

FIFTEEN ROPE FERRY ROAD



WATERFORD, CT 06385-2886

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## **RESIDENTIAL DECKS**

### **DESIGN GUIDE,** **MINIMUM APPLICATION REQUIREMENTS** **& CHECK LIST**



# **RESIDENTIAL DECKS**

## **DISCLAIMER**

*The following information is intended to assist both homeowners and contractors with the process and requirements for constructing residential decks in the Town of Waterford. The information contained within this document meets or exceeds the minimum requirements of the building code. Please review the following information to see what items are applicable to your specific project. The information provided is not intended to address every aspect of the permitting and construction process and is by no means an all inclusive document. This document is not intended to preclude the use of other construction methods or materials provided they meet the minimum standards of the building code. Your project may have unique conditions that will have to be dealt with on a case by case basis with one of our building officials.*

*Much of the information provided in this document is taken from other sources. The Town of Waterford has made reasonable efforts to present accurate and reliable information in this handout however the Town of Waterford is not responsible for any errors in or omissions from the information contained in this document. The information provided in this document is not intended to replace or be a substitute for user's independent research, evaluation and design for their specific situation. The information is being provided as a convenience to assist you with your deck design.*

***The Town of Waterford does not endorse any specific manufacturers of materials or products.***



## **RESIDENTIAL DECKS**

### **PROJECT INFORMATION / CHECK LIST**

**Note to Applicant:** This checklist is part of the application for permit and shall be included with your submission along with all other required documentation.

Property Address: \_\_\_\_\_

Name of Applicant: \_\_\_\_\_

Is the applicant the owner? ☐ Yes ☐ No

Project Description: \_\_\_\_\_

The total estimated cost including labor & material is: \$ \_\_\_\_\_,

*NOTE: If you are doing the work yourself, a fair market labor cost must be included for your time.*

Is this deck: ☐ A new deck ☐ An expansion ☐ Replacing existing in kind

What is the height of the deck above grade at the highest point? \_\_\_\_\_' - \_\_\_\_\_"

Is the deck in a flood zone? ☐ Yes ☐ No

Does the deck abut a pool? ☐ Yes ☐ No

Does the deck serve the primary egress door from the dwelling? ☐ Yes ☐ No

Will the deck be attached to the structure? ☐ Yes ☐ No

Is the property served by: ☐ a septic system ☐ city sewer ☐ well ☐ city water

Does any portion of the deck fall within 100' of a wetlands boundary? ☐ Yes ☐ No

Is the property located on a: ☐ State Road ☐ Town Road ☐ Private Road

**The following information shall be provided with your application:**

- ☐ Building permit application is completed
- ☐ Two sets of all required documentation are provided
- ☐ Cost estimate is provided (\*)

- ☐ Property taxes are current
- ☐ Utility Commission sewer fees are current
- ☐ Public works has been contacted about whether or not a site access permit is required and a copy is attached if applicable. 860-444-5864
- ☐ Site plan is provided (\*)
- ☐ Existing conditions plan(s) are provided
- ☐ Foundation / footing pier plan is provided (\*)
- ☐ Framing plan is provided (\*)
- ☐ Floor plan / deck layout plan is provided (\*)
- ☐ Section drawing(s) is provided (\*)
- ☐ Elevation(s) are provided (\*)
- ☐ Details of stairs, landings, connections, bracing, etc. are provided (\*)
- ☐ All documents contain Owners name and project address.

**The following information is not required however it would be helpful in expediting the review process:**

- ☐ Photographs of the existing conditions where the deck is proposed.
- ☐ Manufacturer cut sheets, specifications or product brochures

**(\*) As described in the minimum application requirements section**

# **RESIDENTIAL DECKS**

## **GENERAL INFORMATION**

A building permit is required for most decks. Building permit application forms are available in the Planning & Development office at the Waterford Town Hall or can be downloaded from the building department website. <http://www.waterfordct.org/building>

A building permit is not required if the project meets **ALL** of the following (Amd R105.2):

- The deck does not exceeding 200 square feet in area.
- The deck is not more than 30" above grade at any point.
- The deck is not attached to a dwelling.
- The deck does not serve the required exit door.

***Note: Please keep in mind that a complete application with all required information will help expedite the application review process.***

- Zoning approval will be required for most new deck applications prior to issuance of the building permit. A zoning review fee of \$55.00 will be required at the time of the application submission if it is determined a zoning review is required.
- Building permits cannot be issued if taxes or utility commission sewer fees are owed on the property.
- A certificate of insurance for workers' compensation coverage and general liability insurance must be provided by contractors or a sworn notarized affidavit provided, if the contractor is a sole proprietor.
- All contractors that perform remodeling must have a Connecticut Home Improvement Contractor registration.
- This document applies to single level residential wood decks only.
- If the existing property is serviced by a private septic system, and/or well, the plans will need to be reviewed by [Ledge Light Health District](#). The applicant is responsible for contacting LLHD and providing them with a copy of the plans.
- A building permit will not be issued until a site access permit has been obtained from the Public Works department if applicable. Please contact Public Works at 860-444-5864.



# **RESIDENTIAL DECKS**

## **PLAN INFORMATION & DESIGN CRITEREA**

### **General**

- All plans and submitted documentation shall include the owner's name, street address and telephone number as well as the street address of the proposed work.
- All plans shall also include the name, address and telephone number of the person or firm who prepared the plans if different than the homeowner.
- Photographs are not required however we do encourage the submission of photographs to show existing conditions and to help expedite the review.

### **Footings / piers**

- Deck footings / piers shall be a minimum of 42" below grade to the bottom of the footing/pier. (except in flood zones or free standing decks)
- Deck footings / piers shall be designed and sized for the actual load conditions. The load conditions will depend on several factors such as beam spans, pier size, wind uplift, cantilever conditions, special considerations such as hot tubs, length of joist spans, etc. Reference the building codes and attached links to determine footing/pier sizes.

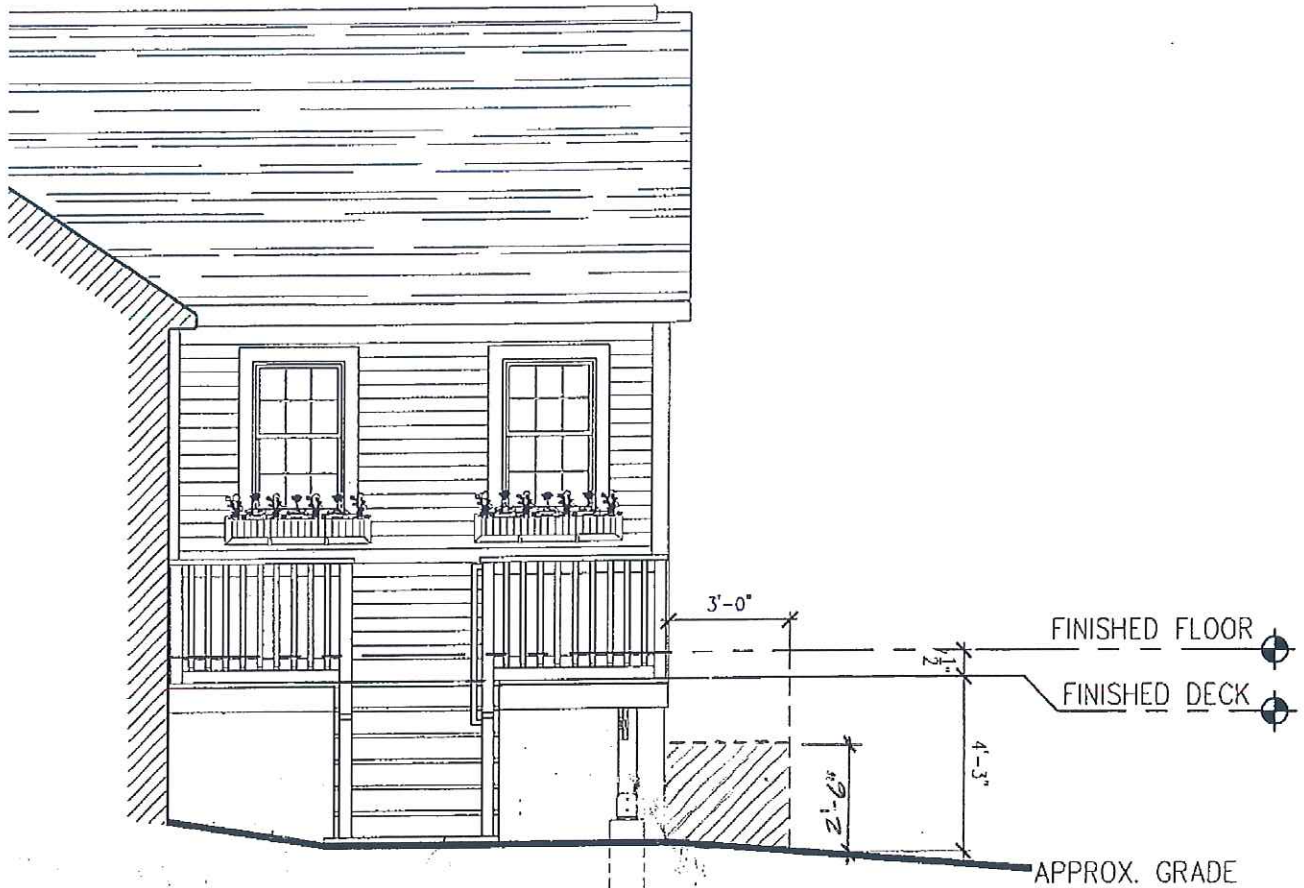
### **Framing**

- Decks shall be designed for a minimum design load of 50 lbs. per square foot.
- Decks may not be attached to a house cantilever unless an **engineered** drawing is provided.
- Decks may not be attached to brick, stone or other similar type veneers.
- If the deck **is** serving the **required egress door** from the dwelling, a stair or ramp to grade is required. Landings or floors at the required egress door shall not be more than 1 ½" lower than the top of the threshold. If the door does not swing over the landing or floor the step shall not exceed 8 ¼". (Amd R311.3.1)
- If the deck **is not** serving the **required egress door** from the dwelling, a landing or floor may be 8 ¼" lower than the top of the threshold (Amd R311.3.2). Landings are not required for stairs with 3 or fewer risers provided the door does not swing over the stair.
- Decks over 24" above finished grade require diagonal bracing.
- Girders supporting deck joists shall not be supported on deck ledgers or band joists. (R502.2.2.2)
- All wood in contact with concrete or masonry shall be treated lumber or wood that is naturally resistant to decay and termites.
- A minimum of two (1,500 lbs each) deck lateral load hold-down connectors shall be installed per deck. (R502.2.2.3) Alternate connectors may be approved if it is demonstrated they meet the above requirements.
- If a sauna, hot tub or similar items are to be installed on the deck, the structural framing shall be designed accordingly for the additional load condition(s).

## Guardrails

- Decks over 30" above finished grade, at any point, will require a guardrail.

Grade is measured to an imaginary point 36" out horizontally from the edge of the deck. If any point within the edge of the deck perimeter and the imaginary perimeter line measures more than 30" then the entire deck will be considered over 30". Guardrails will be required along the sides of the deck that exceed the 30".



- Any stairs over 30" in height from finished floor to landing or finished floor will require a guardrail. Required guards along a stair shall not be less than the minimum handrail height of 34".
- Guards along landing and walking surfaces at floor levels shall not be less than 36".
- At no point in a guardrail system shall a sphere of 4" pass through the guardrail.



## **Stairs**

- Stairway landings at the bottom of stairways shall be a minimum of 36" in travel distance and at least as wide as the stair but in no case less than 36".
- Stairways shall be a minimum of 36" wide. Handrails are permitted to project into the clear width. Handrails shall not project more than 4 ½" on either side of the stairway.
- Stairway headroom shall be a minimum of 6'-8" at all parts of stairways. The height shall be measured from the leading edge of the tread.
- The maximum allowable riser height shall be 8 ¼". The minimum riser height shall be 4". The greatest riser height shall not exceed the smallest riser height by more than 3/8" within any given flight of stairs.
- The minimum tread depth shall be 9". The greatest tread depth shall not exceed the smallest tread depth by more than 3/8" within any given flight of stairs.
- Stair tread nosings are required on treads less than 11". Nosing radiuses shall not exceed 9/16". Nosings shall be a minimum of ¾" and a maximum of 1 ¼" for stairs with solid risers. Open risers are permitted, provided that the opening between treads does not permit the passage of a 4" sphere. Open risers are also permitted on stairs with a total rise of less than 30"

## **Handrails**

- A handrail is required on at least one side of the stair. The handrail shall be mounted between 34" and 38" measured from the leading edge of the tread. Handrails shall be continuous for the length of the stair.
- Wall mounted handrails shall have a minimum clearance of 1 ½" off the face of the wall.
- Handrails shall be graspable and each end shall return to a wall or post.
- Handrail shall have a circular cross sect with an outside diameter of at least 1 ¼" but not greater than 2". If the handrail is not circular it shall have a perimeter dimension of at least 4" but not greater than 6 ¼". The maximum cross sectional dimension shall be 2 ¼"
- Handrails with a perimeter greater than 6 1/4" are permitted if a graspable finger recess area is provided on each side of the profile. Please reference the building code (section R311.5.6.3) for specifics regarding the profile and dimensions of the finger recess.
- Any stairs over 30" in height from finished floor to landing or finished floor will require a guardrail. Required guards along a stair shall not be less than the minimum handrail height of 34". Guards along landing and walking surfaces at floor levels shall not be less than 36". At no point in a guardrail system shall a sphere of 4" pass through the guardrail.
- Handrails and guardrails shall be designed to withstand 200 lbs. of force in any direction at any point along the top rail of the system.



# **RESIDENTIAL DECKS**

## **RESOURCES AND HELPFUL LINKS**

- Prescriptive Residential Wood Deck Construction Guide based on the 2009 International Residential Code

<http://www.awc.org/pdf/codes-standards/publications/dca/AWC-DCA62009-DeckGuide-1007.pdf>

- This handout can be found on the Town of Waterford building department website

<http://www.waterfordct.org/sites/waterfordct/files/file/file/decks.pdf>

- Simpson Strong-Tie Deck Connection and Fastening Guide

<http://diydoneright.com/projects/deck-it-out-safe-and-strong/>

- USP Structural Connectors

<http://www.uspconnectors.com/us/products/connectors?gclid=CI2J666dxs4CFVFbhgodRI0BUw>

- Ledge Light Health District

<http://www.ledgelighthealthdistrict.com>

In addition to these helpful links, you can find several websites online with free deck design software, programs, articles, design ideas, decking materials and suppliers. Please note that the Town of Waterford is not responsible for the content, use or application of the information provided on any of the referenced websites, nor does the Town endorse the use of any specific products or manufacturers. The links are referenced and/or provided solely for your convenience in the preparation of documentation to accompany your application for a building permit.

## **RESIDENTIAL DECKS**

### **MINIMUM BUILDING PERMIT APPLICATION REQUIREMENTS**

1. The application should be fully completed. Please be sure to indicate in the description section if this is a new deck, a replacement deck, a deck expansion or a deck repair.
2. Completed project information / checklist
3. Two sets of all drawings, specifications and supporting documentation are required with the application for building permit.
4. Plot plan / site plan  
A plot plan / site plan shall be provided that clearly shows the proposed deck size and location in relation to the house, property lines, pools, accessory structures, utility lines, septic systems, etc. The plan should be dimensioned and noted accordingly to convey the scope of work. Plot plans/ site plans should be a **minimum** scale of 1" = 40'.
5. Provide the following plans drawn to scale (1/4" per ft. preferred).
  - Proposed Deck Floor Plan(s)
  - Existing Conditions Plan(s)
  - Demolition Plan(s) (if applicable)
  - Footing / Pier Plan
  - Deck Framing Plan
  - Detailed Cross Section
  - Deck Elevation(s)
  - Details (as applicable) of stairs, landings, bracing, connections, etc.
  - Any other drawings that may be needed to convey the scope of work.

Plans shall include dimensions, labels, finishes, heights, notations, etc. to fully convey the scope of work, construction methods, materials, details and code compliance. Plans shall clearly indicate existing construction from new construction. The plans shall be specific to the actual site conditions and finished grades. Existing windows, doors, vents, hose bibs, tanks and similar interferences shall be clearly identified and considered in the deck design. **See attached example of a simple deck application for permit submission.**



6. A cost estimate for the entire project, including labor and materials, shall be provided. **The building department reserves the right to apply its own valuation** if the estimate provided does not appear to be in line with current market pricing as determined by “RS Means” cost estimating guides. Even if the owner is the applicant and is doing the work themselves, a fair market labor cost shall be included in the estimate.

### **Special Requirements**

If the existing property is serviced by a private septic system, the plans will need to be reviewed by [Ledge Light Health District](#) (LLHD). The plans will be available in this office for LLHD to review however it is recommended that the applicant should contact LLHD directly to expedite the process. A permit will not be issued until LLHD has approved the application first.

### **Other Requirements**

The contractor/owner shall keep the permit or copy of the permit on the site of the work area until the completion of the project. (R105.7)

Contractor / Owner shall keep one set of the stamped approved plans readily available on the job site at all times during the construction and shall be open to review and inspection by the building official or his or her authorized representative. (R106.3.1)

Any changes made during construction that are not in compliance with the approved plans shall be resubmitted for approval as an amended set of plans. (R106.4)

## **RESIDENTIAL POOL DECKS**

### **MINIMUM BUILDING PERMIT APPLICATION REQUIREMENTS**

In addition to the requirements for residential decks, if your deck is abutting a pool, the following additional information is required.

- The barrier requirements for a pool must be maintained if adding a deck that abuts a pool.
  - If the deck extends between the pool edge and the house without the required 48” high barrier, any doors from the house to the deck will need to be alarmed. Reference the “Swimming Pool Installation Guide”, available in the permitting office for specific requirements regarding barriers and alarm requirements.
  - If the deck surface is less than 48” above finished grade then no toe holds are permitted that would allow someone to be able to climb the barrier. Reference the “Swimming Pool Installation Guide”, available in the permitting office for specific requirements regarding barriers and toe holds.
  - Any stairs to/from the pool deck shall meet the stair construction requirements as well as the barrier requirements outlined in the “Swimming Pool Installation Guide”, available in the permitting office.
  - Any gates in the required barrier shall be 48” high, shall be self closing and latching and shall swing out or away from the pool area. Reference the “Swimming Pool Installation Guide”, available in the permitting office for specific requirements regarding gates in pool barriers.
- If the deck is a free standing deck, frost protected footings are not required
- If the deck attaches to a house or an existing deck already attached to a house, frost protected footings or piers are required for all support posts.



## **RESIDENTIAL DECKS IN FLOOD ZONES**

### **MINIMUM BUILDING PERMIT APPLICATION REQUIREMENTS**

In addition to the requirements for residential decks, if your deck is located in a flood zone, or believed to be located in a flood zone, as determined by the "Flood Insurance Rate Maps" FIRM, the following additional information is required. These maps are available on line at

<https://msc.fema.gov/portal/search> or a hard copy can be viewed in the building department.

- Determine which flood Zone and flood elevation that the project may be within. Information can be found at the Permitting Office or online at [www.msc.fema.gov](http://www.msc.fema.gov)
  - *NOTE: If the deck extends into a flood zone or a higher risk zone, this may now place the entire primary structure in the flood zone or a higher risk zone*
- The minimum 42" footing depth may need to be increased to prevent undermining the structure from erosion and scour.
- The design of the deck must not obstruct the flow of flood waters.
- Decks should be designed and constructed to prevent the deck and portions thereof from becoming floating debris and causing damage to the primary structure or other structures.
- The height if the deck in relation to the primary structure's finished floor shall be designed to minimize water intrusion into the primary structure.
- Decks should be constructed of flood resistant materials and all fasteners shall be made of corrosion-resistant materials.
- The type of fasteners and locations where they are used shall be shown on the plans.
- For additional information:
  - FEMA (P-499)–" Home Builder's Guide to Coastal Construction" – Technical Fact Sheet No. 8-2
  - [www.fema.gov/media-library/assets/documents/3293](http://www.fema.gov/media-library/assets/documents/3293)
  - FEMA (P-55) –" Coastal Construction Manual", Sections 12.9 and 13.5
  - [www.fema.gov/media-library/assets/documents/3293](http://www.fema.gov/media-library/assets/documents/3293)

## **RESIDENTIAL DECKS**

### **REQUIRED INSPECTIONS**

It is the duty of the permit holder or their agent to notify the building official that such work is ready for inspection (R109.3). Required inspections for an average deck will consist of:

- **Footing/pier inspection** after the hole is dug and prior to placement of concrete
- **Framing inspection** prior to the installation of deck boards on decks that will be less than 30" above grade.
- **Other inspections** may be required based on the size, type, location and complexity of the deck.
- **Final inspection** is required after the work is complete and prior to use/occupancy of the deck. (R109.1.6) A certificate of completion will be issued by the building department once the deck passes a final inspection.

## **RESIDENTIAL DECKS**

### **INSPECTION CARD**

**Note to Applicant:** This Inspection Card shall be left on site in a visible and protected area along with the approved construction documentation for this project. The inspector will sign the appropriate section of the inspection card upon satisfactory completion and compliance with the applicable building codes and approved plans. When all required inspections have been signed-off on, the applicant or owner shall return the inspection card to the building department so a certificate of completion can be issued.

Building Permit No. \_\_\_\_\_ Date Issued: \_\_\_\_\_ Address: \_\_\_\_\_

Applicants Name: \_\_\_\_\_ Is the applicant the owner ? ☐ Yes ☐ No

Project Description: \_\_\_\_\_

#### **FOOTING INSPECTION**

Inspector	Date Approved	Comments
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#### **FRAMING INSPECTION**

Inspector	Date Approved	Comments
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#### **FINAL INSPECTION**

Inspector	Date Approved	Comments
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# **RESIDENTIAL DECKS**

## **SAMPLE APPLICATION DRAWINGS** **AND** **SUPPORTING DOCUMENTATION**

Project Information / checklist

Plot Plan / Site Plan

Existing Conditions Plan

Deck Layout Plan

Deck Foundation / Pier Plan

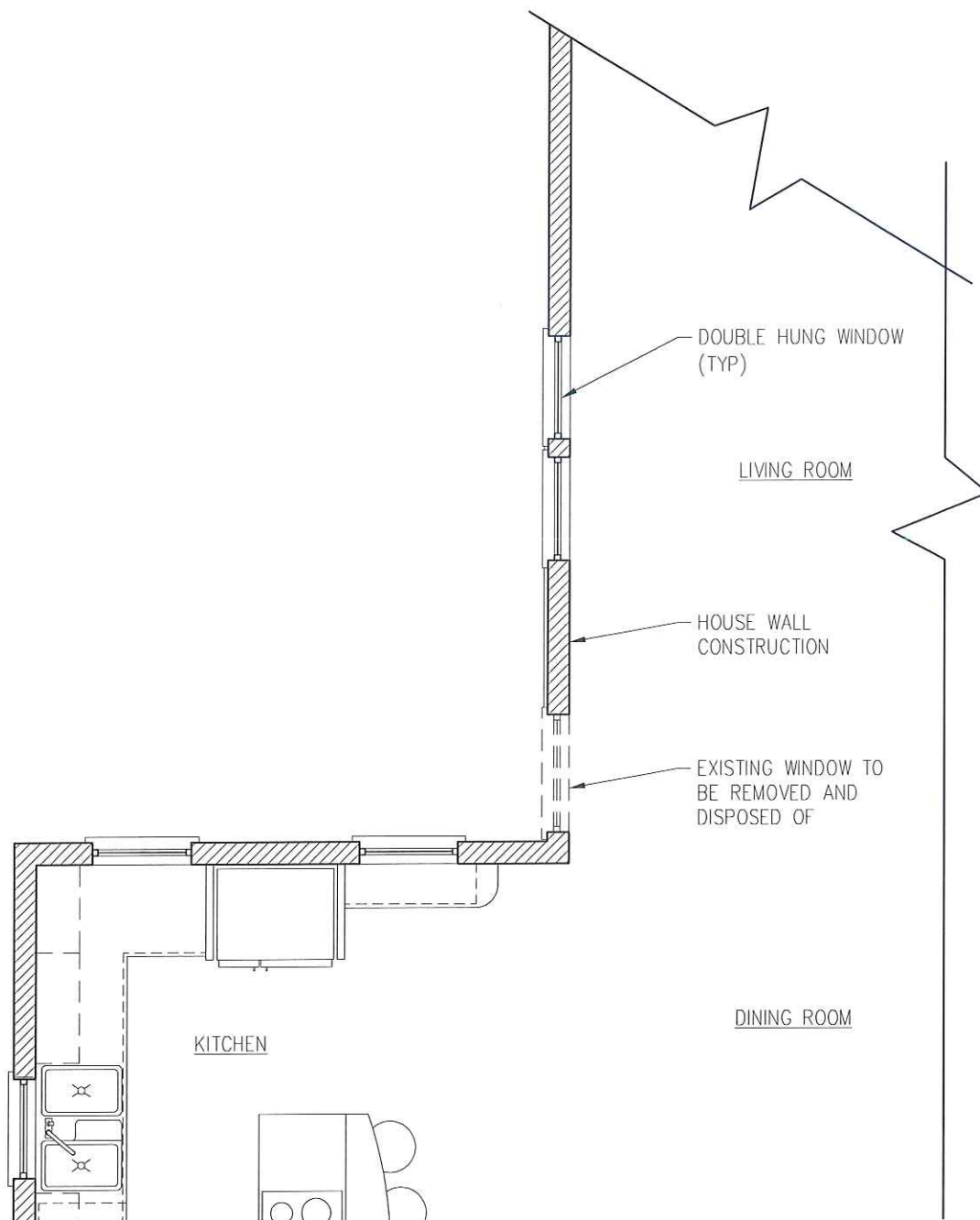
Deck Framing Plan

Section Drawing Through Deck

Proposed North Deck Elevation

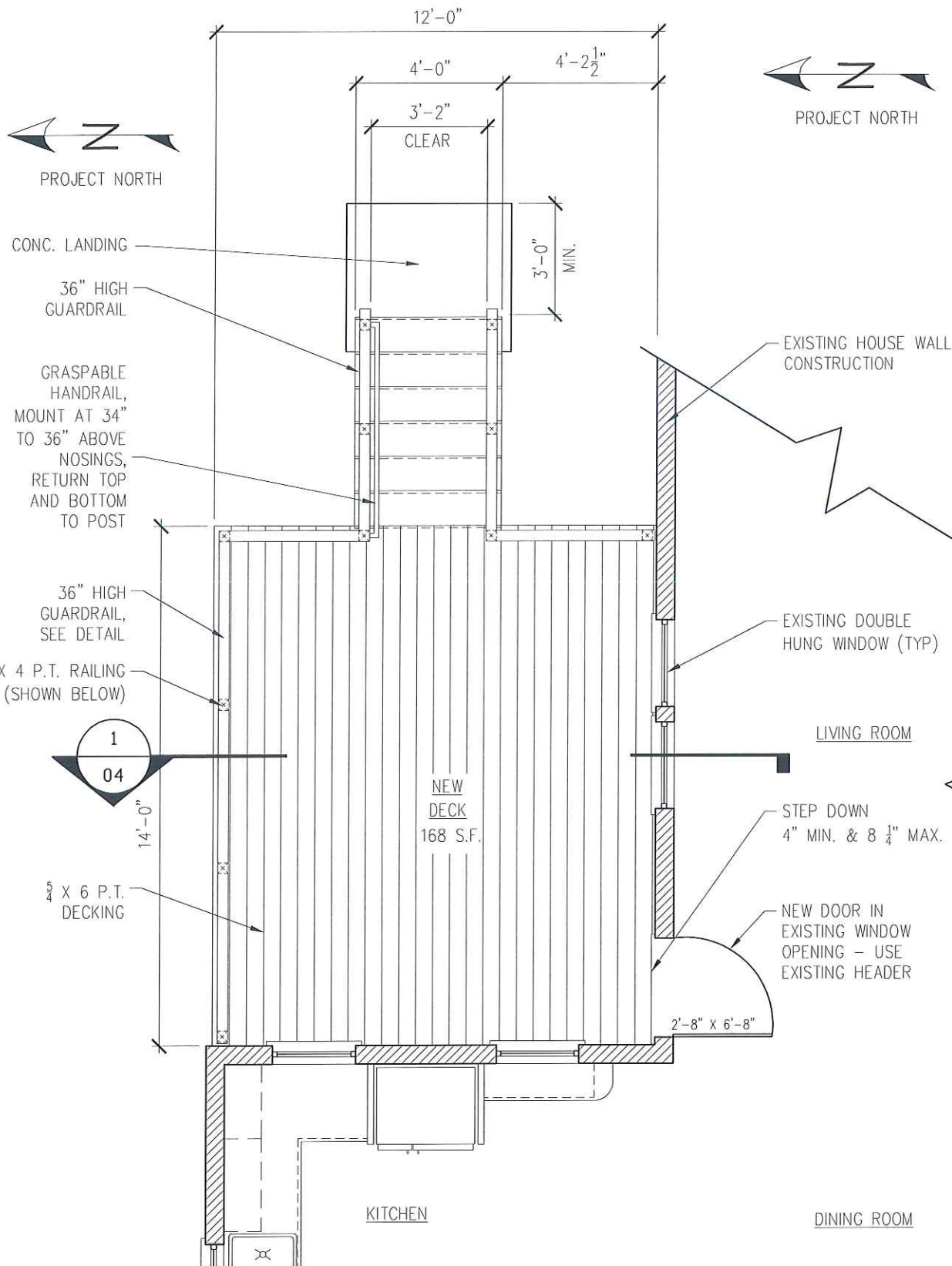
Proposed East Deck Elevation

Deck Details & Notes



Property Owner: <b>John &amp; Jane Doe</b>	Drawing Title: <b>EXISTING CONDITIONS PLAN</b>		Sheet No.: <b>A-00</b>
For Property Located At: <b>No. &amp; Street Name, Waterford CT</b>	Project Description: <b>NEW 12' X 14' DECK</b>	Scale: <b>1/4" = 1'-0"</b>	Date: <b>3/10/15</b>





Property Owner:

**John & Jane Doe**

Drawing Title:

**DECK LAYOUT PLAN**

Sheet No.:

**A-01**

For Property Located At:

**No. & Street Name, Waterford CT**

Project Description:

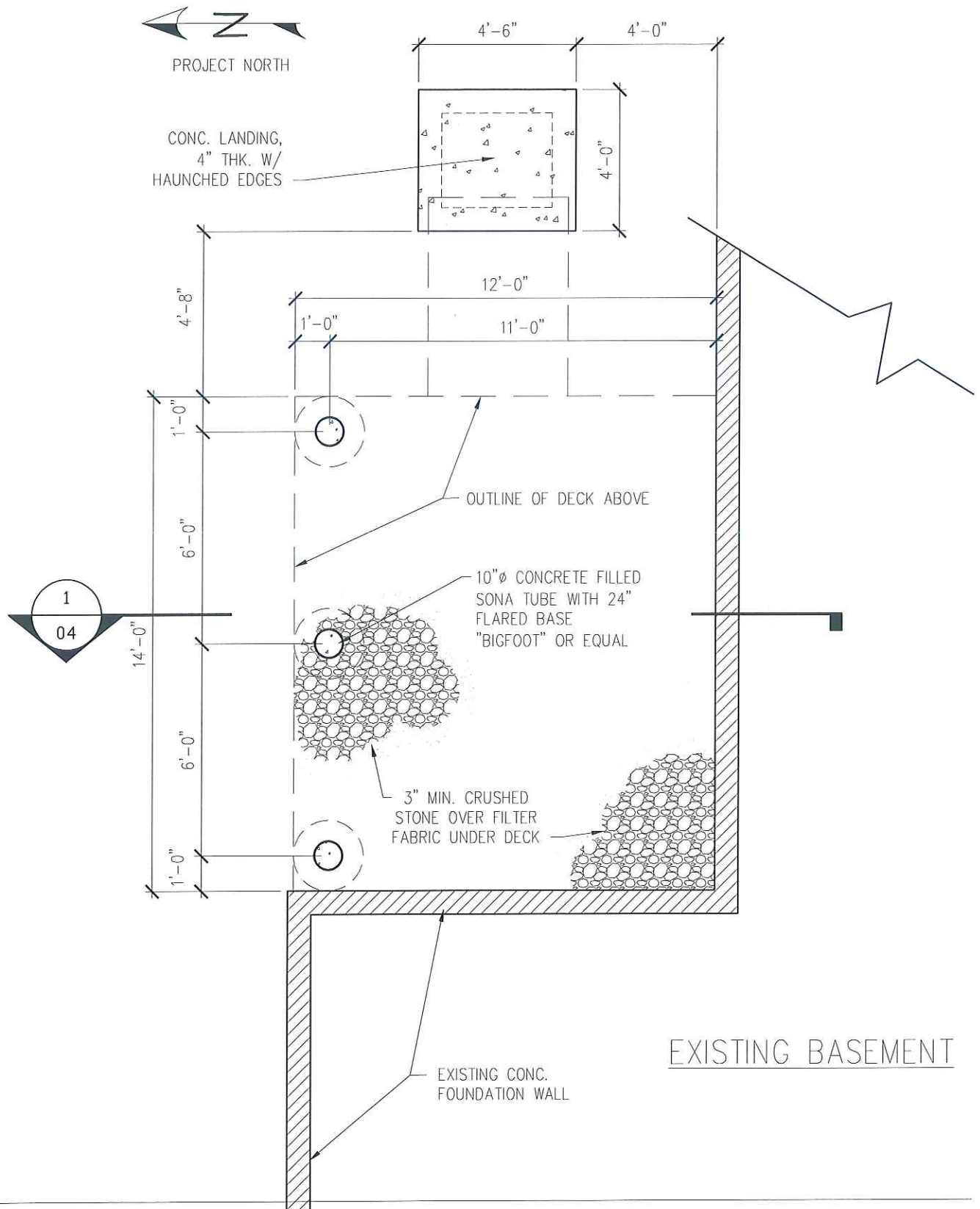
**NEW 12' X 14' DECK**

Scale:

**1/4" = 1'-0"**

Date:

**M/D/Y**



Property Owner:

**John & Jane Doe**

Drawing Title:

**DECK FOUNDATION / PIER PLAN**

Sheet No.:

**A-02**

For Property Located At:

**No. & Street Name, Waterford CT**

Project Description:

**NEW 12' X 14' DECK**

Scale:

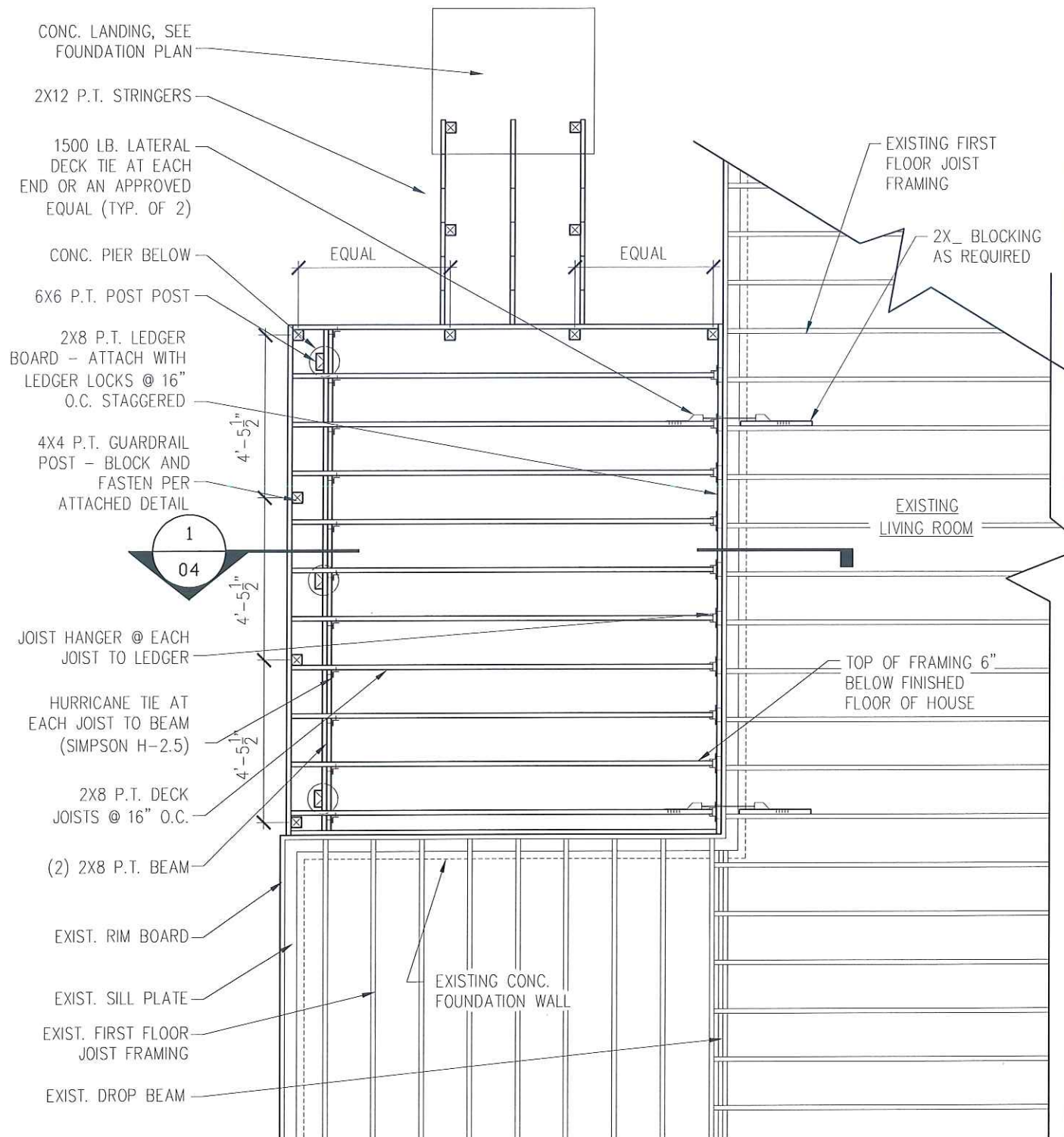
**1/4" = 1'-0"**

Date:

**M/D/Y**



PROJECT NORTH



Property Owner:

**John & Jane Doe**

Drawing Title:

**DECK FRAMING PLAN**

Sheet No.:

**A-03**

For Property Located At:

**No. & Street Name, Waterford CT**

Project Description:

**NEW 12' X 14' DECK**

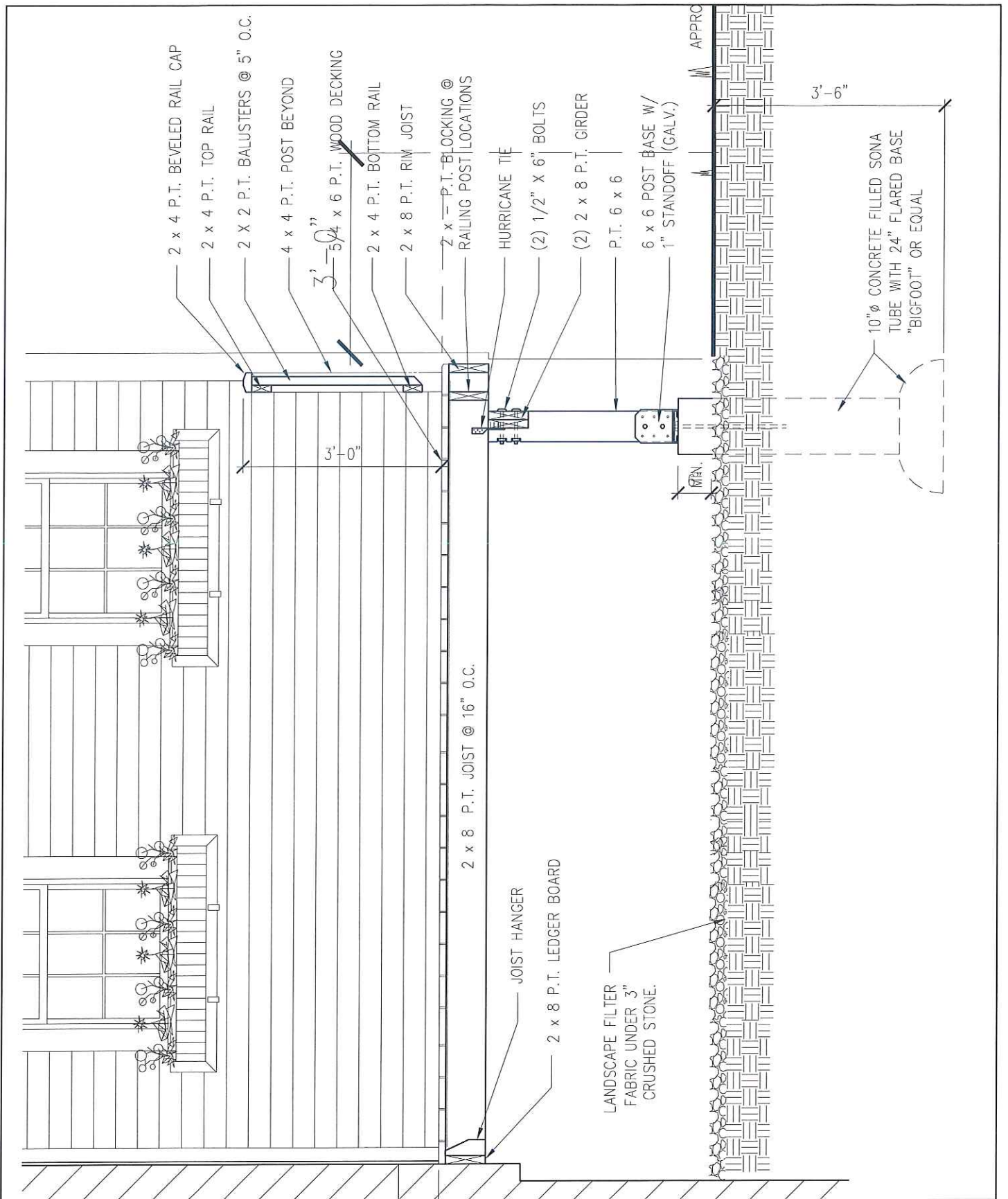
Scale:

**1/4" = 1'-0"**

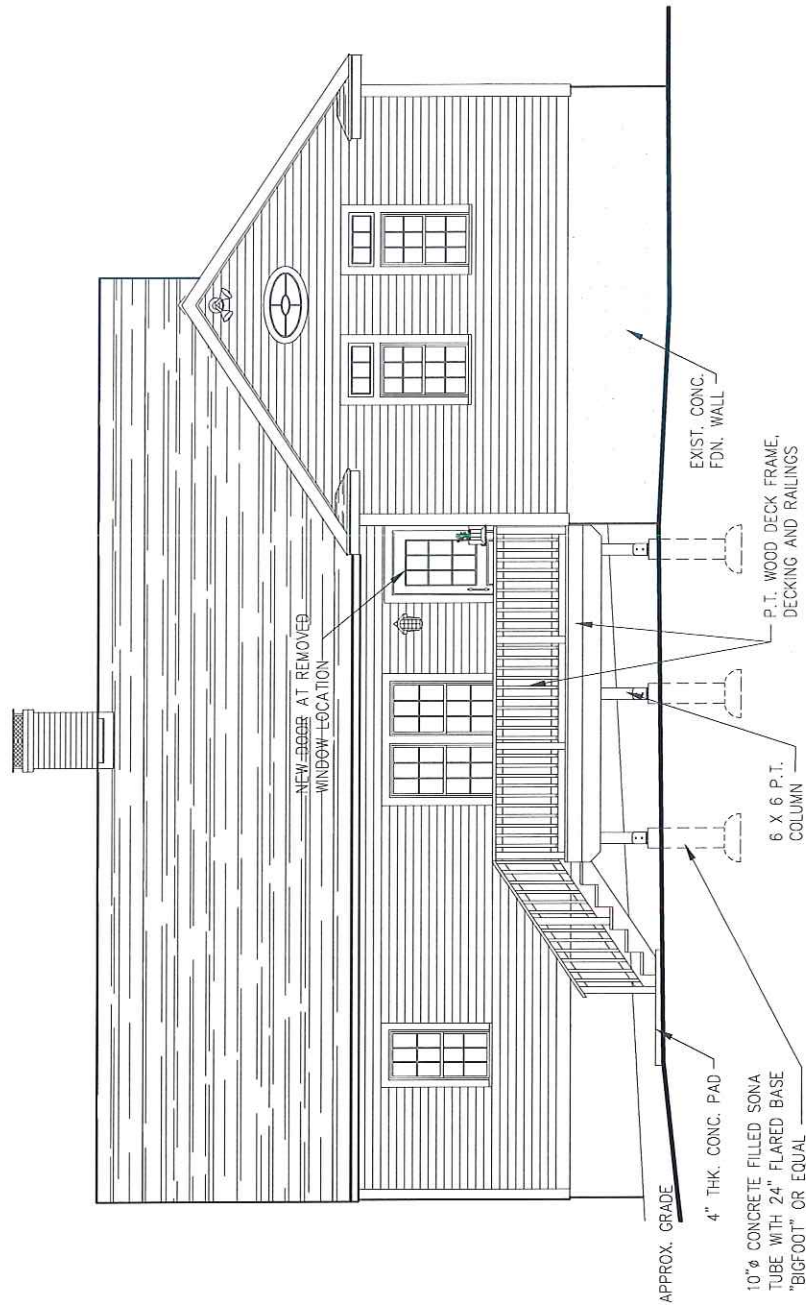
Date:

**M/D/Y**

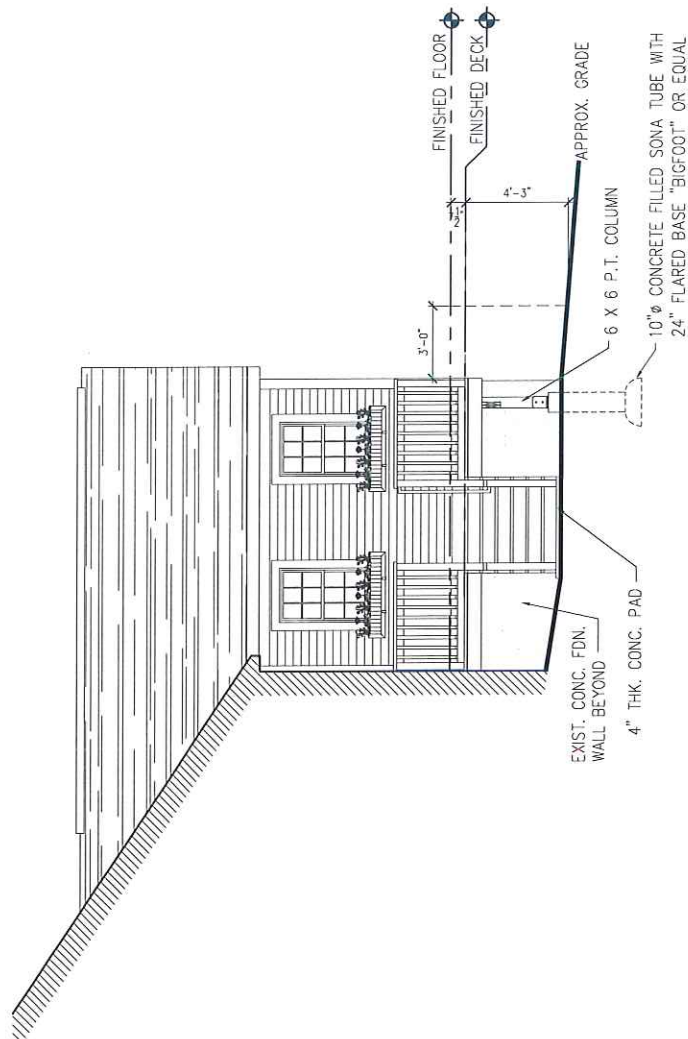




Property Owner: <b>John &amp; Jane Doe</b>	Drawing Title: <b>SECTION DRAWING THROUGH DECK</b>	Sheet No.: <b>A-04</b>
For Property Located At: <b>No. &amp; Street Name, Waterford CT</b>	Project Description: <b>NEW 12' X 14' DECK</b>	Scale: <b>1/4" = 1'-0"</b>
		Date: <b>M/D/Y</b>

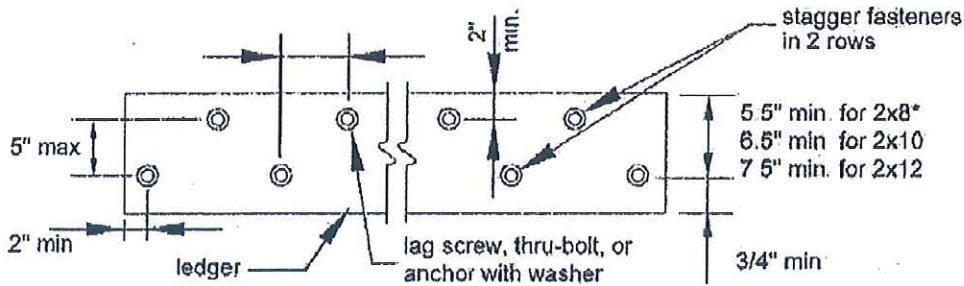


Property Owner: <b>John &amp; Jane Doe</b>	Drawing Title: <b>PROPOSED NORTH DECK ELEVATION</b>	Sheet No.: <b>A-05</b>
For Property Located At: <b>No. &amp; Street Name, Waterford CT</b>	Project Description: <b>NEW 12' X 14' DECK</b>	Scale: <b>1/8" = 1'-0"</b>
		Date: <b>M/D/Y</b>

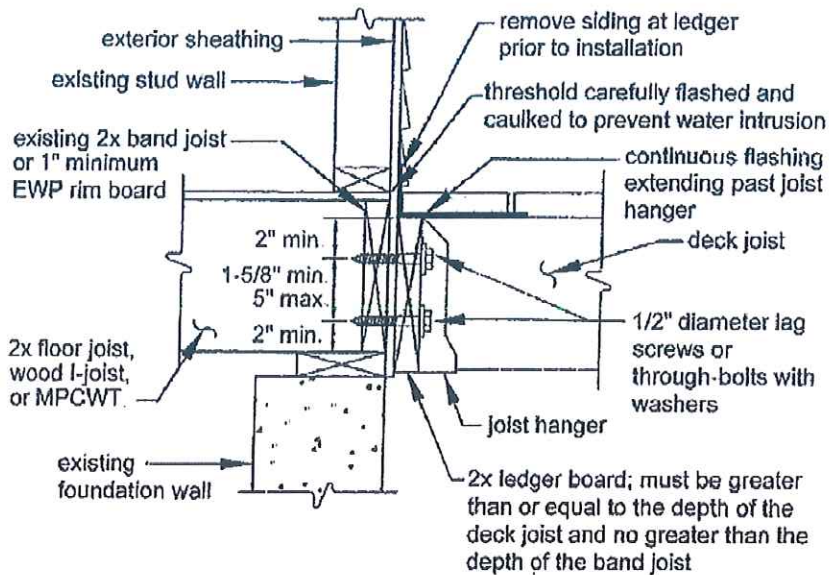


Property Owner:	Drawing Title:		Sheet No.:
John & Jane Doe	PROPOSED EAST DECK ELEVATION		A-06
For Property Located At:	Project Description:	Scale:	Date:
No. & Street Name, Waterford CT	NEW 12' X 14' DECK	1/4" = 1'-0"	M/D/Y



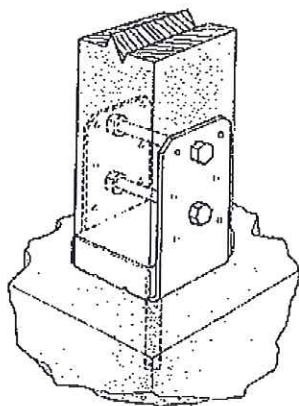


\*Distance can be reduced to 4 5" if lag screws are used or bolt spacing is reduced to that of lag screws to attach 2x8 ledgers to 2x8 band joists (1/2" stacked washers not permitted)



#### DECK CONSTRUCTION

- ALL FRAMING TO BE PRESSURE TREATED LUMBER
- ALL HARDWARE TO BE GALVANIZED OR STAINLESS STEEL CORROSION RESISTANT HARDWARE
- AT NO POINT IN THE RAILING SYSTEM CONSTRUCTION SHALL THERE BE ANY OPENINGS LARGER THAN 3 1/2"
- MAXIMUM STAIR RISER HEIGHT SHALL BE 8"
- ALL RISERS SHALL BE CLOSED MINIMUM TREAD DEPTH SHALL BE 10"
- GUARDRAILS SHALL BE A MINIMUM OF 36" HIGH
- A GRASPABLE HANDRAIL SHALL BE PROVIDED ON ALL SETS OF STAIRS WITH 4 OR MORE RISERS
- HANDRAILS, WHERE REQUIRED SHALL BE MOUNTED ON AT LEAST ONE SIDE OF THE STAIR
- STAIRS TO REST ON A 4" THICK CONCRETE PAD. PAD SHALL BE A MIN. 54" WIDE X 48" DEEP. STAIR SHALL REST ON THE FIRST 12" OF THE PAD
- LEDGER BOARDS SHALL BE ATTACHED TO THE EXISTING STRUCTURAL MEMBERS AT 16" O.C. WITH LEDGER LOK FASTENERS IN A STAGGERED PATTERN. FASTENERS SHALL BE NO CLOSER THAN 2" FROM THE TOP OR BOTTOM OF THE LEDGER BOARD.
- DECK JOISTS TO BE SECURED TO THE GIRDER WITH HURRICANE CLIPS AS NOTED
- ALL POSTS TO SET IN POST BASES AS NOTED.
- ALL POST TOPS TO HAVE A POST TO GIRDER CONNECTOR AS NOTED ON THE PLANS
- ALL POSTS/POST BASES SHALL SET ON 10" BIGFOOT FOOTINGS. BOTTOM OF FOOTINGS TO BE 42" MIN. BELOW GRADE.
- ALL ASSOCIATED CONCRETE FOR DECK PIERS AND PADS SHALL BE 3000 PSI MINIMUM
- PROVIDE NEW FLASHING AS NOTED



**ABU Adjustable Post Base with Standoff:**

Property Owner: <b>John &amp; Jane Doe</b>	Drawing Title: <b>DECK DETAILS &amp; NOTES</b>	Sheet No.: <b>A-07</b>
For Property Located At: <b>No. &amp; Street Name, Waterford CT</b>	Project Description: <b>NEW 12' X 14' DECK</b>	Scale: <b>1/4" = 1'-0"</b>
		Date: <b>M/D/Y</b>