

(7) Section 111, "Means Of Appeal", shall be amended to read as follows:

"111, Means Of Appeal. The appeals shall follow the existing appeals procedure to the zoning board of appeals as provided in the Lake Villa zoning ordinance."

(8) Section 112.4, "Failure To Comply", shall be amended to read as follows:

"112.4, Failure To Comply. Any person who shall continue any work after having been served with a stop work order, except such specific work as that person is directed by the code official to perform to remove a violation or unsafe condition, shall be liable to a fine as specified in section 8-1-8, "Fines; Penalties; Costs", of the village code, as aforesaid."

(9) Section 202, "General Definitions", is hereby amended as follows:

(a) The definition of "noxious weeds" shall be added and shall read as follows:

"Noxious Weeds: Shall mean any weeds such as jimson, burdock, ragweed, thistle, cocklebur, and all of those weeds and nuisance vegetation as described in section 302.4, "Weeds And Other Nuisance Vegetation", hereof, or such other weeds of a like kind found growing in or on any lot or tract of land in the village."

(b) The definition of the word "rubbish" shall be amended to read as follows:

"Rubbish: Waste material, including but not limited to garbage and refuse and such other items as cans, bottles, glass, wood, metal, plastic, rags, boxes, paper, tires, auto parts; dismantled machinery or appliances or parts of such machinery or appliances or other household items; lumber; building materials; and anything whatsoever that is or may become a hazard to public health and safety, or that may harbor insects, rodents, or vermin infestation."

(10) Section 302.4, "Weeds", is hereby deleted in its entirety, and a new section 302.4, "Weeds And Other Nuisance Vegetation", shall be substituted therefor, which new section shall read as follows:

"302.4, Weeds And Other Nuisance Vegetation.

A. It shall be unlawful for the owner(s) and occupant(s) of any premises in the village and their respective agents to permit weeds or other nuisance vegetation to remain on such premises in violation of this section A, in violation of any other provisions of the Lake Villa village code, or in violation of any other ordinance of this village. The owner(s), occupant(s), and their respective agent(s) of any real estate within the corporate limits of the village shall be responsible for the removal of and shall cause the cutting and, where directed by the village, the trimming of trees and bushes when required by this section, and the abatement of nuisance vegetation as required by this section in a manner approved by the village administrator, or his or her designee. The abatement of weeds and other nuisance vegetation shall include but not be limited to proper cutting of such nuisance vegetation, the removal of the stumps of any such nuisance trees and the removal and disposal of all such nuisance vegetation in a manner approved by the village administrator, or his designee.

B. Abatement By Village: The officers, employees, and agents of the village are hereby authorized to enter upon private property to inspect such property and the vegetation thereon for violations of this chapter, taking samples to be tested to determine whether said vegetation is, in fact, dead, diseased or infected, and/or for the purpose of abating any and all such violations.

C. Costs As A Lien: The village administrator, or his designee, may cause the cutting and/or removal of nuisance vegetation as defined in this section, and/or the trimming of trees and bushes, when the owner(s) of real estate refuse or neglect to cut, trim, and/or remove them after a written notice and request for cutting, trimming, and/or removal has been mailed to such person(s) by regular U.S. mail, postage prepaid, not less than ten (10) days in advance and the village may then collect from such person(s) the reasonable cost thereof, provided, however, notwithstanding the foregoing requirement for written notice, no such prior written notice and request pursuant to this section shall be required if the person(s) responsible for such condition have been mailed a notice and request relative to a similar condition by the village within the prior twelve (12) months. Such cost(s) shall not be a lien on the underlying parcel unless a notice is personally served on, or sent by certified mail to, the person to whom was sent the tax bill for the general taxes on the property for the taxable year immediately preceding the removal activities. Such notice must also be delivered or sent after the removal activities have been performed and said notice must: (1) include a copy of this section and include copies of 65 Illinois Compiled Statutes 5/11-20-7 and 65 Illinois Compiled Statutes 5/11-20-15, which statute is applicable to all such liens; (2) identify the underlying parcel, by common description; and (3) describe the removal activity.

D. For purposes of this section, "weeds" shall include the following: burdock, ragweed (giant), ragweed (common), thistle, cocklebur, jimson, blue vervain, common milk weed, wild carrot, poison ivy, wild mustard, rough pigweed, lambsquarter, wild lettuce, curled dock, smart weeds (all varieties), poison hemlock, wild hemp, buckthorn, goldenrod, yellow and white sweet clover, and all other weeds and non-native species of a like kind, which shall be kept to a maximum height of eight inches (8") on all property within the village.

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E. For purposes of this section, "nuisance vegetation" shall include the following: unmanaged ground cover and/or bushes, including non-native prairie species as buckthorn, goldenrod, yellow and white sweet clover, which shall be kept to a maximum height of eight inches (8") on all property within the village.

F. For the purposes of this section, the term "nuisance vegetation" shall mean weeds as defined above, unmanaged groundcover and/or bushes as described above, grass exceeding a maximum height of eight inches (8"), and/or any tree or other plant in violation of or the maintenance of which is in violation of this section, in violation of any other provisions of this village code, or any other ordinance of the village, and/or which is determined by the village administrator, or his designee, to be dead, diseased or infected, or to otherwise be a potential hazard or threat to the public health and safety.

G. For purposes of this section, in the event that it is determined by the village administrator, or his designee, that vegetation is, in fact, dead, diseased or infested, or otherwise constitutes nuisance vegetation as defined herein, said vegetation shall be and is hereby declared to be a nuisance and a type of public nuisance for the purposes of this section.

H. Notwithstanding the foregoing, the provisions of this section shall not be applicable to any vegetation on village-owned, or community-association owned, open space, park(s), or preserve(s), or to any vegetation on the unimproved portion of any right-of-way maintained by the village."

(11) Section 302.7, "Accessory Structures", shall be amended to read as follows:

"302.7, Accessory Structures. All accessory structures, including detached garages, carports, awnings, patio covers, sheds, signs and sign structures, storage buildings, benches and similar accessory structures shall be maintained structurally sound and free from deterioration. Accessory structures shall also be maintained free from chipped and peeling paint, and metal structures shall be maintained free from rust."

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(12) Section 302.8, "Motor Vehicles", shall be amended to read as follows:

"302.8, Motor Vehicles.

(a) No unregistered motor vehicle shall be parked on any property for a period of more than seven (7) days, unless parked within an enclosed permanent building or garage.

(b) In residential zones, no registered or unregistered motor vehicle shall be parked on any property in any state of inoperability, disassembly, or disrepair, nor shall any such vehicle be in the process of being dismantled or repaired, for a period greater than seven (7) days, unless kept within an enclosed permanent building or garage.

(c) No registered or unregistered motor vehicle shall be parked or stored in any residential yard, and all such motor vehicles shall only be parked or stored on an approved driveway or parking surface or within a permanent building or garage.

(d) Painting of vehicles is prohibited in all residential zones.

(e) Painting of vehicles is prohibited in all non-residential zones, unless conducted inside an approved spray booth.

(f) Unregistered, unlicensed, and abandoned vehicles are declared a public nuisance. In addition to all other remedies, the village shall have such further remedies to abate such nuisances as are contained in 625 Illinois Compiled Statutes 5/4-201 et seq., and 5/4-201 through and including 5/4-213 are hereby adopted by reference.

(g) For the purposes of this section, the following terms shall have the meanings as set forth below:

(i) A "vehicle" is defined as a machine propelled by power other than human power designed to travel along the ground by use of wheels, treads, runners, or slides and transport persons or property or pull machinery and shall include, without limitation, automobile, truck, trailer, motorcycle, tractor, buddy and wagon.

(ii) An "abandoned vehicle" is defined as any vehicle located on public or private property, which is allowed to remain on public property or on private property without the consent of the property owner for a period of more than twenty-four (24) hours.

(iii) An "unregistered" and/or "unlicensed" vehicle is defined as any vehicle which under the laws of the state of Illinois would be required to be licensed or registered in order to be operated on public highways within the state and/or which under the ordinances of the village is required to bear a current sticker unless the vehicle shall be entirely within a suitable fully enclosed building."

(13) Section 302.9, "Defacement Of Property", shall be amended to read as follows:

"302.9, Defacement Of Property. No person shall willfully or wantonly damage, mutilate, or deface any exterior surface of any structure or building on any private or public property by placing thereon any marking, carving, or graffiti. It shall be the responsibility of the owner of such structure or building to restore said surface to a state of maintenance and repair immediately upon defacement as approved by the code official."

(14) Section 304, "Exterior Structure", shall be amended by the addition of a new subsection 304.10.1, "Exterior Fire Escapes", which new subsection shall read as follows:

"304.10.1, Exterior Fire Escapes. All exterior fire escapes and stairways shall be kept free of mud, debris, snow, ice or other obstructions. Any exterior fire escape or exterior stairway found to be in a state of deterioration or determined to be unsafe by the code official shall be repaired immediately."

(15) Section 304.3, "Premises Identification", shall be amended to read as follows:

"304.3, Premises Identification. In the case of residential buildings, each of the figures of the street number shall be not less than three inches (3") nor more than six inches (6") in height, being so marked as to be distinctive and easily read. Each of the figures of the street number shall be in arabic numerals and/or alphabetic letters and shall be of a color that

contrasts with its background. The numbers shall be placed in a conspicuous place on the side of the building that faces the street. The numbers shall be placed not less than five feet (5') nor more than eight feet (8') above the first floor of the building and as close to the front door of the building as practicable. In the case of commercial buildings, each of the figures of every number shall be not less than three inches (3") nor more than ten inches (10") in height and the street number shall be placed in the front door or within three feet (3') of the front door of the building."

(16) Section 304.14, "Insect Screens", shall be amended to read as follows:

"304.14, Insect Screens. During the period from May 15 to October 31, every door, window and other outside opening required for ventilation of habitable rooms, food preparation areas, food service areas, or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged or stored, shall be supplied with approved tightly fitting screens of not less than 16 mesh per inch (16 mesh per 25 mm) and every swinging door shall have a self-closing device in good working condition."

(17) Section 309.2, "Owner", shall be deleted in its entirety.

(18) Section 309.3, "Single Occupant", shall be deleted in its entirety.

(19) Section 309.4, "Multiple Occupancy", shall be deleted in its entirety.

(20) Section 309.5, "Occupant", shall be deleted in its entirety.

(21) Section 602.2 of the Lake Villa property maintenance code is hereby deleted, and in lieu thereof, a new section 602.2 is hereby adopted, which shall provide as follows:

"Section 602.2, Residential Occupancies. Dwellings shall be provided with heating facilities capable of maintaining a room temperature of 65 degrees F in all habitable rooms, bathrooms and toilet rooms based on a winter outdoor design temperature of -4 degrees F. Cooking appliances shall not be

used to provide space heating to meet the requirements of this section."

(22) Section 602.3 of the Lake Villa property maintenance code is hereby deleted, and in lieu thereof, a new section 602.3 is hereby adopted, which shall provide as follows:

"Section 602.3, Heat Supply. Every owner and operator of any building who rents, leases or lets one or more dwelling unit, rooming unit, dormitory or guestroom on terms, either expressed or implied, to furnish heat to the occupants thereof shall supply heat during the period from October 1 to April 30 to maintain a temperature of not less than 65 degrees F. in all habitable rooms, bathrooms, and toilet rooms.

Exception: When the outdoor temperature is below -4 degrees F., maintenance of the minimum room temperature shall not be required provided that the heating system is operating at its full design capacity."

(23) Section 602.4 of the property maintenance code is hereby deleted, and in lieu thereof, a new section 602.4 is hereby adopted, which shall provide as follows:

"Section 602.4, Occupiable Work Spaces. Indoor occupiable work spaces shall be supplied with heat during the period from October 1 to April 30 to maintain a temperature of not less than 65 degrees F. during the period the spaces are occupied.

Exceptions:

1. Processing, storage and operation areas that require cooling or special temperature conditions.

2. Areas in which persons are primarily engaged in vigorous physical activities."
(Ord. 2014-08-03, 8-27-2014)

8-4-7: **ELEVATOR AND ESCALATOR STANDARDS**[1]**:** The installation, repair, or modification of elevators, escalators, and other

1. See also title 3, chapter 14 of this code.

conveyance after the effective date of this section shall be in accordance with the following standards, which regulations are hereby adopted and incorporated herein by reference, and at least three (3) copies of each of said standards have been on file and available for public inspection and/or copying in the office of the village clerk for at least thirty (30) days prior to the adoption hereof:

A. American Society Of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016-5990:

1. Safety code for elevators and escalators (ASME A17.1-2007/CSA B44-07) and performance based safety code for elevators and escalators (ASME A17.1-2007/CSA B44.7-07);

2. Guide for inspection of elevators, escalators, and moving walks (ASME A17.2-2004);

3. Safety code for existing elevators and escalators (ASME A17.3-2005) (upgrades required by application of the safety code for existing elevators and escalators shall be completed no later than January 1, 2013, see public act 095-0767);

4. Safety standard for platform lifts and stairway chairlifts (ASME A18.1-2005); and

5. Standard for the qualification of elevator inspectors (ASME QEI-1-2007).

B. American National Standards, 25 West 43rd Street, 4th Floor, New York, NY 10036:

Safety requirements for personal hoists and employee elevators (ANSI A10.4-2004).

C. American Society Of Civil Engineers (ASCE), 1801 Alexander Bell Drive, Reston, VA 20191-4400:

1. Automated people mover standards (ASCE 21-05), part 1, 2006.

2. Automated people mover standards (ANSI/ASCE/T&DI 21.2-08), parts 2, 3 and 4, 2008. (Ord. 2009-09-05, 9-23-2009)

CHAPTER 5

BUILDING PERMIT IMPACT FEES

SECTION:

8-5-1: **PURPOSE:** The purpose of this chapter is to impose additional building permit fees on building permit permittees for new construction to offset the costs that are incurred by the village and the applicable fire protection and library districts for their respective services from the time that the building permit is first issued to the time that ad valorem real estate taxes are received on the improved property. During that time period, the village provides additional services through both its police department and its department of public works, and the applicable fire protection and library districts provide services as well, all without any corresponding offsetting tax revenue generated by the building permit site and/or the related new construction activity. It is the intent of this chapter to impose fees to eliminate the gap, or the so called "lag", between the providing of such services and the initial receipt of revenue to pay for them. (Ord. 2008-09-01, 9-24-2008)

8-5-2: **RESIDENTIAL UNITS:** As a precondition to the issuance of any building permit for the construction of a residential unit, the permittee shall pay, in addition to other building permit fees required by this code, additional building permit fees, of one thousand two hundred dollars ($1,200.00) per residential unit. For example, if the application is for a duplex, a total of two thousand four hundred dollars ($2,400.00) would be paid. The one thousand two hundred dollars ($1,200.00) per residential unit shall be allocated, appropriated, and/or distributed as follows in order to reflect the impact of such new construction:

A. Four hundred dollars ($400.00) for police services to the village general corporate fund.

B. Two hundred dollars ($200.00) for road and streets to the village general corporate fund.

C. Two hundred dollars ($200.00) to the library district within which the property is situated.

D. Four hundred dollars ($400.00) for the fire protection district within which the property is situated.

E. Consistent with the village's goal of intergovernmental cooperation with such districts, the funds (less any accrued interest) received relative to the services of such districts shall be disbursed quarterly to such districts. (Ord. 2008-09-01, 9-24-2008)

8-5-3: **NONRESIDENTIAL NEW CONSTRUCTION:** Prior to the issuance of a building permit for any new construction which is nonresidential, such as office, commercial, industrial, or institutional, the permittee shall pay, in addition to other building permit fees required by this code, additional building permit fees of thirty cents ($0.30) per square foot, or one thousand five hundred dollars ($1,500.00), whichever is greater. The funds shall be allocated and appropriated, and/or distributed as follows in order to reflect the impact of such new construction:

A. Ten cents ($0.10) per square foot for police services to the village general corporate fund.

B. Ten cents ($0.10) per square foot for roads and streets to the village general corporate fund.

C. Ten cents ($0.10) per square foot to the fire protection district within which the property is situated. Consistent with the village's goal of intergovernmental cooperation with such fire protection district(s), any such funds (less any accrued interest) shall be disbursed quarterly to such fire protection district(s). (Ord. 2008-09-01, 9-24-2008)