

# 2001 COMPANY

## 2001 Co. ASCE – 7 – 03 Wind Uplift Evaluation Form (Ask for Form - ASCE7dpi.doc)

To determine a roof's wind uplift PSF (pounds per square foot)  
Pressure requirement for building code compliance.  
Essential criteria for evaluation.

- 1.) **Building name:** Coastal Medical Building
- 2.) **Building address:** Coastal Medical Building  
123 Medical Dr  
Coastal, NC
- 3.) **ASCE 7-03 mph wind design for location:** (See attached ASCE 7-03 mph contour map for: 120 MPH  
(North America)

85       90       100       120       130       140       150

4.) **Height of building roof level from ground level:**

Highest roof elevation: 60 Main roof: \_\_\_\_\_ Lower sections: 30

5.) **Are any building sides on top of a hill?** If yes add height of hill to building height. No

Building side: N. \_\_\_\_\_ S. \_\_\_\_\_ E. \_\_\_\_\_ W. \_\_\_\_\_ Hill elevation.

6.) **Partial enclosed building:** This building wind evaluation is where wind blown debris breaks windows louvers, doors etc. causing a 4' x 4' hole in the side of the building, now wind can fill the building with internal air pressure similar to blowing air into paper bag. Yes

7.) **Roof Slope:** 1/4 inch rise in 12 inches.

If building slope is greater than 2" in 12" need to fill out peaked or barrel wind uplift evaluation form.

8.) **Building exposure to wind:** Exposure: D

- Note: A.) Low building protected on all sides by higher terrain or buildings.....A.....  
B.) Suburban building protected by buildings of equal size.....B.....  
C.) Open terrain not protected by trees or other buildings.....C.....  
D.) Hurricane prone regions and/or within 1 mile of a large body of water.....D.....

9.) **Topographic wind speed up:** (areas prone to high wind effects)

Escarpment: A rising hill in front of an open plain or body of water, Valley, Canyon, bottom of cliff, or top of a mountain. No

**10.) Safety Factor:** To compensate for original construction flaws and aging of building component materials over the years. Plus consideration of human life preservation and community service during natural disasters and civil unrest.

1. **0% Safety Factor:** Actual ASCE 7-03 pressure.
2. **15% Safety Factor:** for low human occupancy residential.
3. **50% Safety Factor:** for 30 or more people occupancy multi family dwellings, small office, manufacturing, and school rooms of over thirty people occupancy FEMA standard.
4. **100% Safety Factor:** Critical facility for high person occupancy, providing human services during national disaster, hospitals, medical centers, police, power stations, fire departments, government service buildings and school.

Describe Building Use and Safety Factor Needed: Hospital 100 %

**ASCE 7 Wind design calculations in PSF (pounds per square foot) pressure:**

**11.) ASCE 7 – 03 – Actual no safety factor:**

Safety Factor: 0%                      Corner: 144      Perimeter: 96      Field: 57

**12.) Safety Factor 15%: Residential under 30 people occupancy:**

Safety Factor: 15%                      Corner: \_\_\_\_\_ Perimeter: \_\_\_\_\_ Field: \_\_\_\_\_

**13.) Safety Factor: 50%: Low occupancy 30 people or more:**

Safety Factor: 50%:                      Corner: \_\_\_\_\_ Perimeter: \_\_\_\_\_ Field: \_\_\_\_\_

**14.) Safety Factor: 100% High person occupancy Natural Disaster support facility:**

Safety Factor: 100%                      Corner: 288      Perimeter: 192      Field: 114

**EVALUATION REQUEST FORM – OTHERS TO COPY**

**Name:** \_\_\_\_\_

**Fax:** \_\_\_\_\_

**Firm:** \_\_\_\_\_

**E-Mail:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

# 2001 Co. ASCE 7 – 03 Wind Up Lift Evaluation Form

## Part 2 - Non-essential factors for ASCE 7 - 03

These items can lessen or increase wind uplift for the specific building.

- 1.) **Adjoining building attached that will funnel wind into the building**       Yes       No  
**Causing inside corner wind spill on the roof**       Yes       No  
 Example: intersecting wings L or T shaped

Describe: \_\_\_\_\_

- 2.) **Up wind buildings shedding wind vortices Into the building:**       Yes       No

- 3.) **Predominant wind direction into building:** Circle N, S, E, W, NE, SE, SW, NW

Describe: \_\_\_\_\_

- 4.) **Within one mile of the coast or large body of water:**       Yes       No

- 5.) **Building perimeter edge:** (Length and type)

A.) Parapet length: \_\_\_\_\_ Height: \_\_\_\_\_      B.) Gravel stop length: \_\_\_\_\_

C.) Extended Soffit: \_\_\_\_\_      D.) Other: \_\_\_\_\_

- 6.) **Internal pressurized building:** Positive pressure in HVAC, system or       Yes       No  
 Multi temperature change, Food Processing, Foundry, and medical facilities.

Building Use: \_\_\_\_\_

- 7.) **External air current diversions causing local low pressure regions on a roof:**

- A.) Signs or high walls.....  Yes       No  
 B.) Mansards or protruding soffits.....  Yes       No  
 C.) Exterior stair or elevator walls.....  Yes       No  
 D.) Adjoining building section.....  Yes       No  
 E.) Penthouse and higher on roof structure.....  Yes       No

- 8.) **Partially open building:** 4' by 4' window or door broken open by flying debris.

- A.) Open airplane hanger or storage shed with one side that could be  
 open to the wind creating internal building pressure.....  Yes       No  
 B.) Truck doors or drive through side entrance areas that could be  
 open into the wind filling the building with air pressure.....  Yes       No  
 C.) 4' x 4' Glass front, or doors or curtain walls that can be broken open  
 by flying debris filling the building with air pressure .....  Yes       No

9.) **Air permeable roof deck:** No vapor barrier or air barrier..... Yes       No

10.) **Deck or existing roof substrate air sealed by one option below:**

- A.) Repaired existing roof membrane in re-roofing.....
- B.) Air barrier 5 mil reinforced poly sheeting mechanically fastened with new insulation boards.....
- C.) Air seal deck joints with 2001 Co., deck adhesive caulk or term bar tape.....
- D.) 2001 Co., slow rise adhesive foam sprayed into and over deck joints.....

11.) **2001 Co., patented perimeter and penetration and protrusion air seals:**     Yes       No

- OSB     Shear Skirt     Upside down cover tape     Direct membrane termination
- Other: \_\_\_\_\_

12.) **Hot air stacking effect:** Four stories or greater with open shaft areas for hot air to rise to the roof deck and permeate into the roof assembly.       Yes       No

13.) **Curtain wall construction open to roof or parapet height:**  
To channel building hot air into the flashing or roof assembly.       Yes       No

14.) **Roof edges over 100 ft., in length where secondary wind vortices develop:**  
Or vertical building obstruction that will channel air up the wall       Yes       No

15.) **Roof assembly descriptions:**

1.) **Deck:** \_\_\_\_\_

2.) **Existing roof assembly description:** (Write in specific assembly attachment)

A.) Vapor or air barrier on deck:       Yes       No

Describe: \_\_\_\_\_

B.) Insulation: \_\_\_\_\_ 1.5" Iso / 1/4" Perlite \_\_\_\_\_

C.) Water proofing membrane: \_\_\_\_\_ 2 Ply Granular BUR Surface \_\_\_\_\_

3.) **Preparation for re-roofing:** \_\_\_\_\_ Tear off to existing metal deck \_\_\_\_\_

4.) **New 2001 Roof assembly description:**  or **2001 re-roofing over existing roof deck:**   

A.) Air barrier: \_\_\_\_\_

B.) Insulation: \_\_\_\_\_

C.) Cover board: \_\_\_\_\_

- D.) Separator sheet: \_\_\_\_\_
- E.) Attachment: \_\_\_\_\_
- F.) Waterproofing membrane: \_\_\_\_\_
- G.) Attachment method: \_\_\_\_\_

## **Building Code Compliance and Other Roof Design Concerns**

- 16.) **Snow load design area:** \_\_\_\_\_
- 17.) **Dead load capacity of roof structure:** \_\_\_\_\_
- 18.) **Live load capacity of roof structure:** \_\_\_\_\_
- 19.) **Water flow capacity of roof drains:** \_\_\_\_\_
- 20.) **Capacity of internal drains:** \_\_\_\_\_
- 21.) **Capacity of overflow scuppers:** \_\_\_\_\_
- 22.) **Roof top equipment weight added to roof deck:** \_\_\_\_\_
- 23.) **Internal building equipment weight added to roof deck:** \_\_\_\_\_
- 24.) **Other significant building specific design concerns:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- 25.) **Applicable area codes and approvals:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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# ASCE 7 – 03 Wind Uplift Design Calculations:

Wind up lift is acceptable to a PSF (per square foot) pressure

21.) ASCE 7 – 03 actual design 0% safety factor – residential (single family home).3

Safety 0%                      Corner:   144   Perimeter:   96   Field:   57  

## **Safety factors for construction flaws and roof assembly material aging:**

22.) Safety Factor: 50% 30 person occupancy office store manufacturing warehouse facility

Safety 50%:                      Corner:            Perimeter:            Field:           

23.) **Safety Factor: 100% High person occupancy and valuable content inside:** : Hospitals, schools, power stations, police, fire, communications, 911 Facilities, and placed where the public would go shelter in a natural disaster.

Safety 100%                      Corner:   288   Perimeter:   192   Field:   114  

### **Disclaimer:**

2001 Company has provided the following ASCE 7 – 03 wind up lift calculations on information provided by others. These calculations are provided as a guide and 2001 Company makes no claim to the accuracy of these figures.

Actual wind designs pressures for a roof on a specific building should be preformed by a licensed engineer or an architect familiar with the Local code requirements where the building is located.