

ATTENTION USERS OF THIS CODE:

Please note that section 30.025 of THIS CODE adopts, by reference, the latest version of the Wisconsin Uniform Dwelling Code (UDC) Chapters SPS 320 through 325 for alterations and additions to all one and two-family dwellings built prior to June 1, 1980.

Copies of the Uniform Dwelling Code are available from:

**State Document Sales
2310 Darwin Road
Madison, Wisconsin 53704-7253**

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(Charge card orders are accepted by calling (800) 362-7253.)

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View the codes on the State of Wisconsin Department of Safety and Professional Services –
Safety and Buildings **web site** at:

<https://dsps.wi.gov/Pages/RulesStatutes/TradesProgram.aspx>

WISCONSIN UNIFORM BUILDING CODE

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CHAPTER I. -- GENERAL

SECTION 30.00 -- SCOPE

The provisions of the WISCONSIN UNIFORM BUILDING CODE (THIS CODE) shall govern the design, construction, alteration, demolition and moving of all buildings and structures constructed prior to the effective date of the State of Wisconsin Department of Safety and Professional Services (SPS) Uniform Dwelling Code (UDC), and the construction of all detached garages, decks, swimming pools, and accessory buildings and structures that are regulated by this code.

SECTION 30.01 -- TITLE

These regulations shall be known and cited as "Municipal Building Code" and shall be construed to secure their expressed intent and to ensure public safety, health and welfare insofar as they are dependent upon building construction.

SECTION 30.02 – ADOPTION OF COMMERCIAL BUILDING CODE.

The following Wisconsin Administrative Codes, their referenced codes and standards, and subsequent revisions are hereby made a part of THIS CODE and adopted for municipal enforcement by the Building Inspector, who shall be certified as a SPS Commercial Building Inspector by the State of Wisconsin Department of Safety and Professional Services:

ICC Codes

2009 International Building Code (IBC), with Wisconsin Amendments
2009 International Energy Conservation Code (IECC), with Wisconsin Amendments
2009 International Mechanical Code (IMC), with Wisconsin Amendments
2009 International Fuel Gas Code (IFGC), with Wisconsin Amendments
2009 International Existing Building Code (IEBC), with Wisconsin Amendments

Wisconsin Commercial Building Code

SPS	360	Erosion control, sediment control and storm water management
SPS	361	Administration and enforcement
SPS	362	Buildings and structures
SPS	363	Energy conservation
SPS	364	Heating, ventilating and air conditioning
SPS	365	Fuel gas appliances
SPS	366	Existing buildings
SPS	360 – 366	Appendixes A and B

SECTION 30.025 -- APPLICATION OF "WISCONSIN UNIFORM DWELLING CODE".

The Wisconsin Uniform Dwelling Code, Chapters SPS 320 through 325, inclusive and all amendments thereto, are hereby made a part of THIS CODE by reference and shall apply to all one and two family dwellings and alterations and additions thereto. Except as provided in Section 30.55(1.), this code shall also apply to alterations and additions to all one and two family dwellings constructed prior to the effective date of the Wisconsin Uniform Dwelling Code. A copy of said code is on file in the office of the Municipal Clerk.

SECTION 30.03 -- APPLICATION OF "WISCONSIN UNIFORM BUILDING CODE".

All buildings and structures hereafter erected, altered, repaired, moved or demolished that are used or designed to be used for the purpose herein defined shall comply in full with the requirements of THIS CODE.

- (1.) ZONING LAWS -- No provision of THIS CODE shall be construed to repeal, modify or constitute an alternative to any lawful zoning regulations.
- (2.) NEW BUILDINGS -- The construction requirements of the Wisconsin Uniform Building Code shall apply to all buildings not covered under Section 30.02.
- (3.) EXISTING BUILDINGS -- THIS CODE shall also apply to buildings and conditions described in this section.
 - (a.) An existing building to be occupied as a one or two family dwelling which building was not previously so occupied.
 - (b.) An existing structure that is altered or repaired, when the cost of such alterations or repair during the life of the structure exceeds fifty (50) percent of the equalized value of the structure, said value to be determined by the assessor of the municipality.
 - (c.) Additions and alterations, regardless of cost, made to an existing building shall comply with the requirements of THIS CODE. The provisions of subsection (4) of this section shall also apply.
 - (d.) Roof Coverings -- Whenever more than twenty-five (25) percent of the roof covering of a building is replaced in any twelve month period, all roof covering shall be in conformity with applicable sections of THIS CODE.
 - (e.) Additions and Alterations -- Any addition or alteration, regardless of cost, made to a building shall be made in conformity with applicable sections of THIS CODE.
- (4.) ALTERATIONS and REPAIRS -- The following provisions shall apply to buildings altered or repaired:
 - (a.) Alterations -- When not in conflict with any regulations, alterations to any existing building or structure, accommodating a legal occupancy and use but of non-conforming type of construction which involves either the structural members of floors or roofs, beams, girders, columns, bearing or other walls, room heating and air conditioning systems, arrangement, light and ventilation, changes in location of exit stairways or exits or any of the above, then such existing construction shall be made to conform to the minimum requirements of THIS CODE applicable to such occupancy and use and given type of construction.
 - (b.) Repairs -- Repairs for purposes of maintenance or replacements in any existing building or structure which do not involve the structural portions of the building or structure or which do not effect room arrangement, light and

ventilation, access to or efficiency of any exit stairways or exits, fire protection or exterior aesthetic appearance and which do not increase a given occupancy and use, shall be deemed minor repairs.

- (c.) Alterations When Not Permitted -- When an existing building or structure, which for any reason whatsoever does not conform to the regulations of THIS CODE, has deteriorated from any cause whatsoever to an extent greater than fifty (50) percent of the equalized value of the building or structure, no alterations or moving of such building or structure shall be permitted. Any such building or structure shall be considered a menace to public safety and welfare and shall be ordered vacated and thereafter demolished and debris removed from the premises.
- (d.) Alterations and Repairs Required -- When any of the structural members of any building or structure have deteriorated from any cause whatsoever to less than their required strength, the owner of such a building or structure shall cause such structural members to be restored to their required strength; failing in which the building or structure shall be considered a menace to public safety and shall be vacated and thereafter no further occupancy or use of the same shall be permitted until the regulations of THIS CODE are complied with.
- (e.) Extent of Deterioration -- The amount and extent of deterioration of any existing building or structure shall be determined by the Building Inspector.
- (f.) Use of Unsanitary Building -- It shall be unlawful to occupy or use or permit the occupancy or use of any building or structure that is unsanitary or dilapidated, or deteriorated, or out of repair, thereby being unfit for human habitation, occupancy or use until the regulations of THIS CODE have been complied with.

CHAPTER II. -- BUILDING INSPECTOR and PERMITS

SECTION 30.04 -- BUILDING INSPECTOR

There is hereby created the Department of Building Inspection. The Building Inspector, appointed by the Municipality, shall act as head of this department.

- (1.) DUTIES -- The Building Inspector is vested with the authority and responsibility to enforce all laws controlling safe building construction. He shall make periodic inspection of existing public buildings to determine their safety. He shall make inspections at the site of buildings damaged, by any cause whatsoever, to determine the safety of buildings affected thereby.
- (2.) RIGHTS -- The Building Inspector, or his authorized agent, shall have the power and authority, at all reasonable hours, for any proper purpose, to enter upon any public or private premises and make inspection thereof and to require the production of the permit for any building, plumbing, electrical or heating work being done or the required license therefore. No person shall interfere with or refuse to permit access to any such premises to the above described representatives of the municipality while in the performance of their duties.
- (3.) RECORDS -- There shall be kept, in the Department of Building Inspection, a record of all applications for building permits in a book for such purpose and each permit shall be regularly numbered in the order of its issue. Also, a record showing the number, description size of all buildings erected indicating the kind of materials used and the cost of each building and aggregate cost of all buildings in the various classes, shall be kept. There shall be kept, in the Department of Building Inspection, a record of all inspections made of all removal and condemnation of buildings and a record of all fees collected showing the date of their receipt. The Building Inspector shall make a written annual report to the governing body of the municipality relative to these matters.

SECTION 30.05 -- PERMITS

(1.) PERMITS REQUIRED -- No building or structure, or any part thereof, shall hereafter be built, enlarged, altered or demolished within the municipality or moved into, within or out of the municipality except as hereinafter provided, unless a permit therefore shall first be obtained by the owner or his agent from the Building Inspector.

Permits required are as follows:

- (a.) Building
- (b.) Air conditioning
- (c.) Wrecking or razing
- (d.) Heating
- (e.) Moving of buildings

- (f.) Occupancy
- (g.) Reroofing and residing
- (h.) Other permits as required by governing municipality and/or as listed in the Table No. 1 permit fee schedule.

(2.) APPLICATION FOR PERMITS -- Application for a building permit shall be made in writing upon a blank form to be furnished by the Building Inspector and shall state the name and address of the owner of the building and the owner of the land on which it is to be erected, the name and address of the designer and shall set forth legal description of the land on which the building is to be located, the location of the building, the house number thereof and such other information as the Building Inspector may require. With such application, there shall be submitted, to the Building Inspector, three (3) complete sets of plans, specifications and three (3) copies of a survey.

(a.) Survey -- The survey shall be prepared and certified by a surveyor or registered by the State of Wisconsin; shall be made, in no case, prior to one (1) year prior to the issuance of a building permit; and shall bear the date of the survey. The certified survey shall also show the following:

1. Location and dimensions of all buildings on the lot, both existing and proposed.
2. Dimensions of the lot.
3. Dimensions showing all setbacks to all buildings on the lot.
4. Proposed grade of proposed structure, to city or village datum.
5. Grade of lot and of road opposite lot.
6. Grade and setback of adjacent buildings. If adjacent lot is vacant, submit elevation of nearest buildings on same side of the road.
7. Type of monuments at each corner of lot.
8. Water courses or existing drainage ditches.
9. Seal and signature of surveyor.

(b.) Plans and Specifications -- All plans shall be drawn to a scale not less than one-fourth (1/4) inch per foot, on paper or cloth in ink, or by some other process that will not fade or obliterate, and shall disclose the existing and proposed provisions for water supply, sanitary sewer connections and surface water drainage. All dimensions shall be accurately figured. Drawings that do not show all necessary detail shall be rejected. A complete set of plans for residential construction shall consist of:

1. All elevations.
2. All floor plans.
3. Complete construction details.
4. Fireplace details (3/4 inch per foot) showing cross section of fireplace and flues.
5. Plans of garage when garage is to be built immediately or location of garage when it is to be built at a later date.

All plans shall remain on file in the office of the Building Inspector until at least one (1) year after the completion of the building, after which time the Building Inspector may return the same to the owner, may keep them for public record or may destroy them.

- (3) WAIVER OF SOME REQUIREMENTS -- At the option of the Building Inspector, plans, data, specifications and survey need not be submitted with an application for permit to execute minor alterations and repairs to any building, structure or equipment, provided the proposed construction is sufficiently described in the application for permit.

(4.) DRAINAGE

- (a.) Grading of lots -- The plans shall show the present and proposed grades of the lot on which it is proposed to erect the building for which a building permit is sought and of the immediately adjoining property in sufficient detail to indicate the surface water drainage before and after the completion of the grading. No permit shall be issued if the erection of the building and the proposed grades shall unreasonably obstruct the natural flow of water from the surface of adjoining property or obstruct the flow of any existing ravine, ditch, drain or storm water sewer draining neighboring property, unless suitable provision is made for such flow by means of an adequate ditch or pipe, which shall be shown on the plans and shall be constructed so as to provide continuous drainage at all times.

(5.) INSPECTOR MAY REVOKE PERMITS.

- (a.) The Building Inspector may revoke any permit, certificate of occupancy or approval issued under the regulations of THIS CODE and may stop construction or use of approved new materials, equipment, methods of construction, devices or appliances for any of the following reasons:
1. Whenever there is a violation of any regulation of THIS CODE or of any other ordinance, law or lawful orders or Wisconsin Statute relating to the same subject matter.
 2. Whenever the continuance of any construction becomes dangerous to life or property.

3. Whenever there is any violation of any condition or provision of the application for permit or of the permit.
 4. Whenever, in the opinion of the Building Inspector, there is inadequate supervision provided on the job site.
 5. Whenever any false statement or misrepresentation has been made in the application for permit, plans, drawings, data, specifications or certified lot or plot plan on which the issuance of the permit or approval was based.
 6. Whenever there is a violation of any of the conditions of an approval or occupancy given by the Building Inspector for the use of any new materials, equipment, methods of construction devices or appliances.
- (b.) The notice removing a permit, certificate of occupancy or approval shall be in writing and may be served upon the applicant for the permit, owner of the premises and his agent, if any, and on the person having charge of construction.
- (c.) A revocation placard shall also be posted upon the building structure, equipment or premises in question by the Building Inspector.
- (d.) After the notice is served upon the persons as aforesaid and posted, it shall be unlawful for any person to proceed thereafter with any construction operation whatsoever on the premises and the permit which has been so revoked shall be null and void and before any construction or operation is again resumed, a new permit, as required by THIS CODE, shall be procured and fees paid therefore and thereafter the resumption of any construction or operation shall be in compliance with the regulation of THIS CODE.

(6.) FEES

Before receiving a building permit, the owner or his agent shall pay the fee specified in Table 1. In applying, the provisions of THIS CODE, in respect to new work, existing buildings, alterations and repairs, the physical value of the work shall be determined by the Building Inspector on the basis of current costs or as otherwise provided in the local ordinances.

SECTION 30.06 -- APPROVED PLANS

- (1.) A weatherproof card, signed by the Building Inspector, indicating the permit has been issued shall be posted at the job site during construction. After issuance of a building permit, the approved plans shall not be altered unless any proposed change is first approved by the Building Inspector as conforming to the provisions of THIS CODE.
- (2.) EXPIRATION OF PERMIT
- (a.) Existing buildings and any alterations or additions thereto, accessory buildings and accessory structures.

The building permit shall become void unless operations are commenced within four (4) months from the date the permit is issued or if the building or work authorized by such permit is suspended at any time after work is commenced, for a period of more than sixty (60) days. The building permit shall expire twelve (12) months from the date the permit is issued. Time periods referenced herein may be extended by the Building Inspector if the delay was due to conditions beyond the control of the applicant. No additional permits for the same work will be issued unless a timetable of completion is agreed upon by the Building Inspector.

(b.) New dwellings.

The building permit shall expire twenty-four (24) months after issuance if the dwelling exterior has not been completed. Administrative service fees may be charged after permit expiration at the discretion of the Building Inspector. See Table-1, item B.

(c.) New Commercial buildings.

The building permit shall become void unless operations are commenced within four (4) months from the date the permit is issued or if the building or work authorized by such permit is suspended at any time after work is commenced, for a period of more than sixty (60) days. The building permit shall expire twelve (12) months from the date the permit is issued. Time periods referenced herein may be extended by the Building Inspector if the delay was due to conditions beyond the control of the applicant. No additional permits for the same work will be issued unless a timetable of completion is agreed upon by the Building Inspector.

- (3.) Before any work is commenced or recommenced after the permit has lapsed, a new permit shall be issued at one-half (1/2) the regular fee rate.

SECTION 30.07 -- REGULATIONS FOR MOVING BUILDINGS

- (1.) GENERAL -- No person shall move any building or structure upon any of the public right-of-ways of the municipality without first obtaining a permit therefore from the Building Inspector and upon the payment of the required fee. Every such permit issued by the Building Inspector for the moving of a building shall designate the route to be taken, the conditions to be complied with and shall limit the time during which said moving operations shall be continued.
- (2.) MOVING DAMAGED BUILDINGS -- No building shall be repaired, altered or moved within or into the municipality that has deteriorated or has been damaged by any cause (including such moving and separation from its foundation and service connections in case of moved buildings) fifty (50) percent or more of its equalized value and no permit shall be granted to repair, alter or move such building within or into the municipality.
- (3.) CONTINUOUS MOVEMENT -- The movement of buildings shall be a continuous operation during all the hours of the day, and day by day and at night, until such movement is fully completed. All of such operations shall be performed with the least

possible obstruction to thoroughfares. No building shall be allowed to remain overnight upon any street crossing or intersection, or so near thereto as to prevent easy access to any fire hydrant or any other public facility. Lighted lanterns shall be kept in conspicuous places at each end of the building during the night.

- (4.) STREET REPAIR -- Every person receiving a permit to move a building shall, within one day after said building reaches its destination, report the fact to the Building Inspector who shall thereupon, in the company of the municipal highway commissioner, inspect the streets and highways over which said building has been moved and ascertain their condition. If the removal of said building has caused any damage to any street or highway, the person to whom the permit was issued shall forthwith place them in good repair as they were before the permit was granted. On the failure of the said permittee to do so within ten (10) days thereafter to the satisfaction of the governing body, said body shall repair the damage done to such streets and hold the person obtaining such permit and the sureties on his bond responsible for the payment of same.

- (5.) CONFORMANCE WITH CODE -- No permit shall be issued to move a building within or into the municipality and to establish it upon a location within the said municipality until the Building Inspector has made an investigation of such building at the location from which it is to be moved and is satisfied from such investigation that said building is in a sound and stable condition and of such construction that it will meet the requirements of this Building Code in all respects. A complete plan of all further repairs, improvements and remodeling, with reference to such building, shall be submitted to the Building Inspector, and he shall make a finding of fact to the effect that all such repairs, improvements and remodeling are in conformity with the requirements of this Building Code and that when same are completed, the building, as such, will so comply with said Building Code. In the event a building is to be moved from the municipality to some point outside of the boundaries thereof, the provisions, with respect to the furnishing of plans and specifications for proposed alterations to such building, may be disregarded.

(6.) BOND

- (a.) Before a permit is issued to move any building over any public way in this municipality, the party applying therefore shall give a bond to the municipality in a sum, to be fixed by the Building Inspector, and which shall not be less than Twenty Five Thousand Dollars (\$25,000). Said bond is to be executed by a corporate surety or two personal sureties to be approved by the governing body or designated agent conditioned upon, among other things, the indemnification to the municipality for any costs or expenses incurred by it in connection with any claims for damages to any persons or property, and the payment of any judgment, together with the costs or expenses incurred by the municipality in connection therewith, arising out of the removal of the building for which the permit is issued.
- (b.) Unless the Building Inspector, upon investigation, shall find it to be a fact that the excavation exposed by the removal of such building from its foundation shall not be so close to a public thoroughfare as to permit the accidental falling therein of travelers or the location, nature and physical characteristics of the premises and the falling into such excavation by children under 12 years of age unlikely, the bond required by (a) shall be further conditioned upon the

permittee erecting adequate barriers and within forty-eight (48) hours, filling in such excavation or adopting and employing such other means, devices or methods approved by the Building Inspector and reasonably adopted or calculated to prevent the occurrences set forth herein.

- (7.) INSURANCE -- The Building Inspector shall require, in addition to said bond above indicated, public liability insurance covering injury to one person in the sum of not less than Five Hundred Thousand Dollars (\$500,000) and for one accident in a sum not less than One Million Dollars (\$1,000,000), together with property damage insurance in a amount not less Five Hundred Thousand Dollars (\$500,000), or such other coverage as deemed necessary.

(8) PLAN COMMISSION OR OTHER ASSIGNED BOARD OR COMMISSION

- (a.) No such permit shall be issued unless it has been found as a fact by the Plan Commission of the municipality by at least a majority vote, after an examination of the application for the permit which shall include exterior elevations of the building and accurate photographs of all sides and views of the same and in case it is proposed to alter the exterior of said building, plans and specifications of such proposed alterations and after a view of the building proposed to be moved and of the site at which it is to be located, that the exterior architectural appeal and functional plans of the building to be moved or moved and altered, will not be so at variance with either the exterior architectural appeal and functional plan of the buildings already constructed or in the course of construction in the immediate neighborhood or in the character of the applicable district established by the zoning ordinances of the municipality or any ordinance amendatory thereof or supplementary thereto, as to cause a substantial depreciation in the property values of said neighborhood within said applicable district. In case the applicant proposes to alter the exterior of said building after moving the same, he shall submit, with his application papers, complete plans and specifications for the proposed alterations. Before a permit shall be issued for a building to be moved and altered, the applicant shall give a bond to the municipality's Plan Commission, which shall not be less than \$1,000 to be executed in the manner provided in subsection (6) hereof to the effect that he will, within a time to be set by the Plan Commission, complete the proposed exterior alterations to said building in the manner set forth in his plans and specifications. This bond shall be in addition to any other bond or surety which may be required by other applicable ordinances of the municipality. No occupancy permit shall be issued for said building until the exterior alterations proposed to be made have been completed.
- (b.) Upon application being made to the Building Inspector, he shall request a meeting of the Plan Commission to consider applications for moving permits which he has found comply, in all respects, with all other ordinances of the municipality. The Plan Commission may, if it desires, hear the applicant for the moving permit in question and/or the owner of the lot on which it is proposed to locate the building in question, together with any other persons, either residents or property owners, desiring to be heard, giving such notice of hearing as they may deem sufficient. Such hearing may be adjourned for a reasonable length of time and within forty-eight (48) hours after the close of the hearing, the Plan Commission shall, in writing, make or refuse to make the

finding required by subsection (8) hereof and file it in the office of the clerk, who shall send a copy of it to the Building Inspector.

SECTION 30.08 -- RAZING OF BUILDINGS

(1.) RAZING OF BUILDINGS -- The Building Inspector is hereby authorized to act for the municipality under the provisions of Section 66.0413 of the Wisconsin Statutes, relating to the razing of buildings and all acts amendatory thereof and supplementary thereto. The municipal treasurer is authorized to place the assessment and collect the special tax as therein provided.

(2.) Before a building can be demolished or removed, the owner or agent shall notify all utilities having service connections within the building, such as water, electric, gas, sewer and other connections.

(3.) Demolition

Permits are required prior to any demolition. The municipality may require a performance bond. The municipality may also require erosion control, plumbing, street occupancy, cutting, and wrecking permits.

Any potential asbestos, lead and other hazards shall be identified and removal can only occur after a notice of intent shall be filed with the Department of Natural Resources.

Erosion control methods must be in place and approved by the building inspector prior to any demolition.

Sewer, water, electric, gas and other connections to the property shall be properly abandoned in a safe manner that shall be approved by the building, electrical, and plumbing inspector prior to demolition.

The use of a torch for cutting may require a permit and approval by the fire inspector.

Street occupancy permits may be required for any street material or dumpster storage or pavement cuts.

All municipal sidewalks, curbs, approaches, and other public property shall be protected from damage.

The site shall be protected by a fence and maintained secure at all times.

Sanitary facilities shall be required for on-site workers.

Hours of demolition shall be approved by the building inspector.

Demolition shall be performed from the top down, floor by floor.

Chutes shall be used to transfer materials above one story.

Dust control methods shall be required at all times.

Waste material shall be removed and not stored on-site.

Burning of waste materials shall be prohibited.

Floor slabs, footings, and foundations shall be removed or broken into pieces less than 1 foot in diameter, unless approved by the building inspector.

All disturbed areas shall be graded to match adjoining grades or to the satisfaction of the building inspector.

Topsoil (2 inches minimum) and grass are required if the lot is to be left vacant.

Special demolition methods utilizing explosives shall be approved by the governing body.

A final site inspection shall be required.

SECTION 30.09 -- INSPECTIONS

- (1.) COORDINATED INSPECTIONS -- All provisions of the laws and regulations of the municipality and of legally adopted rules of local fire and health officials in respect to the operation, equipment, housekeeping, fire protection, handling and storage of flammable materials, liquids and gases and the maintenance of safe and sanitary conditions of use in occupancy in all buildings shall be strictly enforced by the administrative officials to whom such authority is delegated. Whenever inspection by any authorized enforcement officer discloses any violation of the provisions of THIS CODE, or of any other rules, regulations or laws, he shall immediately notify the administrative officer having jurisdiction of the violation.
- (2.) CERTIFIED REPORT -- The Building Inspector may require a certified report of all required inspections as regulated by THIS CODE from the registered architect or registered engineer supervising the construction of any building, structure or equipment requiring their supervision. Such certified report shall state, in detail, that all construction work has been executed in accordance with all of the regulations of THIS CODE, approved plans, specifications, terms of the permit and, further, that such construction work was executed in accordance with accepted architectural and engineering standard procedures.
- (3.) BOARD OF APPEALS OR OTHER ASSIGNED BOARD OR COMMISSION -- Any person feeling himself aggrieved by any order or ruling of the Building Inspector may appeal from such ruling to the Board of Appeals within twenty (20) days after written notice of such ruling shall have been delivered to him. Such appeal is to be in writing, setting forth the order appealed from and the respects in which said person feeling himself aggrieved claims that said order on ruling is erroneous or illegal. Said notice of appeal shall be filed with the Clerk, who shall thereupon notify the Building

Inspector of said appeal, and the appeal shall be heard at the next meeting of the Board of Appeals. The said Board of Appeals, after consideration thereof, shall affirm, reverse or modify said ruling as is just in the premises. The ruling or order of the Inspector shall be enforced until changed by said Board of Appeals.

SECTION 30.10 -- STOP WORK ORDER

Whenever the provisions of THIS CODE or of the plans approved there under are not complied with, a stop work order shall be served on the owner or his representative and a copy thereof shall be posted at the site of the construction. Such stop work order shall not be removed except by written notice of the Building Inspector after satisfactory evidence has been supplied that the violation has been corrected.

SECTION 30.11 -- CERTIFICATE OF OCCUPANCY

(1.) INSPECTIONS

- (a.) The Building Inspector shall make a final inspection of all new buildings, additions and alterations. If no violations of this or any other ordinance can be found the Building Inspector may issue a certificate of occupancy, stating the purpose for which the building is to be used.
- (b.) No building, nor part thereof, shall be occupied until such final inspection or certificate has been issued, nor shall any building be occupied in any manner which conflicts with the conditions set forth in the certificate of occupancy.

(2.) USE DISCONTINUED

- (a.) Whenever any building or portion thereof is being used or occupied contrary to the provisions of THIS CODE, the building Inspector shall order such use or occupancy discontinued and the building, or portion thereof, vacated by notice served on any person using or causing such use or occupancy to be continued and such person shall vacate such building or portion thereof within ten (10) days after receipt of the notice or make the building, or portion thereof, comply with the requirements of THIS CODE.
- (b.) Any building, structure or premises, or any part thereof, hereafter vacated or damaged by any cause whatsoever so as to jeopardize public safety or health, shall not hereafter be occupied or used under an existing certificate of occupancy or without the same, until an application has been filed and a new certificate of occupancy issued.

(3.) CHANGE -- It shall be unlawful to change the use of any building, structure, premises or part thereof, without first obtaining, from the Building Inspector, an approval of such change in the occupancy or use and a certificate of occupancy therefore.

(4.) HARDSHIP -- The Building Inspector shall have the authority and power to permit the occupancy of any building or structure in the municipality, prior to issuance of an occupancy certificate, in all such cases of hardship, as in his judgment and discretion, warrant occupancy before final stage of completion as set forth in THIS CODE.

Before granting such permission, the Building Inspection shall first examine the premises and determine if it is safe and sanitary. The Building Inspector shall determine the time within which such building or structure can be completed. Such time should not exceed one hundred twenty (120) days.

CHAPTER III. -- GARAGES and ACCESSORY BUILDINGS

SECTION 30.20 -- DETACHED PRIVATE GARAGES AND ACCESSORY BUILDINGS OVER ONE HUNDRED TWENTY (120) SQUARE FEET

(1.) DEFINITIONS

- (a.) An attached private garage shall mean a private garage attached directly to the principal building, or attached by means of an enclosed or open breezeway, porch, terrace or vestibule, or a private garage so constructed as to form an integral part of the principal building.
- (b.) A detached private garage shall mean a private garage entirely separated from the principal building.
- (c.) Accessory building shall mean a building that is not a private garage that is accessory and incidental to the primary building, but excludes playground structures and similar equipment as determined by the building inspector.

(2.) LOCATIONS -- Detached garages shall be governed by the following unless otherwise provided for in appropriate codes.

- (a.) Garages of wood frame construction shall be located not less than ten (10) feet from any residence building, except that such distance may be reduced to not less than five (5) feet when the adjacent wall is protected as required for attached garages in SPS 321.08(1). Such separations shall be measured as the perpendicular distance from the exterior dwelling wall to the closest exterior garage or accessory building wall.
- (b.) Garages of masonry wall construction shall not be located less than five (5) feet from any residence building.

(3.) AREA -- All private detached garages shall be governed by the following unless otherwise provided for in appropriate zoning codes.

- (a.) Masonry bearing wall, one thousand two hundred (1,200) square feet, maximum.
- (b.) Metal frame construction, seven hundred twenty (720) square feet, maximum.
- (c.) Wood frame construction, seven hundred twenty (720) square feet, maximum.

(4.) FOUNDATIONS and FOOTINGS

- (a.) Footings and Foundations for detached private garages and accessory buildings over one hundred twenty (120) square feet shall be constructed to meet this section.
- (b.) Concrete floors shall be not less than four (4) inches in thickness. Detached private garages may be built with a continuous floating slab of reinforced concrete not less than four (4) inches in thickness. Reinforcement shall be a minimum of number ten (10) six by six (6" X 6") inch wire mesh. The slab shall

be provided with a thickened edge all around, eight (8) inches wide and eight (8) inches below the top of the slab. The thickened edge shall have two (2) #4 horizontal reinforcement bars placed at the center. The lower reinforcement bar shall be set two (2) inches above the bottom of the thickened edge and the upper reinforcement bar shall be set six (6) inches above the bottom of the thickened edge. Exterior wall curbs shall be provided not less than six (6) inches above the finished ground grade adjacent to the garage. Anchor bolts shall meet SPS 321.18(1)3 for size, embedment length, and spacing requirements.

- (5.) Construction of detached private garages and accessory structures over one hundred twenty (120) square feet shall be in compliance with the construction requirements of the UDC.

SECTION 30.21 ACCESSORY BUILDINGS ONE HUNDRED TWENTY (120) SQUARE FEET OR LESS AND PREFABRICATED STORAGE ENCLOSURES

(1.) DEFINITIONS:

- (a.) A Prefabricated storage enclosure means an accessory storage enclosure manufactured primarily of plastic, vinyl or resin, or stamped metal panels and is designed to be assembled on site. A Prefabricated storage enclosure shall not be required to comply with the minimum construction requirements of the Uniform Building Code, including but not limited to snow and wind loads. Excluded from this definition shall be shipping containers or other containers used for moving and/or storage of personal belongings, membrane structures, and any enclosure five (5) feet or less in height and twenty-four (24) square feet in area.
- (b.) See Section 30.20 for the definition of an accessory building.

(2.) PREFABRICATED STORAGE ENCLOSURES

- (a.) Only one prefabricated storage enclosure is allowed per property.
- (b.) The area of the prefabricated storage enclosure shall not exceed one hundred twenty (120) square feet or as allowed by local Zoning.
- (c.) The height of the prefabricated enclosure is limited to eleven (11) feet. Height shall be measured from the grade immediately adjacent to the door side of the prefabricated enclosure to the highest point of the roof.
- (d.) A prefabricated storage enclosure is reviewed and inspected only for compliance with the municipality's zoning setbacks and other Zoning Code provisions, including separation from the dwelling and other buildings located on the property.
- (e.) A Prefabricated storage enclosures shall be located a minimum of ten (10) feet from a dwelling or buildings on the site.

- (f.) A Prefabricated storage enclosure shall only be used to store personal property for residential use.
- (g.) A Prefabricated storage enclosure shall be installed on a concrete slab or treated wood floor, or other floor acceptable to the municipality.
- (h.) A minimum of four (4) hold-down restraints shall be required. One on each corner of the "Prefabricated storage enclosure" or as approved by the municipality.
- (i.) A municipality may opt to not issue Building Permits for Prefabricated storage enclosures. The Municipality may choose to issue a "LOCATION APPROVAL" when the prefabricated enclosure is in compliance with the municipality's zoning setback requirements.
- (j.) Prefabricated storage enclosures shall not be connected to gas or electrical service.
- (k.) Prefabricated storage enclosures may not be located within an easement, without approval of the party granted the easement.
- (l.) Applications for "location approval" shall include the following information or additional information as required by the municipality:
 - 1. Two (2) copies of a site plan or survey showing the location of the prefabricated storage enclosure, and the proposed setbacks to the property lines and other buildings on the same property.
 - 2. The manufacturer's specifications for the prefabricated storage enclosure.
 - 3. An application form as provided by the municipality.
 - 4. Fees shall be as established by the Wisconsin Uniform Building Code, Schedule of Fees, Fee Schedule Table-1, or as required by the municipality.

(3.) ACCESSORY STORAGE BUILDING ONE HUNDRED TWENTY (120) SQUARE FEET OR LESS

- (a.) Only one accessory storage building one hundred twenty (120) square feet or less is allowed per property.
- (b.) The height of the accessory storage building is limited to eleven (11) feet. Height shall be measured from the grade immediately adjacent to the door side to the highest point of the roof.
- (c.) An accessory storage building is reviewed and inspected only for compliance with the municipality's zoning setbacks and other Zoning Code provisions, including separation from the dwelling and other buildings located on the property.

- (d.) An accessory storage building shall be located a minimum of ten (10) feet from a dwelling or building on the site.
- (e.) An accessory storage building shall only be used to store personal property for residential use.
- (f.) An accessory storage building shall be installed on a concrete slab or treated wood floor, or other floor materials acceptable to the municipality.
- (g.) A minimum of four (4) hold-down restraints shall be required. One on each corner of the accessory storage building or as approved by the municipality.
- (h.) A municipality may opt to not issue Building Permits for accessory storage buildings one hundred twenty (120) feet or less. The Municipality may choose to issue a "LOCATION APPROVAL" when the building is in compliance with the municipality's zoning setback requirements.
- (i.) Accessory storage buildings shall not be connected to gas or electrical service, unless approved by the municipality.
- (j.) Accessory storage buildings may not be located within an easement, without approval of the party granted the easement.

CHAPTER IV. -- DECKS

SECTION 30.30 GENERAL REQUIREMENTS – SPS 321.225 (1) and (2) are hereby adopted by reference and shall apply to attached and detached decks.

Exception:

1. Detached decks not serving as part of the means of egress from the dwelling unit shall not be required to have frost protected footings but shall have footings placed on non-organic material at a uniform depth below grade.

Note: The above exception would typically apply to “detached” pool, spa, patio and other yard decks. All other provisions in Section 30.30 would apply.

CHAPTER V. -- SWIMMING POOL/SPA REQUIREMENTS

SECTION 30.40 GENERAL REQUIREMENTS

(1.) Type of Pools Requiring Permits

- (a.) Above ground pools (except wading pools having a depth of less than two (2) feet and which are readily movable).
- (b.) Temporary or permanent air inflatable pools with a sidewall height greater than two (2) feet above grade.
- (c.) In-ground Pools.
- (d.) Public Pools -- All public pools constructed shall be built and maintained in accordance with the rules of the SPS 390.
- (e.) Spas (outdoor).

(2.) General Pool Regulations

(a.) Location

- 1. No person, firm or corporation shall have a swimming pool or spa located in the front yard or side yard setback unless specifically allowed in the local zoning code.
- 2. Side and rear yard setbacks shall be a minimum of ten (10) feet from the property line or as regulated by the local zoning code.
- 3. Swimming pools shall not be located closer than four (4) feet to any wall, fence or structure.
- 4. Swimming pools shall be located from well and septic systems in accordance with the Wisconsin State Plumbing Code, Chapter SPS 383.

(b.) Access

- 1. A fence or other solid structure of not less than forty-two (42) inches in height shall completely enclose said premises and/or swimming pool. There shall be no opening in said fence or wall larger than six (6) inches square. All gates or doors opening through such enclosure shall be kept securely closed at all times while unattended and shall be equipped with a self-closing and self-latching device designed capable of keeping such door or gate securely closed. Latches shall be located at least three (3) feet above the ground, accessible deck or stairs.
- 2. A fence is not required around an above ground pool where the pool wall is at least forty-two (42) inches above grade for the full pool

perimeter. The finished grade shall be maintained for a minimum of four (4) feet beyond the outside perimeter of the pool.

3. When not completely fenced, all ladders, steps, pool pump/filter equipment or other means of access to an above ground pool shall be removed and/or designed to prevent access when the pool is unattended.
4. Spas shall be made inaccessible by a locking safety cover or other approved safety barrier when not in use.

- (c.) Swimming Pool Decks -- All decks shall be constructed in accordance with the Uniform Building Code. Decking shall be considered an integral part of the swimming pool and shall comply with the applicable setback dimensions per the local zoning code.
- (d.) Drainage -- In no case shall any swimming pool be drained onto lands of property owners other than the owner of the swimming pool. Drainage from said lot shall be in accordance with any local zoning ordinance.
- (e.) Lighting -- Lights shall be erected so as to eliminate direct rays and minimize reflected rays of light onto adjoining properties and roadways. Lighting installation shall be done in accordance with the State of Wisconsin Electrical Code.
- (f.) Electrical -- All wiring for pools and spas shall be done in accordance with the Wisconsin Electrical Code and/or local code.
- (g.) Pools and spas shall be separated from overhead and underground electrical wiring shall be in accordance with the State of Wisconsin Electrical code and/or local code.

(4.) Application for Permit.

The following information is necessary:

- (a.) Survey or accurate drawing of the property, IN DUPLICATE, showing all existing structures, proposed swimming pool or spa location, fencing if required, and overhead or underground electrical wiring.
 1. Type of pool installation, above ground or in-ground.
 2. Pool height above highest point of grade if above ground installations.
 3. Type and height of fence, if proposed.
 4. Type and support of decking, if proposed.
 5. Overall size and locations of the above in regard to existing buildings and lot lines for property survey reference.

6. Any change in finished grade near pool.
 7. County Health Department approval for properties using a private septic system, where applicable.
 8. Site inspection letter from a local wiring utility.
- (b.) Two (2) copies of brochure which shows the type, style, etc. of the pool or spa to be installed.

CHAPTER VI. -- FOUNDATION REPAIR and DAMP PROOFING

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30.50 FOUNDATION REPAIR and DAMPPROOFING

- (1.) Application for Building Permit. Application for building permit shall include a statement of the existing defects and an analysis of the cause of those existing defects to ensure that all conditions responsible for foundation defects are corrected. A plan defining the scope of work along with specifications shall be submitted for approval prior to the issuance of a Building Permit.
- (2.) Best Management Standards for Foundation Repair. Except as otherwise permitted by the Authority Having Jurisdiction, foundation repair work shall be performed in accordance to the Best Management Standards for Foundation Repair as described in the this Chapter.
- (3.) Definitions
 - (a) As-Built Condition – A basement wall with NO DEFECTS as constructed immediately following either installation of the concrete masonry or poured concrete wall before backfilling. The wall can be said to have no defects if the corners and/or the walls were constructed out of plumb with no cracks or movement. Additionally, the wall is not defective if repair has been done ten (10) years or more prior to the time of inspection and there are no cracks or movement. Shrinkage cracks with no movement of the wall area not considered a structural defect. Measurement of a wall is done by averaging the measurements of both corners compared to the measurement at the center of the wall.
 - (b) Backfill – Material used to fill in an excavation.
 - (c) Bleeders – Concrete or plastic pipe that is installed through the footing or foundation wall to allow transfer of water from the exterior drain tile to the interior drain tile.
 - (d) Concrete Block – Concrete masonry unit used in basement wall construction. Concrete block is commonly used in nominal eight inch (8”), ten inch (10”) or twelve inch (12”) widths and is typically eight inch (8”) tall by sixteen inch (16”) long with two (2) open cells in the block. The concrete blocks are stacked with alternating vertical joints using mortar between the joints to hold the block together.
 - (e) Downspout – Aluminum or galvanized steel pipe that directs water collected in the rain gutters down to the ground and away from the building.
 - (f) Drain Tile (Interior or Exterior) – Concrete or plastic perforated pipe used underground to collect water and direct it to the sump crock. Exterior drain tile is placed on the outside of the building at the elevation of, or on top of the footing, consistent with existing conditions. Interior drain tile is placed around the inside perimeter of the building just below the floor slab. Drain tile is encased in clear aggregate to allow for water drainage to the pipe.

- (g) Drain Tile Test – A test of the function of the interior drain tile. The drain tile test is performed by: cutting through the floor slab to access the drain tile, flushing water into the drain tile and observing the amount of water entering the sump crock. A diminished water flow indicates a plugged or crushed drain tile. See Appendix A.
- (h) Efflorescence (Scale Stains) – White mineral deposits showing on face of masonry due to water leaching through the masonry to the dry surface.
- (i) Epoxy - Material used to repair cracks in concrete or masonry. Epoxy is a material that can be injected into wall cracks and when cured forms a very strong bond with the base material. Epoxy can be used for the structural repair of walls.
- (j) Expansive Clay Soils - Expansive soils contain minerals that are capable of absorbing water, which enables the soils to increase in volume. Expansions of ten percent or more are common. This change in volume can exert force on a building or other structure causing substantial damage.
- (k) Grade – Reference to the pitch of the exterior ground surface adjacent to the building.
- (l) Horizontal Cracks – Usually associated with bowing or displacement of masonry walls that are not plumb vertically and/or horizontally.
- (m) Laser Level – Instrument, which emits a beam of light on a certain horizontal or vertical plane. This plane can be used to measure deflection and/or movement of an adjacent plane.
- (n) Level – Instrument used for measuring the plane of a vertical or horizontal surface.
- (o) Palmer Valve – Storm water discharge valve typically located in the side wall of the floor drain, designed to prevent backflow of sanitary sewer into storm water system.
- (p) Pilaster – A projection of masonry or a filled cell area of masonry for the purpose of bearing concentrated loads or to stiffen the wall against lateral forces.
- (q) Plumb Line – Tool for measuring wall deflection consisting of a weight and string. The string is attached at the top of the wall and the weight is at the end of the string located near the floor providing a straight vertical reference line. Measurements are taken from the string to the wall to determine the amount of horizontal deflection in the wall.
- (r) Polyurethane – Material that can be injected into wall cracks to prevent water seepage. Polyurethane should not be used for the structural repair of walls.
- (s) Poured Walls – Solid concrete walls that are constructed by setting concrete wall forms, installing steel reinforcing bars and pouring concrete into the forms to create a wall.

- (t) Radon Gas – Odorless and colorless slightly radioactive gas that can seep into basements through floor or wall cracks. At certain concentrations Radon Gas is considered a health hazard. For more information on Radon Gas, refer to www.epa.gov/radon.
- (u) Seepage – Water infiltration through masonry walls or floor slab. Seepage is evidenced by damp or wet masonry walls or concrete floor and is an indication that the basement drainage system is overloaded or not functioning correctly.
- (v) Spud Pipe – Steel pipe, three-quarters inch (3/4") to one inch (1") diameter that is driven into the soil around the perimeter of the building. Water is injected into the soil thru the pipe just above the elevation of the drain tile to test the function of the drain tile.
- (w) Steel Restraints – Wall reinforcing used to prevent further movement in basement walls. Steel restraints are typically composed of steel tubes placed vertically against the basement walls at a thirty-two inch (32") or forty-eight inch (48") spacing.
- (x) Step Cracks – Cracks in masonry walls that follow the vertical and horizontal joints in the masonry in a stepped fashion. Step cracks can be due to horizontal wall deflection, foundation settlement or shrinkage of concrete masonry.
- (y) Site Specific Engineering – Analysis of existing conditions by a Registered Professional Engineer or Architect to document site conditions and provide repair recommendations. See [Appendix B](#).
- (z) Stone Backfill – Clear crushed aggregate three-quarters inch (3/4") to one inch (1") diameter used to backfill excavations. Stone backfill allows for water to migrate easily towards the drain tile located at the basement footing elevation. Additionally, stone backfill will have minimal settlement around the perimeter of the building after backfilling.
- (aa) Sump Crock – Concrete, steel or plastic basin placed below the floor slab in the lowest area of the building for collecting water from drain tile. Top rim of sump crock to extend minimum one inch (1") above floor.
- (bb) Sump Pump – Submersible or upright pump located in sump crock to pump water out and away from the building.
- (cc) Tuckpoint – Term used for the repair of cracks that occur in the joints in masonry walls. Tuckpointing involves the removal and replacement of the mortar between masonry units where cracking along the joints has occurred.
- (dd) Wall Drainage Board – One piece corrugated or ribbed plastic panel that is placed to form an angle on top of the wall footing and against the masonry wall. The panel extends a minimum of one inch (1") above the floor slab elevation. The wall drainage board is used to drain water from the cores of

concrete masonry walls to the interior drain tile. (See 30.50(8.) for product specifications).

- (ee) Wall Deflection – The amount of horizontal movement in a basement wall at any given location with respect to its vertical plane.
- (ff) Wall Irregularities – Masonry wall corners or areas in the wall that have thickened sections. Examples of wall irregularities include foundations for masonry fireplaces and wall pilasters.
- (gg) Wall Slide (Base Shear) – Horizontal movement of basement wall, usually occurring at the bottom section of the wall.

(4.) Conditions Requiring Foundation Repair

(a) Wet Walls or Water Seepage at the Base (No Movement)

1. Wet foundation walls or signs of water seepage along the base the wall. Water puddles or streams from heavy rains. Walls often have dampness, presence of mildew or efflorescence. Walls show no cracking, bowing or displacement.
2. Testing
 - a. Check palmer valve for correct operation. Check with local jurisdiction if repair of palmer valve is permitted (per local requirements).
 - b. Break open floor, test interior drain tile for correct flow to palmer valve, or sump pump. See Appendix A.
 - c. Use water spud pipe, inserted along outside of wall to exterior drain tile, to introduce water to check exterior drain tile operation.
 - d. Check for proper grade away from exterior walls and adequate gutters and downspouts.
3. Standard Repairs
 - a. Extend downspouts, improve grade by increasing pitch away from buildings to the greatest extent possible.
 - b. Install, replace, or repair Sump pump. Sump pump must meet State and local Plumbing and Electrical Code.
 - c. Replace some or all of interior drain tile as necessary. Drain first block into interior drain tile using an approved one-piece wall drainage board that provides water passage and lateral support to first course of block. Wall drainage board is to be one inch (1") minimum higher than floor. Use a wall drainage board that can be caulked for retarding radon migration. Install to manufactures specification. See 30.50(7.) and Appendix A.
 - d. If it is determined that it is necessary to excavate to make repairs to the foundation see 30.50(6.).

4. Maintenance After Repair
 - a. Keep downspouts extended.
 - b. Maintain positive pitch of grade away from house.
5. No Site Specific Engineering required.

(b) Wet Walls or Water Seepage Two (2) Courses and Above (No Movement)

1. Wet foundation walls or signs of water seepage two courses or higher above the base of the wall. Walls often have dampness, presence of mildew or efflorescence. Walls show no cracking, bowing or displacement.
2. Testing
 - a. Check for proper grade away from exterior walls and adequate gutters and downspouts.
3. Standard Repairs
 - a. Extend downspouts, improve grade by increasing pitch away from buildings to the greatest extent possible.
 - b. If wet walls or seepage above the base persists, then excavate and waterproof affected areas of the foundation see 30.50(6.).
4. Maintenance After Repair.
 - a. Keep downspouts extended.
 - b. Maintain positive pitch of grade away from house.
5. No Site Specific Engineering required.

(c) Water Seepage through Floor Slab

1. Water seepage occurs through cracks in the floor slab, away from the basement wall, causing discoloration and dampness.
2. Testing
 - a. Break open floor at site of seepage.
 - b. Check for defective sump pump or stuck palmer valve (if present). Check with local jurisdiction if palmer valve is permitted (per local requirements).
 - c. Check for interior drain tile presence and perform interior drain tile test. See Appendix A.
 - d. Check sewer system for proper drainage.
3. Standard Repair
 - a. Remove floor along leak areas.
 - 1) No Drain Tile

- i. Dig out substrate, install drain tile and approved drainage system, embed in filtering stone, install sump crock and pump (if required) replace floor removed. See 30.50(6.).

2) Drain Tile Found

- i. Replace as needed, interior drain tile to provide correct drainage to sump or palmer valve. See 30.50(7.).

3) If Leak Not Along Wall

- i. Install additional interior drain tile lateral for drainage and connect to interior wall perimeter drain tile.
 - ii. Install, replace, or repair sump pump. Sump pump must meet state and local Plumbing and Electrical Code.
 - iii. Replace some or all of interior drain tile as necessary, drain first block into interior drain tile using an approved one-piece wall drainage board that provides water passage and lateral support to first course of block. Wall drainage board is to be 1" minimum higher than floor. Use a wall drainage board that can be caulked for retarding radon migration. Install to manufacturers specifications. See 30.50(6.) and Appendix A.
4. Maintenance After Repair See 30.50(4.)(a.)4.
 5. No Site Specific Engineering required.

(d) High Water Table

1. Significant amounts of water continuously flow into the sump crock or seepage occurs through cracks in the basement floor for extended periods of time, regardless of rain events or snow melts.
2. Possible conditions that may indicative of a high water table
 - a. Water enters a sump crock and overflows the crock while the pumps continue to operate normally due to lack of pump capacity.
 - b. There are ponds, streams, lakes or standing water in the vicinity of the house where the surface elevation of the water is higher than the drain tile elevation.
 - c. There is standing water in areas around the house during dry periods.
 - d. The basement floor slab is deflected upward toward the center of the basement due to hydrostatic pressure.
3. Testing
 - a. Soil borings and installation of monitoring wells at the property to determine the soil types and water table elevations.
 - b. Test pit excavation and analysis by a soils engineer to examine the soil for evidence of a seasonal high water table elevation.

- c. Survey of the elevations of nearby bodies of water to compare to the elevation of basement floor.
 - d. Research of municipal or other test wells in the vicinity that can be checked for water table levels.
 - e. Study of sources of storm water infiltration that may be affecting water table elevations.
4. Repairs: This condition requires Site Specific Engineering.
 5. Maintenance After Repair
 - a. Make sure sump pump discharges are free flowing.
 - b. Service backup battery and/or generator.
 - c. Rotate/replace sump pumps to prevent failure.
- (e) Leaning or Bowed CMU Walls/Wall Deflection Less Than One Inch (1") (NO MOVEMENT)
1. One or more walls are bowed or leaning with no signs of current or recent movement. The total amount of wall deflection is less than one inch from the original wall construction. Water seepage may be present at the floor line. Cracks have been patched or tuck-pointed ten (10) years or more in the past* with no sign of recent painting or patching. Owner indicates no observation of change in crack appearance or width. There may be evidence of prior wall repair/reinforcing or the walls could have been constructed out of plumb.

*Evidence of work performed ten (10) years or more prior to date of inspection include: past work orders, old paint-peeled or discolored, dated photographs, past inspections, other evidence of work performed prior to 10 years.
 2. Testing
 - a. Laser level, minimum six foot level or plumb line and tape measure to check wall for vertical alignment.
 3. Standard Repair
 - a. No repairs required; Advise owner to monitor for further movement.
 4. Optional Repairs
 - a. Reinforce with recommended engineered steel support restraints every thirty-six inches (36") to fifty inches (50") on center, along bowed or leaning wall without excavating, grout behind supports. See Wall Reinforcement Design and Details. See Appendix C.
 - b. Excavate; straighten as best as possible. Reinforce with recommended engineered steel beam restraints. Reseal wall. Clean out bleeders and test interior drain tile for correct flow, replace

exterior drain tile, backfill to within twelve inches (12") to eighteen inches (18") of grade with clear stone backfill. See 30.50(6.) and Appendix C.

- c. Replace any defective interior drain tile to provide adequate drainage to sump or sewer system. See 30.50(7.) and Appendix A.

5. Maintenance After Repair See 30.50(4.)(a.)4.

6. No Site Specific Engineering Required.

(f) CMU Wall Step Cracks With No Movement

1. Appearance of cracks that follow the block joints in a diagonal fashion (step cracks). Many step cracks occur at the edge of windows or wall openings. There is no evidence of wall displacement, bowing or water seepage. Step cracks can be associated with minor foundation settlement or shrinkage of the concrete masonry wall. Under this condition there are no continuous horizontal wall cracks, water seepage or displacement.

2. Testing See 30.50(4.)(e.)2.

- a. Laser Level or transit to check for horizontal alignment.

3. Standard Repair

- a. Tuck-point the visible cracks and recommend to owner to monitor for further movement.
- b. If the crack exceeds one-quarter inch ($\frac{1}{4}$ ") width or there are indications of settlement, consult engineer for Site Specific Engineering.

4. Maintenance After Repair 30.50(4.)(a.)4.

5. No Site Specific Engineering Required.

(g) Leaning or Bowed CMU Walls/ Wall Deflection Less Than One Inch (1") (Some Movement)

1. One or more walls are bowed or leaning, with signs of current or recent movement within the past ten (10) years. Wall cracks are less than $\frac{1}{4}$ " wide. The total amount of wall deflection is less than one inch from the as-built condition of the original wall construction. Water seepage may be present at the floor line. Previously repaired wall cracks show signs of continued cracking. Horizontal wall cracks are usually associated with bowing and may open and close with the seasons. Vertical or step wall cracks are usually associated with leaning walls or wall bowing adjacent to wall irregularities. There is no indication of settlement of the wall footings.

2. Testing 30.50(4.)(e.)2.

3. Standard Repairs

- a. Reinforce with recommended engineered steel support restraints every thirty-six inches (36") to fifty inches (50") on center, along bowed or leaning wall without excavating, grout behind supports. See Wall Reinforcement Design and Details. See [Appendix C](#).
 4. Optional Repairs
 - a. See [30.50\(4.\)\(h.\)4.a.](#)
 - b. If bowing or leaning is in conjunction with wet walls or [seepage](#), include previous repairs and testing. See [30.50\(7.\)](#) and [Appendix A](#).
 5. Maintenance After Repair [30.50\(4.\)\(a.\)4.](#)
 6. No [Site Specific Engineering](#) Required
- (h) Leaning or Bowed CMU Walls/[Wall Deflection](#) One Inch (1") or More
1. One or more walls are bowed or leaning with signs of current or recent movement. Wall cracks may be greater than one-quarter inch ($\frac{1}{4}$ ") wide. The total amount of wall deflection is one inch or more from the [as-built condition](#) of the original wall construction. Water [seepage](#) may be present at the floor line. Previously repaired wall cracks show signs of continued cracking. [Horizontal](#) wall cracks are usually associated with bowing and may open and close with the seasons. Vertical or step wall cracks are usually associated with leaning walls or wall bowing adjacent to [wall irregularities](#). There is no indication of settlement of the wall footings.
 2. Testing [30.50\(4.\)\(e.\)2.](#)
 3. Standard Repair
 - a. Excavate; straighten as best as possible. Reinforce with recommended engineered steel beam restraints. Reseal wall. Clean out [bleeders](#) and test interior [drain tile](#) for correct flow, replace exterior drain tile, [backfill](#) to within twelve inches (12") to eighteen inches (18") of [grade](#) with clear [stone backfill](#). See [30.50\(6.\)](#) and [Appendix C](#).
 4. Optional Repair
 - a. Remove and replace wall with new concrete masonry or poured concrete constructed and reinforced per State of Wisconsin Uniform Dwelling Code requirements for construction of new basement walls. See SPS 321.18 (1).
 5. Maintenance After Repair [30.50\(4.\)\(a.\)4.](#)
- (i) CMU Walls Sheared at Base/[Wall Slide](#) Less Than One Half Inch ($\frac{1}{2}$ ")
1. Wall shearing or sliding usually occurs at the second course from the bottom block. The bottom block is anchored by the floor. Shearing, however, may occur at any level. This condition indicates one section of

the wall is sliding off the remaining wall by less than one half inch ($\frac{1}{2}$ ").
There is no evidence of block face failure.

2. Testing [30.50\(4.\)\(e.\)2.](#)
3. Standard Repairs See [30.50\(4.\)\(g.\)3.a.](#)
4. Optional Repairs See [30.50\(4.\)\(h.\)4.a.](#)
5. Maintenance After Repair [30.50\(4.\)\(a.\)4.](#)

(j) CMU Walls Sheared at Base/Wall Slide One Half Inch ($\frac{1}{2}$ ") or More

1. Wall shearing or sliding usually occurs at the second course from the bottom block. The bottom block is anchored by the floor. Shearing, however, may occur at any level. This condition indicates one section of the wall is sliding off the remaining wall by one half inch ($\frac{1}{2}$ ") or more. Excessive wall slide can cause failure in the block face below and potential basement wall collapse.
2. Testing [30.50\(4.\)\(e.\)2.](#)
3. Standard Repairs See [30.50\(4.\)\(h.\)3.a.](#)
4. Optional Repair See [30.50\(4.\)\(g.\)4.a.](#)
5. Maintenance After Repair [30.50\(4.\)\(a.\)4.](#)

(k) Dropped, Settled or Rotated Footing Under CMU Wall

1. Foundation settlement is indicated by wide horizontal or step wall cracking and cracks in the floor slab, usually adjacent to the basement wall. The wall cracks are usually much wider than would be indicated by typical wall bowing. The wall may be tipped in the direction of foundation settlement, with horizontal wall joints being out of level. Door jams and windows in the building may be affected by foundation settlement.
2. Testing [30.50\(4.\)\(e.\)2.](#)
 - a. Laser Level of transit to check for horizontal alignment.
3. Standard Repairs Requiring Site Specific Engineering
 - a. Repair may be accomplished with engineered helical pier anchors, hydraulically driven pipe piles, drilled caissons, support pads, etc. that are attached to the bottom of the footing.
4. Maintenance After Repair [30.50\(4.\)\(a.\)4.](#)

(l) Poured Concrete, Brick or Stone Walls With Water Seepage (No Movement)

1. Shrinkage of concrete or masonry often leads to cracks in basement walls. Poured concrete walls with little or no steel reinforcement are more susceptible to shrinkage cracking. During periods of heavy rains, water seepage can occur through cracks in the walls. Another cause of cracking

in walls could be due to excessive pressure during backfilling or winter frost.

2. Testing [30.50\(4.\) \(a.\) 2.](#)

- a. Check [Palmer valve](#) or [sump pump](#) for correct operation. Check with local jurisdiction if palmer valve is permitted (per local requirements)
- b. Break open floor, test interior [drain tile](#) for correct flow. See [Appendix A](#).
- c. Use water spud pipe, inserted along outside wall to exterior drain tile, to introduce water to check exterior drain tile operation.
- d. Check for proper [grade](#) away from exterior walls and adequate gutters and [downspouts](#).

3. Standard Repairs

- a. Inject cracks from inside without excavating. Inject per manufacturing specifications. (NON-STRUCTURAL REPAIR – [polyurethane](#) injection for water stoppage only)
- b. In some cases, it may be necessary to excavate to footing, inject cracks or fill cracks with hydraulic cement, seal wall, clean out [bleeders](#), replace exterior [drain tile](#), [backfill](#) to within twelve inches (12”) to eighteen inches (18”) of [grade](#) with clear [stone backfill](#). See [30.50 \(6.\)](#) and [30.50\(7.\)](#)
- c. Refer to Condition #2 for additional standard repairs.

4. Maintenance After Repair [30.50\(4.\) \(a.\) 4.](#)

(m) Poured Concrete walls, Leaning or Bowed/[Wall Deflection](#) Less Than One Inch (1”)

1. One or more walls are bowed or leaning, with signs of current or recent movement. Wall cracks are less than one quarter inch (¼”) wide. The total amount of wall deflection is less than one inch from the original wall construction. Water [seepage](#) may be present at the floor line. Previously repaired wall cracks show signs of continued cracking. [Horizontal](#) wall cracks are usually associated with bowing and may open and close with seasons. Diagonal wall cracks or displacement at vertical cracks are usually associated with leaning walls or wall bowing adjacent to [wall irregularities](#). Vertical cracks are usually associated with shrinkage of concrete. There is no indication of settlement of the wall footings.
2. Testing [30.50\(4.\) \(e.\) 2.](#)
3. Standard Repair
 - a. See [30.50\(4.\) \(l.\) 3.a.](#)
 - 1) STRUCTURAL REPAIR – [epoxy](#) injection for wall repair and water stoppage.

- b. If wall is leaning, secure top of wall to prevent further movement. Additional wall reinforcement is not required. See [Appendix C](#) for detail.
 - c. If wall is bowed, reinforce with recommended engineered [steel restraints](#). See 30.50(4.)(h.)3.a.
 - d. If bowing or leaning is in conjunction with wet walls or [seepage](#), refer to previous interior [drain tile](#) repairs and testing procedures. See [30.50\(7.\)](#) and [Appendix A](#).
 - 4. Maintenance After Repair [30.50\(4.\)\(a.\)4.](#)
- (n) Poured Concrete Walls, Leaning or Bowed/ [Wall Deflection](#) One Inch (1") or More
- 1. One or more walls are bowed or leaning, with signs of current or recent movement. Wall cracks may be greater than one quarter inch ($\frac{1}{4}$ ") wide. The total amount of wall deflection is less than one inch from the original wall construction. Water [seepage](#) may be present at the floor line. Previously repaired wall cracks show signs of continued cracking. [Horizontal](#) wall cracks are usually associated with bowing and may open and close with seasons. Diagonal wall cracks or displacement at vertical cracks are usually associated with leaning walls or wall bowing adjacent to wall irregularities. Vertical cracks are usually associated with shrinkage of concrete. There is no indication of settlement of the wall footings.
 - 2. Testing [30.50\(4.\)\(e.\)2.](#)
 - 3. Standard Repairs
 - a. See [30.50\(4.\)\(e.\)4.b.](#)
 - b. Inject cracks or seal cracks with hydraulic cement in accordance with manufacturer specifications or with non-structural [polyurethane](#) repair.
 - c. If bowing or leaning is in conjunction with floor seepage, refer to previous interior [drain tile](#) repairs and testing procedures. See [30.50\(7.\)](#) and [Appendix A](#).
 - 4. Maintenance After Repair [30.50\(4.\)\(a.\)4.](#)
- (o) Brick Walls Leaning or Bowed/ [Wall Deflection](#) Less Than One Inch (1")
- 1. One or more walls are bowed or leaning, with signs of current or recent movement. Wall cracks are less than one quarter inch ($\frac{1}{4}$ ") wide. The total amount of wall deflection is less than one inch from the original wall construction. Water [seepage](#) may be present at the floor line. Previously repaired wall cracks show signs of continued cracking. Horizontal wall cracks are usually associated with bowing and may open and close with seasons. Vertical wall cracks are usually associated with leaning walls or wall bowing adjacent to [wall irregularities](#). Brick is in good

structural condition with no sign of excessive deterioration. There is no indication of settlement of the wall footings

2. Testing [30.50\(4.\)\(e.\)2.](#)
3. Standard Repair
 - a. Reinforce with engineered steel support restraints up to thirty-six inches (36") maximum on center spacing along bowed or leaning wall without excavating, grout behind supports. See Wall Reinforcement and Design. See [Appendix C.](#)
4. Optional Repair
 - a. See [30.50\(4.\)\(h.\)4.a.](#)
 - b. Remove and replace brick wall with new concrete masonry constructed and reinforced per State of Wisconsin Uniform Dwelling Code requirements for construction of new basements walls.
5. Maintenance After Repair [30.50\(4.\)\(a.\)4.](#)

(p) Brick Walls Leaning or Bowed/[Wall Deflection](#) One Inch (1") or more

1. One or more walls are bowed or leaning, with signs of current or recent movement. Wall cracks are less than one quarter inch ($\frac{1}{4}$ ") wide. The total amount of wall deflection is less than one inch from the original wall construction. Water [seepage](#) may be present at the floor line. Previously repaired wall cracks show signs of continued cracking. Horizontal wall cracks are usually associated with bowing and may open and close with seasons. Vertical wall cracks are usually associated with leaning walls or wall bowing adjacent to [wall irregularities](#). Brick may be in poor structural condition with signs of excessive deterioration. There is no indication of settlement of the wall footing.
2. Testing [30.50\(4.\)\(e.\)2.](#)
3. Standard Repairs See [30.50\(4.\)\(h.\)4.a.](#) similar
4. Maintenance After Repair [30.50\(4.\)\(a.\)4.](#)

(5.) Site Specific Engineering

- (a) [Site Specific Engineering](#) is required for any Reinforcement of Basement walls where conditions do not conform to the standards of this document.
- (b) If [Site Specific Engineering](#) is required, a Site Specific Engineering Report is required to be submitted as part of the permit application for foundation repair (see example in [Appendix B](#)).
- (c) Alternative repair methods requiring site specific engineering:
 1. Internal core filling with concrete and steel reinforcing bars.
 2. Installation of an exterior concrete grade beam.

3. Retention anchors installed outside the foundation wall with wall plates secured to the inside of the wall.
 4. Construction of additional masonry pilasters on inside or outside of wall.
 5. Installation of a carbon fiber and epoxy reinforcing on inside or outside of wall.
 6. Any walls needing repair with height greater than eight foot (8') two inches (2").
 7. Any wall repair using adjustable braces used to move basement walls without excavation.
 8. Excavation, straightening, and reinforcing of brick walls with wall deflection of one inch (1") or more.
 9. Any structural repair of stone foundation walls other than replacement with new walls constructed per State of Wisconsin Uniform Dwelling Code requirements for new construction SPS 321.18 (1). Any other methods or materials used for foundation repair not listed in these Standards.
- (d) Site Specific Engineering is not required for any foundation repair product or method that has a Wisconsin Building Product Evaluation, WAFRP, and SEWRBI Approval (Per the conditions listed in the approval letter).
- (6.) Procedure for Wall Repair Including: Excavation, Waterproofing and Reinforcement
- (a) Excavate a trench on the exterior wall from grade to the tip of the footing.
 - (b) Haul all excavated clay to an approved landfill.
 - (c) Attempt to flush out all bleeders found on exterior footing to sump pump or palmer valve system. Check with local jurisdiction if palmer valve is permitted (per local requirements).
 - (d) Flush inside drain tile to sump pump or palmer valve, if applicable, on affected wall.
 - (e) (e.) Set jacks on the inside of the excavated walls and straighten the walls to the original position, or as close as possible. (If required)
 - (f) Identify structurally damaged concrete block solid with concrete block (exterior or interior). Replace block, or repair with approved epoxy material, or fill block solid with concrete grout.
 - (g) Repair all mortar joint cracks on outside of wall with TYPE M masonry cement. Seal coat all excavated walls from the footing to grade with approved below-grade damp proofing material installed per manufacturer's specifications.
 - (h) Replace all removed drain tile on excavated wall with "ADS" polypropylene/fiberglass drain tile and connect to existing bleeders found on footing.

- (i) Backfill trench with clear crushed aggregate per specification below to with twelve inches (12") to eighteen inches (18") from finish grade at all grass/dirt areas.
 - 1. One hundred percent (100%) of the aggregate shall pass a one inch (1") sieve.
 - 2. Ninety percent (90%) to one hundred percent (100%) of the aggregate shall pass a three quarter inch ($\frac{3}{4}$ ") sieve.
 - 3. Zero percent (0%) to fifty-five percent (55%) of the aggregate shall pass a three-eighths inch ($\frac{3}{8}$ ") sieve.
 - 4. Zero percent (0%) to five percent (5%) of the aggregate shall pass a number eight (#8) sieve.
- (j) Install a below grade geotextile filter fabric with minimum six (6) oz. density on top of stone backfill at all grass/dirt areas to prevent dirt contamination of the clear stone due to water filtration to exterior drain tile.
- (k) Finish backfilling trench areas with impervious fill sloped as best as possible away from the foundation to within six inches (6") of ground surface, place topsoil or landscaping material to match existing finish grade height. Finished grade should be pitched at a minimum slope of one half inch ($\frac{1}{2}$ ") per foot away from building for a minimum distance of ten feet (10'). It is recommended to maintain grade six inches (6") below wood framing if possible. If proper grading is not possible, inform owner of condition and recommend proper landscaping with appropriate water control measures.
- (l) Reinforce all excavated walls with steel reinforcing columns. (see Appendix C regarding reinforcement for size, spacing, and attachment details) Grout between steel columns and wall with a non-shrink grout to account for wall irregularities and displacement. (If required)
- (m) Extend wall reinforcement beam one (1) space in each direction beyond damaged section of wall. (If required).
- (n) Tuck-point all interior mortar joint cracks on all walls that are repaired.
- (7.) Procedure for Interior Drain Tile Repair without Excavation (see also Appendix A regarding drain tile testing standards).
 - (a) Remove floor along wall area (twelve inches (12") to eighteen inches (18") wide) to be repaired to allow replacement of interior drain tile. NOTE: Depending on the exterior ground pressure against the wall, bracing of the bottom one third ($\frac{1}{3}$) of the wall may be required to prevent the first course from moving after the floor has been removed.
 - (b) Remove existing drain tile and flush with water to sump crock or palmer valve. Check for correct drainage. Check with local jurisdiction if palmer valve is permitted (per local requirements).

- (c) Replace drain tile at floor removal area with three inches (3") min interior diameter perforated corrugated polyethylene (or other State of Wisconsin Uniform Dwelling Code compliant) drain tile and encase new tile with clear three quarter inch ($\frac{3}{4}$ ") diameter filtering stone.
- (d) Drill one (three quarter inch ($\frac{3}{4}$ ") to one inch (1")) drainage hole into the bottom of first course per core, under floor line, for block drainage. Holes shall be cleared for proper drainage.
- (e) Wall drainage board shall be a one-piece unit. Wall drainage board to be installed at least one inch (1") minimum higher than finish floor height and against first course to assure unrestricted passage of water flow. The wall drainage board MUST provide lateral support to first block. Wall drainage board must be able to be sealed off to provide radon mitigation if necessary.
- (f) Test wall drainage board: Drill holes at the third to fourth block above the footing and every three feet (3') to four feet (4') horizontally for the entire wall where possible. Flush wall with water by inserting hose into injection holes. Check for unobstructed flow to wall drainage board by observing water flow at the base of the wall.
- (g) Replace floor where removed. Minimum thickness not to be less than two inches (2") thick or at least as thick as what was originally in place.
- (h) If floor is ramped, to obtain minimum floor thickness the original floor must be removed a distance of twenty four inches (24") from the basement wall.
- (i) If existing braces exist they can be left in place if they are anchored to the footing or slab.
- (j) Site specific engineering is required for conditions that vary from these standards.

(8.) Wall Drainage Board Specification

- (a) Drainage Board Products may be used meeting the following specifications:
 - 1. Manufactured as one-piece construction vertical and horizontal
 - 2. Minimum eight inches (8") horizontal leg with optional extension with no restriction of water flow
 - 3. Designed to provide proper lateral support of first course from solid material and concrete in contact with the exterior wall
 - 4. Minimum of one inch (1") extension above finished floor
 - 5. Maximum of three eighths inch ($\frac{3}{8}$ ") open joint along top of wall board for placement of sealant for radon mitigation

Appendix A - Drain Tile Test Procedure

1. Conditions that may Warrant a Drain Tile Test
 - a) Seepage/seepage on floor
 - b) Wet/damp wall blocks near floor
 - c) Staining/efflorescence on wall blocks near floor
 - d) Iron ochre, tree roots, or mineral/calcium deposits in sump crock or at palmer valve.
 - e) Wetness around floor cracks.
 - f) Not all conditions shall warrant a drain tile test
2. Location, Size and Number of Test Holes
 - a) The foundation repair contractor or foundation consultant should open a minimum of three (3) holes to test interior tiles
 - b) Each interior hole should be at least twelve inches (12") x twelve inches (12")
 - c) The ideal location of interior test holes should be:
 - d) In or near corners
 - e) At sites where home owner noted seepage
 - f) Directly under windows (location of bleeders)
 - g) The exterior drain tile test depth is recommended to be within one foot (1') above the exterior drain tile. This test is also referred as an outside "spud test".
 - h) An outside drain tile test is warranted if blockage of outside drain tile is suspected to be clogged due to signs of seepage.
 - i) Test four feet (4') from bleeder if location is known.
 - j) At least two tests with spud pipe are recommended per wall(s) in question.
3. Test Procedures
 1. Homeowner should remove personal property at all test site locations
 2. Open hole in floor, expose inside of drain tile
 3. Inspect drain tile to determine degree of obstruction if any
 4. Introduce water into hole to determine if it drains
 5. Insert running hose into drain tile in both directions if possible to point of blockage
 6. Clean out bleeders, if found
 7. Insert running hose in bleeders to determine disbursement to exterior tile
 8. Check functionality of palmer valve or sump crock
 9. Drill at least one (1) hole in block, where floor is opened up at a wet area in question, on inside to check if wall is holding water.
4. Evaluation of Need for Repair
 1. Based upon test results foundation repair contractor or foundation consultant should consider:
 - a. Degree of blockage (less than thirty percent (30%) marginal, more than fifty percent (50%) serious)
 - b. Amount of water sitting in tile
 - c. Condition of drain tile itself
 - d. Actual water flow through inside tile
 - e. Seasonal conditions

- f. Ground water levels at time
- g. Special situations (ochre, roots, mineral deposits)
- h. History and pattern of seepage from homeowner, if available
- i. Water seepage out of blocks
- j. Spacing and placement of cement drain tile
- k. Material around drain tile
- l. If interior drain tile is found to not have blockage then an exterior spud test is optional.
- m. Due to the severity of the leak, an optional spud test may be recommended to test the outside tile.

5. Report to Homeowner

- 1. Drain tile evaluation requires rendering an opinion and reasonable minds may differ
- 2. Foundation repair contractor or foundation consultant shall report areas of blockage and specify what sections of drain tile need repair in writing with a diagram
- 3. Foundation repair contractor or foundation consultant shall not misrepresent condition of drain tile for purposes of persuading homeowners to purchase repairs
- 4. Foundation repair contractor or foundation consultant may give homeowner option of replacing more drain tile than is necessary after explaining present conditions

6. Repair of Hole

- 1. Remove debris, damaged tile and old stone
- 2. Replace drain tile in hole with three inches (3") interior diameter perforated corrugated polyethylene drain tile (or Wisconsin Uniform Dwelling Code compliant)
- 3. Install approved drainage board on side of hole
- 4. Encase new tile with three quarter inch ($\frac{3}{4}$ ") diameter filtering stone
- 5. Close hole with new cement unless homeowner elects to leave open for further inspection
- 6. In the event homeowner elects to leave hole open, foundation repair contractor or foundation consultant shall warn homeowner of risk of injury and possible flooding
- 7. Maximum of three eighths inch ($\frac{3}{8}$ ") open joint along top of wall board for placement of sealant for radon mitigation

Appendix B - Site Specific Engineering Report

☐ Residential Inspection ☐ Commercial Inspection

Visited Site ☐ Yes ☐ No Date _____ Time _____

Temperature _____ Weather Conditions _____ ☐ Dry ☐ Rain ☐ Snow

Site Conditions _____

Building Address _____

Building Description _____ Age _____

Areas Inspected _____

Proper Grading ☐ Yes ☐ No (Describe) _____

Foundation Type: ☐ Block ☐ Poured Concrete ☐ Brick ☐ Stone ☐ Wood

FOUNDATION CONDITIONS

Walls Out of Plumb ☐ Yes ☐ No Walls Settled ☐ Yes ☐ No Explain Below

Condition: (T) Tipped (D) Displaced (Bowed) (B) Base Shear (SC) Step Crack

(HC) Horizontal Crack (VC) Vertical Crack (DC) Diagonal Crack (S) Settled

Wall Condition & Measurement

North _____

South _____

East _____

West _____

Previous Repair ☐ Yes ☐ No Est. Age _____ Repair Adequate ☐ Yes ☐ No

Describe Prior Repair/Issues _____

Repairs Needed ☐ Yes ☐ No (Describe)

Are Recommended Repairs per WAFRP Standards ☐ Yes ☐ No If No: Assumed

Soil Pressure ☐ 90 pcf ☐ Other _____ Attach Soil Information & Calculations

Supervising Repairs ☐ Yes ☐ No

Signature _____

Seal



Appendix C
Foundation Repair Details

BASEMENT WALL REINFORCEMENT DESIGN TABLES
(Tables based on 90 PCF equivalent soil pressure)

WALL HEIGHT* - UP TO 6'-10"				
STEEL SIZE, SPACING and BLOCK SIZE	SINGLE JOIST SIDE MOUNT	DOUBLE JOIST Or 2x8 min. nailed to side of joist.	SINGLE JOIST With SADDLE	TJI JOIST
4" X 2" X 1/4" 36" Max. Spacing 8", 10" or 12"	(2) 1" Dia. Bolts See Details 2-5 on S2-A (4) 1/2" Dia. Bolts See Details 1-5 on S2-B	(2) 5/8" Dia. Bolts See Details 10-13 on S4-A	(2) 1/2" Dia. Bolts See Details 24-28 on S7	(2) 1" Dia. Bolts See Details 6-9 on S3-A
5" X 2" X 3/16" 50" Max. Spacing 10" or 12"	(4) 5/8" Dia. Bolts See Details 1-5 on S2-B	(2) 3/4" Dia. Bolts See Details 10-13 on S4-A (4) 1/2" Dia. Bolts See Details 12-15 on S4-B	(2) 5/8" Dia. Bolts See Details 24-28 on S7	(4) 5/8" Dia. Bolts See Details 9-11 on S3-B
WALL HEIGHT* > 6'-10" UP TO 7'-6"				
STEEL SIZE, SPACING and BLOCK SIZE	SINGLE JOIST SIDE MOUNT	DOUBLE JOIST Or 2x8 min. nailed to side of joist.	SINGLE JOIST With SADDLE	TJI JOIST
5" X 2" X 3/16" 36" Max. Spacing 8", 10", or 12"	(2) 1" Dia. Bolts See Details 2-5 on S2-A (4) 1/2" Dia. Bolts See Details 1-5 on S2-B	(2) 5/8" Dia. Bolts See Details 10-13 on S4-A	(2) 5/8" Dia. Bolts See Details 24-28 on S7	(2) 1" Dia. Bolts See Details 6-9 on S3-A
6" X 2" X 3/16" or 5" X 3" X 1/4" 50" Max. Spacing 10", or 12"	(4) 3/4" Dia. Bolts See Details 1-5 on S2-B	(2) 1" Dia. Bolts See Details 10-13 on S4-A (4) 1/2" Dia. Bolts See Details 12-15 on S4-B	(2) 3/4" Dia. Bolts See Details 24-28 on S7	(4) 3/4" Dia. Bolts See Details 9-11 on S3-B
WALL HEIGHT* > 7'-6" UP TO 8'-2"				
STEEL SIZE, SPACING and BLOCK SIZE	SINGLE JOIST SIDE MOUNT	DOUBLE JOIST Or 2x8 min. nailed to side of joist.	SINGLE JOIST With SADDLE	TJI JOIST
5" X 3" X 1/4" 36" Max. Spacing 8", 10", or 12"	(4) 5/8" Dia. Bolts See Details 1-5 on S2-B	(2) 3/4" Dia. Bolts See Details 10-13 on S4-A (4) 1/2" Dia. Bolts See Details 12-15 on S4-B	(2) 5/8" Dia. Bolts See Details 24-28 on S7	(4) 5/8" Dia. Bolts See Details 9-11 on S3-B
6" X 3" X 1/4" 50" Max. Spacing 10", or 12"	(4) 7/8" Dia. Bolts See Details 1-5 on S2-B	(2) 1" Dia. Bolts See Details 10-13 on S4-A (4) 5/8" Dia. Bolts See Details 12-15 on S4-B	(2) 1" Dia. Bolts See Details 24-28 on S7	(4) 7/8" Dia. Bolts See Details 9-11 on S3-B

*Wall Height is top of floor to bottom of joist (Field measurements can be rounded to the nearest 1/2")

**Bottom Anchors : Min. (2) 5/8" dia. x 7" long expansion bolts into footing
Or (2) 3/4" dia. x 4" long expansion bolts min. 3" into slab

See Pages S5 thru S12 for Additional Connection and Wall reinforcing Details

SPECIFICATIONS:

STEEL TUBE WALL REINFORCING @ MAX. 36" O.C. MAY BE USED FOR 8", 10", OR 12" BLOCK WALLS AND MAX. 50" O.C. FOR 10" OR 12" BLOCK WALLS.

REINFORCING SPACING CAN BE THE AVERAGE OF TWO ADJACENT SPACES WITH A MAXIMUM SPACING OF 50" (10" OR 12" BLOCK). FOR EXAMPLE $(4'-0" + 1'-4")/2 = 2'-8"$ AVERAGE SPACING, BUT IN NO INSTANCE CAN A SPACING EXCEED 50".

STEEL TUBE MUST HAVE MINIMUM 46KSI YIELD STRENGTH.

STEEL PLATE MUST HAVE 36KSI MINIMUM YIELD STRENGTH.

WELDING TO BE PER ASTM STANDARDS.

PRESTRESSING TUBES REQUIRES SITE SPECIFIC ENGINEERING.

REINFORCING GUIDELINES ALSO APPLY TO POURED CONCRETE, BRICK AND STONE WALLS OF EQUIVALENT HEIGHT AND THICKNESS.

BOLTS AND SLEEVES TO BE ZINC PLATED CARBON STEEL OR BETTER.

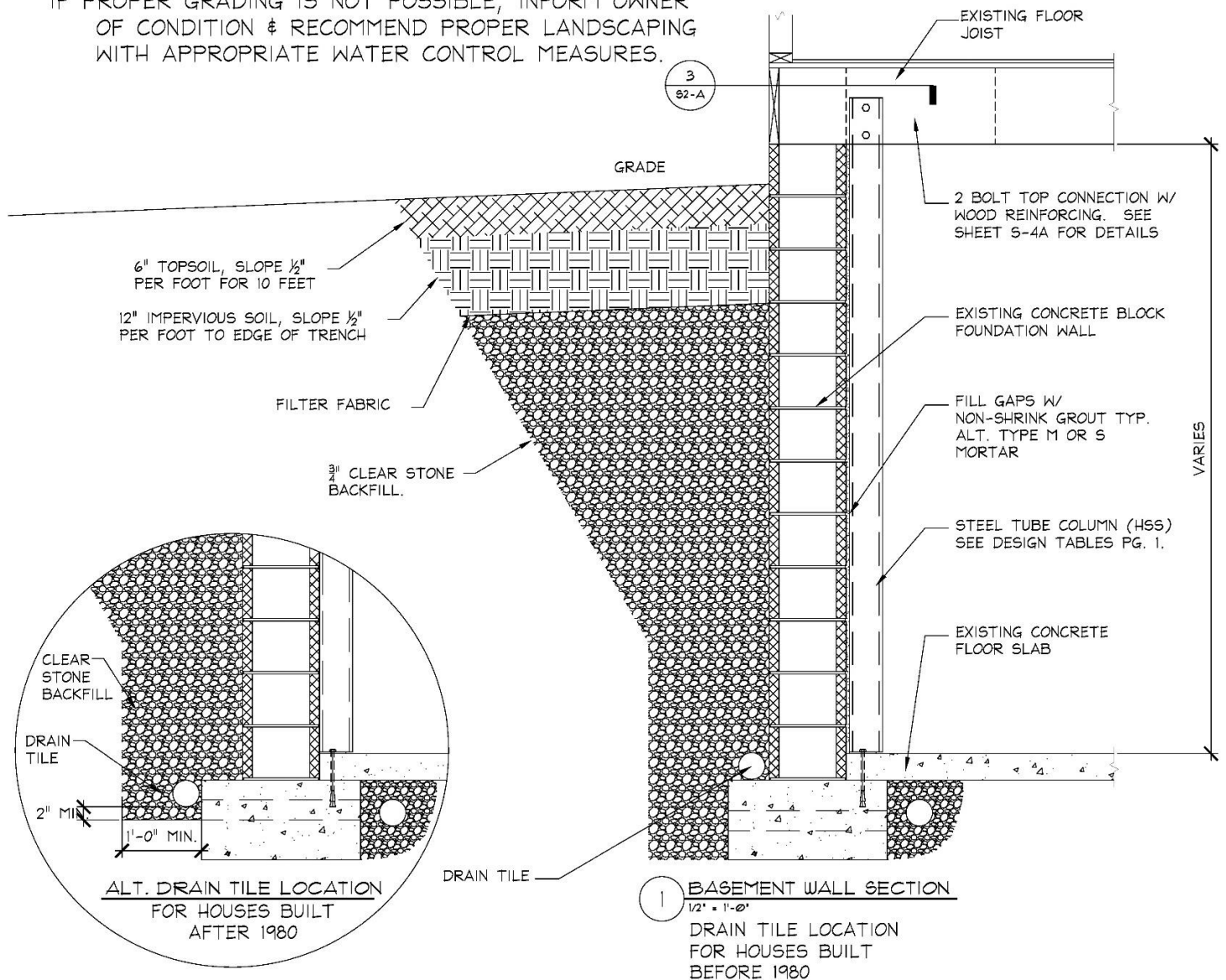
NEW WOOD BLOCKING TO BE DOUG. FIR NO.2 OR BETTER.

SCREW TYPE ANCHORS CAN BE USED IN LIEU OF EXPANSION BOLTS IN ALL CASES.

ALL STRUCTURAL CALCULATIONS FOR WOOD MEMBERS PER 2015 NATIONAL DESIGN

SPECIFICATIONS FOR WOOD CONSTRUCTION (NDS).

IF PROPER GRADING IS NOT POSSIBLE, INFORM OWNER OF CONDITION & RECOMMEND PROPER LANDSCAPING WITH APPROPRIATE WATER CONTROL MEASURES.



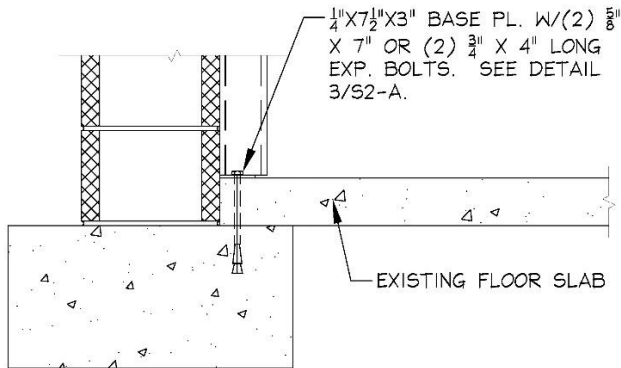
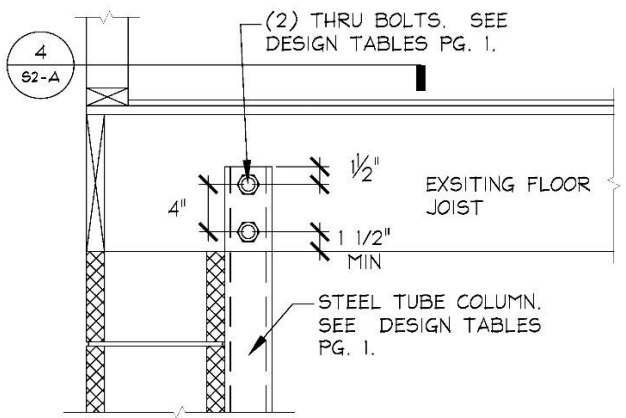
TITLE: 2 Bolt Basement Wall Reinforcing Details

SHEET: S1-A, Appendix C

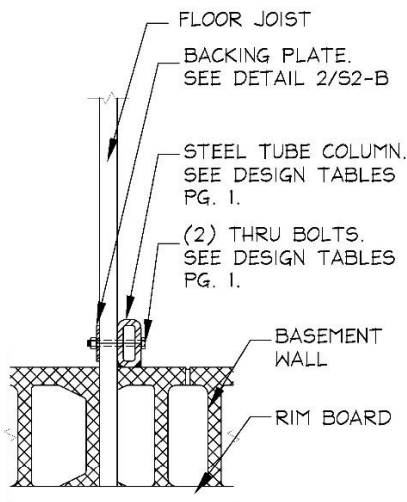
DRAWN: JFJ

DATE: 3/26/03

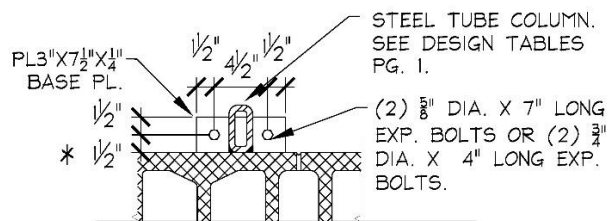
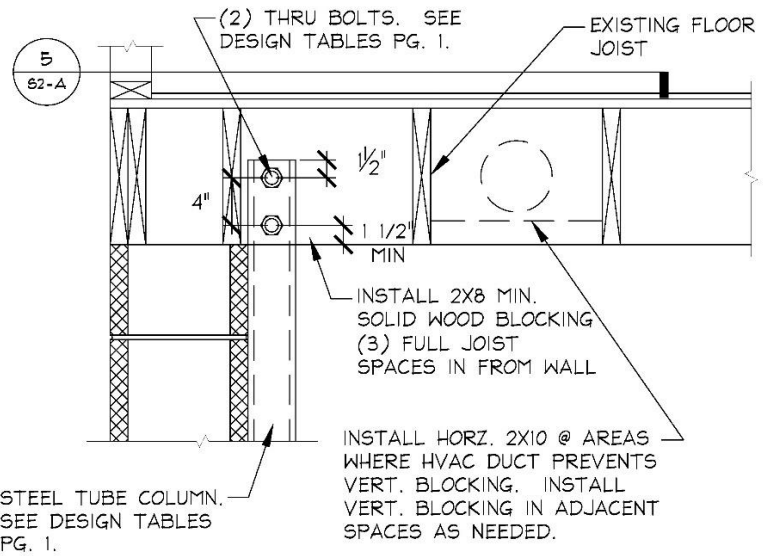
REVISION: 07/12/17



2 CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"



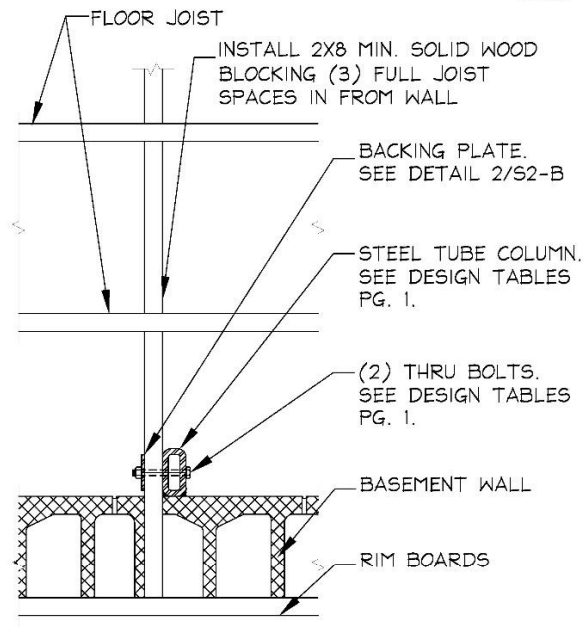
4 TOP CONNECTION DETAIL
3/4" = 1'-0"



NOTE: 5/8" DIA. BOLTS HAVE A FACTOR OF SAFETY OF 3 IN SOME CASES.

3 BOTTOM CONN. DETAIL
3/4" = 1'-0"

*BOLTS CAN BE OFFSET W/ 1 1/4" MIN. DIMENSION FROM FACE OF BLOCK WALL



5 TOP CONNECTION DETAIL
3/4" = 1'-0"

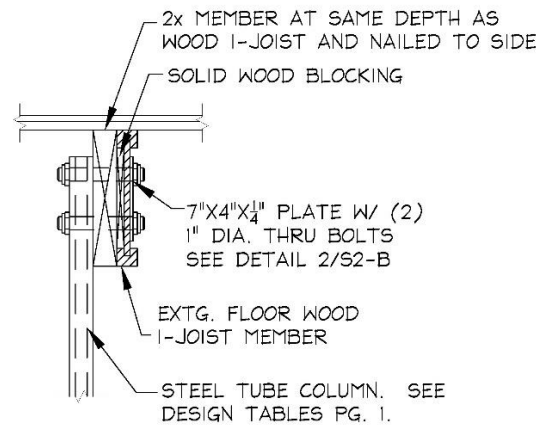
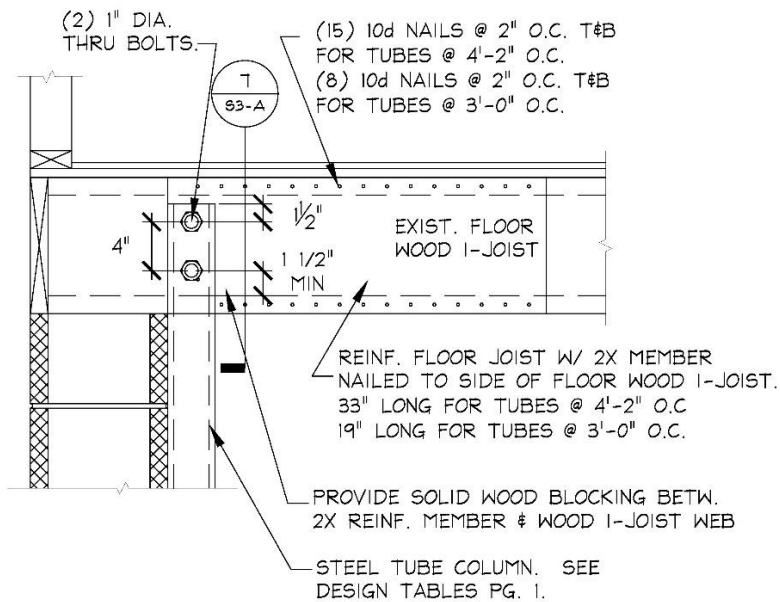
TITLE: 2 Bolt Top & Bottom Connection Details

SHEET: S2-A, Appendix C

DRAWN: JFJ

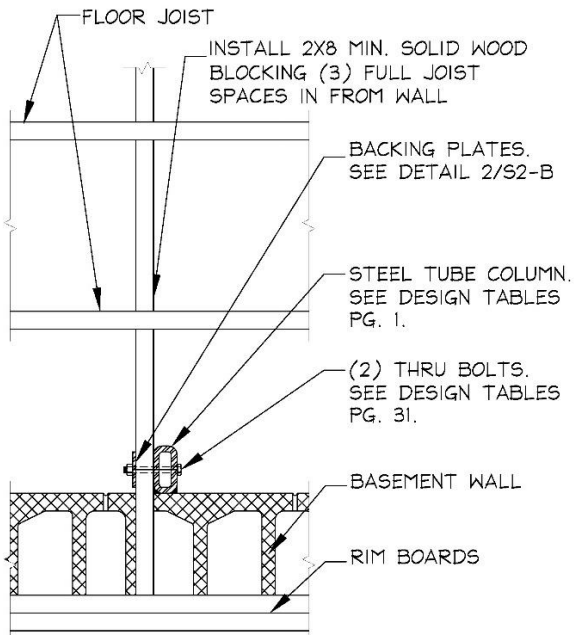
DATE: 3/26/03

REVISION: 07/12/17

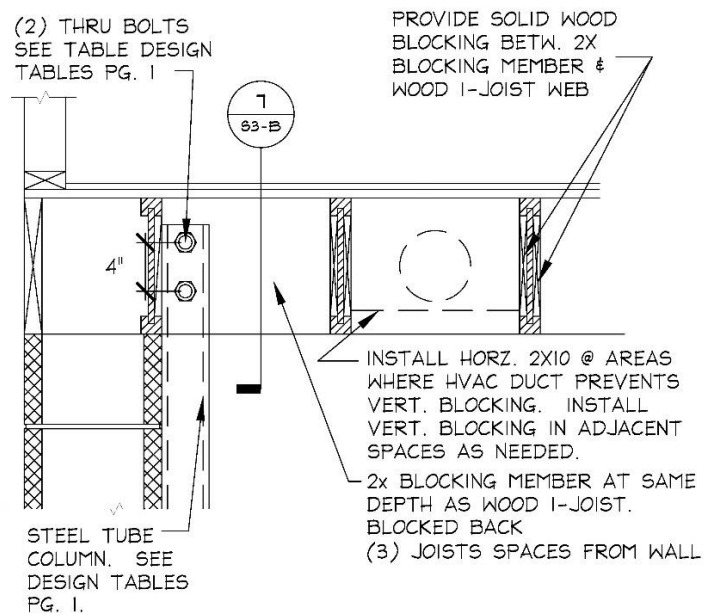


6 TJI CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"

7 TJI CONNECTION DETAIL SECTION
3/4" = 1'-0"



8 TOP CONNECTION DETAIL
3/4" = 1'-0"



9 TOP CONNECTION DETAIL
3/4" = 1'-0"

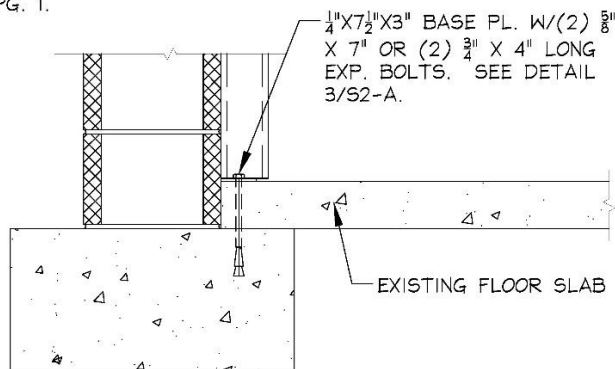
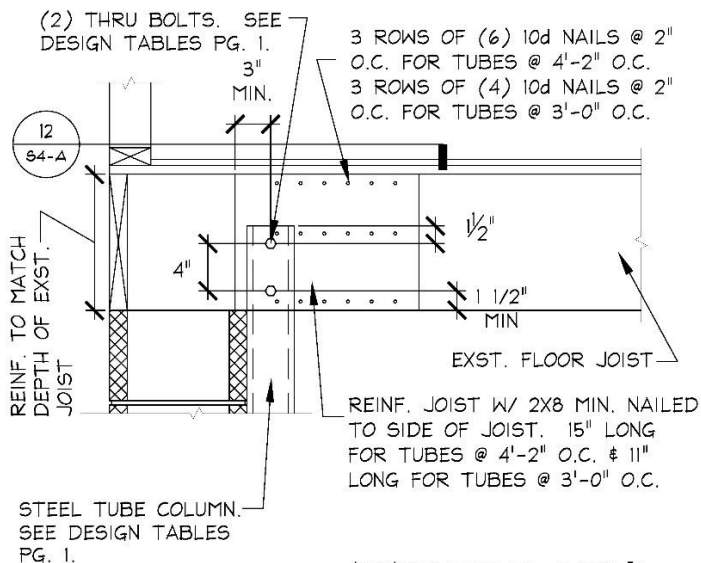
TITLE: 2 Bolt Wood I-Joist Top ConnectionDetails

SHEET: S3-A, Appendix C

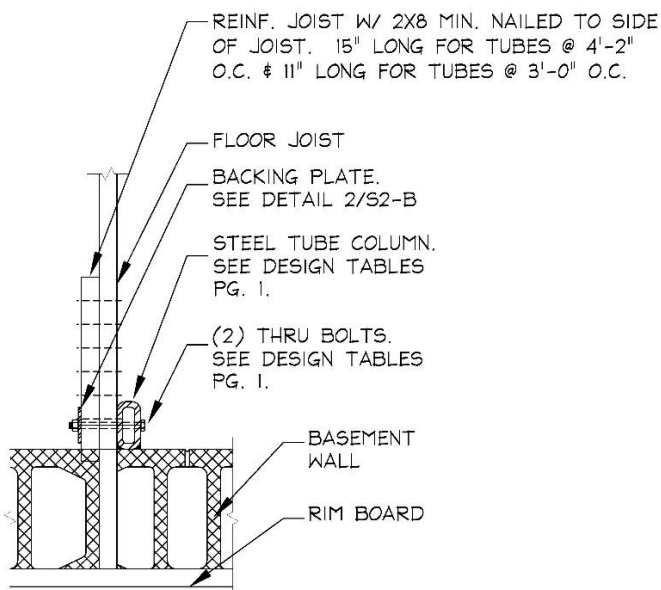
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DATE: 3/26/03

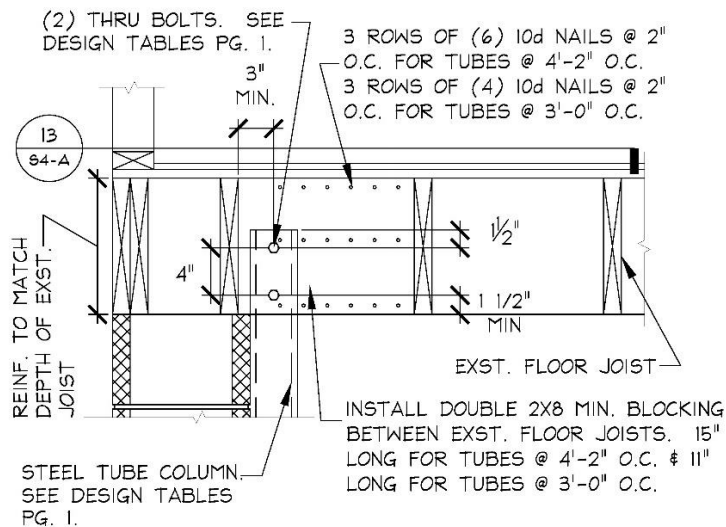
REVISION: 07/12/17



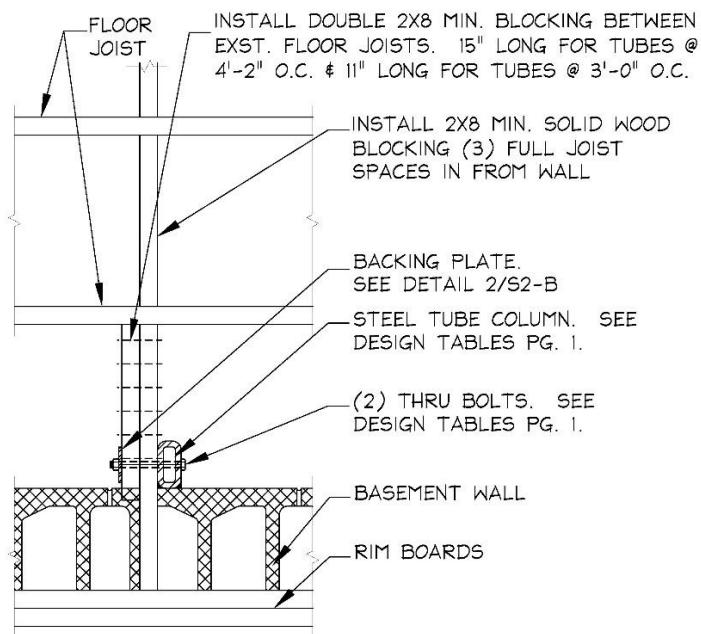
10 CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"



12 TOP CONNECTION DETAIL
3/4" = 1'-0"



11 CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"



13 TOP CONNECTION DETAIL
3/4" = 1'-0"

TITLE: 2 Bolt Top Connection W/Double Wood Joist

SHEET: S4-A, Appendix C

DRAWN: JFJ

DATE: 3/26/03

REVISION: 07/12/17

SPECIFICATIONS:

STEEL TUBE WALL REINFORCING @ MAX. 36" O.C. MAY BE USED FOR 8", 10", OR 12" BLOCK WALLS AND MAX. 50" O.C. FOR 10" OR 12" BLOCK WALLS.

REINFORCING SPACING CAN BE THE AVERAGE OF TWO ADJACENT SPACES WITH A MAXIMUM SPACING OF 50" (10" OR 12" BLOCK). FOR EXAMPLE $(4'-0" + 1'-4")/2 = 2'-8"$ AVERAGE SPACING, BUT IN NO INSTANCE CAN A SPACING EXCEED 50".

STEEL TUBE MUST HAVE MINIMUM 46KSI YIELD STRENGTH.

STEEL PLATE MUST HAVE 36KSI MINIMUM YIELD STRENGTH.

WELDING TO BE PER ASTM STANDARDS.

PRESTRESSING TUBES REQUIRES SITE SPECIFIC ENGINEERING.

REINFORCING GUIDELINES ALSO APPLY TO POURED CONCRETE, BRICK AND STONE WALLS OF EQUIVALENT HEIGHT AND THICKNESS.

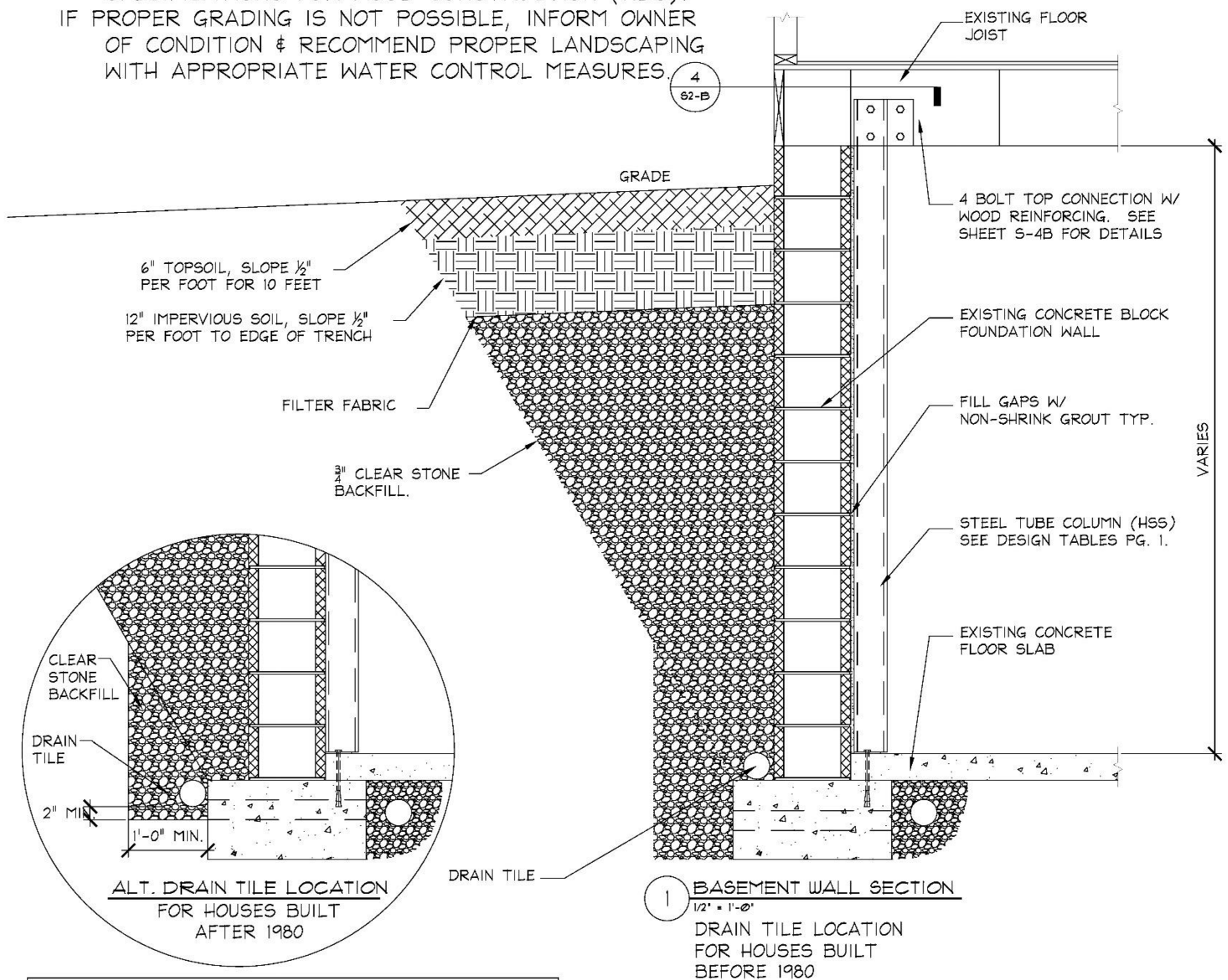
BOLTS AND SLEEVES TO BE ZINC PLATED CARBON STEEL OR BETTER.

NEW WOOD BLOCKING TO BE DOUG. FIR NO.2 OR BETTER.

SCREW TYPE ANCHORS CAN BE USED IN LIEU OF EXPANSION BOLTS IN ALL CASES.

ALL STRUCTURAL CALCULATIONS FOR WOOD MEMBERS PER 2015 NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION (NDS).

IF PROPER GRADING IS NOT POSSIBLE, INFORM OWNER OF CONDITION & RECOMMEND PROPER LANDSCAPING WITH APPROPRIATE WATER CONTROL MEASURES.



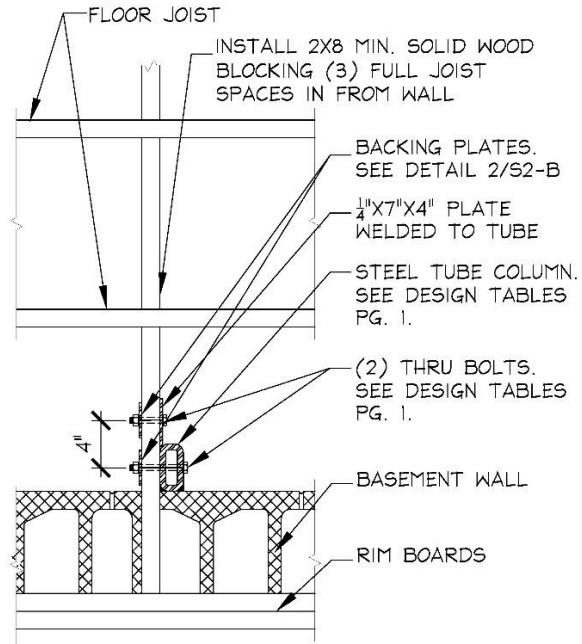
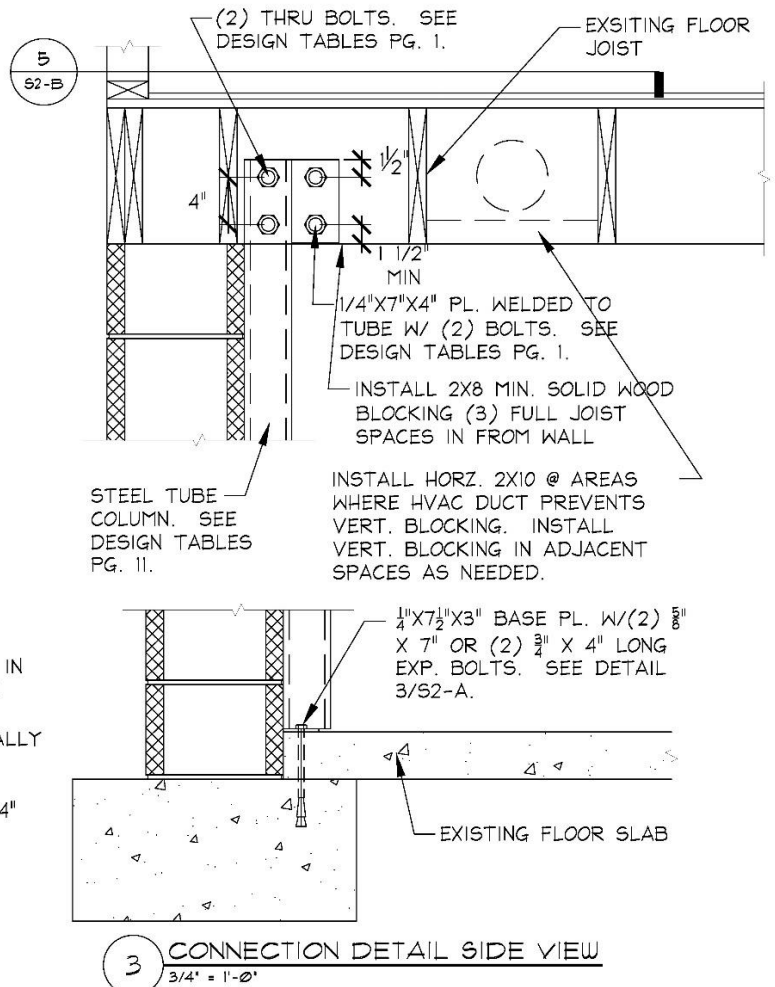
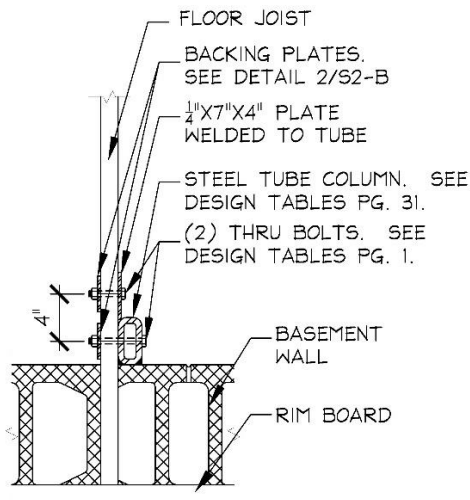
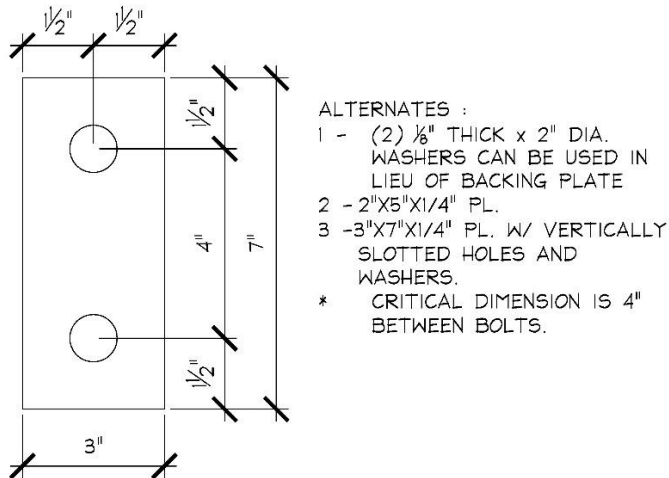
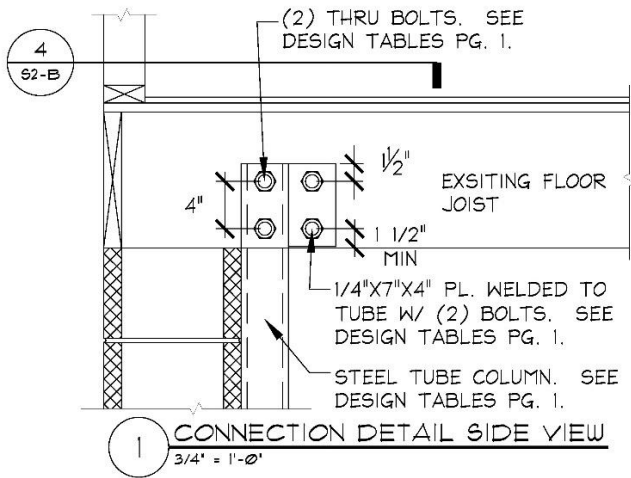
TITLE: 4 Bolt Basement Wall Reinforcing Details

SHEET: S1-B, Appendix C

DRAWN: JFJ

DATE: 3/26/03

REVISION: 07/12/17



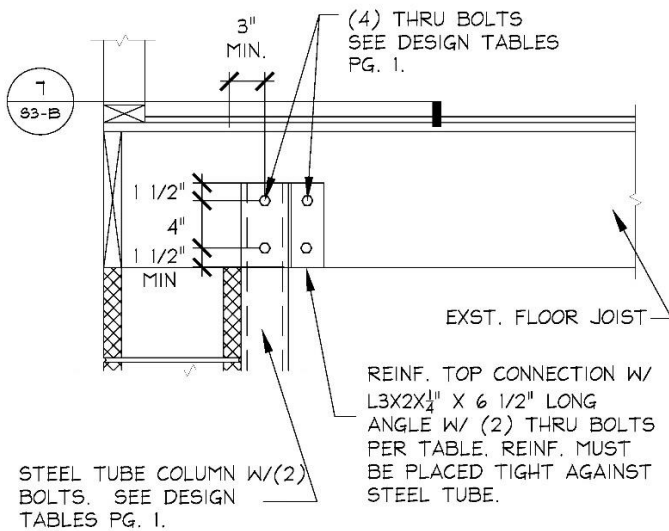
TITLE: 4 Bolt Top & Bottom Connection Details

SHEET: S2-B, Appendix C

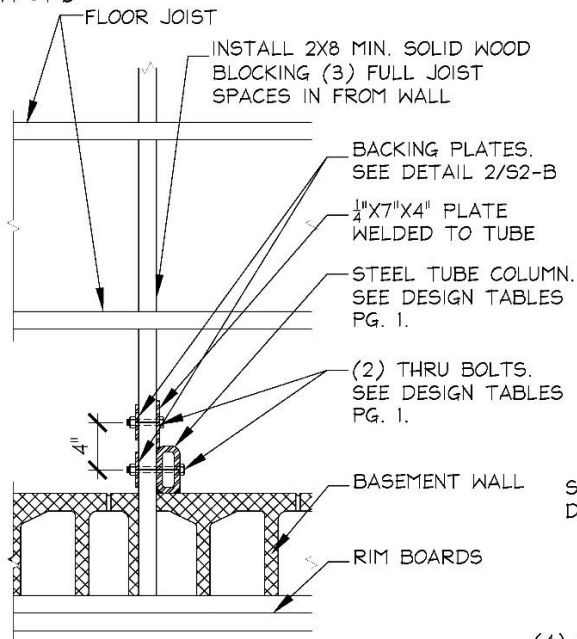
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DATE: 3/26/03

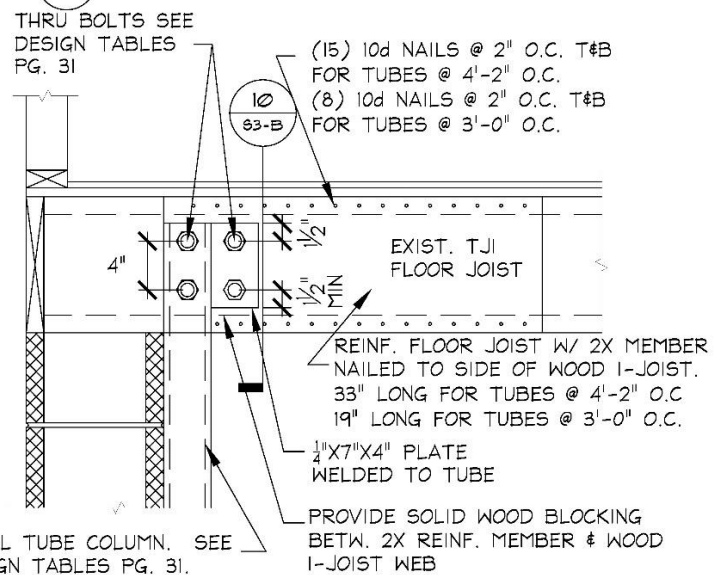
REVISION: 07/12/17



6 STEEL ANGLE SUPPORT DETAIL SIDE VIEW
3/4" = 1'-0"

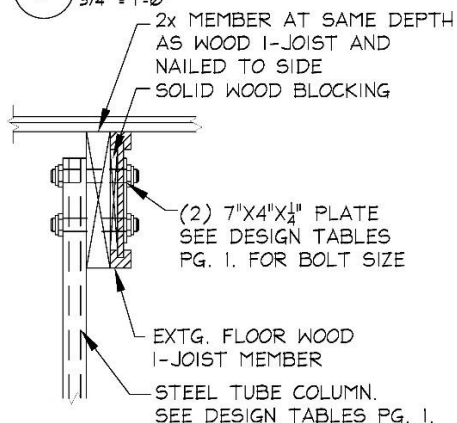


7 STEEL ANGLE SUPPORT DETAIL
3/4" = 1'-0"

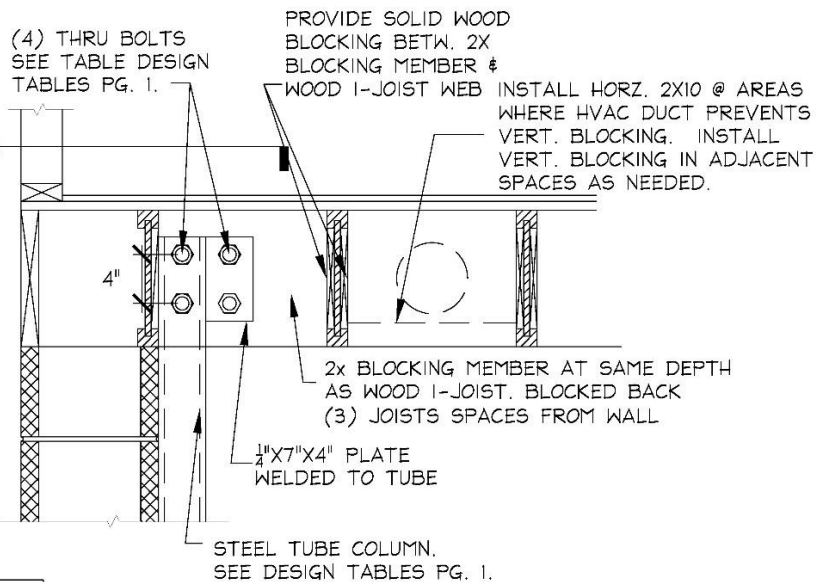


9 TJI CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"

8 TOP CONNECTION DETAIL
3/4" = 1'-0"



10 TJI CONNECTION DETAIL SECTION
3/4" = 1'-0"



11 TOP CONNECTION DETAIL
3/4" = 1'-0"

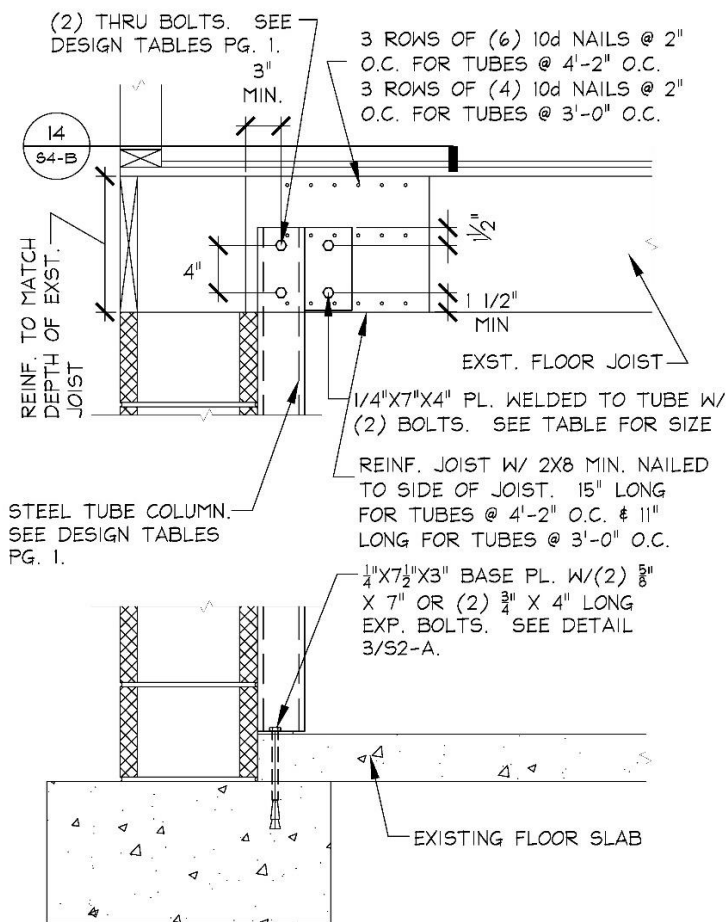
TITLE: 4 Bolt Angle Connection & Wood I-Joist Details

SHEET: S3-B, Appendix C

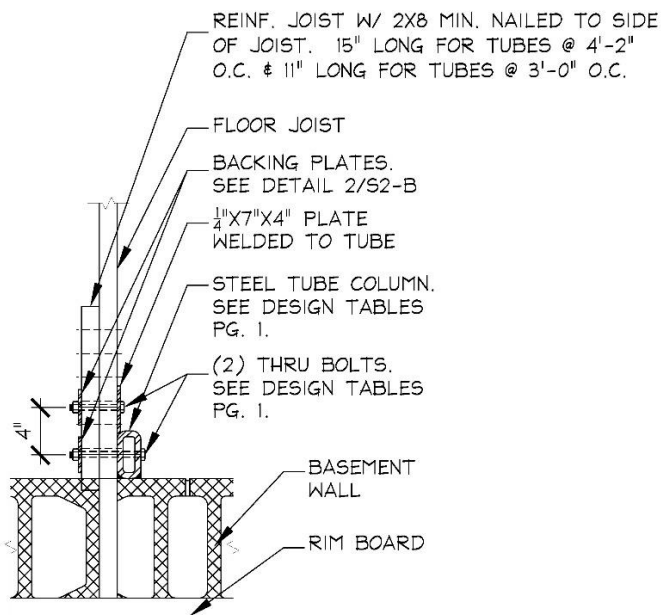
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DATE: 3/26/03

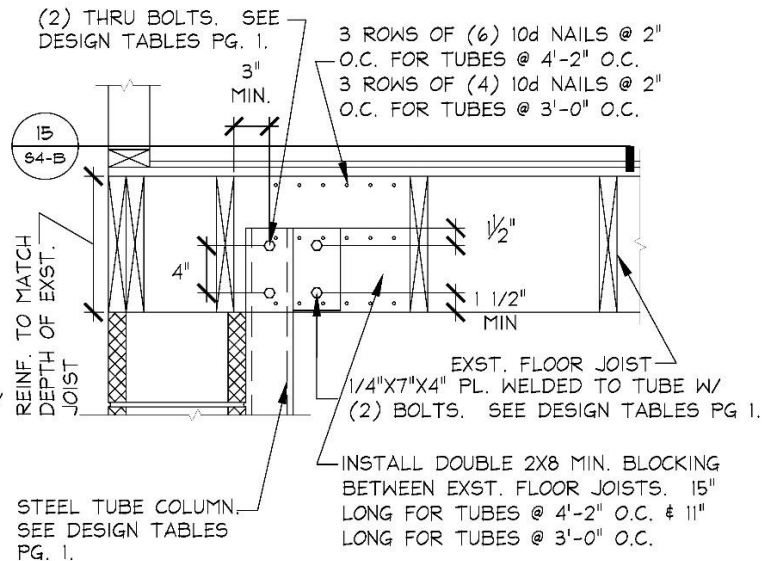
REVISION: 07/12/17



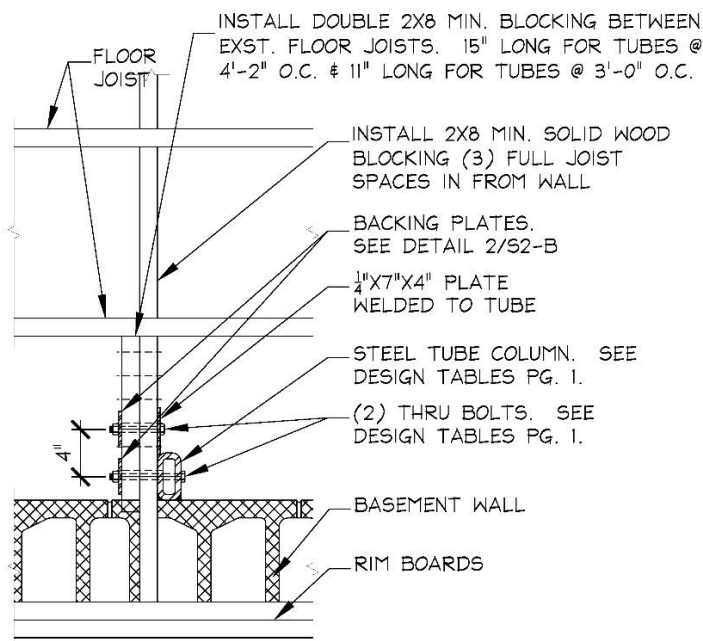
12 CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"



14 TOP CONNECTION DETAIL
3/4" = 1'-0"



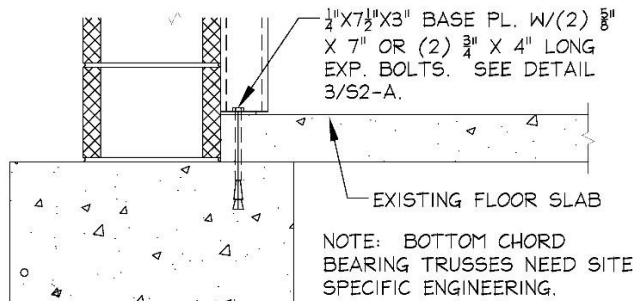
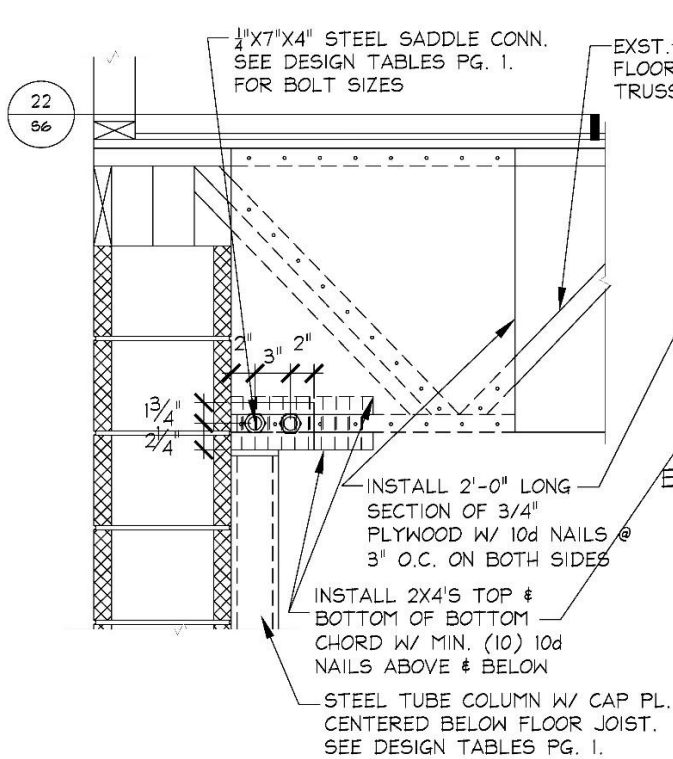
13 CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"



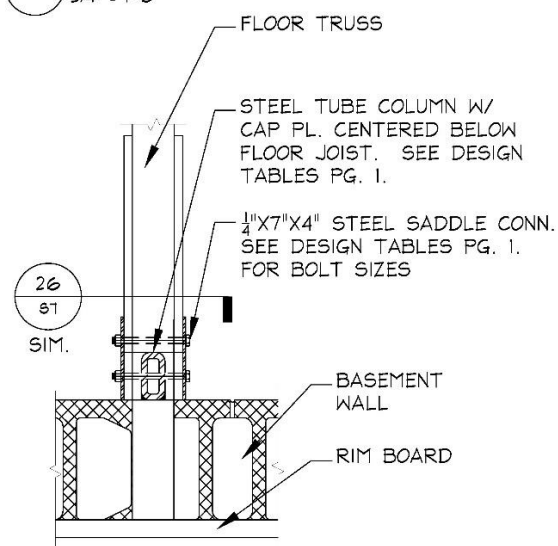
15 TOP CONNECTION DETAIL
3/4" = 1'-0"

TITLE: 4 Bolt Top Connection W/Double Wood Joist	
SHEET: S4-B, Appendix C	DRAWN: JFJ
DATE: 3/26/03	REVISION: 07/12/17

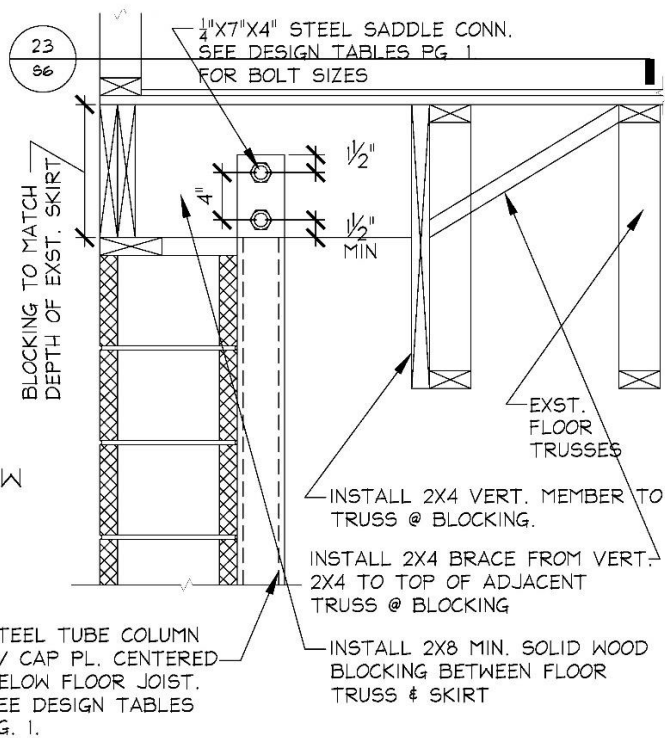




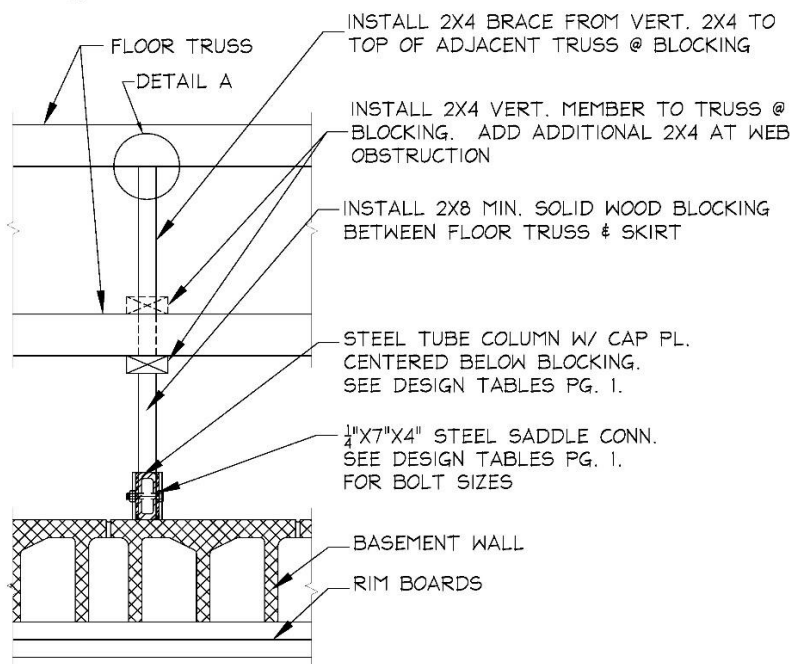
20 CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"



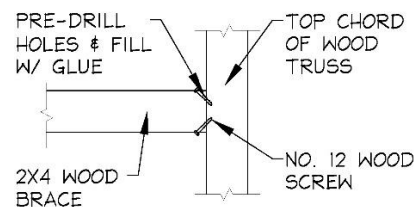
22 TOP CONNECTION DETAIL
3/4" = 1'-0"



21 CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"



23 TOP CONNECTION DETAIL
3/4" = 1'-0"



A TOP VIEW
1" = 1'-0"

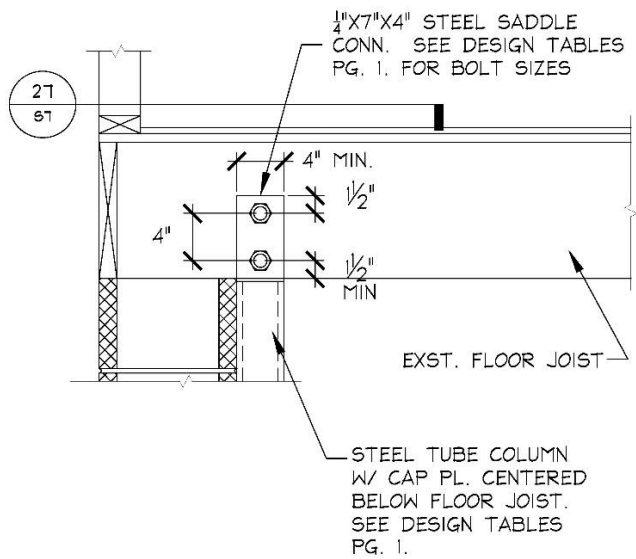
TITLE: Top Connection W/Floor Trusses

SHEET: S6, Appendix C

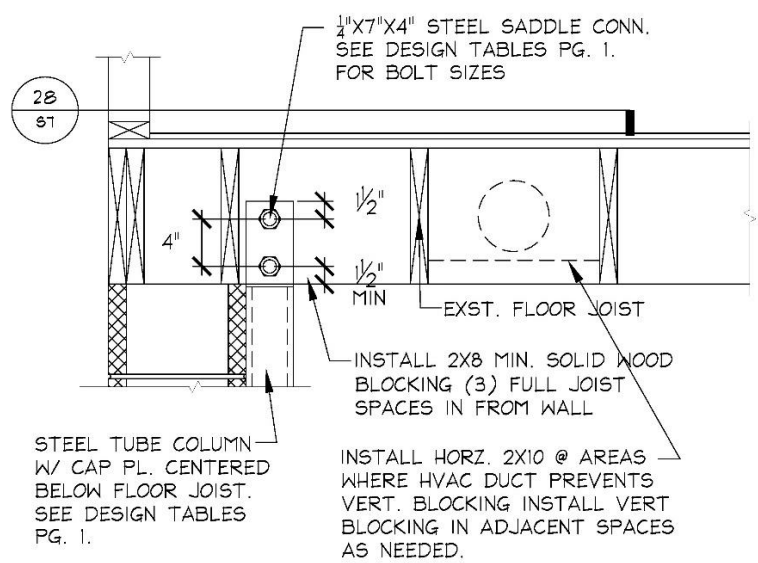
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DATE: 3/26/03

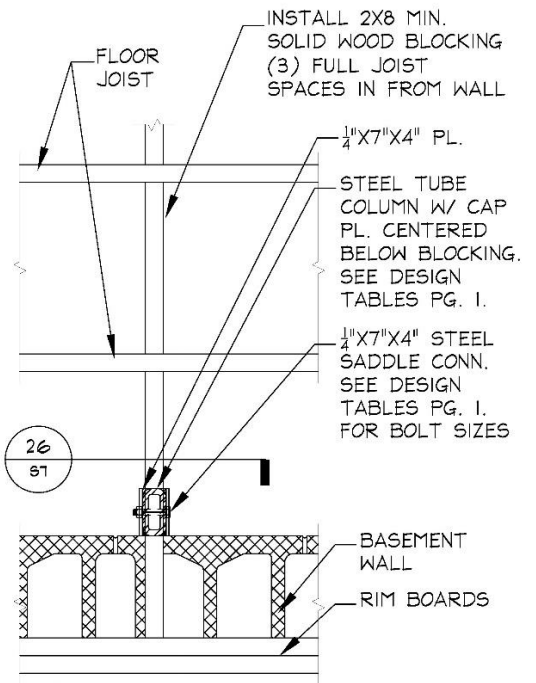
REVISION: 07/12/17



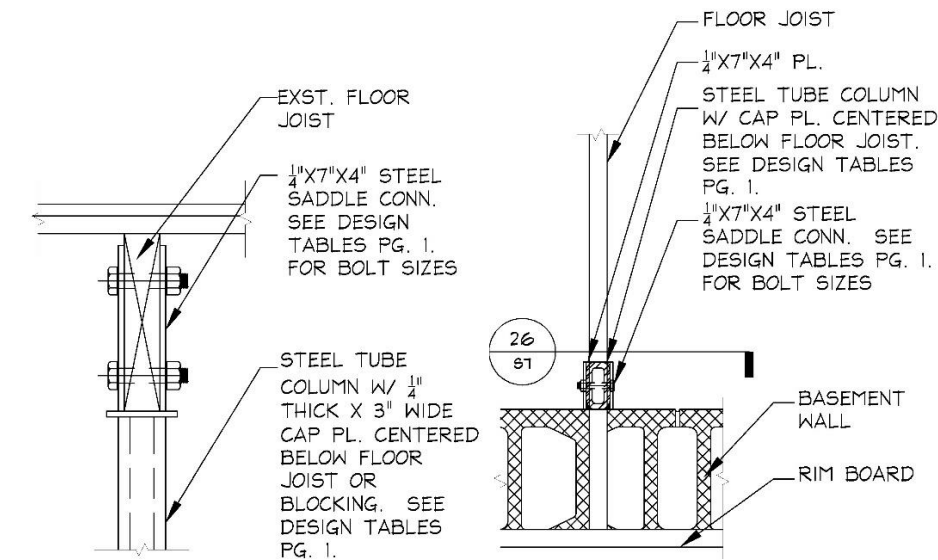
24 CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"



25 CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"



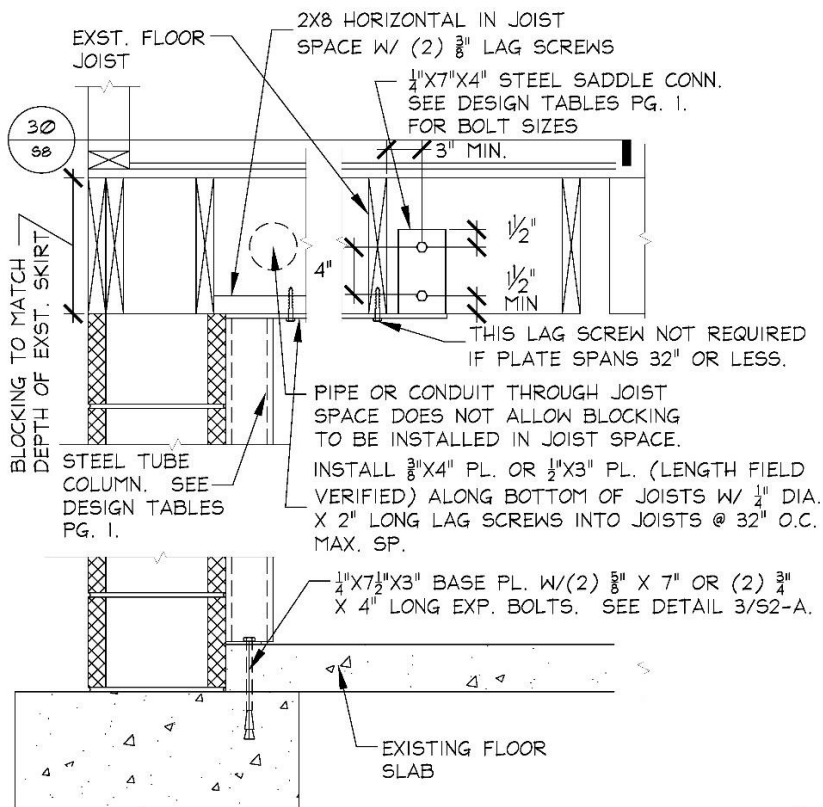
28 TOP CONNECTION DETAIL
3/4" = 1'-0"



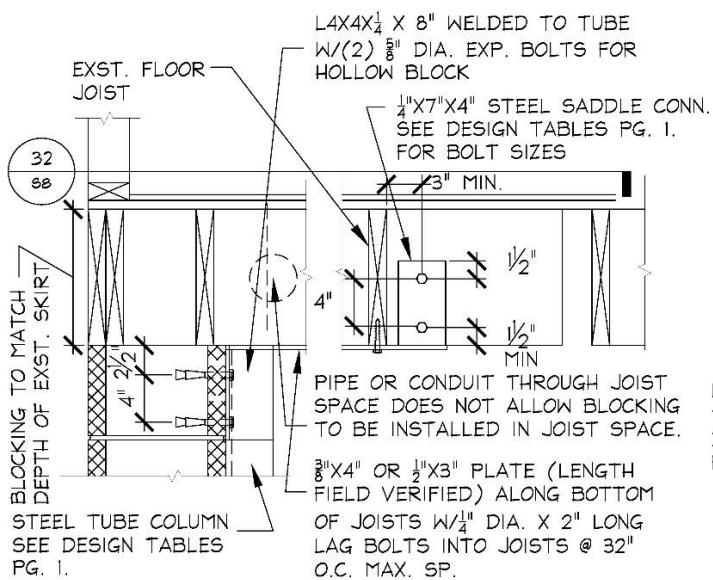
26 CONNECTION DETAIL SECTION
1 1/2" = 1'-0"

27 TOP CONNECTION DETAIL
3/4" = 1'-0"

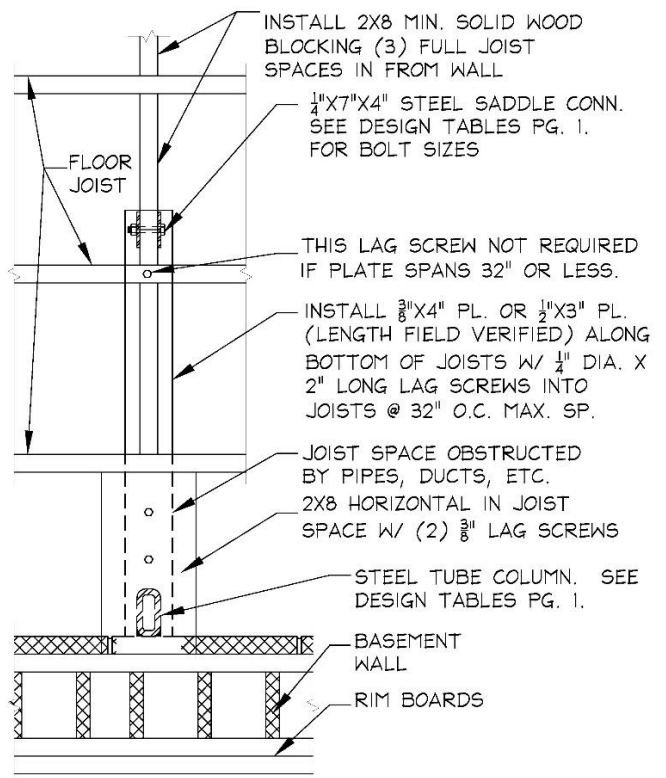
TITLE: Top Connection W/Saddle	
SHEET: S7, Appendix C	DRAWN: JFJ
DATE: 3/26/03	REVISION: 07/12/17



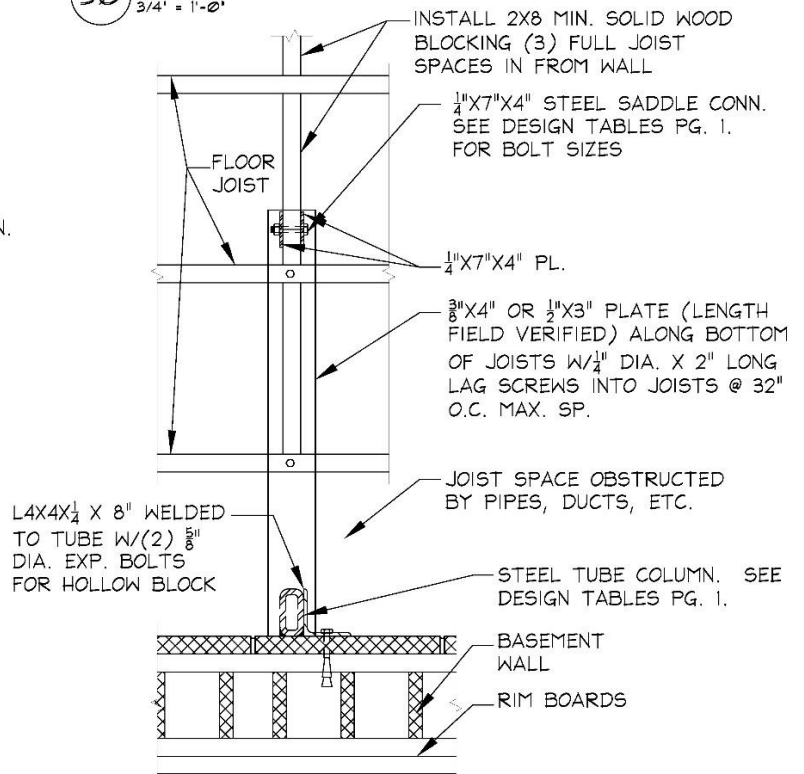
29 SADDLE OFFSET DETAIL 1 SIDE VIEW
3/4" = 1'-0"



31 SADDLE OFFSET DETAIL 2 SIDE VIEW
3/4" = 1'-0"

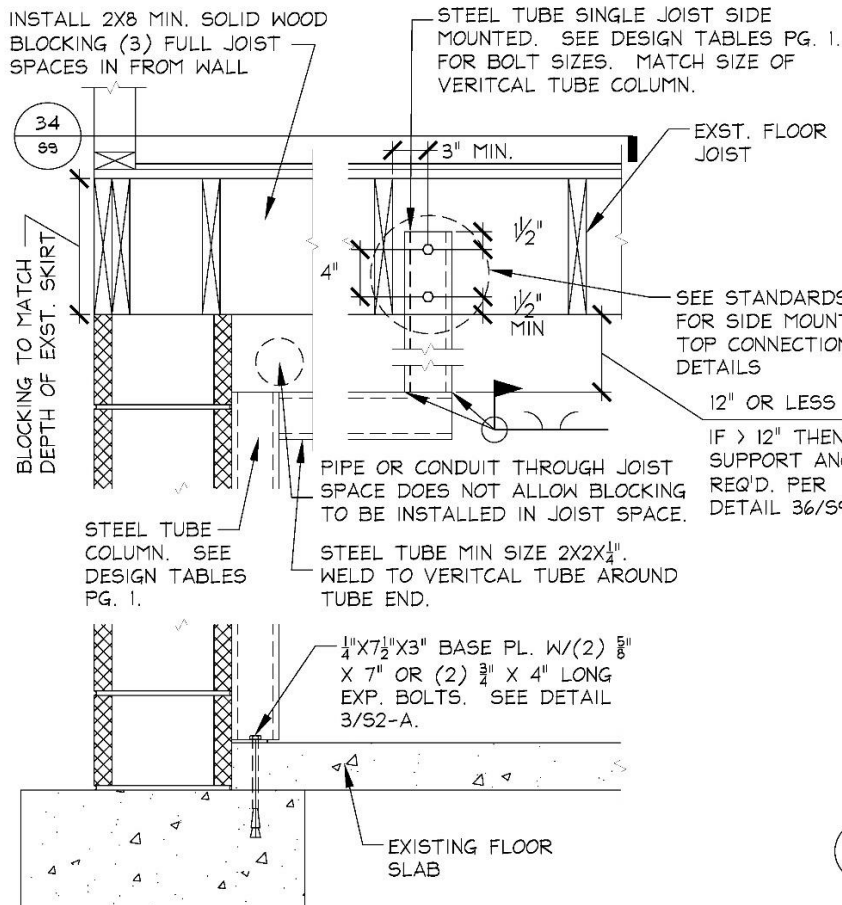


30 SADDLE OFFSET DETAIL 1 TOP VIEW
3/4" = 1'-0"

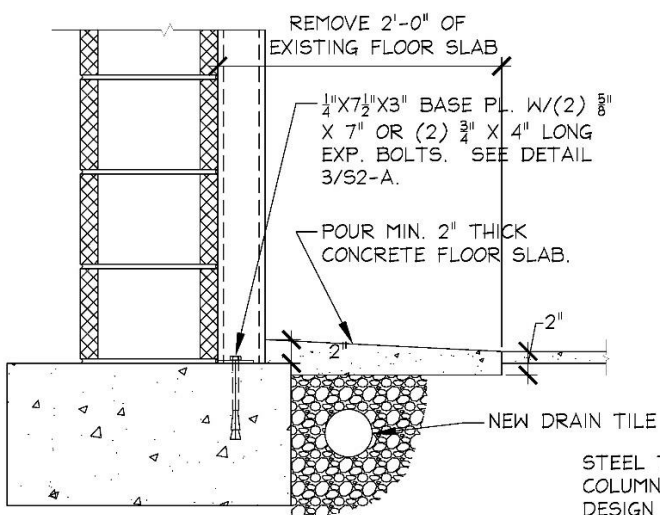


32 SADDLE OFFSET DETAIL 2 TOP VIEW
3/4" = 1'-0"

TITLE: Offset Top Connection Details	
SHEET: S8, Appendix C	DRAWN: JFJ
DATE: 3/26/03	REVISION: 07/12/17

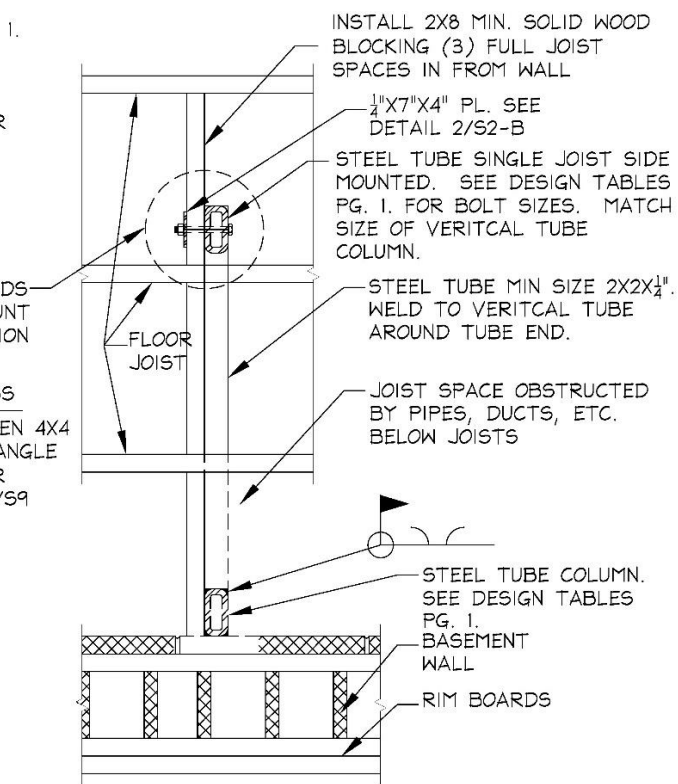


33 SIDE MOUNT OFFSET DETAIL 1 SIDE VIEW
3/4" = 1'-0"

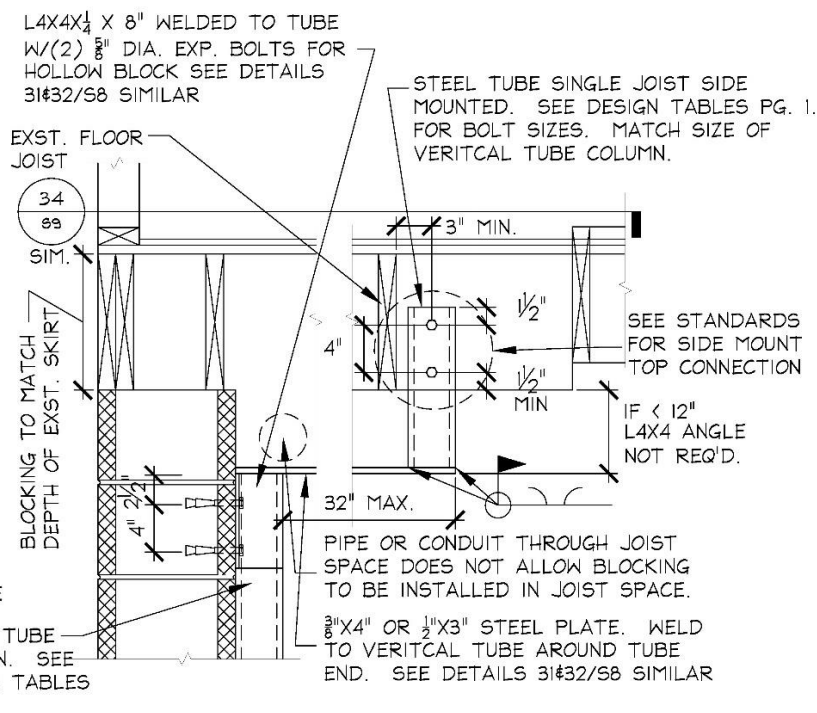


35 NEW DRAIN TILE @ THIN SLAB
3/4" = 1'-0"

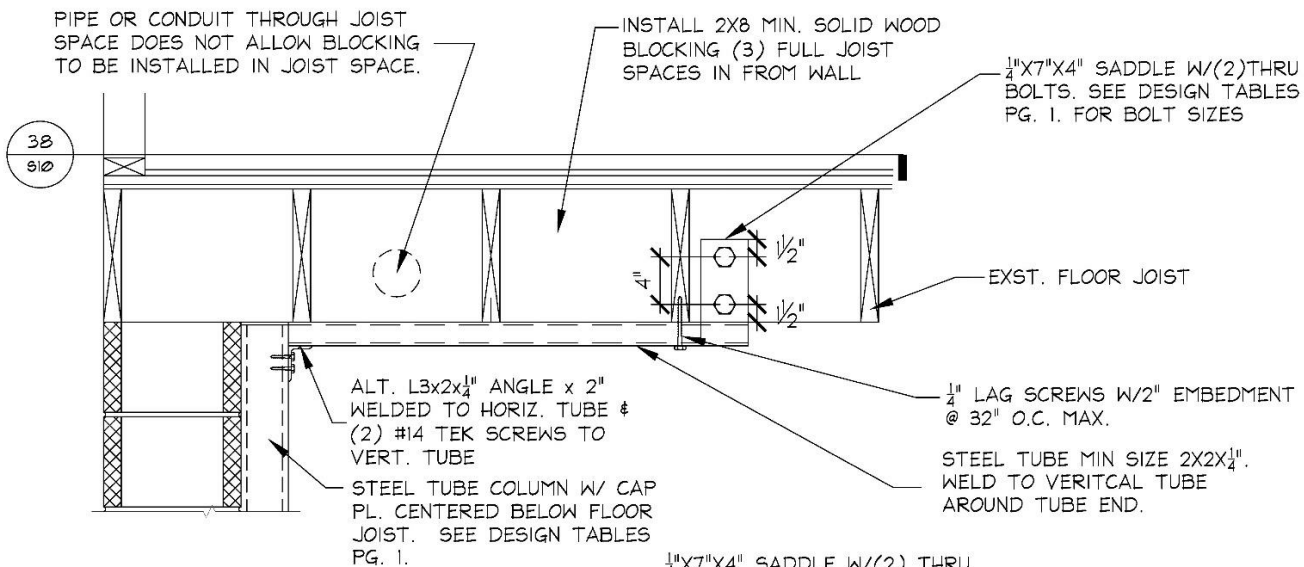
NOTE: INSTALL WALL DRAINAGE BD. AS REQ'D.



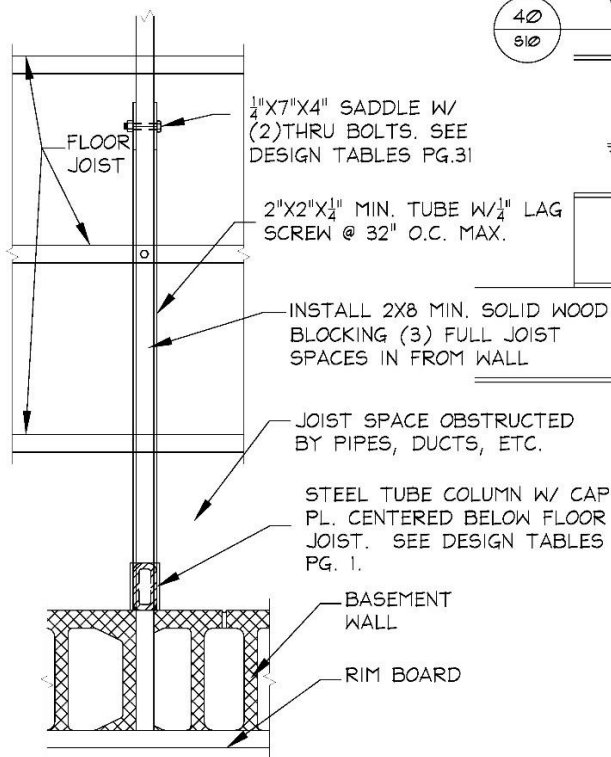
34 SIDE MOUNT OFFSET DETAIL 1 TOP VIEW
3/4" = 1'-0"



36 SIDE MOUNT OFFSET DETAIL 2 SIDE VIEW
3/4" = 1'-0"

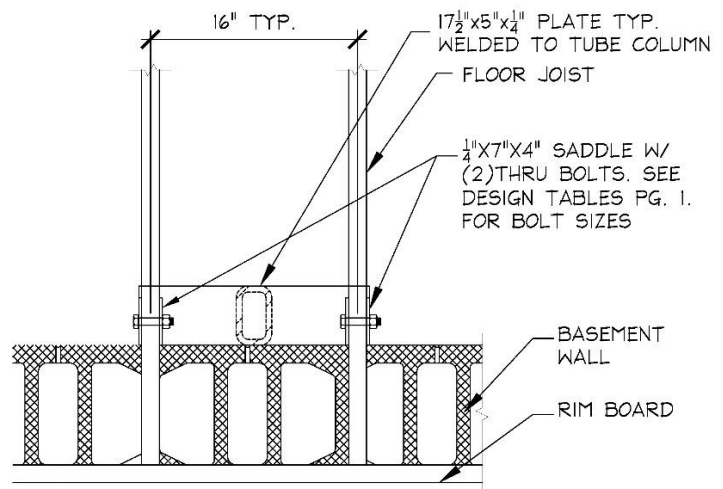


37 SADDLE OFFSET DETAIL 3 TOP VIEW
3/4" = 1'-0"



39 CONNECTION DETAIL SIDE VIEW
3/4" = 1'-0"

38 SADDLE OFFSET DETAIL 3 TOP VIEW
3/4" = 1'-0"



40 CONNECTION DETAIL TOP VIEW
3/4" = 1'-0"

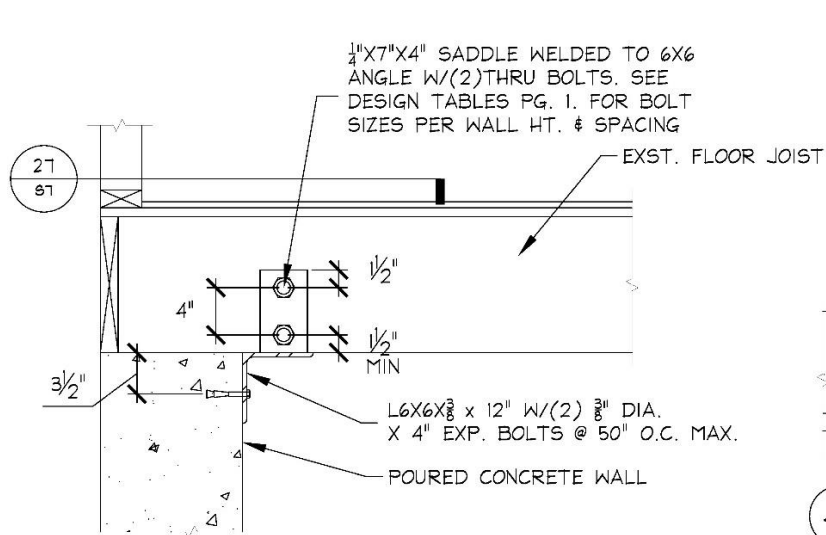
TITLE: Offset & Top Connection Details

SHEET: S10, Appendix C

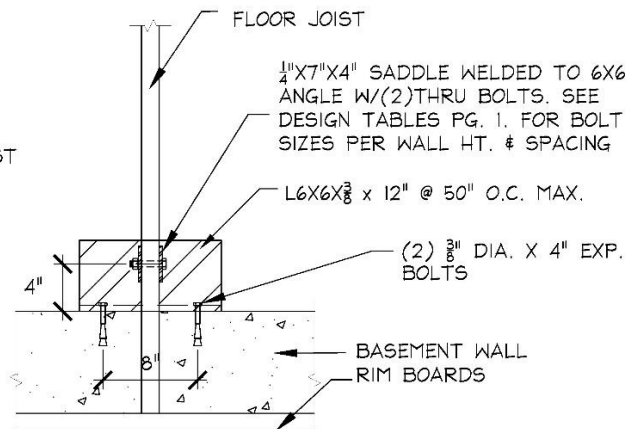
DRAWN: JFJ

DATE: 06/15/16

REVISION: 07/12/17

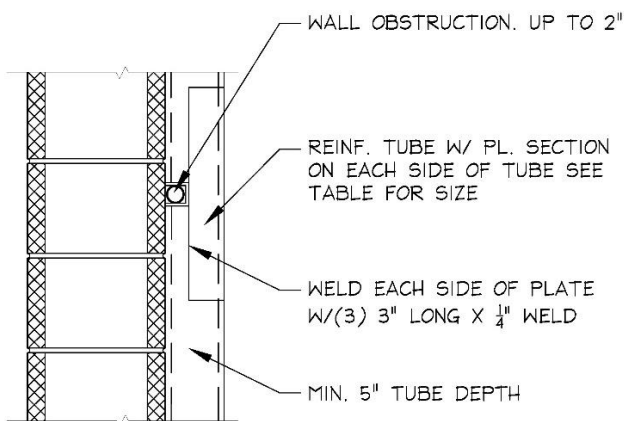


41 CONC. WALL DETAIL SIDE VIEW
3/4" = 1'-0"



42 CONC. WALL DETAIL TOP VIEW
3/4" = 1'-0"

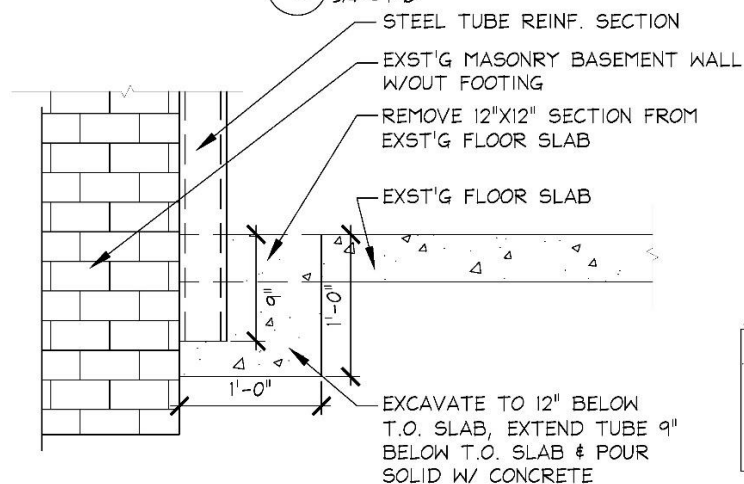
NOTE: FOR NON-BRG. WALL, FOLLOW SADDLE CONNECTION DETAILS 25 & 28/57 SIMILAR



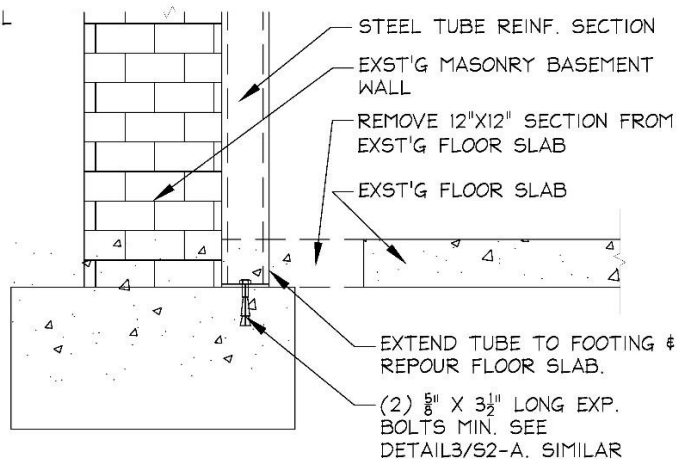
43 TUBE REINFORCEMENT AROUND OBSTRUCTIONS
3/4" = 1'-0"

STEEL TUBE REINFORCING AROUND OBSTRUCTIONS			
WALL HT.	WALL REINF. *	SPACING	REINFORCING PLATES
10 COURSES (6'-10")	HSS 5"x2"x3/16"	3'-0"	(2) PL 1/4"x3"x18"
	HSS 5"x2"x3/16"	4'-2"	(2) PL 7/16"x3"x18"
11 COURSES (7'-6")	HSS 5"x2"x3/16"	3'-0"	(2) PL 3/8"x3"x18"
	HSS 6"x2"x3/16"	4'-2"	(2) PL 1/4"x4"x18"
12 COURSES (8'-2")	HSS 5"x3"x1/4"	3'-0"	(2) PL 1/2"x3"x18"
	HSS 6"x3"x1/4"	4'-2"	(2) PL 5/8"x4"x18"

* 2X4 TUBES CAN BE USED IF NOTCH IS LESS THAN OR EQUAL TO 1"



44 WALL REINF. BOTTOM CONNECTION W/O FTG
3/4" = 1'-0"



45 WALL REINF. BOTTOM CONNECTION TO FTG
3/4" = 1'-0"

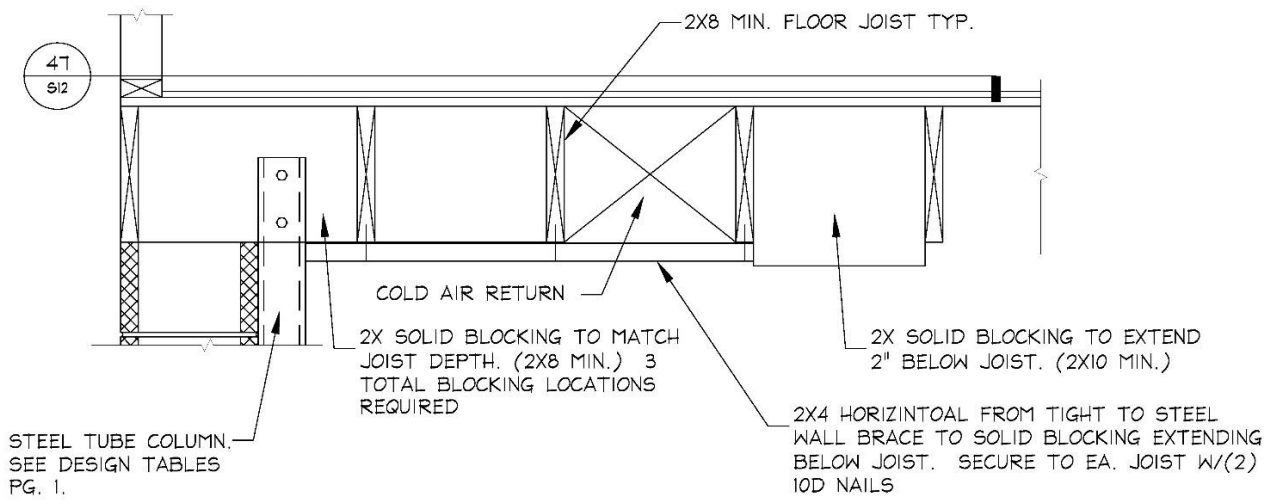
TITLE: Concrete Wall & Misc. Repair Details

SHEET: S11, Appendix C

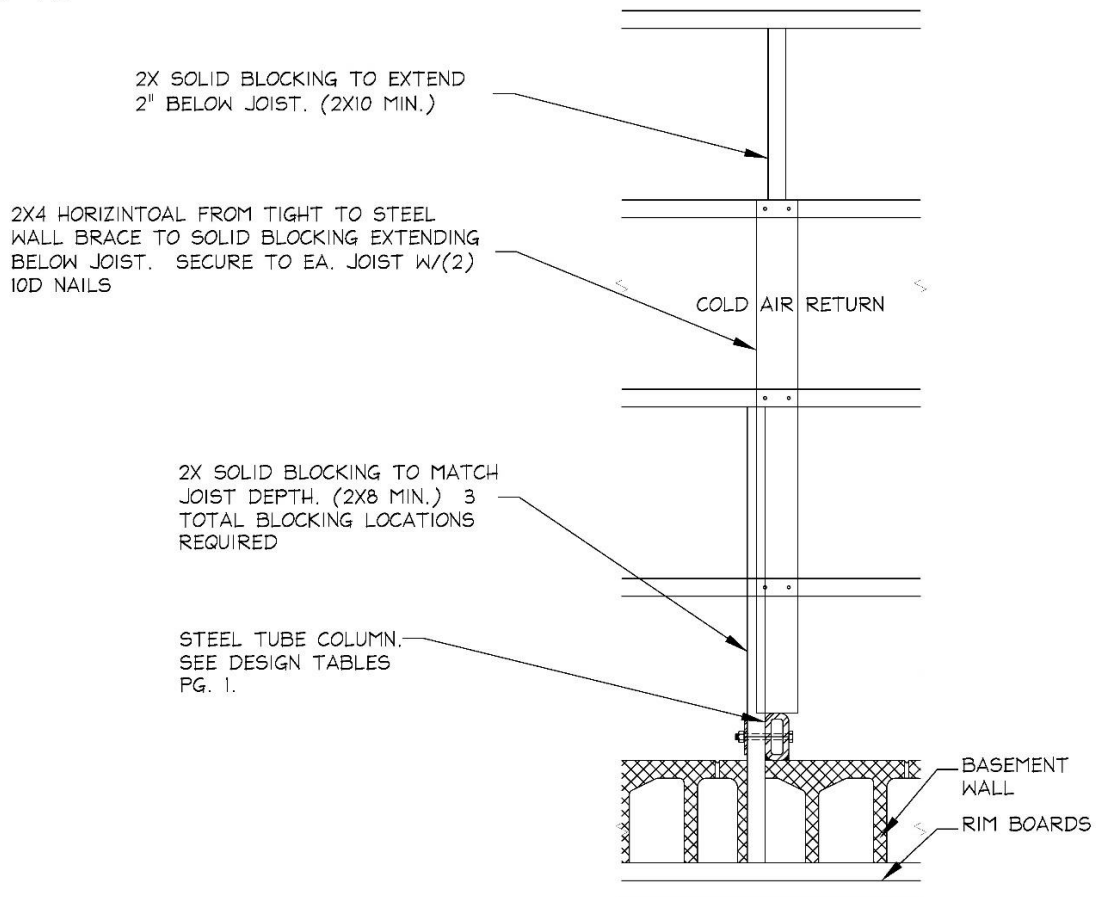
DRAWN: JFJ

DATE: 3/26/03

REVISION: 07/12/17



46 WOOD BLOCKING DETAIL SIDE VIEW
3/4" = 1'-0"



47 WOOD BLOCKING DETAIL TOP VIEW
3/4" = 1'-0"

TITLE: Blocking Detail With Obstruction

SHEET: S12, Appendix C

DRAWN: JFJ

DATE: 06/15/10

REVISION: 07/12/17

CHAPTER VII. -- ALTERATIONS and REMODELING FOR PRE-1980 ONE and TWO-FAMILY DWELLINGS

30.55 ALTERATIONS and REMODELING FOR PRE-1980 ONE and TWO-FAMILY DWELLINGS

I. Purpose

The purpose of this chapter is to provide uniform minimum construction regulations for alterations and remodeling of existing one and two-family dwellings built prior to June 1, 1980.

II. Scope

- A. This chapter shall apply to all existing one and two-family dwellings constructed prior to June 1, 1980 for building code regulations and December 1, 1978 for energy code regulations.
- B. The provisions of this chapter are not retroactive.
- C. The Uniform Dwelling Code, SPS 320-325 is incorporated by reference and shall apply to all construction except as modified by this chapter.
- D. These provisions shall not apply to any building repair as defined herein.
- E. Energy calculations are not required for new additions to one and two-family dwellings constructed prior to December 1, 1978. Upon request by the Building Inspector, a recognized heating professional shall provide a written statement that the heating system is capable of maintaining the indoor design temperature during outdoor design conditions per SPS 322.40.

III. Definitions

- A. **Building, addition:** New construction performed on a dwelling, which increases the outside dimensions of the dwelling.
- B. **Building, alteration/remodel:** An enhancement, upgrade, substantial change or modification other than an addition, a repair or modifications to electrical, plumbing, heating, ventilating, air conditioning and other systems within a dwelling.
- C. **Building, existing:** Any structure that is already constructed or one for which a legal permit has been issued prior to the adoption of this code.
- D. **Building, new:** Any construction that results in the creation of a structure for the support, shelter or enclosure of persons, animals, chattel or movable property of any kind.
- E. **Building, repair:** The act or process of restoring to original soundness, including redecorating, refinishing, nonstructural repairs or maintenance, or the replacement of existing fixtures, systems or equipment with the equivalent fixture, system or equipment.
- F. **Building, structural repair:** The reconstruction or replacement of any load bearing component that has been damaged, deteriorated or is failing.
- G. **Ceiling height:** The clear vertical distance from the finished floor to the finished ceiling. Any part of any room where the ceiling height is less than five (5) feet, shall not be considered in computing the total floor area of the room for the purpose of determining the habitable occupancy thereof.

IV. Permit Application

- A. Any person desiring a building permit as required by this chapter shall file with the Building Inspector an application therefore in writing on a permit form to be furnished for that purpose.
- B. Application shall show the use or occupancy of all parts of the building.
- C. Application for a permit shall be accompanied by three (3) complete sets of plans and/or specifications. The plans shall consist of the following where applicable:
 - 1. Floor plans: showing general layout and egress path for the remodeled area(s), the square footage, size and span of existing attic floor joists, location of lower floor bearing walls, area(s) that will have the ceiling raised (dormers), wall locations, window location including size of headers, door sizes and locations, location of smoke and carbon monoxide detectors, stairways, heating system or devices, and any related architectural features.
 - 2. Elevations: showing the sizes, location and configuration of doors, windows and skylights; exterior wall covering material; roof design and exterior material; any architectural features relating to the dwelling's existing architectural style.
 - 3. Cross-section: showing all construction details, framing, insulation, materials, interior finishes, ceiling heights and structural features.
- D. The application, plans and specifications filed by an applicant for a permit shall be reviewed by the Building Inspector, and if found to be in conformity with the requirements of this chapter and all other laws or ordinances applicable thereto, the Building Inspector shall, upon receipt of the required fees issue a permit therefore.
- E. When the Building Inspector issues the permit, all sets of plans and specifications shall be stamped "conditionally approved." One such approved set of plans and specifications shall be retained by the Building Inspector as a public record, and one such approved set of plans and specifications shall be returned to the applicant. One approved set shall be kept on such building or work site at all times during which the work authorized thereby is in progress and shall be open to inspection by public officials. Such approved plans and specifications shall not be changed, modified or altered without permission from the Building Inspector.
- F. The contractor shall submit a copy of their valid Dwelling Contractor Financial Responsibility credential prior to permit issuance.

V. Fees

- A. Before issuance of a permit, the owner or their agent shall pay to the municipal treasury a permit fee. These fees shall be as established by the municipality.
- B. Double fees: Upon failure to obtain a permit before work on a building has been started, except in emergency cases, the total fees shall be double the fees charged.
- C. Reinspection fee: Where additional inspections are made necessary by reason of neglect in work found faulty, defective or incomplete at the time of inspection, or at the expiration of time permitted in an order of noncompliance, a reinspection fee may be charged.

VI. Inspections

- A. Rough inspection: to be made after the roof, all framing, fire-blocking and bracing is in place and all chimneys and vents are complete. No drywall or any insulation between the studs shall be applied to any building until the rough inspection, electrical inspection, plumbing and heating inspections have been made and the work approved.
- B. Insulation inspection: to be made after all insulation has been installed, with vapor barrier in place and before any of the walls and ceilings are covered.
- C. Final inspection: upon the completion of any building, structure, or construction for which a permit was issued and before the same is occupied or used, a final inspection shall be made by the Building Inspector, and until such building or structure is in compliance with all the requirements of this chapter and terms of the permit, no occupancy shall be permitted.
- D. Written approval: no work shall be done on any part of the building or structure beyond the point indicated in each successive inspection without first obtaining the written approval of the Building Inspector. Such written approval shall be given only after an inspection shall have been made for each successive step in the construction as indicated by each of the inspections.
- E. Inspection notice.
 - 1. The applicant or authorized representative shall request inspections from the municipality or the registered UDC inspection agency enforcing this code.
 - 2. Except as provided under subd. 3., construction may not proceed beyond the point of inspection, as described under par. F., 1. to 3. until the inspection has been completed.
 - 3. Construction may proceed if the inspection has not been completed within two (2) business days after notification is received or as otherwise agreed between the applicant and the municipality or registered UDC inspection agency.
- F. Inspection types. The following sequence of inspections shall be performed for the purpose of determining if the work complies with this code:
 - 1. Footing and foundation inspection. The excavation shall be inspected after the placement of forms, shoring and reinforcement, where required, and prior to the placement of footing materials. Where below-grade drain tiles, waterproofing or exterior insulation is required, the foundation shall be inspected prior to backfilling.
 - 2. Rough inspection. A rough inspection shall be performed for each inspection category listed in subd. 2. a. through e. after the rough work is constructed but before it is concealed. All categories of work for rough inspections may be completed before the notice for inspection is provided. The applicant may request one rough inspection or individual rough inspections. A separate fee may be charged for each individual inspection.
 - a. General construction, including framing.
 - b. Rough electrical.
 - c. Rough plumbing.
 - d. Rough heating, ventilating and air conditioning.
 - e. Basement drain tiles.

3. Insulation inspection. An inspection shall be made of the insulation and vapor retarder after they are installed but before they are concealed.
4. Final inspection.

VII. Construction Requirements

A. Basement Conversion to Habitable Space.

1. Existing stairways shall conform to the following: (Note: A new, relocated or reconfigured stairway shall conform to the requirements of Section SPS 321.04.)
 - a. Riser height shall be eight and one quarter (8- $\frac{1}{4}$) inch maximum.
 - b. Tread depth shall be eight and one half (8- $\frac{1}{2}$) inch minimum.
 - c. Headroom shall be seventy-two (72) inches minimum.
 - d. Stair width shall be thirty-four (34) inches minimum.
 - e. Handrails and guardrails shall be installed in accordance with Section SPS 321.04(3). Exception: Existing handrails and guardrails do not require modifications unless the stairway is new, relocated or reconfigured. In such conditions, the handrails and guardrails shall conform to the requirements of Section SPS 321.04.)
 - f. Stairway landings shall have minimum dimensions of thirty-four (34) inches by thirty-four (34) inches.
2. Light and ventilation: All habitable rooms shall be provided with natural light and ventilation in accordance with SPS 321.05. Balanced mechanical ventilation may be used in lieu of natural ventilation.
3. Ceiling height: All habitable rooms shall have a minimum ceiling height of six (6) feet eight (8) inches for a minimum of fifty percent (50%) of the floor area. Beams and ducts may not encroach more than eight (8) inches into ceiling area below the minimum ceiling height.
4. Smoke and carbon monoxide detectors: Smoke and carbon monoxide detectors shall be installed in the remodeled areas in accordance with SPS 321.09 and 321.097. In addition to being wired to house current and interconnected, each smoke detector installed in the remodeled areas shall have a battery back-up power.
5. Basement bedrooms shall be constructed as follows:
 - a. Doors shall be a minimum of thirty-two (32) inches in width unless at least fifty percent (50%) of the bedroom doors in the dwelling are a minimum of thirty-two (32) inches or have a minimum net clear opening width of thirty (30) inches.
 - b. Light and ventilation: All habitable rooms shall be provided with natural light and ventilation in accordance with SPS 321.05. Balanced mechanical ventilation may be used in lieu of natural ventilation.

- c. Exits: Either an egress window within each bedroom or two (2) exits from the basement level common area shall be provided. An egress window and areaway shall be designed in accordance with SPS 321.03(6).
- d. Smoke and carbon monoxide detectors: Smoke and carbon monoxide detectors shall be installed in the remodeled areas in accordance with SPS 321.09 and 321.097. In addition to being wired to house current and interconnected, each smoke detector installed in the remodeled areas shall have a battery back-up power.

B. Partially Finished Attic Conversion to Habitable Space, Second Floor Levels

- 1. Design floor load: All new areas shall meet forty (40) pounds per square foot live load plus dead load. If fifty percent (50%) or more of the existing habitable space is altered or remodeled, the existing floor shall also meet the minimum design live load of forty (40) pounds per square foot.
- 2. Stairways: Existing width, rise, run, landings, handrails, guardrails and headroom do not require modifications unless the stairway is new, relocated, or reconfigured. (Note: In such conditions, the handrails and guardrails shall conform to the requirements of Section SPS 321.04.)
- 3. Light and ventilation: All habitable rooms shall be provided with natural light and ventilation in accordance with SPS 321.05. If 50% or more of the existing habitable space is altered or remodeled, the light and ventilation requirements shall also apply to the existing space. Balanced mechanical ventilation may be used in lieu of natural ventilation.
- 4. Ceiling height: All habitable rooms shall have a minimum ceiling height of six (6) feet eight (8) inches for a minimum of fifty percent (50%) of the floor area. If fifty percent (50%) or more of the existing habitable space is altered or remodeled, the ceiling height requirements shall also apply to the existing space.
- 5. Smoke and carbon monoxide detectors: Smoke and carbon monoxide detectors shall be installed in the remodeled areas in accordance with SPS 321.09 and 321.097. In addition to being wired to house current and interconnected, each smoke detector installed in the remodeled areas shall have battery back-up power.
- 6. Insulation and windows shall comply with the following requirements:
 - a. Walls shall have a minimum of R-13.
 - b. Sloped ceilings shall have a minimum of R-19.
 - c. Ceilings or attics shall have a minimum of R-30.
 - d. Windows shall be double glazed or better.
- 7. Bedrooms shall be constructed as follows:
 - a. Doors shall be a minimum of thirty-two (32) inches in width unless at least fifty percent (50%) of the bedroom doors in the dwelling are a minimum of thirty-two (32) inches or have a minimum net clear opening width of thirty (30) inches.
 - b. Light and ventilation: All habitable rooms shall be provided with natural light and ventilation in accordance with SPS 321.05. Balanced mechanical ventilation may be used in lieu of natural ventilation.

- c. Exits: Either an egress window within each bedroom or two (2) exits from the floor level common area shall be provided. An egress window shall be designed in accordance with SPS 321.03(6).
- d. Smoke and carbon monoxide detectors: Smoke and carbon monoxide detectors shall be installed in the remodeled areas in accordance with SPS 321.09 and 321.097. In addition to being wired to house current and interconnected, each smoke detector installed in the remodeled areas shall have battery back-up power.

C. Unfinished Attic Conversion to Habitable Space, Second Floor Levels

- 1. Design floor load: All new floor areas shall be designed in accordance with SPS 321.02 (forty (40) pounds per square foot live load plus dead load).
- 2. Existing stairways shall conform to the following: (Note: A new, relocated or reconfigured stairway shall conform to the requirements of Section SPS 321.04.)
 - a. Riser height shall be eight and one-quarter (8-¼) inch maximum.
 - b. Tread depth shall be eight and one-half (8-½) inch minimum.
 - c. Headroom shall be seventy-two (72) inches minimum.
 - d. Stair width shall be thirty-four (34) inches minimum.
 - e. Handrails and guardrails shall be installed in accordance with SPS 321.04(3).
 - f. Stairway landings shall have minimum dimensions of thirty-four (34) inches by thirty-four (34) inches.
- 3. Light and ventilation: All habitable rooms shall be provided with natural light and ventilation in accordance with SPS 321.05. Balanced mechanical ventilation may be used in lieu of natural ventilation.
- 4. Ceiling height: All habitable rooms shall be provided with a ceiling height in accordance with SPS 321.06.
- 5. Smoke and carbon monoxide detectors: Smoke and carbon monoxide detectors shall be installed in the remodeled areas in accordance with SPS 321.09 and 321.097. In addition to being wired to house current and interconnected, each smoke detector installed in the remodeled areas shall have battery back-up power.
- 6. Insulation and windows shall comply with the following requirements:
 - a. Walls shall have a minimum of R-13.
 - b. Sloped ceilings shall have a minimum of R-19.
 - c. Ceilings or attics shall have a minimum of R-30.
 - d. Windows shall be double glazed or better.
- 7. Bedrooms shall be constructed as follows:

- a. Doors shall be a minimum of thirty-two (32) inches in width unless at least fifty percent (50%) of the bedroom doors in the dwelling are a minimum of thirty-two (32) inches or have a minimum net clear opening width of thirty (30) inches.
- b. Light and ventilation: All habitable rooms shall be provided with natural light and ventilation in accordance with SPS 321.05. Balanced mechanical ventilation may be used in lieu of natural ventilation.
- c. Exits: Either an egress window within each bedroom or two (2) exits from the floor level common area shall be provided. An egress window shall be designed in accordance with SPS 321.03(6).
- d. Smoke and carbon monoxide detectors: Smoke and carbon monoxide detectors shall be installed in the remodeled areas in accordance with SPS 321.09 and 321.097. In addition to being wired to house current and interconnected, each smoke detector installed in the remodeled areas shall have battery back-up power.

D. Unfinished Attic Conversion to Habitable Space, Third Floor Levels

- 1. Design floor load: All new floor areas shall be designed in accordance with SPS 321.02 (forty (40) pounds per square foot plus dead load).
- 2. Exits: Two (2) interior stairways, spaced apart one-third ($1/3$) of the longest diagonal dimension of the floor in plan view or twenty (20) feet from the third floor level to the second floor level are required.
- 3. Lofts shall comply with SPS 321.03(4).
- 4. Existing Stairways shall conform to the following: (Note: A new, relocated or reconfigured stairways shall conform to the requirements of Section SPS 321.04.)
 - a. Riser height shall be eight and one quarter ($8\frac{1}{4}$) inch maximum.
 - b. Tread depth shall be eight and one half ($8\frac{1}{2}$) inch minimum.
 - c. Headroom shall be seventy-two (72) inches minimum.
 - d. Stair width shall be thirty-four (34) inches minimum.
 - e. Handrails and guardrails shall be installed in accordance with SPS 321.04(3).
 - f. Stairway landings shall have minimum dimensions of thirty-four (34) inches by thirty-four (34) inches.
- 5. Light and ventilation: All habitable rooms shall be provided with natural light and ventilation in accordance with SPS 321.05. Balanced mechanical ventilation may be used in lieu of natural ventilation.
- 6. Ceiling height: Ceiling height in all habitable rooms shall be provided in accordance with SPS 321.06.
- 7. Smoke and carbon monoxide detectors: Smoke and carbon monoxide detectors shall be installed in the remodeled areas in accordance with SPS 321.09 and 321.097. In addition to being wired to

house current and interconnected, each smoke detector installed in the remodeled areas shall have battery back-up power.

8. Insulation and windows shall comply with the following requirements:

- a. Walls shall have a minimum of R-13.
- b. Sloped ceilings shall have a minimum of R-19.
- c. Ceilings or attics shall have a minimum of R-30.
- d. Windows shall be double glazed or better.

9. Bedrooms shall be designed as follows:

- a. Doors shall be a minimum of thirty-two (32) inches in width unless at least fifty percent (50%) of the bedroom doors in the dwelling are a minimum of thirty-two (32) inches or have a minimum net clear opening width of thirty (30) inches.
- b. Light and ventilation: All habitable rooms shall be provided with natural light and ventilation in accordance with SPS 321.05. Balanced mechanical ventilation may be used in lieu of natural ventilation.
- c. Exits: Two (2) exits from the third floor level are required.
- d. Smoke and carbon monoxide detectors: Smoke and carbon monoxide detectors shall be installed in the remodeled areas in accordance with SPS 321.09 and 321.097. In addition to being wired to house current and interconnected, each smoke detector installed in the remodeled areas shall have battery back-up power.

VIII. Remodeled Bathrooms

- A. Newly constructed bathrooms shall be provided with a minimum thirty-two (32) inch wide bathroom entrance door. Note: Only one (1) thirty-two (32) inch bathroom door per dwelling unit is required provided it serves a full bathroom.

IX. Fuel Fired Appliances

- A. All fuel fired equipment shall be provided with combustion and ventilation air in accordance with SPS 323.06.

CHAPTER VIII. -- MISCELLANEOUS and VIOLATIONS

SECTION 30.60 -- NEW MATERIALS and METHODS

ALTERNATE MATERIALS --No provision in THIS CODE is intended to prohibit or prevent the use of any alternate material or method of construction not specifically mentioned in THIS CODE. Approval of alternate materials or methods of construction shall be obtained from the municipality having jurisdiction. Requests for approval shall be accompanied by evidence showing that the alternate material or method of construction performs in a manner equal to the material or method required by THE CODE. The municipality having jurisdiction may require any claims made regarding the equivalent performance of alternate materials or method to be substantiated by test.

SECTION 30.61 -- TESTS

The municipality having jurisdiction may require that the materials, methods, systems, components or equipment be tested to determine the suitability for the intended use. The municipality having jurisdiction will accept results conducted by a recognized independent testing agency. The cost of testing shall be borne by the person requesting the approval.

- (1.) The test method used to determine the performance shall be one that is a nationally recognized standard.
- (2.) If no nationally recognized standard exists, past performance or recognized engineering analysis may be used to determine suitability.
- (3.) Ungraded or used building materials may be used or reused as long as the material possesses the essential properties necessary to achieve the level of performance required by THE CODE for the intended use. The municipality enforcing THIS CODE may require tests in accordance with this Section.

SECTION 30.62 -- IDENTIFICATION OF PRODUCTS

All materials shall be identified by the approved label, the grade mark, the trade mark or by other approved manufacturer's identification.

SECTION 30.63 -- INVALIDITY OF PART

If any section, subsection, paragraph, clause or provision of THIS CODE shall be adjudged invalid, such adjudication shall apply only to the provisions so adjudged and the rest of THIS CODE shall remain valid and effective.

SECTION 30.64 -- VIOLATIONS

It shall be unlawful for any person to erect, use, occupy or maintain any building or structure in violation of any provisions of THIS CODE, or to cause, permit or suffer any such violations to be committed. Any person violating any of the provisions of THIS CODE shall be subject to the penalty provisions as set forth in the Municipal Code. It shall be the responsibility of the offender to abate the violation as expeditiously as possible and each day that such violation is permitted to continue shall constitute a separate offense. If, in any action, a permit was

issued, it shall not constitute a defense nor shall any error, oversight or dereliction of duty on the part of the Building Inspector constitute a defense.

SECTION 30.65 -- FAILURE TO OBTAIN PERMIT

It shall be unlawful to commence work prior to obtaining a permit therefore. Double fees shall be charged if work is commenced prior to the issuance of a permit.

**WISCONSIN UNIFORM BUILDING CODE
SCHEDULE OF PERMIT FEES FOR 2018**

Adopted 1/10/18

A.	Minimum permit fee for all permits	\$50.00
B.	Residence - One and Two family and Attached garages Service Fee for Time Extension	\$0.35/sq. ft. 1/24 of original fee
C.	Residences and Apartments, Three Family and over, Row Housing, Multiple Family Dwellings, Institutional	\$0.35/sq. ft.
D.	Residences – Additions	\$0.35/sq. ft. or fraction thereof
E.	Local Business, Office Buildings or Additions thereto	\$0.33/sq. ft. or fraction thereof
F.	Manufacturing or Industrial (Office Areas to be included under E)	\$0.28/sq. ft. or fraction thereof
G.	Permit to start construction of footings and foundations	\$265.00 Multi-Family, Industrial and Commercial \$200.00 One and Two Families
H.	Agriculture Buildings, Detached Garages and Accessory Buildings over one hundred twenty (120) square feet	\$0.28/sq. ft. or fraction thereof
I.	All other buildings, structures, alterations and repairs where square footage cannot be calculated	\$11.75/\$1,000.00 valuation
J. **	Heating, Incinerator Units, Wood Burning Appliances, Energy Recovery Ventilators, Heat Pumps, and Split HVAC units	\$50.00/unit, up to and including 150,000 input BTU Units. Additional fee of \$17.00 /each 50,000 BTU or fraction thereof. \$800.00 maximum/unit
K.	Commercial/Industrial Exhaust Hoods and Exhaust Systems	\$170.00/unit
L.	Heating and Air Conditioning Distribution Systems	\$1.90/100 sq. ft. of conditioned area with a \$50.00 minimum

M. **	Air Conditioning, Heat Pumps, and Split HVAC units		\$50.00/unit up to 3 tons or 36,000 BTU's. Additional fee of \$17.00 each ton or 12,000 BTU's or fraction thereof. \$800.00 maximum/unit
N.	Wrecking, Razing and Interior Demolition Fees may be waived at the discretion of the Building Inspector		\$80.00 minimum plus \$0.10/sq. ft. with \$800.00 maximum fee per building
O.	Moving buildings over public ways		\$215.00 plus \$0.10/sq. ft.
P.	Re-inspection		\$50.00/inspection
Q.	Plan Examination:		
	1.	One and Two Family Residence	\$235.00
	2.	Apartment, Three Family Residence, Row Housing, Multiple Family Buildings	\$285.00 plus \$25.00/unit
	3	Commercial/Industrial New	\$285.00
		Commercial/Industrial Alterations and Additions	\$285.00
	4.	Additions to One and Two Family Dwellings	\$80.00
	5.	Alterations to One and Two Family Dwellings	\$50.00
	6.	Accessory Buildings, greater than 120 sq. ft.	\$60.00
	7.	Decks, Swimming Pools	\$50.00
	8.	Heating plans, lighting and energy calculations to heating plans submitted separately	\$60.00 each
	9.	Priority Plan Review - At the discretion of the Building inspector and depending upon workload of the Department, two (2) business day priority plan review may be provided at double the regular rate for plan review fees. Certified municipalities may also charge double the regular State plan review fees in addition to those listed above. Priority plan review shall not apply to submittals requiring review and/or approval by other governing agencies of the municipality.	
	10.	Resubmission of previously approved plans	\$50.00
R.	Special Inspections, other than normal working hours, and Reports		\$165.00
S.	Wisconsin Uniform Building Permit Seal		\$60.00

	NOTE 1	Permits may be obtained individually or on one form in the categories of construction, heating, ventilation and air conditioning, electrical and plumbing.	
	NOTE 2	An additional fee for plan review may be assessed at the time of application for renewal of the permit.	
T.	Occupancy Permits:	Residential and multi-family	\$50.00/unit, addition, alteration or accessory building over 120 sq. ft.
		Commercial/Industrial New, Alterations and Additions	\$205.00
		Temporary Occupancy Permits, Six (6) months or less	\$80.00
U.	Pools - In Ground/Above Ground/Spas		\$11.75/\$1,000.00 valuation \$50.00 minimum
V.	Accessory Structures		
	1.	Decks; less than one hundred (100) square feet	\$75
	2.	Decks; One hundred (100) square feet or more	\$150
	3.	Sheds one hundred twenty (120) square feet or less and Commercial Tents four hundred (400) square feet or more and fifty (50) or more occupants	\$50
W.	Erosion Control Fees:		
	1.	One and Two Family Lots	\$165.00/Lot
	2.	Multi-Family Units	\$195.00/Bldg. plus \$5/1,000.00 sq. ft. of disturbed lot area with a \$2,120.00 maximum
	3.	Commercial Lots	\$195.00/Bldg. plus \$5/1,000.00 sq. ft. of disturbed lot area with a \$2,120 maximum
	4.	Industrial Lots	\$195.00/Bldg. plus \$5/1,000.00

			sq. ft. of disturbed lot area with a \$2,120.00 maximum
	5.	Institutional Lots	\$195.00/Bldg. plus \$5/1,000.00 sq. ft. of disturbed lot area with a \$2,120.00 maximum
	6.	Other	\$50.00 minimum
X.	Reroofing, residing and trim:		
	1.	Residential	\$50.00
	2.	Commercial	\$11.75/\$1,000.00 valuation with a \$265.00 maximum/building
Y.	Other fees charged to the Municipality from other government entities for reviewing plans or permits. Fees charged are required to be paid at the time of application.		
Z.	Failure to obtain permit before work commences		Double fees - 1st offense Triple fees – Subsequent Offenses

The recommended approval of amendments, code changes, products, systems or quality control agencies by the Code Committees and the Wisconsin Uniform Code Associations does not constitute an approval or acceptance by any local community. Such acceptance is a function of local government administered by the designated local officials without the necessity of submitting further data because it is supported by factual reports describing the nature and use of the product or system and its performance under designated standard tests by recognized testing agencies.