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September 23, 2016
Revised November 7, 2016

Mr. Elias Slaiby
The General Investment & Development Companies
1345 Avenue of the Americas, Suite 200, 2nd Floor
New York, NY 10105

Re: Riverside Center Building 1 (aka 400 West 61st Street), New York, NY
Independent Structural Engineering Review
GMS Project Number 16360

Dear Mr. Slaiby,

As per your request, Gilsanz Murray Steficek LLP conducted an independent structural engineering peer review of the proposed Riverside Center building 1. We reviewed drawings prepared by WSP *dated 10/27/2016 superstructure and dated 04/15/2016 for the foundation. A drawing list is provided at the end of our peer review report.*

Based on our review, the structural design shown on the plans and specifications is generally in conformance with the structural and foundation requirements of the NYC Building Code. The results of the peer review are detailed in the attached report, and are summarized as follows:

1. The design loads generally conform to the requirements of the NYC Building Code.

2. The structural design criteria and design assumptions conform to the NYC Building Code, and are in accordance with generally accepted engineering practice.

3. The existing conditions at the site have been investigated by a geotechnical engineer and by a wind tunnel consultant. We have reviewed the geotechnical investigation report and the wind tunnel results and confirmed that the design generally incorporates their results. *The wind tunnel report was peer reviewed by another wind tunnel consultant, who confirmed that the wind tunnel study complies with the requirement of the code.*

4. The structure has a complete load path.

5. Calculations have been performed for a representative fraction of the system, members, and details, and we have confirmed their code adequacy. We have some serviceability comments on the design, which we noted in the report.

6. We have confirmed that the design complies with the structural integrity provisions of the code.

7. The structural plans are in general conformance with the architectural plans made available to us.

8. The major mechanical items shown on the architectural drawings at this time are accommodated in the structural plans.

9. It is our opinion that the general completeness of the plans and specifications is adequate.

I trust this information is sufficient for your current purposes. If you have any questions or comments, please do not hesitate to contact us.

Very truly yours,

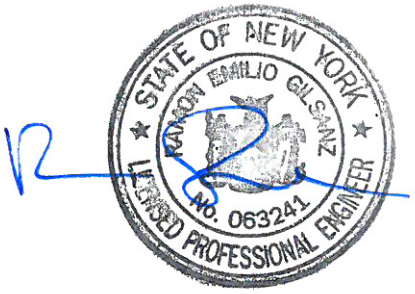
Ramon Gilsanz, PE
Partner
Gilsanz Murray Steficek, LLP

Jennifer Lan, PE
Associate
Gilsanz Murray Steficek, LLP

INDEPENDENT STRUCTURAL ENGINEERING PEER REVIEW

RIVERSIDE CENTER BUILDING 1
NEW YORK, NY

September 23, 2016
Revised November 7, 2016



GMS
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Executive Summary

Gilsanz Murray Steficek LLP conducted an independent structural engineering peer review of the proposed Riverside Center building 1. We reviewed drawings prepared by WSP *dated 10/27/2016 superstructure and dated 04/15/2016 for the foundation. A drawing list is provided at the end of the report.*

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Information Provided to GMS for Review:

Structural drawings, prepared by WSP, dated 10/27/2016 for superstructure and dated 04/15/2016 for the foundation. A drawing list is attached at the end of the report.

Structural specification Section 033000 "Cast-in-Place Concrete" and Section 032000 "Concrete Foundation Work", prepared by WSP, dated 04/15/2016.

Architectural drawings, dated 02/05/2015, prepared by GHWA and KPF.

Geotechnical Investigation Report, dated 02/20/2016, prepared by LANGAN.

Wind tunnel tests for Riverside Center Building 1, New York, NY – CPP Project # 8180, dated 02/19/2016, prepared by CPP.

Final Structural Loads Report, dated 10/29/2016, prepared by CPP.

Final Structural Loads Report, dated 11/2/2016, prepared by CPP.

Riverside Center Building 1 – Review of Wind Design Loads, dated 11/20/2016, prepared by BLWTL

Riverside Center Building 1 400 West 61st Street, New York, NY Structural Narrative, prepared by WSP, dated 06/30/16.

ETABS model prepared by WSP, sent on 06/30/2016.

Revised Wind Loads issued by CPP, sent on 9/20/2016.

Design Codes

New York City Building Code 2014 Edition

ACI-318 Building Code Requirements for Structural Concrete

Building Description:

The project, known as Riverside Center Building 1, is located in 400 West 61st Street, New York, NY. It is a residential building consisting of two towers with two levels below ground levels. The west tower will be 39 stories and approximately 456 feet above the street level. The east tower will be 27 stories and approximately 300 feet above the street level.

Foundations:

The building has 2 floors below grade. The shear walls and columns are supported on pile caps and/or footings. There is a pressure slab for the flood loads. The site contains foundation walls at the perimeter on three sides and shares a foundation wall with an existing structure to the east.

Superstructure:

The superstructure consists of cast-in-place slabs, shear walls, and columns. The floor slabs are of two-way flat plate construction and variable thicknesses that are typically in the range of 8"-12". Column walks/transfers occur at multiple floors such as 3rd floor and 19th floor.

Lateral System:

The lateral system consists of cast-in-place shear walls that vary in thickness. In both towers the shear walls are configured around the central core.

Structural Review:

Design Criteria & Loads:

Dead & Live Loads:
The gravity loading criteria is based on occupancy per loading schedule on drawing FO-001.01. The structural design loads and assumptions conform to the NYC Building Code, and are in accordance with generally accepted engineering practice.

Wind Loads:
The wind loads are based on loading provided in CPP's wind tunnel test report.

Wind loads were based upon the following natural building frequencies:

West Tower and Podium:
- Mode 1: 0.3175 Hz , T= 5.15 sec (primary torsion)
- Mode 2: 0.2703 Hz, T= 3.7 sec (primary Y-sway)
- Mode 3: 0.1942 Hz, T= 3.15 sec (primary X-sway)

East Tower:
- Mode 1: 0.5714 Hz , T= 1.75 sec (primary torsion)
- Mode 2: 0.6667 Hz, T= 1.5 sec (primary Y-sway)
- Mode 3: 0.8929 Hz, T= 1.12 sec (primary X-sway)

The wind exposure is Exposure B from the east and Exposure C from the west. The east-west design moment recommended by CPP exceeds 80% of Exposure B loads and 50% of Exposure C loads, which is complies with 2014 NYCBC requirements.

In the north-south direction, the wind climate falls in a transition zone between Exposure B and Exposure C, therefore a more detailed rational analysis is done to determine the code wind load per ASCE 7-05 Section 6.5.6.3. The design loads recommended by the wind tunnel are compared against with three different ASCE wind loads:

1. Exposure B loads given Directionality Factor=0.85 and Wind Speed=98mph
2. Exposure B loads given Directionality Factor =1 and Wind Speed =90mph
3. Exposure C loads given Directionality Factor =1 and Wind Speed =81mph

The north-south design moment recommended by CPP exceeds 80% of all three wind load cases above.

The wind tunnel report was peer reviewed by another wind tunnel consultant, who confirmed that the wind tunnel study complies with the requirement of the code.

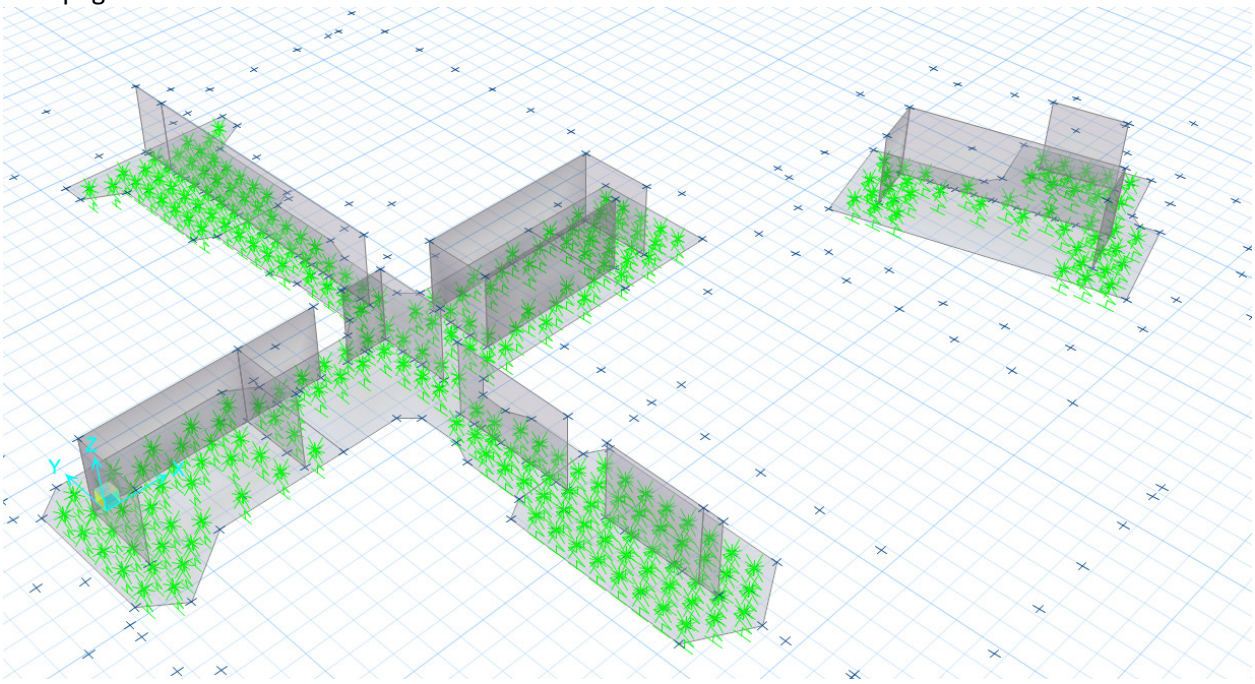
Seismic Loads:
The seismic design loads are in conformance with the requirements of the code and the recommendations outlined in the geotechnical report. A response spectra analysis was used for seismic design.

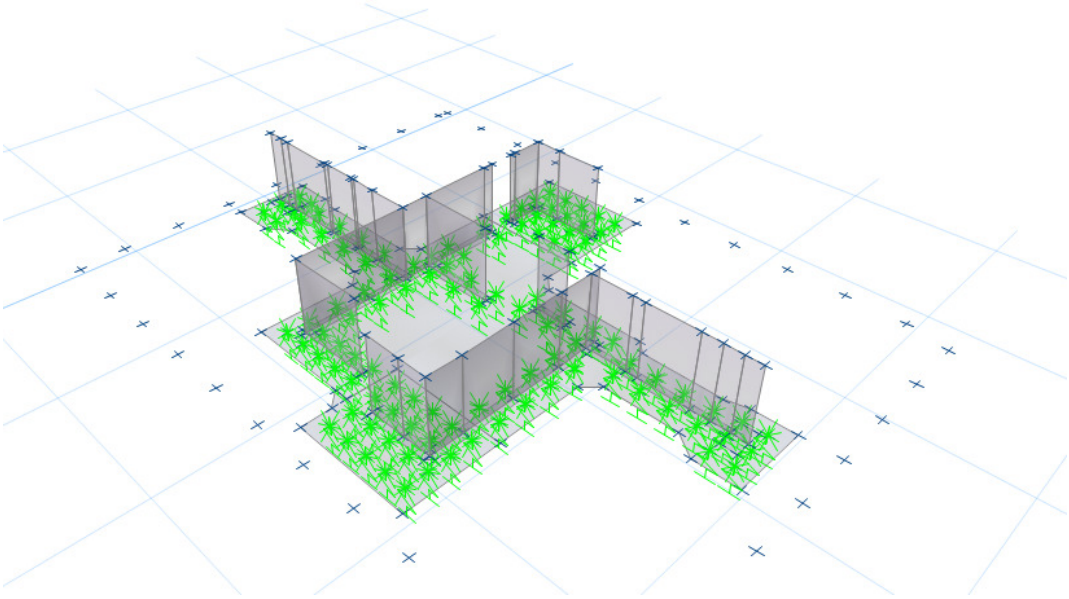
Foundation Review

Foundation Mat
We created finite element models of shear wall pile caps using CSI SAFE, which accounted for spring stiffness of the soil subgrade. Our model includes:

- Models were made for foundation mat SP 225, SP 112, and SP 47
- F'c=8600 psi
- All geometry per structural drawings
- Spring with stiffness of 400 k/in based on Langan's Geotech report.
- Shear wall reactions exported from ETABS model

We checked the pile capacity and pile cap reinforcing. Screenshots of our model are provided on the next page.





We have confirmed that the pile cap design is adequate. Top bars are not present at some parts of the pile cap, which may lead to cracking at the top of the pile cap.

Foundation Walls:
The design of the foundation wall was checked based on the loading provided by Langan's geotechnical report. The design was found to be adequate.

Superstructure:

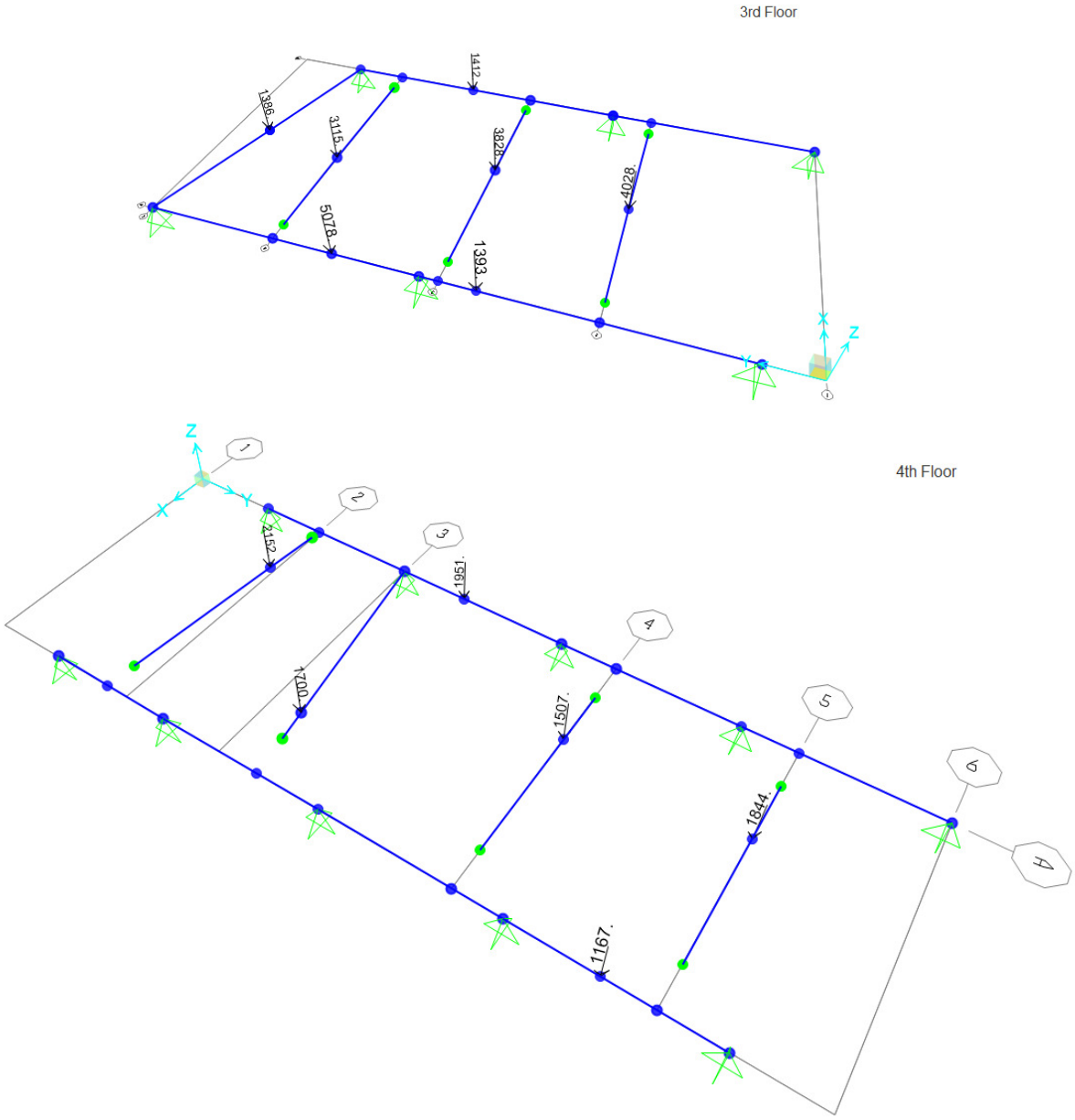
Columns:
We performed an independent load takedown of Column 2, 2A, 62, and 63, and found the loads shown on the column schedule to be adequate. We confirmed that the design of these columns are adequate.

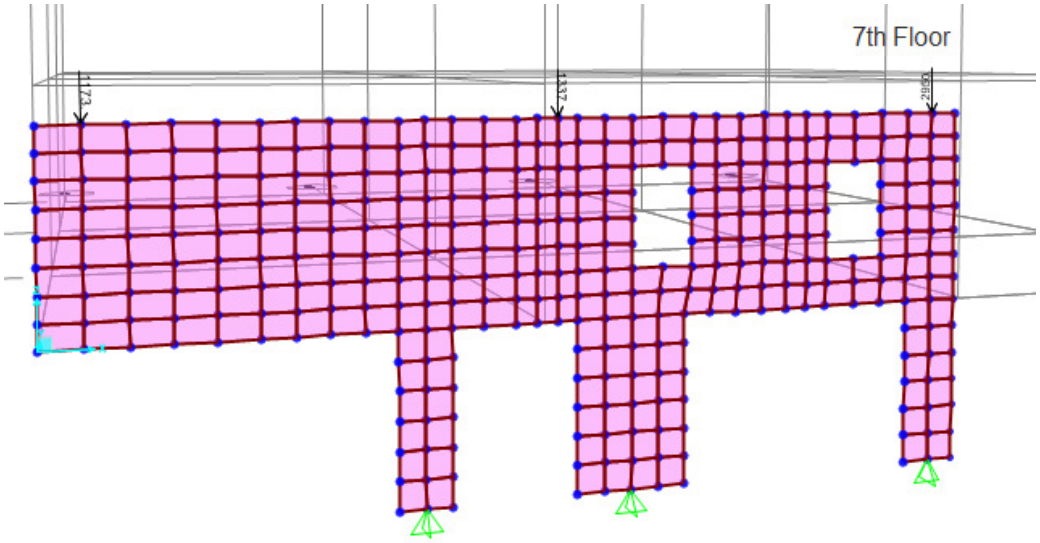
We reviewed the design of cantilevered walking column 1(1A), 2(2A), 3(3A), and 4(4A). We confirmed the load path is adequate at these transfers.

We reviewed the design of two columns (Col. 62 and 218) that are unbraced for more than one floor. *We confirmed that the design of these columns are adequate.*

Gravity Transfers:

We performed an independent check for transfer beams on 3rd floor, 4th floor and 7th floor and found the design to be adequate. Images of our analysis model for these transfers are provided on the next page.


3rd Floor
1412.
1386.
3115.
3828.
4028.
5078.
1393.
4th Floor
4152.
1951.
1001.
1507.
1844.
1167.



Structural Integrity:

We have confirmed that the structural design follows the structural integrity requirements outlined in New York City Building Code Sections 1615, 1916, and ACI 318-11 Chapter 13.

- At all floor and roof levels, slabs have a mat of bottom reinforcement which is made continuous with lap, mech., or welded tension splices, and the amount of reinforcing is not less than the steel required for temperature reinforcing.
- At each floor and roof level, adequate peripheral ties are provided.
- *At each column the required bottom structural integrity reinforcing steel is being provided.*
- Each column and each wall carrying vertical load are vertically tied continuously from its lowest to highest level per code requirements.
- In the detailing of reinforcing and connections, members of a structure are effectively tied together.
- Where splices are needed to provide the required continuity, the top rebar are spliced at or near mid-span and bottom rebar are spliced at or near the support using tension splices.
- All bottom bars within the column strip, in each direction, are continuous or spliced with Class B tension splices. Splices are located as required by ACI 318-11 Fig. 13.3.8. At least two of the column strip bottom bars or wires in each direction pass within the column core and shall be anchored at exterior supports.
- Floor and diaphragms and other horizontal elements are tied to the lateral load-resisting system
- Column exposed to traffic from 1st floor to 3rd floor are adequate to resist vehicular impact.

Slab Design:

Finite element models of three building floors (east tower 13th-21st floor, west tower 20th-22nd floor, and west tower 19th floor) were modeled in SAFE. Our models included the following modeling idealizations:

- F'c = 6000psi at the typical floors, F'c=10000psi at the transfer floor
- Columns/walls fixed at base below, columns above fix for Rx, Ry only.
- Rigid zone modeled at column locations
- All geometry (including openings) per structural drawings

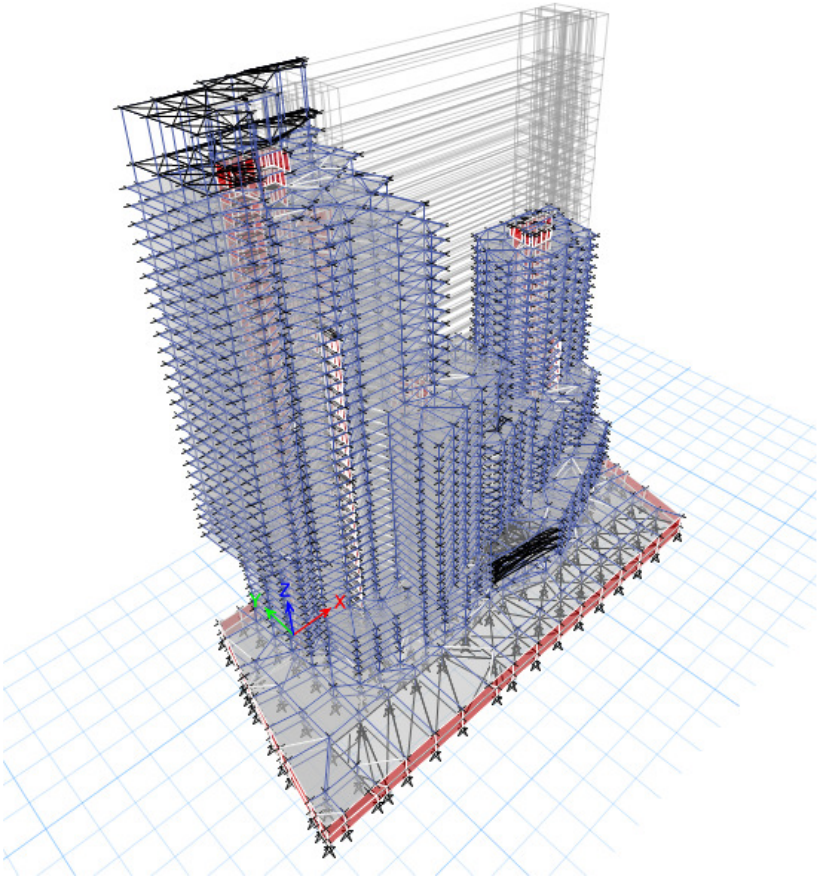
We verified the slab reinforcement *and confirmed its adequacy.*

Our analysis shows that there may be long term deflections of over 1" some areas of the slab. We understand WSP has done further analysis and confirmed that the deflections are acceptable. It should be confirmed that the curtain wall system can accommodate the anticipated slab edge deflections.

In addition, we verified the reinforcement of the long span slab at the ground floor. We found the design to be adequate.

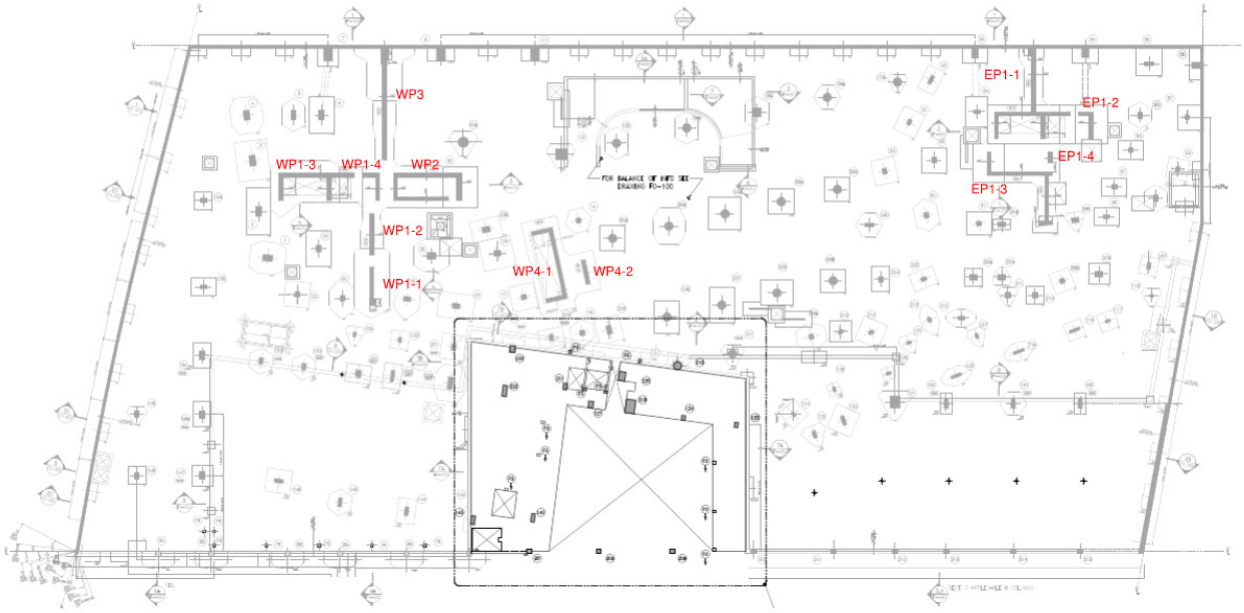
Lateral System Review

WSP provided their ETABS model, which we used to obtain the loads due to gravity and lateral loads in each shear wall. The image of the 3D model is shown below:

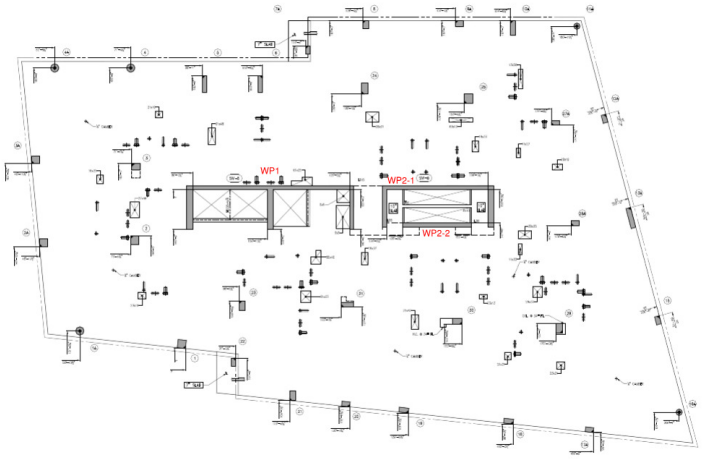


We checked the shear walls at the cellar 2 level and the 31st floor level of West tower for the lateral wind loads from the CPP wind tunnel report dated 02/19/2016. The adequacy of the walls were checked using spColumn. We found that the capacity in the analyzed walls are adequate for the considered loads. We understand that WSP will confirm the adequacy of the design for any updates to the wind load and make revisions as required.

The analyzed walls at cellar2 level and West tower 31st floor level are shown in figures below.



Cellar 2 level



West Tower, 31st floor level

Drawing List

Following is the list of the drawings used in the review:

Drawing No.	Description	ISSUE
FO-100	Overall Foundation Plan	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-101	Foundation Plan - Part 1	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-102	Foundation Plan - Part 2	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-103	Foundation Plan - Part 3	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-104	Foundation Plan - Part 4	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-105	Foundation Plan - Part 5	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-106	Foundation Plan - Part 6	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-110	Foundation Mat Details 1	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-111	Foundation Mat Details 2	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-200	Typical Foundation Details 1	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-201	Typical Foundation Details 2	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-202	Typical Foundation Details 3	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-203	Typical Foundation Details 4	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-204	Typical Foundation Details 5	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-205	Typical Foundation Details 6	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-300	Foundation Sections 1	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-301	Foundation Sections 2	01/11/2016-REVISED FOUNDATION FOR CONST./DOB SUBMISSION
FO-800	Overall Cellar (C2) Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
FO-805	Cellar (C2) Framing Plan - Part 5	10/27/2016- 95% CONST. DOCUMENTS
FO-806	Cellar (C2) Framing Plan - Part 6	10/27/2016- 95% CONST. DOCUMENTS
FO-808	Cellar (C2) General Arrangement Plan - Part 5	10/27/2016- 95% CONST. DOCUMENTS
FO-809	Cellar (C2) General Arrangement Plan - Part 6	10/27/2016- 95% CONST. DOCUMENTS
FO-900	Overall Cellar (C1) Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
FO-901	Cellar (C1) Framing Plan - Part 1	10/27/2016- 95% CONST. DOCUMENTS
FO-902	Cellar (C1) Framing Plan - Part 2	10/27/2016- 95% CONST. DOCUMENTS
FO-903	Cellar (C1) Framing Plan - Part 3	10/27/2016- 95% CONST. DOCUMENTS
FO-904	Cellar (C1) Framing Plan - Part 4	10/27/2016- 95% CONST. DOCUMENTS
FO-905	Cellar (C1) Framing Plan - Part 5	10/27/2016- 95% CONST. DOCUMENTS
FO-906	Cellar (C1) Framing Plan - Part 6	10/27/2016- 95% CONST. DOCUMENTS
FO-914	Cellar (C1) General Arrangement Plan - Part 1	10/27/2016- 95% CONST. DOCUMENTS
FO-915	Cellar (C1) General Arrangement Plan - Part 2	10/27/2016- 95% CONST. DOCUMENTS
FO-916	Cellar (C1) General Arrangement Plan - Part 3	10/27/2016- 95% CONST. DOCUMENTS
FO-917	Cellar (C1) General Arrangement Plan - Part 4	10/27/2016- 95% CONST. DOCUMENTS
FO-918	Cellar (C1) General Arrangement Plan - Part 5	10/27/2016- 95% CONST. DOCUMENTS
FO-919	Cellar (C1) General Arrangement Plan - Part 6	10/27/2016- 95% CONST. DOCUMENTS
S-001	Overall Ground Floor Framing Plan	10/27/2016- 95% CONST. DOCUMENTS

Drawing No.	Description	ISSUE
S-002	Ground Floor Framing Plan - Part 1	10/27/2016- 95% CONST. DOCUMENTS
S-003	Ground Floor Framing Plan - Part 2	10/27/2016- 95% CONST. DOCUMENTS
S-004	Ground Floor Framing Plan - Part 3	10/27/2016- 95% CONST. DOCUMENTS
S-005	Ground Floor Framing Plan - Part 4	10/27/2016- 95% CONST. DOCUMENTS
S-006	Ground Floor Framing Plan - Part 5	10/27/2016- 95% CONST. DOCUMENTS
S-007	Ground Floor Framing Plan - Part 6	10/27/2016- 95% CONST. DOCUMENTS
S-014	Ground Floor General Arrangement Plan - Part 1	10/27/2016- 95% CONST. DOCUMENTS
S-015	Ground Floor General Arrangement Plan - Part 2	10/27/2016- 95% CONST. DOCUMENTS
S-016	Ground Floor General Arrangement Plan - Part 3	10/27/2016- 95% CONST. DOCUMENTS
S-017	Ground Floor General Arrangement Plan - Part 4	10/27/2016- 95% CONST. DOCUMENTS
S-018	Ground Floor General Arrangement Plan - Part 5	10/27/2016- 95% CONST. DOCUMENTS
S-019	Ground Floor General Arrangement Plan - Part 6	10/27/2016- 95% CONST. DOCUMENTS
S-020	Overall 2nd Floor Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
S-021	2nd Floor Framing Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-022	2nd Floor Framing Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-023	2nd Floor Framing Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-027	2nd Floor General Arrangement Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-028	2nd Floor General Arrangement Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-029	2nd Floor General Arrangement Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-030	Overall 3rd Floor Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
S-031	3rd Floor Framing Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-032	3rd Floor Framing Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-033	3rd Floor Framing Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-037	3rd Floor General Arrangement Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-038	3rd Floor General Arrangement Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-039	3rd Floor General Arrangement Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-040	Overall 4th Floor Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
S-041	4th Floor Framing Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-042	4th Floor Framing Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-043	4th Floor Framing Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-047	4th Floor General Arrangement Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-048	4th Floor General Arrangement Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-049	4th Floor General Arrangement Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-050	Overall 5th Floor Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
S-051	5th Floor Framing Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-052	5th Floor Framing Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-053	5th Floor Framing Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-057	5th Floor General Arrangement Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS

Drawing No.	Description	ISSUE
S-058	5th Floor General Arrangement Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-059	5th Floor General Arrangement Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-060	Overall 6th Floor Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
S-061	6th Floor Framing Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-062	6th Floor Framing Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-063	6th Floor Framing Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-067	6th Floor General Arrangement Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-068	6th Floor General Arrangement Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-069	6th Floor General Arrangement Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-070	Overall 7th Floor Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
S-071	7th Floor Framing Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-072	7th Floor Framing Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-073	7th Floor Framing Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-077	7th Floor General Arrangement Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-078	7th Floor General Arrangement Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-079	7th Floor General Arrangement Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-080	Overall 8th - 10th Floor Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
S-081	8th - 10th Floor Framing Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-082	8th - 10th Floor Framing Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-083	8th - 10th Floor Framing Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-087	8th - 10th Floor General Arrangement Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-088	8th - 10th Floor General Arrangement Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-089	8th - 10th Floor General Arrangement Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-110	Overall 11th Floor Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
S-111	11th Floor Framing Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-112	11th Floor Framing Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-113	11th Floor Framing Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-117	11th Floor General Arrangement Plan (West Tower - Part 1)	10/27/2016- 95% CONST. DOCUMENTS
S-118	11th Floor General Arrangement Plan (West Tower - Part 2)	10/27/2016- 95% CONST. DOCUMENTS
S-119	11th Floor General Arrangement Plan (East Tower)	10/27/2016- 95% CONST. DOCUMENTS
S-120	Overall 12th Floor Framing Plan	10/27/2016- 95% CONST. DOCUMENTS
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WIND ENGINEERING AND AIR QUALITY CONSULTANTS

Final Structural Loads Report

Wind Tunnel Tests for

RIVERSIDE CENTER BUILDING 1

New York, NY

CPP Project 8180

2 November 2016

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EXECUTIVE SUMMARY

A wind tunnel study of Riverside Center Building 1, to be located in New York, NY was conducted to determine structural loads due to design-level winds. A scale model of the project was centered on a turntable in a boundary-layer wind tunnel of CPP, Inc. in Fort Collins, Colorado. Replicas of surrounding buildings were constructed and placed on the turntable (Figure 1). Approach boundary layers with the appropriate mean profile and turbulence characteristics were established in the test section of the wind tunnel.

For determination of structural system loads, fluctuating pressures were measured simultaneously at a large number of tap locations and spatially integrated over the surface of the building. Equivalent-static structural system loads were calculated by integration of the structure's dynamic modal properties with measured generalized modal loads. The generalized loads were determined from the synchronous measurement of pressure taps for 36 wind directions. Results summarized in the form of base moments (Figure 4) show the relative effect of wind directions and dynamic building properties on the wind loading of the tower. Summary of the total base loads as well as concentrated loads at each floor level for structural system design (50-year) and serviceability design (25-year) are given in Tables 1 and 2, respectively. Where appropriate, loads were scaled to meet the lower bound recommendations of Section C6.6 of ASCE7-05. Where applied, this has been highlighted in Tables 1 and 2.

Building serviceability for motion-induced occupant discomfort was evaluated by predicting the peak and RMS accelerations on the highest occupied floor (Level L37) for various recurrence intervals and damping ratios. Based on the results obtained, a minimum damping ratio of 0.015 will be required for the 10-year peak acceleration computed at a distance equal to the radius of gyration to fall within the 18 milli-g traditional acceptable limit.

General information, including the wind climate analysis, is given in Appendix A. Supplemental information pertaining to the results presented in this report can be found in Appendix B.

The following table summarizes the details for the wind tunnel studies:

Summary of Test Parameters

General Information	
Model scale	1:300
Surrounding model radius (full-scale)	1400 ft
Basic wind speed	98 mph – 3 second gust at 33 ft in open country
Mean wind speed profile Power Law exponents	Built-up environment approach, n = 0.24 Open country approach, n = 0.14

Structural Study Information	
Model type	High-Frequency Pressure Integration (HFPI) method
Recurrence interval	50 years for structural system design 25 years for serviceability design
Damping ratio for structural loads	0.02
Damping ratios for accelerations	0.015, 0.02, and 0.025

Testing Configuration(s)	
Configuration A	The Riverside Center Building 1 project in place with nearby buildings, as shown in Figure 1 and Figure 2.

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LIST OF SYMBOLS

E_x, E_y	Eccentricity at which to apply a floor force so as to apply a floor torque
f_0	Natural cyclic frequency, Hz
F_x, F_y	Floor force
G	Interaction peak factor; may vary from $-g_p$ to $+g_p$
g_p	Peak factor, $(\hat{\mathbf{M}} - \overline{M})/\sigma_{\mathbf{M}}$
η_2	Mode shape adjustment factor
I	Importance factor
k^*	Generalized stiffness
m^*	Generalized mass
M	Resultant base moment of applied wind load
$\mathbf{M}$	Response (static equivalent) base moment
n	Mean velocity profile power law exponent
q	Reference dynamic pressure, $\frac{1}{2}\rho U_{\text{ref}}^2$
T_z	Resultant floor torque of applied wind loading
U_{ref}	Reference velocity at reference height z_{ref}
V	Resultant base shear of applied wind load
x, y	Horizontal coordinates
z	Height above surface
z_{ref}	Reference height at which U_{ref} is measured
δ_i	Lateral displacement of floor i
$\overline{\delta}_i, \delta_i', \hat{\delta}_i$	Mean, fluctuating and expected peak values of δ_i
ϕ	Mode shape, normalized such that $P^* = M$

1. INTRODUCTION

The design of buildings and structures requires an accurate assessment of wind loads on the structural system to ensure efficient and reliable design. Loads obtained from building code provisions cannot account for the effects of building shapes significantly different from rectangular, nor for the effects of wind channeling or buffeting caused by nearby structures or terrain.

The critical condition for a structural system often involves simultaneous loading along both perpendicular horizontal axes in the presence of a significant torsional loading. These conditions may occur even on buildings that are symmetrical in shape and structural properties. Current codes do not adequately address simultaneous loading in perpendicular directions, or torsional loading. Similarly, analytical methods such as computational fluid dynamics (CFD) are not capable, except in very simple geometries, to accurately estimate wind-induced structural loads.

Serviceability of tall buildings can also be impeded by motion-induced occupant discomfort. However, no satisfactory analytical methods are available to predict the vibration of tall buildings due to wind without recourse to wind tunnel testing.

Techniques have been developed which permit boundary-layer wind tunnel modeling of buildings to determine overall structural loading. These techniques also provide a means to predict accelerations, the results of which can be compared to internationally recognized criteria for occupant comfort.

This report includes wind tunnel test procedures, test results, and a discussion of test results obtained in the CPP, Inc. Wind Engineering Laboratory. Supplemental information pertaining to the results in this report can be found in Appendix B.

All data collection was performed in accordance with the American Society of Civil Engineers (ASCE) Standard 7-10 (2010), the ASCE Manual of Practice Number 67 on Wind Tunnel Studies of Buildings and Structures (1999), and the ASCE Standard 49-12 on Wind Tunnel Testing of Buildings and Other Structures (2012).

2. STRUCTURAL SYSTEM LOADS

Forces and moments applicable to design of the structural system were determined from the pressure model test. The type of model test used for this project is known as the High-Frequency Pressure Integration (HFPI) method in which the overall aerodynamic loads are synthesized from pressures measured at up to 1023 locations on the pressure-tapped model (if necessary omitting those which were placed for the capture of localized peak pressures phenomena). Measurements were made for 36 wind directions in 10° increments from 0° (north). Supplemental information pertaining to the structural results is provided in Appendix B.

All loads were analyzed with respect to the building coordinate system shown in Figure 3. Base moments in a sway mode are represented as M_x and M_y acting about the x and y axes, respectively; the base torque about the vertical axis is M_z. Floor forces are F_{ix}, F_{iy}; the floor torques are designated T_{iz}.

The basic dynamic properties of the structure used for this study are shown in Appendix B Figures B1 and B2. The mode shapes, mass distribution, and natural frequencies were provided by the structural engineer. Two sets of structural properties were provided by the structural engineer: the first set contains the west tower and the podium while the second set contains part of the east tower above the podium. For the sake of simplicity, results obtained with the first set of properties will be referred here after as the “West tower” results and results obtained with the second set of properties will be referred here after as the “East tower” results. The damping ratio was assumed to be 0.02, a nominal value generally used for strength design of concrete structures. In addition to these basic values, parametric studies of some responses were conducted by varying natural frequencies and/or damping ratios.

Static-equivalent moments at the base of the building for design-level winds (as described in Appendix A Section A1) are shown in Figure 4. These results include the effect of the dynamic response in the fundamental modes of vibration (corresponding nominally to rotation about the x, y, and z axes respectively). Mean values are plotted using a continuous line, while peak values are plotted using box symbols. Peak values should be used for design purposes while the mean and rms values are given only for reference. The primary intent of the figure is to show the relative effect of wind directions and dynamic building properties. Precise base moment and shear values along with individual floor-by-floor loads for structural system design and serviceability design

are provided in Tables 1 and 2 respectively. The largest peak value in each component effectively produces a design load having a nominal recurrence interval of 50-years for structural system design and 25-years for serviceability design, as described in Appendix A Section A1. It is to be noted that, the nominal 50-year loads reported here are suitable for traditional allowable stress design. For LRFD or ultimate limit state design, the applicable load factors (such as 1.6 in ASCE 7-05) specified by the appropriate code or standard can be applied. All the discussions in the following paragraphs of this section will be based on the 50-year loads.

The response indicated by the 'base' natural frequencies provided by the structural engineer will be used to examine the structural behavior under wind in the following paragraphs. Figure 4 also shows the peak response base moments for two additional sets of natural frequencies, which bound the base values by ±10 percent. There are two reasons for this. First, should it become necessary or desirable to modify the structure's properties due to the magnitude of the design loads, the variations shown serve as a guide illustrating how the loads will change for a given change in natural frequency (note that linear interpolation among the values shown should be reasonably accurate, and that loads are affected by natural frequency alone, rather than mass or stiffness independently). Second, the prediction of natural frequency in a structure can have significant uncertainties, because of assumptions which must be made regarding joint fixity, ground stiffness, dead loads, nonlinear behavior, unintended load paths, etc., while response loads may be quite sensitive to this parameter. Therefore, the designer can also consider the effect of a deviation in natural frequency by examining the relative peak loads shown by these bounding frequency values in Figure 4.

The *mean* base moments about the *x* and *y* axes vary smoothly with wind direction in a near-sinusoidal fashion, completing one cycle of variation in 360° (Figure 4). Referring to the coordinate system shown in Figure 3, the *x* moment is expected to be largest (in absolute value) at roughly 30° or 210°, when the approach wind is perpendicular to the *x* axis. This is consistent with a so-called *along-wind response*, i.e., the primary loading is in the direction of the wind. Similarly, the *y* moment is expected to be large at directions 120° and 300°, when the approach wind is perpendicular to the *y* axis. The along-wind-responses approximate this ideal with some variation, however, because of the asymmetric shape of the building, because of the shielding effect from the other Riverside Center buildings and other major buildings in the surrounding, and because of the variation of design speed with direction (Appendix A Section A1).

At wind directions where the mean load is large, the peak moments are along the direction of the approach wind and this is indicative of along-wind response due to buffeting by longitudinal turbulence in the approach wind. At wind directions where the mean load is near zero, the peak moments are in a direction roughly perpendicular to the approach wind. This crosswind effect is

usually caused by lateral turbulence, or organized cyclical vortices, in the wake flow generated by the building itself.

The fluctuating component of the peak loads is shown most clearly by the rms values plotted in Figure 5. On the West tower for instance, the largest fluctuating loads about the *x* and *y* axes occur near 130° and 210° wind directions respectively and appear to result from crosswind effect (see Figure 5a). Figure 5 also demonstrates the cause of the dynamic response in terms of the fundamental modes of vibration. As shown in this figure, the M_x response primarily comes from mode 2 with some contribution from mode 1. The M_y response primarily comes from mode 3 with some contributions from modes 1 and 2. The M_z response gets significant contributions from modes 1 and 2 with mode 1 being dominant at the wind direction where the largest M_z response occurs.

The dynamic response is due partly to resonance—i.e., response at a natural frequency due to excitation by turbulent energy at that frequency—and partly by quasi-static response to turbulent energy at lower frequencies. The relative contribution of these parts is illustrated in Figure 6. On the West tower for instance, at the dominant wind direction of 20° (where the largest base moment was found), the *x* and *y* moments are 50 and 86 percent resonant respectively, while the *z* moment has minimal resonant contribution. The resonant contribution is significant because it is subject to modification by control of the dynamic properties of the structure: this portion of the dynamic response can be reduced by increasing the natural frequency or damping. These properties have no effect on the mean load or on the quasi-static background response.

Although the peak loads in two or more components may be largest at the same wind direction, these loads will probably not occur simultaneously due to lack of correlation in the response of different modes of vibration. In general, it is recommended to design the structure for the simultaneous action of peak loads in the *x* and *z* directions, or *y* and *z* directions (due to the increased likelihood of correlation between sway and torsional components), but only the mean value of either sway component need be considered simultaneously with the peak value of the other sway component. However, in this study the degree of correlation between calculated base moment responses was used to generate more accurate joint action factors (G_x, G_y, and G_z). In addition, there could exist a critical combination consisting of simultaneous sway loads each somewhat less than their individual peak value. To account for this, load cases are described by a load combination involving base moments and shears to be applied simultaneously in all components. Each case is designed to maximize the positive or negative base moment in one component, or to maximize the XY resultant base moment. A summary of the base moments and shears as well as floor-by-floor concentrated loads for structural system design (50-year mean recurrence interval) are given in Table 1. Similarly, a summary of the base moments and shears as

well as floor-by-floor concentrated loads for serviceability design (25-year mean recurrence interval) are given in Table 2.

When comparing the peak base moments about the x-axis for the combined East and West Towers, it was found that the base moment wind loads predicted from the wind tunnel were significantly lower than the lower limit of 80% of ASCE7 code values when compared at ground (FL1) level. The code loads were calculated using exposure Category B, as this matched most closely the site-specific wind speed profile calculated using ESDU procedures (and illustrated in Appendix A, Figure A2) for the controlling wind direction, a directionality factor of Kd = 0.85, and a basic design wind speed of 98 mph.

The reason for the inclusion of the 80% cut-off limit in ASCE7 is to ensure that design loads will not be exceeded should specific neighboring buildings be demolished in the lifetime of the project. As such, the design team has the option to increase the affected loads to 80% of the code value, or to re-test the project with specific neighboring buildings removed. In this case, it was decided to scale the moments up to match the code cut-off limits.

A summary of the comparisons of base moments at ground (FL1) level is as follows:

Maximum Mx wind tunnel moment = 468, 300 kip-ft

ASCE7 Mx moment = 714,094 kip-ft

80% of ASCE7 Mx moment = 571,275 kip-ft

As a result, Load Case 4 for the West Tower was scaled up along with Load Case 11 for the East Tower to ensure that the combined base moment about the x-axis matched this value at ground (FL1) level.

Note that the ASCE7 values were calculated using updated structural dynamic properties based on the current structural design. The natural frequencies for the dominant west tower are slightly higher than those used in the wind tunnel analysis. As a result of these changes, the wind tunnel values will be slightly conservative.

Summary of Natural Frequencies Used in Analyses

	West Tower		East Tower	
Mode	Wind Tunnel Analysis	ASCE 7 Estimates	Wind Tunnel Analysis	ASCE 7 Estimates
1	0.194 Hz	0.231 Hz	0.571 Hz	0.512 Hz
2	0.270 Hz	0.299 Hz	0.667 Hz	0.625 Hz
3	0.317 Hz	0.339 Hz	0.893 Hz	0.667 Hz

Displacements of the structural system due to wind loading are not given explicitly. If desired, these can be approximated from the corresponding base moment. An accurate determination of displacements would have to be made by the structural engineer, using a static analysis of the structure under the load distributions given in Tables 1-4. However, the fluctuating component of displacement is related in a simple manner to the fluctuating base moment. Since typically most of the structure's response is dynamic rather than static, applying this relationship to the total base moment yields a good approximation of the total displacement. The resulting equation for the displacement at level *i* is

$$\delta_i = \frac{\eta_2 \mathbf{M} \phi_i}{k^*}$$

Even if the fluctuating component is small compared to the mean, the approximation will be good to the extent that the structure's mode shape matches its mean deflection shape. Thus, using a peak moment from Tables 1-4 in the above equation will yield a corresponding peak displacement. Note that all quantities except **M** are designated according to the axis of translation, and are available in Appendix B Tables B1 and B2. When these are *x*-component values, the moment $\mathbf{M}_y$ should be used and the resulting displacement will be in the *x* direction. If the modes are coupled, then η_2, ϕ_i, and k^* should be those values from the mode which is dominated by the displacement component of interest, as shown in Appendix B Tables B1 and B2.

3. ACCELERATION PREDICTION

The acceleration response was computed as a single value, representing the total vector resultant motion at the highest occupied floor of the building. This acceleration has been computed for a range of recurrence intervals, and can be expressed as either a peak or rms value. These results are given in Figure 7, for damping ratios of 0.015, 0.02, and 0.025. These damping values were used primarily to show the influence of this parameter as it varies over a wide range. It should be noted that damping is generally recognized to be an increasing function of dynamic response amplitude.

The establishment of satisfactory criteria to evaluate occupant discomfort due to tall building motion is a complex issue that has not been satisfactorily resolved. The most often used criteria are those of ISO 6897:1984, ISO 10137:2007 and the National Building Code of Canada (NBCC) (National Research Council of Canada, 2005).

The international standard ISO 6897:1984 criterion is based on a 5-year mean recurrence interval, with a limiting RMS acceleration of 2.5 to 8 milli-g depending on the frequency of motion. This limit is based on an expected objection by 2 percent of “those occupying the parts of the building where motion is greatest”. This limit is shown in the lower graph of Figure 7. On the West tower for instance, the largest 5-year RMS acceleration predicted using 0.02 damping ratio at the south corner of the building on level L37 is about 4.5 milli-g which is marginal to the ISO 6897 criterion of 4.7 milli-g (see Figure 7a). At a distance equal to the radius of gyration, the largest 5-year RMS acceleration predicted using 0.015 damping ratio is about 3.5 milli-g which is below the ISO 6897 criterion of 4.7 milli-g (see Figure 7b).

The international standard ISO 10137:2007 criterion is based on a 1-year recurrence interval which provides limiting peak acceleration values for residential and office buildings separately which vary with the frequency of motion. This limit is shown in the top graph of Figure 7. On the West tower for instance, the largest 1-year peak acceleration, predicted using 0.015 damping ratio, at the south corner on level L37 is about 15.4 milli-g which is above the ISO 10137 criterion of 11.0 milli-g for office occupancy and 7.3 milli-g for residential occupancy(see Figure 7a). At a distance equal to the radius of gyration, the largest 1-year peak acceleration predicted using 0.015 damping ratio is about 10.0 milli-g which is below the ISO 10137 criterion of 11.0 milli-g for office occupancy but above the ISO 10137 criterion of 7.3 milli-g for

residential occupancy (see Figure 7b). At 0.025 damping ratio, the largest predicted 1-year peak acceleration is about 11.8 milli-g at the south corner and 7.7 milli-g at the radius of gyration.

The NBCC criteria are based on a 10-year recurrence interval, with a limiting peak acceleration of 10 to 30 milli-g (this is roughly equivalent to RMS values of 2.9 to 8.6 milli-g). As stated in the code, a higher value may be acceptable for office buildings, while a lower value is suggested for residential buildings. The exact reasoning behind this statement is not known, but relevant considerations may include (a) residential buildings are occupied for more hours of the day than office buildings, and occupants are therefore more likely to experience randomly occurring high-wind events; (b) persons are less sensitive to motion when at work than when at leisure; (c) people are more forgiving of their work environment than of their own personal home; (d) occupancy turnover rates are higher in office buildings than in residential buildings; and (e) office buildings are more conveniently evacuated during extreme-motion events. An ad-hoc "standard" often adopted by North American engineers is that the 10-year peak acceleration should be no more than approximately 21 to 24 milli-g for office occupancy or 15 to 18 milli-g for residential occupancy. The largest 10-year peak acceleration predicted using 0.015 damping ratio at the south corner of the building is about 22.7 milli-g which is above the ad-hoc "standard" for residential occupancy (see Figure 7a). At a distance equal to the radius of gyration, the largest 10-year peak acceleration predicted using 0.015 damping ratio is about 15.3 milli-g, which falls within the ad-hoc "standard" for residential occupancy (see Figure 7b). At 0.025 damping ratio, the largest predicted 10-year peak acceleration is about 17.3 milli-g at the south corner of the building and 11.7 milli-g at a distance equal to the radius of gyration.

Figure 8 shows a directional analysis of an RMS acceleration which should occur every 10 years (on average) based on 0.02 damping. This probability of occurrence is computed as the sum of the probability of occurrence when the wind is at each of 36 wind directions and is shown on the upper graph of Figure 8. The lower graph shows, if the acceleration occurred at any wind direction, how it would be composed of the three modes of motion.

Based on these results and on our experience with accepted practice worldwide, a minimum damping ratio of 0.015 will be required for the 10-year peak acceleration computed at a distance equal to the radius of gyration to fall within the 18 milli-g traditional acceptable limit. The 10-year peak acceleration at the extreme corners of the building (worst case) will fall within the traditional acceptable limit at a minimum damping ratio of 0.025.

REFERENCES

American Society of Civil Engineers (1999), *Wind Tunnel Studies of Buildings and Structures* (ASCE Manual of Practice Number 67).

American Society of Civil Engineers (2006), *Minimum Design Loads for Buildings and Other Structures* (ASCE 7–05).

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ISO (1984), *Guidelines for the evaluation of the response of occupants of fixed structures, especially buildings and off-shore structures, to low-frequency horizontal motion* (*0.063 to 1 Hz*), ISO 6897 International Organization for Standardization, Geneva.

ISO (2007), *Bases for design of structures – Serviceability of buildings and walkways against vibrations*, ISO 10137 International Organization for Standardization, Geneva.

National Research Council of Canada (2005), *National Building Code of Canada*.

The NYC Department of Buildings (2008), *New York City Building Code*.

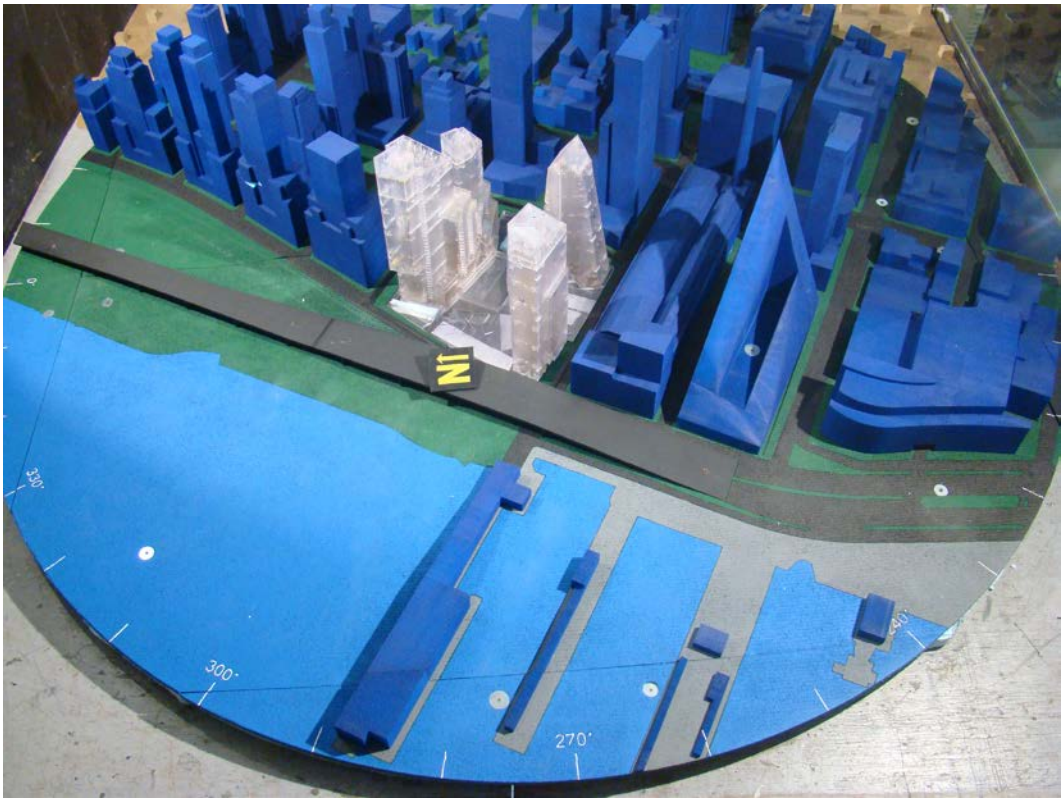
FIGURES

a)

b)

Figure 1. Photographs of the completed model in the wind tunnel: (a) View from northwest, simulating southeasterly wind; (b) View from east, simulating westerly wind. Note spires and trip at entrance to test section, and roughness elements on approach fetch to develop a turbulent boundary-layer flow.

c)



d)

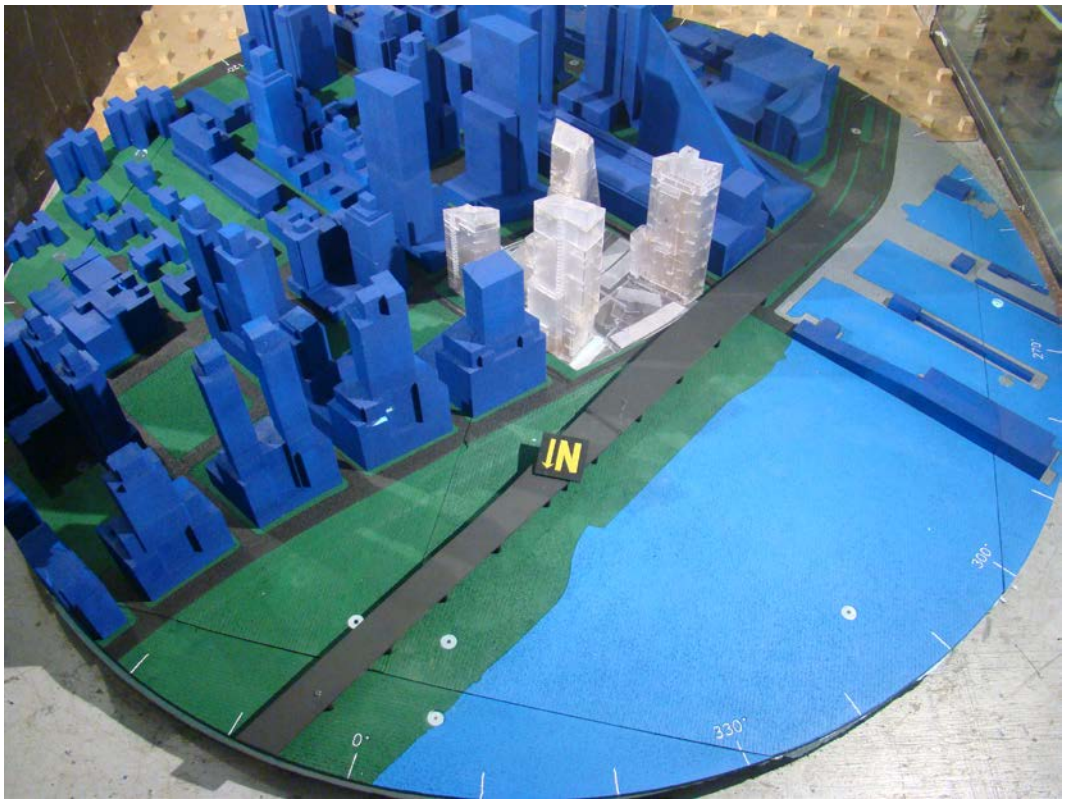
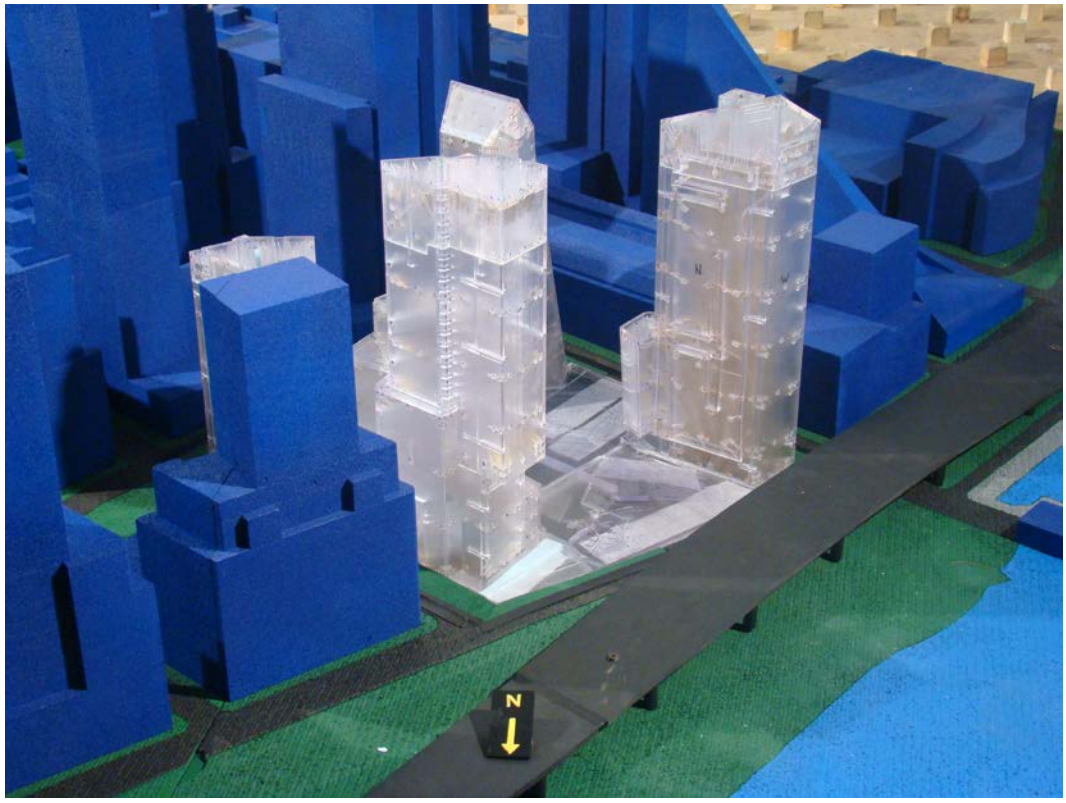


Figure 1. Photographs of the completed model in the wind tunnel: (c); (d) Overhead view of model.

e)



f)

Figure 1. Photographs of the completed model in the wind tunnel: (e); (f) Close-up view of model.

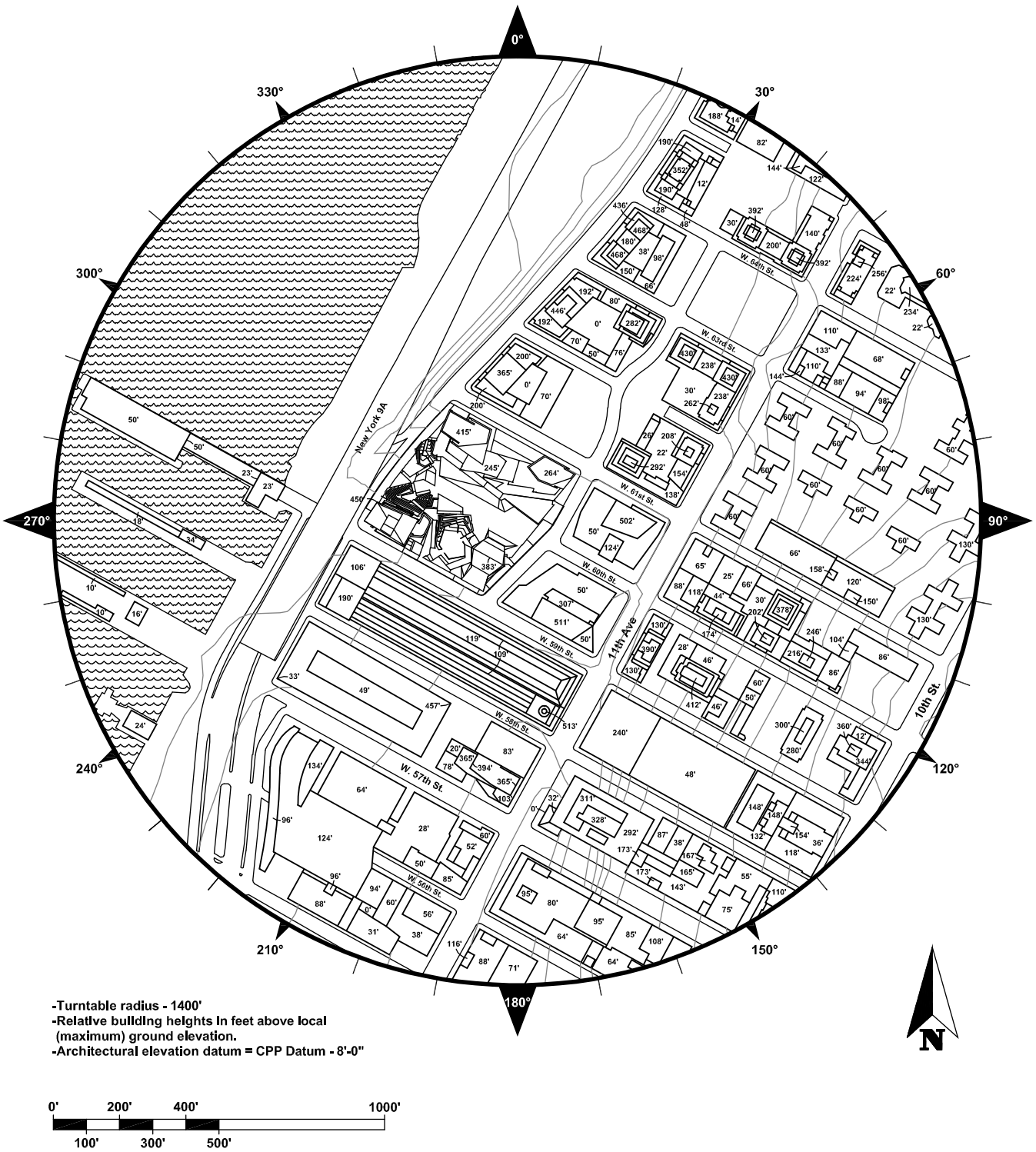


Figure 2. Building location and site plan as modeled on turntable.

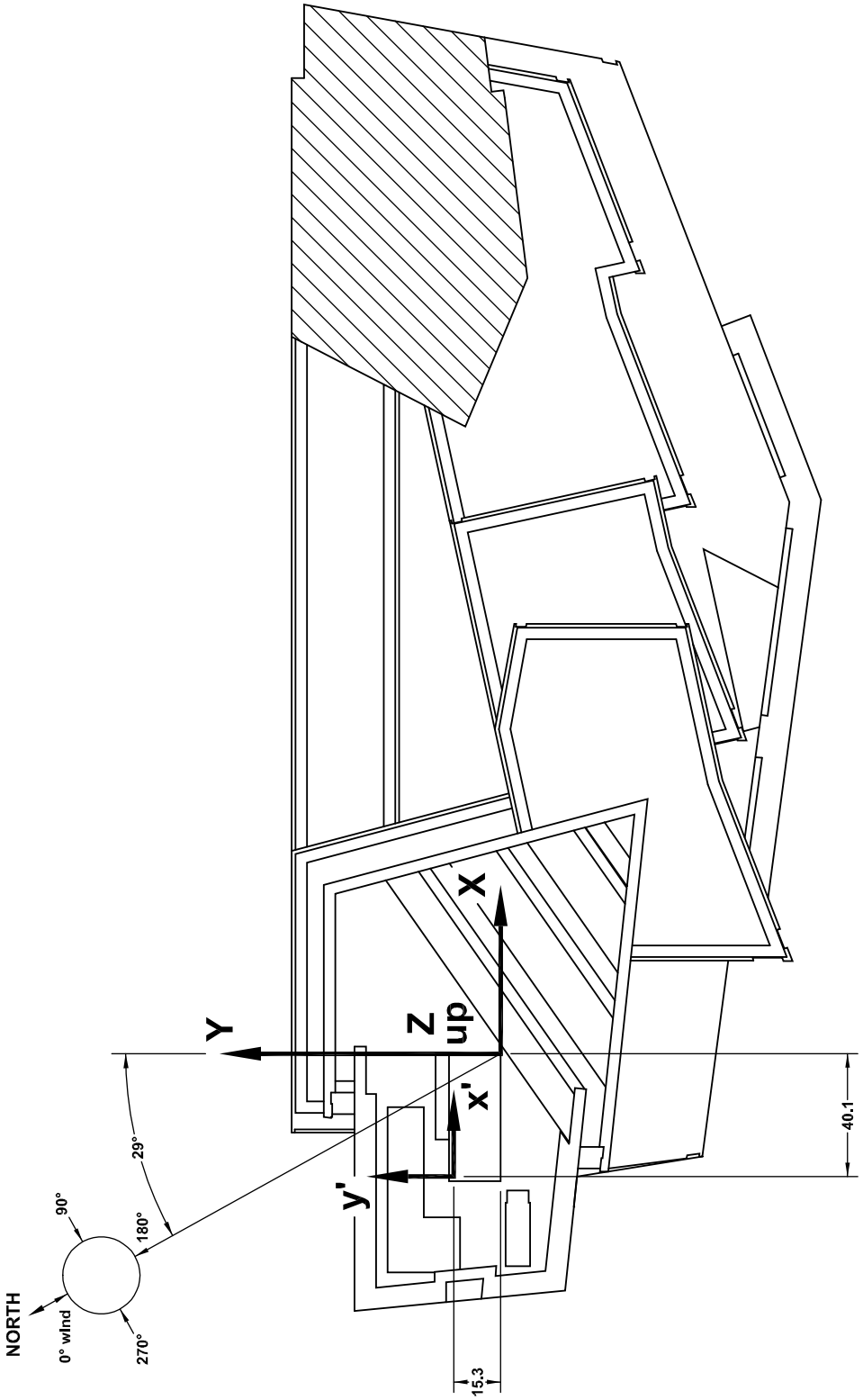
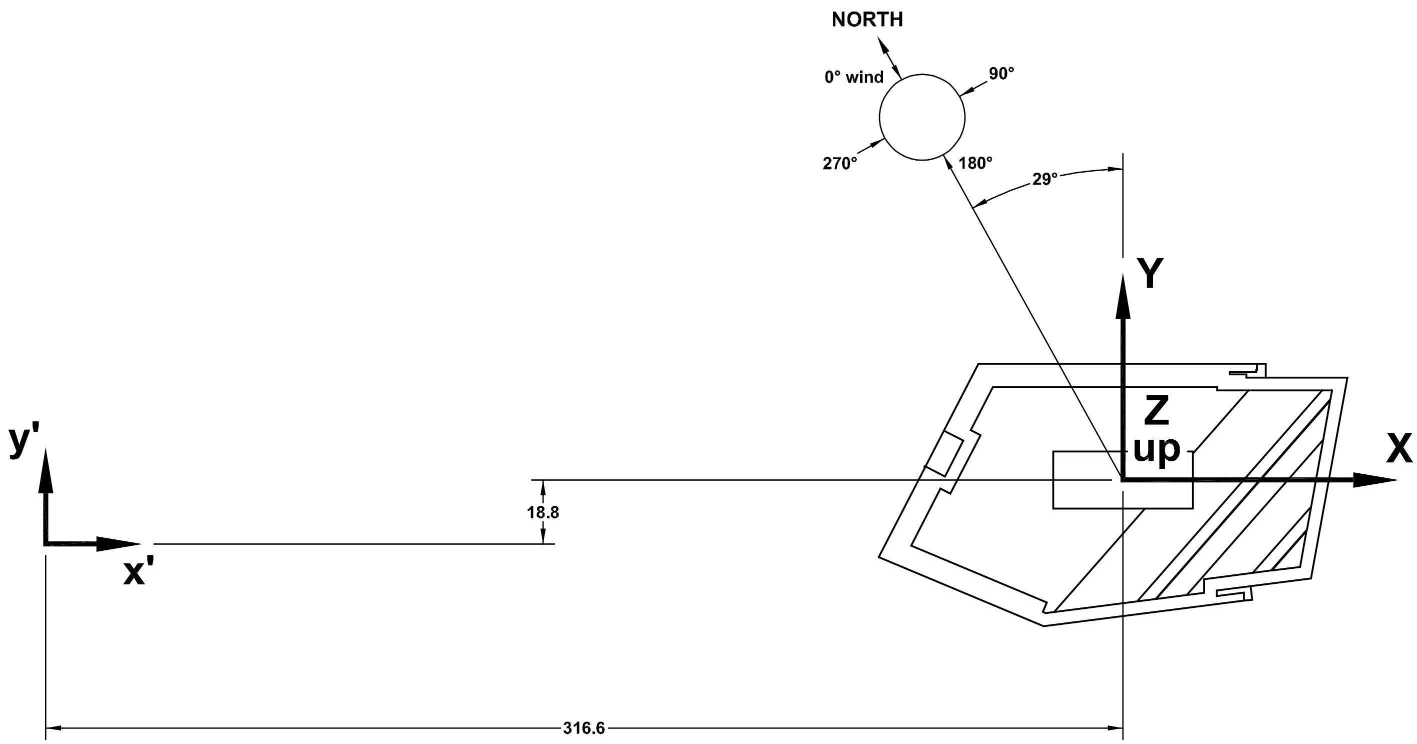


Figure 3a. Coordinate system for forces and moments.



ROOF
(EAST TOWER)

X ,Y = CPP coordinate
x' ,y' = Client coordinate

Figure 3b. Coordinate system for forces and moments.

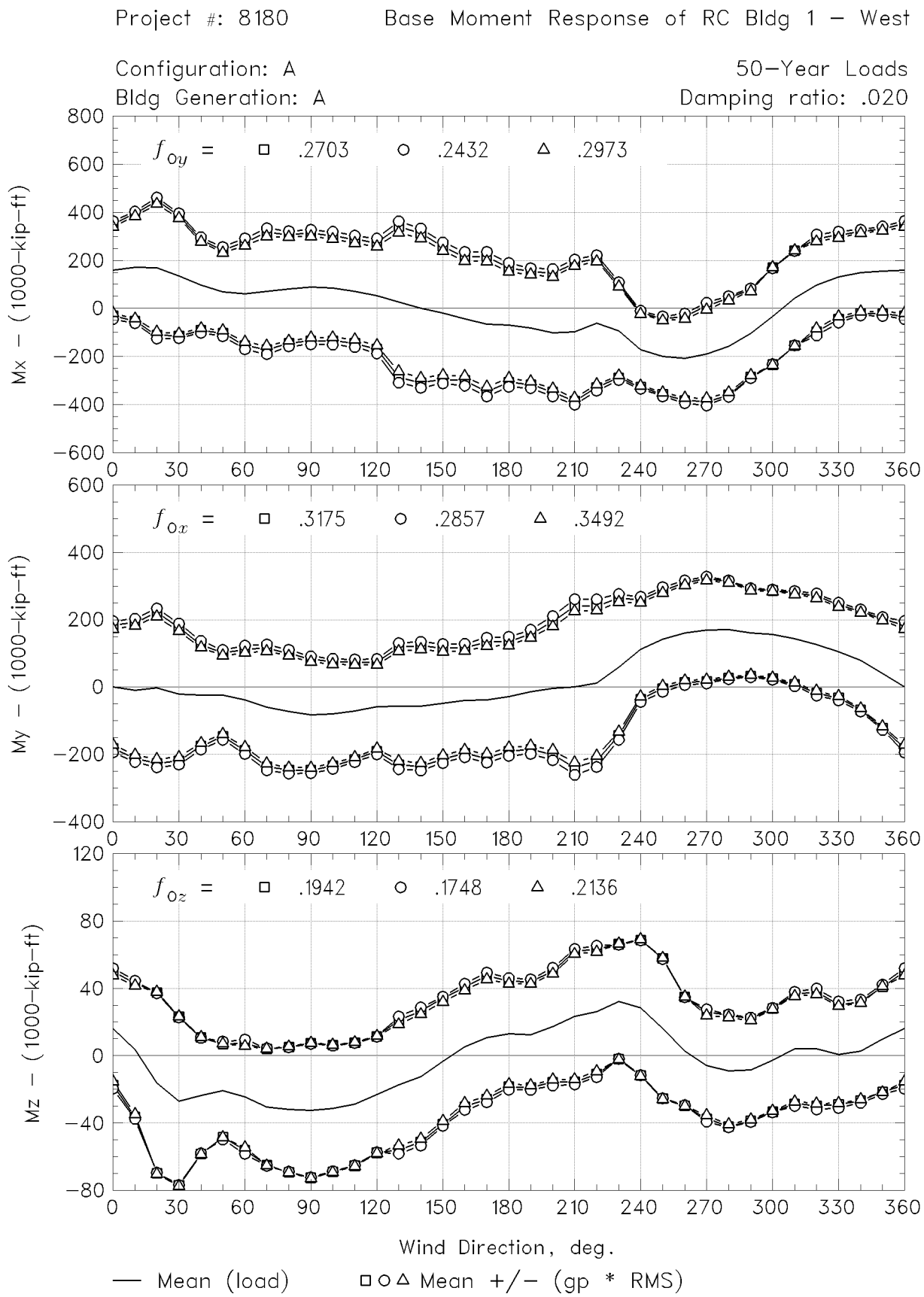


Figure 4a. Response base moments as a function of wind direction, Building 1-West.

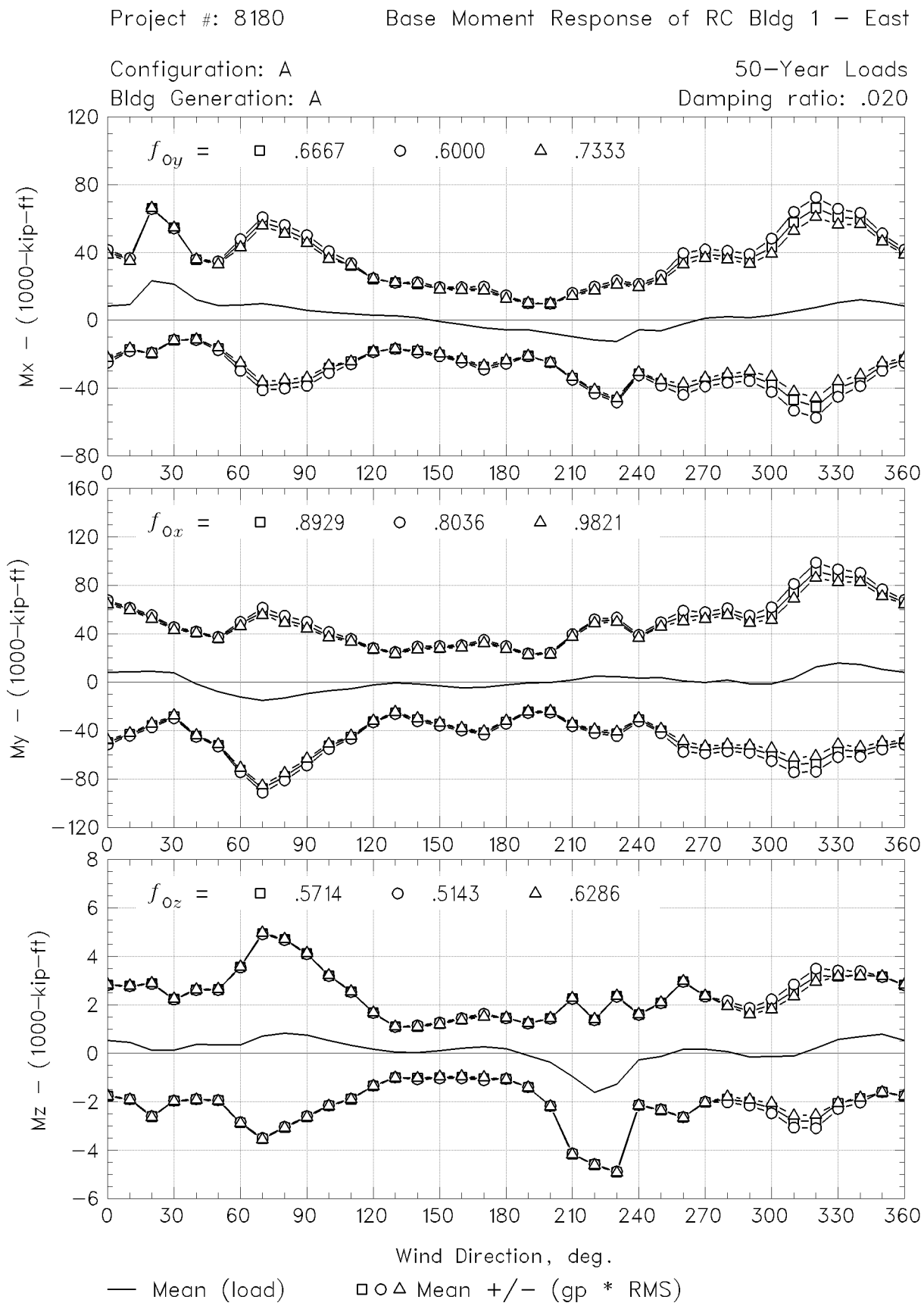


Figure 4b. Response base moments as a function of wind direction, Building 1-East.

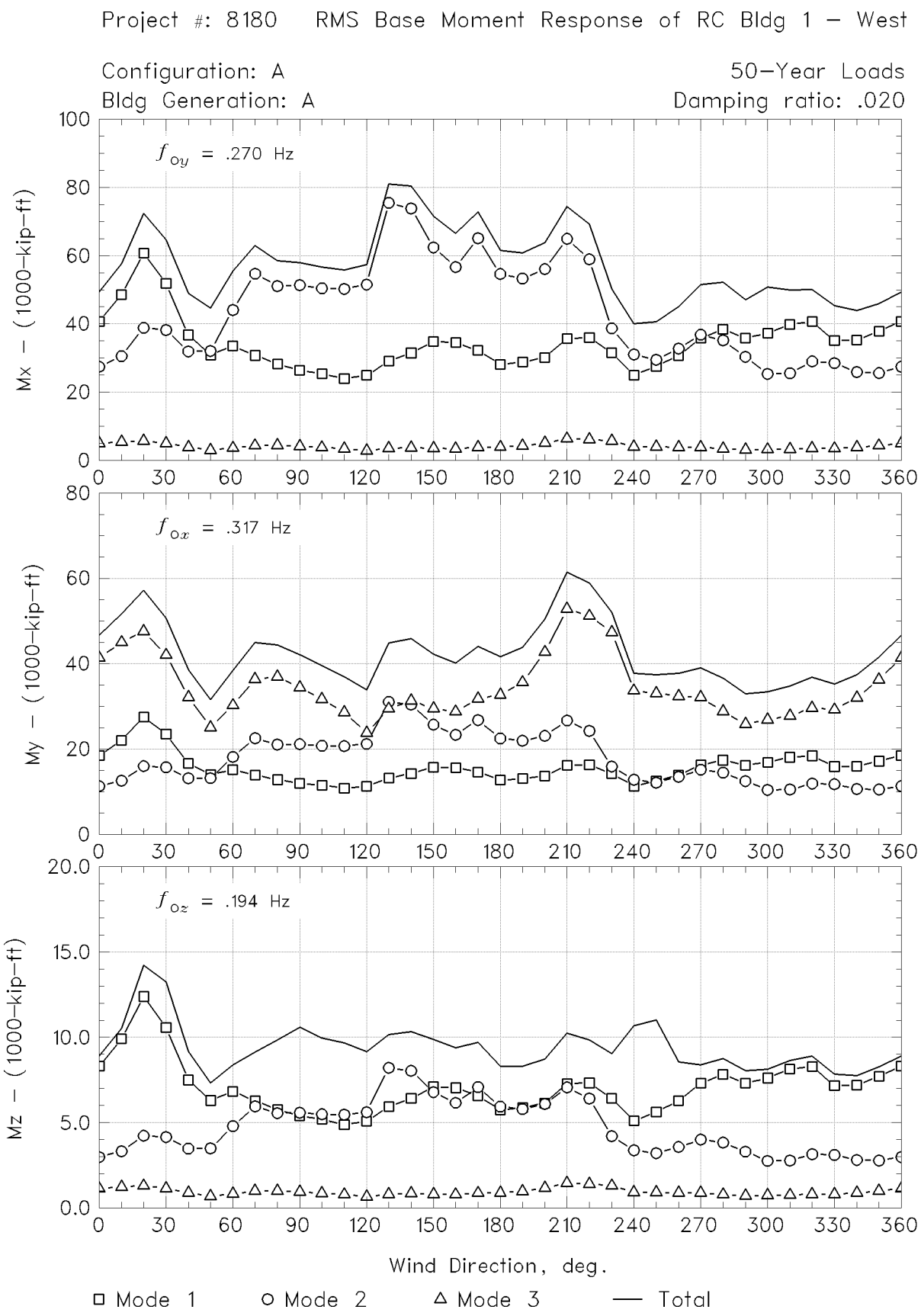


Figure 5a. RMS base moment response in each component and contribution from various modes, Building 1-West.

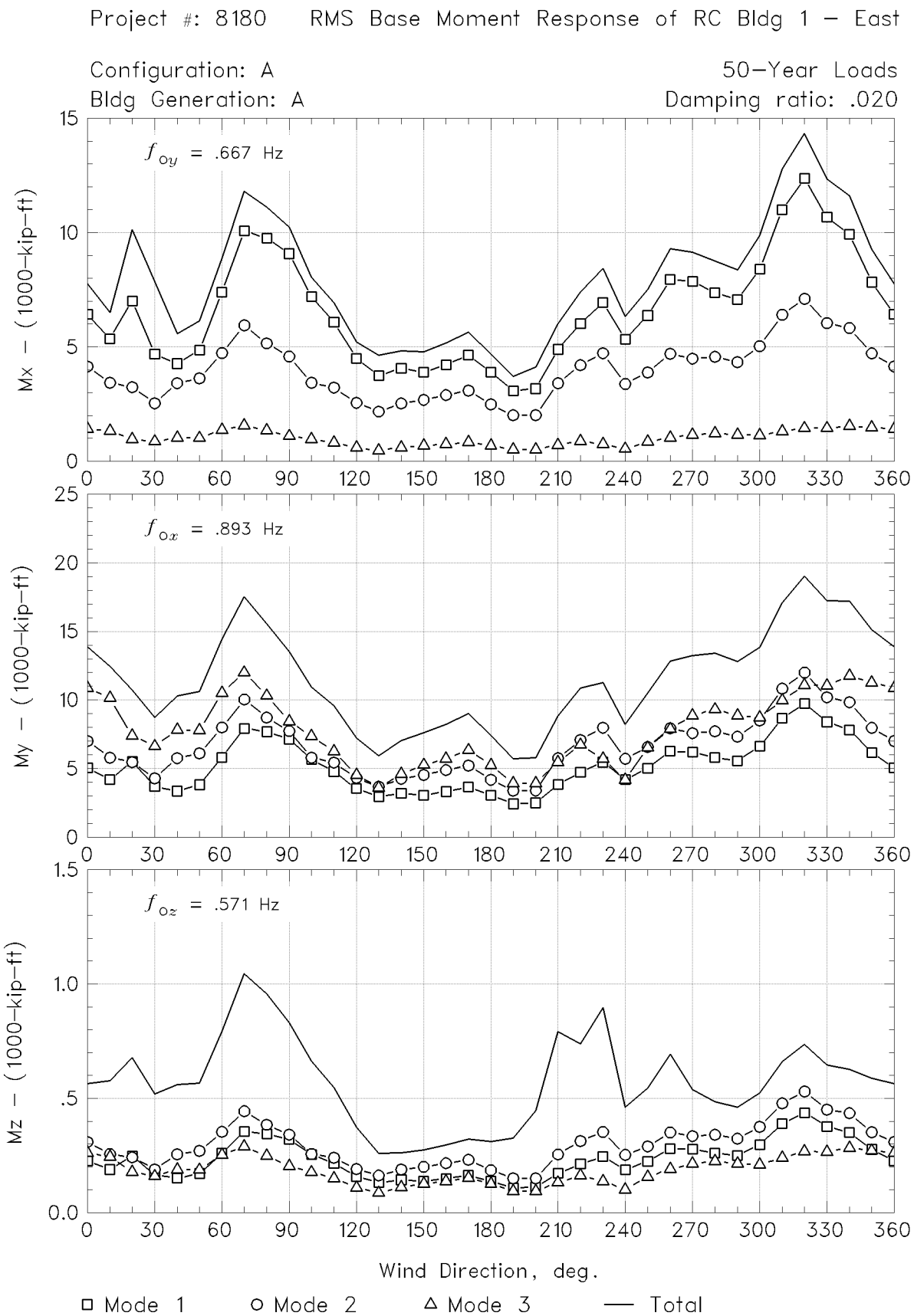


Figure 5b. RMS base moment response in each component and contribution from various modes, Building 1-East.

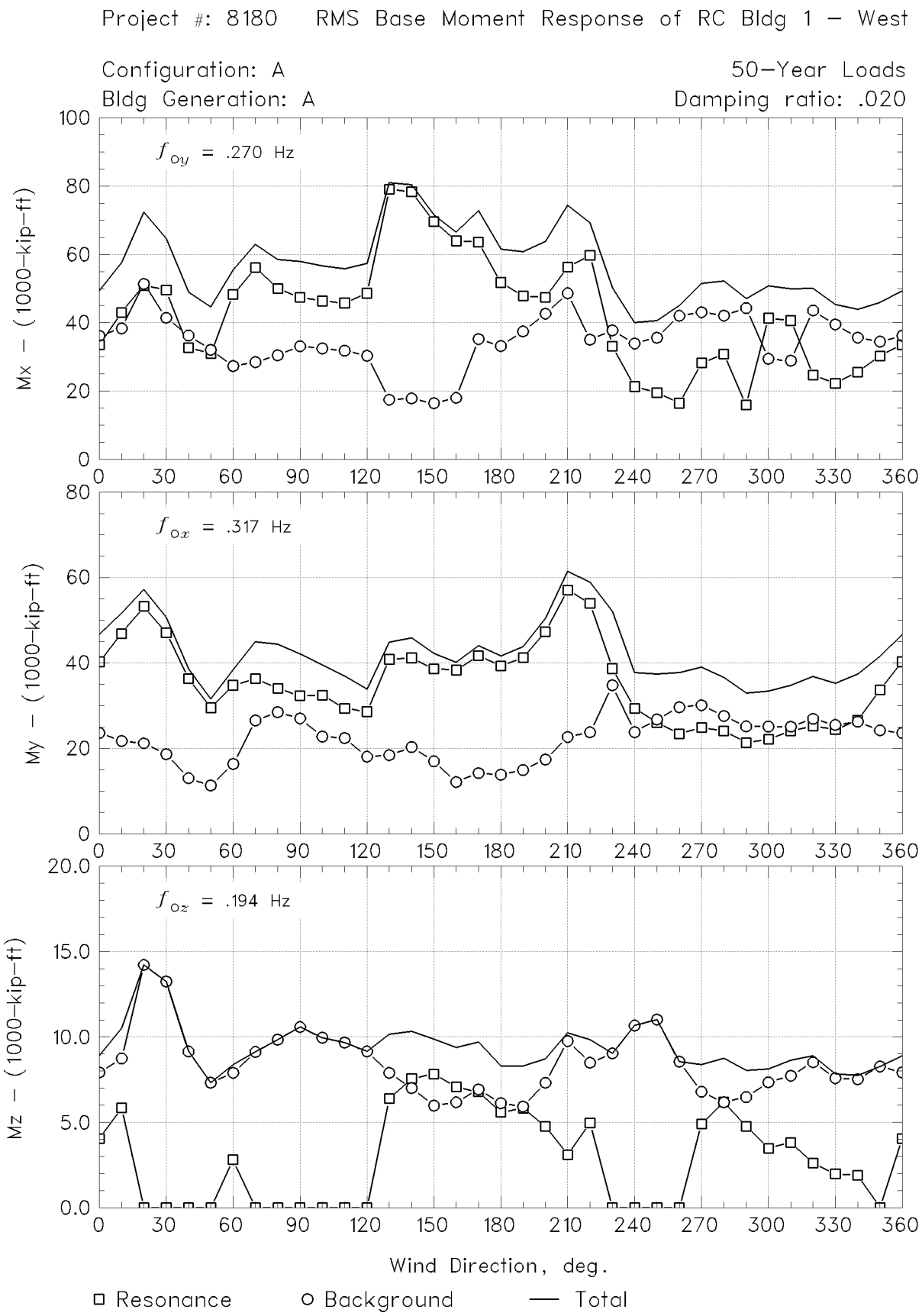


Figure 6a. Resonant and background contributions to rms base moment response, Building 1-West.

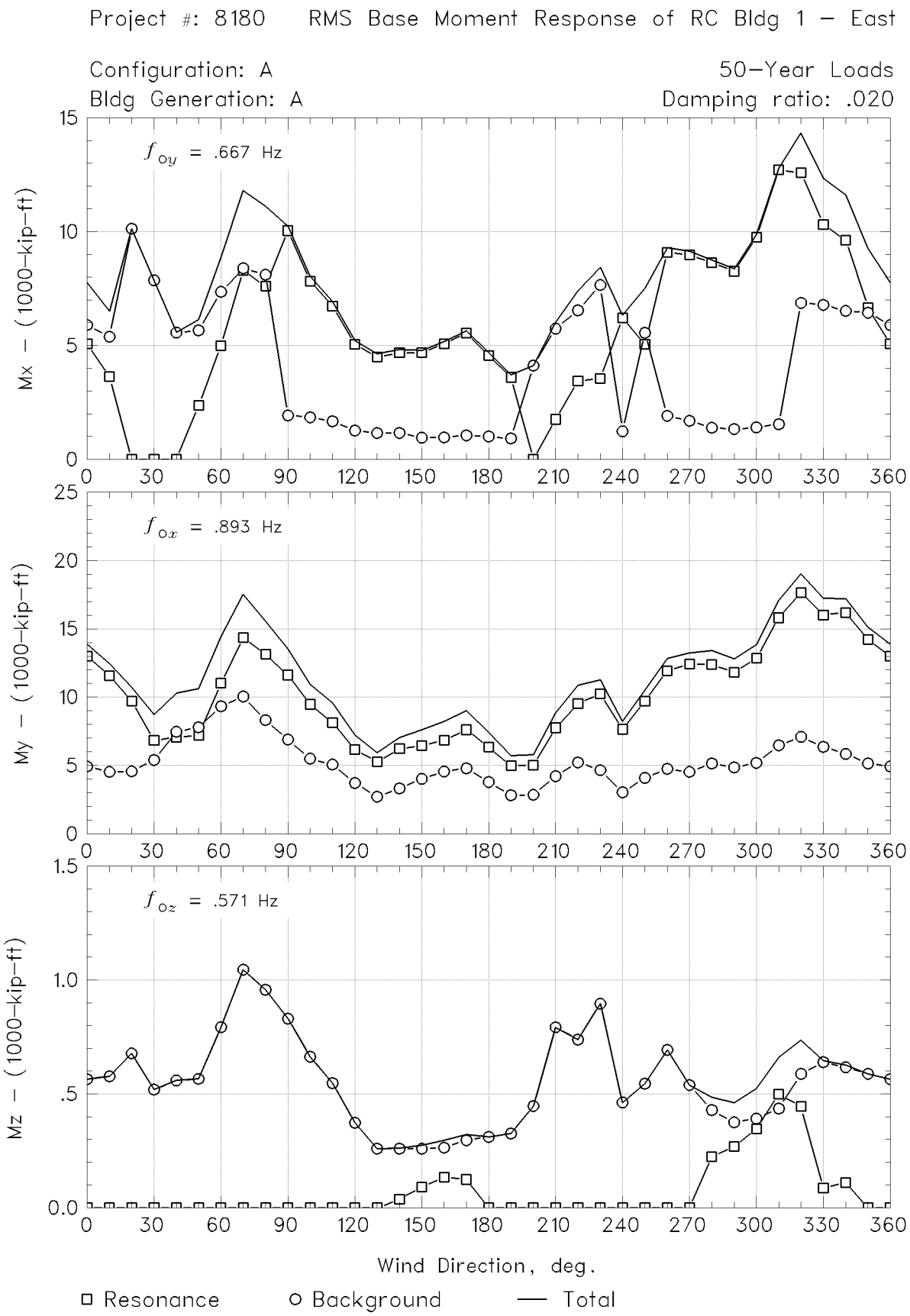


Figure 6b. Resonant and background contributions to rms base moment response, Building 1-East.

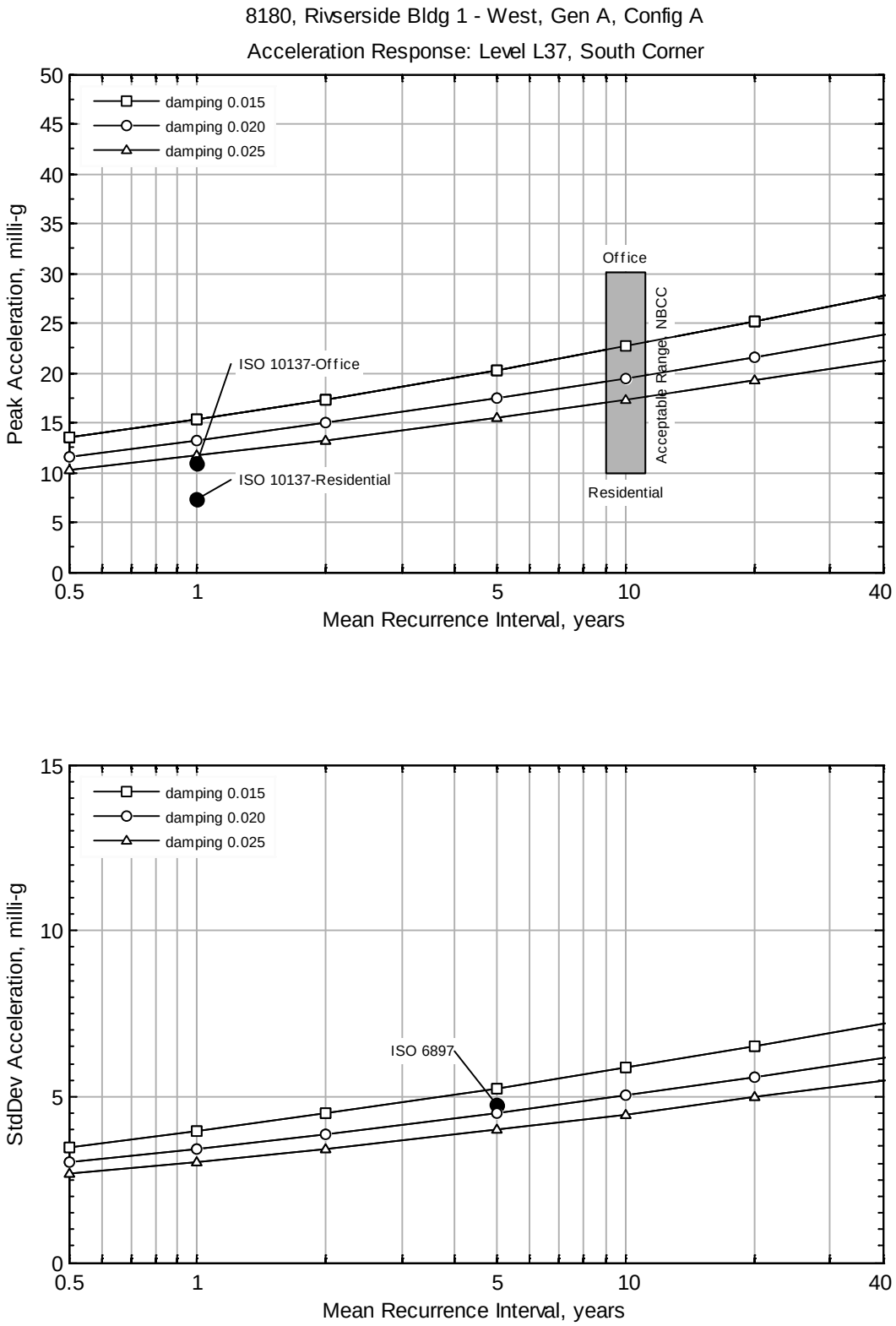


Figure 7a. RMS and peak acceleration response and comparison to acceptance criteria, Building 1-West, South corner.

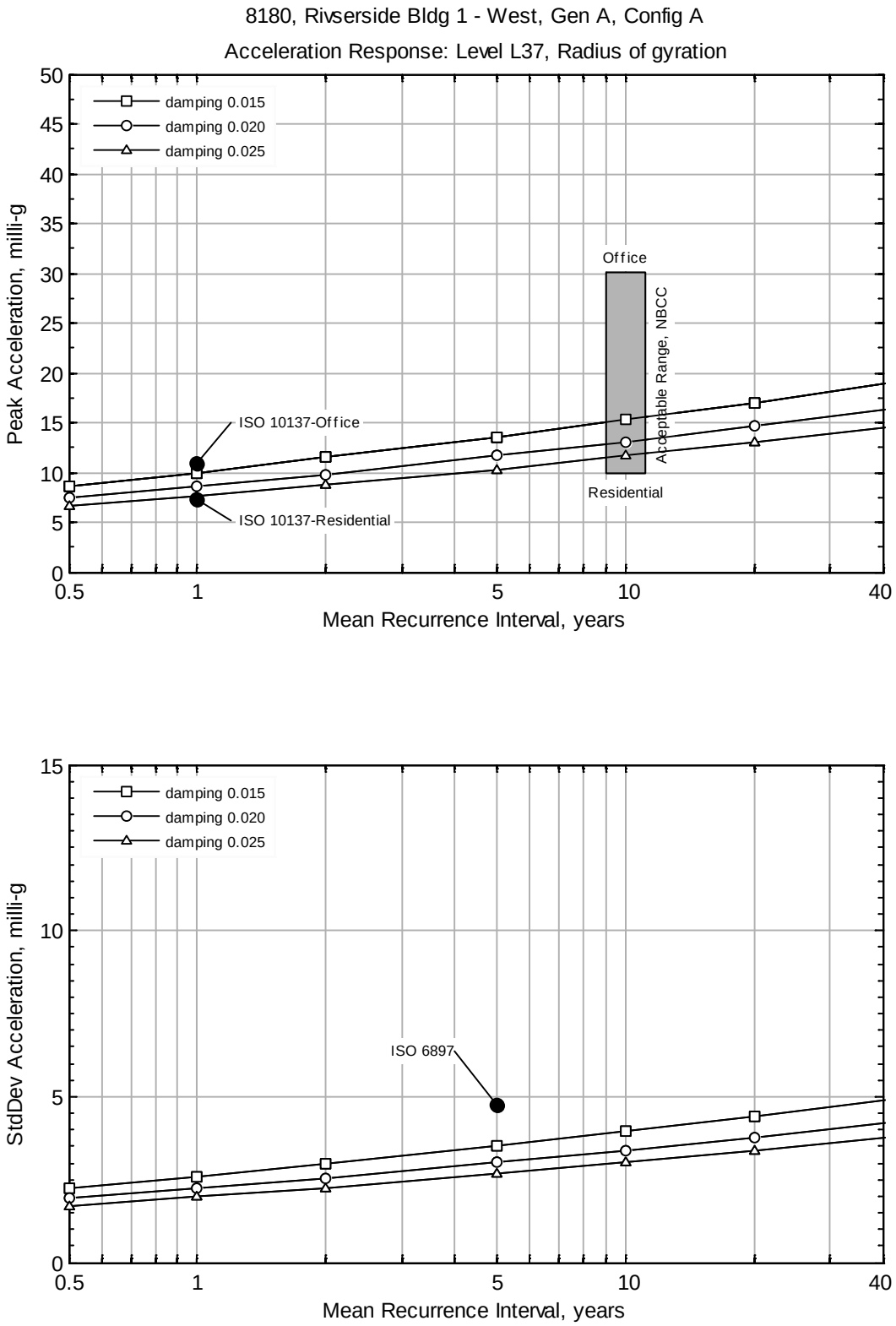


Figure 7b. RMS and peak acceleration response and comparison to acceptance criteria, Building 1-West, Radius of gyration.

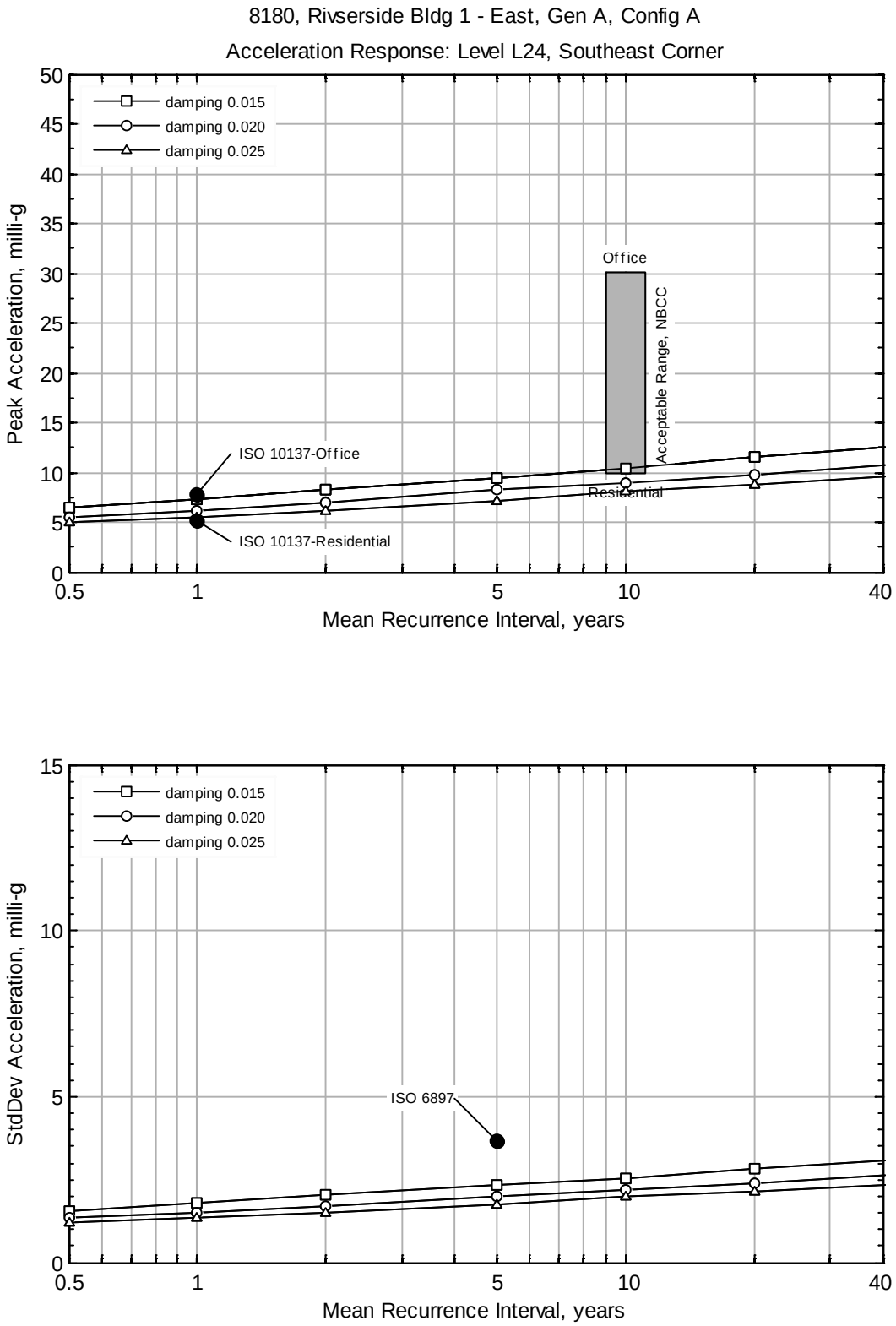


Figure 7c. RMS and peak acceleration response and comparison to acceptance criteria, Building 1-East, Southeast corner.

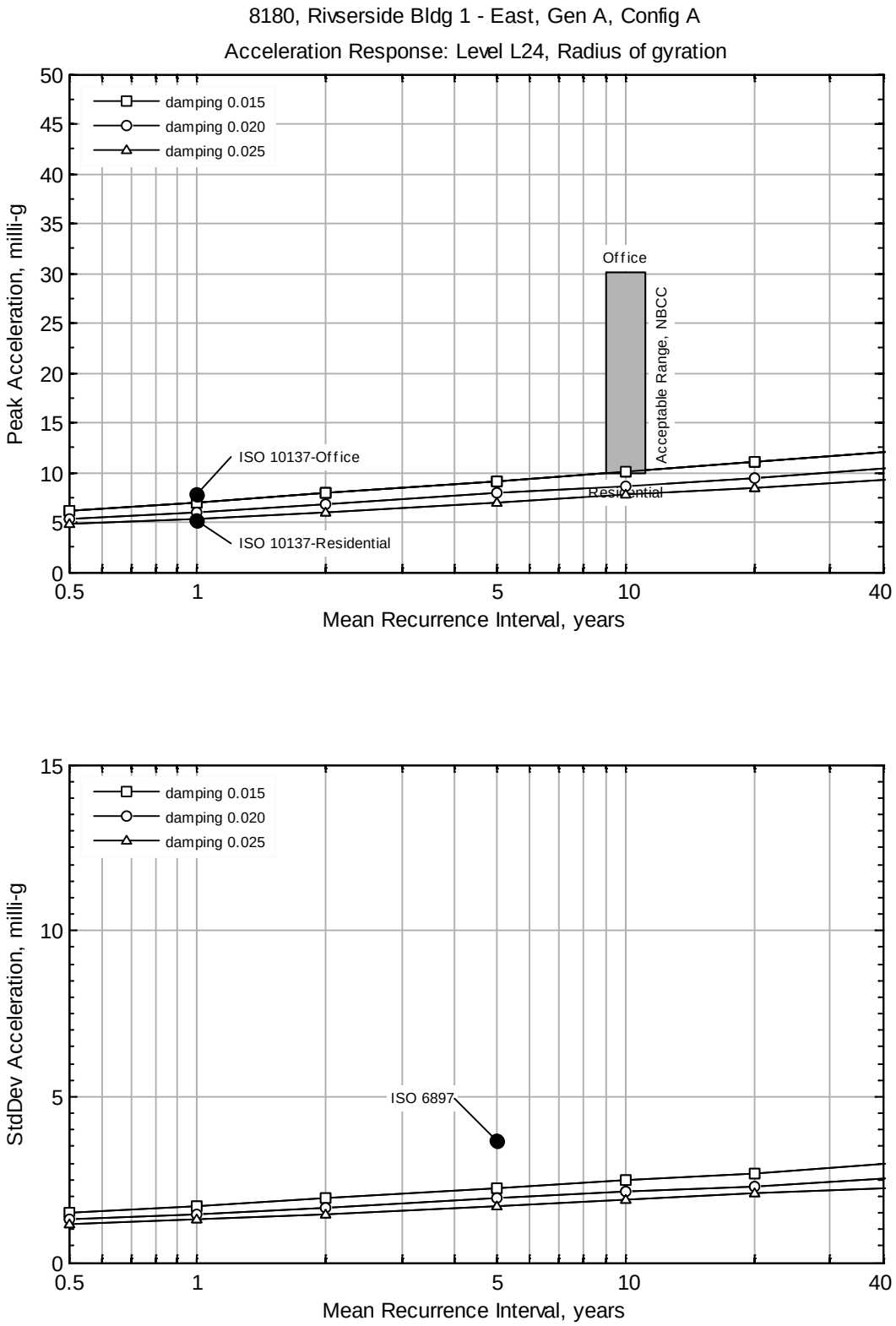


Figure 7d. RMS and peak acceleration response and comparison to acceptance criteria, Building 1-East, Radius of gyration.

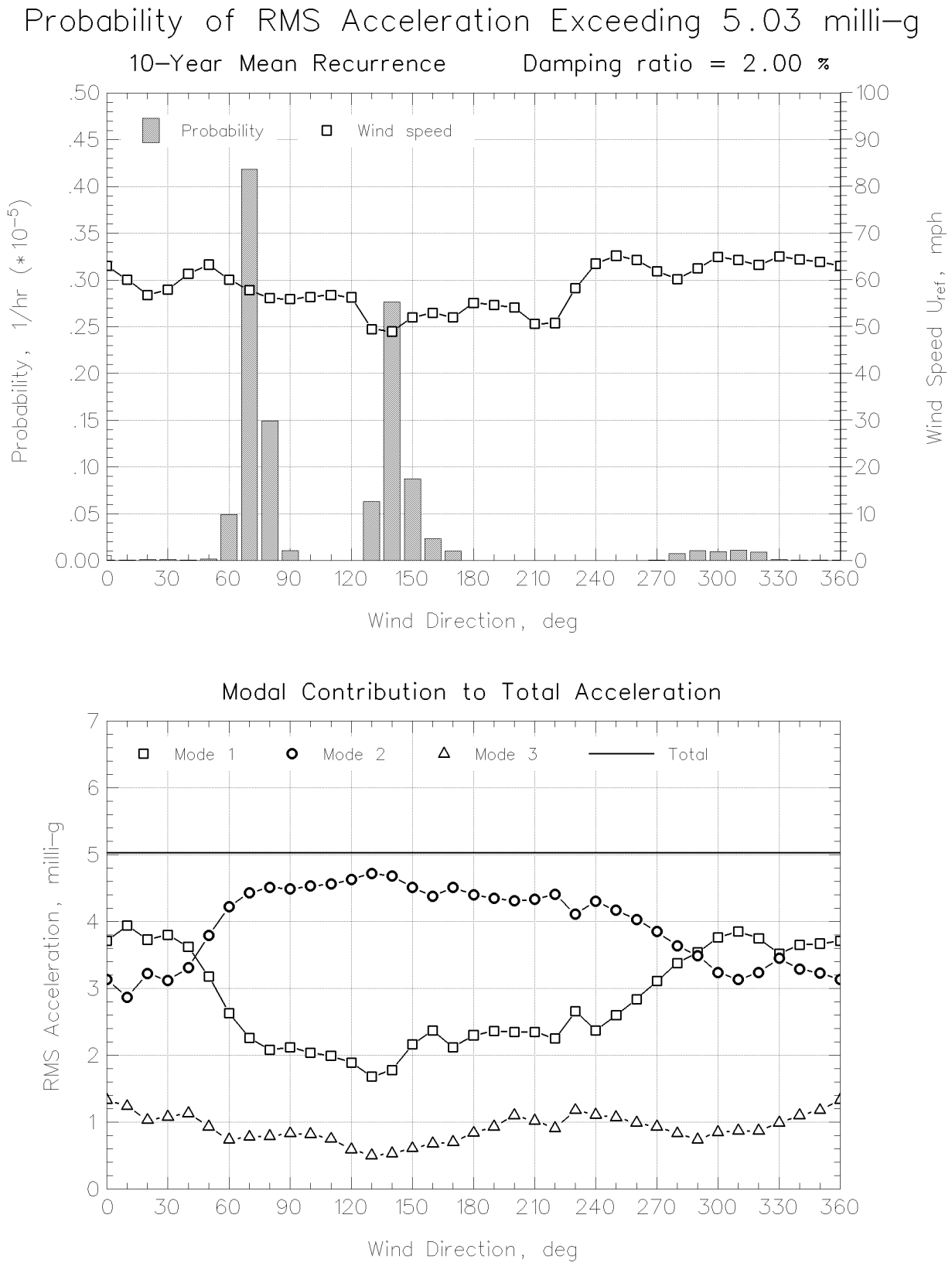


Figure 8a. Composition of 10-year acceleration by wind direction and component of motion, Building 1-West, South corner.

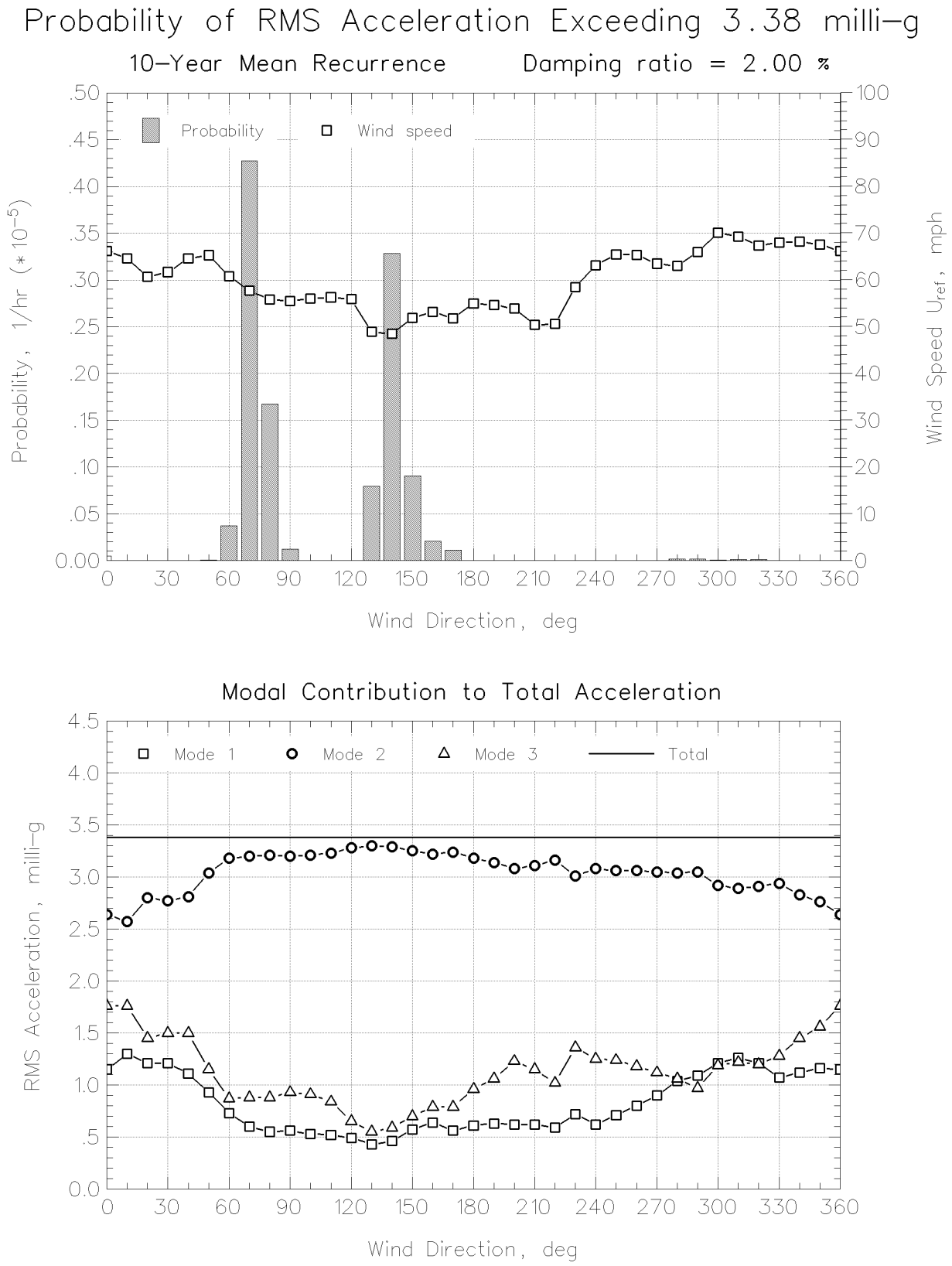


Figure 8b. Composition of 10-year acceleration by wind direction and component of motion, Building 1-West, Radius of gyration.

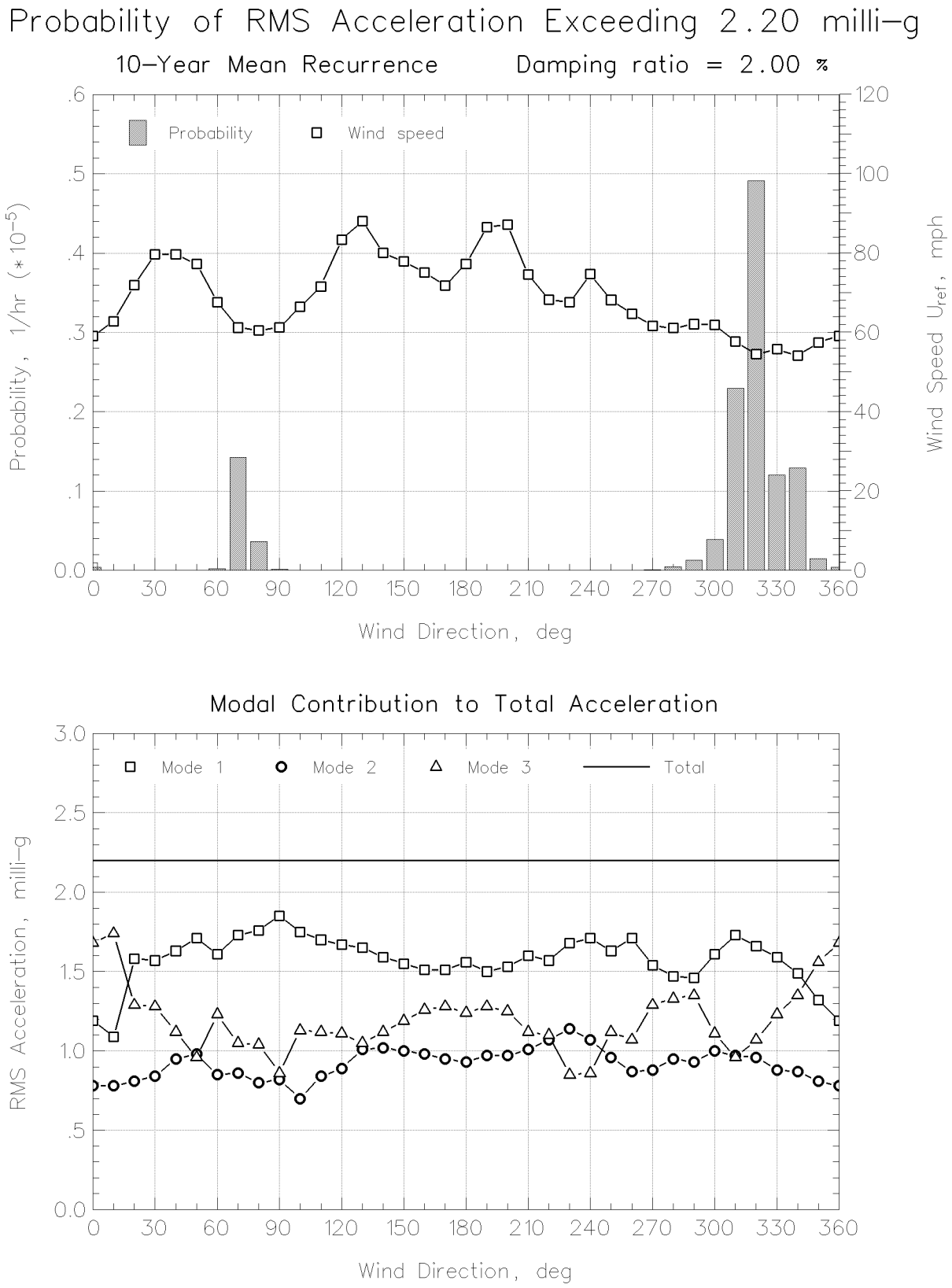


Figure 8c. Composition of 10-year acceleration by wind direction and component of motion, Building 1-East, Southeast corner.

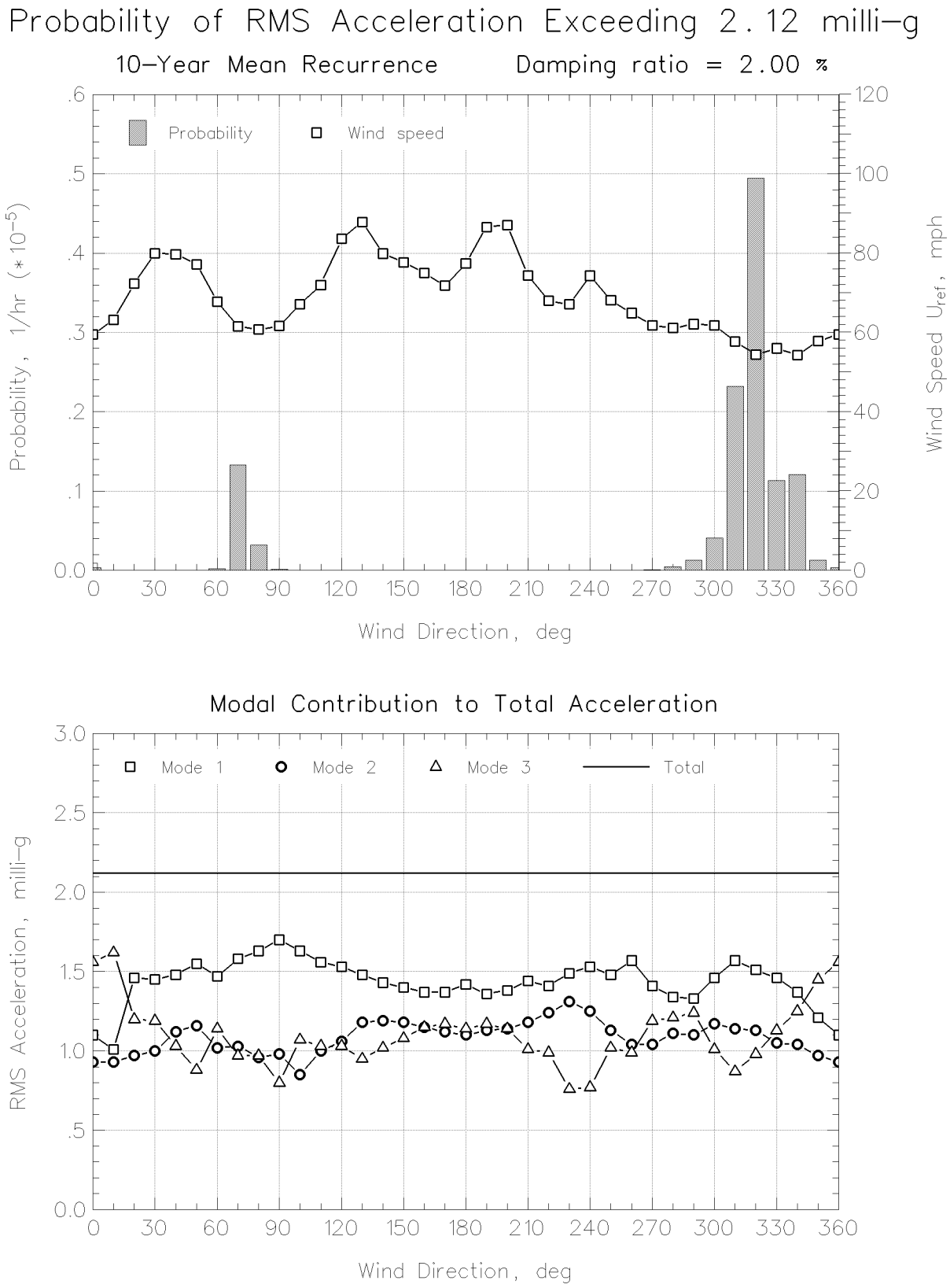


Figure 8d. Composition of 10-year acceleration by wind direction and component of motion, Building 1-East, Radius of gyration.

TABLES

TABLE 1

Design Load Cases
Simultaneous Design Loads in All Components

50-Year Loads			Structure Generation A				Natural frequencies, Hz		
Reference Elevation (ft): -21.6			8180 Riverside Building 1 - West				x	y	z
Damping Ratio: .02			Configuration A				0.3175	0.2703	0.1942
Load Definition			Wind Dir. (deg)	Base moment (1000 k-ft)				Base Shear (kips)	
Case	Comb.	Significance		Mx	My	Mz	XYresultant	Vx	Vy
1	A+	Max My, Max Vx	270	-157.60	322.27	6.30	358.74	1302.6	698.2
2	A-	Min My, Min Vx	90	106.29	-246.80	-47.48	268.71	-932.4	-473.7
3	B+	Min Mx, Max Vy	270	-388.91	145.09	-12.92	415.09	613.9	1624.2
4*	B-	Max Mx, Min Vy	20	**546.35**	81.02	14.26	552.33	259.1	-1984.3
5	C1	Max res. M w/ V in Q1	270	-371.12	209.51	-8.09	426.17	864.3	1553.0
6	C2	Max res. M w/ V in Q2	210	-379.19	-3.69	17.91	379.21	-13.1	1405.6
7	C3	Max res. M w/ V in Q3	20	521.86	-2.27	0.87	521.87	-28.6	-1898.3
8	C4	Max res. M w/ V in Q4	20	541.41	115.01	15.11	553.49	376.6	-1966.9
9	D+	Max Mz	240	-161.29	151.14	68.75	221.04	633.4	839.8
10	D-	Min Mz	30	13.91	-125.07	-77.13	125.84	-432.13	-126.01

* The value in **bold** font was scaled up to satisfy the lower bound recommendation in Section C6.6 of ASCE 7-05.

TABLE 1 (continued)

Wind Direction: 270 | Structure Generation A | 50-Year Loads
Load Case: 1 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β			x	y	z
3.9065	-0.6223	1.4412	26.1	Configuration A		0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	4.39	0.94	8.06	2.71	1.02	2.08	-370.1	54.4	-291.7	-8.76	33.93
EOR	422.83	25.28	4.18	41.60	7.65	2.50	6.09	-870.1	123.5	-692.1	-2.39	16.29
MECH	410.33	17.29	5.02	36.91	6.53	5.02	3.40	-586.6	504.5	140.4	0.35	-3.77
MRF	398.83	16.60	5.36	37.54	8.15	5.82	4.53	-672.1	582.5	167.5	0.53	-4.40
FL37	386.83	17.36	4.59	35.28	11.16	5.08	8.00	-722.0	438.5	-90.1	-0.55	2.43
FL36	374.83	19.29	4.94	38.59	16.20	6.01	12.46	-693.7	473.5	-11.3	-0.09	0.26
FL35	362.83	17.21	4.63	35.30	21.11	6.76	16.90	-666.9	479.8	24.7	0.27	-0.57
FL34	352.00	16.27	4.42	33.54	22.33	6.75	18.12	-613.8	443.5	25.5	0.32	-0.59
FL33	341.17	16.19	4.34	33.13	22.89	6.63	18.76	-608.3	410.2	-17.1	-0.22	0.39
FL32	330.33	16.10	4.25	32.69	23.44	6.51	19.39	-602.6	376.3	-60.3	-0.81	1.36
FL31	319.50	16.00	4.16	32.23	23.99	6.39	20.01	-596.6	341.8	-103.9	-1.44	2.33
FL30	308.67	15.92	4.06	31.79	24.55	6.29	20.64	-591.1	307.4	-148.1	-2.13	3.28
FL29	297.83	15.64	4.00	31.28	24.89	6.21	21.03	-607.2	280.8	-202.5	-3.00	4.46
FL28	287.00	15.24	3.96	30.72	25.10	6.11	21.30	-635.0	267.6	-249.3	-3.80	5.48
FL27	276.17	14.86	3.75	29.52	25.33	5.93	21.64	-663.4	229.9	-332.0	-5.36	7.32
FL26	265.33	15.24	3.67	29.56	26.94	6.08	23.15	-729.7	194.3	-449.6	-7.38	9.43
FL25	253.33	14.89	3.55	28.77	27.17	6.02	23.42	-765.4	168.6	-522.4	-8.89	10.92
FL24	242.50	14.75	3.40	28.03	26.00	5.70	22.45	-778.8	143.0	-572.6	-9.97	12.45
FL23	231.67	23.65	4.95	43.01	25.87	5.85	22.23	-413.0	275.1	-16.5	-0.16	0.30
FL22	219.67	26.44	5.33	47.25	27.33	6.11	23.52	-186.1	264.2	194.6	1.64	-3.30
FL21	208.83	25.48	5.08	45.30	25.11	5.63	21.61	-193.3	230.5	138.9	1.19	-2.50
FL20	198.00	25.21	4.94	44.48	26.73	5.89	23.07	-176.4	203.2	116.4	1.07	-2.06
FL19	187.17	25.55	5.37	46.54	29.45	6.64	25.32	-184.0	212.1	121.8	1.10	-2.02
FL18	175.33	24.30	4.51	41.92	28.47	6.08	24.69	-184.4	127.8	-0.2	0.00	0.00
FL17	165.50	21.91	4.45	39.29	27.52	6.08	23.74	-103.8	222.3	216.6	2.44	-4.04
FL16	154.67	20.60	4.01	36.28	27.24	5.89	23.57	-81.4	165.0	156.5	1.97	-3.03
FL15	145.08	18.76	3.64	32.97	25.51	5.52	22.08	-65.8	134.7	128.3	1.80	-2.69
FL14	135.50	18.26	3.45	31.74	25.70	5.51	22.27	-86.6	105.5	65.4	0.97	-1.38
FL13	125.92	17.66	3.25	30.35	20.92	4.57	18.08	134.6	77.7	246.7	3.57	-6.00
FL12	116.33	19.47	3.70	33.92	16.95	4.49	14.15	388.9	57.5	471.8	4.94	-11.85
FL11	105.25	18.90	3.49	32.55	16.07	4.03	13.57	499.4	65.4	593.6	6.48	-15.54
FL10	95.67	16.58	3.02	28.37	15.09	3.61	12.84	489.6	63.4	581.0	7.69	-16.99
FL9	86.08	16.21	2.86	27.39	15.52	3.54	13.31	530.1	61.3	618.5	8.88	-18.26
FL8	76.50	16.06	2.74	26.77	15.65	3.45	13.51	529.7	55.5	609.7	9.16	-18.15
FL7	66.92	15.42	2.55	25.40	13.73	2.99	11.87	359.4	44.9	424.1	6.41	-13.70
FL6	57.33	12.91	2.36	22.12	9.55	2.25	8.16	58.7	52.9	135.0	1.98	-5.37
FL5	46.25	11.10	1.83	18.25	9.13	1.96	7.91	67.0	41.1	126.3	2.53	-5.82
FL4	36.67	10.64	1.72	17.37	11.22	2.30	9.79	205.5	34.2	254.7	6.27	-11.13
FL3	27.08	11.39	1.75	18.21	20.10	3.94	17.65	1154.6	26.6	1192.9	32.74	-33.79
FL2	17.50	16.48	2.40	25.84	37.39	7.18	32.93	2800.2	20.7	2830.1	53.20	-41.74
FL1	1.60	7.91	1.20	12.62	10.21	2.02	8.95	445.1	17.6	470.4	17.60	-24.80
C1	-10.00	0.00	0.03	0.11	0.00	0.02	-0.01	0.1	4.2	6.2	-7.84	-56.43
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy					
(kips)		709.4	151.9	1302.6	826.6	206.4	698.2	M, V, computed at elev. -21.6 ft		
Base moment		My			Mx			Mz		
(1000-kip-ft)		169.7	39.1	322.3	-189.7	51.5	-157.6	-5.8	8.4	6.3

TABLE 1 (continued)

Wind Direction: 90 | Structure Generation A | 50-Year Loads
Load Case: 2 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-3.9065	-0.2992	-1.4065	-156.7	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-1.88	0.93	-5.50	-1.48	1.57	-1.95	175.9	-57.1	256.2	-14.68	41.39
EOR	422.83	-5.40	2.26	-14.24	-10.61	4.88	-12.07	264.0	-85.6	384.4	-13.32	15.71
MECH	410.33	-3.06	4.81	-21.84	-9.70	11.54	-13.15	55.9	-18.1	81.4	-1.65	2.74
MRF	398.83	-2.89	5.45	-24.17	-10.25	12.91	-14.11	3.9	-1.3	5.7	-0.10	0.18
FL37	386.83	-6.55	4.85	-25.48	-10.49	9.65	-13.38	-5.8	1.9	-8.5	0.14	-0.26
FL36	374.83	-9.95	5.71	-32.24	-10.30	9.56	-13.16	-48.0	15.6	-69.9	0.76	-1.86
FL35	362.83	-14.28	6.58	-39.98	-8.86	8.79	-11.49	-94.6	30.7	-137.8	0.91	-3.18
FL34	352.00	-14.34	6.47	-39.59	-8.06	8.02	-10.46	-92.3	29.9	-134.4	0.84	-3.17
FL33	341.17	-13.77	6.23	-38.09	-7.92	7.41	-10.14	-91.3	29.6	-132.9	0.87	-3.26
FL32	330.33	-13.19	5.98	-36.57	-7.78	6.82	-9.82	-90.2	29.3	-131.4	0.90	-3.35
FL31	319.50	-12.61	5.74	-35.02	-7.64	6.23	-9.50	-89.1	28.9	-129.8	0.94	-3.45
FL30	308.67	-12.04	5.49	-33.49	-7.50	5.68	-9.20	-88.1	28.6	-128.3	0.98	-3.56
FL29	297.83	-11.63	5.37	-32.62	-7.38	5.29	-8.96	-90.1	29.2	-131.3	1.03	-3.74
FL28	287.00	-11.32	5.33	-32.14	-7.27	4.92	-8.74	-93.9	30.5	-136.7	1.08	-3.96
FL27	276.17	-11.01	5.02	-30.61	-7.16	4.32	-8.45	-97.7	31.7	-142.3	1.19	-4.32
FL26	265.33	-11.27	4.86	-30.24	-7.42	3.99	-8.62	-107.1	34.8	-156.0	1.36	-4.77
FL25	253.33	-10.92	4.68	-29.18	-7.30	3.71	-8.41	-111.4	36.1	-162.2	1.48	-5.13
FL24	242.50	-10.11	4.30	-26.90	-6.96	3.40	-7.98	-124.4	40.4	-181.1	1.84	-6.19
FL23	231.67	-7.47	4.26	-24.12	-14.19	5.37	-15.80	-804.7	261.1	-1171.9	22.27	-34.00
FL22	219.67	-6.49	4.04	-22.29	-14.57	5.41	-16.19	-863.4	280.1	-1257.4	26.83	-36.94
FL21	208.83	-6.48	3.85	-21.53	-12.99	4.92	-14.46	-774.7	251.4	-1128.3	24.26	-36.12
FL20	198.00	-7.02	3.80	-21.88	-12.49	4.70	-13.89	-743.8	241.3	-1083.3	22.41	-35.28
FL19	187.17	-7.78	4.58	-25.66	-9.94	4.74	-11.36	-554.8	180.0	-808.0	11.65	-26.33
FL18	175.33	-7.37	3.41	-20.67	-8.14	3.43	-9.16	-447.0	145.0	-650.9	11.67	-26.32
FL17	165.50	-6.55	3.65	-20.81	-10.00	4.26	-11.27	-766.2	248.6	-1115.8	22.46	-41.45
FL16	154.67	-6.26	3.19	-18.70	-10.04	3.94	-11.22	-786.4	255.2	-1145.3	27.01	-45.04
FL15	145.08	-6.03	2.95	-17.54	-9.23	3.65	-10.32	-704.9	228.7	-1026.6	25.58	-43.48
FL14	135.50	-6.28	2.82	-17.28	-9.05	3.51	-10.10	-671.6	217.9	-978.0	24.66	-42.19
FL13	125.92	-6.59	2.69	-17.11	-9.75	3.56	-10.82	-1076.4	349.3	-1567.7	41.37	-65.46
FL12	116.33	-7.46	3.19	-19.92	-13.33	6.04	-15.13	-2010.0	652.2	-2927.2	70.77	-93.17
FL11	105.25	-7.18	2.93	-18.63	-13.84	5.40	-15.46	-2233.2	724.6	-3252.3	85.78	-103.39
FL10	95.67	-6.77	2.60	-16.95	-12.44	4.51	-13.79	-2000.5	649.1	-2913.4	84.17	-103.45
FL9	86.08	-6.75	2.43	-16.26	-12.02	4.05	-13.24	-1917.6	622.2	-2792.7	84.07	-103.30
FL8	76.50	-6.64	2.25	-15.43	-11.86	3.72	-12.97	-1885.3	611.7	-2745.6	87.67	-104.25
FL7	66.92	-6.72	2.11	-14.97	-11.35	3.38	-12.36	-1798.5	583.5	-2619.2	85.91	-104.03
FL6	57.33	-6.90	2.38	-16.20	-12.41	3.72	-13.53	-2067.8	670.9	-3011.4	91.48	-109.54
FL5	46.25	-6.48	1.86	-13.73	-12.84	3.30	-13.83	-2186.2	709.3	-3183.9	115.95	-115.11
FL4	36.67	-6.06	1.70	-12.69	-11.52	2.88	-12.38	-1990.0	645.7	-2898.2	114.14	-117.04
FL3	27.08	-5.85	1.52	-11.80	-10.36	2.51	-11.11	-1839.1	596.7	-2678.3	113.28	-120.31
FL2	17.50	-7.61	1.83	-14.74	-12.77	2.91	-13.64	-2211.5	717.5	-3220.7	108.93	-117.70
FL1	1.60	-2.57	0.73	-5.42	-11.32	2.62	-12.10	-1545.7	501.5	-2251.1	154.93	-69.43
C1	-10.00	0.00	0.04	-0.16	0.00	0.06	-0.02	0.1	0.0	0.1	-0.10	0.87
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-327.5	154.8	-932.4	-410.5	211.3	-473.7	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-82.2	42.1	-246.8	89.0	57.9	106.3	-32.6	10.6	-47.5		

TABLE 1 (continued)

Wind Direction: 270 | Structure Generation A | 50-Year Loads
Load Case: 3 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-0.6290	3.8652	-0.8510	69.5	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	4.39	0.94	3.80	2.71	1.02	6.64	-370.1	54.4	-416.4	-47.24	27.07
EOR	422.83	25.28	4.18	22.65	7.65	2.50	17.30	-870.1	123.5	-975.1	-20.76	27.19
MECH	410.33	17.29	5.02	14.13	6.53	5.02	25.91	-586.6	504.5	-1015.9	-30.22	16.48
MRF	398.83	16.60	5.36	13.23	8.15	5.82	30.66	-672.1	582.5	-1167.8	-32.11	13.85
FL37	386.83	17.36	4.59	14.48	11.16	5.08	30.78	-722.0	438.5	-1095.1	-29.14	13.70
FL36	374.83	19.29	4.94	16.18	16.20	6.01	39.44	-693.7	473.5	-1096.7	-23.80	9.76
FL35	362.83	17.21	4.63	14.29	21.11	6.76	47.23	-666.9	479.8	-1075.2	-20.85	6.31
FL34	352.00	16.27	4.42	13.49	22.33	6.75	48.42	-613.8	443.5	-991.2	-19.00	5.29
FL33	341.17	16.19	4.34	13.46	22.89	6.63	48.51	-608.3	410.2	-957.4	-18.32	5.08
FL32	330.33	16.10	4.25	13.43	23.44	6.51	48.60	-602.6	376.3	-922.8	-17.64	4.87
FL31	319.50	16.00	4.16	13.39	23.99	6.39	48.69	-596.6	341.8	-887.5	-16.94	4.66
FL30	308.67	15.92	4.06	13.36	24.55	6.29	48.87	-591.1	307.4	-852.7	-16.24	4.44
FL29	297.83	15.64	4.00	13.12	24.89	6.21	48.89	-607.2	280.8	-846.1	-16.14	4.33
FL28	287.00	15.24	3.96	12.75	25.10	6.11	48.72	-635.0	267.6	-862.8	-16.57	4.34
FL27	276.17	14.86	3.75	12.50	25.33	5.93	48.24	-663.4	229.9	-859.1	-16.69	4.32
FL26	265.33	15.24	3.67	12.93	26.94	6.08	50.42	-729.7	194.3	-895.1	-16.66	4.27
FL25	253.33	14.89	3.55	12.66	27.17	6.02	50.44	-765.4	168.6	-908.9	-16.95	4.25
FL24	242.50	14.75	3.40	12.61	26.00	5.70	48.03	-778.8	143.0	-900.5	-17.54	4.60
FL23	231.67	23.65	4.95	20.54	25.87	5.85	48.47	-413.0	275.1	-647.1	-11.32	4.80
FL22	219.67	26.44	5.33	23.09	27.33	6.11	50.94	-186.1	264.2	-410.9	-6.69	3.03
FL21	208.83	25.48	5.08	22.29	25.11	5.63	46.86	-193.3	230.5	-389.4	-6.78	3.22
FL20	198.00	25.21	4.94	22.10	26.73	5.89	49.51	-176.4	203.2	-349.3	-5.88	2.63
FL19	187.17	25.55	5.37	22.17	29.45	6.64	55.10	-184.0	212.1	-364.5	-5.69	2.29
FL18	175.33	24.30	4.51	21.47	28.47	6.08	51.98	-184.4	127.8	-293.2	-4.82	1.99
FL17	165.50	21.91	4.45	19.12	27.52	6.08	51.01	-103.8	222.3	-293.0	-5.04	1.89
FL16	154.67	20.60	4.01	18.08	27.24	5.89	50.01	-81.4	165.0	-221.8	-3.92	1.42
FL15	145.08	18.76	3.64	16.47	25.51	5.52	46.84	-65.8	134.7	-180.4	-3.43	1.21
FL14	135.50	18.26	3.45	16.09	25.70	5.51	47.01	-86.6	105.5	-176.4	-3.36	1.15
FL13	125.92	17.66	3.25	15.61	20.92	4.57	38.57	134.6	77.7	68.5	1.53	-0.62
FL12	116.33	19.47	3.70	17.14	16.95	4.49	34.32	388.9	57.5	339.9	7.93	-3.96
FL11	105.25	18.90	3.49	16.71	16.07	4.03	31.65	499.4	65.4	443.7	10.96	-5.79
FL10	95.67	16.58	3.02	14.68	15.09	3.61	29.03	489.6	63.4	435.6	11.95	-6.04
FL9	86.08	16.21	2.86	14.41	15.52	3.54	29.21	530.1	61.3	477.9	13.16	-6.49
FL8	76.50	16.06	2.74	14.34	15.65	3.45	28.98	529.7	55.5	482.4	13.38	-6.62
FL7	66.92	15.42	2.55	13.81	13.73	2.99	25.29	359.4	44.9	321.2	9.78	-5.34
FL6	57.33	12.91	2.36	11.43	9.55	2.25	18.23	58.7	52.9	13.7	0.54	-0.34
FL5	46.25	11.10	1.83	9.94	9.13	1.96	16.70	67.0	41.1	32.0	1.42	-0.84
FL4	36.67	10.64	1.72	9.55	11.22	2.30	20.13	205.5	34.2	176.5	7.16	-3.40
FL3	27.08	11.39	1.75	10.30	20.10	3.94	35.31	1154.6	26.6	1132.0	29.55	-8.61
FL2	17.50	16.48	2.40	14.97	37.39	7.18	65.13	2800.2	20.7	2782.6	40.58	-9.33
FL1	1.60	7.91	1.20	7.16	10.21	2.02	18.04	445.1	17.6	430.1	20.60	-8.18
C1	-10.00	0.00	0.03	-0.01	0.00	0.02	0.09	0.1	4.2	-3.4	-35.89	-5.80
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy			
(kips)	709.4	151.9	613.9	826.6	206.4	1624.2	M, V, computed at elev. -21.6 ft	
Base moment		My			Mx		Mz	
(1000-kip-ft)	169.7	39.1	145.1	-189.7	51.5	-388.9	-5.8	8.4	-12.9

TABLE 1 (continued)

Wind Direction: 20 | Structure Generation A | 50-Year Loads
Load Case: 4 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
1.4536	-3.8652	2.1426	-81.6	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-0.42	1.22	1.35	-10.00	3.58	-23.83	561.6	-492.7	-494.1	20.67	1.17
EOR	422.83	-0.92	2.59	2.84	-47.79	13.31	-99.22	1300.2	-1140.8	-1144.1	11.52	0.33
MECH	410.33	1.45	9.61	15.43	-31.04	17.37	-98.19	580.8	-509.6	-511.1	5.08	0.80
MRF	398.83	2.38	11.17	18.62	-29.91	18.53	-101.54	510.9	-448.3	-449.6	4.28	0.79
FL37	386.83	2.95	8.00	14.58	-29.83	14.79	-87.00	470.7	-413.0	-414.2	4.63	0.78
FL36	374.83	2.08	8.33	14.19	-28.63	14.48	-84.59	502.9	-441.2	-442.5	5.09	0.85
FL35	362.83	1.08	8.24	13.05	-26.11	13.41	-77.95	512.1	-449.3	-450.6	5.62	0.94
FL34	352.00	0.68	7.94	12.23	-23.72	12.22	-70.95	505.5	-443.5	-444.8	6.09	1.05
FL33	341.17	0.54	7.67	11.68	-22.70	11.35	-66.57	513.2	-450.3	-451.6	6.58	1.15
FL32	330.33	0.39	7.39	11.13	-21.67	10.49	-62.22	520.7	-456.9	-458.2	7.14	1.28
FL31	319.50	0.25	7.11	10.58	-20.63	9.65	-57.92	527.9	-463.2	-464.5	7.76	1.42
FL30	308.67	0.10	6.82	10.01	-19.61	8.84	-53.77	535.7	-470.0	-471.3	8.47	1.58
FL29	297.83	0.11	6.74	9.91	-18.79	8.25	-50.68	522.0	-458.0	-459.3	8.73	1.71
FL28	287.00	0.21	6.79	10.09	-18.08	7.71	-47.86	496.4	-435.5	-436.8	8.74	1.84
FL27	276.17	0.31	6.22	9.35	-17.38	6.91	-44.09	471.2	-413.5	-414.7	9.00	1.91
FL26	265.33	0.43	5.72	8.75	-17.56	6.51	-42.73	469.2	-411.7	-412.9	9.27	1.90
FL25	253.33	0.37	5.48	8.33	-16.90	6.09	-40.44	451.3	-396.0	-397.1	9.42	1.94
FL24	242.50	-0.80	5.00	6.46	-16.33	5.69	-38.32	480.0	-421.2	-422.4	10.72	1.81
FL23	231.67	-1.59	6.21	7.43	-16.99	6.32	-41.41	465.2	-408.2	-409.4	9.58	1.72
FL22	219.67	-1.41	6.17	7.56	-16.76	6.22	-40.81	376.7	-330.5	-331.4	7.85	1.46
FL21	208.83	-1.46	5.74	6.88	-15.07	5.69	-37.05	336.5	-295.2	-296.1	7.72	1.43
FL20	198.00	-1.65	5.37	6.15	-15.15	5.58	-36.71	308.2	-270.5	-271.2	7.19	1.20
FL19	187.17	-3.12	6.78	6.73	-17.55	6.74	-43.61	191.1	-167.7	-168.2	3.77	0.58
FL18	175.33	-4.03	4.27	2.18	-15.13	5.18	-35.15	142.7	-125.2	-125.6	3.56	0.22
FL17	165.50	-3.65	5.24	3.97	-14.62	5.57	-36.12	37.8	-33.1	-33.2	0.91	0.10
FL16	154.67	-3.61	4.31	2.65	-14.65	5.20	-34.76	-56.9	49.9	50.1	-1.43	-0.11
FL15	145.08	-3.38	3.87	2.24	-13.77	4.88	-32.62	-109.0	95.7	95.9	-2.93	-0.20
FL14	135.50	-3.09	3.44	1.91	-13.39	4.68	-31.48	-172.9	151.7	152.1	-4.82	-0.29
FL13	125.92	-1.60	3.01	2.77	-15.14	4.95	-34.27	-1312.5	1151.6	1154.9	-33.49	-2.71
FL12	116.33	-1.47	3.74	3.96	-18.76	7.66	-48.37	-2356.6	2067.6	2073.6	-42.59	-3.48
FL11	105.25	-1.31	3.27	3.45	-18.39	6.74	-44.44	-2326.7	2041.4	2047.3	-45.80	-3.55
FL10	95.67	-1.32	2.71	2.62	-16.78	5.73	-38.92	-2161.9	1896.8	1902.3	-48.65	-3.27
FL9	86.08	-1.30	2.33	2.08	-16.59	5.27	-36.97	-2159.8	1895.0	1900.4	-51.24	-2.88
FL8	76.50	-1.19	1.96	1.66	-16.59	4.94	-35.67	-2190.5	1921.9	1927.5	-53.92	-2.51
FL7	66.92	-1.12	1.60	1.20	-16.68	4.70	-34.84	-2262.6	1985.2	1990.9	-57.08	-1.97
FL6	57.33	-1.15	2.13	1.95	-17.03	4.91	-35.99	-2316.5	2032.5	2038.3	-56.47	-3.07
FL5	46.25	-1.18	1.13	0.46	-16.47	4.20	-32.71	-2211.8	1940.7	1946.2	-59.48	-0.84
FL4	36.67	-1.14	0.96	0.26	-15.10	3.76	-29.63	-2007.0	1760.9	1766.0	-59.61	-0.52
FL3	27.08	-0.85	0.67	0.11	-15.35	3.67	-29.52	-2017.5	1770.1	1775.2	-60.14	-0.23
FL2	17.50	-0.52	0.50	0.21	-21.17	4.80	-39.74	-2781.0	2440.1	2447.1	-61.58	-0.33
FL1	1.60	1.36	0.43	1.99	-13.30	3.12	-25.37	-1550.8	1360.7	1364.6	-53.46	-4.19
C1	-10.00	0.00	0.10	0.14	0.00	0.07	-0.26	0.1	0.0	0.0	0.13	0.07
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy			
(kips)		-28.6	197.9	259.1	-787.1	309.7	-1984.3	M, V, computed at elev. -21.6 ft
Base moment		My			Mx			Mz
(1000-kip-ft)		-2.3	57.3	81.0	205.3	88.2	546.4	-16.2	14.2	14.3		

TABLE 1 (continued)

Wind Direction: 270 | Structure Generation A | 50-Year Loads
Load Case: 5 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
1.0200	3.5200	-0.2751	60.6	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	4.39	0.94	5.35	2.71	1.02	6.29	-370.1	54.4	-385.1	-35.52	30.24
EOR	422.83	25.28	4.18	29.54	7.65	2.50	16.44	-870.1	123.5	-904.0	-13.00	23.37
MECH	410.33	17.29	5.02	22.41	6.53	5.02	24.18	-586.6	504.5	-725.4	-16.14	14.96
MRF	398.83	16.60	5.36	22.07	8.15	5.82	28.65	-672.1	582.5	-832.3	-18.23	14.04
FL37	386.83	17.36	4.59	22.04	11.16	5.08	29.03	-722.0	438.5	-842.6	-18.41	13.98
FL36	374.83	19.29	4.94	24.33	16.20	6.01	37.36	-693.7	473.5	-824.0	-15.49	10.08
FL35	362.83	17.21	4.63	21.93	21.11	6.76	44.90	-666.9	479.8	-798.9	-14.37	7.02
FL34	352.00	16.27	4.42	20.78	22.33	6.75	46.09	-613.8	443.5	-735.8	-13.27	5.98
FL33	341.17	16.19	4.34	20.61	22.89	6.63	46.22	-608.3	410.2	-721.2	-13.01	5.80
FL32	330.33	16.10	4.25	20.43	23.44	6.51	46.35	-602.6	376.3	-706.1	-12.76	5.62
FL31	319.50	16.00	4.16	20.24	23.99	6.39	46.49	-596.6	341.8	-690.6	-12.49	5.44
FL30	308.67	15.92	4.06	20.06	24.55	6.29	46.70	-591.1	307.4	-675.7	-12.21	5.25
FL29	297.83	15.64	4.00	19.72	24.89	6.21	46.75	-607.2	280.8	-684.4	-12.43	5.24
FL28	287.00	15.24	3.96	19.28	25.10	6.11	46.61	-635.0	267.6	-708.6	-12.98	5.37
FL27	276.17	14.86	3.75	18.68	25.33	5.93	46.19	-663.4	229.9	-726.7	-13.52	5.47
FL26	265.33	15.24	3.67	18.98	26.94	6.08	48.32	-729.7	194.3	-783.2	-14.04	5.51
FL25	253.33	14.89	3.55	18.52	27.17	6.02	48.36	-765.4	168.6	-811.8	-14.64	5.61
FL24	242.50	14.75	3.40	18.21	26.00	5.70	46.07	-778.8	143.0	-818.1	-15.36	6.07
FL23	231.67	23.65	4.95	28.71	25.87	5.85	46.45	-413.0	275.1	-488.7	-7.61	4.70
FL22	219.67	26.44	5.33	31.87	27.33	6.11	48.83	-186.1	264.2	-258.8	-3.72	2.43
FL21	208.83	25.48	5.08	30.66	25.11	5.63	44.91	-193.3	230.5	-256.7	-3.90	2.66
FL20	198.00	25.21	4.94	30.24	26.73	5.89	47.47	-176.4	203.2	-232.3	-3.48	2.22
FL19	187.17	25.55	5.37	31.03	29.45	6.64	52.80	-184.0	212.1	-242.3	-3.41	2.00
FL18	175.33	24.30	4.51	28.90	28.47	6.08	49.88	-184.4	127.8	-219.6	-3.30	1.91
FL17	165.50	21.91	4.45	26.45	27.52	6.08	48.92	-103.8	222.3	-165.0	-2.61	1.41
FL16	154.67	20.60	4.01	24.70	27.24	5.89	47.98	-81.4	165.0	-126.8	-2.09	1.08
FL15	145.08	18.76	3.64	22.47	25.51	5.52	44.94	-65.8	134.7	-102.9	-1.83	0.92
FL14	135.50	18.26	3.45	21.78	25.70	5.51	45.10	-86.6	105.5	-115.6	-2.08	1.00
FL13	125.92	17.66	3.25	20.97	20.92	4.57	36.99	134.6	77.7	113.2	2.32	-1.31
FL12	116.33	19.47	3.70	23.24	16.95	4.49	32.77	388.9	57.5	373.1	7.57	-5.37
FL11	105.25	18.90	3.49	22.47	16.07	4.03	30.26	499.4	65.4	481.4	10.26	-7.61
FL10	95.67	16.58	3.02	19.66	15.09	3.61	27.79	489.6	63.4	472.2	11.32	-8.01
FL9	86.08	16.21	2.86	19.13	15.52	3.54	27.99	530.1	61.3	513.2	12.50	-8.54
FL8	76.50	16.06	2.74	18.86	15.65	3.45	27.79	529.7	55.5	514.4	12.68	-8.60
FL7	66.92	15.42	2.55	18.03	13.73	2.99	24.26	359.4	44.9	347.0	9.22	-6.85
FL6	57.33	12.91	2.36	15.32	9.55	2.25	17.46	58.7	52.9	44.2	1.43	-1.25
FL5	46.25	11.10	1.83	12.96	9.13	1.96	16.03	67.0	41.1	55.7	2.10	-1.70
FL4	36.67	10.64	1.72	12.39	11.22	2.30	19.33	205.5	34.2	196.1	7.19	-4.61
FL3	27.08	11.39	1.75	13.17	20.10	3.94	33.95	1154.6	26.6	1147.3	29.37	-11.40
FL2	17.50	16.48	2.40	18.92	37.39	7.18	62.66	2800.2	20.7	2794.5	40.87	-12.34
FL1	1.60	7.91	1.20	9.14	10.21	2.02	17.34	445.1	17.6	440.2	19.87	-10.48
C1	-10.00	0.00	0.03	0.03	0.00	0.02	0.08	0.1	4.2	-1.0	-10.60	3.71
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy			
(kips)	709.4	151.9	864.3	826.6	206.4	1553.0	M, V, computed at elev. -21.6 ft	
Base moment		My			Mx		Mz	
(1000-kip-ft)	169.7	39.1	209.5	-189.7	51.5	-371.1	-5.8	8.4	-8.1

TABLE 1 (continued)

Wind Direction: 210 | Structure Generation A | 50-Year Loads
Load Case: 6 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle | Natural frequencies, Hz

Gx	Gy	Gz	β			x	y	z
-0.0668	3.7813	-0.5124	90.6	Configuration A		0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-0.92	1.31	-1.01	2.23	2.09	10.14	-97.9	-33.2	-80.9	-7.89	-0.78
EOR	422.83	-7.81	2.77	-7.99	17.84	8.64	50.51	-256.0	-88.9	-210.4	-4.06	-0.64
MECH	410.33	-4.51	10.31	-5.20	12.70	14.48	67.43	-41.6	40.1	-62.2	-0.92	-0.07
MRF	398.83	-3.62	11.98	-4.42	12.01	15.62	71.08	33.8	79.2	-6.8	-0.10	-0.01
FL37	386.83	-0.67	8.58	-1.24	12.35	12.11	58.13	113.8	95.1	65.0	1.12	0.02
FL36	374.83	1.23	8.93	0.63	12.86	12.22	59.06	231.3	146.3	156.3	2.65	-0.03
FL35	362.83	3.97	8.83	3.38	13.70	11.98	59.01	424.8	224.7	309.7	5.23	-0.30
FL34	352.00	4.01	8.52	3.44	12.67	11.00	54.25	415.7	217.0	304.5	5.59	-0.36
FL33	341.17	3.78	8.22	3.23	12.05	10.16	50.48	411.4	211.5	303.1	5.98	-0.38
FL32	330.33	3.54	7.93	3.01	11.42	9.34	46.74	407.0	205.9	301.5	6.42	-0.41
FL31	319.50	3.30	7.62	2.79	10.79	8.53	43.06	402.3	200.1	299.8	6.93	-0.45
FL30	308.67	3.06	7.31	2.57	10.17	7.76	39.50	398.0	194.5	298.3	7.52	-0.49
FL29	297.83	2.80	7.23	2.31	9.54	7.16	36.61	385.7	186.6	290.1	7.89	-0.50
FL28	287.00	2.51	7.29	2.02	8.92	6.57	33.77	368.8	178.3	277.4	8.19	-0.49
FL27	276.17	2.23	6.67	1.78	8.30	5.75	30.03	352.3	167.4	266.5	8.84	-0.52
FL26	265.33	2.04	6.14	1.63	8.07	5.25	27.90	353.2	163.8	269.3	9.62	-0.56
FL25	253.33	1.72	5.87	1.32	7.37	4.75	25.32	334.9	153.5	256.2	10.09	-0.53
FL24	242.50	1.19	5.36	0.84	6.33	4.14	21.99	297.8	135.7	228.3	10.37	-0.39
FL23	231.67	-0.92	6.65	-1.37	8.79	5.41	29.25	449.7	211.6	341.2	11.64	0.54
FL22	219.67	-1.30	6.62	-1.75	8.81	5.37	29.13	450.5	210.7	342.5	11.72	0.70
FL21	208.83	-0.97	6.15	-1.38	8.96	5.26	28.84	470.6	215.0	360.4	12.47	0.59
FL20	198.00	-0.61	5.75	-0.99	9.00	5.15	28.47	503.1	225.0	387.8	13.60	0.47
FL19	187.17	-1.29	7.27	-1.77	8.64	5.66	30.04	452.0	205.5	346.7	11.50	0.68
FL18	175.33	-1.80	4.58	-2.11	7.47	4.27	23.62	360.3	159.1	278.7	11.71	1.05
FL17	165.50	-2.37	5.62	-2.75	8.92	5.22	28.66	641.3	282.7	496.5	17.16	1.64
FL16	154.67	-2.94	4.62	-3.25	9.06	4.91	27.62	659.9	283.7	514.5	18.38	2.16
FL15	145.08	-2.90	4.15	-3.18	8.49	4.59	25.85	617.8	263.4	482.9	18.40	2.26
FL14	135.50	-2.98	3.69	-3.23	8.55	4.50	25.56	632.6	266.0	496.3	19.11	2.41
FL13	125.92	-2.77	3.23	-2.99	10.01	4.86	28.40	1033.3	423.8	816.1	28.42	2.99
FL12	116.33	-0.86	4.01	-1.12	10.80	7.00	37.25	1106.1	450.8	875.1	23.47	0.71
FL11	105.25	-0.58	3.51	-0.82	10.52	6.09	33.54	1057.9	432.3	836.4	24.92	0.61
FL10	95.67	-0.62	2.91	-0.82	9.30	5.05	28.38	922.5	377.7	729.0	25.67	0.74
FL9	86.08	-0.49	2.50	-0.66	9.11	4.58	26.44	921.5	377.1	728.3	27.53	0.68
FL8	76.50	-0.23	2.10	-0.37	9.36	4.33	25.75	1015.8	414.3	803.5	31.20	0.44
FL7	66.92	-0.19	1.71	-0.30	9.51	4.13	25.12	1040.0	422.8	823.3	32.77	0.39
FL6	57.33	0.24	2.29	0.09	7.76	3.69	21.72	803.5	328.7	635.1	29.24	-0.12
FL5	46.25	0.83	1.21	0.74	6.72	2.79	17.26	657.6	268.8	519.9	30.07	-1.30
FL4	36.67	0.78	1.03	0.71	7.25	2.82	17.92	751.2	305.6	594.6	33.13	-1.31
FL3	27.08	1.00	0.71	0.95	10.82	3.83	25.31	1230.7	497.3	975.8	38.51	-1.44
FL2	17.50	2.27	0.54	2.23	18.66	6.25	42.28	2242.7	903.2	1779.9	41.98	-2.22
FL1	1.60	1.98	0.46	1.95	5.86	2.13	13.92	602.2	243.9	477.3	33.63	-4.70
C1	-10.00	0.00	0.10	-0.01	0.00	0.07	0.25	0.0	0.5	-0.2	-0.81	-0.02
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy							
(kips)		1.1	212.3	-13.1	401.7	265.5	1405.6	M, V, computed at elev. -21.6 ft				
Base moment		My			Mx			Mz				
(1000-kip-ft)		0.4	61.4	-3.7	-98.1	74.3	-379.2	23.2	10.2	17.9		

TABLE 1 (continued)

Wind Direction: 20 | Structure Generation A | 50-Year Loads
Load Case: 7 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
0.0000	-3.5877	1.2009	-90.2	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-0.42	1.22	-0.42	-10.00	3.58	-22.83	561.6	-492.7	-30.1	1.32	-0.02
EOR	422.83	-0.92	2.59	-0.92	-47.79	13.31	-95.53	1300.2	-1140.8	-69.8	0.73	-0.01
MECH	410.33	1.45	9.61	1.45	-31.04	17.37	-93.37	580.8	-509.6	-31.2	0.33	0.01
MRF	398.83	2.38	11.17	2.38	-29.91	18.53	-96.40	510.9	-448.3	-27.4	0.28	0.01
FL37	386.83	2.95	8.00	2.95	-29.83	14.79	-82.90	470.7	-413.0	-25.3	0.30	0.01
FL36	374.83	2.08	8.33	2.08	-28.63	14.48	-80.57	502.9	-441.2	-27.0	0.33	0.01
FL35	362.83	1.08	8.24	1.08	-26.11	13.41	-74.22	512.1	-449.3	-27.5	0.37	0.01
FL34	352.00	0.68	7.94	0.68	-23.72	12.22	-67.56	505.5	-443.5	-27.1	0.40	0.00
FL33	341.17	0.54	7.67	0.54	-22.70	11.35	-63.42	513.2	-450.3	-27.5	0.43	0.00
FL32	330.33	0.39	7.39	0.39	-21.67	10.49	-59.31	520.7	-456.9	-28.0	0.47	0.00
FL31	319.50	0.25	7.11	0.25	-20.63	9.65	-55.24	527.9	-463.2	-28.3	0.51	0.00
FL30	308.67	0.10	6.82	0.10	-19.61	8.84	-51.32	535.7	-470.0	-28.8	0.56	0.00
FL29	297.83	0.11	6.74	0.11	-18.79	8.25	-48.39	522.0	-458.0	-28.0	0.58	0.00
FL28	287.00	0.21	6.79	0.21	-18.08	7.71	-45.72	496.4	-435.5	-26.6	0.58	0.00
FL27	276.17	0.31	6.22	0.31	-17.38	6.91	-42.17	471.2	-413.5	-25.3	0.60	0.00
FL26	265.33	0.43	5.72	0.43	-17.56	6.51	-40.92	469.2	-411.7	-25.2	0.62	0.01
FL25	253.33	0.37	5.48	0.37	-16.90	6.09	-38.75	451.3	-396.0	-24.2	0.63	0.01
FL24	242.50	-0.80	5.00	-0.80	-16.33	5.69	-36.74	480.0	-421.2	-25.8	0.70	-0.02
FL23	231.67	-1.59	6.21	-1.59	-16.99	6.32	-39.65	465.2	-408.2	-25.0	0.63	-0.03
FL22	219.67	-1.41	6.17	-1.41	-16.76	6.22	-39.09	376.7	-330.5	-20.2	0.52	-0.02
FL21	208.83	-1.46	5.74	-1.46	-15.07	5.69	-35.47	336.5	-295.2	-18.1	0.51	-0.02
FL20	198.00	-1.65	5.37	-1.65	-15.15	5.58	-35.17	308.2	-270.5	-16.5	0.47	-0.02
FL19	187.17	-3.12	6.78	-3.12	-17.55	6.74	-41.74	191.1	-167.7	-10.3	0.24	-0.02
FL18	175.33	-4.03	4.27	-4.03	-15.13	5.18	-33.72	142.7	-125.2	-7.7	0.22	-0.03
FL17	165.50	-3.65	5.24	-3.65	-14.62	5.57	-34.58	37.8	-33.1	-2.0	0.06	-0.01
FL16	154.67	-3.61	4.31	-3.61	-14.65	5.20	-33.32	-56.9	49.9	3.1	-0.09	0.01
FL15	145.08	-3.38	3.87	-3.38	-13.77	4.88	-31.26	-109.0	95.7	5.9	-0.19	0.02
FL14	135.50	-3.09	3.44	-3.09	-13.39	4.68	-30.18	-172.9	151.7	9.3	-0.30	0.03
FL13	125.92	-1.60	3.01	-1.60	-15.14	4.95	-32.89	-1312.5	1151.6	70.5	-2.14	0.10
FL12	116.33	-1.47	3.74	-1.47	-18.76	7.66	-46.24	-2356.6	2067.6	126.5	-2.73	0.09
FL11	105.25	-1.31	3.27	-1.31	-18.39	6.74	-42.57	-2326.7	2041.4	124.9	-2.93	0.09
FL10	95.67	-1.32	2.71	-1.32	-16.78	5.73	-37.33	-2161.9	1896.8	116.1	-3.10	0.11
FL9	86.08	-1.30	2.33	-1.30	-16.59	5.27	-35.51	-2159.8	1895.0	115.9	-3.26	0.12
FL8	76.50	-1.19	1.96	-1.19	-16.59	4.94	-34.30	-2190.5	1921.9	117.6	-3.42	0.12
FL7	66.92	-1.12	1.60	-1.12	-16.68	4.70	-33.53	-2262.6	1985.2	121.5	-3.62	0.12
FL6	57.33	-1.15	2.13	-1.15	-17.03	4.91	-34.63	-2316.5	2032.5	124.4	-3.59	0.12
FL5	46.25	-1.18	1.13	-1.18	-16.47	4.20	-31.55	-2211.8	1940.7	118.7	-3.76	0.14
FL4	36.67	-1.14	0.96	-1.14	-15.10	3.76	-28.58	-2007.0	1760.9	107.7	-3.76	0.15
FL3	27.08	-0.85	0.67	-0.85	-15.35	3.67	-28.50	-2017.5	1770.1	108.3	-3.80	0.11
FL2	17.50	-0.52	0.50	-0.52	-21.17	4.80	-38.40	-2781.0	2440.1	149.3	-3.89	0.05
FL1	1.60	1.36	0.43	1.36	-13.30	3.12	-24.51	-1550.8	1360.7	83.2	-3.39	-0.19
C1	-10.00	0.00	0.10	0.00	0.00	0.07	-0.24	0.1	0.0	0.0	0.01	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-28.6	197.9	-28.6	-787.1	309.7	-1898.3	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-2.3	57.3	-2.3	205.3	88.2	521.9	-16.2	14.2	0.9		

TABLE 1 (continued)

Wind Direction: 20 | Structure Generation A | 50-Year Loads
Load Case: 8 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
2.0470	-3.8092	2.2023	-78.0	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-0.42	1.22	2.08	-10.00	3.58	-23.63	561.6	-492.7	-523.5	21.99	1.93
EOR	422.83	-0.92	2.59	4.37	-47.79	13.31	-98.47	1300.2	-1140.8	-1212.2	12.29	0.55
MECH	410.33	1.45	9.61	21.13	-31.04	17.37	-97.22	580.8	-509.6	-541.5	5.32	1.16
MRF	398.83	2.38	11.17	25.25	-29.91	18.53	-100.50	510.9	-448.3	-476.3	4.46	1.12
FL37	386.83	2.95	8.00	19.32	-29.83	14.79	-86.17	470.7	-413.0	-438.8	4.85	1.09
FL36	374.83	2.08	8.33	19.13	-28.63	14.48	-83.78	502.9	-441.2	-468.8	5.32	1.21
FL35	362.83	1.08	8.24	17.93	-26.11	13.41	-77.19	512.1	-449.3	-477.4	5.87	1.36
FL34	352.00	0.68	7.94	16.94	-23.72	12.22	-70.26	505.5	-443.5	-471.3	6.34	1.53
FL33	341.17	0.54	7.67	16.23	-22.70	11.35	-65.94	513.2	-450.3	-478.5	6.84	1.68
FL32	330.33	0.39	7.39	15.52	-21.67	10.49	-61.63	520.7	-456.9	-485.5	7.41	1.87
FL31	319.50	0.25	7.11	14.79	-20.63	9.65	-57.38	527.9	-463.2	-492.2	8.04	2.07
FL30	308.67	0.10	6.82	14.05	-19.61	8.84	-53.27	535.7	-470.0	-499.4	8.76	2.31
FL29	297.83	0.11	6.74	13.91	-18.79	8.25	-50.22	522.0	-458.0	-486.7	9.00	2.49
FL28	287.00	0.21	6.79	14.12	-18.08	7.71	-47.43	496.4	-435.5	-462.8	8.96	2.67
FL27	276.17	0.31	6.22	13.04	-17.38	6.91	-43.71	471.2	-413.5	-439.3	9.23	2.75
FL26	265.33	0.43	5.72	12.15	-17.56	6.51	-42.36	469.2	-411.7	-437.4	9.54	2.74
FL25	253.33	0.37	5.48	11.58	-16.90	6.09	-40.09	451.3	-396.0	-420.8	9.69	2.80
FL24	242.50	-0.80	5.00	9.43	-16.33	5.69	-38.00	480.0	-421.2	-447.5	11.09	2.75
FL23	231.67	-1.59	6.21	11.12	-16.99	6.32	-41.05	465.2	-408.2	-433.7	9.84	2.67
FL22	219.67	-1.41	6.17	11.23	-16.76	6.22	-40.46	376.7	-330.5	-351.2	8.06	2.24
FL21	208.83	-1.46	5.74	10.28	-15.07	5.69	-36.73	336.5	-295.2	-313.7	7.92	2.22
FL20	198.00	-1.65	5.37	9.33	-15.15	5.58	-36.40	308.2	-270.5	-287.4	7.41	1.90
FL19	187.17	-3.12	6.78	10.75	-17.55	6.74	-43.23	191.1	-167.7	-178.2	3.88	0.97
FL18	175.33	-4.03	4.27	4.71	-15.13	5.18	-34.86	142.7	-125.2	-133.0	3.75	0.51
FL17	165.50	-3.65	5.24	7.08	-14.62	5.57	-35.81	37.8	-33.1	-35.2	0.95	0.19
FL16	154.67	-3.61	4.31	5.21	-14.65	5.20	-34.47	-56.9	49.9	53.1	-1.50	-0.23
FL15	145.08	-3.38	3.87	4.54	-13.77	4.88	-32.34	-109.0	95.7	101.7	-3.08	-0.43
FL14	135.50	-3.09	3.44	3.95	-13.39	4.68	-31.21	-172.9	151.7	161.2	-5.08	-0.64
FL13	125.92	-1.60	3.01	4.56	-15.14	4.95	-33.99	-1312.5	1151.6	1223.7	-35.37	-4.74
FL12	116.33	-1.47	3.74	6.17	-18.76	7.66	-47.94	-2356.6	2067.6	2197.0	-45.08	-5.81
FL11	105.25	-1.31	3.27	5.39	-18.39	6.74	-44.06	-2326.7	2041.4	2169.2	-48.51	-5.93
FL10	95.67	-1.32	2.71	4.23	-16.78	5.73	-38.60	-2161.9	1896.8	2015.5	-51.60	-5.65
FL9	86.08	-1.30	2.33	3.46	-16.59	5.27	-36.68	-2159.8	1895.0	2013.6	-54.42	-5.14
FL8	76.50	-1.19	1.96	2.82	-16.59	4.94	-35.39	-2190.5	1921.9	2042.2	-57.34	-4.57
FL7	66.92	-1.12	1.60	2.15	-16.68	4.70	-34.57	-2262.6	1985.2	2109.5	-60.78	-3.77
FL6	57.33	-1.15	2.13	3.22	-17.03	4.91	-35.71	-2316.5	2032.5	2159.7	-59.99	-5.41
FL5	46.25	-1.18	1.13	1.13	-16.47	4.20	-32.48	-2211.8	1940.7	2062.1	-63.42	-2.21
FL4	36.67	-1.14	0.96	0.83	-15.10	3.76	-29.41	-2007.0	1760.9	1871.1	-63.56	-1.79
FL3	27.08	-0.85	0.67	0.51	-15.35	3.67	-29.31	-2017.5	1770.1	1880.9	-64.15	-1.11
FL2	17.50	-0.52	0.50	0.51	-21.17	4.80	-39.47	-2781.0	2440.1	2592.7	-65.68	-0.85
FL1	1.60	1.36	0.43	2.24	-13.30	3.12	-25.20	-1550.8	1360.7	1445.8	-56.93	-5.07
C1	-10.00	0.00	0.10	0.20	0.00	0.07	-0.26	0.1	0.0	0.0	0.11	0.09
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-28.6	197.9	376.6	-787.1	309.7	-1966.9	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-2.3	57.3	115.0	205.3	88.2	541.4	-16.2	14.2	15.1		

TABLE 1 (continued)

Wind Direction: 240 | Structure Generation A | 50-Year Loads
Load Case: 9 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
1.0419	-0.2628	3.7788	46.9	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	2.57	0.83	3.44	1.38	0.60	1.22	-187.8	-70.3	-453.6	-41.58	117.20
EOR	422.83	16.02	3.18	19.33	10.59	2.54	9.93	-718.3	-269.1	-1735.0	-36.47	71.02
MECH	410.33	10.96	5.30	16.48	6.59	3.86	5.58	-363.3	-136.1	-877.6	-16.18	47.78
MRF	398.83	10.21	5.82	16.27	8.18	4.50	7.00	-430.4	-161.2	-1039.6	-23.20	53.91
FL37	386.83	10.64	4.61	15.44	9.63	3.77	8.64	-515.0	-192.9	-1244.1	-34.33	61.36
FL36	374.83	11.96	4.92	17.09	13.07	4.33	11.93	-520.8	-195.1	-1258.0	-34.54	49.50
FL35	362.83	10.51	4.69	15.39	16.61	4.79	15.35	-482.7	-180.8	-1166.1	-37.88	37.99
FL34	352.00	9.92	4.50	14.61	17.34	4.74	16.10	-439.5	-164.6	-1061.6	-36.17	32.82
FL33	341.17	9.90	4.38	14.47	17.69	4.63	16.48	-429.0	-160.7	-1036.3	-35.51	31.19
FL32	330.33	9.88	4.27	14.32	18.03	4.52	16.84	-418.4	-156.7	-1010.6	-34.82	29.61
FL31	319.50	9.85	4.15	14.17	18.37	4.42	17.21	-407.5	-152.7	-984.4	-34.09	28.08
FL30	308.67	9.83	4.03	14.03	18.72	4.32	17.58	-397.0	-148.7	-959.1	-33.33	26.60
FL29	297.83	9.78	4.00	13.94	19.09	4.28	17.97	-390.6	-146.3	-943.5	-32.78	25.43
FL28	287.00	9.71	4.01	13.88	19.48	4.24	18.36	-386.3	-144.7	-933.1	-32.34	24.44
FL27	276.17	9.65	3.77	13.57	19.88	4.14	18.79	-382.4	-143.2	-923.7	-32.30	23.33
FL26	265.33	10.10	3.63	13.88	21.38	4.28	20.26	-398.6	-149.3	-962.8	-32.34	22.16
FL25	253.33	10.05	3.53	13.72	21.81	4.28	20.69	-395.1	-148.0	-954.5	-32.04	21.26
FL24	242.50	9.94	3.32	13.40	21.13	4.10	20.06	-365.1	-136.8	-881.9	-30.40	20.31
FL23	231.67	16.32	4.66	21.17	21.73	4.32	20.60	-17.6	-6.6	-42.4	-1.00	1.03
FL22	219.67	18.17	4.90	23.27	22.21	4.39	21.06	116.5	43.7	281.5	6.02	-6.65
FL21	208.83	17.73	4.66	22.59	20.52	4.06	19.46	127.0	47.6	306.9	6.72	-7.80
FL20	198.00	17.40	4.47	22.06	21.49	4.19	20.39	129.4	48.5	312.7	7.06	-7.65
FL19	187.17	18.20	5.14	23.56	23.67	4.72	22.43	156.8	58.7	378.6	8.03	-8.43
FL18	175.33	17.50	4.05	21.72	22.36	4.24	21.25	103.0	38.6	248.7	5.72	-5.85
FL17	165.50	16.03	4.24	20.44	22.12	4.32	20.99	217.5	81.5	525.4	12.85	-12.51
FL16	154.67	14.25	3.63	18.03	24.04	4.55	22.84	459.9	172.3	1110.9	29.97	-23.65
FL15	145.08	12.67	3.24	16.04	23.74	4.46	22.56	557.0	208.7	1345.5	39.61	-28.16
FL14	135.50	12.25	3.01	15.39	24.66	4.59	23.45	670.0	251.0	1618.5	48.24	-31.66
FL13	125.92	12.71	2.90	15.74	22.29	4.16	21.20	977.6	366.2	2361.4	71.82	-53.32
FL12	116.33	15.78	3.60	19.54	23.64	4.89	22.35	1590.7	595.9	3842.5	97.46	-85.19
FL11	105.25	14.13	3.20	17.46	25.91	5.05	24.58	2226.8	834.2	5379.1	145.44	-103.33
FL10	95.67	11.70	2.65	14.46	25.33	4.78	24.07	2184.5	818.4	5277.0	161.08	-96.78
FL9	86.08	11.16	2.43	13.69	27.08	4.97	25.77	2330.2	872.9	5628.9	170.36	-90.50
FL8	76.50	11.45	2.32	13.87	27.90	5.02	26.58	2351.5	880.9	5680.3	167.97	-87.62
FL7	66.92	11.20	2.14	13.43	27.50	4.88	26.21	2210.9	828.2	5340.6	161.38	-82.69
FL6	57.33	9.88	2.17	12.14	29.10	5.19	27.74	2546.9	954.1	6152.3	186.14	-81.49
FL5	46.25	8.56	1.60	10.22	29.95	5.18	28.59	2793.5	1046.5	6748.0	209.29	-74.82
FL4	36.67	7.82	1.43	9.31	29.14	5.00	27.82	2758.8	1033.5	6664.2	215.42	-72.07
FL3	27.08	8.11	1.35	9.52	35.59	6.04	34.00	3563.3	1334.8	8607.4	234.74	-65.74
FL2	17.50	11.87	1.79	13.74	55.82	9.40	53.35	5782.7	2166.3	13968.7	245.55	-63.23
FL1	1.60	7.35	1.16	8.56	23.63	4.02	22.57	2252.3	843.7	5440.7	210.77	-79.91
C1	-10.00	0.00	0.04	0.04	0.00	0.02	0.00	-0.1	0.0	-0.2	0.53	4.47
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy			
(kips)		483.7	143.7	633.4	888.4	184.8	839.8	M, V, computed at elev. -21.6 ft
Base moment		My			Mx			Mz
(1000-kip-ft)		111.7	37.8	151.1	-171.8	40.1	-161.3	28.5	10.7	68.8		

TABLE 1 (continued)

Wind Direction: 30 | Structure Generation A | 50-Year Loads
Load Case: 10 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-2.0564	1.8862	-3.7788	-173.7	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-0.10	1.08	-2.32	-5.86	2.37	-1.39	392.6	-192.2	1119.0	-212.63	355.30
EOR	422.83	-0.40	2.29	-5.11	-28.20	8.08	-12.96	864.2	-423.1	2463.2	-164.50	64.80
MECH	410.33	0.79	8.51	-16.70	-17.94	12.77	6.15	360.3	-176.4	1026.8	19.93	54.14
MRF	398.83	1.05	9.88	-19.27	-17.18	13.85	8.93	308.8	-151.2	880.3	17.42	37.60
FL37	386.83	0.47	7.08	-14.08	-17.42	10.65	2.68	266.0	-130.2	758.2	9.88	51.97
FL36	374.83	-1.00	7.37	-16.15	-17.10	10.54	2.79	261.9	-128.2	746.4	7.74	44.87
FL35	362.83	-2.59	7.29	-17.57	-15.85	9.84	2.72	249.2	-122.0	710.2	6.10	39.48
FL34	352.00	-3.12	7.03	-17.57	-14.61	9.02	2.39	236.2	-115.7	673.3	5.12	37.63
FL33	341.17	-3.37	6.78	-17.32	-14.12	8.36	1.64	236.9	-116.0	675.3	3.65	38.64
FL32	330.33	-3.63	6.54	-17.07	-13.63	7.71	0.91	237.5	-116.3	676.9	2.10	39.54
FL31	319.50	-3.88	6.29	-16.81	-13.13	7.07	0.21	238.0	-116.5	678.3	0.50	40.35
FL30	308.67	-4.14	6.03	-16.53	-12.64	6.46	-0.45	238.7	-116.9	680.3	-1.11	41.11
FL29	297.83	-4.21	5.96	-16.47	-12.22	6.02	-0.86	229.2	-112.2	653.3	-2.06	39.55
FL28	287.00	-4.19	6.01	-16.55	-11.84	5.61	-1.26	214.1	-104.8	610.1	-2.79	36.66
FL27	276.17	-4.17	5.50	-15.49	-11.48	4.98	-2.08	199.1	-97.5	567.5	-4.85	36.00
FL26	265.33	-4.37	5.06	-14.78	-11.69	4.64	-2.94	193.6	-94.8	551.7	-7.14	35.91
FL25	253.33	-4.44	4.85	-14.40	-11.31	4.32	-3.16	182.1	-89.1	519.0	-7.54	34.38
FL24	242.50	-4.89	4.42	-13.97	-10.67	3.96	-3.21	194.0	-95.0	552.9	-8.63	37.59
FL23	231.67	-4.64	5.49	-15.92	-13.44	4.92	-4.15	-49.5	24.2	-141.0	2.16	-8.29
FL22	219.67	-3.59	5.46	-14.82	-14.22	5.03	-4.72	-170.6	83.5	-486.2	9.49	-29.78
FL21	208.83	-3.32	5.08	-13.76	-13.16	4.68	-4.34	-170.5	83.5	-485.9	10.13	-32.12
FL20	198.00	-3.31	4.75	-13.07	-13.07	4.55	-4.48	-184.2	90.2	-525.1	12.32	-35.95
FL19	187.17	-4.00	6.00	-16.33	-12.29	4.96	-2.93	-177.9	87.1	-507.0	5.40	-30.09
FL18	175.33	-3.81	3.78	-11.58	-10.26	3.66	-3.36	-153.0	74.9	-436.1	10.08	-34.74
FL17	165.50	-2.99	4.64	-12.52	-11.28	4.29	-3.18	-449.1	219.9	-1280.0	24.42	-96.02
FL16	154.67	-2.22	3.81	-10.06	-11.40	3.99	-3.87	-545.0	266.8	-1553.4	51.77	-134.52
FL15	145.08	-1.51	3.42	-8.55	-10.57	3.72	-3.57	-543.4	266.1	-1548.9	64.41	-154.37
FL14	135.50	-0.87	3.04	-7.12	-10.25	3.55	-3.55	-572.6	280.4	-1632.1	91.55	-183.54
FL13	125.92	0.34	2.66	-5.13	-11.99	3.79	-4.83	-1460.4	715.0	-4162.4	404.79	-429.97
FL12	116.33	0.17	3.30	-6.63	-16.03	6.26	-4.22	-2550.5	1248.8	-7269.4	496.99	-780.93
FL11	105.25	0.21	2.89	-5.74	-16.19	5.56	-5.70	-2594.7	1270.4	-7395.4	643.71	-648.80
FL10	95.67	0.03	2.40	-4.91	-14.67	4.69	-5.83	-2350.9	1151.0	-6700.3	672.95	-566.45
FL9	86.08	-0.01	2.06	-4.25	-14.39	4.27	-6.33	-2296.7	1124.5	-6545.9	713.39	-478.90
FL8	76.50	0.08	1.73	-3.49	-14.35	3.97	-6.86	-2293.0	1122.7	-6535.5	757.15	-384.70
FL7	66.92	0.12	1.41	-2.78	-14.30	3.74	-7.26	-2308.3	1130.2	-6579.1	790.52	-303.20
FL6	57.33	0.24	1.89	-3.64	-14.34	3.86	-7.06	-2330.6	1141.1	-6642.7	743.53	-382.90
FL5	46.25	0.26	1.00	-1.80	-13.86	3.26	-7.71	-2258.5	1105.8	-6437.0	791.98	-184.41
FL4	36.67	0.20	0.85	-1.55	-12.66	2.90	-7.19	-2066.9	1012.0	-5891.1	782.89	-169.00
FL3	27.08	0.36	0.59	-0.85	-12.97	2.83	-7.63	-2108.4	1032.3	-6009.3	777.96	-86.90
FL2	17.50	0.77	0.45	-0.14	-18.21	3.75	-11.14	-2910.9	1425.2	-8296.6	744.35	-9.62
FL1	1.60	1.62	0.38	0.83	-10.63	2.29	-6.32	-1619.5	792.9	-4615.9	718.23	94.53
C1	-10.00	0.00	0.09	-0.18	0.00	0.06	0.11	0.1	0.0	0.2	0.43	0.68
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy			
(kips)		-72.0	175.1	-432.1	-561.4	230.8	-126.0	M, V, computed at elev. -21.6 ft
Base moment		My			Mx			Mz
(1000-kip-ft)		-20.8	50.7	-125.1	135.8	64.6	13.9	-27.1	13.3	-77.1

TABLE 2

Design Load Cases
Simultaneous Design Loads in All Components

50-Year Loads
Reference Elevation (ft): -21.6
Damping Ratio: .02

Structure Generation A
8180 Riverside Building 1 - East
Configuration A

Natural frequencies, Hz

x	y	z
0.8929	0.6667	0.5714

Load Definition			Wind Dir. (deg)	Base moment (1000 k-ft)				Base Shear (kips)	
Case	Comb.	Significance		Mx	My	Mz	XYresultant	Vx	Vy
1	A+	Max My, Max Vx	320	-32.04	91.71	1.02	97.14	401.1	148.4
2	A-	Min My, Min Vx	70	30.84	-87.90	-1.12	93.16	-383.6	-143.6
3	B+	Min Mx, Max Vy	320	-51.11	65.96	0.90	83.44	286.6	235.0
4	B-	Max Mx, Min Vy	320	66.23	-40.96	-0.49	77.87	-188.4	-297.8
5	C1	Max res. M w/ V in Q1	320	-39.18	90.42	1.05	98.54	395.3	180.8
6	C2	Max res. M w/ V in Q2	70	-0.44	-72.35	-0.32	72.35	-315.1	2.1
7	C3	Max res. M w/ V in Q3	70	40.25	-85.95	-1.22	94.90	-374.9	-187.4
8	C4	Max res. M w/ V in Q4	30	49.72	24.83	0.13	55.57	110.5	-217.1
9	D+	Max Mz	70	8.37	16.65	4.95	18.64	77.1	-38.9
10	D-	Min Mz	230	-5.17	3.15	-4.91	6.05	14.44	24.37
11*	E1	Companion to Case04 on West Tower	20	**79.01**	-3.13	-0.96	79.07	-16.03	-347.11
12	E2	Companion to Case01 on West Tower	270	-16.80	54.63	0.61	57.15	242.08	81.67
13	E3	Companion to Case10 on West Tower	30	22.70	-4.88	-1.97	23.22	-22.50	-99.13

* The value in **bold** font was scaled up to satisfy the lower bound recommendation in Section C6.6 of ASCE 7-05.

TABLE 2 (continued)

Wind Direction: 320 | Structure Generation A | 50-Year Loads
Load Case: 1 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
4.1625	2.7615	1.1080	19.3	Configuration A	0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	5.22	1.11	9.82	-2.12	0.93	0.43	51.1	0.0	51.1	0.23	-5.19
FL27	269.92	9.16	3.61	24.19	-4.16	2.68	3.23	110.3	2.3	112.9	0.61	-4.58
FL26	259.42	5.23	3.53	19.90	-2.85	2.54	4.16	33.1	3.9	37.4	0.38	-1.80
FL25	246.25	4.98	11.50	52.86	-3.05	7.23	16.92	14.9	98.4	123.9	0.68	-2.13
FL24	234.92	4.30	7.90	37.16	-2.70	5.30	11.95	14.8	67.3	89.3	0.70	-2.18
FL23	223.58	3.57	7.06	32.97	-2.28	4.91	11.27	9.4	62.7	78.9	0.73	-2.14
FL22	213.83	2.89	6.44	29.68	-1.91	4.60	10.79	3.4	59.4	69.2	0.75	-2.06
FL21	204.08	2.53	6.07	27.77	-1.75	4.50	10.68	-0.4	57.7	63.5	0.77	-1.99
FL20	194.33	2.16	5.70	25.89	-1.60	4.40	10.56	-4.2	55.8	57.7	0.78	-1.91
FL19	184.58	1.80	5.34	24.04	-1.45	4.30	10.44	-8.0	53.2	51.0	0.77	-1.78
FL18	174.83	1.61	4.99	22.38	-1.39	4.20	10.21	-7.9	50.7	48.2	0.81	-1.78
FL17	165.08	1.49	4.85	21.66	-1.38	4.24	10.32	-6.2	48.4	47.4	0.85	-1.78
FL16	155.33	1.37	4.65	20.73	-1.37	4.20	10.22	-4.6	46.8	47.3	0.90	-1.84
FL15	145.58	1.24	4.31	19.20	-1.37	4.01	9.70	-3.0	45.1	47.0	0.98	-1.95
FL14	135.83	1.09	3.97	17.62	-1.38	3.81	9.14	-1.1	43.1	46.7	1.08	-2.09
FL13	126.08	0.47	3.54	15.18	-0.63	3.27	8.39	1.7	42.6	48.9	1.36	-2.47
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		49.1	84.6	401.1	-31.4	65.1	148.4	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		12.5	19.0	91.7	7.6	14.3	-32.0	0.2	0.7	1.0		

TABLE 2 (continued)

Wind Direction: 70 | Structure Generation A | 50-Year Loads
Load Case: 2 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-4.1625	-1.7885	-1.7517	-160.7	Configuration A	0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	-4.19	1.62	-10.93	1.28	-0.78	2.67	-20.7	-30.5	32.8	0.69	2.83
FL27	269.92	-9.70	4.96	-30.32	-3.44	2.56	-8.03	4.1	6.1	-6.5	0.05	-0.20
FL26	259.42	-4.25	3.38	-18.32	-2.11	1.98	-5.64	45.5	67.2	-72.2	1.11	-3.60
FL25	246.25	-5.62	9.68	-45.92	-2.70	4.77	-11.23	77.7	114.8	-123.4	0.62	-2.54
FL24	234.92	-4.58	6.79	-32.85	-3.99	4.63	-12.26	51.9	76.6	-82.4	0.82	-2.20
FL23	223.58	-4.07	6.11	-29.50	-3.80	4.39	-11.64	35.8	53.0	-56.9	0.66	-1.67
FL22	213.83	-3.51	5.55	-26.59	-3.25	3.98	-10.36	43.7	64.6	-69.5	0.88	-2.27
FL21	204.08	-3.57	5.36	-25.86	-3.11	3.88	-10.04	51.8	76.6	-82.3	1.07	-2.77
FL20	194.33	-3.62	5.17	-25.13	-2.96	3.77	-9.71	60.0	88.6	-95.2	1.27	-3.30
FL19	184.58	-3.67	4.99	-24.43	-2.82	3.67	-9.38	68.1	100.6	-108.1	1.48	-3.86
FL18	174.83	-3.45	4.68	-22.92	-2.92	3.69	-9.52	66.1	97.7	-105.0	1.62	-3.91
FL17	165.08	-3.13	4.47	-21.72	-3.13	3.83	-9.98	60.2	89.0	-95.6	1.67	-3.64
FL16	155.33	-2.80	4.22	-20.37	-3.33	3.94	-10.37	54.3	80.2	-86.2	1.71	-3.36
FL15	145.58	-2.50	3.88	-18.64	-3.54	3.97	-10.64	48.4	71.6	-76.9	1.78	-3.11
FL14	135.83	-2.30	3.58	-17.20	-3.80	4.02	-11.00	42.3	62.5	-67.2	1.77	-2.77
FL13	126.08	-0.99	2.85	-12.87	-1.73	2.64	-6.44	18.4	27.1	-29.2	0.91	-1.81
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-61.9	77.3	-383.6	-45.3	54.9	-143.6	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-14.9	17.5	-87.9	9.7	11.8	30.8	0.7	1.0	-1.1		

TABLE 2 (continued)

Wind Direction: 320 | Structure Generation A | 50-Year Loads
Load Case: 3 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β			x	y	z
2.8093	4.0918	0.9393	37.8	Configuration A		0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	5.22	1.11	8.32	-2.12	0.93	1.66	51.1	0.0	51.1	1.18	-5.90
FL27	269.92	9.16	3.61	19.30	-4.16	2.68	6.79	110.3	2.3	112.5	1.82	-5.19
FL26	259.42	5.23	3.53	15.13	-2.85	2.54	7.54	33.1	3.9	36.7	0.97	-1.94
FL25	246.25	4.98	11.50	37.29	-3.05	7.23	26.53	14.9	98.4	107.3	1.36	-1.91
FL24	234.92	4.30	7.90	26.48	-2.70	5.30	19.01	14.8	67.3	78.0	1.40	-1.94
FL23	223.58	3.57	7.06	23.42	-2.28	4.91	17.79	9.4	62.7	68.4	1.41	-1.85
FL22	213.83	2.89	6.44	20.97	-1.91	4.60	16.91	3.4	59.4	59.2	1.38	-1.71
FL21	204.08	2.53	6.07	19.56	-1.75	4.50	16.67	-0.4	57.7	53.8	1.36	-1.59
FL20	194.33	2.16	5.70	18.17	-1.60	4.40	16.42	-4.2	55.8	48.3	1.32	-1.46
FL19	184.58	1.80	5.34	16.81	-1.45	4.30	16.17	-8.0	53.2	42.0	1.25	-1.30
FL18	174.83	1.61	4.99	15.63	-1.39	4.20	15.80	-7.9	50.7	39.7	1.27	-1.26
FL17	165.08	1.49	4.85	15.10	-1.38	4.24	15.96	-6.2	48.4	39.2	1.30	-1.23
FL16	155.33	1.37	4.65	14.44	-1.37	4.20	15.81	-4.6	46.8	39.4	1.36	-1.24
FL15	145.58	1.24	4.31	13.36	-1.37	4.01	15.03	-3.0	45.1	39.4	1.46	-1.30
FL14	135.83	1.09	3.97	12.25	-1.38	3.81	14.21	-1.1	43.1	39.4	1.59	-1.37
FL13	126.08	0.47	3.54	10.40	-0.63	3.27	12.74	1.7	42.6	41.7	1.97	-1.60
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		49.1	84.6	286.6	-31.4	65.1	235.0	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		12.5	19.0	66.0	7.6	14.3	-51.1	0.2	0.7	0.9		

TABLE 2 (continued)

Wind Direction:	320				Structure Generation A				50-Year Loads			
Load Case:	4				Riverside Building 1 - East				Damping Ratio: .02			
Peak Factors				Angle					Natural frequencies, Hz			
Gx	Gy	Gz		β					x	y	z	
-2.8093	-4.0918	-0.9393		-121.7	Configuration A				0.8929	0.6667	0.5714	
Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	5.22	1.11	2.11	-2.12	0.93	-5.91	51.1	0.0	51.1	-7.67	-2.74
FL27	269.92	9.16	3.61	-0.99	-4.16	2.68	-15.11	110.3	2.3	108.1	-7.12	0.47
FL26	259.42	5.23	3.53	-4.67	-2.85	2.54	-13.24	33.1	3.9	29.4	-1.98	0.70
FL25	246.25	4.98	11.50	-27.33	-3.05	7.23	-32.62	14.9	98.4	-77.5	1.40	-1.17
FL24	234.92	4.30	7.90	-17.88	-2.70	5.30	-24.40	14.8	67.3	-48.4	1.29	-0.95
FL23	223.58	3.57	7.06	-16.27	-2.28	4.91	-22.35	9.4	62.7	-49.5	1.45	-1.05
FL22	213.83	2.89	6.44	-15.19	-1.91	4.60	-20.72	3.4	59.4	-52.4	1.64	-1.21
FL21	204.08	2.53	6.07	-14.51	-1.75	4.50	-20.17	-0.4	57.7	-54.6	1.78	-1.28
FL20	194.33	2.16	5.70	-13.85	-1.60	4.40	-19.62	-4.2	55.8	-56.7	1.93	-1.36
FL19	184.58	1.80	5.34	-13.21	-1.45	4.30	-19.06	-8.0	53.2	-58.0	2.06	-1.43
FL18	174.83	1.61	4.99	-12.41	-1.39	4.20	-18.59	-7.9	50.7	-55.5	2.06	-1.38
FL17	165.08	1.49	4.85	-12.12	-1.38	4.24	-18.72	-6.2	48.4	-51.7	1.95	-1.26
FL16	155.33	1.37	4.65	-11.70	-1.37	4.20	-18.55	-4.6	46.8	-48.6	1.87	-1.18
FL15	145.58	1.24	4.31	-10.88	-1.37	4.01	-17.76	-3.0	45.1	-45.3	1.85	-1.14
FL14	135.83	1.09	3.97	-10.07	-1.38	3.81	-16.97	-1.1	43.1	-41.5	1.81	-1.07
FL13	126.08	0.47	3.54	-9.47	-0.63	3.27	-13.99	1.7	42.6	-38.4	1.88	-1.27
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		49.1	84.6	-188.4	-31.4	65.1	-297.8	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		12.5	19.0	-41.0	7.6	14.3	66.2	0.2	0.7	-0.5		

TABLE 2 (continued)

Wind Direction: 320 | Structure Generation A | 50-Year Loads
Load Case: 5 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β			x	y	z
4.0946	3.2595	1.1473	23.4	Configuration A		0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	5.22	1.11	9.75	-2.12	0.93	0.89	51.1	0.0	51.1	0.48	-5.20
FL27	269.92	9.16	3.61	23.94	-4.16	2.68	4.56	110.3	2.3	112.9	0.87	-4.55
FL26	259.42	5.23	3.53	19.66	-2.85	2.54	5.43	33.1	3.9	37.5	0.49	-1.77
FL25	246.25	4.98	11.50	52.08	-3.05	7.23	20.52	14.9	98.4	127.8	0.84	-2.12
FL24	234.92	4.30	7.90	36.63	-2.70	5.30	14.59	14.8	67.3	92.0	0.86	-2.17
FL23	223.58	3.57	7.06	32.50	-2.28	4.91	13.71	9.4	62.7	81.4	0.90	-2.13
FL22	213.83	2.89	6.44	29.24	-1.91	4.60	13.08	3.4	59.4	71.5	0.91	-2.04
FL21	204.08	2.53	6.07	27.36	-1.75	4.50	12.92	-0.4	57.7	65.8	0.93	-1.97
FL20	194.33	2.16	5.70	25.50	-1.60	4.40	12.75	-4.2	55.8	59.9	0.94	-1.88
FL19	184.58	1.80	5.34	23.68	-1.45	4.30	12.58	-8.0	53.2	53.1	0.93	-1.75
FL18	174.83	1.61	4.99	22.05	-1.39	4.20	12.31	-7.9	50.7	50.2	0.97	-1.74
FL17	165.08	1.49	4.85	21.33	-1.38	4.24	12.43	-6.2	48.4	49.3	1.00	-1.72
FL16	155.33	1.37	4.65	20.42	-1.37	4.20	12.31	-4.6	46.8	49.1	1.06	-1.77
FL15	145.58	1.24	4.31	18.91	-1.37	4.01	11.69	-3.0	45.1	48.7	1.15	-1.87
FL14	135.83	1.09	3.97	17.35	-1.38	3.81	11.04	-1.1	43.1	48.3	1.26	-1.98
FL13	126.08	0.47	3.54	14.94	-0.63	3.27	10.02	1.7	42.6	50.6	1.57	-2.34
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		49.1	84.6	395.3	-31.4	65.1	180.8	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		12.5	19.0	90.4	7.6	14.3	-39.2	0.2	0.7	1.0		

TABLE 2 (continued)

Wind Direction:	70				Structure Generation A				50-Year Loads			
Load Case:	6				Riverside Building 1 - East				Damping Ratio: .02			
Peak Factors				Angle					Natural frequencies, Hz			
Gx	Gy	Gz		β					x	y	z	
-3.2759	0.8630	-0.9839		179.7	Configuration A				0.8929	0.6667	0.5714	
Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	-4.19	1.62	-9.50	1.28	-0.78	0.60	-20.7	-30.5	9.4	0.06	0.98
FL27	269.92	-9.70	4.96	-25.93	-3.44	2.56	-1.23	4.1	6.1	-1.9	0.00	-0.07
FL26	259.42	-4.25	3.38	-15.32	-2.11	1.98	-0.40	45.5	67.2	-20.6	0.04	-1.35
FL25	246.25	-5.62	9.68	-37.33	-2.70	4.77	1.41	77.7	114.8	-35.3	-0.04	-0.94
FL24	234.92	-4.58	6.79	-26.83	-3.99	4.63	0.00	51.9	76.6	-23.5	0.00	-0.88
FL23	223.58	-4.07	6.11	-24.09	-3.80	4.39	-0.01	35.8	53.0	-16.3	0.00	-0.68
FL22	213.83	-3.51	5.55	-21.68	-3.25	3.98	0.18	43.7	64.6	-19.8	-0.01	-0.92
FL21	204.08	-3.57	5.36	-21.11	-3.11	3.88	0.24	51.8	76.6	-23.5	-0.01	-1.11
FL20	194.33	-3.62	5.17	-20.55	-2.96	3.77	0.29	60.0	88.6	-27.2	-0.02	-1.32
FL19	184.58	-3.67	4.99	-20.00	-2.82	3.67	0.34	68.1	100.6	-30.9	-0.03	-1.54
FL18	174.83	-3.45	4.68	-18.78	-2.92	3.69	0.26	66.1	97.7	-30.0	-0.02	-1.60
FL17	165.08	-3.13	4.47	-17.76	-3.13	3.83	0.18	60.2	89.0	-27.3	-0.02	-1.54
FL16	155.33	-2.80	4.22	-16.63	-3.33	3.94	0.07	54.3	80.2	-24.6	-0.01	-1.48
FL15	145.58	-2.50	3.88	-15.20	-3.54	3.97	-0.11	48.4	71.6	-22.0	0.01	-1.45
FL14	135.83	-2.30	3.58	-14.02	-3.80	4.02	-0.33	42.3	62.5	-19.2	0.03	-1.37
FL13	126.08	-0.99	2.85	-10.34	-1.73	2.64	0.55	18.4	27.1	-8.3	-0.04	-0.80
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-61.9	77.3	-315.1	-45.3	54.9	2.1	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-14.9	17.5	-72.4	9.7	11.8	-0.4	0.7	1.0	-0.3		

TABLE 2 (continued)

Wind Direction:	70				Structure Generation A				50-Year Loads			
Load Case:	7				Riverside Building 1 - East				Damping Ratio: .02			
Peak Factors				Angle					Natural frequencies, Hz			
Gx	Gy	Gz		β					x	y	z	
-4.0509	-2.5860	-1.8466		-154.9	Configuration A				0.8929	0.6667	0.5714	

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	-4.19	1.62	-10.75	1.28	-0.78	3.30	-20.7	-30.5	35.7	0.93	3.04
FL27	269.92	-9.70	4.96	-29.77	-3.44	2.56	-10.07	4.1	6.1	-7.1	0.07	-0.21
FL26	259.42	-4.25	3.38	-17.94	-2.11	1.98	-7.21	45.5	67.2	-78.6	1.52	-3.77
FL25	246.25	-5.62	9.68	-44.84	-2.70	4.77	-15.04	77.7	114.8	-134.3	0.90	-2.69
FL24	234.92	-4.58	6.79	-32.09	-3.99	4.63	-15.95	51.9	76.6	-89.6	1.11	-2.24
FL23	223.58	-4.07	6.11	-28.82	-3.80	4.39	-15.14	35.8	53.0	-62.0	0.89	-1.68
FL22	213.83	-3.51	5.55	-25.98	-3.25	3.98	-13.54	43.7	64.6	-75.6	1.19	-2.29
FL21	204.08	-3.57	5.36	-25.26	-3.11	3.88	-13.13	51.8	76.6	-89.6	1.45	-2.79
FL20	194.33	-3.62	5.17	-24.55	-2.96	3.77	-12.71	60.0	88.6	-103.6	1.72	-3.33
FL19	184.58	-3.67	4.99	-23.87	-2.82	3.67	-12.30	68.1	100.6	-117.6	2.01	-3.89
FL18	174.83	-3.45	4.68	-22.40	-2.92	3.69	-12.46	66.1	97.7	-114.3	2.17	-3.90
FL17	165.08	-3.13	4.47	-21.22	-3.13	3.83	-13.04	60.2	89.0	-104.1	2.19	-3.56
FL16	155.33	-2.80	4.22	-19.90	-3.33	3.94	-13.51	54.3	80.2	-93.8	2.19	-3.23
FL15	145.58	-2.50	3.88	-18.21	-3.54	3.97	-13.80	48.4	71.6	-83.7	2.21	-2.92
FL14	135.83	-2.30	3.58	-16.80	-3.80	4.02	-14.21	42.3	62.5	-73.1	2.15	-2.54
FL13	126.08	-0.99	2.85	-12.55	-1.73	2.64	-8.55	18.4	27.1	-31.7	1.18	-1.73
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-61.9	77.3	-374.9	-45.3	54.9	-187.4	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-14.9	17.5	-85.9	9.7	11.8	40.2	0.7	1.0	-1.2		

TABLE 2 (continued)

Wind Direction: 30 | Structure Generation A | 50-Year Loads
Load Case: 8 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
1.9493	-3.6036	-0.0142	-63.5	Configuration A	0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	1.58	0.68	2.90	-2.63	0.97	-6.11	94.2	0.0	94.2	-12.60	-5.97
FL27	269.92	3.28	1.96	7.09	-8.49	3.12	-19.75	170.9	1.6	170.9	-7.67	-2.75
FL26	259.42	2.40	1.82	5.95	-7.28	2.68	-16.93	14.0	2.7	14.0	-0.73	-0.26
FL25	246.25	2.69	4.57	11.60	-8.15	3.00	-18.95	-36.7	69.2	-37.7	1.45	0.89
FL24	234.92	2.34	3.29	8.74	-7.36	2.71	-17.11	-23.7	47.3	-24.4	1.13	0.58
FL23	223.58	2.06	2.95	7.80	-6.66	2.45	-15.49	-13.9	44.1	-14.5	0.75	0.38
FL22	213.83	1.86	2.70	7.13	-6.02	2.21	-14.00	-8.7	41.8	-9.3	0.53	0.27
FL21	204.08	1.97	2.65	7.14	-5.90	2.17	-13.72	-9.5	40.6	-10.0	0.58	0.30
FL20	194.33	2.08	2.61	7.15	-5.78	2.13	-13.44	-10.2	39.3	-10.8	0.63	0.33
FL19	184.58	2.19	2.56	7.18	-5.66	2.08	-13.15	-11.0	37.4	-11.5	0.68	0.37
FL18	174.83	2.20	2.46	7.00	-5.57	2.05	-12.95	-9.5	35.6	-10.0	0.60	0.32
FL17	165.08	2.17	2.41	6.87	-5.50	2.02	-12.77	-7.2	34.0	-7.7	0.47	0.25
FL16	155.33	2.14	2.35	6.72	-5.42	1.99	-12.60	-4.8	32.9	-5.3	0.33	0.17
FL15	145.58	2.15	2.25	6.52	-5.35	1.97	-12.43	-3.2	31.7	-3.7	0.23	0.12
FL14	135.83	2.27	2.20	6.56	-5.27	1.94	-12.26	-5.0	30.3	-5.5	0.35	0.19
FL13	126.08	1.06	1.58	4.14	-2.34	0.86	-5.44	-2.8	30.0	-3.3	0.38	0.29
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		34.4	39.0	110.5	-93.4	34.3	-217.1	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		7.8	8.7	24.8	21.4	7.9	49.7	0.1	0.5	0.1		

TABLE 2 (continued)

Wind Direction: 70 | Structure Generation A | 50-Year Loads
Load Case: 9 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
1.7986	0.1166	4.0540	-26.7	Configuration A	0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	-4.19	1.62	-1.27	1.28	-0.78	1.18	-20.7	-30.5	-144.5	-56.67	-60.87
FL27	269.92	-9.70	4.96	-0.78	-3.44	2.56	-3.14	4.1	6.1	28.7	-8.60	2.15
FL26	259.42	-4.25	3.38	1.84	-2.11	1.98	-1.88	45.5	67.2	317.9	-86.58	-84.71
FL25	246.25	-5.62	9.68	11.80	-2.70	4.77	-2.15	77.7	114.8	543.1	-8.10	-44.56
FL24	234.92	-4.58	6.79	7.64	-3.99	4.63	-3.45	51.9	76.6	362.4	-17.80	-39.40
FL23	223.58	-4.07	6.11	6.92	-3.80	4.39	-3.28	35.8	53.0	250.5	-14.03	-29.56
FL22	213.83	-3.51	5.55	6.46	-3.25	3.98	-2.78	43.7	64.6	305.7	-17.20	-39.91
FL21	204.08	-3.57	5.36	6.07	-3.11	3.88	-2.65	51.8	76.6	362.4	-21.93	-50.15
FL20	194.33	-3.62	5.17	5.68	-2.96	3.77	-2.52	60.0	88.6	419.1	-27.38	-61.62
FL19	184.58	-3.67	4.99	5.30	-2.82	3.67	-2.39	68.1	100.6	475.7	-33.64	-74.55
FL18	174.83	-3.45	4.68	4.96	-2.92	3.69	-2.49	66.1	97.7	462.3	-37.37	-74.37
FL17	165.08	-3.13	4.47	4.91	-3.13	3.83	-2.68	60.2	89.0	420.9	-36.08	-66.08
FL16	155.33	-2.80	4.22	4.79	-3.33	3.94	-2.87	54.3	80.2	379.5	-34.91	-58.32
FL15	145.58	-2.50	3.88	4.48	-3.54	3.97	-3.08	48.4	71.6	338.6	-35.27	-51.35
FL14	135.83	-2.30	3.58	4.14	-3.80	4.02	-3.33	42.3	62.5	295.7	-34.91	-43.34
FL13	126.08	-0.99	2.85	4.14	-1.73	2.64	-1.42	18.4	27.1	128.4	-9.50	-27.75
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-61.9	77.3	77.1	-45.3	54.9	-38.9	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-14.9	17.5	16.7	9.7	11.8	8.4	0.7	1.0	4.9		

TABLE 2 (continued)

Wind Direction: 230 | Structure Generation A | 50-Year Loads
Load Case: 10 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-0.1132	-0.8675	-4.0540	58.6	Configuration A	0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	0.05	0.02	0.04	0.03	0.02	0.01	0.9	-0.6	3.4	22.96	-68.53
FL27	269.92	1.78	1.73	1.58	1.85	1.14	0.85	-64.8	45.6	-249.8	-65.82	122.18
FL26	259.42	1.24	1.92	1.02	1.82	1.19	0.79	-60.8	42.8	-234.4	-111.39	143.58
FL25	246.25	1.40	6.56	0.66	2.63	2.26	0.67	-107.4	75.6	-414.0	-312.78	309.77
FL24	234.92	1.19	4.50	0.69	4.30	2.95	1.74	-103.6	72.9	-399.1	-198.47	78.09
FL23	223.58	1.15	4.09	0.69	4.58	3.07	1.91	-97.1	68.3	-374.1	-173.40	62.46
FL22	213.83	1.27	3.87	0.84	4.42	2.97	1.84	-89.6	63.1	-345.3	-155.39	70.36
FL21	204.08	1.31	3.72	0.88	4.64	3.09	1.96	-94.8	66.7	-365.3	-154.75	69.75
FL20	194.33	1.34	3.57	0.93	4.86	3.20	2.08	-100.0	70.4	-385.3	-154.15	69.25
FL19	184.58	1.37	3.42	0.98	5.08	3.32	2.20	-105.2	74.0	-405.2	-153.74	68.78
FL18	174.83	1.41	3.26	1.04	4.98	3.26	2.16	-100.4	70.6	-386.7	-145.38	70.31
FL17	165.08	1.46	3.21	1.10	4.76	3.14	2.04	-91.6	64.5	-352.9	-134.36	72.19
FL16	155.33	1.51	3.14	1.15	4.54	3.01	1.93	-82.8	58.3	-319.1	-122.11	72.83
FL15	145.58	1.56	2.98	1.22	4.32	2.86	1.83	-74.2	52.2	-285.8	-108.18	71.77
FL14	135.83	1.55	2.81	1.24	4.11	2.72	1.75	-68.1	47.9	-262.5	-100.07	70.57
FL13	126.08	0.63	2.23	0.38	1.85	1.43	0.61	-33.8	23.8	-130.1	-154.78	96.02
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		20.2	51.0	14.4	58.8	39.6	24.4	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		4.4	11.3	3.2	-12.5	8.4	-5.2	-1.3	0.9	-4.9		

TABLE 2 (continued)

Wind Direction: 20 | Structure Generation A | 50-Year Loads
Load Case: 11 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-1.1309	-4.0918	-1.6175	-92.3	Configuration A	0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	2.18	0.47	1.65	-3.10	1.35	-8.62	93.5	0.0	93.5	-10.46	-2.00
FL27	269.92	4.32	1.83	2.25	-10.32	4.49	-28.67	187.3	2.1	183.8	-6.37	-0.50
FL26	259.42	3.08	1.96	0.86	-9.58	4.17	-26.63	34.1	3.6	28.4	-1.06	-0.03
FL25	246.25	3.56	6.38	-3.65	-11.12	4.83	-30.88	-26.9	90.4	-173.1	5.53	-0.65
FL24	234.92	3.10	4.42	-1.89	-9.93	4.32	-27.58	-8.7	61.8	-108.6	3.92	-0.27
FL23	223.58	2.60	3.95	-1.86	-8.97	3.90	-24.91	-1.8	57.6	-95.1	3.80	-0.28
FL22	213.83	2.18	3.60	-1.89	-8.09	3.52	-22.49	-2.1	54.6	-90.3	3.99	-0.34
FL21	204.08	2.17	3.44	-1.72	-7.93	3.45	-22.02	-7.1	53.0	-92.8	4.19	-0.33
FL20	194.33	2.16	3.28	-1.55	-7.76	3.37	-21.56	-12.1	51.3	-95.1	4.39	-0.32
FL19	184.58	2.15	3.13	-1.39	-7.59	3.30	-21.09	-17.1	48.9	-96.3	4.54	-0.30
FL18	174.83	2.09	2.95	-1.25	-7.52	3.27	-20.88	-18.3	46.5	-93.6	4.47	-0.27
FL17	165.08	2.00	2.86	-1.24	-7.48	3.25	-20.79	-18.0	44.5	-90.0	4.31	-0.26
FL16	155.33	1.92	2.76	-1.20	-7.45	3.24	-20.69	-17.7	43.0	-87.3	4.21	-0.24
FL15	145.58	1.87	2.58	-1.05	-7.41	3.22	-20.60	-18.4	41.4	-85.4	4.14	-0.21
FL14	135.83	2.01	2.44	-0.76	-7.38	3.21	-20.50	-23.4	39.6	-87.4	4.26	-0.16
FL13	126.08	0.96	2.05	-1.36	-3.31	1.44	-9.19	-11.3	39.2	-74.6	7.94	-1.17
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		38.3	48.1	-16.0	-124.9	54.3	-347.1	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		9.0	10.7	-3.1	28.4	12.4	79.0	0.1	0.7	-1.0		

TABLE 2 (continued)

Wind Direction: 270 | Structure Generation A | 50-Year Loads
Load Case: 12 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
4.1625	1.9915	0.8120	17.1	Configuration A	0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	2.15	0.00	2.15	-1.21	0.00	-1.21	38.1	0.0	38.1	-7.59	-13.49
FL27	269.92	3.19	1.35	8.81	-2.72	0.71	-1.30	77.7	1.7	79.1	-1.30	-8.79
FL26	259.42	1.77	1.95	9.89	-1.55	1.07	0.59	52.1	2.8	54.4	0.33	-5.48
FL25	246.25	1.07	8.43	36.17	-1.54	4.88	8.18	23.6	72.0	82.0	0.49	-2.16
FL24	234.92	0.39	5.64	23.86	-0.94	3.41	5.85	9.8	49.2	49.7	0.48	-1.97
FL23	223.58	-0.18	5.09	21.02	-0.43	3.23	6.01	3.5	45.9	40.7	0.51	-1.79
FL22	213.83	-0.50	4.70	19.06	-0.08	3.12	6.12	1.0	43.4	36.2	0.55	-1.72
FL21	204.08	-0.91	4.47	17.68	0.19	3.09	6.35	-1.8	42.2	32.5	0.58	-1.63
FL20	194.33	-1.31	4.23	16.31	0.47	3.07	6.57	-4.5	40.9	28.6	0.61	-1.51
FL19	184.58	-1.71	4.01	14.97	0.74	3.04	6.79	-7.3	39.0	24.3	0.61	-1.35
FL18	174.83	-1.87	3.75	13.75	0.80	2.97	6.72	-7.3	37.1	22.8	0.65	-1.34
FL17	165.08	-1.95	3.66	13.28	0.78	3.01	6.76	-6.2	35.4	22.5	0.69	-1.35
FL16	155.33	-2.02	3.52	12.64	0.75	2.98	6.68	-5.1	34.3	22.7	0.74	-1.40
FL15	145.58	-2.10	3.27	11.51	0.73	2.82	6.34	-4.0	33.0	22.8	0.84	-1.52
FL14	135.83	-2.18	3.02	10.39	0.68	2.65	5.97	-1.5	31.5	24.1	1.00	-1.74
FL13	126.08	-0.97	2.78	10.58	0.30	2.48	5.23	-0.1	31.2	25.2	0.95	-1.91
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-7.1	59.9	242.1	-3.0	42.5	81.7	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-0.4	13.2	54.6	1.4	9.1	-16.8	0.2	0.5	0.6		

TABLE 2 (continued)

Wind Direction: 30 | Structure Generation A | 50-Year Loads
Load Case: 13 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-1.4581	-0.1674	-4.0540	-102.1	Configuration A	0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	1.58	0.68	0.59	-2.63	0.97	-2.79	94.2	0.0	94.2	-32.33	-6.86
FL27	269.92	3.28	1.96	0.43	-8.49	3.12	-9.02	170.9	1.6	164.3	-18.18	-0.87
FL26	259.42	2.40	1.82	-0.25	-7.28	2.68	-7.73	14.0	2.7	2.9	-0.38	0.01
FL25	246.25	2.69	4.57	-3.98	-8.15	3.00	-8.65	-36.7	69.2	-317.1	30.25	-13.91
FL24	234.92	2.34	3.29	-2.46	-7.36	2.71	-7.81	-23.7	47.3	-215.5	25.09	-7.90
FL23	223.58	2.06	2.95	-2.24	-6.66	2.45	-7.07	-13.9	44.1	-192.7	24.76	-7.84
FL22	213.83	1.86	2.70	-2.08	-6.02	2.21	-6.39	-8.7	41.8	-177.9	25.16	-8.20
FL21	204.08	1.97	2.65	-1.90	-5.90	2.17	-6.26	-9.5	40.6	-173.9	25.42	-7.73
FL20	194.33	2.08	2.61	-1.72	-5.78	2.13	-6.13	-10.2	39.3	-169.5	25.60	-7.20
FL19	184.58	2.19	2.56	-1.55	-5.66	2.08	-6.01	-11.0	37.4	-162.8	25.41	-6.56
FL18	174.83	2.20	2.46	-1.40	-5.57	2.05	-5.91	-9.5	35.6	-154.0	24.66	-5.82
FL17	165.08	2.17	2.41	-1.35	-5.50	2.02	-5.83	-7.2	34.0	-145.1	23.62	-5.46
FL16	155.33	2.14	2.35	-1.28	-5.42	1.99	-5.75	-4.8	32.9	-138.3	22.91	-5.09
FL15	145.58	2.15	2.25	-1.13	-5.35	1.97	-5.68	-3.2	31.7	-131.7	22.32	-4.44
FL14	135.83	2.27	2.20	-0.93	-5.27	1.94	-5.60	-5.0	30.3	-127.8	22.22	-3.71
FL13	126.08	1.06	1.58	-1.24	-2.34	0.86	-2.49	-2.8	30.0	-124.4	40.03	-20.01
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		34.4	39.0	-22.5	-93.4	34.3	-99.1	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		7.8	8.7	-4.9	21.4	7.9	22.7	0.1	0.5	-2.0		

TABLE 3

Design Load Cases
Simultaneous Design Loads in All Components

25-Year Loads			Structure Generation A				Natural frequencies, Hz		
Reference Elevation (ft): -21.6			8180 Riverside Building 1 - West				x	y	z
Damping Ratio: .02			Configuration A				0.3175	0.2703	0.1942
Load Definition			Wind Dir. (deg)	Base moment (1000 k-ft)				Base Shear (kips)	
Case	Comb.	Significance		Mx	My	Mz	XYresultant	Vx	Vy
1	A+	Max My, Max Vx	270	-123.39	242.59	2.58	272.17	987.0	541.0
2	A-	Min My, Min Vx	90	77.78	-174.82	-35.43	191.34	-665.9	-349.2
3	B+	Min Mx, Max Vy	260	-287.60	113.49	-0.23	309.19	481.0	1283.0
4	B-	Max Mx, Min Vy	20	324.48	61.07	12.67	330.17	195.2	-1191.8
5	C1	Max res. M w/ V in Q1	260	-272.23	166.88	1.94	319.31	693.6	1214.4
6	C2	Max res. M w/ V in Q2	210	-281.33	-2.58	20.83	281.34	-9.2	1056.8
7	C3	Max res. M w/ V in Q3	20	307.77	-1.73	2.78	307.78	-21.8	-1132.2
8	C4	Max res. M w/ V in Q4	20	321.87	83.36	16.19	332.49	272.2	-1182.5
9	D+	Max Mz	240	-144.00	117.95	54.86	186.14	497.0	741.8
10	D-	Min Mz	30	18.20	-90.86	-58.62	92.66	-313.93	-118.05

TABLE 3 (continued)

Wind Direction: 270 | Structure Generation A | 25-Year Loads
Load Case: 1 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
3.9065	-0.6497	1.2077	27.0	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	3.39	0.70	6.11	2.10	0.59	1.71	-285.7	37.9	-240.0	-10.21	36.41
EOR	422.83	19.52	3.26	32.25	5.90	1.55	4.90	-671.7	86.0	-567.9	-2.61	17.21
MECH	410.33	13.35	3.55	27.19	5.04	2.13	3.65	-452.9	351.3	-28.6	-0.14	1.03
MRF	398.83	12.82	3.73	27.39	6.30	2.54	4.64	-518.9	405.7	-28.9	-0.17	1.03
FL37	386.83	13.40	3.28	26.23	8.62	2.66	6.89	-557.4	305.4	-188.6	-1.77	6.73
FL36	374.83	14.89	3.55	28.77	12.51	3.49	10.25	-535.6	329.8	-137.3	-1.51	4.24
FL35	362.83	13.28	3.30	26.19	16.30	4.24	13.54	-514.9	334.2	-111.3	-1.73	3.35
FL34	352.00	12.56	3.15	24.87	17.24	4.37	14.40	-473.9	308.9	-100.8	-1.76	3.04
FL33	341.17	12.50	3.10	24.59	17.68	4.40	14.82	-469.7	285.7	-124.6	-2.24	3.72
FL32	330.33	12.43	3.04	24.30	18.10	4.43	15.23	-465.2	262.0	-148.8	-2.75	4.40
FL31	319.50	12.36	2.98	24.00	18.52	4.46	15.63	-460.6	238.0	-173.1	-3.30	5.07
FL30	308.67	12.29	2.92	23.71	18.96	4.49	16.04	-456.4	214.1	-197.8	-3.87	5.72
FL29	297.83	12.07	2.88	23.32	19.22	4.51	16.29	-468.8	195.5	-232.6	-4.68	6.70
FL28	287.00	11.77	2.84	22.87	19.38	4.50	16.46	-490.3	186.4	-265.2	-5.50	7.64
FL27	276.17	11.47	2.70	22.03	19.56	4.47	16.65	-512.2	160.1	-318.8	-6.96	9.21
FL26	265.33	11.76	2.66	22.16	20.80	4.70	17.75	-563.4	135.3	-399.9	-8.81	10.99
FL25	253.33	11.50	2.58	21.59	20.98	4.71	17.92	-590.9	117.4	-449.1	-10.22	12.32
FL24	242.50	11.39	2.49	21.10	20.08	4.49	17.16	-601.3	99.6	-481.0	-11.16	13.72
FL23	231.67	18.26	3.68	32.65	19.97	4.51	17.04	-318.9	191.6	-87.5	-1.10	2.11
FL22	219.67	20.41	3.99	36.00	21.10	4.75	18.02	-143.7	184.0	78.5	0.87	-1.74
FL21	208.83	19.67	3.81	34.55	19.39	4.37	16.55	-149.2	160.5	44.6	0.50	-1.05
FL20	198.00	19.46	3.72	33.98	20.64	4.62	17.64	-136.2	141.5	34.7	0.42	-0.80
FL19	187.17	19.73	3.99	35.32	22.74	5.13	19.40	-142.0	147.7	36.4	0.43	-0.79
FL18	175.33	18.76	3.43	32.17	21.99	4.87	18.82	-142.4	89.0	-34.9	-0.47	0.81
FL17	165.50	16.92	3.33	29.92	21.25	4.76	18.16	-80.2	154.8	106.8	1.58	-2.61
FL16	154.67	15.91	3.03	27.72	21.03	4.68	17.99	-62.8	114.9	76.0	1.25	-1.93
FL15	145.08	14.48	2.75	25.21	19.70	4.38	16.86	-50.8	93.8	62.5	1.15	-1.71
FL14	135.50	14.10	2.62	24.32	19.85	4.40	16.99	-66.9	73.5	21.8	0.42	-0.60
FL13	125.92	13.63	2.48	23.31	16.16	3.60	13.82	103.9	54.1	169.3	3.19	-5.38
FL12	116.33	15.03	2.80	25.97	13.09	3.14	11.04	300.2	40.1	348.6	4.83	-11.37
FL11	105.25	14.60	2.66	24.99	12.41	2.92	10.52	385.5	45.6	440.6	6.30	-14.98
FL10	95.67	12.80	2.31	21.81	11.65	2.69	9.91	378.0	44.2	431.3	7.45	-16.40
FL9	86.08	12.51	2.20	21.11	11.98	2.72	10.22	409.3	42.7	460.8	8.56	-17.69
FL8	76.50	12.40	2.12	20.69	12.09	2.70	10.33	409.0	38.7	455.6	8.80	-17.63
FL7	66.92	11.91	1.99	19.68	10.61	2.36	9.07	277.5	31.3	315.2	6.09	-13.21
FL6	57.33	9.97	1.80	17.00	7.38	1.69	6.28	45.3	36.8	89.8	1.72	-4.65
FL5	46.25	8.57	1.43	14.15	7.05	1.56	6.04	51.7	28.6	86.3	2.20	-5.16
FL4	36.67	8.21	1.35	13.48	8.67	1.89	7.44	158.7	23.8	187.4	5.88	-10.66
FL3	27.08	8.80	1.38	14.20	15.52	3.34	13.35	891.4	18.5	913.8	32.11	-34.16
FL2	17.50	12.72	1.93	20.24	28.87	6.16	24.87	2161.9	14.4	2179.4	52.72	-42.91
FL1	1.60	6.11	0.96	9.84	7.89	1.70	6.78	343.6	12.2	358.4	17.01	-24.70
C1	-10.00	0.00	0.02	0.07	0.00	0.01	0.00	0.1	2.9	3.6	-3.62	-53.69
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy						
(kips)	547.7	112.5	987.0	638.3	149.7	541.0	M, V, computed at elev. -21.6 ft				
Base moment		My			Mx			Mz			
(1000-kip-ft)	131.0	28.6	242.6	-146.5	35.5	-123.4	-4.5	5.8	2.6		

TABLE 3 (continued)

Wind Direction: 90 | Structure Generation A | 25-Year Loads
Load Case: 2 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-3.9065	-0.2891	-1.3997	-156.0	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-1.41	0.64	-3.91	-1.11	1.01	-1.40	131.5	-42.7	191.2	-15.51	43.34
EOR	422.83	-4.04	1.60	-10.29	-7.93	3.44	-8.92	197.3	-64.0	286.9	-13.79	15.91
MECH	410.33	-2.29	3.04	-14.14	-7.25	7.38	-9.38	41.8	-13.6	60.7	-1.98	2.98
MRF	398.83	-2.16	3.41	-15.50	-7.66	8.23	-10.04	3.0	-1.0	4.3	-0.13	0.19
FL37	386.83	-4.89	3.21	-17.44	-7.84	6.29	-9.66	-4.4	1.4	-6.3	0.15	-0.28
FL36	374.83	-7.44	3.88	-22.60	-7.70	6.23	-9.50	-35.9	11.6	-52.1	0.82	-1.96
FL35	362.83	-10.67	4.60	-28.63	-6.62	5.69	-8.27	-70.7	22.9	-102.8	0.96	-3.32
FL34	352.00	-10.72	4.53	-28.41	-6.02	5.19	-7.52	-69.0	22.4	-100.3	0.87	-3.30
FL33	341.17	-10.29	4.36	-27.32	-5.92	4.83	-7.32	-68.2	22.1	-99.2	0.91	-3.39
FL32	330.33	-9.86	4.19	-26.22	-5.82	4.46	-7.11	-67.4	21.9	-98.0	0.94	-3.48
FL31	319.50	-9.42	4.02	-25.11	-5.71	4.11	-6.90	-66.6	21.6	-96.8	0.98	-3.59
FL30	308.67	-9.00	3.84	-24.00	-5.61	3.77	-6.70	-65.8	21.4	-95.7	1.03	-3.70
FL29	297.83	-8.69	3.75	-23.35	-5.52	3.53	-6.54	-67.4	21.9	-98.0	1.09	-3.89
FL28	287.00	-8.46	3.71	-22.96	-5.43	3.30	-6.39	-70.2	22.8	-102.0	1.15	-4.13
FL27	276.17	-8.23	3.51	-21.94	-5.35	2.94	-6.20	-73.1	23.7	-106.2	1.27	-4.48
FL26	265.33	-8.42	3.42	-21.80	-5.55	2.75	-6.34	-80.1	26.0	-116.4	1.43	-4.92
FL25	253.33	-8.16	3.30	-21.05	-5.46	2.58	-6.20	-83.3	27.0	-121.1	1.56	-5.29
FL24	242.50	-7.56	3.04	-19.42	-5.21	2.37	-5.89	-93.0	30.2	-135.2	1.93	-6.37
FL23	231.67	-5.58	2.90	-16.91	-10.61	3.91	-11.74	-601.5	195.1	-874.6	24.22	-34.90
FL22	219.67	-4.85	2.72	-15.49	-10.89	3.95	-12.03	-645.4	209.4	-938.4	29.34	-37.79
FL21	208.83	-4.84	2.61	-15.03	-9.71	3.58	-10.74	-579.1	187.9	-842.0	26.50	-37.08
FL20	198.00	-5.25	2.60	-15.41	-9.33	3.43	-10.32	-556.0	180.4	-808.4	24.25	-36.21
FL19	187.17	-5.82	3.10	-17.94	-7.43	3.32	-8.39	-414.7	134.5	-603.0	12.90	-27.58
FL18	175.33	-5.51	2.38	-14.80	-6.08	2.45	-6.79	-334.1	108.4	-485.8	12.44	-27.12
FL17	165.50	-4.90	2.49	-14.62	-7.47	3.04	-8.35	-572.7	185.8	-832.7	24.52	-42.94
FL16	154.67	-4.68	2.20	-13.26	-7.50	2.85	-8.33	-587.8	190.7	-854.7	29.04	-46.23
FL15	145.08	-4.51	2.04	-12.49	-6.90	2.64	-7.66	-526.9	170.9	-766.2	27.35	-44.59
FL14	135.50	-4.70	1.97	-12.41	-6.76	2.54	-7.50	-502.0	162.8	-729.9	26.04	-43.08
FL13	125.92	-4.93	1.91	-12.40	-7.29	2.61	-8.04	-804.6	261.0	-1169.9	43.06	-66.41
FL12	116.33	-5.57	2.25	-14.38	-9.96	4.27	-11.20	-1502.3	487.4	-2184.5	73.67	-94.59
FL11	105.25	-5.37	2.08	-13.51	-10.35	3.91	-11.48	-1669.2	541.5	-2427.1	88.67	-104.35
FL10	95.67	-5.06	1.87	-12.36	-9.30	3.31	-10.25	-1495.3	485.1	-2174.2	86.44	-104.21
FL9	86.08	-5.05	1.77	-11.94	-8.99	3.02	-9.86	-1433.3	465.0	-2084.1	85.67	-103.79
FL8	76.50	-4.96	1.65	-11.40	-8.87	2.81	-9.68	-1409.1	457.1	-2049.0	88.65	-104.47
FL7	66.92	-5.02	1.57	-11.15	-8.48	2.58	-9.23	-1344.2	436.1	-1954.6	86.11	-104.03
FL6	57.33	-5.16	1.74	-11.95	-9.28	2.84	-10.10	-1545.6	501.4	-2247.4	92.75	-109.74
FL5	46.25	-4.84	1.40	-10.33	-9.60	2.60	-10.35	-1634.1	530.1	-2376.0	115.03	-114.77
FL4	36.67	-4.53	1.29	-9.57	-8.61	2.29	-9.27	-1487.4	482.5	-2162.8	112.94	-116.62
FL3	27.08	-4.37	1.18	-8.97	-7.74	2.01	-8.32	-1374.6	445.9	-1998.8	111.14	-119.72
FL2	17.50	-5.69	1.44	-11.29	-9.55	2.37	-10.23	-1653.0	536.2	-2403.5	105.89	-116.91
FL1	1.60	-1.92	0.55	-4.08	-8.46	2.12	-9.07	-1155.4	374.8	-1680.0	154.01	-69.31
C1	-10.00	0.00	0.03	-0.10	0.00	0.04	-0.01	0.1	0.0	0.1	-0.12	1.10
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-244.8	107.8	-665.9	-306.8	146.6	-349.2	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-61.4	29.0	-174.8	66.5	39.0	77.8	-24.4	7.9	-35.4		

TABLE 3 (continued)

Wind Direction: 260 | Structure Generation A | 25-Year Loads
Load Case: 3 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle | Natural frequencies, Hz

Gx	Gy	Gz	β			x	y	z
-0.4672	3.8652	-0.3340	68.5	Configuration A		0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	2.99	0.64	2.69	1.30	0.26	2.30	-213.5	43.4	-228.1	-41.86	49.04
EOR	422.83	17.86	3.12	16.40	4.49	0.89	7.93	-602.8	98.6	-635.8	-15.20	31.42
MECH	410.33	12.48	3.32	10.93	4.96	0.99	8.78	-464.9	403.0	-599.5	-26.79	33.35
MRF	398.83	12.20	3.51	10.56	6.91	1.37	12.22	-536.6	465.4	-692.1	-32.43	28.02
FL37	386.83	13.05	3.17	11.56	9.38	1.87	16.59	-580.2	350.3	-697.2	-28.28	19.71
FL36	374.83	14.45	3.44	12.85	13.96	2.78	24.69	-537.3	378.3	-663.7	-21.16	11.01
FL35	362.83	12.89	3.18	11.40	18.36	3.65	32.47	-475.8	383.3	-603.8	-16.56	5.81
FL34	352.00	12.23	3.04	10.81	19.39	3.86	34.30	-424.3	354.3	-542.7	-14.39	4.54
FL33	341.17	12.13	2.98	10.73	19.82	3.94	35.06	-423.0	327.8	-532.5	-13.89	4.25
FL32	330.33	12.03	2.93	10.66	20.24	4.03	35.80	-421.5	300.6	-521.9	-13.39	3.99
FL31	319.50	11.92	2.87	10.58	20.65	4.11	36.52	-419.8	273.1	-511.1	-12.91	3.74
FL30	308.67	11.82	2.81	10.50	21.08	4.19	37.28	-418.6	245.6	-500.6	-12.44	3.51
FL29	297.83	11.60	2.77	10.31	21.35	4.25	37.77	-430.4	224.3	-505.4	-12.45	3.40
FL28	287.00	11.31	2.73	10.04	21.53	4.28	38.09	-449.5	213.8	-520.9	-12.79	3.37
FL27	276.17	11.04	2.61	9.82	21.73	4.32	38.44	-469.0	183.7	-530.4	-12.95	3.31
FL26	265.33	11.33	2.58	10.13	23.11	4.60	40.88	-515.2	155.3	-567.1	-13.07	3.24
FL25	253.33	11.07	2.50	9.90	23.31	4.64	41.24	-539.2	134.7	-584.2	-13.39	3.22
FL24	242.50	10.91	2.41	9.79	22.30	4.44	39.45	-541.2	114.3	-579.4	-13.83	3.43
FL23	231.67	17.91	3.66	16.20	22.50	4.48	39.80	-213.0	219.8	-286.4	-6.17	2.51
FL22	219.67	20.05	3.98	18.19	23.66	4.71	41.85	-34.6	211.1	-105.1	-2.11	0.92
FL21	208.83	19.31	3.80	17.53	21.81	4.34	38.58	-48.2	184.1	-109.7	-2.36	1.07
FL20	198.00	19.09	3.71	17.36	22.96	4.57	40.61	-40.1	162.3	-94.3	-1.96	0.84
FL19	187.17	19.41	3.97	17.56	24.83	4.94	43.92	-34.7	169.5	-91.3	-1.79	0.72
FL18	175.33	18.32	3.43	16.71	23.91	4.76	42.29	-20.2	102.1	-54.3	-1.11	0.44
FL17	165.50	16.41	3.28	14.87	23.06	4.59	40.79	72.9	177.6	13.6	0.29	-0.11
FL16	154.67	15.03	2.94	13.66	23.07	4.59	40.81	146.9	131.8	102.9	2.27	-0.76
FL15	145.08	13.65	2.66	12.41	21.61	4.30	38.22	169.9	107.6	133.9	3.17	-1.03
FL14	135.50	13.22	2.53	12.04	21.47	4.27	37.97	189.9	84.3	161.7	3.87	-1.23
FL13	125.92	13.44	2.50	12.28	17.84	3.55	31.56	405.3	62.1	384.6	10.58	-4.12
FL12	116.33	15.41	2.91	14.05	15.57	3.10	27.55	628.0	46.0	612.7	17.65	-9.00
FL11	105.25	14.74	2.74	13.46	15.06	3.00	26.63	771.0	52.3	753.6	22.54	-11.39
FL10	95.67	12.86	2.37	11.75	14.18	2.82	25.07	713.4	50.7	696.5	22.78	-10.67
FL9	86.08	12.70	2.29	11.63	14.78	2.94	26.15	747.4	49.0	731.1	23.34	-10.38
FL8	76.50	12.83	2.25	11.78	15.26	3.04	27.00	782.7	44.3	767.9	23.90	-10.43
FL7	66.92	12.30	2.12	11.31	13.69	2.72	24.22	624.3	35.9	612.3	20.76	-9.70
FL6	57.33	9.68	1.80	8.84	10.28	2.05	18.18	369.5	42.3	355.4	15.81	-7.69
FL5	46.25	7.94	1.38	7.30	10.21	2.03	18.05	389.3	32.9	378.3	18.01	-7.28
FL4	36.67	7.68	1.32	7.07	12.11	2.41	21.42	492.7	27.3	483.6	20.36	-6.71
FL3	27.08	8.49	1.40	7.84	19.30	3.84	34.13	1236.7	21.2	1229.6	34.22	-7.86
FL2	17.50	12.50	1.99	11.57	33.57	6.68	59.37	2601.1	16.6	2595.6	42.12	-8.21
FL1	1.60	6.43	1.05	5.94	10.74	2.14	18.99	524.5	14.0	519.8	24.93	-7.80
C1	-10.00	0.00	0.01	-0.01	0.00	0.00	0.00	0.1	3.3	-1.0	0.00	-180.36
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy						
(kips)	532.7	110.7	481.0	725.3	144.3	1283.0	M, V, computed at elev. -21.6 ft				
Base moment		My			Mx			Mz			
(1000-kip-ft)	126.5	27.8	113.5	-162.6	32.3	-287.6	2.0	6.7	-0.2		

TABLE 3 (continued)

Wind Direction: 20 | Structure Generation A | 25-Year Loads
Load Case: 4 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β			x	y	z
1.5767	-3.8652	2.3115	-79.3	Configuration A		0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-0.32	0.85	1.02	-6.24	2.13	-14.49	427.6	-375.0	-439.2	30.17	2.12
EOR	422.83	-0.70	1.80	2.13	-29.83	8.40	-62.31	990.0	-868.3	-1017.0	16.30	0.56
MECH	410.33	1.11	6.68	11.64	-19.38	9.59	-56.43	442.3	-387.9	-454.3	7.72	1.59
MRF	398.83	1.81	7.77	14.06	-18.67	10.09	-57.65	389.0	-341.2	-399.6	6.54	1.60
FL37	386.83	2.25	5.56	11.01	-18.62	8.31	-50.75	358.4	-314.3	-368.2	6.93	1.50
FL36	374.83	1.59	5.79	10.71	-17.87	8.11	-49.22	382.9	-335.8	-393.3	7.63	1.66
FL35	362.83	0.82	5.72	9.84	-16.30	7.50	-45.27	389.9	-341.9	-400.5	8.45	1.84
FL34	352.00	0.52	5.52	9.22	-14.81	6.83	-41.19	384.9	-337.6	-395.4	9.14	2.05
FL33	341.17	0.41	5.33	8.81	-14.17	6.37	-38.79	390.8	-342.7	-401.4	9.84	2.24
FL32	330.33	0.30	5.14	8.40	-13.53	5.92	-36.40	396.5	-347.7	-407.3	10.62	2.45
FL31	319.50	0.19	4.94	7.97	-12.88	5.47	-34.03	402.0	-352.5	-412.9	11.50	2.69
FL30	308.67	0.08	4.74	7.54	-12.24	5.05	-31.74	407.9	-357.7	-419.0	12.49	2.97
FL29	297.83	0.09	4.69	7.47	-11.73	4.73	-30.02	397.5	-348.6	-408.3	12.81	3.19
FL28	287.00	0.16	4.72	7.61	-11.28	4.44	-28.45	378.0	-331.5	-388.2	12.74	3.40
FL27	276.17	0.23	4.33	7.05	-10.85	4.04	-26.45	358.8	-314.7	-368.6	13.01	3.47
FL26	265.33	0.33	3.98	6.60	-10.96	3.86	-25.86	357.3	-313.3	-367.0	13.32	3.40
FL25	253.33	0.28	3.81	6.28	-10.55	3.63	-24.57	343.6	-301.4	-353.0	13.49	3.45
FL24	242.50	-0.61	3.47	4.87	-10.19	3.41	-23.38	365.5	-320.5	-375.4	15.39	3.20
FL23	231.67	-1.21	4.31	5.59	-10.60	3.74	-25.05	354.2	-310.7	-363.9	13.84	3.09
FL22	219.67	-1.07	4.29	5.69	-10.46	3.68	-24.70	286.8	-251.5	-294.6	11.33	2.61
FL21	208.83	-1.11	3.99	5.18	-9.41	3.35	-22.37	256.2	-224.7	-263.2	11.17	2.58
FL20	198.00	-1.26	3.73	4.62	-9.46	3.31	-22.24	234.7	-205.8	-241.1	10.39	2.16
FL19	187.17	-2.38	4.71	5.05	-10.95	3.96	-26.27	145.5	-127.6	-149.5	5.49	1.05
FL18	175.33	-3.07	2.97	1.61	-9.44	3.12	-21.49	108.6	-95.3	-111.6	5.16	0.39
FL17	165.50	-2.78	3.64	2.96	-9.12	3.28	-21.79	28.7	-25.2	-29.5	1.33	0.18
FL16	154.67	-2.75	3.00	1.97	-9.15	3.11	-21.16	-43.3	38.0	44.5	-2.09	-0.19
FL15	145.08	-2.57	2.69	1.67	-8.59	2.91	-19.86	-83.0	72.8	85.3	-4.27	-0.36
FL14	135.50	-2.35	2.39	1.42	-8.36	2.80	-19.20	-131.6	115.4	135.2	-7.01	-0.52
FL13	125.92	-1.22	2.09	2.08	-9.45	3.01	-21.08	-999.4	876.5	1026.6	-48.23	-4.75
FL12	116.33	-1.12	2.60	2.97	-11.71	4.45	-28.91	-1794.3	1573.6	1843.1	-63.08	-6.48
FL11	105.25	-1.00	2.27	2.59	-11.48	4.00	-26.93	-1771.6	1553.7	1819.8	-66.95	-6.44
FL10	95.67	-1.01	1.89	1.96	-10.47	3.45	-23.81	-1646.1	1443.6	1690.9	-70.54	-5.82
FL9	86.08	-0.99	1.62	1.56	-10.35	3.23	-22.83	-1644.5	1442.2	1689.2	-73.66	-5.03
FL8	76.50	-0.91	1.36	1.24	-10.36	3.07	-22.21	-1667.9	1462.7	1713.3	-76.90	-4.29
FL7	66.92	-0.86	1.11	0.90	-10.41	2.96	-21.85	-1722.8	1510.9	1769.7	-80.87	-3.31
FL6	57.33	-0.87	1.48	1.46	-10.63	3.07	-22.50	-1763.8	1546.9	1811.8	-80.17	-5.22
FL5	46.25	-0.90	0.78	0.34	-10.28	2.71	-20.77	-1684.1	1477.0	1730.0	-83.26	-1.37
FL4	36.67	-0.87	0.67	0.19	-9.42	2.44	-18.87	-1528.1	1340.2	1569.7	-83.18	-0.83
FL3	27.08	-0.65	0.46	0.08	-9.58	2.41	-18.90	-1536.1	1347.2	1577.9	-83.49	-0.35
FL2	17.50	-0.40	0.35	0.15	-13.22	3.21	-25.61	-2117.5	1857.1	2175.1	-84.94	-0.51
FL1	1.60	1.04	0.30	1.51	-8.30	2.06	-16.28	-1180.8	1035.6	1213.0	-73.86	-6.84
C1	-10.00	0.00	0.07	0.11	0.00	0.03	-0.12	0.0	0.0	0.0	0.19	0.16
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy						
(kips)	-21.8	137.6	195.2	-491.3	181.2	-1191.8	M, V, computed at elev. -21.6 ft				
Base moment		My			Mx			Mz			
(1000-kip-ft)	-1.7	39.8	61.1	128.2	50.8	324.5	-12.3	10.8	12.7		

TABLE 3 (continued)

Wind Direction: 260 | Structure Generation A | 25-Year Loads
Load Case: 5 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle | Natural frequencies, Hz

Gx	Gy	Gz	β			x	y	z
1.4540	3.3898	-0.0102	58.5	Configuration A		0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	2.99	0.64	3.91	1.30	0.26	2.17	-213.5	43.4	-214.0	-23.20	41.78
EOR	422.83	17.86	3.12	22.39	4.49	0.89	7.51	-602.8	98.6	-603.8	-8.13	24.25
MECH	410.33	12.48	3.32	17.31	4.96	0.99	8.31	-464.9	403.0	-469.0	-10.57	22.02
MRF	398.83	12.20	3.51	17.30	6.91	1.37	11.56	-536.6	465.4	-541.3	-14.46	21.63
FL37	386.83	13.05	3.17	17.66	9.38	1.87	15.71	-580.2	350.3	-583.8	-16.41	18.46
FL36	374.83	14.45	3.44	19.45	13.96	2.78	23.37	-537.3	378.3	-541.2	-13.68	11.39
FL35	362.83	12.89	3.18	17.51	18.36	3.65	30.73	-475.8	383.3	-479.7	-11.78	6.71
FL34	352.00	12.23	3.04	16.65	19.39	3.86	32.47	-424.3	354.3	-427.9	-10.44	5.35
FL33	341.17	12.13	2.98	16.47	19.82	3.94	33.18	-423.0	327.8	-426.4	-10.31	5.12
FL32	330.33	12.03	2.93	16.28	20.24	4.03	33.89	-421.5	300.6	-424.6	-10.18	4.89
FL31	319.50	11.92	2.87	16.09	20.65	4.11	34.57	-419.8	273.1	-422.6	-10.05	4.68
FL30	308.67	11.82	2.81	15.91	21.08	4.19	35.29	-418.6	245.6	-421.1	-9.92	4.47
FL29	297.83	11.60	2.77	15.62	21.35	4.25	35.75	-430.4	224.3	-432.7	-10.16	4.44
FL28	287.00	11.31	2.73	15.28	21.53	4.28	36.05	-449.5	213.8	-451.7	-10.62	4.50
FL27	276.17	11.04	2.61	14.83	21.73	4.32	36.39	-469.0	183.7	-470.9	-11.10	4.52
FL26	265.33	11.33	2.58	15.08	23.11	4.60	38.69	-515.2	155.3	-516.8	-11.60	4.52
FL25	253.33	11.07	2.50	14.71	23.31	4.64	39.03	-539.2	134.7	-540.6	-12.13	4.57
FL24	242.50	10.91	2.41	14.41	22.30	4.44	37.34	-541.2	114.3	-542.4	-12.64	4.88
FL23	231.67	17.91	3.66	23.23	22.50	4.48	37.67	-213.0	219.8	-215.2	-4.14	2.55
FL22	219.67	20.05	3.98	25.84	23.66	4.71	39.61	-34.6	211.1	-36.7	-0.65	0.42
FL21	208.83	19.31	3.80	24.84	21.81	4.34	36.52	-48.2	184.1	-50.1	-0.94	0.64
FL20	198.00	19.09	3.71	24.49	22.96	4.57	38.44	-40.1	162.3	-41.8	-0.77	0.49
FL19	187.17	19.41	3.97	25.18	24.83	4.94	41.57	-34.7	169.5	-36.4	-0.64	0.39
FL18	175.33	18.32	3.43	23.31	23.91	4.76	40.03	-20.2	102.1	-21.3	-0.40	0.23
FL17	165.50	16.41	3.28	21.18	23.06	4.59	38.61	72.9	177.6	71.1	1.42	-0.78
FL16	154.67	15.03	2.94	19.30	23.07	4.59	38.62	146.9	131.8	145.6	3.02	-1.51
FL15	145.08	13.65	2.66	17.52	21.61	4.30	36.18	169.9	107.6	168.8	3.78	-1.83
FL14	135.50	13.22	2.53	16.90	21.47	4.27	35.94	189.9	84.3	189.0	4.31	-2.02
FL13	125.92	13.44	2.50	17.08	17.84	3.55	29.87	405.3	62.1	404.7	10.21	-5.84
FL12	116.33	15.41	2.91	19.63	15.57	3.10	26.08	628.0	46.0	627.6	15.36	-11.57
FL11	105.25	14.74	2.74	18.72	15.06	3.00	25.21	771.0	52.3	770.5	19.70	-14.63
FL10	95.67	12.86	2.37	16.30	14.18	2.82	23.73	713.4	50.7	712.9	20.41	-14.02
FL9	86.08	12.70	2.29	16.02	14.78	2.94	24.75	747.4	49.0	746.9	21.27	-13.77
FL8	76.50	12.83	2.25	16.11	15.26	3.04	25.55	782.7	44.3	782.3	21.91	-13.81
FL7	66.92	12.30	2.12	15.38	13.69	2.72	22.92	624.3	35.9	623.9	18.77	-12.60
FL6	57.33	9.68	1.80	12.29	10.28	2.05	17.21	369.5	42.3	369.0	14.20	-10.14
FL5	46.25	7.94	1.38	9.95	10.21	2.03	17.09	389.3	32.9	389.0	17.00	-9.90
FL4	36.67	7.68	1.32	9.60	12.11	2.41	20.28	492.7	27.3	492.4	19.84	-9.39
FL3	27.08	8.49	1.40	10.52	19.30	3.84	32.31	1236.7	21.2	1236.5	34.60	-11.27
FL2	17.50	12.50	1.99	15.39	33.57	6.68	56.20	2601.1	16.6	2601.0	43.05	-11.79
FL1	1.60	6.43	1.05	7.96	10.74	2.14	17.98	524.5	14.0	524.4	24.39	-10.80
C1	-10.00	0.00	0.01	0.02	0.00	0.00	0.00	0.1	3.3	0.1	0.00	-3.93
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy						
(kips)		532.7	110.7	693.6	725.3	144.3	1214.4	M, V, computed at elev. -21.6 ft			
Base moment		My			Mx			Mz			
(1000-kip-ft)		126.5	27.8	166.9	-162.6	32.3	-272.2	2.0	6.7	1.9	

TABLE 3 (continued)

Wind Direction: 210 | Structure Generation A | 25-Year Loads
Load Case: 6 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β			x	y	z
-0.0660	3.7508	0.3461	90.5	Configuration A		0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-0.72	0.94	-0.78	1.75	1.50	7.38	-76.8	-32.4	-88.1	-11.80	-1.25
EOR	422.83	-6.13	1.99	-6.26	14.00	6.73	39.23	-201.0	-84.7	-230.3	-5.72	-0.91
MECH	410.33	-3.54	7.39	-4.03	9.97	10.22	48.28	-32.7	-13.8	-37.5	-0.77	-0.06
MRF	398.83	-2.84	8.59	-3.41	9.43	10.92	50.39	26.5	11.2	30.4	0.60	0.04
FL37	386.83	-0.53	6.15	-0.93	9.69	8.65	42.14	89.3	37.6	102.3	2.43	0.05
FL36	374.83	0.96	6.40	0.54	10.09	8.75	42.92	181.6	76.6	208.1	4.85	-0.06
FL35	362.83	3.11	6.33	2.70	10.75	8.65	43.20	333.5	140.6	382.2	8.81	-0.55
FL34	352.00	3.15	6.10	2.75	9.95	7.95	39.75	326.4	137.6	374.0	9.36	-0.65
FL33	341.17	2.97	5.89	2.58	9.46	7.36	37.08	323.0	136.2	370.1	9.93	-0.69
FL32	330.33	2.78	5.68	2.40	8.97	6.79	34.43	319.5	134.7	366.1	10.58	-0.74
FL31	319.50	2.59	5.46	2.23	8.47	6.22	31.82	315.8	133.2	361.9	11.32	-0.79
FL30	308.67	2.40	5.24	2.06	7.98	5.68	29.29	312.5	131.7	358.1	12.16	-0.85
FL29	297.83	2.19	5.18	1.85	7.49	5.25	27.19	302.8	127.6	346.9	12.70	-0.87
FL28	287.00	1.97	5.22	1.63	7.00	4.83	25.12	289.5	122.1	331.8	13.15	-0.85
FL27	276.17	1.75	4.78	1.43	6.51	4.26	22.47	276.5	116.6	316.9	14.04	-0.90
FL26	265.33	1.60	4.40	1.31	6.33	3.91	21.01	277.3	116.9	317.7	15.06	-0.94
FL25	253.33	1.35	4.21	1.07	5.79	3.55	19.09	262.9	110.8	301.2	15.73	-0.88
FL24	242.50	0.94	3.84	0.68	4.97	3.09	16.55	233.8	98.6	267.9	16.16	-0.67
FL23	231.67	-0.72	4.77	-1.04	6.90	4.07	22.15	353.0	148.8	404.5	18.22	0.85
FL22	219.67	-1.02	4.74	-1.34	6.92	4.04	22.08	353.6	149.1	405.2	18.29	1.11
FL21	208.83	-0.76	4.41	-1.05	7.04	3.98	21.95	369.4	155.8	423.4	19.24	0.92
FL20	198.00	-0.48	4.12	-0.75	7.07	3.91	21.73	395.0	166.5	452.6	20.81	0.72
FL19	187.17	-1.01	5.21	-1.35	6.78	4.22	22.61	354.8	149.6	406.6	17.92	1.07
FL18	175.33	-1.42	3.28	-1.63	5.87	3.24	18.03	282.8	119.2	324.1	17.83	1.61
FL17	165.50	-1.86	4.03	-2.13	7.00	3.95	21.82	503.4	212.3	576.9	26.19	2.55
FL16	154.67	-2.31	3.31	-2.53	7.11	3.75	21.19	518.0	218.4	593.6	27.62	3.29
FL15	145.08	-2.28	2.97	-2.47	6.66	3.51	19.84	485.0	204.5	555.8	27.58	3.43
FL14	135.50	-2.34	2.64	-2.51	6.71	3.46	19.67	496.6	209.4	569.0	28.46	3.64
FL13	125.92	-2.18	2.31	-2.33	7.86	3.78	22.05	811.2	342.0	929.5	41.68	4.41
FL12	116.33	-0.67	2.87	-0.86	8.48	5.22	28.07	868.3	366.1	995.1	35.42	1.09
FL11	105.25	-0.46	2.51	-0.62	8.26	4.61	25.57	830.5	350.1	951.7	37.20	0.91
FL10	95.67	-0.49	2.08	-0.63	7.30	3.86	21.77	724.2	305.3	829.9	38.09	1.10
FL9	86.08	-0.38	1.79	-0.50	7.15	3.55	20.45	723.4	305.0	829.0	40.51	0.99
FL8	76.50	-0.18	1.51	-0.28	7.35	3.40	20.10	797.5	336.2	913.8	45.46	0.62
FL7	66.92	-0.15	1.23	-0.23	7.46	3.27	19.74	816.4	344.2	935.6	47.38	0.54
FL6	57.33	0.19	1.64	0.08	6.09	2.88	16.90	630.8	266.0	722.9	42.77	-0.20
FL5	46.25	0.65	0.87	0.59	5.27	2.23	13.63	516.3	217.7	591.6	43.31	-1.87
FL4	36.67	0.61	0.74	0.56	5.70	2.28	14.26	589.7	248.6	675.8	47.31	-1.87
FL3	27.08	0.78	0.51	0.75	8.49	3.16	20.35	966.1	407.3	1107.1	54.34	-2.00
FL2	17.50	1.78	0.39	1.76	14.65	5.22	34.21	1760.6	742.3	2017.5	58.83	-3.02
FL1	1.60	1.55	0.33	1.53	4.60	1.75	11.16	472.8	199.3	541.8	47.65	-6.53
C1	-10.00	0.00	0.08	0.00	0.00	0.04	0.16	0.0	0.0	0.0	0.28	0.01
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy						
(kips)		0.9	152.1	-9.2	315.3	197.7	1056.8	M, V, computed at elev. -21.6 ft			
Base moment		My			Mx			Mz			
(1000-kip-ft)		0.3	44.0	-2.6	-77.0	54.5	-281.3	18.2	7.7	20.8	

TABLE 3 (continued)

Wind Direction: 20 | Structure Generation A | 25-Year Loads
Load Case: 7 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
0.0000	-3.5363	1.3970	-90.3	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-0.32	0.85	-0.32	-6.24	2.13	-13.79	427.6	-375.0	-96.3	6.98	-0.16
EOR	422.83	-0.70	1.80	-0.70	-29.83	8.40	-59.54	990.0	-868.3	-223.0	3.74	-0.04
MECH	410.33	1.11	6.68	1.11	-19.38	9.59	-53.28	442.3	-387.9	-99.6	1.87	0.04
MRF	398.83	1.81	7.77	1.81	-18.67	10.09	-54.33	389.0	-341.2	-87.6	1.61	0.05
FL37	386.83	2.25	5.56	2.25	-18.62	8.31	-48.01	358.4	-314.3	-80.7	1.68	0.08
FL36	374.83	1.59	5.79	1.59	-17.87	8.11	-46.55	382.9	-335.8	-86.2	1.85	0.06
FL35	362.83	0.82	5.72	0.82	-16.30	7.50	-42.81	389.9	-341.9	-87.8	2.05	0.04
FL34	352.00	0.52	5.52	0.52	-14.81	6.83	-38.95	384.9	-337.6	-86.7	2.23	0.03
FL33	341.17	0.41	5.33	0.41	-14.17	6.37	-36.70	390.8	-342.7	-88.0	2.40	0.03
FL32	330.33	0.30	5.14	0.30	-13.53	5.92	-34.46	396.5	-347.7	-89.3	2.59	0.02
FL31	319.50	0.19	4.94	0.19	-12.88	5.47	-32.23	402.0	-352.5	-90.5	2.81	0.02
FL30	308.67	0.08	4.74	0.08	-12.24	5.05	-30.08	407.9	-357.7	-91.9	3.05	0.01
FL29	297.83	0.09	4.69	0.09	-11.73	4.73	-28.46	397.5	-348.6	-89.5	3.15	0.01
FL28	287.00	0.16	4.72	0.16	-11.28	4.44	-26.99	378.0	-331.5	-85.1	3.15	0.02
FL27	276.17	0.23	4.33	0.23	-10.85	4.04	-25.12	358.8	-314.7	-80.8	3.22	0.03
FL26	265.33	0.33	3.98	0.33	-10.96	3.86	-24.59	357.3	-313.3	-80.5	3.27	0.04
FL25	253.33	0.28	3.81	0.28	-10.55	3.63	-23.37	343.6	-301.4	-77.4	3.31	0.04
FL24	242.50	-0.61	3.47	-0.61	-10.19	3.41	-22.25	365.5	-320.5	-82.3	3.70	-0.10
FL23	231.67	-1.21	4.31	-1.21	-10.60	3.74	-23.82	354.2	-310.7	-79.8	3.34	-0.17
FL22	219.67	-1.07	4.29	-1.07	-10.46	3.68	-23.49	286.8	-251.5	-64.6	2.74	-0.13
FL21	208.83	-1.11	3.99	-1.11	-9.41	3.35	-21.27	256.2	-224.7	-57.7	2.71	-0.14
FL20	198.00	-1.26	3.73	-1.26	-9.46	3.31	-21.15	234.7	-205.8	-52.9	2.49	-0.15
FL19	187.17	-2.38	4.71	-2.38	-10.95	3.96	-24.97	145.5	-127.6	-32.8	1.30	-0.12
FL18	175.33	-3.07	2.97	-3.07	-9.44	3.12	-20.47	108.6	-95.3	-24.5	1.17	-0.18
FL17	165.50	-2.78	3.64	-2.78	-9.12	3.28	-20.71	28.7	-25.2	-6.5	0.31	-0.04
FL16	154.67	-2.75	3.00	-2.75	-9.15	3.11	-20.14	-43.3	38.0	9.8	-0.48	0.06
FL15	145.08	-2.57	2.69	-2.57	-8.59	2.91	-18.90	-83.0	72.8	18.7	-0.97	0.13
FL14	135.50	-2.35	2.39	-2.35	-8.36	2.80	-18.27	-131.6	115.4	29.6	-1.60	0.21
FL13	125.92	-1.22	2.09	-1.22	-9.45	3.01	-20.09	-999.4	876.5	225.1	-11.16	0.68
FL12	116.33	-1.12	2.60	-1.12	-11.71	4.45	-27.45	-1794.3	1573.6	404.1	-14.70	0.60
FL11	105.25	-1.00	2.27	-1.00	-11.48	4.00	-25.62	-1771.6	1553.7	399.0	-15.55	0.60
FL10	95.67	-1.01	1.89	-1.01	-10.47	3.45	-22.67	-1646.1	1443.6	370.7	-16.32	0.73
FL9	86.08	-0.99	1.62	-0.99	-10.35	3.23	-21.77	-1644.5	1442.2	370.4	-16.98	0.77
FL8	76.50	-0.91	1.36	-0.91	-10.36	3.07	-21.20	-1667.9	1462.7	375.6	-17.68	0.76
FL7	66.92	-0.86	1.11	-0.86	-10.41	2.96	-20.87	-1722.8	1510.9	388.0	-18.56	0.76
FL6	57.33	-0.87	1.48	-0.87	-10.63	3.07	-21.49	-1763.8	1546.9	397.2	-18.45	0.75
FL5	46.25	-0.90	0.78	-0.90	-10.28	2.71	-19.88	-1684.1	1477.0	379.3	-19.04	0.86
FL4	36.67	-0.87	0.67	-0.87	-9.42	2.44	-18.07	-1528.1	1340.2	344.2	-19.01	0.91
FL3	27.08	-0.65	0.46	-0.65	-9.58	2.41	-18.11	-1536.1	1347.2	346.0	-19.08	0.69
FL2	17.50	-0.40	0.35	-0.40	-13.22	3.21	-24.55	-2117.5	1857.1	476.9	-19.42	0.31
FL1	1.60	1.04	0.30	1.04	-8.30	2.06	-15.60	-1180.8	1035.6	265.9	-16.97	-1.13
C1	-10.00	0.00	0.07	0.00	0.00	0.03	-0.11	0.0	0.0	0.0	0.08	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy						
(kips)	-21.8	137.6	-21.8	-491.3	181.2	-1132.2	M, V, computed at elev. -21.6 ft				
Base moment		My			Mx			Mz			
(1000-kip-ft)	-1.7	39.8	-1.7	128.2	50.8	307.8	-12.3	10.8	2.8		

TABLE 3 (continued)

Wind Direction: 20 | Structure Generation A | 25-Year Loads
Load Case: 8 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β			x	y	z
2.1365	-3.8138	2.6365	-75.5	Configuration A		0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-0.32	0.85	1.49	-6.24	2.13	-14.38	427.6	-375.0	-561.1	38.61	4.01
EOR	422.83	-0.70	1.80	3.14	-29.83	8.40	-61.88	990.0	-868.3	-1299.1	20.94	1.06
MECH	410.33	1.11	6.68	15.39	-19.38	9.59	-55.94	442.3	-387.9	-580.3	9.64	2.65
MRF	398.83	1.81	7.77	18.40	-18.67	10.09	-57.13	389.0	-341.2	-510.5	8.09	2.61
FL37	386.83	2.25	5.56	14.13	-18.62	8.31	-50.32	358.4	-314.3	-470.3	8.66	2.43
FL36	374.83	1.59	5.79	13.95	-17.87	8.11	-48.81	382.9	-335.8	-502.5	9.52	2.72
FL35	362.83	0.82	5.72	13.05	-16.30	7.50	-44.89	389.9	-341.9	-511.6	10.51	3.06
FL34	352.00	0.52	5.52	12.32	-14.81	6.83	-40.84	384.9	-337.6	-505.1	11.34	3.42
FL33	341.17	0.41	5.33	11.80	-14.17	6.37	-38.46	390.8	-342.7	-512.8	12.19	3.74
FL32	330.33	0.30	5.14	11.27	-13.53	5.92	-36.10	396.5	-347.7	-520.3	13.13	4.10
FL31	319.50	0.19	4.94	10.74	-12.88	5.47	-33.75	402.0	-352.5	-527.5	14.19	4.52
FL30	308.67	0.08	4.74	10.20	-12.24	5.05	-31.48	407.9	-357.7	-535.2	15.39	4.98
FL29	297.83	0.09	4.69	10.10	-11.73	4.73	-29.77	397.5	-348.6	-521.6	15.71	5.33
FL28	287.00	0.16	4.72	10.25	-11.28	4.44	-28.22	378.0	-331.5	-496.0	15.53	5.64
FL27	276.17	0.23	4.33	9.47	-10.85	4.04	-26.24	358.8	-314.7	-470.8	15.87	5.73
FL26	265.33	0.33	3.98	8.83	-10.96	3.86	-25.66	357.3	-313.3	-468.8	16.34	5.62
FL25	253.33	0.28	3.81	8.41	-10.55	3.63	-24.38	343.6	-301.4	-450.9	16.53	5.70
FL24	242.50	-0.61	3.47	6.81	-10.19	3.41	-23.20	365.5	-320.5	-479.6	19.03	5.59
FL23	231.67	-1.21	4.31	8.01	-10.60	3.74	-24.86	354.2	-310.7	-464.8	16.94	5.46
FL22	219.67	-1.07	4.29	8.09	-10.46	3.68	-24.51	286.8	-251.5	-376.3	13.85	4.57
FL21	208.83	-1.11	3.99	7.41	-9.41	3.35	-22.20	256.2	-224.7	-336.2	13.63	4.55
FL20	198.00	-1.26	3.73	6.71	-9.46	3.31	-22.07	234.7	-205.8	-308.0	12.77	3.88
FL19	187.17	-2.38	4.71	7.69	-10.95	3.96	-26.07	145.5	-127.6	-191.0	6.74	1.99
FL18	175.33	-3.07	2.97	3.27	-9.44	3.12	-21.33	108.6	-95.3	-142.6	6.53	1.00
FL17	165.50	-2.78	3.64	5.00	-9.12	3.28	-21.62	28.7	-25.2	-37.7	1.66	0.38
FL16	154.67	-2.75	3.00	3.65	-9.15	3.11	-21.00	-43.3	38.0	56.9	-2.63	-0.46
FL15	145.08	-2.57	2.69	3.17	-8.59	2.91	-19.71	-83.0	72.8	108.9	-5.39	-0.87
FL14	135.50	-2.35	2.39	2.75	-8.36	2.80	-19.05	-131.6	115.4	172.7	-8.88	-1.28
FL13	125.92	-1.22	2.09	3.25	-9.45	3.01	-20.92	-999.4	876.5	1311.4	-61.20	-9.50
FL12	116.33	-1.12	2.60	4.43	-11.71	4.45	-28.68	-1794.3	1573.6	2354.5	-80.18	-12.37
FL11	105.25	-1.00	2.27	3.86	-11.48	4.00	-26.73	-1771.6	1553.7	2324.7	-85.20	-12.31
FL10	95.67	-1.01	1.89	3.02	-10.47	3.45	-23.63	-1646.1	1443.6	2160.0	-89.94	-11.49
FL9	86.08	-0.99	1.62	2.47	-10.35	3.23	-22.66	-1644.5	1442.2	2157.9	-94.11	-10.24
FL8	76.50	-0.91	1.36	2.00	-10.36	3.07	-22.05	-1667.9	1462.7	2188.6	-98.44	-8.94
FL7	66.92	-0.86	1.11	1.52	-10.41	2.96	-21.70	-1722.8	1510.9	2260.7	-103.70	-7.25
FL6	57.33	-0.87	1.48	2.29	-10.63	3.07	-22.35	-1763.8	1546.9	2314.5	-102.50	-10.52
FL5	46.25	-0.90	0.78	0.78	-10.28	2.71	-20.63	-1684.1	1477.0	2209.9	-106.96	-4.04
FL4	36.67	-0.87	0.67	0.56	-9.42	2.44	-18.74	-1528.1	1340.2	2005.2	-106.88	-3.21
FL3	27.08	-0.65	0.46	0.34	-9.58	2.41	-18.78	-1536.1	1347.2	2015.8	-107.33	-1.93
FL2	17.50	-0.40	0.35	0.35	-13.22	3.21	-25.44	-2117.5	1857.1	2778.6	-109.19	-1.51
FL1	1.60	1.04	0.30	1.68	-8.30	2.06	-16.18	-1180.8	1035.6	1549.5	-94.78	-9.82
C1	-10.00	0.00	0.07	0.15	0.00	0.03	-0.12	0.0	0.0	-0.1	0.18	0.21
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy						
(kips)		-21.8	137.6	272.2	-491.3	181.2	-1182.5	M, V, computed at elev. -21.6 ft			
Base moment		My			Mx			Mz			
(1000-kip-ft)		-1.7	39.8	83.4	128.2	50.8	321.9	-12.3	10.8	16.2	

TABLE 3 (continued)

Wind Direction: 240 | Structure Generation A | 25-Year Loads
Load Case: 9 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
1.0298	0.2273	3.7788	50.7	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	2.05	0.62	2.69	1.10	0.39	1.19	-149.9	-56.1	-362.0	-49.73	112.69
EOR	422.83	12.79	2.53	15.39	8.45	1.90	8.89	-573.2	-214.7	-1384.5	-38.95	67.46
MECH	410.33	8.74	3.79	12.64	5.26	2.40	5.81	-290.0	-108.6	-700.3	-21.01	45.74
MRF	398.83	8.15	4.11	12.38	6.53	2.82	7.17	-343.5	-128.6	-829.5	-29.07	50.17
FL37	386.83	8.49	3.33	11.91	7.68	2.51	8.25	-411.0	-153.9	-992.7	-39.01	56.30
FL36	374.83	9.55	3.57	13.22	10.43	2.99	11.11	-415.6	-155.7	-1003.9	-37.40	44.52
FL35	362.83	8.39	3.37	11.86	13.25	3.42	14.03	-385.3	-144.3	-930.5	-38.68	32.70
FL34	352.00	7.92	3.23	11.25	13.84	3.43	14.62	-350.7	-131.4	-847.1	-36.41	28.01
FL33	341.17	7.90	3.16	11.15	14.12	3.39	14.89	-342.4	-128.2	-827.0	-35.58	26.66
FL32	330.33	7.88	3.08	11.05	14.39	3.35	15.15	-333.9	-125.0	-806.4	-34.73	25.34
FL31	319.50	7.86	3.00	10.95	14.66	3.31	15.41	-325.2	-121.8	-785.5	-33.87	24.07
FL30	308.67	7.84	2.92	10.85	14.94	3.28	15.68	-316.9	-118.7	-765.3	-33.00	22.84
FL29	297.83	7.80	2.90	10.79	15.24	3.27	15.98	-311.7	-116.7	-752.9	-32.37	21.85
FL28	287.00	7.75	2.90	10.74	15.54	3.27	16.29	-308.3	-115.5	-744.6	-31.87	21.01
FL27	276.17	7.70	2.75	10.52	15.87	3.24	16.60	-305.2	-114.3	-737.1	-31.67	20.08
FL26	265.33	8.06	2.67	10.80	17.06	3.39	17.83	-318.1	-119.1	-768.3	-31.52	19.09
FL25	253.33	8.02	2.60	10.69	17.40	3.41	18.18	-315.4	-118.1	-761.7	-31.13	18.31
FL24	242.50	7.94	2.46	10.47	16.86	3.28	17.61	-291.4	-109.1	-703.8	-29.53	17.55
FL23	231.67	13.02	3.51	16.64	17.34	3.43	18.12	-14.0	-5.2	-33.9	-1.01	0.93
FL22	219.67	14.50	3.72	18.33	17.73	3.49	18.52	93.0	34.8	224.6	6.13	-6.06
FL21	208.83	14.15	3.55	17.81	16.38	3.23	17.11	101.4	38.0	244.9	6.87	-7.15
FL20	198.00	13.89	3.42	17.41	17.15	3.35	17.91	103.3	38.7	249.5	7.16	-6.96
FL19	187.17	14.53	3.88	18.53	18.89	3.75	19.74	125.1	46.9	302.1	8.14	-7.64
FL18	175.33	13.97	3.14	17.20	17.85	3.42	18.62	82.2	30.8	198.4	5.75	-5.31
FL17	165.50	12.79	3.23	16.12	17.65	3.45	18.44	173.6	65.0	419.3	12.89	-11.27
FL16	154.67	11.37	2.78	14.23	19.18	3.67	20.02	367.0	137.5	886.5	29.42	-20.91
FL15	145.08	10.11	2.48	12.66	18.94	3.61	19.76	444.6	166.5	1073.7	38.52	-24.68
FL14	135.50	9.78	2.32	12.16	19.68	3.73	20.52	534.8	200.3	1291.5	46.57	-27.60
FL13	125.92	10.15	2.26	12.47	17.79	3.38	18.56	780.2	292.2	1884.3	69.96	-47.01
FL12	116.33	12.60	2.80	15.48	18.86	3.83	19.73	1269.5	475.4	3066.1	96.18	-75.47
FL11	105.25	11.28	2.49	13.84	20.67	4.04	21.59	1777.2	665.6	4292.3	140.90	-90.33
FL10	95.67	9.34	2.06	11.46	20.21	3.86	21.09	1743.5	652.9	4210.8	154.13	-83.79
FL9	86.08	8.91	1.90	10.87	21.61	4.05	22.53	1859.8	696.5	4491.7	161.76	-78.03
FL8	76.50	9.14	1.84	11.03	22.27	4.12	23.20	1876.7	702.8	4532.7	159.33	-75.76
FL7	66.92	8.94	1.71	10.70	21.94	4.03	22.86	1764.5	660.8	4261.6	152.91	-71.62
FL6	57.33	7.88	1.70	9.63	23.22	4.27	24.19	2032.7	761.2	4909.3	175.15	-69.75
FL5	46.25	6.83	1.28	8.15	23.90	4.31	24.88	2229.5	834.9	5384.6	195.45	-64.04
FL4	36.67	6.24	1.16	7.43	23.25	4.18	24.20	2201.8	824.6	5317.8	200.82	-61.63
FL3	27.08	6.48	1.11	7.62	28.40	5.07	29.55	2843.8	1065.0	6868.4	217.93	-56.19
FL2	17.50	9.47	1.50	11.02	44.54	7.91	46.34	4615.2	1728.4	11146.5	227.66	-54.15
FL1	1.60	5.87	0.96	6.86	18.85	3.37	19.62	1797.6	673.2	4341.4	197.22	-68.93
C1	-10.00	0.00	0.03	0.02	0.00	0.01	0.00	-0.1	0.0	-0.1	-0.47	5.71
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		386.0	107.8	497.0	708.9	144.6	741.8	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		89.2	27.9	118.0	-137.1	30.3	-144.0	22.7	8.5	54.9		

TABLE 3 (continued)

Wind Direction: 30 | Structure Generation A | 25-Year Loads
Load Case: 10 | Riverside Building 1 - West | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-2.1365	1.8553	-3.7788	-168.7	Configuration A	0.3175	0.2703	0.1942

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	455.90	-0.08	0.75	-1.67	-4.45	1.71	-1.28	298.4	-146.1	850.4	-245.17	321.03
EOR	422.83	-0.31	1.59	-3.69	-21.43	6.12	-10.07	656.8	-321.5	1871.9	-163.82	60.03
MECH	410.33	0.60	5.89	-11.99	-13.63	8.74	2.59	273.8	-134.0	780.3	13.41	62.19
MRF	398.83	0.80	6.85	-13.83	-13.06	9.40	4.38	234.7	-114.9	668.9	13.92	43.97
FL37	386.83	0.36	4.90	-10.11	-13.24	7.38	0.45	202.2	-99.0	576.2	2.55	56.86
FL36	374.83	-0.76	5.10	-11.67	-12.99	7.30	0.54	199.0	-97.4	567.2	2.26	48.51
FL35	362.83	-1.97	5.05	-12.75	-12.04	6.81	0.59	189.4	-92.7	539.7	1.95	42.24
FL34	352.00	-2.37	4.87	-12.77	-11.11	6.24	0.47	179.5	-87.9	511.6	1.48	40.02
FL33	341.17	-2.56	4.70	-12.60	-10.73	5.80	0.03	180.1	-88.1	513.1	0.11	40.72
FL32	330.33	-2.76	4.53	-12.43	-10.36	5.37	-0.39	180.5	-88.4	514.4	-1.29	41.33
FL31	319.50	-2.95	4.36	-12.25	-9.98	4.95	-0.79	180.9	-88.5	515.4	-2.70	41.89
FL30	308.67	-3.14	4.18	-12.07	-9.60	4.55	-1.17	181.4	-88.8	517.0	-4.10	42.45
FL29	297.83	-3.20	4.13	-12.03	-9.29	4.26	-1.39	174.2	-85.3	496.5	-4.71	40.73
FL28	287.00	-3.18	4.16	-12.08	-9.00	3.98	-1.62	162.7	-79.6	463.7	-5.05	37.71
FL27	276.17	-3.17	3.81	-11.31	-8.72	3.57	-2.11	151.3	-74.1	431.3	-6.86	36.84
FL26	265.33	-3.32	3.51	-10.81	-8.89	3.36	-2.66	147.1	-72.0	419.3	-8.98	36.57
FL25	253.33	-3.37	3.36	-10.55	-8.60	3.14	-2.77	138.4	-67.7	394.4	-9.18	34.99
FL24	242.50	-3.72	3.06	-10.25	-8.11	2.89	-2.75	147.4	-72.2	420.2	-10.25	38.22
FL23	231.67	-3.53	3.80	-11.65	-10.21	3.60	-3.54	-37.6	18.4	-107.1	2.56	-8.42
FL22	219.67	-2.73	3.78	-10.81	-10.81	3.70	-3.95	-129.7	63.5	-369.5	11.01	-30.16
FL21	208.83	-2.52	3.52	-10.03	-10.00	3.43	-3.63	-129.6	63.4	-369.2	11.77	-32.53
FL20	198.00	-2.52	3.29	-9.54	-9.93	3.35	-3.71	-140.0	68.5	-399.0	14.14	-36.32
FL19	187.17	-3.04	4.15	-11.91	-9.34	3.58	-2.69	-135.2	66.2	-385.3	6.95	-30.78
FL18	175.33	-2.90	2.62	-8.49	-7.80	2.69	-2.82	-116.3	56.9	-331.4	11.68	-35.17
FL17	165.50	-2.27	3.21	-9.13	-8.57	3.12	-2.78	-341.3	167.1	-972.7	29.68	-97.49
FL16	154.67	-1.69	2.64	-7.33	-8.67	2.94	-3.22	-414.2	202.8	-1180.5	59.26	-135.06
FL15	145.08	-1.15	2.37	-6.21	-8.04	2.73	-2.97	-413.0	202.2	-1177.0	73.73	-154.25
FL14	135.50	-0.66	2.11	-5.16	-7.79	2.62	-2.94	-435.2	213.0	-1240.3	103.36	-181.55
FL13	125.92	0.26	1.84	-3.68	-9.11	2.83	-3.86	-1110.0	543.3	-3163.2	429.35	-409.53
FL12	116.33	0.13	2.29	-4.76	-12.18	4.54	-3.76	-1938.5	948.9	-5524.3	564.03	-715.14
FL11	105.25	0.16	2.01	-4.13	-12.31	4.10	-4.70	-1972.1	965.4	-5620.1	675.31	-593.47
FL10	95.67	0.02	1.66	-3.53	-11.15	3.50	-4.67	-1786.7	874.6	-5091.8	693.99	-524.81
FL9	86.08	-0.01	1.43	-3.06	-10.94	3.22	-4.96	-1745.5	854.5	-4974.5	726.79	-447.82
FL8	76.50	0.06	1.20	-2.50	-10.90	3.03	-5.29	-1742.8	853.1	-4966.5	766.74	-362.95
FL7	66.92	0.09	0.98	-2.00	-10.87	2.88	-5.54	-1754.4	858.8	-4999.7	798.97	-288.44
FL6	57.33	0.18	1.31	-2.61	-10.90	2.96	-5.42	-1771.3	867.1	-5048.0	756.58	-364.38
FL5	46.25	0.19	0.69	-1.28	-10.53	2.56	-5.79	-1716.5	840.3	-4891.7	805.86	-178.60
FL4	36.67	0.15	0.59	-1.11	-9.62	2.29	-5.38	-1570.9	769.0	-4476.9	798.29	-164.50
FL3	27.08	0.27	0.41	-0.60	-9.86	2.25	-5.68	-1602.5	784.4	-4566.7	795.66	-84.06
FL2	17.50	0.59	0.31	-0.07	-13.84	3.02	-8.24	-2212.4	1083.0	-6304.9	765.19	-6.89
FL1	1.60	1.23	0.27	0.66	-8.08	1.83	-4.69	-1230.9	602.5	-3507.8	732.93	103.53
C1	-10.00	0.00	0.06	-0.13	0.00	0.04	0.07	0.0	0.0	0.1	0.42	0.77
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00

Base shear		Vx			Vy						
(kips)		-54.8	121.3	-313.9	-426.7	166.4	-118.0	M, V, computed at elev. -21.6 ft			
Base moment		My			Mx			Mz			
(1000-kip-ft)		-15.8	35.1	-90.9	103.2	45.8	18.2	-20.6	10.1	-58.6	

TABLE 4

Design Load Cases
Simultaneous Design Loads in All Components

25-Year Loads
Reference Elevation (ft): -21.6
Damping Ratio: .02

Structure Generation A
8180 Riverside Building 1 - East
Configuration A

Natural frequencies, Hz

x	y	z
0.8929	0.6667	0.5714

Load Definition			Wind Dir. (deg)	Base moment (1000 k-ft)				Base Shear (kips)	
Case	Comb.	Significance		Mx	My	Mz	XYresultant	Vx	Vy
1	A+	Max My, Max Vx	320	-18.48	64.44	0.87	67.04	280.3	85.3
2	A-	Min My, Min Vx	70	18.01	-61.71	-1.01	64.29	-268.3	-83.8
3	B+	Min Mx, Max Vy	230	-36.44	22.04	-0.43	42.59	100.1	171.4
4	B-	Max Mx, Min Vy	20	49.31	1.34	-0.85	49.33	4.5	-216.6
5	C1	Max res. M w/ V in Q1	320	-23.41	63.64	0.38	67.81	276.7	107.5
6	C2	Max res. M w/ V in Q2	70	-0.24	-53.90	-1.10	53.90	-234.0	1.1
7	C3	Max res. M w/ V in Q3	70	24.95	-60.32	-1.21	65.28	-262.2	-116.2
8	C4	Max res. M w/ V in Q4	20	49.23	3.49	-0.42	49.36	14.1	-216.3
9	D+	Max Mz	70	8.51	13.69	3.66	16.12	62.6	-39.6
10	D-	Min Mz	230	-4.62	4.38	-3.93	6.36	19.98	21.75
11	E1	Companion to Case04 on West Tower	20	49.31	1.34	-0.85	49.33	4.48	-216.63
12	E2	Companion to Case01 on West Tower	270	-9.17	39.26	0.50	40.32	173.73	45.37
13	E3	Companion to Case10 on West Tower	30	17.59	-5.37	-1.50	18.39	-24.45	-76.83

TABLE 4 (continued)

Wind Direction:	320				Structure Generation A				25-Year Loads			
Load Case:	1				Riverside Building 1 - East				Damping Ratio: .02			
Peak Factors				Angle					Natural frequencies, Hz			
Gx	Gy	Gz		β					x	y	z	
4.1625	2.5263	1.4209		16.0	Configuration A				0.8929	0.6667	0.5714	
Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	4.02	0.95	7.96	-1.63	0.82	0.43	39.3	0.0	39.3	0.27	-4.93
FL27	269.92	7.05	2.77	18.59	-3.20	2.13	2.17	84.9	1.6	87.1	0.54	-4.62
FL26	259.42	4.03	2.56	14.67	-2.19	1.89	2.57	25.4	2.6	29.2	0.34	-1.93
FL25	246.25	3.84	7.86	36.54	-2.34	4.76	9.67	11.5	67.0	106.7	0.72	-2.73
FL24	234.92	3.31	5.43	25.91	-2.07	3.55	6.88	11.4	45.8	76.5	0.73	-2.76
FL23	223.58	2.75	4.85	22.92	-1.76	3.25	6.47	7.3	42.7	68.0	0.78	-2.75
FL22	213.83	2.23	4.40	20.54	-1.47	3.02	6.17	2.6	40.5	60.1	0.81	-2.68
FL21	204.08	1.95	4.14	19.17	-1.35	2.95	6.09	-0.3	39.3	55.5	0.84	-2.63
FL20	194.33	1.67	3.88	17.82	-1.23	2.87	6.01	-3.2	38.1	50.8	0.86	-2.56
FL19	184.58	1.39	3.63	16.49	-1.11	2.79	5.93	-6.2	36.3	45.4	0.88	-2.44
FL18	174.83	1.24	3.39	15.34	-1.07	2.72	5.80	-6.1	34.5	43.0	0.93	-2.45
FL17	165.08	1.15	3.29	14.82	-1.07	2.74	5.86	-4.8	33.0	42.0	0.97	-2.45
FL16	155.33	1.05	3.15	14.17	-1.06	2.72	5.80	-3.5	31.9	41.8	1.03	-2.53
FL15	145.58	0.96	2.92	13.12	-1.05	2.60	5.51	-2.3	30.7	41.4	1.13	-2.68
FL14	135.83	0.84	2.69	12.03	-1.06	2.48	5.20	-0.8	29.3	40.9	1.24	-2.86
FL13	126.08	0.36	2.37	10.23	-0.48	2.06	4.72	1.3	29.0	42.6	1.58	-3.43
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		37.8	58.3	280.3	-24.1	43.3	85.3	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		9.6	13.2	64.4	5.8	9.6	-18.5	0.2	0.5	0.9		

TABLE 4 (continued)

Wind Direction: 70 | Structure Generation A | 25-Year Loads
Load Case: 2 | Riverside Building 1 - East | Damping Ratio: .02

Peak Factors			Angle			Natural frequencies, Hz		
Gx	Gy	Gz	β			x	y	z
-4.1625	-1.3421	-1.9759	-163.7	Configuration A		0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	-3.10	1.28	-8.43	0.94	-0.63	1.79	-15.3	-22.6	29.4	0.71	3.34
FL27	269.92	-7.18	3.74	-22.75	-2.55	1.95	-5.16	3.0	4.5	-5.8	0.06	-0.24
FL26	259.42	-3.14	2.42	-13.23	-1.56	1.42	-3.46	33.7	49.7	-64.6	1.20	-4.57
FL25	246.25	-4.16	6.58	-31.54	-2.00	3.06	-6.11	57.5	85.0	-110.4	0.65	-3.37
FL24	234.92	-3.39	4.65	-22.75	-2.96	3.18	-7.22	38.4	56.7	-73.7	0.93	-2.94
FL23	223.58	-3.01	4.18	-20.42	-2.81	3.02	-6.86	26.5	39.2	-50.9	0.75	-2.24
FL22	213.83	-2.60	3.79	-18.35	-2.40	2.71	-6.04	32.4	47.8	-62.1	1.00	-3.06
FL21	204.08	-2.64	3.66	-17.89	-2.30	2.63	-5.83	38.4	56.7	-73.7	1.21	-3.72
FL20	194.33	-2.68	3.55	-17.44	-2.19	2.55	-5.61	44.4	65.6	-85.2	1.43	-4.43
FL19	184.58	-2.71	3.43	-17.00	-2.09	2.47	-5.40	50.4	74.4	-96.7	1.64	-5.17
FL18	174.83	-2.55	3.22	-15.96	-2.17	2.50	-5.51	49.0	72.3	-94.0	1.82	-5.26
FL17	165.08	-2.31	3.06	-15.07	-2.31	2.61	-5.81	44.6	65.9	-85.5	1.91	-4.94
FL16	155.33	-2.07	2.89	-14.09	-2.46	2.70	-6.08	40.2	59.4	-77.1	1.99	-4.61
FL15	145.58	-1.85	2.65	-12.87	-2.62	2.75	-6.31	35.9	53.0	-68.8	2.11	-4.31
FL14	135.83	-1.70	2.45	-11.88	-2.82	2.82	-6.59	31.3	46.3	-60.1	2.15	-3.87
FL13	126.08	-0.73	1.90	-8.66	-1.28	1.73	-3.60	13.6	20.1	-26.1	1.07	-2.57
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-45.8	53.4	-268.3	-33.6	37.4	-83.8	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-11.0	12.2	-61.7	7.2	8.0	18.0	0.5	0.8	-1.0		

TABLE 4 (continued)

Wind Direction: 230 | Structure Generation A | 25-Year Loads
Load Case: 3 | Riverside Building 1 - East | Damping Ratio: .02

Peak Factors			Angle			Natural frequencies, Hz		
Gx	Gy	Gz	β			x	y	z
2.1507	4.0918	0.8250	58.8	Configuration A		0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	0.04	0.02	0.07	0.02	0.01	0.08	0.7	-0.5	0.3	1.99	-1.98
FL27	269.92	1.43	1.36	4.36	1.48	0.91	5.20	-51.9	36.5	-21.8	-2.46	2.06
FL26	259.42	0.99	1.48	4.18	1.46	0.93	5.24	-48.7	34.3	-20.4	-2.38	1.90
FL25	246.25	1.12	4.97	11.80	2.10	1.57	8.53	-86.0	60.5	-36.1	-1.45	2.01
FL24	234.92	0.96	3.41	8.30	3.44	2.25	12.63	-82.9	58.4	-34.8	-1.92	1.26
FL23	223.58	0.92	3.11	7.61	3.66	2.36	13.32	-77.7	54.7	-32.6	-1.84	1.05
FL22	213.83	1.02	2.95	7.36	3.54	2.28	12.86	-71.7	50.5	-30.1	-1.76	1.01
FL21	204.08	1.05	2.84	7.14	3.71	2.38	13.45	-75.9	53.4	-31.8	-1.85	0.98
FL20	194.33	1.07	2.72	6.93	3.89	2.48	14.03	-80.0	56.3	-33.6	-1.92	0.95
FL19	184.58	1.10	2.62	6.73	4.07	2.58	14.62	-84.2	59.3	-35.3	-1.99	0.92
FL18	174.83	1.13	2.50	6.51	3.99	2.53	14.35	-80.3	56.5	-33.7	-1.95	0.88
FL17	165.08	1.17	2.47	6.47	3.81	2.43	13.76	-73.3	51.6	-30.7	-1.83	0.86
FL16	155.33	1.21	2.41	6.39	3.64	2.33	13.15	-66.3	46.7	-27.8	-1.71	0.83
FL15	145.58	1.25	2.30	6.18	3.46	2.21	12.50	-59.4	41.8	-24.9	-1.60	0.79
FL14	135.83	1.24	2.16	5.90	3.29	2.10	11.90	-54.5	38.4	-22.9	-1.54	0.76
FL13	126.08	0.50	1.70	4.15	1.48	1.04	5.73	-27.0	19.0	-11.3	-1.30	0.94
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		16.2	39.0	100.1	47.0	30.4	171.4	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		3.5	8.6	22.0	-10.0	6.5	-36.4	-1.0	0.7	-0.4		

TABLE 4 (continued)

Wind Direction: 20 | Structure Generation A | 25-Year Loads
Load Case: 4 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-0.7151	-4.0918	-1.8421	-88.4	Configuration A	0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	1.66	0.38	1.39	-1.94	0.84	-5.38	71.2	0.0	71.2	-12.40	-3.20
FL27	269.92	3.29	1.38	2.30	-6.44	2.80	-17.89	142.6	1.6	139.6	-7.68	-0.99
FL26	259.42	2.35	1.45	1.31	-5.98	2.60	-16.62	26.0	2.7	21.0	-1.25	-0.10
FL25	246.25	2.71	4.55	-0.54	-6.94	3.02	-19.27	-20.5	68.8	-147.2	7.63	-0.21
FL24	234.92	2.36	3.17	0.10	-6.20	2.69	-17.22	-6.6	47.1	-93.3	5.42	0.03
FL23	223.58	1.98	2.83	-0.04	-5.60	2.43	-15.55	-1.4	43.9	-82.2	5.29	-0.01
FL22	213.83	1.66	2.57	-0.18	-5.05	2.20	-14.03	-1.6	41.5	-78.1	5.56	-0.07
FL21	204.08	1.65	2.46	-0.11	-4.95	2.15	-13.74	-5.4	40.3	-79.7	5.80	-0.05
FL20	194.33	1.64	2.35	-0.04	-4.84	2.10	-13.45	-9.2	39.1	-81.2	6.04	-0.02
FL19	184.58	1.64	2.24	0.04	-4.74	2.06	-13.16	-13.0	37.2	-81.6	6.20	0.02
FL18	174.83	1.59	2.11	0.08	-4.69	2.04	-13.04	-14.0	35.4	-79.2	6.08	0.04
FL17	165.08	1.53	2.05	0.06	-4.67	2.03	-12.98	-13.7	33.8	-76.1	5.86	0.03
FL16	155.33	1.46	1.98	0.05	-4.65	2.02	-12.91	-13.5	32.8	-73.8	5.72	0.02
FL15	145.58	1.43	1.85	0.10	-4.63	2.01	-12.86	-14.0	31.5	-72.1	5.61	0.04
FL14	135.83	1.53	1.76	0.27	-4.61	2.00	-12.79	-17.8	30.1	-73.3	5.73	0.12
FL13	126.08	0.73	1.46	-0.31	-2.07	0.90	-5.74	-8.6	29.8	-63.5	11.03	-0.60
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		29.2	34.6	4.5	-78.0	33.9	-216.6	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		6.9	7.7	1.3	17.7	7.7	49.3	0.1	0.5	-0.8		

TABLE 4 (continued)

Wind Direction:	320				Structure Generation A				25-Year Loads			
Load Case:	5				Riverside Building 1 - East				Damping Ratio: .02			
Peak Factors				Angle					Natural frequencies, Hz			
Gx	Gy	Gz		β					x	y	z	
4.1013	3.0381	0.4362		20.2	Configuration A				0.8929	0.6667	0.5714	
Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	4.02	0.95	7.90	-1.63	0.82	0.85	39.3	0.0	39.3	0.53	-4.92
FL27	269.92	7.05	2.77	18.42	-3.20	2.13	3.26	84.9	1.6	85.6	0.80	-4.51
FL26	259.42	4.03	2.56	14.51	-2.19	1.89	3.53	25.4	2.6	26.6	0.42	-1.73
FL25	246.25	3.84	7.86	36.06	-2.34	4.76	12.11	11.5	67.0	40.7	0.34	-1.01
FL24	234.92	3.31	5.43	25.57	-2.07	3.55	8.70	11.4	45.8	31.4	0.37	-1.10
FL23	223.58	2.75	4.85	22.62	-1.76	3.25	8.13	7.3	42.7	25.9	0.36	-1.01
FL22	213.83	2.23	4.40	20.27	-1.47	3.02	7.72	2.6	40.5	20.3	0.33	-0.87
FL21	204.08	1.95	4.14	18.92	-1.35	2.95	7.60	-0.3	39.3	16.8	0.31	-0.77
FL20	194.33	1.67	3.88	17.58	-1.23	2.87	7.48	-3.2	38.1	13.4	0.27	-0.64
FL19	184.58	1.39	3.63	16.27	-1.11	2.79	7.36	-6.2	36.3	9.7	0.22	-0.49
FL18	174.83	1.24	3.39	15.13	-1.07	2.72	7.19	-6.1	34.5	9.0	0.23	-0.48
FL17	165.08	1.15	3.29	14.62	-1.07	2.74	7.26	-4.8	33.0	9.6	0.26	-0.53
FL16	155.33	1.05	3.15	13.98	-1.06	2.72	7.19	-3.5	31.9	10.4	0.30	-0.59
FL15	145.58	0.96	2.92	12.94	-1.05	2.60	6.84	-2.3	30.7	11.1	0.36	-0.67
FL14	135.83	0.84	2.69	11.86	-1.06	2.48	6.47	-0.8	29.3	12.0	0.42	-0.78
FL13	126.08	0.36	2.37	10.09	-0.48	2.06	5.78	1.3	29.0	14.0	0.60	-1.04
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		37.8	58.3	276.7	-24.1	43.3	107.5	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		9.6	13.2	63.6	5.8	9.6	-23.4	0.2	0.5	0.4		

TABLE 4 (continued)

Wind Direction: 70 | Structure Generation A | 25-Year Loads
Load Case: 6 | Riverside Building 1 - East | Damping Ratio: .02

Peak Factors			Angle			Natural frequencies, Hz		
Gx	Gy	Gz	β			x	y	z
-3.5206	0.9272	-2.0923	179.7	Configuration A		0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	-3.10	1.28	-7.60	0.94	-0.63	0.36	-15.3	-22.6	32.0	0.20	4.20
FL27	269.92	-7.18	3.74	-20.35	-2.55	1.95	-0.74	3.0	4.5	-6.4	0.01	-0.31
FL26	259.42	-3.14	2.42	-11.67	-1.56	1.42	-0.24	33.7	49.7	-70.4	0.13	-6.03
FL25	246.25	-4.16	6.58	-27.32	-2.00	3.06	0.84	57.5	85.0	-120.3	-0.14	-4.40
FL24	234.92	-3.39	4.65	-19.76	-2.96	3.18	-0.01	38.4	56.7	-80.3	0.00	-4.06
FL23	223.58	-3.01	4.18	-17.73	-2.81	3.02	-0.01	26.5	39.2	-55.5	0.00	-3.13
FL22	213.83	-2.60	3.79	-15.93	-2.40	2.71	0.10	32.4	47.8	-67.7	-0.03	-4.25
FL21	204.08	-2.64	3.66	-15.54	-2.30	2.63	0.14	38.4	56.7	-80.3	-0.05	-5.17
FL20	194.33	-2.68	3.55	-15.16	-2.19	2.55	0.17	44.4	65.6	-92.8	-0.07	-6.12
FL19	184.58	-2.71	3.43	-14.79	-2.09	2.47	0.20	50.4	74.4	-105.4	-0.10	-7.12
FL18	174.83	-2.55	3.22	-13.89	-2.17	2.50	0.15	49.0	72.3	-102.4	-0.08	-7.37
FL17	165.08	-2.31	3.06	-13.10	-2.31	2.61	0.10	44.6	65.9	-93.2	-0.06	-7.11
FL16	155.33	-2.07	2.89	-12.24	-2.46	2.70	0.04	40.2	59.4	-84.0	-0.02	-6.87
FL15	145.58	-1.85	2.65	-11.17	-2.62	2.75	-0.07	35.9	53.0	-75.0	0.04	-6.71
FL14	135.83	-1.70	2.45	-10.31	-2.82	2.82	-0.20	31.3	46.3	-65.5	0.13	-6.35
FL13	126.08	-0.73	1.90	-7.43	-1.28	1.73	0.33	13.6	20.1	-28.4	-0.17	-3.82
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-45.8	53.4	-234.0	-33.6	37.4	1.1	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-11.0	12.2	-53.9	7.2	8.0	-0.2	0.5	0.8	-1.1		

TABLE 4 (continued)

Wind Direction:	70				Structure Generation A					25-Year Loads		
Load Case:	7				Riverside Building 1 - East					Damping Ratio: .02		
Peak Factors				Angle						Natural frequencies, Hz		
Gx	Gy	Gz		β						x	y	z
-4.0480	-2.2059	-2.2362		-157.5	Configuration A					0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	-3.10	1.28	-8.28	0.94	-0.63	2.33	-15.3	-22.6	35.3	1.11	3.95
FL27	269.92	-7.18	3.74	-22.32	-2.55	1.95	-6.85	3.0	4.5	-7.0	0.09	-0.29
FL26	259.42	-3.14	2.42	-12.95	-1.56	1.42	-4.69	33.7	49.7	-77.6	1.92	-5.29
FL25	246.25	-4.16	6.58	-30.79	-2.00	3.06	-8.76	57.5	85.0	-132.5	1.13	-3.98
FL24	234.92	-3.39	4.65	-22.21	-2.96	3.18	-9.97	38.4	56.7	-88.4	1.49	-3.31
FL23	223.58	-3.01	4.18	-19.94	-2.81	3.02	-9.47	26.5	39.2	-61.1	1.19	-2.50
FL22	213.83	-2.60	3.79	-17.92	-2.40	2.71	-8.37	32.4	47.8	-74.6	1.60	-3.42
FL21	204.08	-2.64	3.66	-17.47	-2.30	2.63	-8.10	38.4	56.7	-88.4	1.93	-4.17
FL20	194.33	-2.68	3.55	-17.03	-2.19	2.55	-7.81	44.4	65.6	-102.2	2.28	-4.96
FL19	184.58	-2.71	3.43	-16.60	-2.09	2.47	-7.53	50.4	74.4	-116.1	2.63	-5.80
FL18	174.83	-2.55	3.22	-15.59	-2.17	2.50	-7.67	49.0	72.3	-112.8	2.87	-5.83
FL17	165.08	-2.31	3.06	-14.72	-2.31	2.61	-8.06	44.6	65.9	-102.7	2.94	-5.37
FL16	155.33	-2.07	2.89	-13.76	-2.46	2.70	-8.41	40.2	59.4	-92.6	2.99	-4.90
FL15	145.58	-1.85	2.65	-12.57	-2.62	2.75	-8.68	35.9	53.0	-82.6	3.07	-4.45
FL14	135.83	-1.70	2.45	-11.60	-2.82	2.82	-9.02	31.3	46.3	-72.1	3.01	-3.87
FL13	126.08	-0.73	1.90	-8.44	-1.28	1.73	-5.09	13.6	20.1	-31.3	1.64	-2.72
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-45.8	53.4	-262.2	-33.6	37.4	-116.2	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-11.0	12.2	-60.3	7.2	8.0	25.0	0.5	0.8	-1.2		

TABLE 4 (continued)

Wind Direction: 20 | Structure Generation A | 25-Year Loads
Load Case: 8 | Riverside Building 1 - East | Damping Ratio: .02
Peak Factors | Angle β | Natural frequencies, Hz

Gx	Gy	Gz	β		x	y	z
-0.4366	-4.0824	-1.0155	-85.9	Configuration A	0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	1.66	0.38	1.49	-1.94	0.84	-5.37	71.2	0.0	71.2	-12.30	-3.42
FL27	269.92	3.29	1.38	2.69	-6.44	2.80	-17.87	142.6	1.6	141.0	-7.71	-1.16
FL26	259.42	2.35	1.45	1.72	-5.98	2.60	-16.59	26.0	2.7	23.2	-1.38	-0.14
FL25	246.25	2.71	4.55	0.73	-6.94	3.02	-19.25	-20.5	68.8	-90.4	4.69	0.18
FL24	234.92	2.36	3.17	0.98	-6.20	2.69	-17.19	-6.6	47.1	-54.4	3.15	0.18
FL23	223.58	1.98	2.83	0.75	-5.60	2.43	-15.52	-1.4	43.9	-46.0	2.95	0.14
FL22	213.83	1.66	2.57	0.53	-5.05	2.20	-14.01	-1.6	41.5	-43.8	3.12	0.12
FL21	204.08	1.65	2.46	0.58	-4.95	2.15	-13.72	-5.4	40.3	-46.4	3.37	0.14
FL20	194.33	1.64	2.35	0.62	-4.84	2.10	-13.43	-9.2	39.1	-48.9	3.63	0.17
FL19	184.58	1.64	2.24	0.66	-4.74	2.06	-13.14	-13.0	37.2	-50.9	3.86	0.19
FL18	174.83	1.59	2.11	0.67	-4.69	2.04	-13.02	-14.0	35.4	-50.0	3.83	0.20
FL17	165.08	1.53	2.05	0.63	-4.67	2.03	-12.96	-13.7	33.8	-48.1	3.70	0.18
FL16	155.33	1.46	1.98	0.60	-4.65	2.02	-12.89	-13.5	32.8	-46.8	3.62	0.17
FL15	145.58	1.43	1.85	0.62	-4.63	2.01	-12.84	-14.0	31.5	-46.1	3.58	0.17
FL14	135.83	1.53	1.76	0.76	-4.61	2.00	-12.77	-17.8	30.1	-48.4	3.78	0.22
FL13	126.08	0.73	1.46	0.10	-2.07	0.90	-5.73	-8.6	29.8	-38.9	6.78	0.11
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		29.2	34.6	14.1	-78.0	33.9	-216.3	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		6.9	7.7	3.5	17.7	7.7	49.2	0.1	0.5	-0.4		

TABLE 4 (continued)

Wind Direction: 70 | Structure Generation A | 25-Year Loads
Load Case: 9 | Riverside Building 1 - East | Damping Ratio: .02

Peak Factors			Angle			Natural frequencies, Hz		
Gx	Gy	Gz	β			x	y	z
2.0288	-0.1612	4.0540	-31.9	Configuration A		0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	-3.10	1.28	-0.50	0.94	-0.63	1.05	-15.3	-22.6	-107.0	-83.20	-39.89
FL27	269.92	-7.18	3.74	0.41	-2.55	1.95	-2.86	3.0	4.5	21.3	-7.27	-1.05
FL26	259.42	-3.14	2.42	1.77	-1.56	1.42	-1.79	33.7	49.7	235.3	-66.33	-65.81
FL25	246.25	-4.16	6.58	9.19	-2.00	3.06	-2.49	57.5	85.0	402.0	-11.06	-40.74
FL24	234.92	-3.39	4.65	6.05	-2.96	3.18	-3.47	38.4	56.7	268.3	-19.14	-33.39
FL23	223.58	-3.01	4.18	5.47	-2.81	3.02	-3.30	26.5	39.2	185.5	-14.99	-24.88
FL22	213.83	-2.60	3.79	5.08	-2.40	2.71	-2.84	32.4	47.8	226.3	-18.98	-33.95
FL21	204.08	-2.64	3.66	4.80	-2.30	2.63	-2.72	38.4	56.7	268.3	-24.02	-42.31
FL20	194.33	-2.68	3.55	4.52	-2.19	2.55	-2.60	44.4	65.6	310.2	-29.71	-51.53
FL19	184.58	-2.71	3.43	4.25	-2.09	2.47	-2.49	50.4	74.4	352.2	-36.15	-61.76
FL18	174.83	-2.55	3.22	3.98	-2.17	2.50	-2.57	49.0	72.3	342.2	-39.19	-60.73
FL17	165.08	-2.31	3.06	3.90	-2.31	2.61	-2.73	44.6	65.9	311.6	-37.52	-53.55
FL16	155.33	-2.07	2.89	3.78	-2.46	2.70	-2.90	40.2	59.4	280.9	-35.85	-46.80
FL15	145.58	-1.85	2.65	3.53	-2.62	2.75	-3.06	35.9	53.0	250.7	-35.19	-40.51
FL14	135.83	-1.70	2.45	3.26	-2.82	2.82	-3.27	31.3	46.3	218.9	-33.59	-33.48
FL13	126.08	-0.73	1.90	3.13	-1.28	1.73	-1.56	13.6	20.1	95.1	-12.13	-24.36
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-45.8	53.4	62.6	-33.6	37.4	-39.6	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-11.0	12.2	13.7	7.2	8.0	8.5	0.5	0.8	3.7		

TABLE 4 (continued)

Wind Direction:	230				Structure Generation A				25-Year Loads			
Load Case:	10				Riverside Building 1 - East				Damping Ratio: .02			
Peak Factors				Angle					Natural frequencies, Hz			
Gx	Gy	Gz		β					x	y	z	
0.0974	-0.8327	-4.0540		46.5	Configuration A				0.8929	0.6667	0.5714	
Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	0.04	0.02	0.04	0.02	0.01	0.01	0.7	-0.5	2.7	17.95	-63.70
FL27	269.92	1.43	1.36	1.56	1.48	0.91	0.72	-51.9	36.5	-199.9	-48.89	105.74
FL26	259.42	0.99	1.48	1.13	1.46	0.93	0.69	-48.7	34.3	-187.7	-73.52	120.82
FL25	246.25	1.12	4.97	1.61	2.10	1.57	0.80	-86.0	60.5	-331.5	-81.97	165.59
FL24	234.92	0.96	3.41	1.29	3.44	2.25	1.57	-82.9	58.4	-319.5	-121.52	99.49
FL23	223.58	0.92	3.11	1.22	3.66	2.36	1.70	-77.7	54.7	-299.4	-115.99	83.67
FL22	213.83	1.02	2.95	1.31	3.54	2.28	1.64	-71.7	50.5	-276.4	-103.14	82.14
FL21	204.08	1.05	2.84	1.32	3.71	2.38	1.73	-75.9	53.4	-292.4	-106.73	81.41
FL20	194.33	1.07	2.72	1.34	3.89	2.48	1.83	-80.0	56.3	-308.4	-109.99	80.50
FL19	184.58	1.10	2.62	1.35	4.07	2.58	1.92	-84.2	59.3	-324.4	-113.00	79.66
FL18	174.83	1.13	2.50	1.37	3.99	2.53	1.88	-80.3	56.5	-309.6	-107.27	78.32
FL17	165.08	1.17	2.47	1.41	3.81	2.43	1.79	-73.3	51.6	-282.5	-97.51	76.76
FL16	155.33	1.21	2.41	1.44	3.64	2.33	1.70	-66.3	46.7	-255.4	-87.50	74.14
FL15	145.58	1.25	2.30	1.47	3.46	2.21	1.62	-59.4	41.8	-228.8	-77.54	70.42
FL14	135.83	1.24	2.16	1.45	3.29	2.10	1.54	-54.5	38.4	-210.1	-72.15	68.11
FL13	126.08	0.50	1.70	0.67	1.48	1.04	0.62	-27.0	19.0	-104.1	-77.69	84.17
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		16.2	39.0	20.0	47.0	30.4	21.7	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		3.5	8.6	4.4	-10.0	6.5	-4.6	-1.0	0.7	-3.9		

TABLE 4 (continued)

Wind Direction: 20 | Structure Generation A | 25-Year Loads
Load Case: 11 | Riverside Building 1 - East | Damping Ratio: .02

Peak Factors			Angle			Natural frequencies, Hz		
Gx	Gy	Gz	β			x	y	z
-0.7151	-4.0918	-1.8421	-88.4	Configuration A		0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	1.66	0.38	1.39	-1.94	0.84	-5.38	71.2	0.0	71.2	-12.40	-3.20
FL27	269.92	3.29	1.38	2.30	-6.44	2.80	-17.89	142.6	1.6	139.6	-7.68	-0.99
FL26	259.42	2.35	1.45	1.31	-5.98	2.60	-16.62	26.0	2.7	21.0	-1.25	-0.10
FL25	246.25	2.71	4.55	-0.54	-6.94	3.02	-19.27	-20.5	68.8	-147.2	7.63	-0.21
FL24	234.92	2.36	3.17	0.10	-6.20	2.69	-17.22	-6.6	47.1	-93.3	5.42	0.03
FL23	223.58	1.98	2.83	-0.04	-5.60	2.43	-15.55	-1.4	43.9	-82.2	5.29	-0.01
FL22	213.83	1.66	2.57	-0.18	-5.05	2.20	-14.03	-1.6	41.5	-78.1	5.56	-0.07
FL21	204.08	1.65	2.46	-0.11	-4.95	2.15	-13.74	-5.4	40.3	-79.7	5.80	-0.05
FL20	194.33	1.64	2.35	-0.04	-4.84	2.10	-13.45	-9.2	39.1	-81.2	6.04	-0.02
FL19	184.58	1.64	2.24	0.04	-4.74	2.06	-13.16	-13.0	37.2	-81.6	6.20	0.02
FL18	174.83	1.59	2.11	0.08	-4.69	2.04	-13.04	-14.0	35.4	-79.2	6.08	0.04
FL17	165.08	1.53	2.05	0.06	-4.67	2.03	-12.98	-13.7	33.8	-76.1	5.86	0.03
FL16	155.33	1.46	1.98	0.05	-4.65	2.02	-12.91	-13.5	32.8	-73.8	5.72	0.02
FL15	145.58	1.43	1.85	0.10	-4.63	2.01	-12.86	-14.0	31.5	-72.1	5.61	0.04
FL14	135.83	1.53	1.76	0.27	-4.61	2.00	-12.79	-17.8	30.1	-73.3	5.73	0.12
FL13	126.08	0.73	1.46	-0.31	-2.07	0.90	-5.74	-8.6	29.8	-63.5	11.03	-0.60
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		29.2	34.6	4.5	-78.0	33.9	-216.6	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		6.9	7.7	1.3	17.7	7.7	49.3	0.1	0.5	-0.8		

TABLE 4 (continued)

Wind Direction: 270 | Structure Generation A | 25-Year Loads
Load Case: 12 | Riverside Building 1 - East | Damping Ratio: .02

Peak Factors			Angle			Natural frequencies, Hz		
Gx	Gy	Gz	β			x	y	z
4.1625	1.5876	0.8980	13.1	Configuration A		0.8929	0.6667	0.5714

Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	1.66	0.00	1.66	-0.93	0.00	-0.93	29.4	0.0	29.4	-7.59	-13.49
FL27	269.92	2.46	0.97	6.50	-2.10	0.50	-1.30	60.0	1.3	61.1	-1.81	-9.05
FL26	259.42	1.37	1.40	7.21	-1.19	0.76	0.01	40.2	2.2	42.2	0.01	-5.85
FL25	246.25	0.82	6.07	26.07	-1.19	3.45	4.29	18.2	55.5	68.1	0.42	-2.54
FL24	234.92	0.30	4.06	17.19	-0.73	2.41	3.10	7.5	38.0	41.6	0.42	-2.35
FL23	223.58	-0.14	3.66	15.10	-0.33	2.29	3.30	2.7	35.4	34.5	0.48	-2.18
FL22	213.83	-0.39	3.38	13.68	-0.06	2.20	3.43	0.7	33.5	30.8	0.53	-2.12
FL21	204.08	-0.70	3.21	12.67	0.15	2.18	3.61	-1.4	32.6	27.9	0.58	-2.03
FL20	194.33	-1.01	3.04	11.66	0.36	2.17	3.80	-3.5	31.5	24.8	0.63	-1.92
FL19	184.58	-1.32	2.88	10.68	0.57	2.15	3.98	-5.6	30.1	21.4	0.65	-1.76
FL18	174.83	-1.45	2.70	9.79	0.62	2.10	3.95	-5.6	28.6	20.0	0.71	-1.76
FL17	165.08	-1.50	2.63	9.44	0.60	2.12	3.97	-4.8	27.3	19.7	0.75	-1.78
FL16	155.33	-1.56	2.53	8.98	0.58	2.10	3.92	-4.0	26.4	19.8	0.81	-1.85
FL15	145.58	-1.62	2.35	8.17	0.56	1.99	3.73	-3.1	25.5	19.8	0.91	-2.00
FL14	135.83	-1.68	2.17	7.36	0.53	1.88	3.50	-1.2	24.3	20.7	1.09	-2.29
FL13	126.08	-0.75	2.00	7.56	0.23	1.75	3.01	-0.1	24.1	21.5	0.98	-2.46
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		-5.5	43.1	173.7	-2.3	30.0	45.4	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		-0.3	9.5	39.3	1.1	6.5	-9.2	0.1	0.4	0.5		

TABLE 4 (continued)

Wind Direction:	30				Structure Generation A				25-Year Loads			
Load Case:	13				Riverside Building 1 - East				Damping Ratio: .02			
Peak Factors				Angle					Natural frequencies, Hz			
Gx	Gy	Gz		β					x	y	z	
-1.7899	-0.2242	-4.0540		-107.0	Configuration A				0.8929	0.6667	0.5714	
Floor	Elev.	Fx (kips)			Fy (kips)			Tz (kip-ft)			Eccen. (ft)	
Label	(ft)	Mean	RMS	Peak	Mean	RMS	Peak	Mean	RMS	Peak	Ex	Ey
TOP	299.63	1.20	0.54	0.23	-2.00	0.74	-2.16	71.6	0.0	71.6	-32.73	-3.55
FL27	269.92	2.50	1.49	-0.18	-6.46	2.37	-6.99	129.9	1.2	124.9	-17.86	0.45
FL26	259.42	1.82	1.36	-0.61	-5.54	2.04	-5.99	10.6	2.1	2.2	-0.37	0.04
FL25	246.25	2.04	3.25	-3.77	-6.20	2.28	-6.71	-27.9	52.6	-241.0	27.31	-15.34
FL24	234.92	1.78	2.35	-2.44	-5.60	2.06	-6.06	-18.0	36.0	-163.8	23.27	-9.37
FL23	223.58	1.56	2.11	-2.21	-5.06	1.86	-5.48	-10.5	33.5	-146.4	22.98	-9.26
FL22	213.83	1.41	1.93	-2.05	-4.58	1.68	-4.95	-6.6	31.7	-135.2	23.32	-9.63
FL21	204.08	1.50	1.90	-1.91	-4.48	1.65	-4.85	-7.2	30.8	-132.1	23.56	-9.29
FL20	194.33	1.58	1.88	-1.78	-4.39	1.62	-4.75	-7.8	29.8	-128.8	23.75	-8.90
FL19	184.58	1.66	1.85	-1.65	-4.30	1.58	-4.65	-8.4	28.5	-123.7	23.59	-8.39
FL18	174.83	1.67	1.79	-1.53	-4.23	1.56	-4.58	-7.3	27.1	-117.0	22.98	-7.66
FL17	165.08	1.65	1.75	-1.48	-4.18	1.54	-4.52	-5.5	25.9	-110.3	22.02	-7.22
FL16	155.33	1.63	1.70	-1.42	-4.12	1.52	-4.46	-3.7	25.0	-105.1	21.40	-6.82
FL15	145.58	1.63	1.64	-1.30	-4.06	1.50	-4.40	-2.5	24.1	-100.1	20.93	-6.17
FL14	135.83	1.73	1.61	-1.15	-4.01	1.47	-4.34	-3.8	23.0	-97.1	20.91	-5.56
FL13	126.08	0.81	1.13	-1.21	-1.78	0.66	-1.93	-2.2	22.8	-94.5	35.13	-22.11
FL12	116.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL11	105.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL10	95.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL9	86.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL8	76.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL7	66.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL6	57.33	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL5	46.25	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL4	36.67	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL3	27.08	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL2	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
FL1	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
C1	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BPLT	-15.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
BASE	-21.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00
Base shear			Vx			Vy						
(kips)		26.2	28.3	-24.5	-71.0	26.1	-76.8	M, V, computed at elev. -21.6 ft				
Base moment			My			Mx			Mz			
(1000-kip-ft)		6.0	6.3	-5.4	16.3	6.0	17.6	0.1	0.4	-1.5		

APPENDIX A

GENERAL PROJECT INFORMATION

A1. SELECTION OF WIND SPEEDS AND PROFILES

A1.1 Design Wind Speeds

Design wind speeds were determined from an analysis of wind data obtained from one or more anemometers near the site. The wind data was separated into 16 wind sectors that were each analyzed separately so that directional effects could be determined. For each direction, the data was adjusted (as necessary) to represent an open country exposure (ASCE 7 Exposure Category C) using an ESDU (2006) mathematical model to account for varying surface roughness upwind of the anemometer. Using the same mathematical model the wind data was then adjusted to account for the surface roughness around the site, converted to a mean wind speed and adjusted to a suitable reference height, z_{ref}.

Hurricane wind speed analysis consistent with the requirements of ASCE 7-05, the national wind load standard, incorporated the more rapid rise of hurricane speed with return period, in comparison to non-hurricane winds, directly into the wind map creating a "design speed." Forming a load from this speed followed by application of the normal load factor then produces a load for strength design that has a more uniform probability of risk than occurred in earlier standards in which a 50-year speed was used in combination with a hurricane coast importance factor. This new procedure is incorporated herein.

Hurricane wind speeds including directional effects, were obtained using a Monte Carlo procedure (Vickery et al., 2009b), simulated directly at surface and gradient level (top of the atmospheric boundary layer). The surface prediction was adjusted by a factor close to 1.0 to cause the largest directional speed to match the ASCE 7-05 map contours, which are smoothed over several coastal stations.

For non-hurricane wind speeds, analysis of measured peak gust wind speeds on a regional basis using a "superstation" concept was used, consistent with requirements of non-hurricane winds in ASCE 7-05, Peterka (1992) and Peterka and Shahid (1998). The concept is to combine individual regional stations which are statistically independent into a single "superstation" with more station years of data than can be obtained from a single station. From this analysis, non-hurricane events were included for the appropriate wind directions in New York for design-level events.

The design loads are based on a maximum wind speed of 98 mph (all direction, 50-year peak gust at 33 ft in open country), consistent with ASCE 7-05 and the NYC Building Code.

A1.2 Directional Effects

Directional effects for a selected design return period can be obtained by using directional speeds, equivalent to twice the nominal return period selected for design, in combination with non-dimensional pressures measured on the wind-tunnel model (Holmes, 1986). This approach has been verified by CPP in-house research. In addition, changes in roughness upwind of the site were included in the calculation of the mean speed at the reference location z_{ref}.

Based on this analysis, the design speeds in Table A1-1 are applicable for 50-year loads.

Table A1-1
Design Wind Speeds for 50-year loads

Wind direction	Nominal 100-yr* 3-s gust wind speed at height of 33 ft in Exposure C (mph)	Nominal 100-yr* hourly mean wind speed at height of z_{ref} = 450 ft at site (mph)	Best estimate 3-s gust wind speed at height of 33 ft in Exposure C (mph)	Best estimate hourly mean wind speed at height of z_{ref} = 450 ft at site (mph)
N	90	72.9	79	64.1
NNE	90	76.7	73	62.7
NE	94	70.0	89	66.4
ENE	96	78.4	90	74.2
E	98	72.8	98	72.8
ESE	96	72.3	84	64.0
SE	95	72.6	93	71.4
SSE	93	71.1	89	68.0
S	93	70.8	91	69.1
SSW	90	69.7	75	58.3
SW	88	70.9	73	59.1
WSW	93	74.4	82	65.4
W	97	73.8	95	72.5
WNW	96	72.7	88	66.7
NW	94	72.5	92	71.2
NNW	93	72.6	92	72.0

*Equivalent to twice the desired return period, as described Section A1.2

Based on the analysis, the design speeds in Table A1-2 are applicable for 25-year loads.

Table A1-2
Design Wind Speeds for 25-year loads

Wind direction	Nominal 50-yr* 3-s gust wind speed at height of 33 ft in Exposure C (mph)	Nominal 50-yr* hourly mean wind speed at height of z_{ref} = 450 ft at site (mph)	Smoothed Load Ratio
N	75	63.3	0.89
NNE	66	66.9	0.99
NE	81	60.7	0.82
ENE	72	67.2	1.00
E	83	62.5	0.87
ESE	76	61.8	0.85
SE	81	62.4	0.86
SSE	77	62.2	0.86
S	81	61.6	0.84
SSW	61	61.0	0.83
SW	72	63.5	0.89
WSW	77	66.2	0.97
W	85	64.7	0.93
WNW	78	64.6	0.93
NW	83	63.8	0.90
NNW	81	62.9	0.88

*Equivalent to twice the desired return period, as described Section A1.2

A1.3 Mean Reference Pressure

The largest 50-year mean speed at 450 ft = U_{ref} = 78.4 mph.

$q_{50\text{-}yr}$ = 0.00256 U_{ref}^2 = 0.00256 $(78.4)^2$ = **15.7 psf**.

The loads determined from the design wind speed and reported herein are nominal 50-year loads, suitable for traditional allowable stress design. For LRFD or ultimate limit state design, the applicable load factors (such as 1.6 in ASCE 7-05) specified by the appropriate code or standard can be applied.

The largest 25-year mean speed at 450 ft = U_{ref} = 67.2 mph.

$q_{25\text{-}yr}$ = 0.00256 U_{ref}^2 = 0.00256 $(67.2)^2$ = **11.6 psf**.

A1.4 Selection of Wind Tunnel Test Profiles

Wind tunnel profiles were selected to best match outputs from the ESDU site-specific roughness analysis to the standard Exposure Category profiles provided in ASCE7. In this case, these were either Exposure Category B or Exposure Category C profiles as shown in Figures A1 to A16 below, and summarized in Table A1-3. The ESDU approach to surface roughness forms the basis of the profiles in ASCE7 and the simplified technique for accounting for changes in surface roughness therein. Where the mean ESDU profiles were found to be closer to an Exposure A category, the Exposure B category was still employed in the wind tunnel testing.

Table A1-3
Exposure Category Profiles Used in Wind Tunnel

Wind Direction Range	Exposure Category
0°-15°	C
16°-215°	B
216°-259°	C

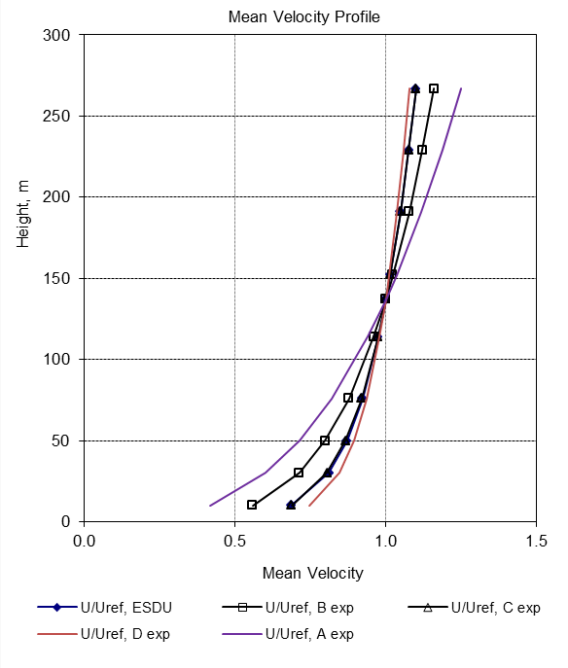


Figure A1: ESDU site profile for North.

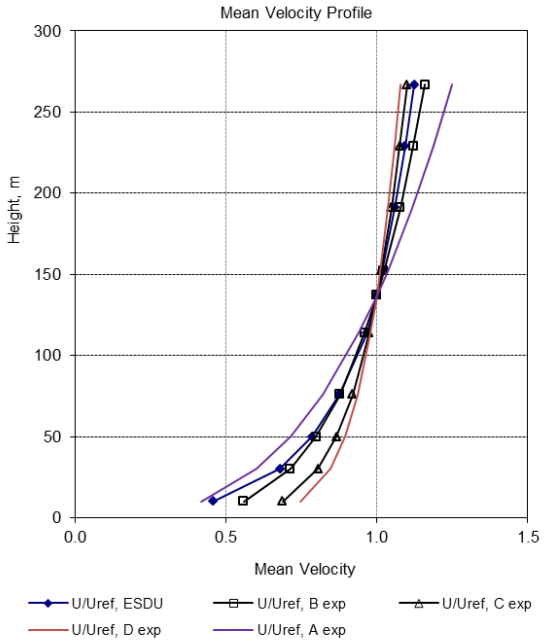


Figure A2: ESDU site profile for North-Northeast.

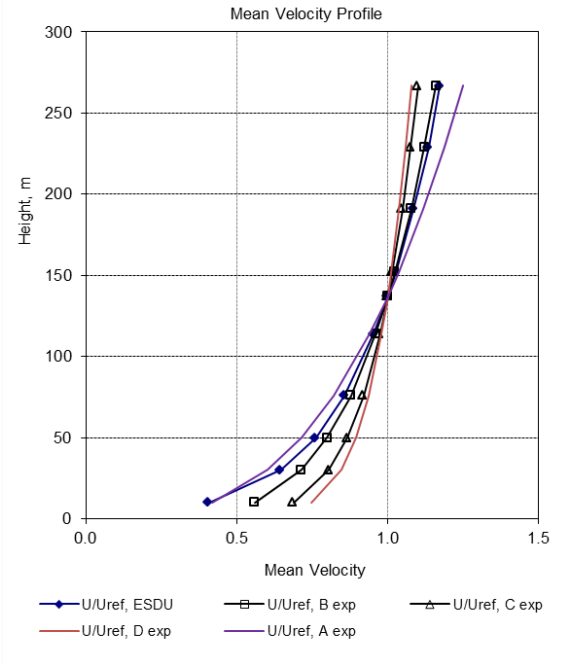


Figure A3: ESDU site profile for Northeast.

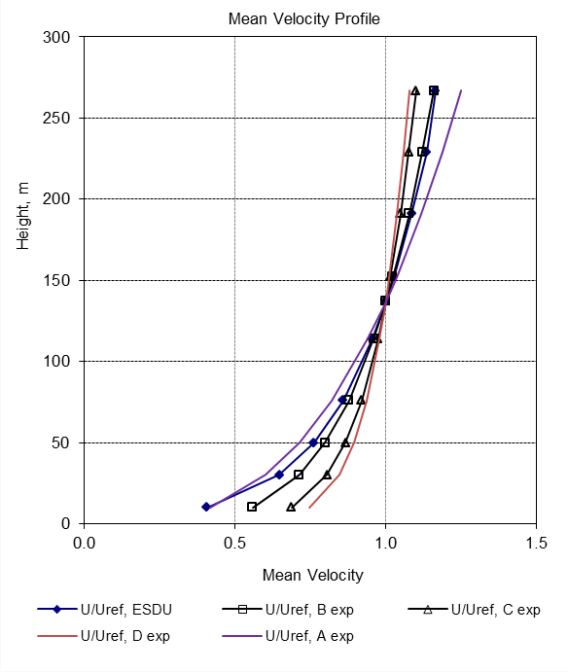


Figure A4: ESDU site profile for East-Northeast.

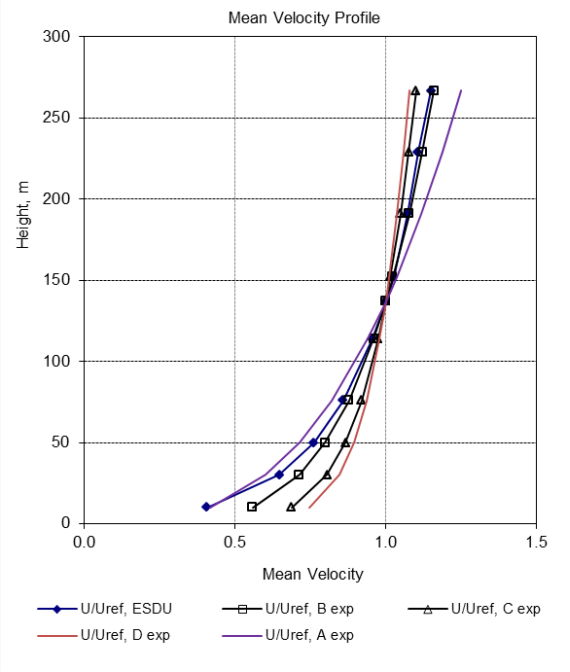


Figure A5: ESDU site profile for East.

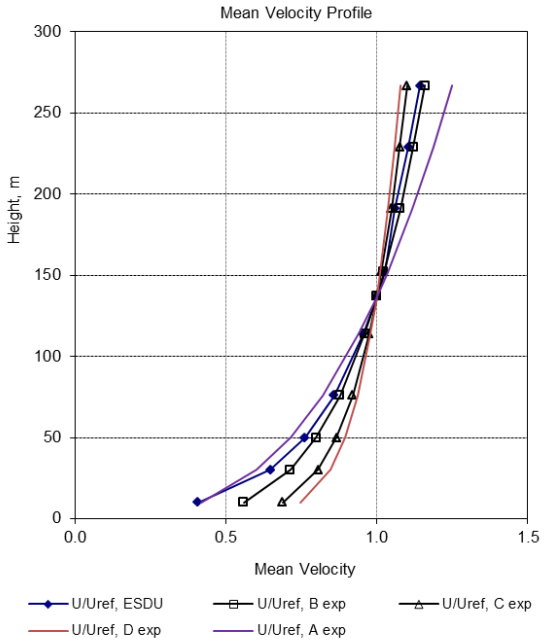


Figure A6: ESDU site profile for East-Southeast.

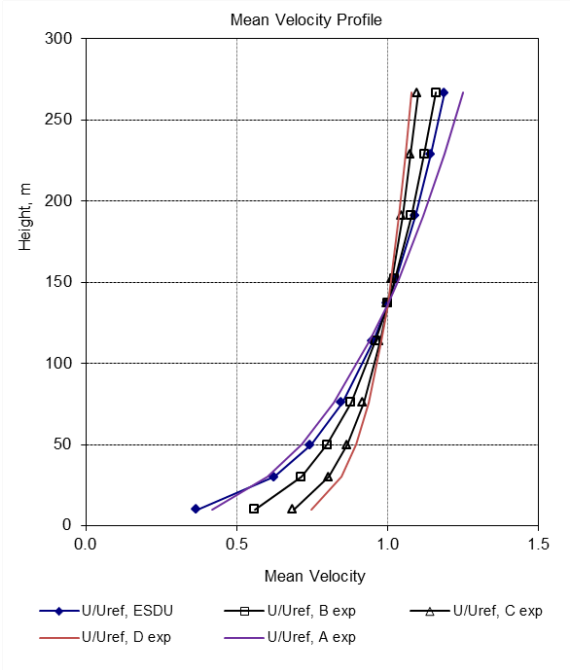


Figure A7: ESDU site profile for Southeast.

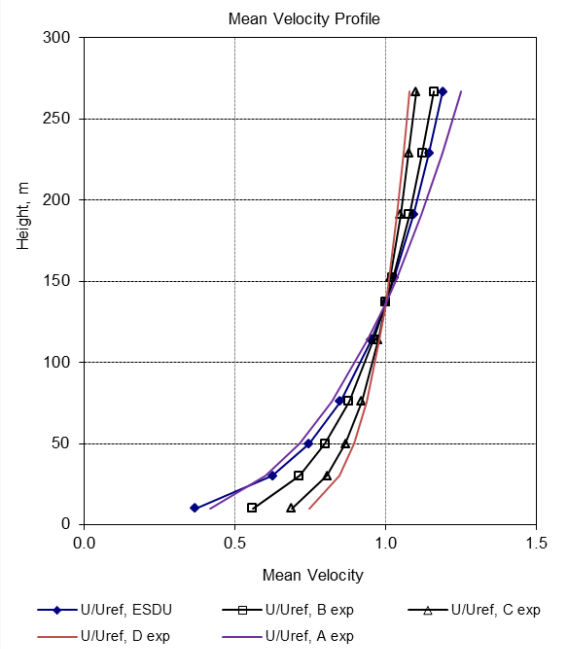


Figure A8: ESDU site profile for South-southeast.

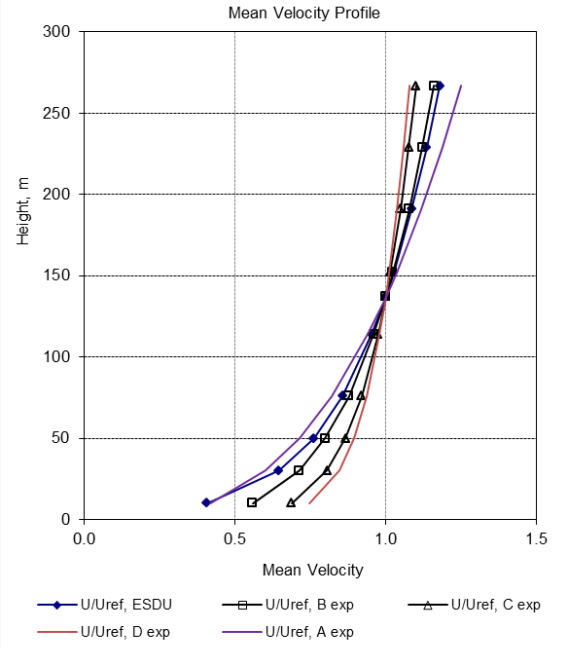


Figure A9: ESDU site profile for South.

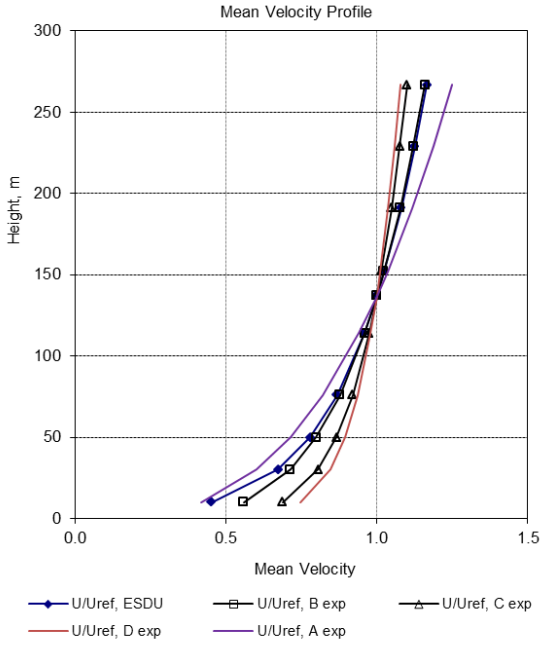


Figure A10: ESDU site profile for South-southwest.

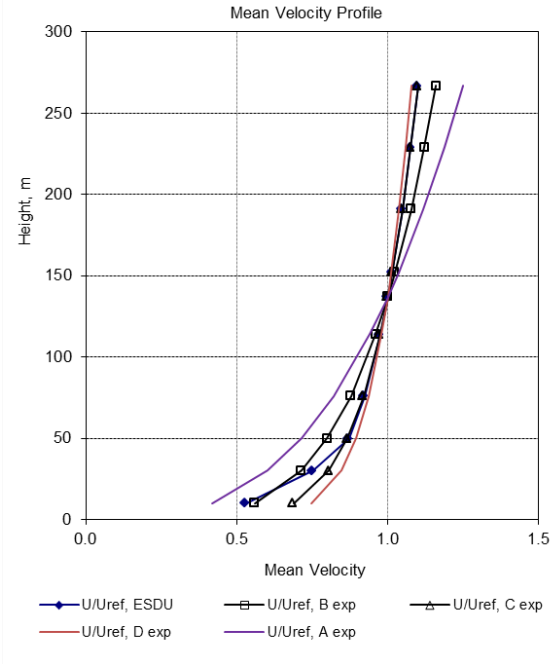


Figure A11: ESDU site profile for Southwest.

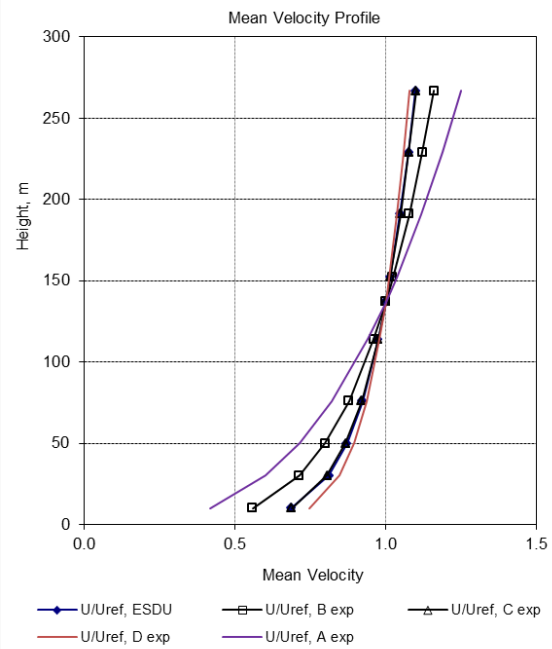


Figure A12: ESDU site profile for West-Southwest.

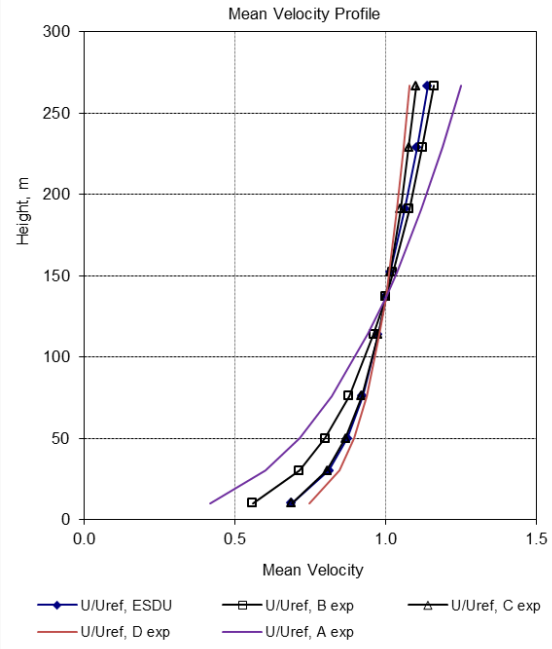


Figure A13: ESDU site profile for West.

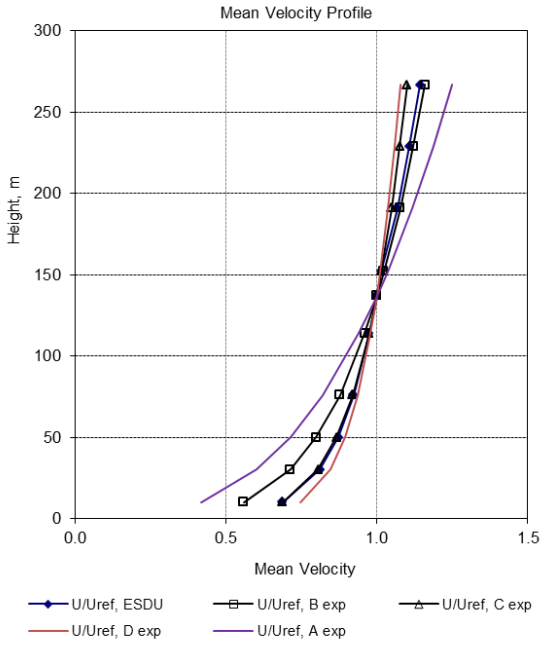


Figure A14: ESDU site profile for West-Northwest.

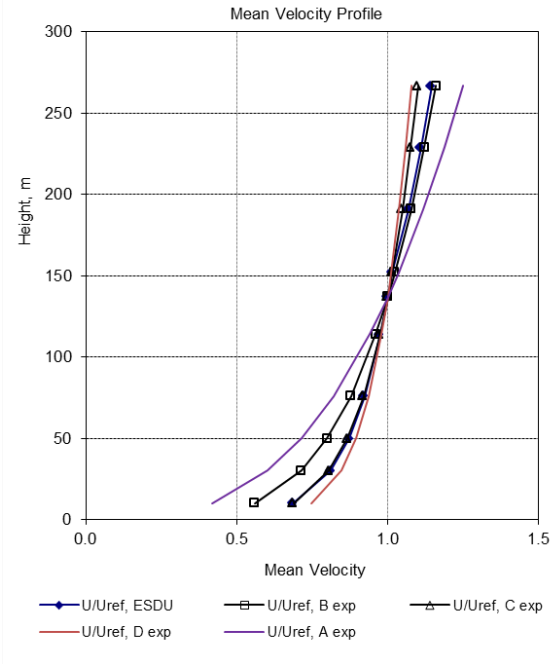


Figure A15: ESDU site profile for Northwest.

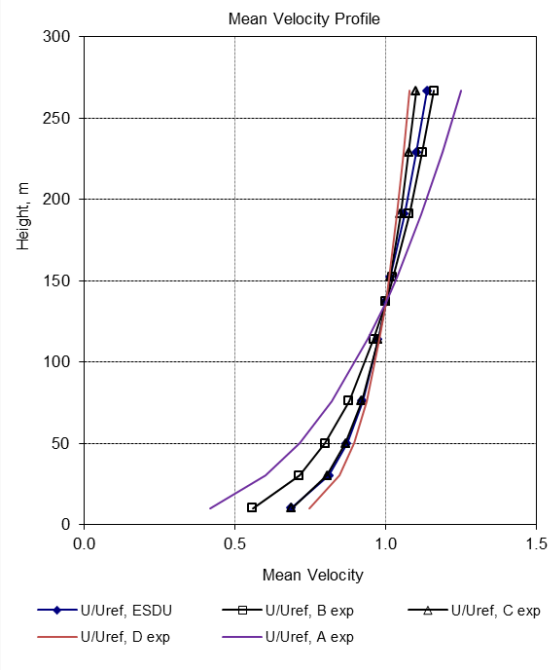


Figure A16: ESDU site profile for North-Northwest.

A2. WIND SPEEDS FOR ACCELERATIONS AND PEDESTRIAN WIND COMFORT

For prediction of accelerations all 2-minute mean data from LaGuardia Airport were used to form a joint probability density of speed and direction, called a wind rose. The wind rose is shown in Figure A17 for the data at 10 m above the ground corrected to open country.

The wind rose data were fit to a Weibull distribution at the 10 m height of the form,

$$P_i(>U) = a_i \exp\left[-(u/C)^k\right]$$

and at the pitot reference elevation (z_{ref} = 450 ft)

$$P_i(>U) = a_i \exp\left[-(u/C_{ref})^k\right]$$

where i = 1, 16 directions, a_i is the probability of wind coming from direction i, and k and C are variables in the Weibull distribution. C_{ref} results from the multiplication of C by the site ratio that converts the wind speeds to the reference height and also accounts for terrain category upwind of the site by means of an ESDU (2006) analysis.

The Weibull coefficients were used to predict reference wind speeds at the site for varying recurrence intervals for use in the prediction of accelerations and pedestrian wind comfort.

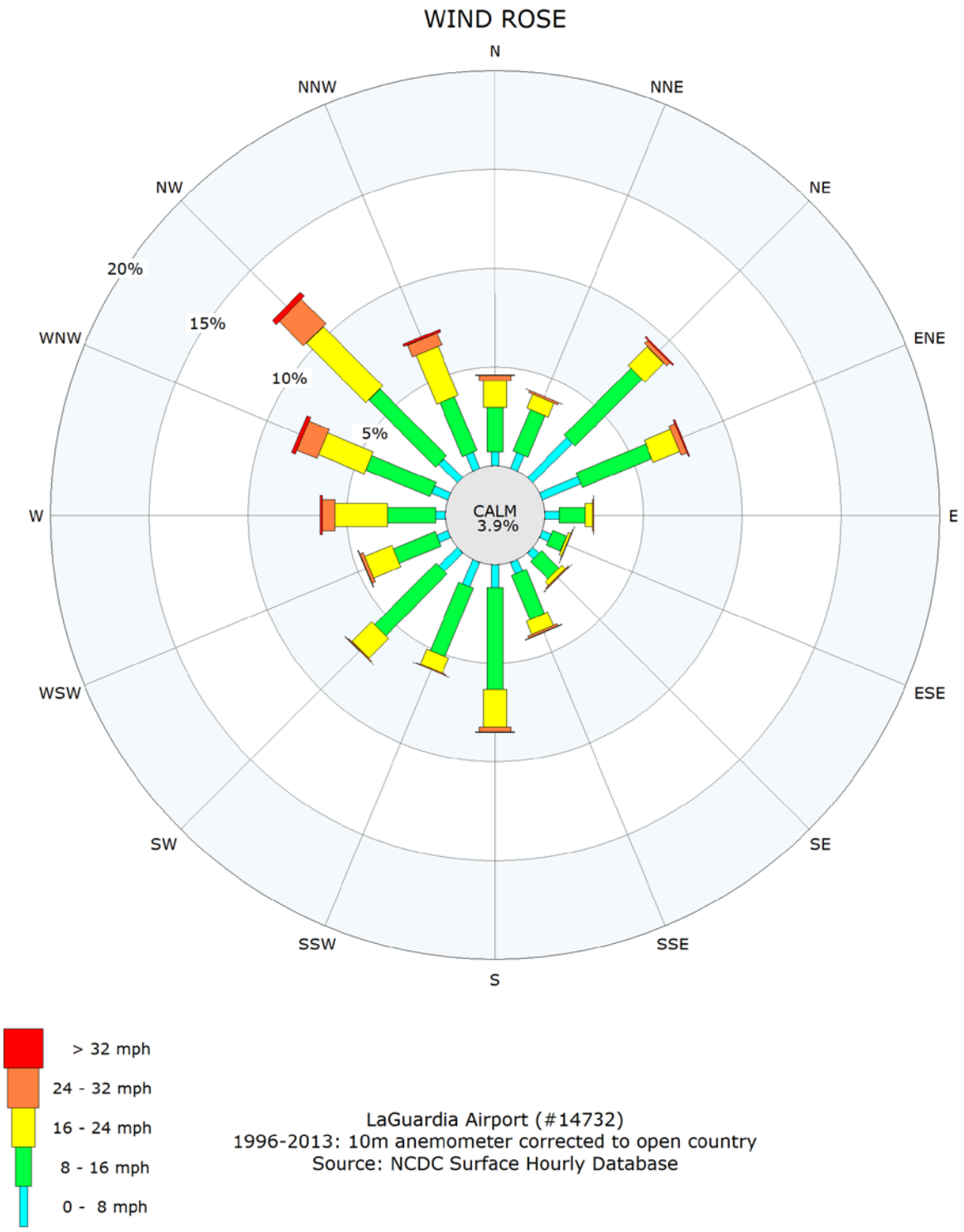


Figure A17: Probability of occurrence of wind speed by direction.

Table A3
Weibull Coefficients

Direction	a	k	C33ft (mph)	site ratio	Cref (mph)
N	0.0461	2.38	12.88	1.546	19.92
NNE	0.0400	2.42	11.58	1.626	18.83
NE	0.0928	2.08	12.65	1.317	16.66
ENE	0.0775	2.01	13.54	1.415	19.16
E	0.0249	1.90	10.96	1.402	15.37
ESE	0.0145	2.29	11.22	1.329	14.91
SE	0.0201	2.08	12.01	1.477	17.74
SSE	0.0393	2.24	12.87	1.412	18.17
S	0.0851	2.56	13.18	1.380	18.19
SSW	0.0596	2.62	10.76	1.499	16.13
SW	0.0721	2.87	11.08	1.550	17.17
WSW	0.0460	2.51	12.70	1.529	19.42
W	0.0635	2.67	15.25	1.456	22.21
WNW	0.0823	2.43	15.19	1.456	22.12
NW	0.1245	2.43	15.53	1.417	22.01
NNW	0.0727	2.44	14.12	1.490	21.04

A3. WIND TUNNEL TEST FACILITIES

The wind tunnel testing was performed at the CPP wind engineering laboratory in Fort Collins, Colorado. Specifications for the wind tunnel used for this project are given in Figure A18.

The mean velocity profile approaching the modeled area for each direction has the form:

$$\frac{U}{U_{ref}} = \left(\frac{z}{z_{ref}} \right)^n$$

in which U is the mean velocity at height z, U_{ref} is a reference wind speed at reference height z_{ref}, and n is a constant which depends on the characteristics of the upstream roughness for each direction.

The profile of longitudinal turbulence intensity in the flow approaching the study area is also modeled. The turbulence intensities are appropriate for the approach mean velocity profiles selected.

CPP Wind Tunnel 1

Dimensions

Test section length	68.0 ft (20.6 m)
Test section width	10.0 ft (3.0 m)
Ceiling height	Adjustable from 7.5 to 9.0 ft (2.3 to 2.7 m)

Drive Specifications

Total power	75 hp (56 kW)
Type of drive	AC motor/6-blade axial fan
Speed control	Variable frequency drive

Flow Characteristics

Mean velocity	0 to 60 fps (0 to 18 m/s)
Boundary-layer thickness*	Up to 5.0 ft (1.5 m)
Turbulence	About 2 percent at entrance to test section
Longitudinal pressure gradient	Zeroed by ceiling adjustment

*Function of boundary roughness and thickening devices at test-section entrance

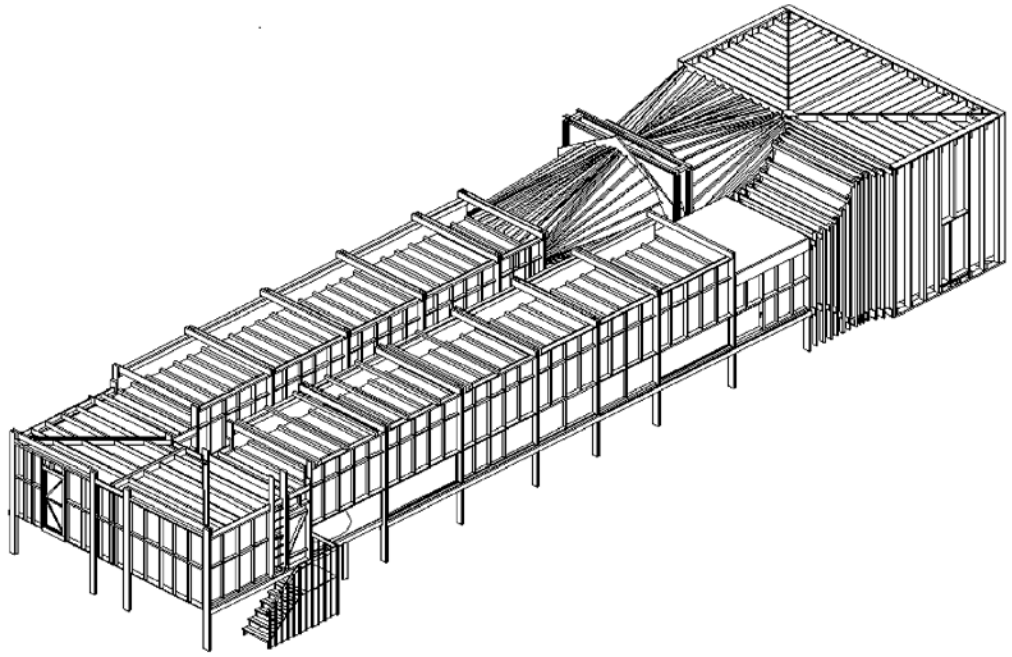


Figure A18: CPP Wind Tunnel 1.

A4. PROJECT INFORMATION SOURCES

Proximity Model

1. Google Earth
2. Internet research

Test Building Model

1. Rhino model from KPF Architects; received 08 January 2015.
2. Revised Rhino model from KPF Architects; received 06 February 2015.
3. Revised Rhino model from KPF Architects; received 12 February 2015.

Structural Properties

1. Structural properties from WSP| PARSONS BRINCKERHOFF; received 08 March 2015.

A5. CONVERSION FACTORS

LENGTH

Multiply this unit:	...by table entry to obtain: in.	ft	m
in.	1	0.08333	0.0254
ft	12	1	0.3048
m	39.3701	3.2808	1

ACCELERATION

Multiply this unit:	...by table entry to obtain: g	ft/sec²	m/s²	gal
g	1	32.174	9.8067	980.67
ft/sec²	0.031081	1	0.3048	30.48
m/s²	0.101972	3.28084	1	100
gal	0.001020	0.03281	0.01	1

"gal" is the Galileo, or cm/s² (approx. 1 milli-g)

VELOCITY

Multiply this unit:	...by table entry to obtain: fps	mph	kts	m/s	km/hr
fps	1	0.6818	0.592066	0.3048	1.0973
mph	1.4667	1	0.86839	0.44704	1.6093
kts	1.689	1.1516	1	0.51479	1.8532
m/s	3.2808	2.2369	1.9425	1	3.6
km/hr	0.91134	0.62137	0.53959	0.27778	1

FORCE, WEIGHT

Multiply this unit:	...by table entry to obtain: lb	k	N	kN	kg	t
lb	1	0.001	4.4482	0.004448	0.45359	0.000453
k	1000	1	4448.2	4.4482	453.59	0.45359
N	0.22481	0.000225	1	0.001	0.10197	0.000102
kN	224.81	0.22481	1000	1	101.97	0.10197
kg	2.2046	0.002205	9.8067	0.009807	1	0.001
t	2204.6	2.2046	9806.7	9.8067	1000	1

"t" is the metric tonne, = 1000 kg

PRESSURE

Multiply this unit:	...by table entry to obtain: psf	Pa	kPa	kg/m²	t/m²
psf	1	47.880	0.047880	4.8824	0.00488
Pa	0.020885	1	0.001	0.10197	0.00010
kPa	20.885	1000	1	101.97	0.10197
kg/m²	0.20482	9.8067	0.009807	1	0.001
t/m²	204.82	9806.7	9.8067	1000	1

MOMENT

Multiply this unit:	...by table entry to obtain: k-ft	1000 k-ft	N-m	MN-m	t-m	kt-m
k-ft	1	0.001	1355.8	0.001356	0.13826	0.000138
1000 k-ft	1000	1	1355819	1.3558	138.26	0.13826
N-m	0.000738	7.38E-07	1	1E-06	0.000102	1.0197E-
MN-m	737.56	0.73756	1000000	1	101.97	0.10197
t-m	7.2330	0.007233	9806.7	0.009807	1	0.001
kt-m	7233.0	7.2330	9806650	9.8067	1000	1

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APPENDIX B

STRUCTURAL STUDY SUPPLEMENTAL INFORMATION

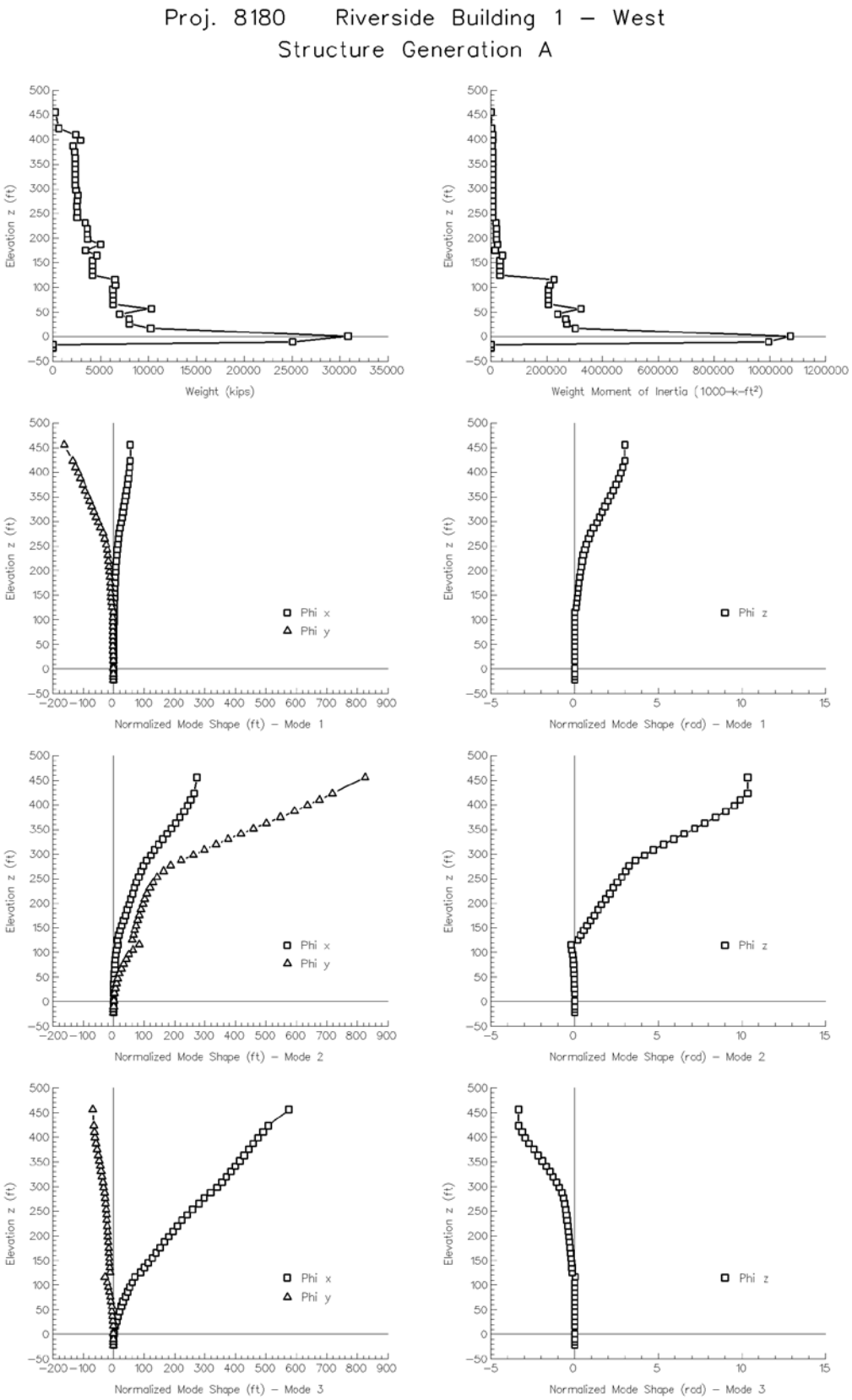

Figure B1. Dynamic structural properties of Building 1-West.

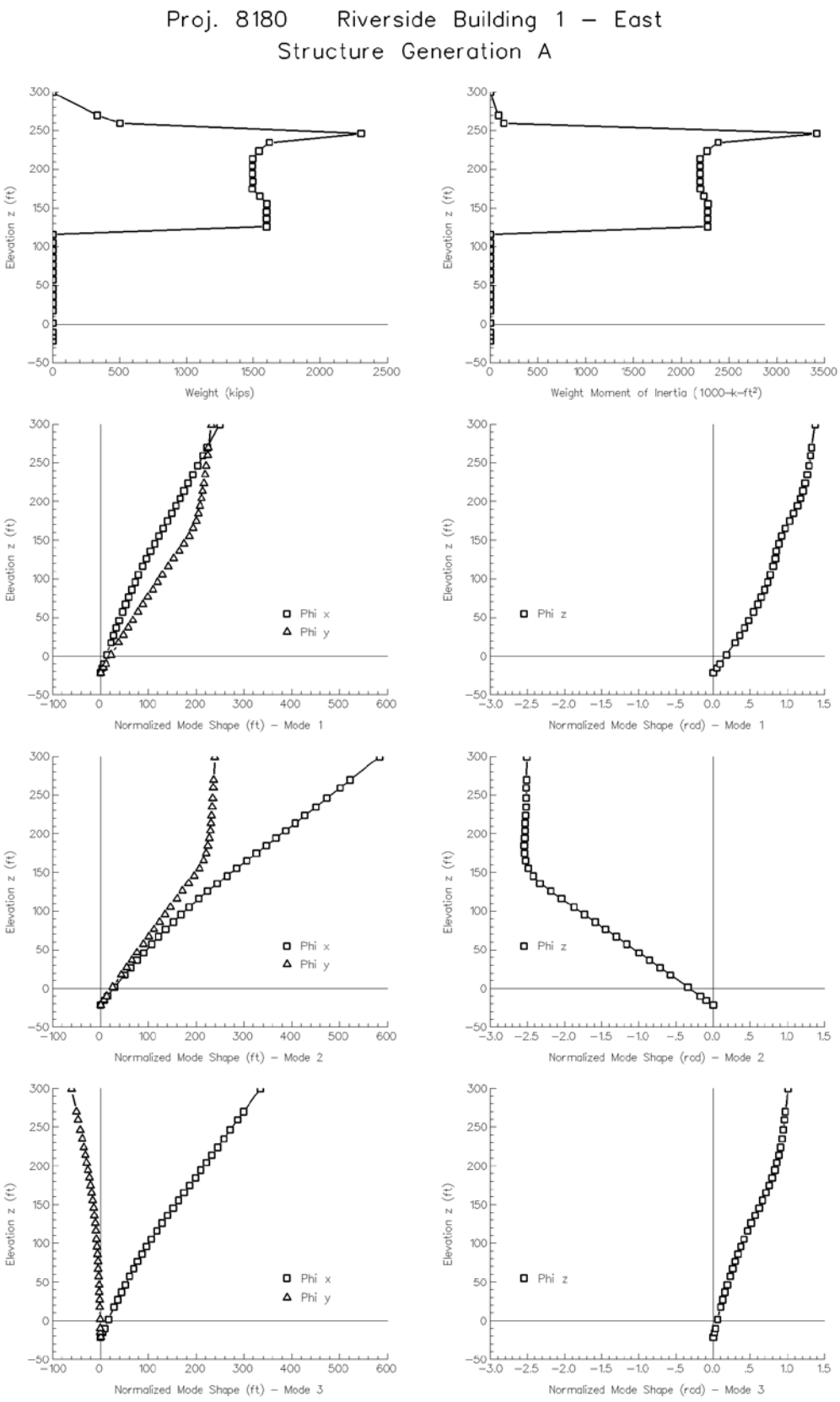

Figure B2. Dynamic structural properties of Building 1-East.

TABLE B1

GENERALIZED DYNAMIC PROPERTIES OF BUILDING 1-WEST

Generalized Dynamic Properties in Model Coordinate System
Structure Generation A

Lumped Mass Data					Mode K = 1 (Dominated by θz)			Mode K = 2 (Dominated by δy, θx)			Mode K = 3 (Dominated by δx, θy)		
Level		Elev. z	Weight w	WMI j	Φx	Φy	Φz	Φx	Φy	Φz	Φx	Φy	Φz
No.	Name	(ft)	(k)	(k - ft2*103)	(ft)	(ft)	(rad)	(ft)	(ft)	(rad)	(ft)	(ft)	(rad)
44	TOP	455.90	260	825	54.41	-162.29	3.005	272.64	824.69	10.355	574.85	-67.95	-3.346
43	EOR	422.83	624	1678	54.61	-133.73	3.005	264.09	718.50	10.355	507.45	-64.97	-3.346
42	MECH	410.33	2400	7027	52.49	-125.15	2.882	252.88	675.33	9.894	490.40	-62.69	-3.136
41	MRF	398.83	2882	7067	50.49	-117.28	2.768	243.68	636.72	9.548	474.57	-60.53	-2.955
40	FL37	386.83	2136	5128	48.04	-109.26	2.626	231.79	593.73	9.050	458.46	-57.69	-2.723
39	FL36	374.83	2298	5699	45.34	-101.32	2.472	217.73	548.17	8.428	443.61	-54.33	-2.431
38	FL35	362.83	2354	6104	42.41	-93.39	2.308	203.03	501.35	7.786	428.24	-50.77	-2.165
37	FL34	352.00	2348	6048	39.62	-86.22	2.150	189.38	459.00	7.177	414.11	-47.56	-1.934
36	FL33	341.17	2348	6048	36.74	-79.05	1.988	175.47	416.97	6.560	399.81	-44.38	-1.706
35	FL32	330.33	2348	6048	33.80	-71.95	1.824	161.42	375.67	5.935	385.29	-41.27	-1.485
34	FL31	319.50	2348	6048	30.82	-64.93	1.657	147.43	335.60	5.315	370.48	-38.26	-1.276
33	FL30	308.67	2348	6048	27.83	-58.06	1.490	133.85	297.41	4.716	355.30	-35.41	-1.084
32	FL29	297.83	2429	6209	24.89	-51.40	1.326	121.22	261.86	4.172	339.72	-32.81	-0.919
31	FL28	287.00	2611	6930	21.34	-43.20	1.131	107.70	220.86	3.641	318.54	-30.04	-0.755
30	FL27	276.17	2568	7028	18.21	-35.64	0.958	97.25	186.39	3.266	296.58	-27.76	-0.644
29	FL26	265.33	2501	6754	16.11	-30.53	0.843	90.66	164.71	3.056	280.12	-26.31	-0.590
28	FL25	253.33	2587	6993	13.68	-25.12	0.706	82.66	142.71	2.827	259.19	-24.77	-0.527
27	FL24	242.50	2532	6756	11.89	-21.77	0.620	75.44	129.27	2.549	241.51	-23.58	-0.478
26	FL23	231.67	3390	17472	10.27	-18.95	0.531	68.35	118.39	2.318	224.06	-22.36	-0.452
25	FL22	219.67	3610	19395	9.00	-16.98	0.468	62.38	109.24	2.113	209.33	-21.22	-0.414
24	FL21	208.83	3605	19349	7.86	-15.25	0.410	56.24	102.14	1.862	194.85	-20.14	-0.377
23	FL20	198.00	3637	19413	6.84	-13.83	0.359	50.10	96.13	1.602	180.60	-18.99	-0.347
22	FL19	187.17	4978	24290	5.92	-12.60	0.312	44.00	89.94	1.390	166.65	-18.20	-0.301
21	FL18	175.33	3418	15261	5.06	-11.53	0.268	38.07	84.68	1.168	152.96	-16.81	-0.277
20	FL17	165.50	4595	40190	4.24	-10.57	0.230	32.53	79.41	0.949	139.60	-15.93	-0.238
19	FL16	154.67	4170	32432	3.49	-9.64	0.193	26.98	73.96	0.750	126.51	-14.83	-0.210
18	FL15	145.08	4169	32405	2.81	-8.63	0.158	21.73	69.12	0.558	113.61	-13.70	-0.185
17	FL14	135.50	4169	32398	2.18	-7.53	0.124	17.00	64.89	0.373	100.96	-12.66	-0.162
16	FL13	125.92	4151	32289	1.66	-6.40	0.092	12.88	61.06	0.205	88.71	-11.69	-0.141
15	FL12	116.33	6521	226422	1.95	-0.54	0.019	13.77	83.92	-0.216	70.12	-29.05	0.041
14	FL11	105.25	6575	211098	1.47	-2.11	0.019	9.88	63.78	-0.170	60.92	-20.97	0.020
13	FL10	95.67	6290	205611	1.10	-2.61	0.020	7.42	50.62	-0.126	52.77	-17.32	0.017
12	FL9	86.08	6318	205665	0.88	-2.72	0.019	5.70	40.43	-0.095	45.13	-14.23	0.016
11	FL8	76.50	6318	205665	0.74	-2.62	0.017	4.85	32.21	-0.074	37.98	-11.39	0.016
10	FL7	66.92	6341	206045	0.59	-2.25	0.014	4.59	25.91	-0.063	30.83	-8.68	0.016
9	FL6	57.33	10311	322869	0.36	-2.23	0.013	2.53	17.91	-0.037	25.32	-6.33	0.013
8	FL5	46.25	6992	240069	0.23	-1.93	0.010	1.70	13.72	-0.024	19.74	-5.43	0.011
7	FL4	36.67	7969	267850	0.22	-1.60	0.009	1.44	9.27	-0.013	14.80	-3.94	0.010
6	FL3	27.08	8012	271732	0.19	-1.23	0.007	1.39	6.42	-0.010	10.16	-2.72	0.008
5	FL2	17.50	10211	302133	0.08	-0.78	0.004	0.87	3.15	0.000	6.04	-0.36	-0.003
4	FL1	1.60	363.10734	0	-0.22	0.00	0.170	1.18	0.00	1.710	-0.18	0.00	
3	C1	-10.00	25045	996893	-0.01	-0.08	0.000	0.01	0.42	0.000	0.48	-0.21	0.001
2	BPLT	-15.30	0	0	-0.01	-0.04	0.000	-0.01	0.19	0.000	0.19	-0.15	0.001
1	BASE	-21.60	0	0	0.00	0.00	0.000	0.00	0.00	0.000	0.00	0.00	0.000
Mode-Component Interaction Properties: Zref =					-21.60	(ft)							
$m^*_{jk} = \sum w\Phi^2/g$			(k - ft - s^2 * 10^6)		1.575	7.883	11.075	38.587	233.001	131.232	218.858	3.178	9.971
$m^{*\prime}_{jk} = \sum w\Phi z/g$			(k - ft - s^2 * 10^6)		16.584	-36.581	7.459	85.232	206.978	22.514	217.994	-26.226	-5.974
[η1]			(-)		0.079	0.179	1.000	0.404	-1.000	3.430	1.000	0.121	-0.956
$[1/\eta 2] = m^{*\prime}_{jk} / m^*_k$			(-)		0.770	-1.698	0.346	0.239	0.580	0.063	0.862	-0.104	-0.024
Generalized Modal Properties													
$m^*_k = m^*_{xk}+m^*_{yk}+m^*_{zk}$			(k - ft - s^2 * 10^6)			21.540			356.920			252.811	
f_{ok}			(Hz)			0.1942			0.2703			0.3175	
$k^*_k = (2\pi f_{ok})^2 m^*_k$			(k - ft * 10^6)			32.071			1029.490			1006.110	

TABLE B1

GENERALIZED DYNAMIC PROPERTIES OF BUILDING 1-EAST

Generalized Dynamic Properties in Model Coordinate System
Structure Generation A

Lumped Mass Data				Mode K = 1 (Dominated by θz)			Mode K = 2 (Dominated by δy, θx)			Mode K = 3 (Dominated by δx, θy)		
Level		Elev.	Weight	WMI								
		z	w	j	Φx	Φy	Φz	Φx	Φy	Φz	Φx	Φy	Φz
No.	Name	(ft)	(k)	(k - ft2*103)	(ft)	(ft)	(rad)	(ft)	(ft)	(rad)	(ft)	(ft)	(rad)
31	TOP	299.63	0	0	249.59	231.94	1.375	583.70	239.29	-2.510	334.38	-60.06	1.009
30	FL27	269.92	334	86	223.59	226.19	1.327	522.54	236.99	-2.515	299.22	-50.08	0.973
29	FL26	259.42	504	142	214.39	224.15	1.311	500.92	236.17	-2.518	286.79	-46.55	0.960
28	FL25	246.25	2303	3418	202.92	221.44	1.288	473.89	235.08	-2.522	271.28	-42.23	0.942
27	FL24	234.92	1619	2384	193.19	218.96	1.265	450.78	233.96	-2.522	258.05	-38.58	0.926
26	FL23	223.58	1542	2270	183.34	216.34	1.237	427.46	232.67	-2.528	244.66	-34.96	0.904
25	FL22	213.83	1494	2199	174.80	213.89	1.209	407.32	231.36	-2.532	233.11	-31.86	0.883
24	FL21	204.08	1493	2198	166.26	211.17	1.175	387.18	229.73	-2.536	221.56	-28.82	0.859
23	FL20	194.33	1493	2197	157.71	208.15	1.138	366.98	227.73	-2.538	209.99	-25.84	0.831
22	FL19	184.58	1497	2198	148.84	204.59	1.085	346.54	225.15	-2.544	198.29	-22.93	0.796
21	FL18	174.83	1490	2200	140.17	200.15	1.031	326.26	221.33	-2.540	186.67	-20.21	0.757
20	FL17	165.08	1548	2236	131.30	193.97	0.969	305.81	215.44	-2.528	175.02	-17.80	0.711
19	FL16	155.33	1598	2278	122.13	185.51	0.921	285.12	206.71	-2.489	163.29	-15.80	0.665
18	FL15	145.58	1597	2276	113.34	175.39	0.887	264.75	195.95	-2.418	151.73	-14.12	0.618
17	FL14	135.83	1597	2276	104.16	164.59	0.847	244.12	184.32	-2.331	140.11	-12.55	0.563
16	FL13	126.08	1597	2276	95.74	153.21	0.839	224.28	171.94	-2.184	128.72	-11.07	0.512
15	FL12	116.33	0	0	88.00	142.30	0.810	205.53	160.03	-2.040	117.81	-9.74	0.465
14	FL11	105.25	0	0	79.52	130.07	0.771	185.14	146.61	-1.875	105.99	-8.38	0.414
13	FL10	95.67	0	0	72.44	119.64	0.734	168.26	135.10	-1.733	96.23	-7.31	0.373
12	FL9	86.08	0	0	65.58	109.31	0.692	152.01	123.65	-1.591	86.87	-6.34	0.334
11	FL8	76.50	0	0	58.93	99.11	0.647	136.37	112.29	-1.449	77.88	-5.46	0.297
10	FL7	66.92	0	0	52.48	89.03	0.598	121.29	101.01	-1.307	69.24	-4.66	0.262
9	FL6	57.33	0	0	46.21	79.03	0.546	106.69	89.79	-1.164	60.89	-3.94	0.229
8	FL5	46.25	0	0	39.17	67.61	0.482	90.41	76.91	-1.000	51.59	-3.19	0.192
7	FL4	36.67	0	0	33.26	57.83	0.423	76.77	65.86	-0.858	43.82	-2.61	0.162
6	FL3	27.08	0	0	27.49	48.13	0.360	63.49	54.86	-0.716	36.25	-2.09	0.133
5	FL2	17.50	0	0	21.86	38.51	0.295	50.53	43.93	-0.575	28.87	-1.61	0.105
4	FL1	1.60	0	0	12.78	22.72	0.180	29.61	25.95	-0.341	16.94	-0.90	0.061
3	C1	-10.00	0	0	6.32	11.32	0.092	14.70	12.93	-0.170	8.42	-0.44	0.030
2	BPLT	-15.30	0	0	3.42	6.14	0.050	7.96	7.01	-0.092	4.57	-0.23	0.016
1	BASE	-21.60	0	0	0.00	0.00	0.000	0.00	0.00	0.000	0.00	0.00	0.000
Mode-Component Interaction Properties: Zref =				-21.60 (ft)									
$m^*_{jk} = \sum w\Phi^2/g$			(k - ft - s^2 * 10^6)	16.673	27.046	1.127	90.721	32.144	5.836	29.734	0.533	0.587
$m^{*\prime}_{jk} = \sum w\Phi z/g$			(k - ft - s^2 * 10^6)	22.803	28.941	1.022	53.192	31.486	-2.350	30.453	-3.983	0.734
[η1]			(-)	0.749	-0.922	1.000	1.747	-1.000	-2.159	1.000	0.136	0.685
$[1/\eta 2] = m^{*\prime}_{jk} / m^*_k$			(-)	0.503	0.639	0.023	0.422	0.250	-0.019	0.970	-0.127	0.023
Generalized Modal Properties												
$m^*_k = m^*_{xk}+m^*_{yk}+m^*_{zk}$			(k - ft - s^2 * 10^6)	45.297			126.136			31.399		
f_{ok}			(Hz)	0.5714			0.6667			0.8929		
$k^*_k = (2\pi f_{ok})^2 m^*_k$			(k - ft * 10^6)	583.856			2213.400			988.270		

November 7, 2016 **VIA E-MAIL**

Mr. Elias Slaiby
Vice President of Construction
NY Construction and Design
GID
1345 Avenue of the Americas
Suite 200, 2nd Floor
New York, NY 10105

RE: Riverside Center Building 1 – Detailed Review of Wind Design Loads
Our File: 21N000-33

Mr. Slaiby:

BLWTL/UWO was retained by GID to review CPP's conclusions with regards to the design loads provided to WSP for the Riverside Center Building 1 (with an East and West Tower component). Specifically, this review is intended to determine if these design loads appropriately meet the requirements of the 2014 New York City Building Code (2014 NYCBC) with respect to wind exposure classification.

DISCUSSION

The following contains a discussion of the 2014 New York City Building Code requirements for RCB1, CPP's findings and methodology, and BLWTL's interactions with CCP. Please note that in the discussion below, all wind speed values are for a 50-yr design return period.

2014 New York City Building Code Requirements

The 2014 NYC BC states:

> *"**1609.1.1.2.1 Lower limits on main wind-force-resisting system.** Base overturning moments determined from wind tunnel testing shall be limited to not less than 80 percent of the design base overturning moments determined in accordance with Section 6.5 of ASCE 7, unless specific testing is performed that demonstrates that lower values result from the aerodynamic coefficient of the building, rather than shielding from other structures. The 80-percent limit shall be permitted to be adjusted by the ratio of the frame load at critical wind directions as determined from wind tunnel testing without specific adjacent buildings, but including appropriate upwind roughness, to that determined in Section 6.5 of ASCE 7. In no case shall the limiting value be less than 50 percent of the design base overturning moments determined in accordance with Section 6.5 of ASCE 7."*

Based on an interpretation of this section, this can allow use of the ASCE 7-05 procedures in its entirety, except where the NYC Building Code specification suggests otherwise. For this review, relevant 2014 NYCBC exceptions to ASCE 7-05 are:

I. The 50-yr basic wind speed is 98mph 3-sec gust at 33ft for New York City,
II. The Surface Roughness (Exposure) D includes areas in hurricane-prone regions (1609.4.2); this is relevant for defining expected roof height wind speeds directions with over water fetches.

CPP Findings for My Base Overturning Moments

My Base Moments are those created by E-W forces and predominantly controlled by E-W Wind Directions.

The My base overturning moments are primarily controlled by winds approaching from the east and west directions. From the east, the exposure category is Exposure B, whereas from the west it can be classified as Exposure C. For these westerly winds, the development does not have any shielding due to other structures. Therefore, for the purpose of comparing My wind tunnel base overturning moments to the 2014 NYC BC the use of 80% of Exposure B overturning moments is appropriate for easterly directions and 50% of exposure C is consistent with the 2014 NYC BC for westerly directions.

Therefore, the My design moments are consistent with 2014 NYC BC requirements.

CPP Findings for Mx Base Overturning Moments

Mx Base Moments are those created by N-S forces and predominantly controlled by N-S Wind Directions.

Mx base overturning moments are primarily controlled by winds approaching from the north and south directions. The wind tunnel study carried out by CPP indicates that the largest Mx base overturning moments are a result of winds from 20° (about NNE), i.e. winds blowing perpendicular to the development. For the purpose of comparing the Mx wind tunnel loads to the Code calculated values, CPP has based this comparison taking 80% of the Exposure B Category, which is typically associated with a suburban/urban environment. As winds from this NNE direction approach the site over the Hudson River for a fetch distance of several miles, this selection of Exposure B (instead of an Exposure C) is not solely based on upstream terrain alone, but on a site specific analysis of directional wind speeds. It is our understanding that CPP's basis of using Exposure B has been founded upon:

i) the relative variation of wind speed with height, which is influenced by the assumption of nearby upstream buildings which naturally slow the winds over the lower building portions;
ii) a detailed directional wind climate analysis for the New York area, which identifies the NNE with a much lesser expected wind speed compared to

the climatically important east and west winds. Specifically, NNE winds in NYC are climatically much less important and lesser in strength than the dominant easterly and westerly winds. This east and west prominence is evident in columns 2 and 4 in Table A1-1, which has been provided by CPP through e-mail in response to recent communications and attached here, and;

iii) a resulting evaluation of a realistic expected roof height wind speed at the site for the NNE direction.

It is important to note that in defining terrain categories, the 2014 NYC BC by adoption of the ASCE 7-05 procedures, allow the following exception to defining the exposures:

> ***"EXCEPTION:*** *An intermediate exposure between the preceding categories is permitted in a transition zone provided that it is determined by a rational analysis method defined in the recognized literature."* (ASCE 7-05, Section 6.5.6.3)

Based on this exception, CPP has evaluated roof height speeds in the manner described above, and selected the appropriate code Exposure B for the NNE direction following a rational estimate of the roof height wind speed. CPP's estimated roof height hourly-mean wind speed at the site is 76.7 mph for the NNE direction (see Table A1-1). This is based on a reference 3-sec gust wind speed of 90 mph at 33ft, which is itself taken somewhat conservatively. This would scale to about an 83.5mph roof height hourly-mean wind speed based on a reference 3-sec gust speed of 98mph at 33ft. Comparatively, the ASCE 7-05 Exposure B hourly-mean speed at roof height (450ft) suggests about 84.8mph. In this respect, the use of the 2014 NYCBC Exposure B for evaluating winds (98mph 3-sec gust, K_d=0.85) for this direction is appropriate. However, it is recommended that the code loads **also be evaluated considering the directional speed, i.e. 90mph 3-sec gust, Kd=1.0, Exp. B.**

BLWTL has independently estimated the hourly-mean roof height wind speed from the NNE using rational procedures and have arrived at a value of about 83.5mph, compared to CPP value of 76.7mph (Table A1-1). The difference for most part is due to the assumption of exposure over the Hudson River fetch. **It is therefore suggested that CPP re-analyze their wind tunnel data for this direction targeting this hourly-mean roof height wind speed of 83.5mph.**

The use of a 90mph 3-sec gust reference for the NNE has been taken conservatively by CPP. A 'best estimate' analysis suggests a gust wind speed of about 73mph (see Table A1-1, column 4) for this direction. This value is also consistent with BLWTL's independent evaluation of wind speed for the general NNE direction. As this is a best estimate, it is prudent to consider a directional speed within a range of say ±10°. This would produce a 3-sec gust speed of about 80 mph for this general wind direction. Based on this 80 mph 3-sec reference wind speed and BLWTL's independent site specific estimate, the corresponding hourly-mean roof height wind speed from the NNE is about 78.5mph. The equivalent 3-sec gust speed at 33ft required to reproduce this roof height speed in a standard Exp C is 81mph. Therefore, **it is recommended**

that the code comparisons also be done considering an 81 mph 3-sec gust, Exp. C, Kd=1.0.

While the approach followed by CPP (i.e. use of the 2014 NYCBC Exposure B for evaluating winds with 3-second gust wind speed ($V_{3\text{-sec}}$) = 98mph and a directionality factor (K_d) = 0.85 is believed appropriate, additional approaches to assessing the Mx overturning moments were recommended by BLWTL and subsequently explored by CPP. These additional approaches provide a rational way forward that this Reviewer believes to be in keeping with the ASCE 7-05, and thus the NYCBC.

To summarize, BLWTL provided to CPP the following recommended approaches for evaluation, advising that the larger response be used to control the design Mx overturning moment due to winds generally from the NNE:

1) Evaluate Code values using Exposure B, Kd = 0.85, V =98mph 3-sec gust at 33ft. This is as CPP has done to date.
2) Evaluate Code values using Exposure B, Kd = 1.0, V = 90mph 3-sec gust at 33ft. This considers specific directional speed of the wind for the NNE direction.
3) Evaluate Code values using Exposure C, Kd = 1.0, V=81 mph 3-sec gust at 33ft. This represents specific directional speed using a 'best estimate' of the general NNE direction wind speeds.
4) CPP should re-evaluate their wind loads with the roof height target speed of 83.5mph hourly-mean for the NNE direction.

Following the initial suggestion of evaluating these above approaches, CPP's subsequent evaluation is summarized as follows:

Mx response at Level FL1 (West + East)

Description	Mx(1000 k-ft)
Original wind tunnel result	468.3
Scaled up wind tunnel result per ASCE 7-05(Exposure B, Kd = 0.85, V = 98mph)	617.6
1. ASCE 7-05 estimate based on: Exposure B, Kd = 0.85, V = 98mph	772.0
2. ASCE 7-05 estimate based on: Exposure B, Kd = 1.0, V = 90mph	757.2
3. ASCE 7-05 estimate based on: Exposure C, Kd = 1.0, V = 81mph	737.2
4. Revised wind tunnel result with 83.5mph hourly-mean wind speed at roof height for NNE direction.	556.2

(This Table is reproduced from correspondence from CPP on 10/11/16 and does not reflect any subsequent updates.)

These results suggest that the Approach 1 remains the controlling load condition (i.e. 0.8 x 772k-ft = 617.6k-ft). Although Approach 4 resulted in wind tunnel loads larger than those in the original wind tunnel report, they are still smaller than the design value recommended.

To conclude, I am satisfied with the level of analysis performed and the additional assessments are compliant with both the ASCE 7-05 and the NYCBC by adoption of ASCE 7-05 methodology. The building is not expected to experience a 50-year design wind load larger than that used in control of the design.

SUMMARY

For the RCB 1 building CPP has evaluated roof height speeds using a rational analysis method in which the selection of exposure is based not solely on upstream terrain alone, but also on a detailed site specific analysis of roof height directional wind speeds. In doing so CPP has determined that for evaluating the NYCBC: i) Exposure C is the appropriate category for Easterly winds; ii) Easterly winds create the largest My base overturning moments; iii) the use of Exposure B is appropriate for the 20° (NNE) direction; iv) the 20° (NNE) direction winds create the largest Mx moments.

In their analysis CPP determined that the NNE winds in NYC are climatically much less important (lesser in strength) then the dominant easterly and westerly winds; this has been further corroborated by BLWTL's independent wind climate analyses. With appreciably lower wind speeds expected from the NNE for a 50-year return period, the selection of an Exposure B for the NNE direction is appropriate.

To this end, I am satisfied with the level of analysis performed as being compliant with the ASCE 7-05 and the NYCBC with respect to wind exposure classification. In this respect the building is not expected to experience a 50-year wind load larger than that used in control of the design.

As a comment for additional confidence to the design: the use of Code to evaluate a more complex building 'system', such as the RCB 1 development with an East and West Tower component, does not recognize that the maximum load would not occur over the West and East Tower component simultaneously. In factoring the wind tunnel load distribution cases to design values, there may be up to 10% further capacity in the design than is otherwise suggested by the evaluation through the total 'system' values. That is to say, the maximum load on the East Tower plus the maximum load on the West tower can be up to 10% greater than the maximum overall system load.

Yours Sincerely,

Peter Case
Associate Director

Cc:
WSP: Ahmed Rahimian, Sylvian Marcus, Fatih Yalniz
GMS: Ramon Gilsanz, Jennifer Lan
CPP: Roy Denoon, Workamaw Warsido

Table A1-1
Design Wind Speeds for 50-year loads

Wind direction	Nominal 100-yr* 3-s gust wind speed at height of 33 ft in Exposure C (mph)	Nominal 100-yr* hourly mean wind speed at height of z_{ref} = 450 ft at site (mph)	Best estimate 3-s gust wind speed at height of 33 ft in Exposure C (mph)	Best estimate hourly mean wind speed at height of z_{ref} = 450 ft at site (mph)
N	90	72.9	79	64.1
NNE	90	76.7	73	62.7
NE	94	70.0	89	66.4
ENE	96	78.4	90	74.2
E	98	72.8	98	72.8
ESE	96	72.3	84	64.0
SE	95	72.6	93	71.4
SSE	93	71.1	89	68.0
S	93	70.8	91	69.1
SSW	90	69.7	75	58.3
SW	88	70.9	73	59.1
WSW	93	74.4	82	65.4
W	97	73.8	95	72.5
WNW	96	72.7	88	66.7
NW	94	72.5	92	71.2
NNW	93	72.6	92	72.0

*Equivalent to twice the desired return period, as described Section A1.2

(This Table is reproduced from correspondence from CPP.)

Boundary Layer Wind Tunnel Laboratory

November 7, 2016 **VIA E-MAIL**

Mr. Elias Slaiby
Vice President of Construction
NY Construction and Design, GID
1345 Avenue of the Americas, Suite 200, 2nd Floor
New York, NY 10105

RE: Riverside Center Building 1 – Summary Review of Wind Design Loads
Our File: 21N000-33

Mr. Slaiby:
BLWTL/UWO was retained by GID to review CPP's conclusions with regards to the design loads for the Riverside Center Building 1 (with an East and West component). Specifically, this review was intended to determine if these design loads meet the requirements of the 2014 New York City Building Code (2014 NYCBC) with respect to wind exposure classification. This letter summarizes the findings of this review.

For the RCB 1 building CPP has evaluated roof height speeds using a rational analysis method in which the selection of exposure is based not solely on upstream terrain alone, but also on a detailed site specific analysis of roof height directional wind speeds. In doing so CPP has determined that for evaluating the NYCBC: i) Exposure C is the appropriate category for Easterly winds; ii) the largest My base overturning moments (i.e. those created by E-W forces) are created by Easterly winds; iii) the use of Exposure B is appropriate for the 20° (NNE) direction; iv) the largest Mx moments (i.e. those created by N-S forces) are created at a wind direction of about 20° (NNE).

In their analysis CPP determined that the NNE winds in NYC are climatically much less important (lesser in strength) then the dominant easterly and westerly winds; this has been further corroborated by BLWTL's independent wind climate analyses. With appreciably lower speeds expected from the NNE for a 50-year return period, the selection of an Exposure B for the NNE direction is appropriate.

To this end, I am satisfied with the level of analysis performed as being compliant with the ASCE 7-05 and the NYCBC with respect to wind exposure classification. In this respect the building is not expected to experience a 50-year wind load larger than that used in control of the design.

Yours Sincerely,

Peter Case
Associate Director

Cc:
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GMS: Ramon Gilsanz, Jennifer Lan
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