

INFORMAL CODE INTERPRETATION

NC Dept of Insurance
Office of the State Fire Marshal – Engineering Division
1202 Mail Service Center, Raleigh, NC 27699-1202
919-661-5880

Windborne Debris Protection

Code: 2012 Residential Code

Date: December 18, 2012

Section: R301.2.1.2

Question:

Is windborne debris protection required for windows, doors and glazing in exterior walls of coastal dwellings?

Answer:

Yes. See the attached illustrations for requirements.

Question:

For an existing dwelling, are windows that:

1. Replace only a glazing panel and not an entire window sash required to meet the windborne debris protection requirements?
2. Replace only the sash required to meet the windborne debris protection requirements?
3. Replace the window but do not remove the existing window frame required to meet the windborne debris protection requirements?
4. Replace the window including the window frame required to meet the windborne debris protection requirements?

Answer:

1. No. This is considered maintenance and will not require the addition of windborne debris protection unless it was provided prior to the replacement.
 2. No. This is considered maintenance and will not require the addition of windborne debris protection unless it was provided prior to the replacement.
 3. Yes. This is considered an alteration. The window must meet the current code requirements and the window must be provided with windborne debris protection.
 4. Yes. This is considered a renovation. The window must meet the current code requirements and the window must be provided with windborne debris protection.
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Question:

Will an addition to the dwelling such as a sunroom, bathroom, bedroom, etc. require the entire building to be brought up to current code for windborne debris protection?

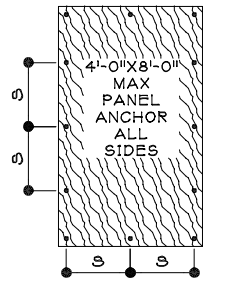
Answer:

No, the new addition must comply with the current code requirements. The unaffected existing portion of the building may remain as-is, assuming it complied with the code under which it was originally built.

TABLE R301.2.1.2

130 MPH DESIGN WIND SPEED OR LESS
 $\frac{7}{16}$ " WOOD STRUCTURAL PANEL FASTENER SCHEDULE*

FASTENER TYPE	FASTENER SPACING "S"		
	PANEL SPAN $\leq 4'-0"$	$4'-0" < \text{PANEL SPAN} \leq 6'-0"$	$6'-0" < \text{PANEL SPAN} \leq 8'-0"$
#8 WOOD SCREWS 2" EMBEDMENT	16" O.C.	10" O.C.	8" O.C.
#10 WOOD SCREWS 2" EMBEDMENT	16" O.C.	12" O.C.	9" O.C.
$\frac{1}{2}$ " LAG SCREWS 2" EMBEDMENT	16" O.C.	16" O.C.	16" O.C.



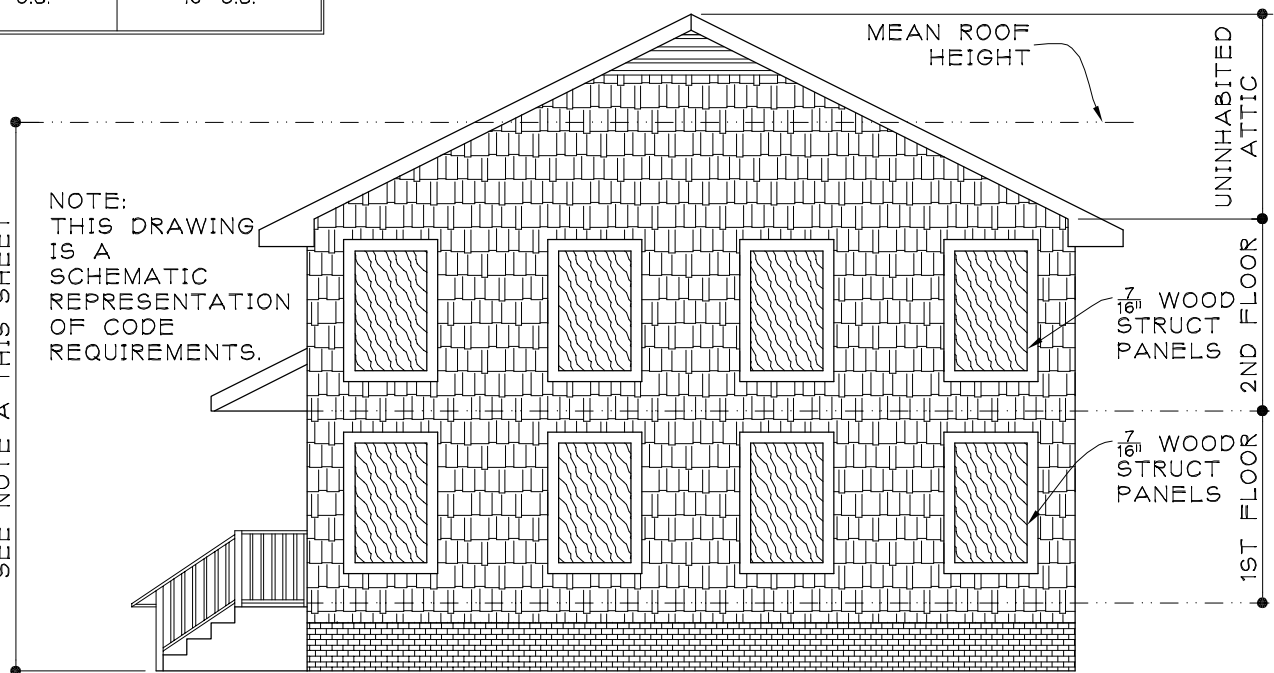
FASTENER PATTERN

*FASTENER NOTES:

- A. THIS TABLE IS BASED ON 130 MPH MAXIMUM WIND SPEED (3 SEC. GUST) AND A 33 FOOT MEAN ROOF HEIGHT OR LESS. WHEN MEAN ROOF HEIGHT EXCEEDS 33'-0", DESIGN PLYWOOD FASTENERS PER ASCE 7-05.
- B. FASTENERS SHALL BE INSTALLED AT OPPOSING ENDS OF THE WOOD STRUCTURAL PANEL. FASTENERS SHALL BE LOCATED A MINIMUM OF 1" FROM THE PANEL EDGE. SPECIFIED FASTENERS ARE MINIMUM. ADDITIONAL FASTENERS MAY BE REQUIRED.
- C. FASTENERS SHALL BE LONG ENOUGH TO PENETRATE THROUGH THE EXTERIOR WALL COVERING A MINIMUM OF 2" INTO THE BUILDING FRAME. FASTENERS SHALL BE LOCATED A MINIMUM OF 2 $\frac{1}{2}$ " FROM THE EDGE OF CONCRETE BLOCK OR CONCRETE.
- D. WHERE SCREWS ARE ATTACHED TO MASONRY OR MASONRY/STUCCO, THEY SHALL BE ATTACHED UTILIZING VIBRATION-RESISTANT ANCHORS HAVING A MINIMUM ULTIMATE WITHDRAWAL CAPACITY OF 1500 LBS.
- E. PLYWOOD MUST BE ONSITE, CUT TO FIT OPENINGS, AND DRILLED FOR FASTENERS PRIOR TO ISSUING THE CERTIFICATE OF OCCUPANCY.

SEE NOTE A THIS SHEET

NOTE:
 THIS DRAWING IS A SCHEMATIC REPRESENTATION OF CODE REQUIREMENTS.



SEE NOTE 1 ON DWG 5
 SEE NOTE 1 ON DWG 5

NC DEPT OF INSURANCE
 OSFM - EVALUATION SERVICES

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WIND BORNE DEBRIS PROTECTION
2012 NC RESIDENTIAL CODE
 CODE SECTION R301.2.1.2

ONE OR TWO STORY DWELLING

DATE	DWG NO.	SCALE	REV
06/09/10	1 OF 5	N/A	#1

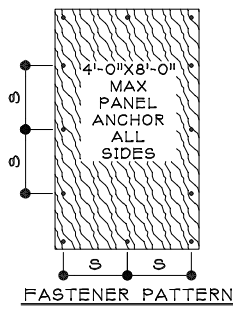
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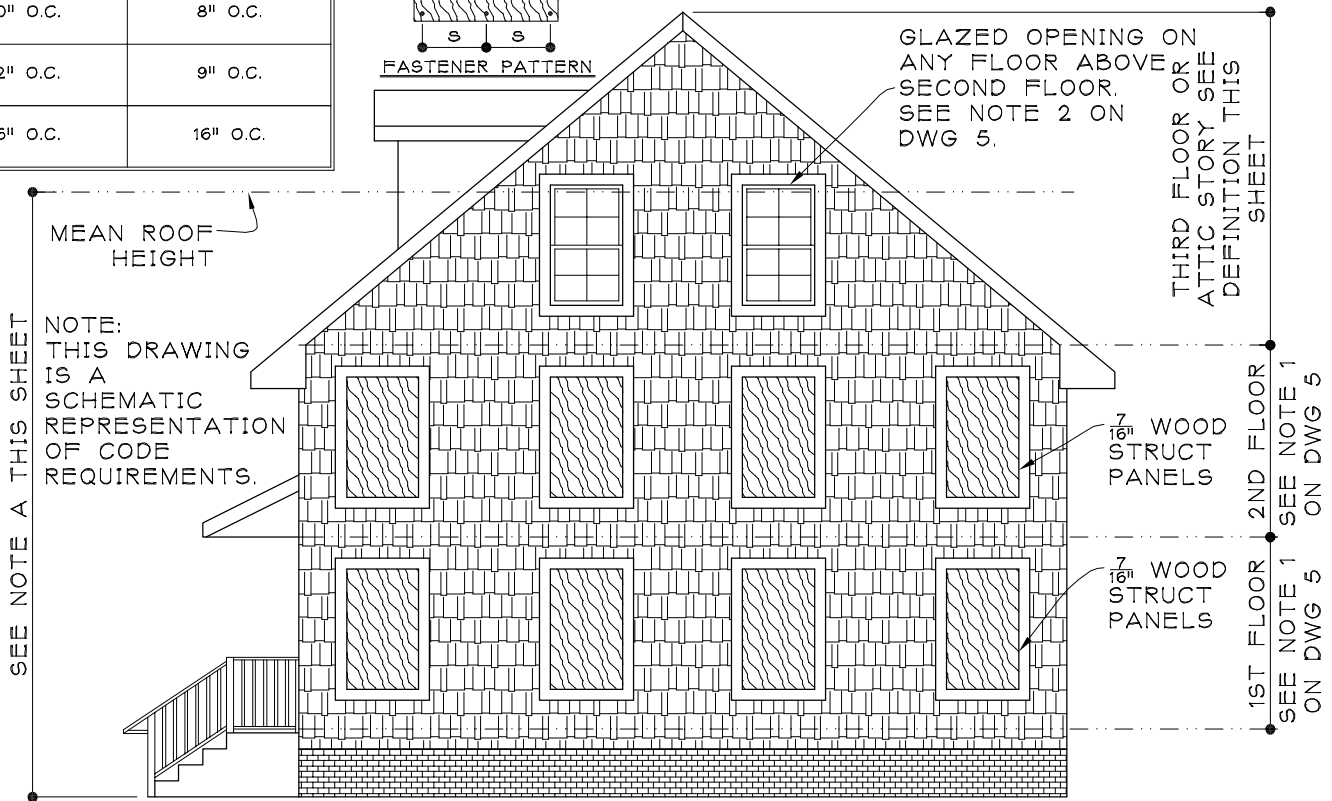
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- D. WHERE SCREWS ARE ATTACHED TO MASONRY OR MASONRY/STUCCO, THEY SHALL BE ATTACHED UTILIZING VIBRATION-RESISTANT ANCHORS HAVING A MINIMUM ULTIMATE WITHDRAWAL CAPACITY OF 1500 LBS.
- E. PLYWOOD MUST BE ONSITE, CUT TO FIT OPENINGS, AND DRILLED FOR FASTENERS PRIOR TO ISSUING THE CERTIFICATE OF OCCUPANCY.



ATTIC STORY:
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NOTE:
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SEE NOTE A THIS SHEET

GLAZED OPENING ON ANY FLOOR ABOVE SECOND FLOOR. SEE NOTE 2 ON DWG 5.

1ST FLOOR SEE NOTE 1 ON DWG 5
 2ND FLOOR SEE NOTE 1 ON DWG 5
 THIRD FLOOR OR ATTIC STORY SEE DEFINITION THIS SHEET

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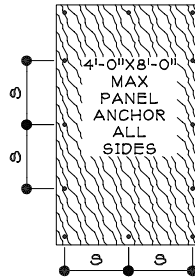
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TWO AND A HALF OR 3 STORY DWELLING			
DATE	DWG NO.	SCALE	REV
06/09/10	2 OF 5	N/A	#1

TABLE R301.2.1.2

130 MPH DESIGN WIND SPEED OR LESS
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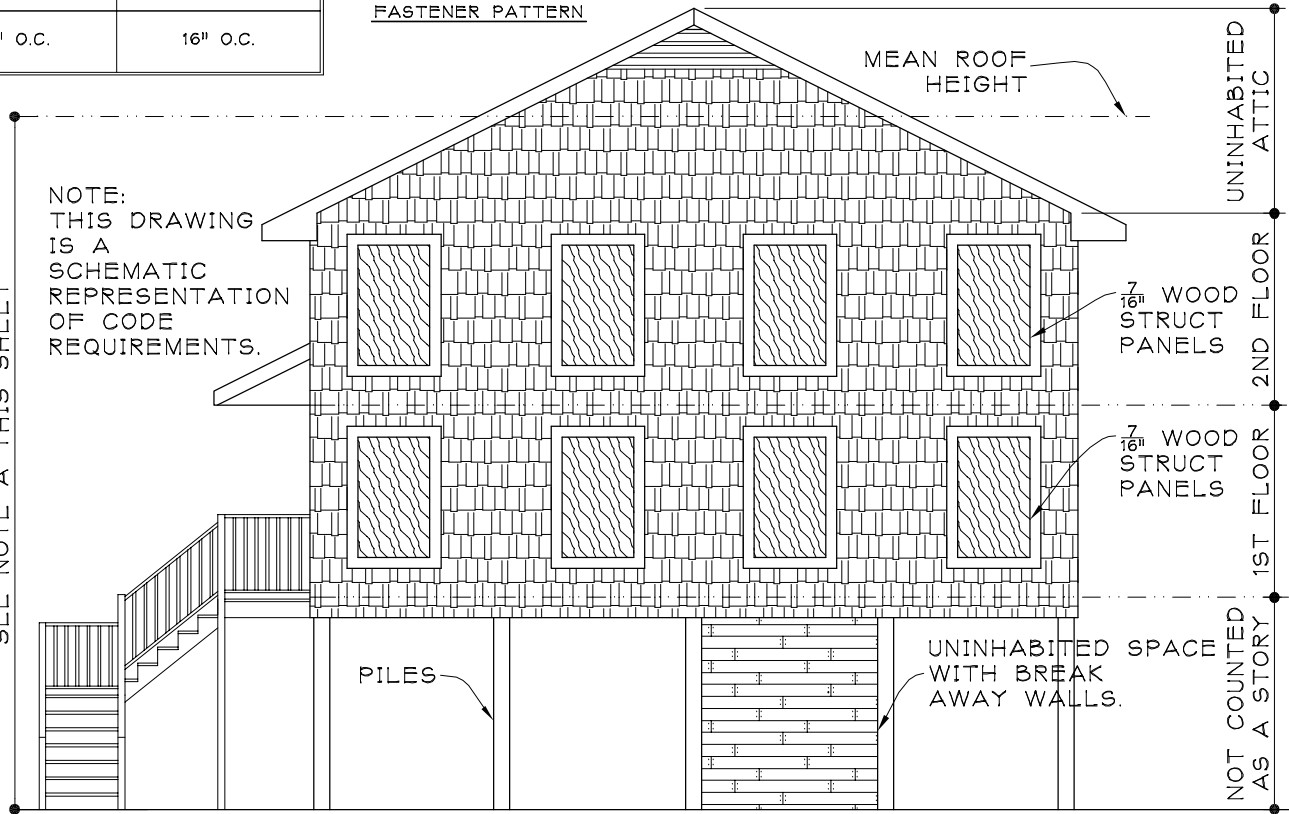
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SEE NOTE 1 ON DWG 5

NOT COUNTED AS A STORY

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ONE OR TWO STORY DWELLING ON PILES

DATE	DWG NO.	SCALE	REV
06/09/10	3 OF 5	N/A	#1

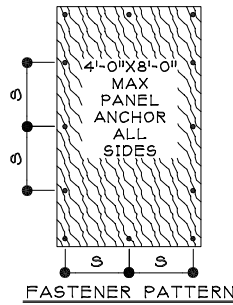
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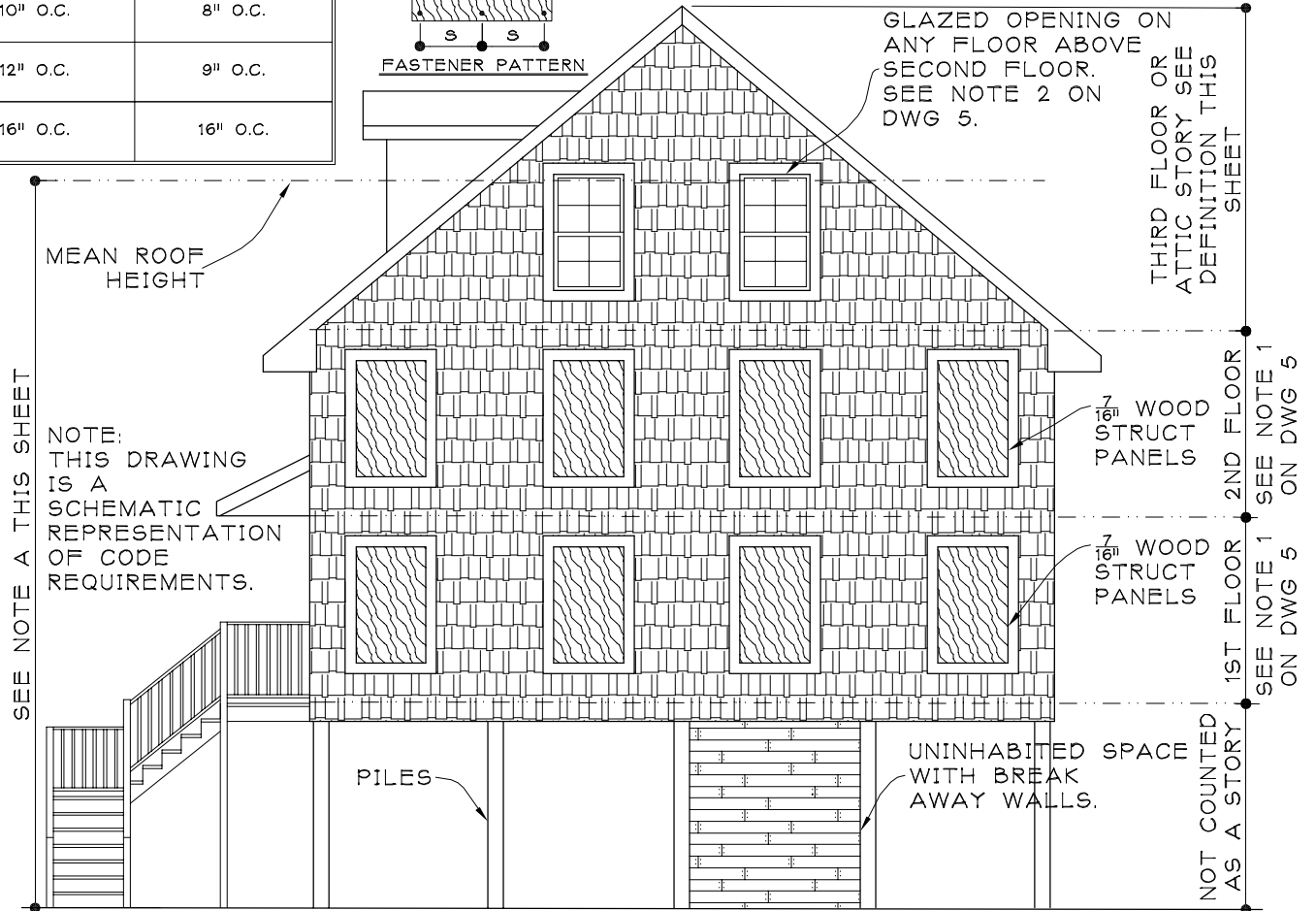
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TWO AND A HALF OR 3 STORY DWELLING ON PILES

DATE	DWG NO.	SCALE	REV
06/09/10	4 OF 5	N/A	#1

NOTE # 1: The following are options for protecting exterior openings in one or two story dwellings, (see Dwgs 1 and 2) and on the lower two floors of two and a half or three story dwellings (see Dwg. 3 and 4) where these structures are located in windborne debris regions. Dwellings may be founded on shallow foundation or piles:

Option A*: Provide impact-resistant coverings, excluding wood structural panels per Option C, to protect glazed openings as addressed in R301.2.1.2 of the 2012 NC Residential Code. Attachment of the coverings shall be designed in accordance with either Table R301.2(2)** or ASCE 7.

-OR-

Option B: Provide impact-resistant glazing in openings, as addressed in R301.2.1.2 of the 2012 NC Residential Code. See Section R612 of the Residential Code for design and anchorage requirements.

-OR-

Option C: Provide 7/16" (min. thickness) wood structural panels to protect glazed opening in one and two story dwellings, as addressed in the Exception under Section R301.2.1.2 of the 2012 NC Residential Code, with panel attachment to comply with either of the following:

- Attachments shall be designed to resist the component and cladding loads determined in accordance with either Table R301.2(2)** of the 2012 NC Residential Code or the provisions of ASCE 7-05 Standard (Minimum Design Loads for Buildings and Other Structures). See Figure R301.2(7) for location of component & cladding pressure zones on a dwelling.
- Attachment in accordance with Table R301.2.1.2 of the 2012 NC Residential Code shall be permitted for dwellings with a mean roof height of 33 feet or less where wind speeds do not exceed 130 miles per hour (see Drawings No. 1-4).

NOTE # 2: The following are options for protecting exterior openings on a floor above the second floor in two and a half or three story dwellings (see Dwg. No. 2) and in two and a half story or three story dwellings on pilings (see Dwg. No. 4) where these structures are located in windborne debris regions:

Option A*: Provide impact-resistant coverings, excluding wood structural panels, at openings, as addressed in R301.2.1.2 of the 2012 NC Residential Code. Attachment of the coverings shall be designed in accordance with either Table R301.2(2)** or ASCE 7.

-OR-

Option B: Provide impact-resistant glazing to protect openings, as addressed in R301.2.1.2 of the 2012 NC Residential Code. See Section R612 of the NC Residential Code for design and anchorage requirements. See Section R612 of the 2012 NC Residential Code for design and anchorage requirements.

* Refer to the document entitled "Product Group: Impact-Resistant Coverings for Protection of Exterior Glazed Openings in Wind-Borne Debris Regions" by the NCDOI OSFM Evaluations Services, white paper revision date January 2, 2013.

** Table R301.2(2) of the NC Residential Code is based on a mean roof height of 30 feet located in Exposure B (exposures defined in Section R301.2.1.4. For adjustment of mean roof height and exposure category in Table R301.2(2), see Table R301.2(3).

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NOTES FOR DWGS 1 - 4

DATE	DWG NO.	SCALE	REV
06/09/10	5 OF 5	N/A	#1

Keywords:

Glazing, hurricane, high wind