



Naperville

City of Naperville Department of Public Utilities – Electric

Contractors and Homeowners -- Before starting any deck or patio project:

The Naperville Department of Public Utilities – Electric is dedicated to providing your home with safe and reliable electric service. Rules have been established to prevent your new deck or patio from interfering with your electric service. These rules are compliant with the National Electric Safety Code and the National Electric Code.

Underground Service Areas

1. Underground service conductors are not permitted under a deck or patio.
2. Meters will not be permitted on a patio or on or under a deck or inside a home.
3. Deck posts shall maintain an 18-inch side clearance from the underground service conductors.
4. If an electric meter needs to be relocated, DPU-E will determine and designate all meter locations for new, modified or rehabilitated installations.
5. During the permitting process, contractors may be asked to stake out the proposed construction area.
6. If there will be excavation, call J.U.L.I.E. at 811, a free service, a minimum of 48 hours before digging.
7. Note: Any required relocation of service conductors or metering equipment is done at the owner's expense. (Service relocations can cost thousands of dollars.)

Overhead Service Areas

Note: These rules apply only to 120/240V service drop conductors connected to the home in question.

1. Overhead service conductors must be 10 feet above a patio or deck.
2. Service drop conductors shall maintain no less than a 3-foot horizontal clearance from the deck and any doors and windows.
3. Other rules may apply based on specific situations.
4. If these clearances cannot be maintained, the electric service and metering will need to be relocated at the expense of the owner.

For more information, please contact DPU-E Project Managers Ben Hendron at (630) 420-6653 or Vince Amari at (630) 420-6180.

Department of Public Utilities – Electric • 1392 W. Aurora Ave. • Naperville, IL 60540 • (630) 420-6181



CITY OF NAPERVILLE
Transportation, Engineering, & Development (T.E.D.) Business Group

Outdoor Fire Pits and Fireplaces – Required Distances from Structures

Why? Code requirements establish a minimum requirement for providing a reasonable level of life safety and property protection from the hazards of fire.

What? Section 307 of the International Fire Code established standards for open burning, recreational fires, and portable outdoor fireplaces. It shall be unlawful and a nuisance for any person to burn or cause to be burned anywhere in the City any leaves, branches or similar foliage from trees, shrubs, bushes or plants. (Naperville Municipal Code, 4-1-5)

- Wood burning fires in approved containers shall be 15 feet or greater from a combustible structure. No permit is required for portable containers (a permit is required for the remainder of items on this page). Examples of approved containers:



- Wood burning fire pits are required to be 25 feet from a structure where the pile size is 3 feet or less in diameter (and 2 feet or less in height). If greater than 3' in diameter, a 50' distance to combustible structures is required. A permit is required for a fire pit.



What if I have a gas burning fire pit or gas starter? If the gas fire pit is able to be wood burning, or easily convertible to a wood burning application – the above wood burning clearance requirements will apply.

What if I have a gas burning fire feature? If the gas fire feature is not capable of being modified into a wood burning application, minimum distances would be regulated by the manufacturer's specifications.

What if I have a fireplace? If the fireplace complies with all aspects of Section R1001 of the International Residential Code, including aspects such as footing, flue, chimney, hearth, smoke chamber, etc., placement would only be regulated by the minimum dimensions as defined in section R1001 (for example – at a fireplace opening of < 6 feet, 8" is required each side of the hearth and 16" is required in front of the hearth; a chimney shall extend not less than 2 feet higher than any portion of a building within 10 feet).

NOTE: A portable fire extinguisher or other approved on-site fire-extinguishing equipment shall be available for immediate utilization at all recreational wood burning sites.



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DECK DESIGN INFORMATION

The following code references and plan examples are provided for information only. Decks should be designed and constructed by qualified individuals.

MATERIALS (R507.2)

All structural members in deck construction (joists, beams, posts, ledger boards, etc.) must be of pressure-treated wood. Other areas of the structure may be of wood that is naturally resistant to decay and fungus (cedar, redwood, etc.). Other deck materials may be acceptable but must have prior approval. All fasteners shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper, and appropriate hangers for the type of treated lumber used.

CONCRETE PIERS (R507.3)

Concrete postholes (piers) for decks in Naperville must be sized per table R507.3.1 (or other approved method), 42" below grade. The top of concrete piers must be pitched away from the center at least 1:12 slope. The posthole bottoms must be well compacted and free of water. **Postholes (piers) must be inspected prior to pouring any concrete.**

LEDGER BOARD (R507.9.1)

Ledger boards must be mounted to the house per R507.9. Corrosion resistant flashing (not less than 0.019 inch) shall be installed in a water tight manner. R507.2.4 Ledger boards shall not be directly attached to any bay window or door area or fireplace bump-outs.

R703.9.3 Exterior Insulation Finish Systems (EIFS) - Per Naperville Amendment

If any exterior finish system (EIFS) is installed on any portion of a dwelling unit for an exterior covering, a certification of proper installation shall be required to be submitted as a special inspection. Before permit issuance, a statement of special inspections prepared by the registered design professional shall be submitted detailing the individuals and approved agencies intended to be retained for conducting these inspections. This report and signed certification shall be submitted to the City before final permit approval.

All exterior penetrations, joints or seams in the building envelope shall be sealed with durable caulking material, closed with gasketing systems, taped or covered with moisture vapor-permeable house wrap.

LATERAL CONNECTION (R507.9.2)

Decks 30" or greater above grade shall be required to have a lateral connection. The prescriptive hold-down lateral connection as identified in figures R507.9.2(1) (2 locations) and R507.9.2(2) (4 locations) will be accepted.

FLOOR JOISTS (R507.6)

Floor framing plan must indicate the proper size and spacing of the floor joists for your deck. Please indicate dimensions for joist span and spacing (see table R507.6 and R507.7). Maximum joist cantilever shall be limited to one-fourth of the joist span or the maximum cantilever length specified in Table

R507.6 (whichever is less). Joists shall have not less than 1-1/2" of bearing on wood or metal and not less than 3 inches of bearing on concrete or masonry.

POSTS (R507.4)

Deck posts shall be sized in accordance with Table R507.4:

- 4x4 post = 6 foot 9 inches maximum for three-ply beams
- 4x4 post = 8 feet maximum height for one-ply and two-ply beams
- 4x6 post = 8 feet maximum height
- 6x6 post = 14 feet maximum height

Posts shall have lateral restraint provided at the bottom end.

GUARDRAILS (R312.1)

Guardrails for decks must comply with the following guidelines:

1. Guardrail height must be a minimum of 36" and is required if the deck is more than 30" above grade.
2. Baluster spacing must not allow passage of a 4" sphere through the opening. Guardrails must be built to withstand a minimum of 200 pounds of horizontal pressure.

STAIRS (R311.7.5)

Decks higher than 7-3/4" above grade require the installation of stairs. Stairs must be a minimum of 36" wide. The minimum tread required is 10". The maximum riser height is maximum 7-3/4". (A 3/8" tolerance is acceptable between the largest tread/riser and the smallest tread/riser). Stairs with four (4) risers or more require a handrail on at least one side. Open sides of stairs with a total rise of greater than 30" above floor or grade must have guardrails on both sides of the stairs that are a minimum of 34" in height measured vertically from the nosing of the treads. Triangular openings formed by the riser, tread, and the bottom of the guardrail must be of such a size that a 6" sphere cannot pass through. Stairs over 36" in width require a third stringer.

STAIR HANDRAILS (R311.7.8.5)

A graspable stair handrail is required on at least one side of a stairway if there are four or more risers in a run of stairs. This handrail must meet the following criteria:

1. The handrail must be located at a height between 34" and 38" (measured vertically) above the nosing of the stair treads.
2. Handrails must be continuous for the full length of the stairs.
3. The ends of the handrails must be returned or terminate in newel posts or safety terminals.
4. Handrails adjacent to a wall space must have a minimum of 1-1/2" space between the wall and the handrail.
5. Required guardrails shall meet the requirements of Type I or Type II handrails as identified in R311.7.8.5.

VENTILATION (R408) and GRADING

All structural members are to be 1" minimum clear of ground contact to allow adequate ventilation of structure.

1. Solid skirting (airtight) requires 1 square foot (minimum) of ventilation per 150 square feet of crawl area with at least one (1) vent within 3 feet of the corner.
2. Vertical or horizontal boards spaced 1/4" minimum will allow adequate ventilation.
3. All skirted decks are to have an access panel 18" x 24" minimum size.

The grade under the deck must slope away from the house. If grading is to be adjusted, an approved grading plan may be required.



Naperville

Deck Pier Sizing – 2018 IRC

Prescriptive Method:

Minimum size of concrete footings shall be in accordance with IRC Table R507.3.1 based on the tributary area and allowable soil-bearing pressure in accordance with Table R401.4.1 (assumed 3000 psf unless otherwise known).

2018 IRC Table R507.3.1 Minimum Footing Size for Decks				
Load (psf)	Tributary Area (sf)	Load Bearing Value of Soil (3000 psf)		
		Side of a Square Footing (inches)	Diameter of a Round Footing (inches)	Thickness (inches)
50	20	12	14	6
50	40	12	14	6
50	60	13	15	6
50	80	15	17	6
50	100	17	19	6
50	120	19	21	6
50	140	20	23	7
50	160	21	24	8

Calculated Load Method:

To determine the load on the deck pier, the tributary area must be determined and then multiplied by 50 psf (40 psf live load + 10 psf dead load). This calculation must be less than or equal to the Total Allowable Load in Pounds of the proposed diameter pier (Table A).

Calculated Load: Table A			
Diameter in Inches	Square Foot Multiplier	Soil Capacity in Pounds	Total Allowable Load in Pounds
8" dia.	.349	3,000 lbs	1047 lbs
10" dia.	.545	3,000 lbs	1635 lbs
12" dia.	.785	3,000 lbs	2355 lbs
14" dia.	1.068	3,000 lbs	3204 lbs
16" dia.	1.396	3,000 lbs	4188 lbs
18" dia.	1.766	3,000 lbs	5298 lbs

Example (12x22 deck attached to home):

Prescriptive

Pier A Tributary Area =

$$3.5' \times 7' = 24.5 \text{ sf}$$

Pier B Tributary Area =

$$5' \times 7' = 35 \text{ sf}$$

Solution per

IRC Table R507.3.1:

14" dia. pier at all locations

Calculated

Pier A/E:

$$(3.5' \times 7') \times 50 \text{ psf} = 1225 \text{ lbs}$$

Pier B/C/D:

$$(5' \times 7') \times 50 \text{ psf} = 1750 \text{ lbs}$$

Solution per Table A:

10" dia. pier at A/E,

12" dia. pier at B/C/D

Calculated with Additional Piers

(6 piers instead of 5)

Pier A/E:

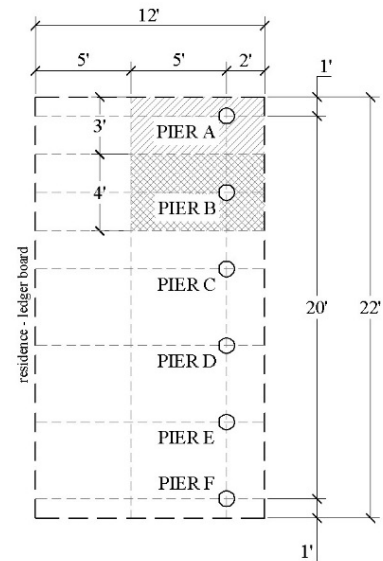
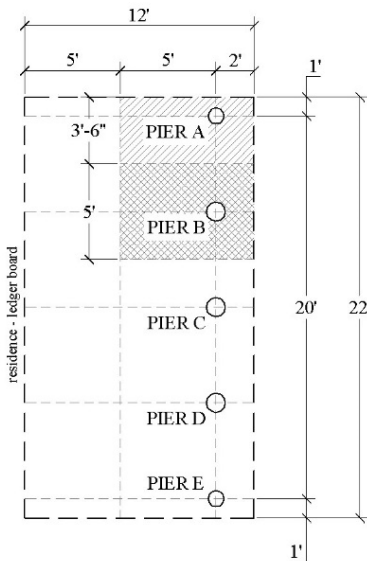
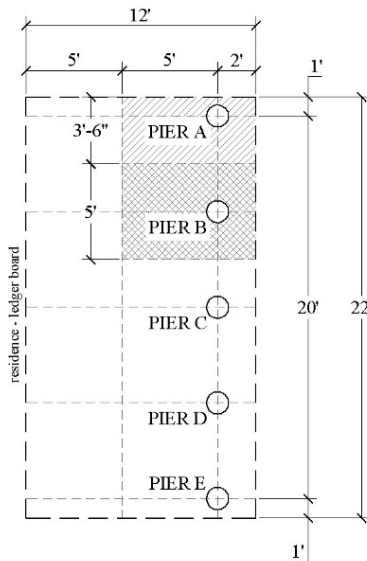
$$(3' \times 7') \times 50 \text{ psf} = 1050 \text{ lbs}$$

Pier B/C/D:

$$(4' \times 7') \times 50 \text{ psf} = 1400 \text{ lbs}$$

Solution per Table A:

10" dia. pier at all locations





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DECK BEAM BEARING

Why? Connection requirements emphasize the ability of the beam to transfer vertical loads to the posts below; the connections must also resist lateral forces.

What? 2018 IRC R507.5.1 Deck Beam Bearing and R507.5.2 Deck Beam Connection to Supports

- A. R507.5.1 Deck Beam Bearing – the ends of beams shall not have less than 1-1/2 inches of bearing on wood or metal and not less than 3 inches of bearing on concrete or masonry for the entire width of the beam.
- B. R507.5.2 Deck Beam Connection to Supports – deck beams shall be attached to supports in a manner capable of transferring vertical loads and resisting horizontal displacement.

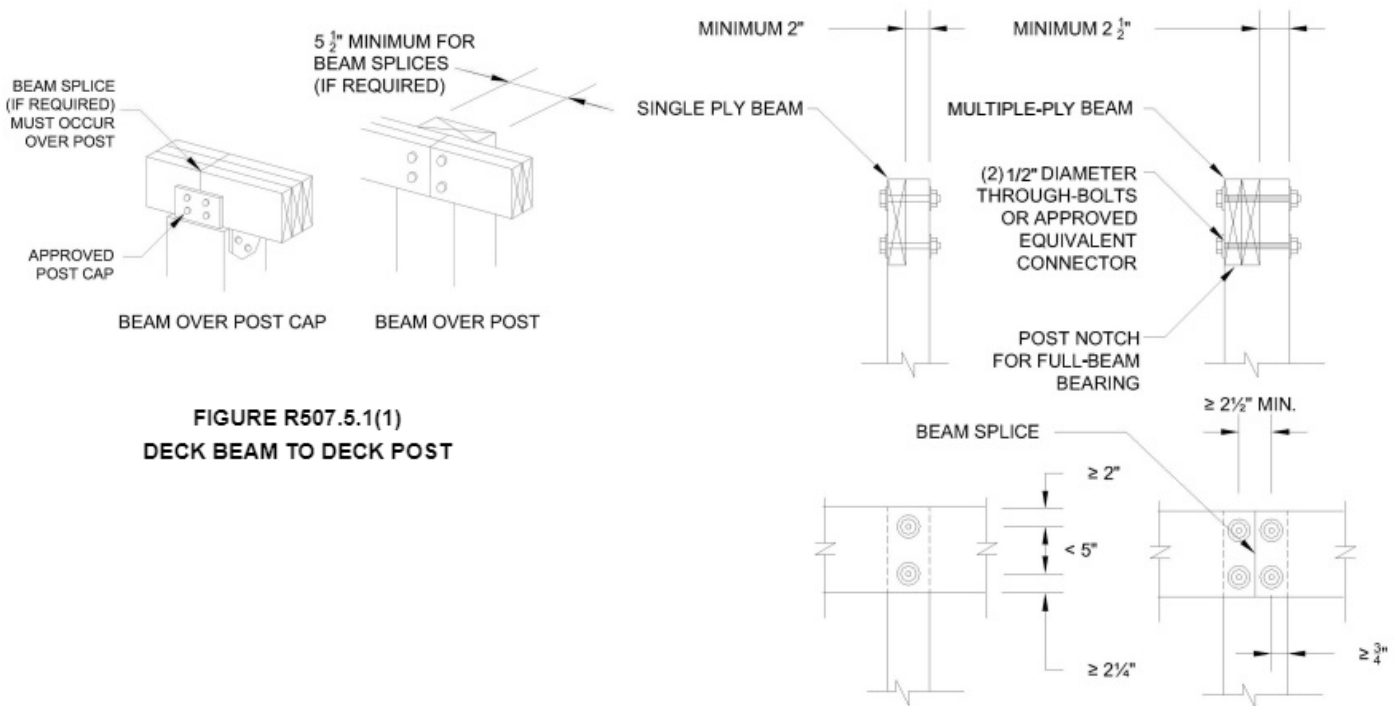


FIGURE R507.5.1(1)
DECK BEAM TO DECK POST

FIGURE R507.5.1(2)
NOTCHED POST-TO-BEAM CONNECTION



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DECK LATERAL LOAD CONNECTION

Why? Lateral loads can result from people moving around on your deck, earthquakes, flooding (movement). In severe cases, these loads can result in the ledger board being ripped from the house wall and collapsing.

What? 2018 IRC R507.9.2 Lateral Connection (applies to decks greater than 30” in height per Naperville Municipal Code)

- A. Hold down tension devices in not less than two locations per deck within 24” of each end of the deck. Each device shall have an allowable stress design capacity of not less than 1,500 lbs.

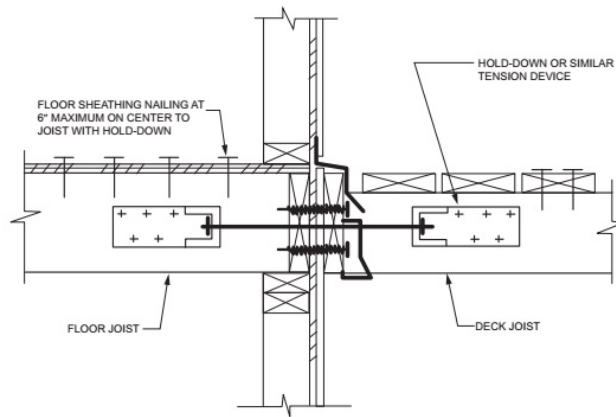


FIGURE R507.9.2(1)
DECK ATTACHMENT FOR LATERAL LOADS

- B. Hold down tension devices in not less than four locations per deck; each device shall have an allowable stress design capacity of not less than 750 pounds.

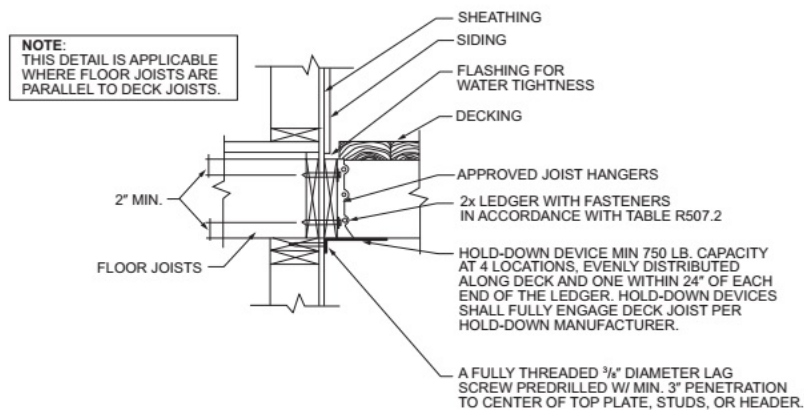
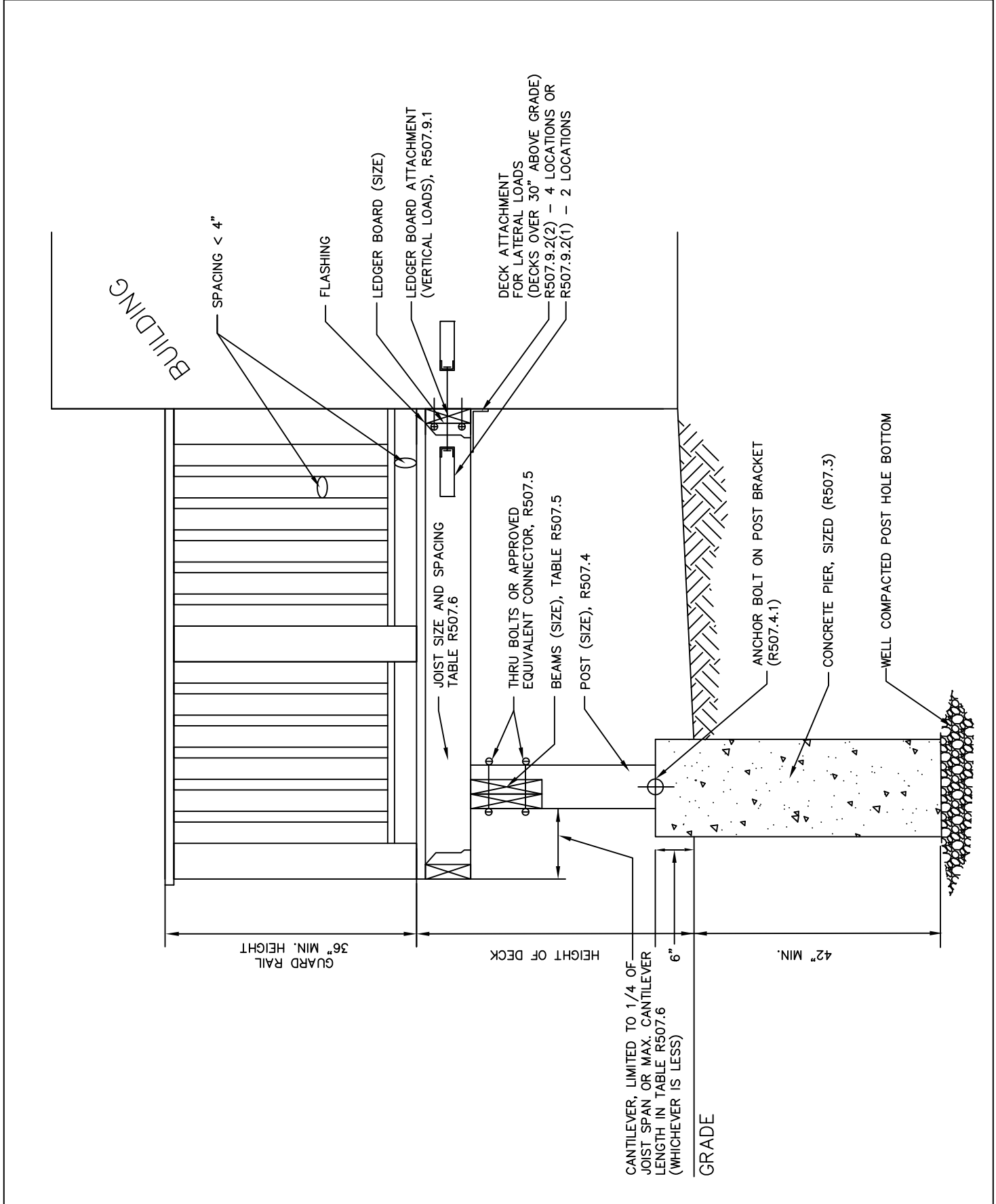


FIGURE R507.9.2(2)
DECK ATTACHMENT FOR LATERAL LOADS

EXAMPLE1.DWG



EXAMPLE #1
DECK - CROSS SECTION VIEW

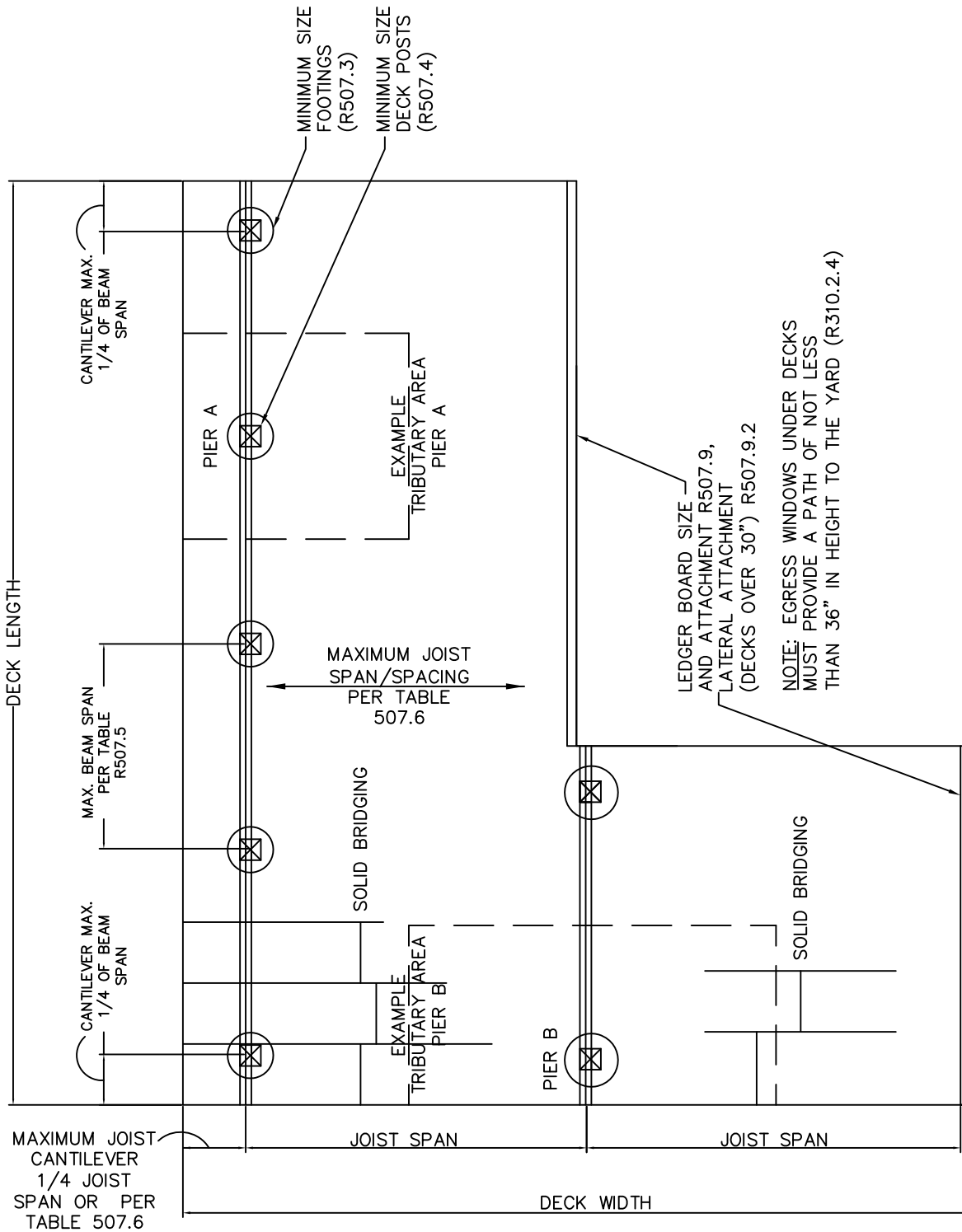
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DATE:
1/1/2019



EXAMPLE #2
DECK - PLAN VIEW

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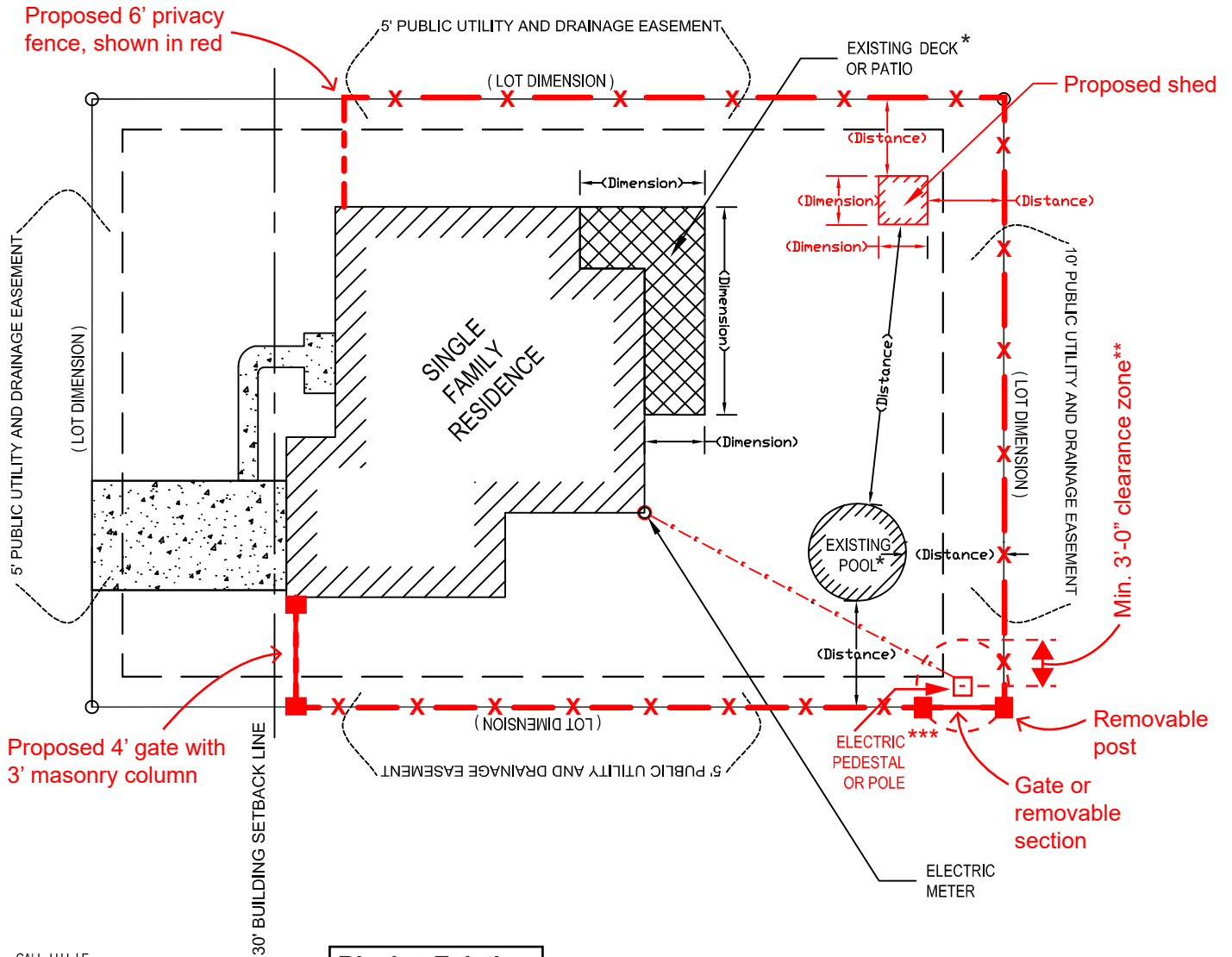
DATE:
01/01/2019



EXAMPLE2.DWG

PLAT OF SURVEY

LOT ___ IN BLOCK ___ IN ___ AT NAPERVILLE UNIT ___, BEING A SUBDIVISION OF PART OF THE
 ___ QUARTER OF SECTION ___, TOWNSHIP ___ NORTH, RANGE ___ EAST OF THE THIRD
 PRINCIPAL MERIDIAN ACCORDING TO THE PLAT THEREOF RECORDED ___, ___ AS
 DOCUMENT NO. R-___ IN ___ COUNTY, ILLINOIS.



JULIE CALL J.U.L.I.E. BEFORE EXCAVATING
 1-800-892-0123

Black = Existing
Red = Proposed

GENERAL NOTES:

- MUST SHOW PROPOSED DECK OR PATIO DRAWN TO SCALE SHOWING WHERE IT WILL BE PLACED ON THE LOT.
- MUST INCLUDE LEGAL DESCRIPTION OF THE LOT.
- MUST SHOW LOCATION OF ELECTRIC METER, ELECTRIC PEDESTAL OR POLE, ELECTRIC LINE AND ANY OTHER UTILITIES LOCATED NEAR OR UNDER THE PROPOSED DECK.
- MUST SHOW ALL ESCAPE WINDOWS OR OTHER WINDOWS IN DECK AREA.
- MUST SHOW ALL EXISTING ACCESSORY STRUCTURES TO SCALE WITH DISTANCES BETWEEN STRUCTURES.
- MAY SHOW ANY POSSIBLE STRUCTURES THAT MAY BE ADDED TO THE DECK IN THE FUTURE.

***Include all up-to-date improvements**

****For transformers, 5'-0" clearance required except on padlock access side, which requires 10'-0" clearance**

Show all proposed improvements, dimensions, and setbacks to the property line in red

*****Provide location of the electrical meter, electrical line, and the electrical pedestal or pole serving the property**

EXAMPLE
 SAMPLE PLAT OF SURVEY

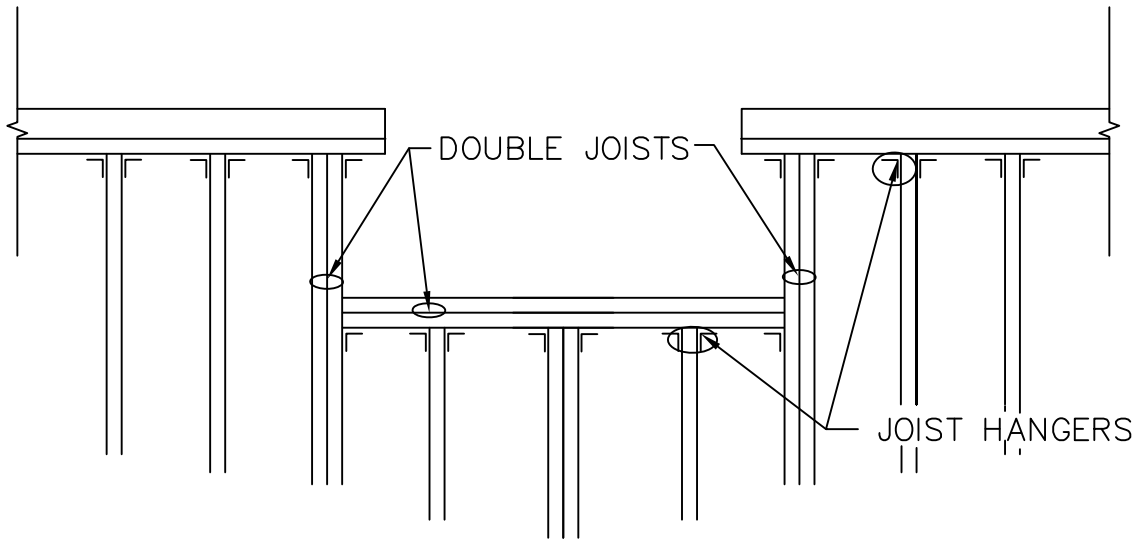
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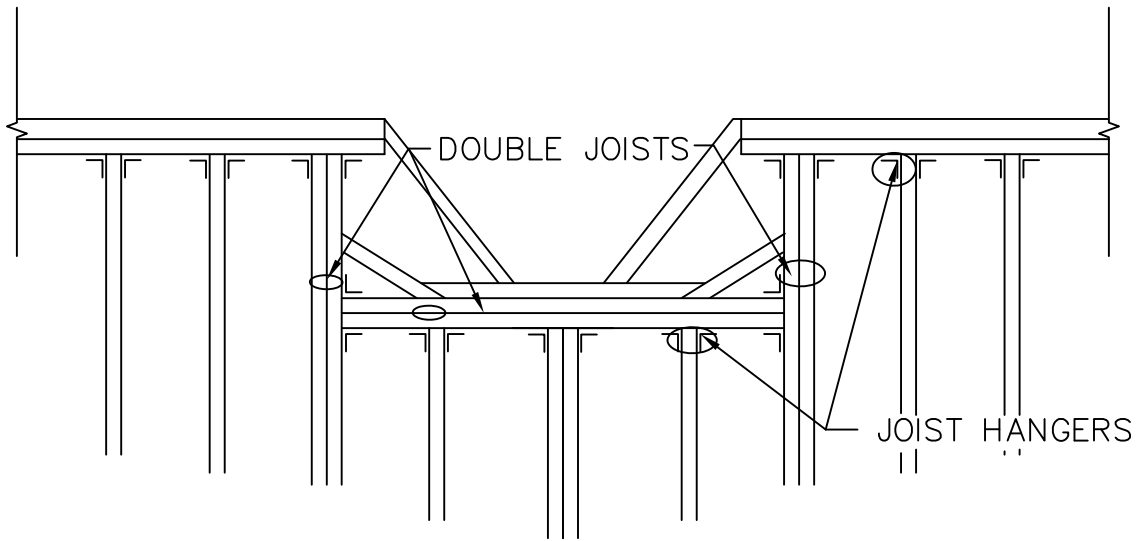
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SCALE:	DATE:
NTS	11/09/2023

EXAMPLES.DWG



A. FIREPLACE FRAMING DETAIL



B. BAY WINDOW FRAMING DETAIL

EXAMPLE #4
FRAMING DETAILS

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SCALE:

DATE:

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01/01/2019

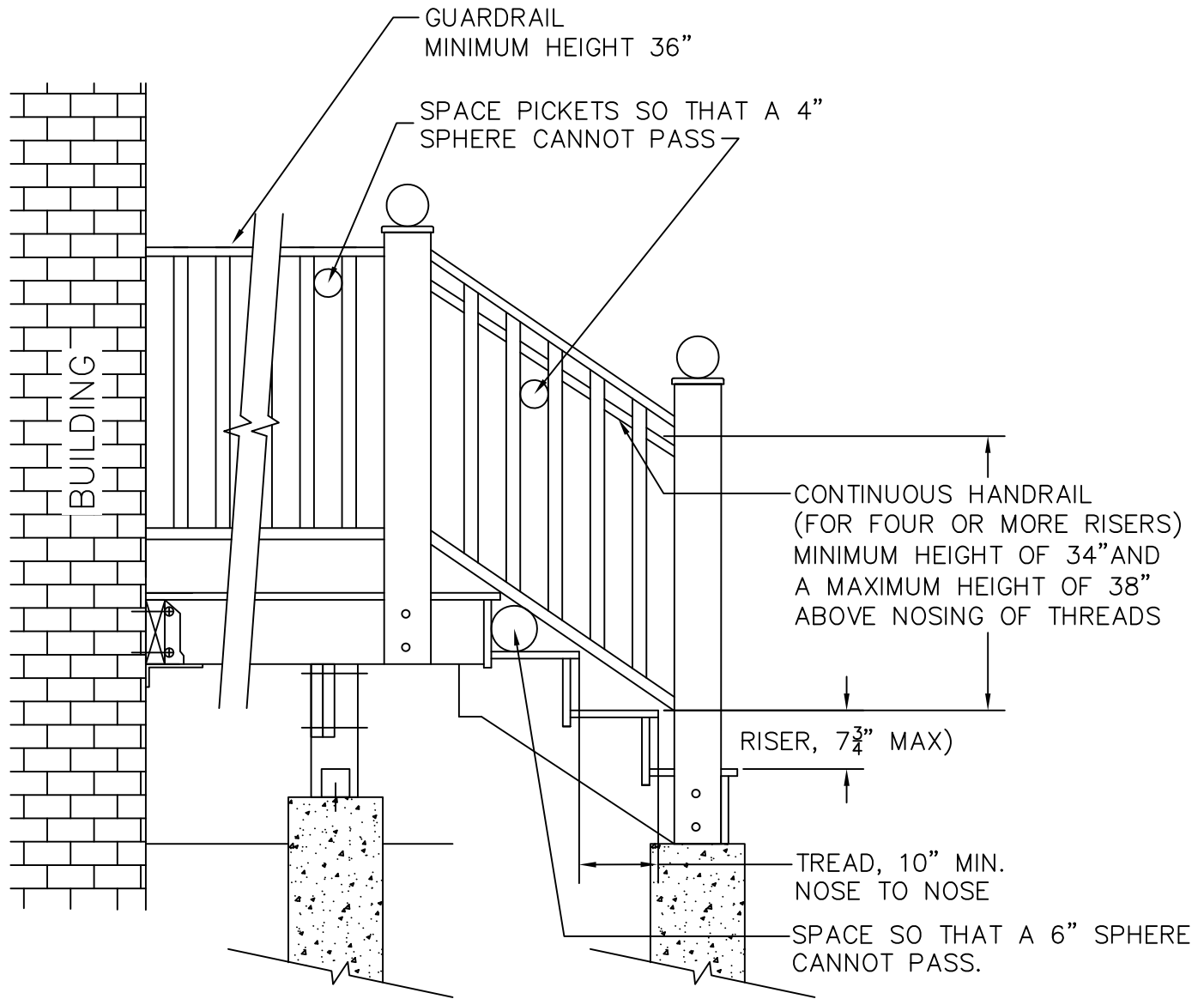
EXAMPLE4.DWG



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EXAMPLE #5A
 STAIR DETAIL – VIEW 1

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SCALE:

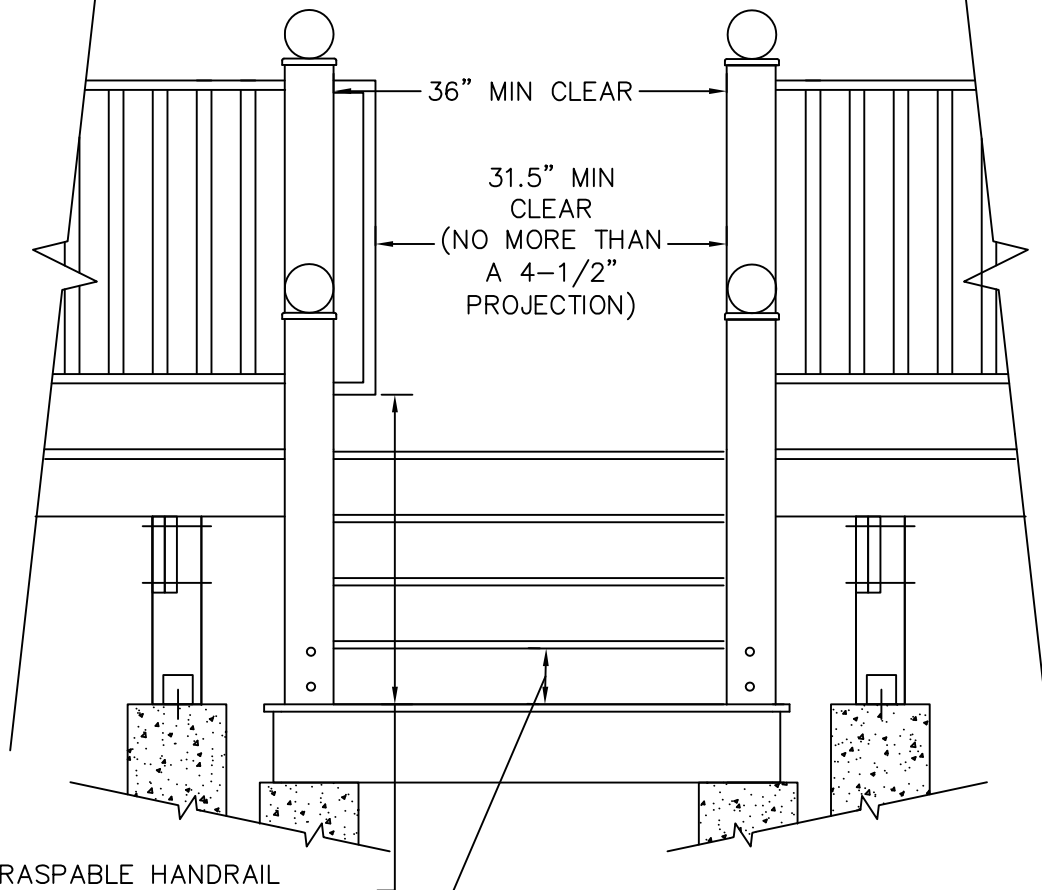
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NTS

01/01/2019



Naperville



GRASPABLE HANDRAIL
34"–38" ABOVE NOSING OF TREADS

MAXIMUM 7–3/4" RISER (NOTE: OPEN
RISERS SHALL NOT PERMIT THE
PASSAGE OF A 4-INCH DIAMETER SPHERE)

A GRASPABLE HANDRAIL IS REQUIRED ON AT LEAST ONE SIDE OF A STAIR WITH FOUR OR MORE RISERS. THE HANDRAIL SHALL BE CONTINUOUS FOR THE FULL LENGTH OF THE FLIGHT AND RETURN OR TERMINATE AT A NEWEL POST OR SAFETY TERMINAL.

TYPE 1 HANDRAILS: OUTSIDE DIAMETER OF NOT LESS THAN 1–1/4" AND NOT GREATER THAN 2"; IF NOT CIRCULAR, IT SHALL HAVE A PERIMETER OF NOT LESS THAN 4 INCHES AND NOT GREATER THAN 6–1/4" AND A CROSS SECTION OF NOT MORE THAN 2–1/4". EDGES SHALL HAVE A RADIUS OF NOT LESS THAN .01 INCH.

TYPE 2 HANDRAILS: HANDRAILS WITH A PERIMETER GREATER THAN 6–1/4" SHALL HAVE A GRASPABLE FINGER RECESS AREA ON BOTH SIDES OF THE PROFILE; THE FINGER RECESS SHALL BEGIN WITH 3/4" MEASURED VERTICALLY FROM THE TALLEST PORTION OF THE PROFILE AND HAVE A DEPTH OF NOT LESS THAN 5/16" WITHIN 7/8" BELOW THE WIDEST PORTION OF THE PROFILE. THIS REQUIRED DEPTH SHALL CONTINUE FOR NOT LESS THAN 3/8" TO A LEVEL THAT IS NOT LESS THAN 1–3/4" BELOW THE TALLEST PORTION OF THE PROFILE. THE WIDTH OF THE HANDRAIL ABOVE THE RECESS SHALL BE NOT LESS THAN 1–1/4" AND NOT MORE THAN 2–3/4". EDGES SHALL HAVE A RADIUS OF NOT LESS THAN 0.01".

EXAMPLE #5B
STAIR DETAIL – VIEW 2

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SCALE:

DATE:

NTS

01/01/2019

EXAMPLE5B.DWG



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