

WIND-TUNNEL STUDY OF
ONE SOUTH WACKER, CHICAGO

by

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LIST OF SYMBOLS

<u>Symbol</u>	<u>Definition</u>
U	Local mean velocity
D	Characteristic dimension (building height, width, etc.)
ν, ρ	Kinematic viscosity and density of approach flow
$\frac{UD}{\nu}$	Reynolds number
E	Mean voltage
A, B, n	Constants
U_{rms}	Root-mean-square of fluctuating velocity
E_{rms}	Root-mean-square of fluctuating voltage
U_{∞}	Reference mean velocity outside the boundary layer
X, Y	Horizontal coordinates
Z	Height above surface
δ	Height of boundary layer
T_u	Turbulence intensity $\frac{U_{rms}}{U_{\infty}}$ or $\frac{U_{rms}}{U}$
$C_{p_{mean}}$	Mean pressure coefficient, $\frac{(p-p_{\infty})_{mean}}{0.5 \rho U_{\infty}^2}$
$C_{p_{rms}}$	Root-mean-square pressure coefficient, $\frac{((p-p_{\infty}) - (p-p_{\infty})_{mean})_{rms}}{0.5 \rho U_{\infty}^2}$
$C_{p_{max}}$	Peak maximum pressure coefficient, $\frac{(p-p_{\infty})_{max}}{0.5 \rho U_{\infty}^2}$
$C_{p_{min}}$	Peak minimum pressure coefficient, $\frac{(p-p_{\infty})_{min}}{0.5 \rho U_{\infty}^2}$
$()_{min}$	Minimum value during data record
$()_{max}$	Maximum value during data record

<u>Symbol</u>	<u>Definition</u>
p	Fluctuating pressure at a pressure tap on the structure
p_{∞}	Static pressure in the wind tunnel above the model
F_x, F_y	Forces in X, Y direction
A_R	Reference Area
CF_X	Force coefficient, X direction, $\frac{F_x}{A_R 0.5\rho U_{\infty}^2}$
CF_Y	Force coefficient, Y direction, $\frac{F_y}{A_R 0.5\rho U_{\infty}^2}$

1. INTRODUCTION

1.1 General

A significant characteristic of modern building design is lighter cladding and more flexible frames. These features produce an increased vulnerability of glass and cladding to wind damage and result in larger deflections of the building frame. In addition, increased use of pedestrian plazas at the base of the buildings has brought about a need to consider the effects of wind and gustiness in the design of these areas.

The building geometry itself may increase or decrease wind loading on the structure. Wind forces may be modified by nearby structures which can produce beneficial shielding or adverse increases in loading. Overestimating loads results in uneconomical design; underestimating may result in cladding or window failures. Tall structures have historically produced unpleasant wind and turbulence conditions at their bases. The intensity and frequency of objectionable winds in pedestrian areas is influenced both by the structure shape and by the shape and position of adjacent structures.

Techniques have been developed for wind tunnel modeling of proposed structures which allow the prediction of wind pressures on cladding and windows, overall structural loading, and also wind velocities and gusts in pedestrian areas adjacent to the building. Information on sidewalk-level gustiness allows plaza areas to be protected by design changes before the structure is constructed. Accurate knowledge of the intensity and distribution of the pressures on the structure permits adequate but economical selection of cladding strength to meet selected maximum design winds and overall wind loads for the design of the frame for flexural control.

Modeling of the aerodynamic loading on a structure requires special consideration of flow conditions in order to guarantee similitude between model and prototype. A detailed discussion of the similarity requirements and their wind-tunnel implementation can be found in references (1), (2), and (3). In general, the requirements are that the model and prototype be geometrically similar, that the approach mean velocity at the building site have a vertical profile shape similar to the full-scale flow, that the turbulence characteristics of the flows be similar, and that the Reynolds number for the model and prototype be equal.

These criteria are satisfied by constructing a scale model of the structure and its surroundings and performing the wind tests in a wind tunnel specifically designed to model atmospheric boundary-layer flows. Reynolds number similarity requires that the quantity UD/ν be similar for model and prototype. Since ν , the kinematic viscosity of air, is identical for both, Reynolds numbers cannot be made precisely equal with reasonable wind velocities. To accomplish this the air velocity in the wind tunnel would have to be as large as the model scale factor times the prototype wind velocity, a velocity which would introduce unacceptable compressibility effects. However, for sufficiently high Reynolds numbers ($>2 \times 10^4$) the pressure coefficient at any location on the structure will be essentially constant for a large range of Reynolds numbers. Typical values encountered are 10^7 - 10^8 for the full-scale and 10^5 - 10^6 for the wind-tunnel model. In this range acceptable flow similarity is achieved without precise Reynolds number equality.

1.2 The Wind-Tunnel Test

The wind-engineering study is performed on a building or building group modeled at scales ranging from 1:150 to 1:400. The building model

is constructed of clear plastic fastened together with screws. The structure is modeled in detail to provide accurate flow patterns in the wind passing over the building surfaces. The building under test is often located in a surrounding where nearby buildings or terrain may provide beneficial shielding or adverse wind loading. To achieve similarity in wind effects the area surrounding the test building is also modeled. A flow visualization study is first made (smoke is used to make the air currents visible) to define overall flow patterns and identify regions where local flow features might cause difficulties in building curtain-wall design or produce pedestrian discomfort.

The test model, equipped with pressure taps (200 to 600 or more), is exposed to an appropriately modeled atmospheric wind in the wind tunnel and the fluctuating pressure at each tap measured electronically. The model, and the modeled area, are rotated 10 or 15 degrees and another set of data recorded for each pressure tap. Normally, 24 or 36 sets of data (360 degrees of turning) are taken; however, when flow visualization or recorded data indicate high pressure regions of small azimuthal extent, data is obtained in smaller azimuthal steps.

Data are recorded, analyzed and processed by an on-line computerized data-acquisition system. Pressure coefficients of several types are calculated by the computer for each reading on each piezometer tap and are printed in tabular form as computer readout. Using wind data applicable to the building site, representative wind velocities are selected for combination with measured pressures on the building model. Integration of test data with wind data results in prediction of peak local wind pressures for design of glass or cladding and may include overall forces and moments on the structure (by floor if desired) for design of

the structural frame. Pressure contours are drawn on the developed building surfaces showing the intensity and distribution of peak wind loads on the building. These results may be used to divide the building into zones where lighter or heavier cladding or glass may be desirable.

Based on the visualization (smoke) tests and on a knowledge of heavy pedestrian use areas, a dozen or more locations may be chosen at the base of the building where wind velocities can be measured to determine the relative comfort or discomfort of pedestrians in plaza areas, near building entrances, near building corners, or on sidewalks.

Usually a reference pedestrian position is also tested to determine whether the wind environment in the building area is better or worse than the environment a block or so away in an undisturbed area.

The following pages discuss in greater detail the procedures followed and the equipment and data collecting and processing methods used. In addition, the data presentation format is explained and the implications of the data are discussed.

2. EXPERIMENTAL CONFIGURATION

2.1 Wind Tunnel

Wind-engineering studies are performed in the Fluid Dynamics and Diffusion Laboratory at Colorado State University (Figure 1). Three large wind tunnels are available for wind loading studies depending on the detailed requirements of the study. The wind tunnel used for this investigation is shown in Figure 2. All tunnels have a flexible roof adjustable in height to maintain a zero pressure gradient along the test section. The mean velocity can be adjusted continuously in each tunnel to the maximum velocity available.

2.2 Model

In order to obtain an accurate assessment of local pressures using piezometer taps, models are constructed to the largest scale that does not produce significant blockage in the wind-tunnel test section. The models are constructed of 1/2 in. thick Lucite plastic and fastened together with metal screws. Significant variations in the building surface, such as mullions, are machined into the plastic surface. Piezometer taps (1/16 in. diameter) are drilled normal to the exterior vertical surfaces in rows at several or more elevations between the bottom and top of the building. Similarly, taps are placed in the roof and on any sloping, protruding, or otherwise distinctive features of the building that might need investigation.

Pressure tap locations are chosen so that the entire surface of the building can be investigated for pressure loading and at the same time permit critical examination of areas where experience has shown that maximum wind effects may be expected to occur. Locations of the pressure taps for this study are shown in Figure 3. Dimensions are

given both for full-scale building (in ft) and for model (in in.). The pressure tap numbers are shown adjacent to the taps.

The pressure tests are sometimes made in two stages. In the first stage measurements are made on the initial distribution of pressure taps. If it becomes apparent from the data that the loading on the building is being influenced by some unsuspected geometry of the building or adjacent structures, additional pressure taps are installed in the critical areas. The locations of the taps are selected so that the maximum loading can be detected and the area over which this loading is acting can be defined. Any added taps are also shown in Figure 3.

A circular area 750 to 2000 ft in radius depending on model scale and characteristics of the surrounding buildings and terrain is modeled in detail. Structures within the modeled region are made from styrofoam and cut to the individual building geometries. They are mounted on the turntable in their proper locations. Significant terrain features are included as needed. The model is mounted on a turntable (Figure 2) near the downwind end of the test section. Any buildings or terrain features which do not fit on the turntable are placed on removable pieces which are placed upwind of the turntable for appropriate wind directions. A plan view of the building and its surroundings is shown in Figure 4. The turntable is calibrated to indicate azimuthal orientation to 0.1 degree.

The region upstream from the modeled area is covered with a randomized roughness constructed using various sized cubes placed on the floor of the wind tunnel. Different roughness sizes may be used for different wind directions. Spires are installed at the test-section entrance to provide a thicker boundary layer than would otherwise be

available. The thicker boundary layer permits a somewhat larger scale model than would otherwise be possible. The spires are approximately triangularly shaped pieces of 1/2 in. thick plywood 6 in. wide at the base and 1 in. wide at the top, extending from the floor to the top of the test section. They are placed so that the broad side intercepts the flow. A barrier approximately 8 in. high is placed on the test-section floor downstream of the spires to aid in development of the boundary-layer flow.

The distribution of the roughness cubes and the spires in the roughened area was designed to provide a boundary-layer thickness of approximately 4 ft, a velocity profile power-law exponent similar to that expected to occur in the region approaching the modeled area for each wind direction (a number of wind directions may have the same approach roughness). A photograph of the completed model in the wind tunnel is shown in Figure 5. The wind-tunnel ceiling is adjusted after placement of the model to obtain a zero pressure gradient along the test section.

3. INSTRUMENTATION AND DATA ACQUISITION

3.1 Flow Visualization

Making the air flow visible in the vicinity of the model is helpful (a) in understanding and interpreting mean and fluctuating pressures, (b) in defining zones of separated flow and reattachment and zones of vortex formation where pressure coefficients may be expected to be high and (c) in indicating areas where pedestrian discomfort may be a problem. Titanium tetrachloride smoke is released from sources on and near the model to make the flow lines visible to the eye and to make it possible to obtain motion picture records of the tests. Conclusions obtained from these smoke studies are discussed in Sections 4.1 and 5.1.

3.2 Pressures

Mean and fluctuating pressures are measured at each of the pressure taps on the model structure. Data are obtained for 24 or 36 wind directions, rotating the entire model assembly in a complete circle. Seventy-six pieces of 1/16 in. I.D. plastic tubing are used to connect 76 pressure ports at a time to an 80 tap pressure switch mounted inside the model. The switch was designed and fabricated in the Fluid Dynamics and Diffusion Laboratory to minimize the attenuation of pressure fluctuations across the switch. Each of the 76 measurement ports is directed in turn by the switch to one of four pressure transducers mounted close to the switch. The four pressure input taps not used for transmitting building surface pressures are connected to a common tube leading outside the wind tunnel. This arrangement provides both a means of performing in-place calibration of the transducers and, by connecting this tube to a pitot tube mounted inside the wind tunnel, a means of automatically monitoring the tunnel speed. The switch is operated by means of a shaft projecting through

the floor of the wind tunnel. A computer-controlled stepping motor steps the switch into each of the 20 required positions. The computer keeps track of switch position but a digital readout of position is provided at the wind tunnel.

The pressure transducers used are setra differential transducers (Model 237) with a 0.10 psid range. Reference pressures are obtained by connecting the reference sides of the four transducers, using plastic tubing, to the static side of a pitot-static tube mounted in the wind tunnel free stream above the model building. In this way the transducer measures the instantaneous difference between the local pressures on the surface of the building and the static pressure in the free stream above the model.

Output from the pressure transducers is fed to an on-line data acquisition system consisting of a Hewlett-Packard 21 MX computer, disk unit, card reader, printer, Digi-Data digital tape drive and a Preston Scientific analog-to-digital converter. The data are processed immediately into pressure coefficient form as described in Section 4.3 and stored for printout or further analysis.

All four transducers are recorded simultaneously for 16 seconds at a 250 sample per second rate. The results of an experiment to determine the length of record required to obtain stable mean and rms (root-mean-square) pressures and to determine the overall accuracy of the pressure data acquisition system is shown in Figure 6. A typical pressure port record was integrated for a number of different time periods to obtain the data shown. Examination of a large number of pressure taps showed that the overall accuracy for a 16 second period is, in pressure coefficient form, 0.03 for mean pressures, 0.1 for peak pressures, and 0.01 for rms pressures. Pressure coefficients are defined in Section 4.3.

3.3 Velocity

Mean velocity and turbulence intensity profiles are measured upstream of the model to determine that an approach boundary-layer flow appropriate to the site has been established. Tests are made at one wind velocity in the tunnel. This velocity is well above that required to produce Reynolds number similarity between the model and the prototype as discussed in Section 1.1.

In addition, mean velocity and turbulence intensity measurements are made 5 to 7 ft (prototype) above the surface at a dozen or more locations on and near the building for 16 wind directions. The measurement locations are shown on Figure 4. The surface measurements are indicative of the wind environment to which a pedestrian at the measurement location would be subjected. The locations are chosen to determine the degree of pedestrian comfort or discomfort at the building corners where relatively severe conditions frequently are found, near building entrances and on adjacent sidewalks where pedestrian traffic is heavy, and in open plaza areas. In most studies a reference pedestrian position, located about a block away, is also tested. These data are helpful in evaluating the degree of pedestrian comfort or discomfort in the proposed plaza area in terms of the undisturbed environment in the immediate vicinity.

Measurements are made with a single hot-wire anemometer mounted with its axis vertical. The instrumentation used is a Thermo Systems constant temperature anemometer (Model 1050) with a 0.001 in. diameter platinum film sensing element 0.020 in. long. Output is directed to the on-line data acquisition system for analysis.

Calibration of the hot-wire anemometer is performed by comparing output with the pitot-static tube in the wind tunnel. The calibration

data are fit to a variable exponent King's Law relationship of the form

$$E^2 = A + BU^n$$

where E is the hot-wire output voltage, U the velocity and A , B , and n are coefficients selected to fit the data. The above relationship was used to determine the mean velocity at measurement points using the measured mean voltage. The fluctuating velocity in the form U_{rms} (root-mean-square velocity) was obtained from

$$U_{rms} = \frac{2 E E_{rms}}{B n U^{n-1}}$$

where E_{rms} is the root-mean-square voltage output from the anemometer. For interpretation all turbulence measurements for pedestrian winds were divided by the mean velocity outside the boundary-layer U_{∞} . Turbulence intensity in velocity profile measurements used the local mean velocity.

4. RESULTS

4.1 Flow Visualization

A film is included as part of this report showing the characteristics of flow about the structure using smoke to make the flow visible. A listing of the contents of the film is shown in Table 1. Several features can be noted from the visualization. As with all large structures, wind approaching the building is deflected down to the plaza level, up over the structure and around the sides. A description of the smoke test results emphasizing flow patterns of concern relative to possible high-wind load areas and pedestrian comfort is given in Section 5.1.

4.2 Velocity

Velocity and turbulence profiles are shown in Figure 7. Profiles were taken upstream from the model which are characteristic of the boundary layer approaching the model and sometimes at the building site with building removed. The boundary-layer thickness, δ , is shown in Figure 7. The corresponding prototype value of δ for this study is also shown in the figure. This value was established as a reasonable height for this study. The mean velocity profile approaching the modeled area has the form

$$\frac{U}{U_{\infty}} = \left(\frac{z}{\delta}\right)^n.$$

The exponent n for the approach flow established for this study is shown in Figure 7.

Profiles of longitudinal turbulence intensity in the flow approaching the modeled area are shown in Figure 7. The turbulence intensities are appropriate for the approach mean velocity profile selected. For the velocity profiles, turbulence intensity is defined

as the root-mean-square about the mean of the longitudinal velocity fluctuations divided by the local mean velocity U ,

$$Tu = \frac{U_{rms}}{U} .$$

Velocity data obtained at each of the pedestrian measurement locations shown in Figure 4 are listed in Table 2 as mean velocity U/U_{∞} , turbulence intensity U_{rms}/U_{∞} , and largest effective gust

$$U_{pk} = \frac{U + 3U_{rms}}{U_{\infty}} .$$

These data are plotted in polar form in Figure 8. Measurements were taken 5 to 7 ft above the ground surface. A site map is superimposed on the polar plots to aid in visualization of the effects of the nearby structures on the velocity and turbulence magnitudes. An analysis of these wind data is given in Section 5.2.

To enable a quantitative assessment of the wind environment, the wind-tunnel data were combined with wind frequency and direction information obtained at the local airport. Table 3 shows wind frequency by direction and magnitude obtained from summaries published by the National Weather Service. These data, usually obtained at an elevation of about 30-40 ft, were converted to velocities at the reference velocity height for the wind-tunnel measurements and combined with the wind-tunnel data to obtain cumulative probability distributions (percent time a given velocity is exceeded) for wind velocity at each measuring location. The percentage times were summed by wind direction to obtain a percent time exceeded at each measuring position independent of wind direction (but accounting for the fact that the wind blows from different directions with varying frequency). These results are plotted in Figure 9.

Interpretation of Figure 9 is aided by a description of the effects of wind of various magnitudes on people. The earliest quantitative description of wind effects was established by Sir Francis Beaufort in 1806 for use at sea and is still in use today. Several recent investigators have added to the knowledge of wind effects on pedestrians. These investigations along with suggested criteria for acceptance have been summarized by Penwarden and Wise (4) and Melbourne (5). The Beaufort scale (from ref. 4), based on mean velocity only, is reproduced as Table 4 including qualitative descriptions of wind effects. Table 4 suggests that mean wind speeds below 12 mph are of minor concern and that mean speeds above 24 mph are definitely inconvenient. Quantitative criteria for acceptance from reference 5 are superimposed as dashed lines on Figure 9. The peak gust curves shown in Figure 9 are the percent of time during which a short gust of the stated magnitude could occur (say about one of these gusts per hour). Implications of the data plotted in Figure 9 are presented in Section 5.2

Because some pedestrian wind measuring positions are purposely chosen at sites where the smoke tests showed large velocities of small spacial extent, the general wind environment about the structure may be less severe than one might infer from a strict analysis of Table 2 and Figure 9.

4.3 Pressures

For each of the pressure taps examined at each wind direction, the data record is analyzed to obtain four separate pressure coefficients.

The first is the mean pressure coefficient

$$C_{P_{\text{mean}}} = \frac{(p-p_{\infty})_{\text{mean}}}{0.5 \rho U_{\infty}^2}$$

where the symbols are as defined in the List of Symbols. It represents the mean of the instantaneous pressure difference between the building pressure tap and the static pressure in the wind tunnel above the building model, nondimensionalized by the dynamic pressure

$$0.5 \rho U_{\infty}^2$$

at the reference velocity position. This relationship produces a dimensionless coefficient which indicates that the mean pressure difference between building and ambient wind at a given point on the structure is some fraction less or some fraction greater than the undisturbed wind dynamic pressure near the upper edge of the boundary layer. Using the measured coefficient, prototype mean pressure values for any wind velocity may be calculated.

The magnitude of the fluctuating pressure is obtained by the rms pressure coefficient

$$C_{P_{\text{rms}}} = \frac{\left((p-p_{\infty}) - (p-p_{\infty})_{\text{mean}} \right)_{\text{rms}}}{0.5 \rho U_{\infty}^2}$$

in which the numerator is the root-mean-square of the instantaneous pressure difference about the mean.

If the pressure fluctuations followed a Gaussian probability distribution, no additional data would be required to predict the

frequency with which any given pressure level would be observed. However, the pressure fluctuations do not, in general, follow a Gaussian probability distribution so that additional information is required to show the extreme values of pressure expected. The peak maximum and peak minimum pressure coefficients are used to determine these values:

$$C_{P_{\max}} = \frac{(p-p_{\infty})_{\max}}{0.5 \rho U_{\infty}^2}$$

$$C_{P_{\min}} = \frac{(p-p_{\infty})_{\min}}{0.5 \rho U_{\infty}^2}$$

The values of $p-p_{\infty}$ which were digitized at 250 samples per second for 16 seconds, representing about one hour of time in the full-scale, are examined individually by the computer to obtain the most positive and most negative values during the 16-second period. These are converted to $C_{P_{\max}}$ and $C_{P_{\min}}$ by nondimensionalizing with the free stream dynamic pressure.

The four pressure coefficients are calculated by the on-line data acquisition system computer and tabulated along with the approach wind azimuth in degrees from true north. The list of coefficients is included as Appendix A. The pressure tap code numbers used in the appendix are explained in Figure 3.

To determine the largest peak loads acting at any point on the structure for cladding design purposes, the pressure coefficients for all wind directions were searched to obtain, at each pressure tap, the largest absolute value of peak pressure coefficient. Table 6 provides these pressure coefficients and associated wind directions. Included in Section 5.3 is an analysis of the coefficients of Table 6 including the maximum values obtained and where they occurred on the building.

The pressure coefficients of Table 6 can be converted to full-scale loads by multiplication by a suitable reference pressure selected for the field site. This reference pressure is represented in the equations for pressure coefficients by the $0.5 \rho U_{\infty}^2$ denominator. This value is the dynamic pressure associated with an hourly mean wind at the reference velocity measurement position at the edge of the boundary layer. In general, the method of arriving at a design reference pressure for a particular site involves selection of a design wind velocity, translation of the velocity to an hourly mean wind at the reference velocity location and conversion to a reference pressure. Selection of the design velocity can be made from statistical analysis of extreme wind data or selected from wind maps contained in the proposed wind loading code ANSI A58.1 of the American National Standards Institute (6). The calculation of reference pressure for this study is shown in Table 5. The factor used in Table 5 to reduce gust winds to hourly mean winds is given in reference (7).

The reference pressure associated with the design hourly mean velocity at the reference velocity location can be used directly with the peak-pressure coefficients to obtain peak local design wind loads for cladding design. Local, instantaneous peak loads on the full-scale building suitable for cladding design were computed by multiplying the reference pressure of Table 5 by the peak coefficients of Table 6 and are listed as peak pressures in that table. The maximum psf load given at each tap location is the absolute value of the maximum value found in the tests, irrespective of its algebraic sign. For ease in visualizing the loads on the structure, contours of equal peak pressures for cladding load shown in Table 6 have been plotted on developed elevation

views of the structure, Figure 10. For control of water infiltration from outside to inside, the largest positive (inward-acting) pressure at each tap location is tabulated in Table 6.

For glass design pressures, a glass load factor is used to account for the different duration between measured peak pressures and the one minute loading commonly used in glass design charts. The design pressure used for glass is normally less than the peak pressures used for cladding design because of the static fatigue property of glass which can withstand higher pressures for short duration loads than for long duration loads. Recent research (8) indicates that the period of application of the peak pressures reported herein is about 5-10 seconds or less. If a glass design is based on these peak-pressure values, then a glass strength associated with this duration load should be used. Because glass design charts are normally based on some alternate load duration--usually one minute--then some reduction in peak loads should be made. An estimate of a load reduction factor can be obtained from an empirical relation of glass strength as a function of load duration. Current glass selection charts showing glass strength as a function of load duration (9) and older references (10) indicate the following load reduction factors:

	ref 9	ref 10
annealed float	0.80	0.81
heat strengthened	0.94	
tempered	0.97	0.98

Loadings appropriate for glass design can be computed by multiplying the peak-pressure loads of Table 6 by these load factors.

4.4 Forces and Moments

Force coefficients in the horizontal X and Y directions and moment coefficients about the X, Y, and Z axes with the origin at ground level at the base of the building with Z axis vertical may be computed for all wind directions tested by integration of mean pressures on the building. Overall forces and moments acting on the full-scale building due to wind loading which are useful in designing the structural framing of the proposed building may be obtained from use of these coefficients.

Force coefficients were computed for each floor for each wind direction using the equations shown below.

$$CF_X = \frac{F_X}{A_R 0.5 \rho U_\infty^2} \quad CF_Y = \frac{F_Y}{A_R 0.5 \rho U_\infty^2}$$

Terms and symbols used in the equations are defined in the List of Symbols and the axes are defined for the building in Figure 3. Force coefficients CF_X and CF_Y were computed for the horizontal forces acting along the X and Y axes using the mean pressure coefficient at each pressure tap. A_R represents a constant reference area for nondimensionalization of the forces and moments.

The total forces acting on the full-scale building for each floor and wind direction were computed by multiplying the above coefficients by the appropriate full-scale reference area, by the reference pressure of Table 5, and by a gust load factor selected for an appropriate wind gust duration. The gust load factor, shown in Table 5, was selected to increase the loads from an hourly mean load to that of a gust whose duration would be sufficient for its effect to be fully felt by the structure. A table of gust load factors for various gust durations is

incorporated in Table 5 so that force and moment data of Table 7 may be adjusted to a different load duration if desired.

The forces obtained at each floor were used to obtain load, shear, and moment diagrams for the building for each wind direction. The shear diagram, in kips, was obtained by algebraic sum of all forces in each coordinate direction acting above the floor of interest. The load diagram, in psf, was obtained by dividing the shear values by their contributing areas (listed in Table 7). The moment diagram, in 1000 ft-kips, was obtained by integration of the shear values so that the moment due to forces acting above the floor level of interest was calculated. The sign of the moment was established by the right-hand rule about an X', Y' axis through the floor of interest. Moments about the Z axis were calculated by considering the displacement of forces in the X and Y directions from the Z axis shown in Figure 3. Load, shear, and moment diagrams are shown in Figure 11 for several wind directions.

5. DISCUSSION

5.1 Flow Visualization

Flow patterns identified with smoke showed no characteristics which are usually identified with exceptionally high pressures. Vortex flow patterns, often identified with setbacks on a building, were not sufficiently strong, if present, to be identified with smoke. Based on flow visualization, the highest pressures should be found near corners of the structure. Flow about the base of the building in pedestrian areas appeared to be low in velocity. Considerable shielding of building and pedestrian areas by upwind buildings was evident for most wind directions.

5.2 Pedestrian Winds

Figure 4 shows the 15 pedestrian locations selected for investigation of pedestrian wind comfort. This data was obtained without the tower structure that may be constructed across Wacker to the west. Location 1 was selected as a reference location which should be reasonably undisturbed by presence of the One South Wacker building. Location 8 was placed in the recessed entrance on the Wacker Street side. Table 2 and Figure 8 show that the largest values of mean velocity were measured at locations 2 and 13 with values from 45 to 55 percent of the mean velocity, U_{∞} , at the boundary layer height for two wind directions each. These values compare to a largest mean velocity of 30 percent at reference location 1 and a value of about 45 percent expected in an open-field environment.

The largest values of fluctuating velocity, U_{rms} , were all less than 19 percent of U_{∞} indicating moderate turbulence intensities were

found. The largest values of peak gust, represented by the mean plus three rms as discussed in section 4.2 were obtained at locations 2 and 6 with values of 104 and 95 percent of U_{∞} . These values compare to a largest value of 57 percent at location 1 and 80-90 percent expected in an open-field environment.

Velocity data of Table 2 integrated with local wind data is shown in Figure 9. Based on the data of this figure, the windiest location will be 13 which will be uncomfortable for walking about 6-8 percent of the time. The plaza area along Wacker, represented by data locations 5-12 will be uncomfortable for short exposure only 2-4 percent of the time and will be comfortable for long exposure most of the time for someone dressed for the temperature present.

The results of the pedestrian wind study showed that the pedestrian environment about the base of the One South Wacker building should be generally acceptable with unpleasant winds restricted only to the higher-wind days.

5.3 Pressures

Table 6 shows the largest pressure coefficients and corresponding loads measured on the building for each pressure tap location. Data listed as Configuration A in Table 6 and Appendix A represent the basic data obtained at all pressure taps for 36 wind directions. Data listed as Configuration B represent data obtained at four taps where the largest peaks were measured in Configuration A at two degree azimuthal resolution near the peaks to ensure that the peak maxima were obtained. Data listed as Configuration C represent data obtained at

69 selected taps for a limited range of wind directions to determine the influence of the addition of a two-tower building on the lot west of One South Wacker across Wacker Street. Photographs of the configurations are shown in Figure 5.

The largest peak pressure coefficients measured on the One South Wacker building for Configuration A were -2.82 and -2.64 at taps 267 on the west face and 549 on the east face for approach wind azimuths of 170 and 230 respectively. These coefficients correspond to peak cladding pressures of 73 and 69 psf using the reference pressure of Table 5. Figure 10 shows that peak cladding pressures were typically in the range of 20 - 40 psf. Configuration C data showed that the primary influence of the added building to the west was to decrease peak cladding pressures; however, 9 of the 69 taps measured in Configuration C showed increases in load of 5 psf or more and 2 showed increases of 15 psf or more.

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FIGURES

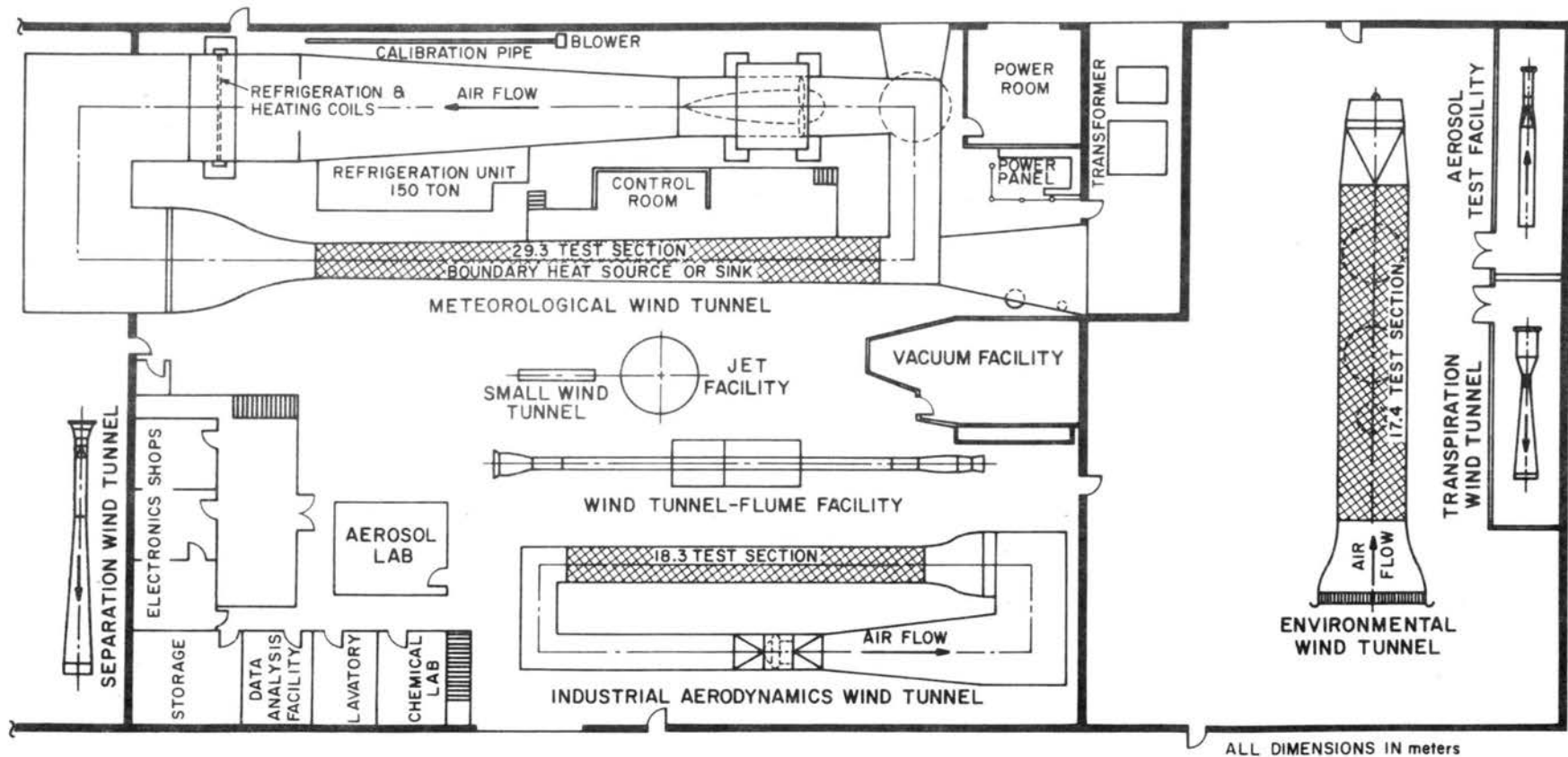
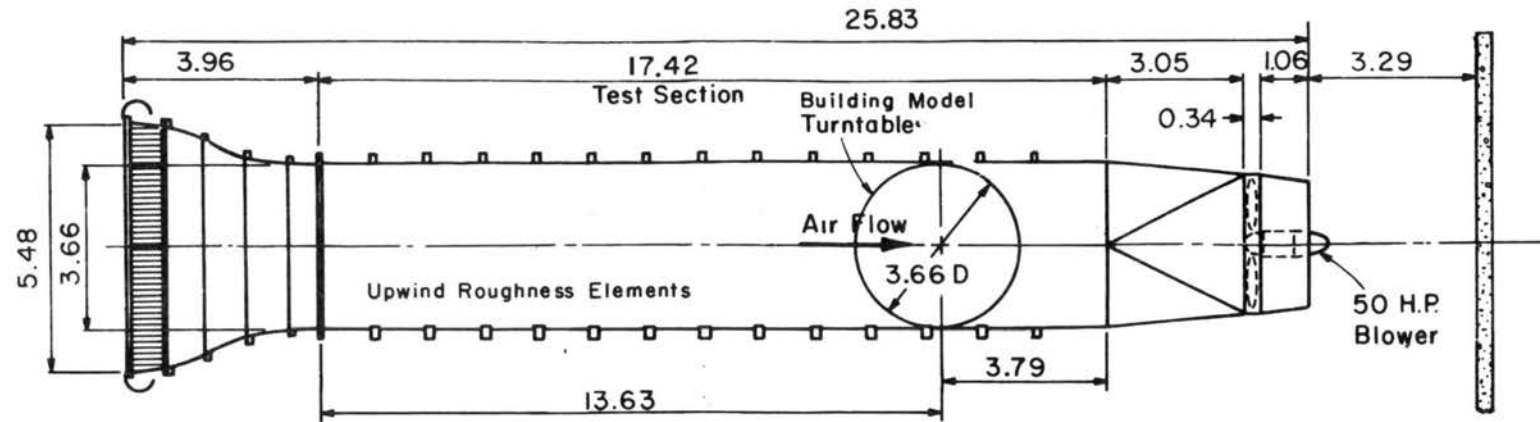
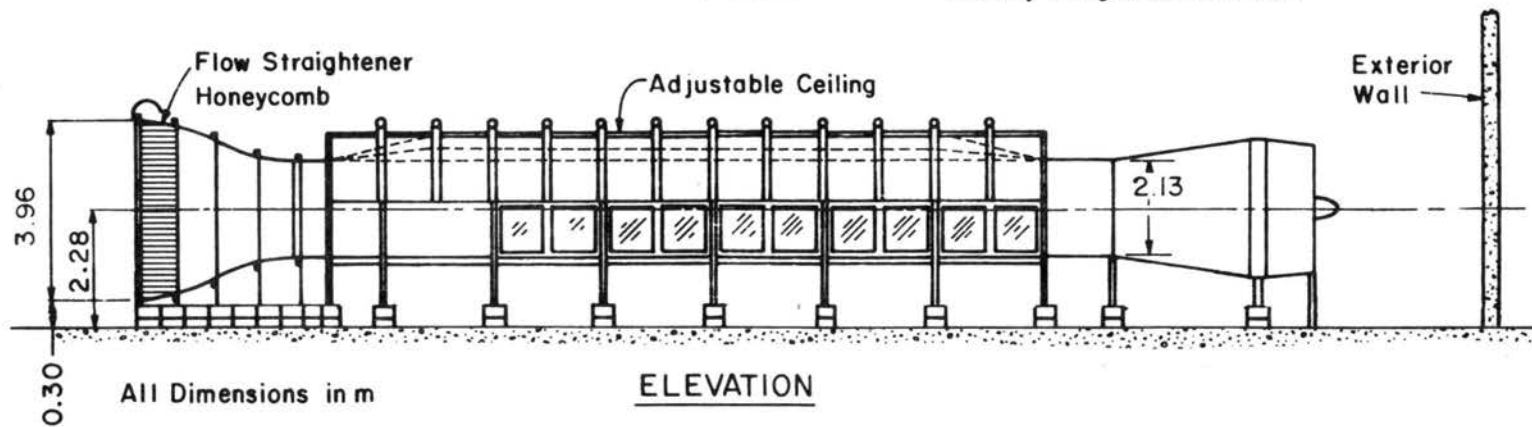


FIGURE 1 - FLUID DYNAMICS AND DIFFUSION LABORATORY
 COLORADO STATE UNIVERSITY



PLAN

Velocity Range: 0.3 - 11 m/s



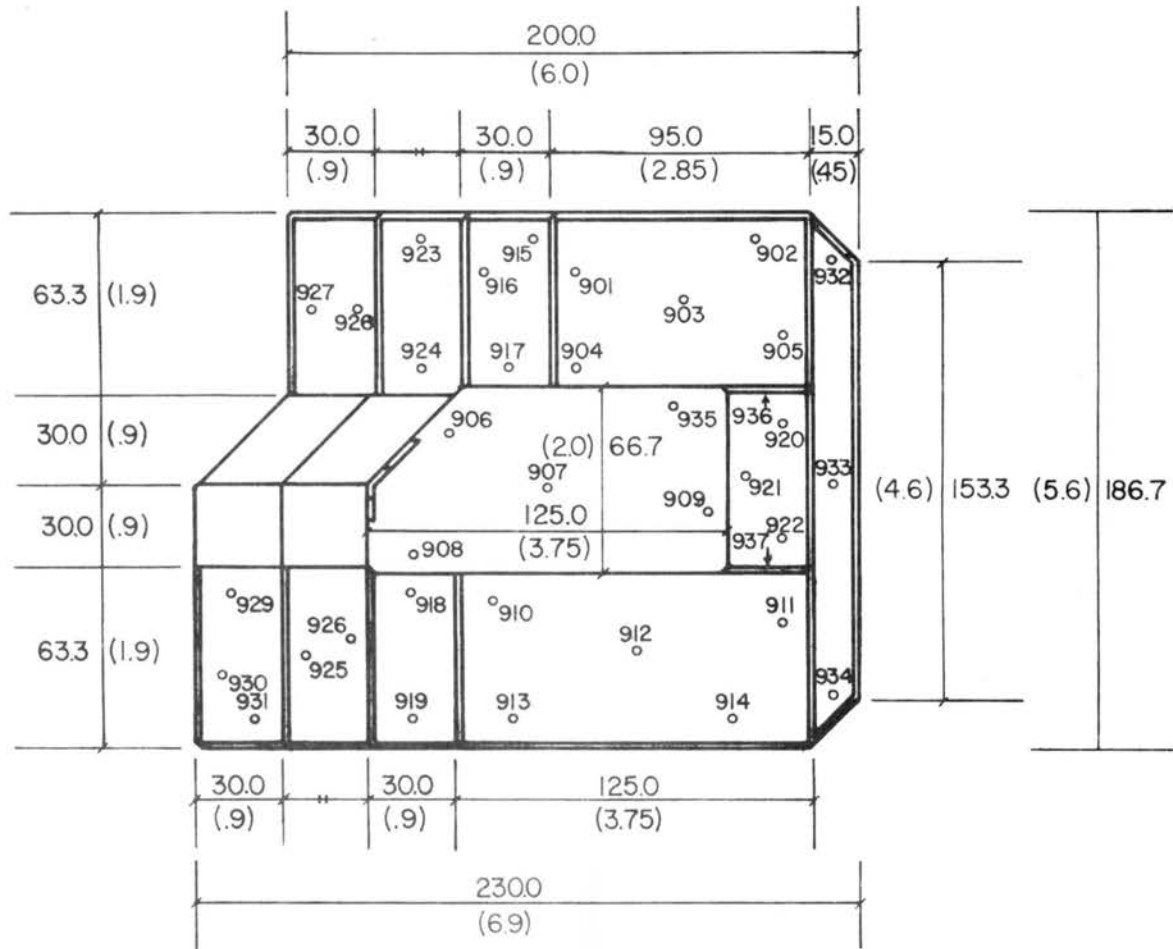
ELEVATION

All Dimensions in m

ENVIRONMENTAL WIND TUNNEL

Figure 2 - Wind Tunnel Configuration

ROOF



MODEL SCALE = 1/400
 NUMBER OF TAPS = 395
 DIMENSIONS GIVEN IN MODEL INCHES ()
 AND FULL SCALE FEET.

Figure 3a. Pressure Tap Locations

NORTH

undesignated tap elevations typical of South face tap designations

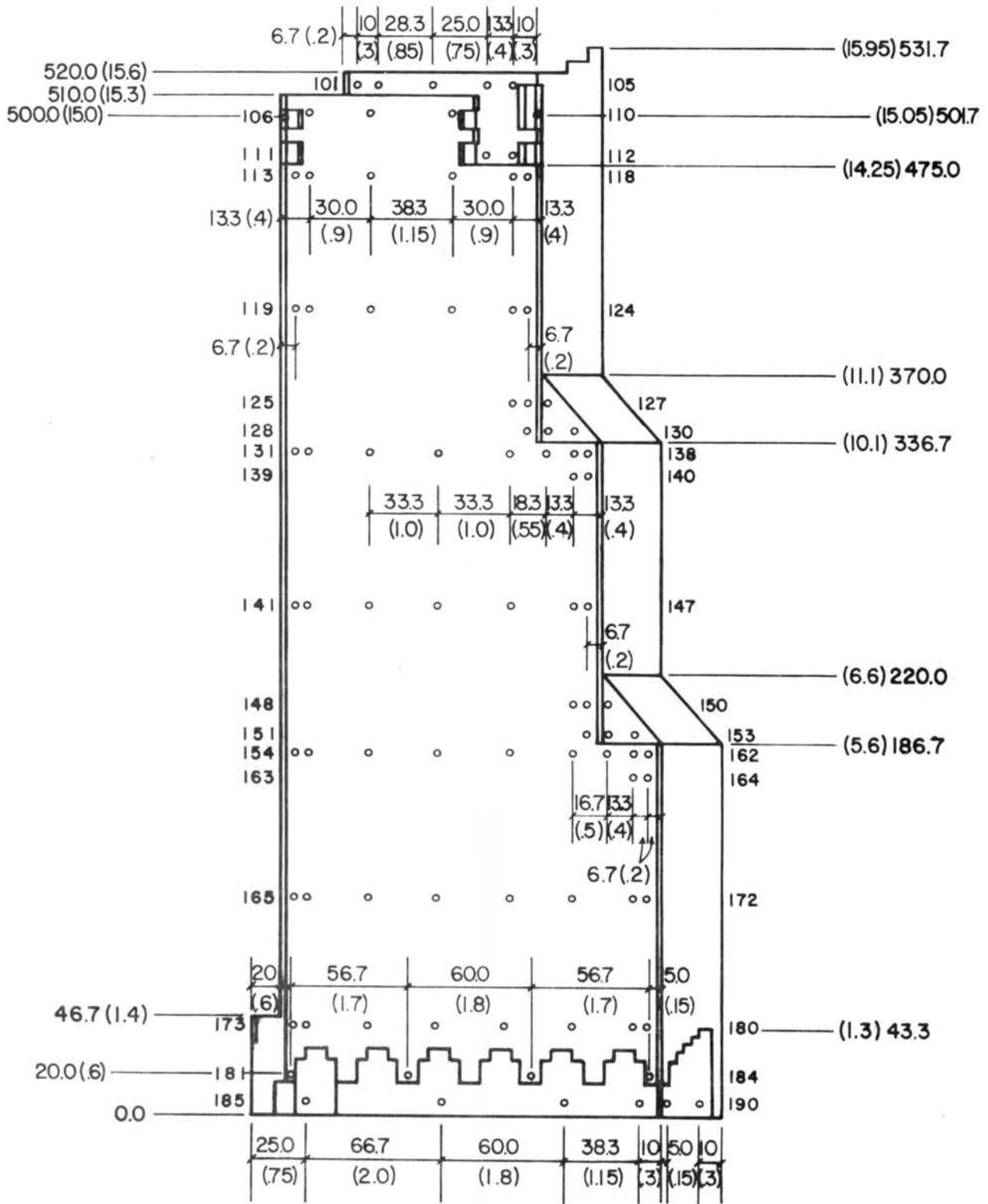


Figure 3c. Pressure Tap Locations

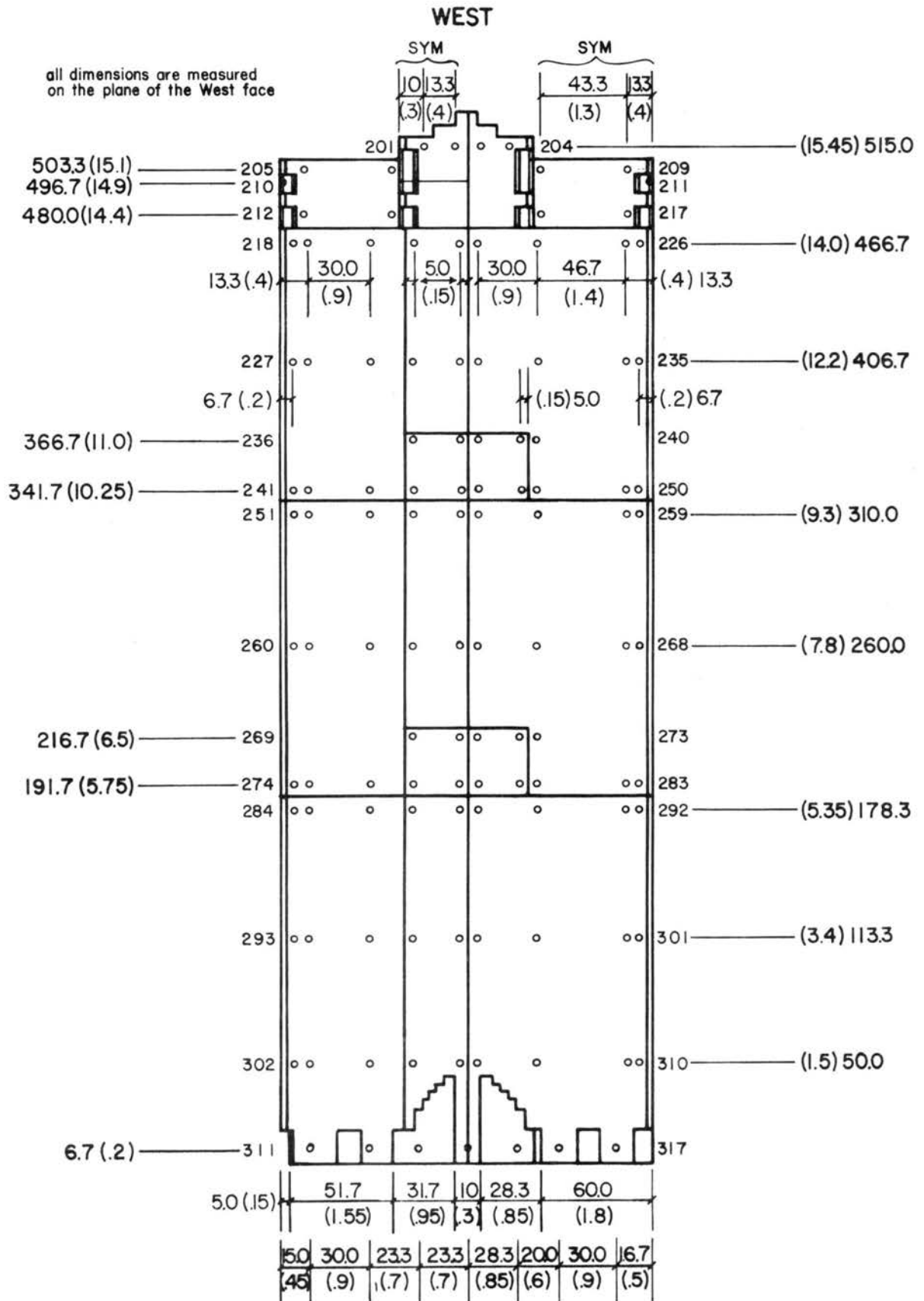


Figure 3d. Pressure Tap Locations

SOUTH

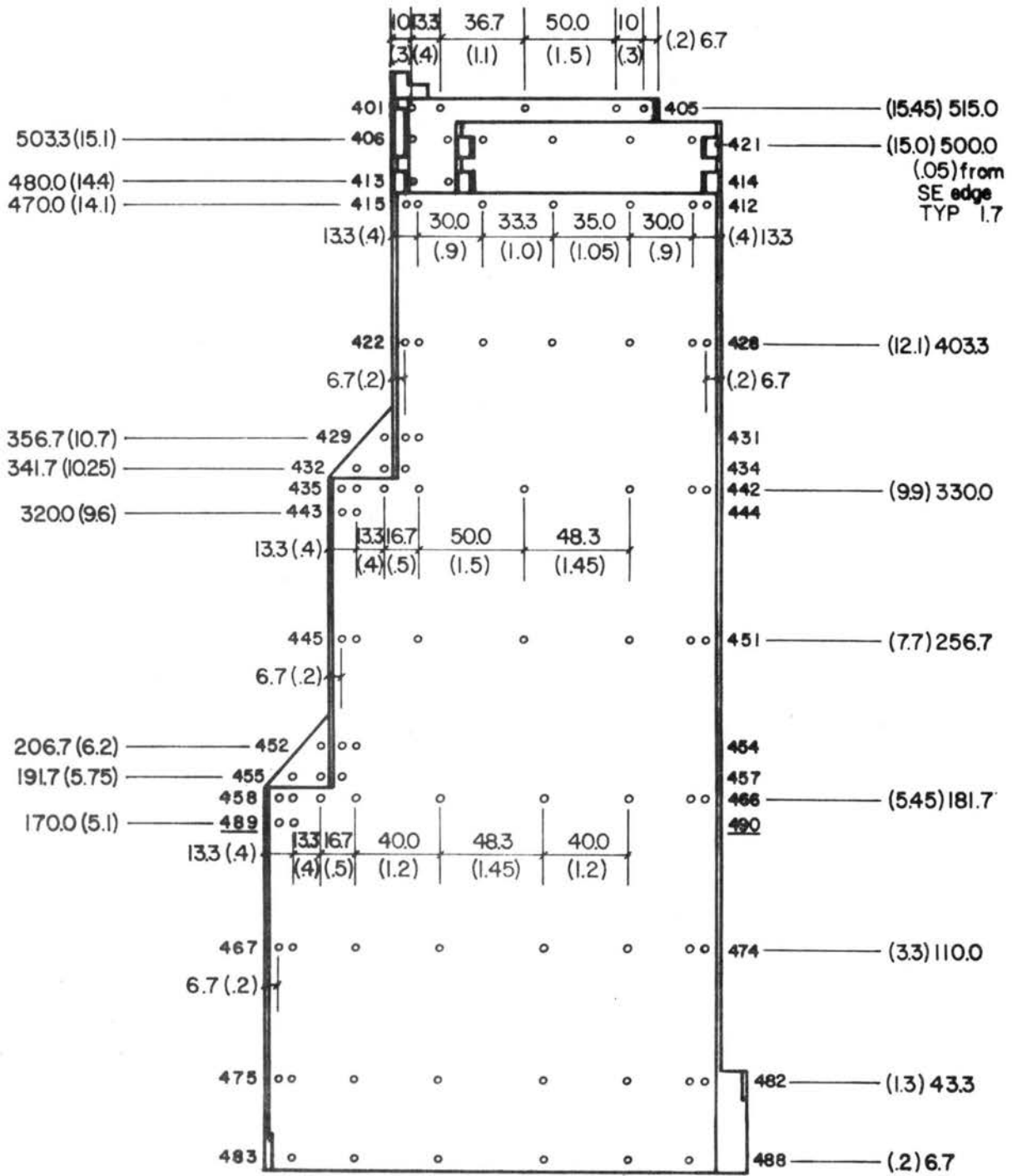


Figure 3e. Pressure Tap Locations

EAST

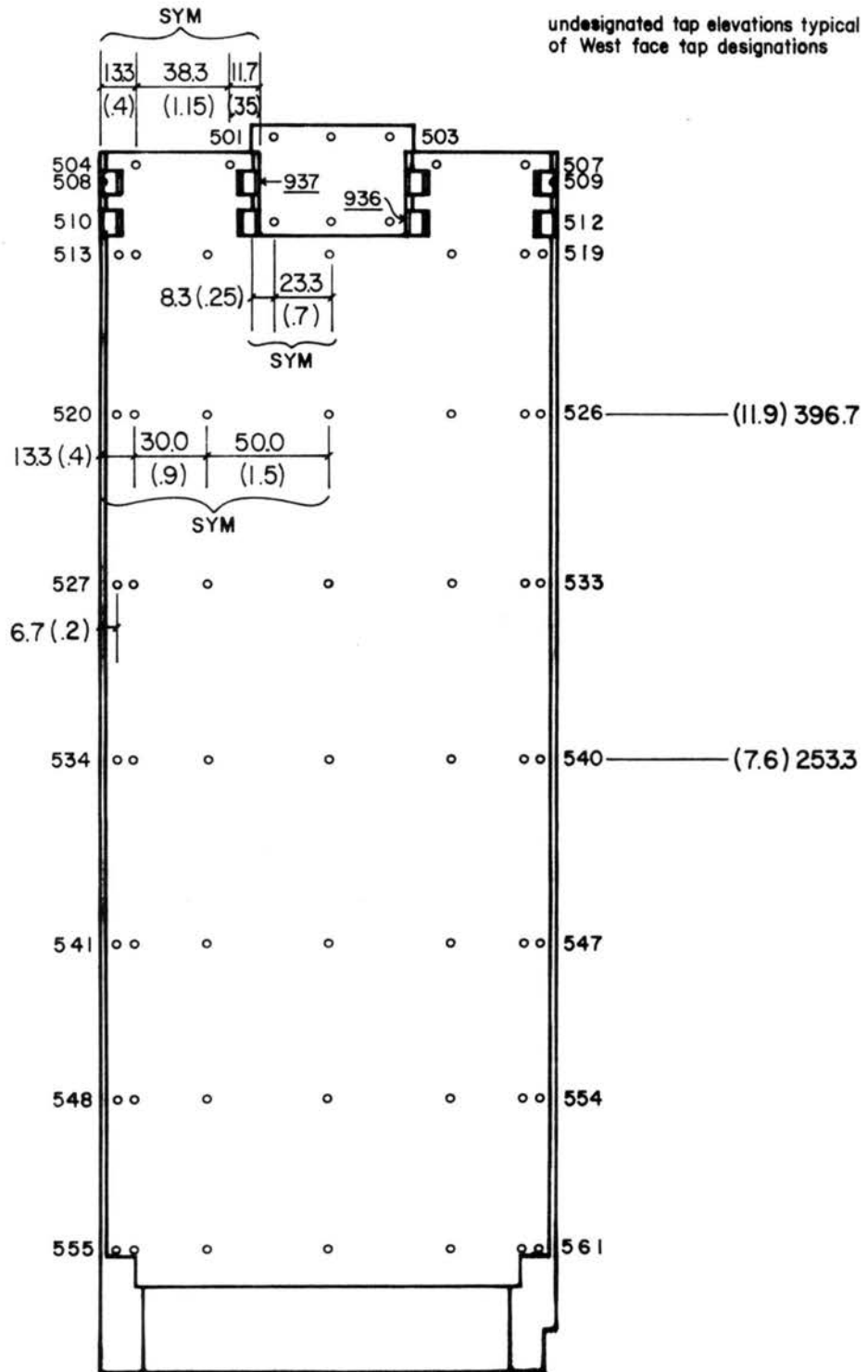


Figure 3f. Pressure Tap Locations

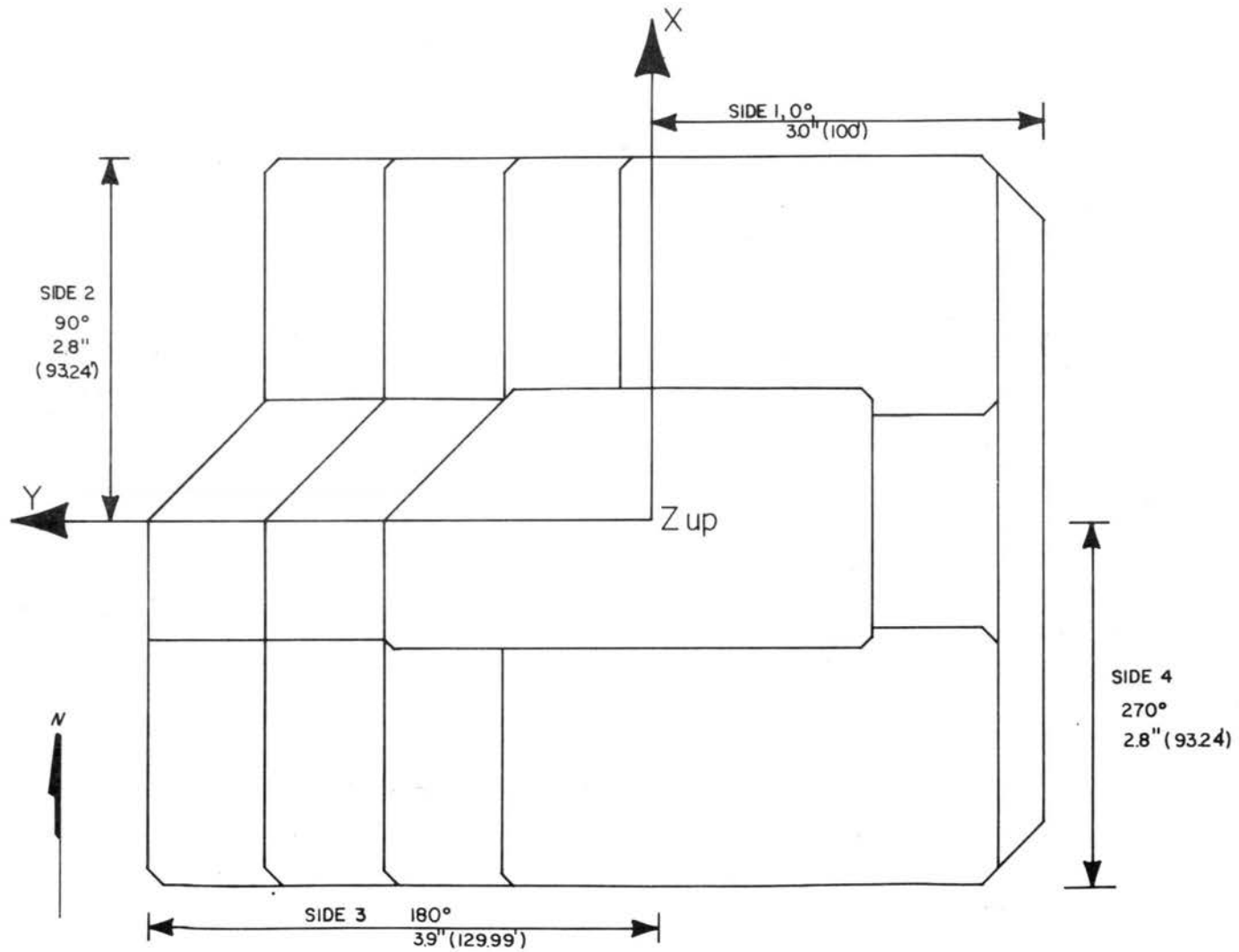


Figure 3g. Coordinate System for Forces and Moments

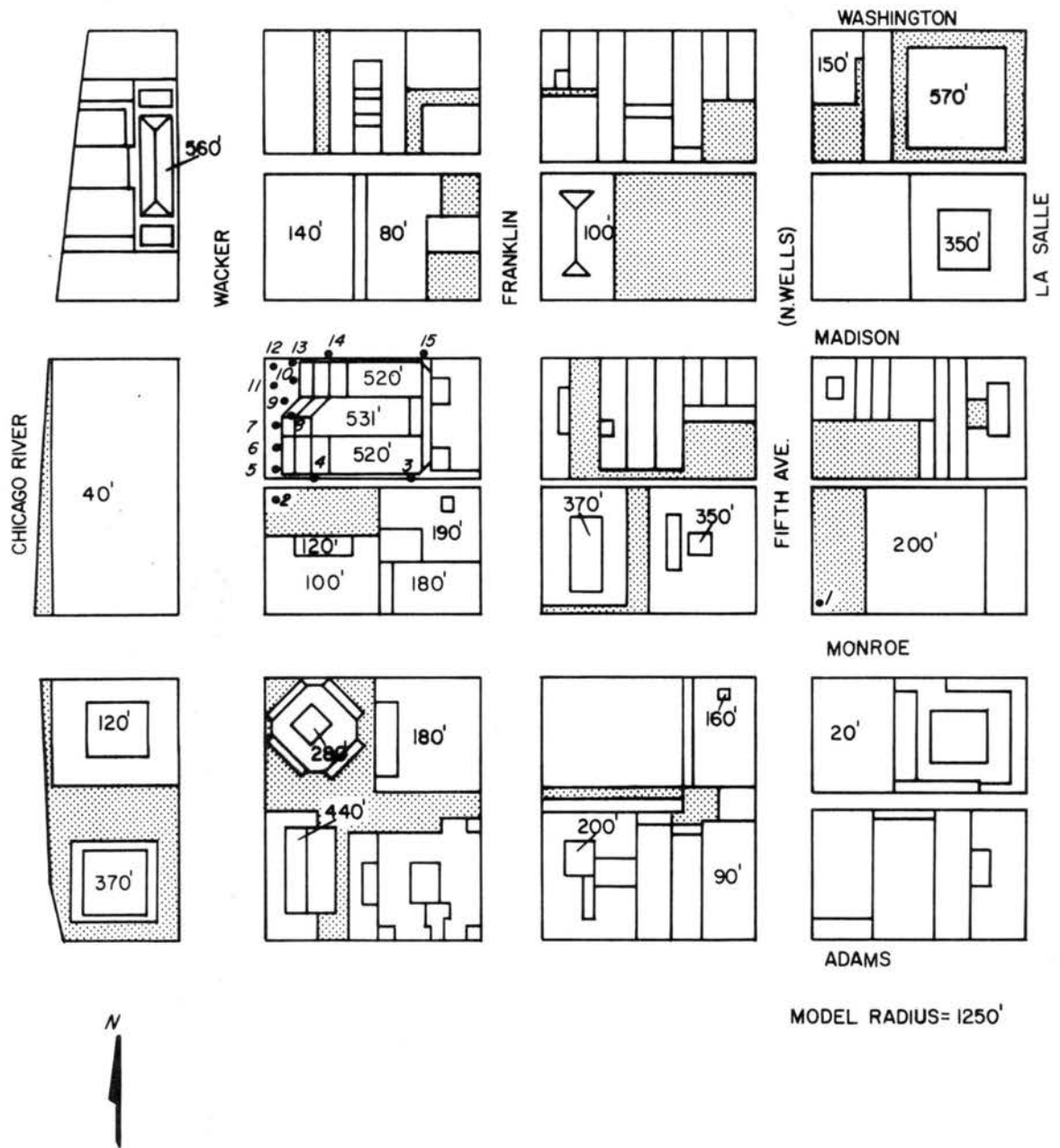


Figure 4. Building Location and Pedestrian Wind Velocity Measuring Positions

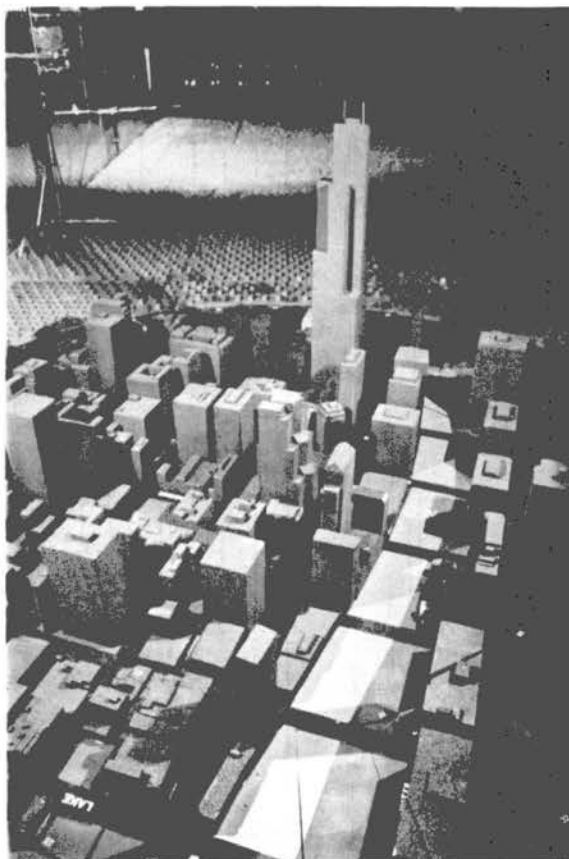
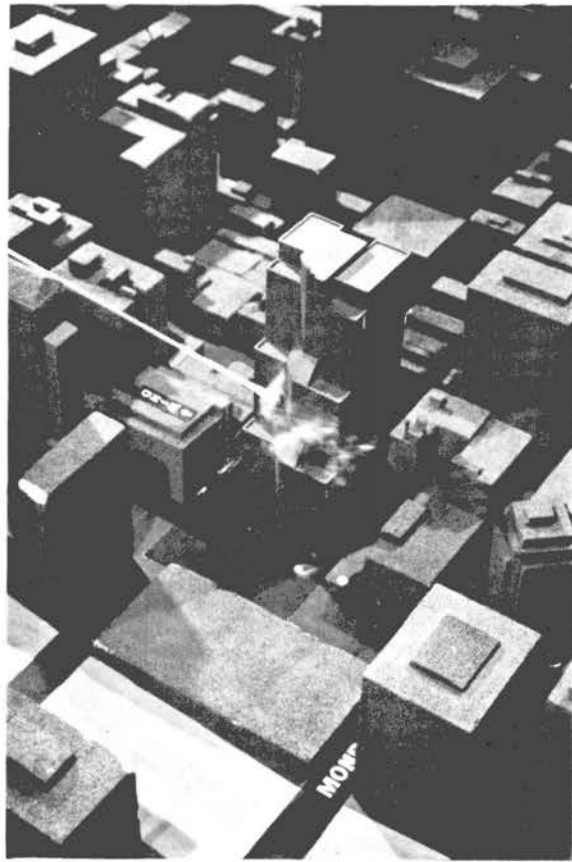
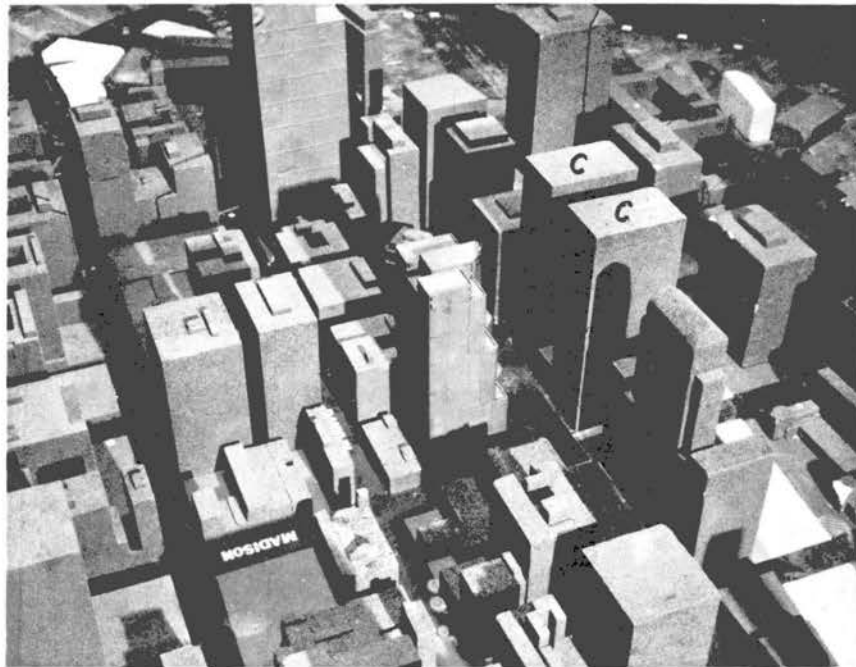


Figure 5. Completed Model in Wind Tunnel



Configurations A, B



Configuration C

Figure 5. Completed Model in Wind Tunnel

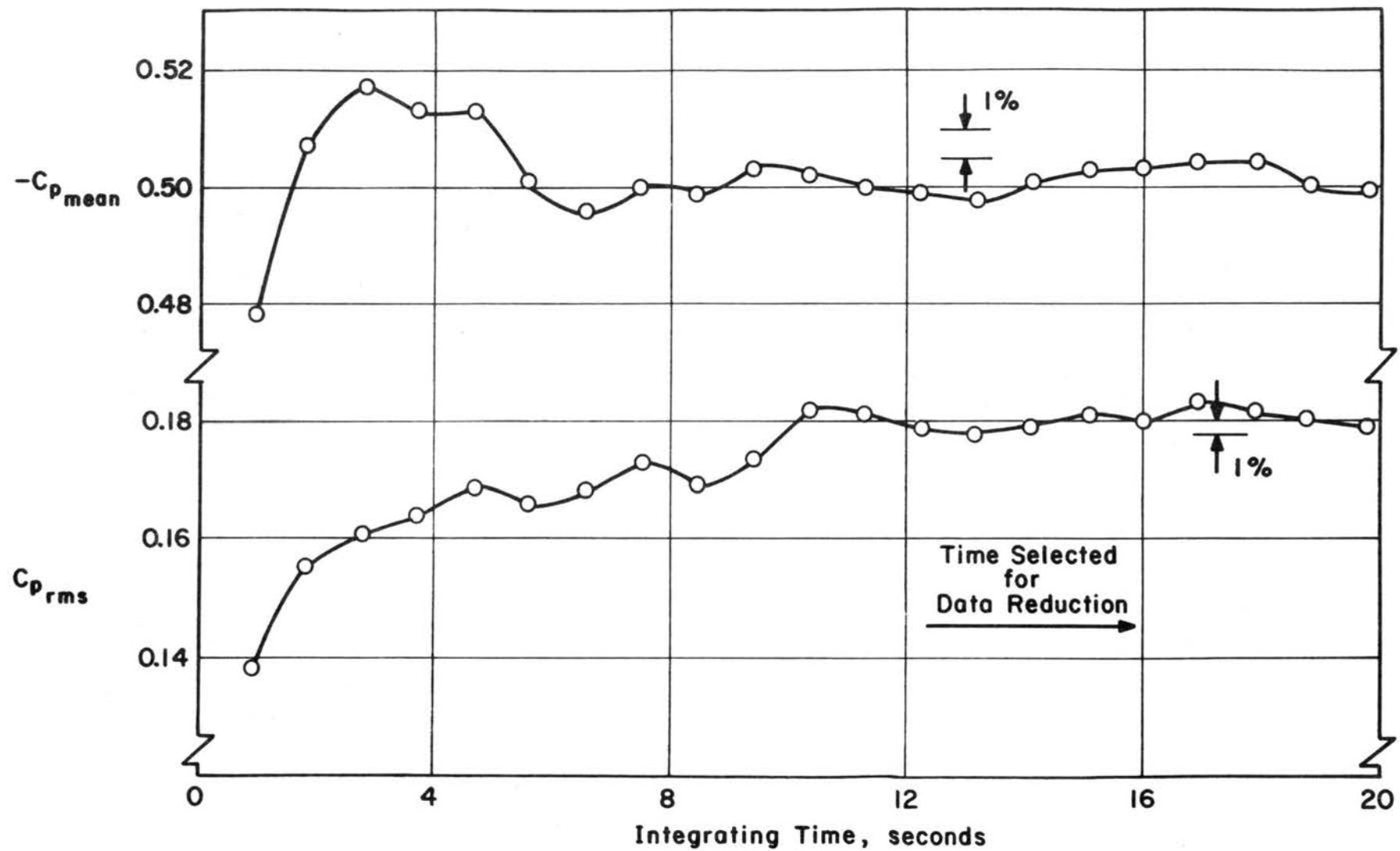


Figure 6 - Data Sampling Time Verification

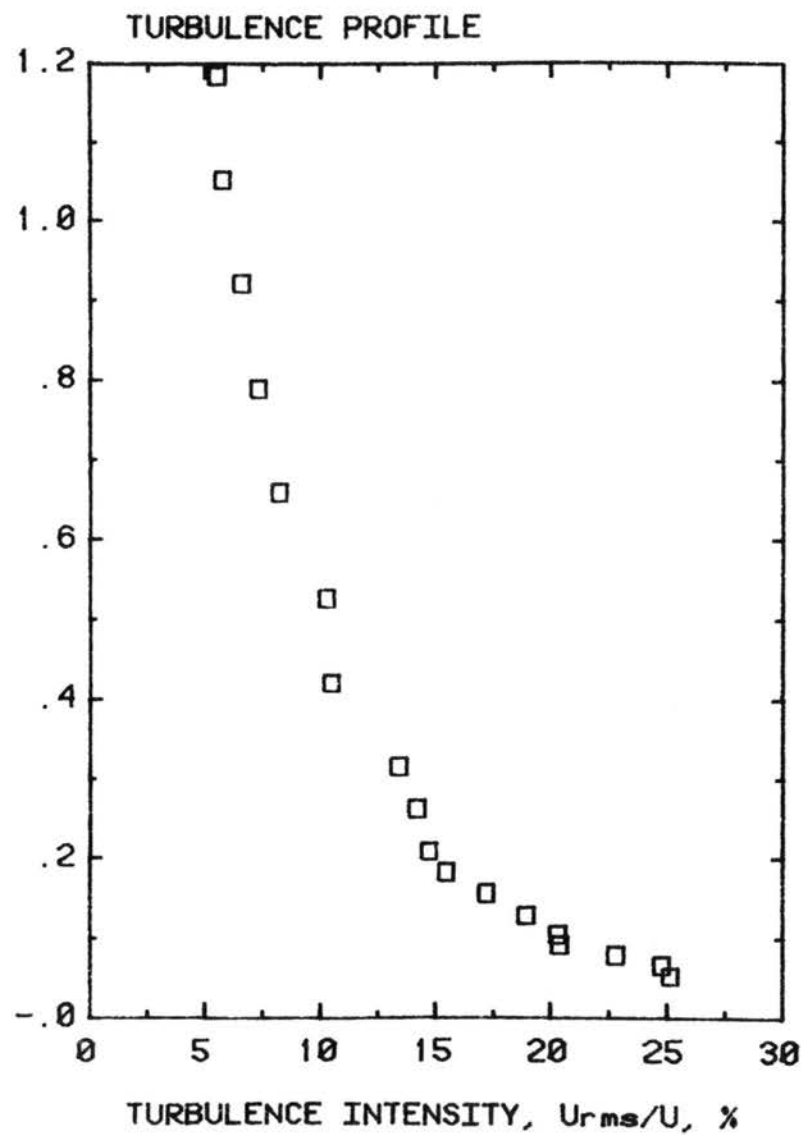
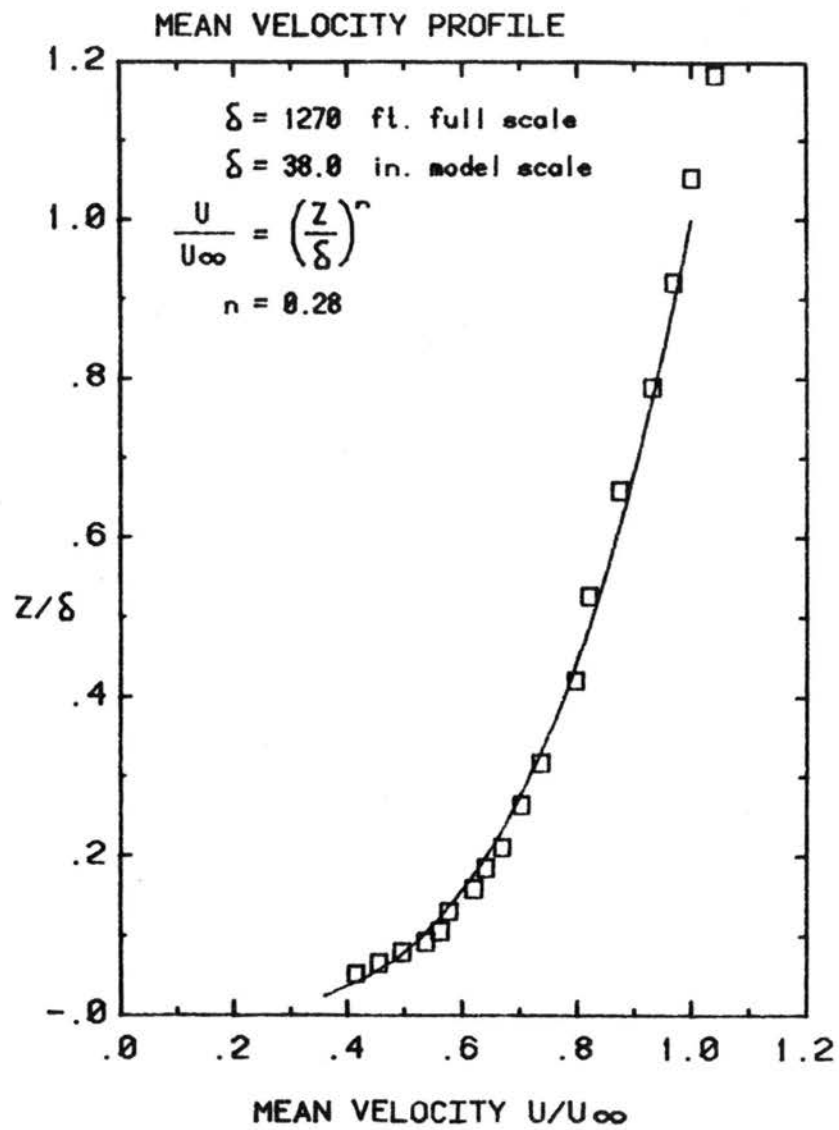


Figure 7. Mean Velocity and Turbulence Profiles Approaching the Model.

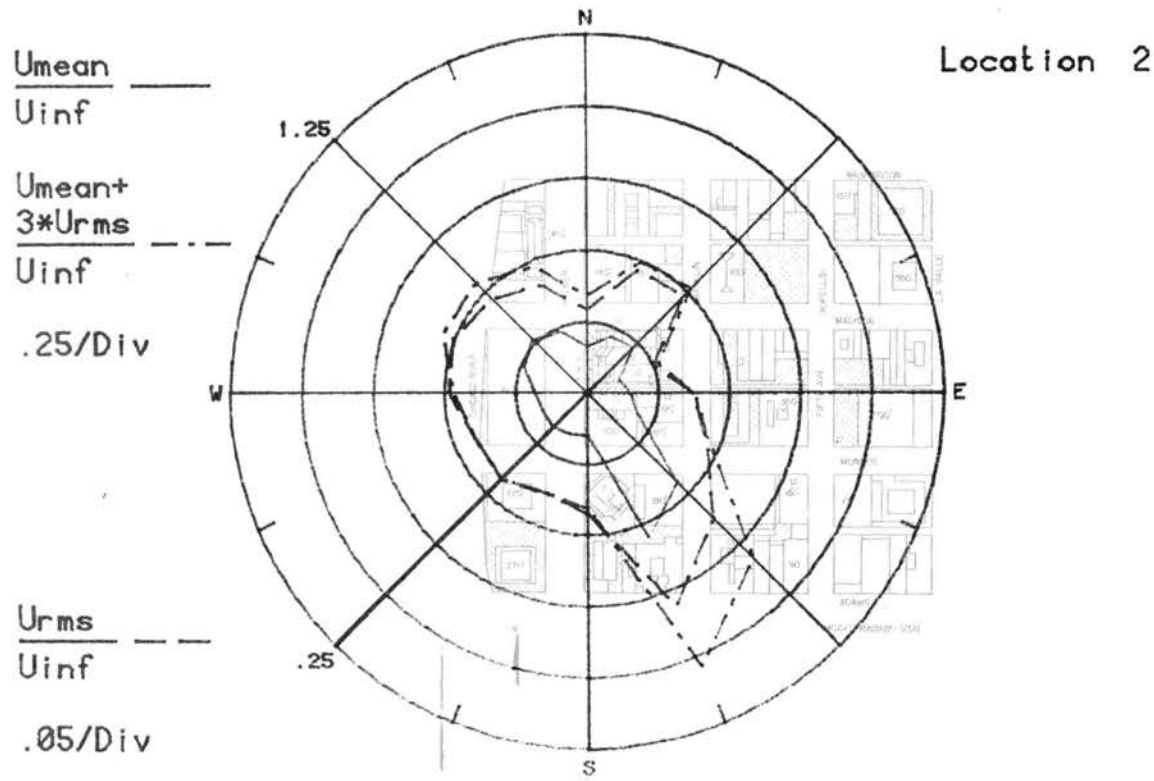
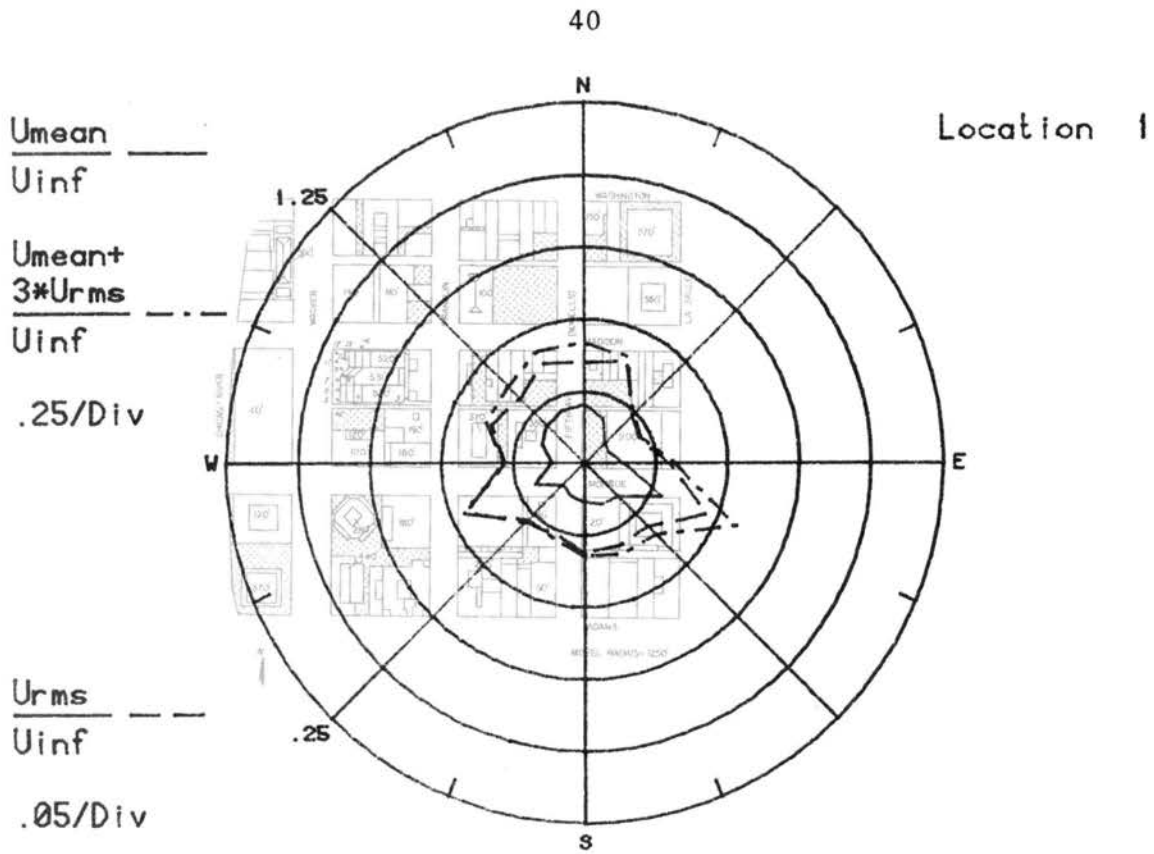


Figure 8a. Mean Velocities and Turbulence Intensities at Pedestrian Locations 1 and 2

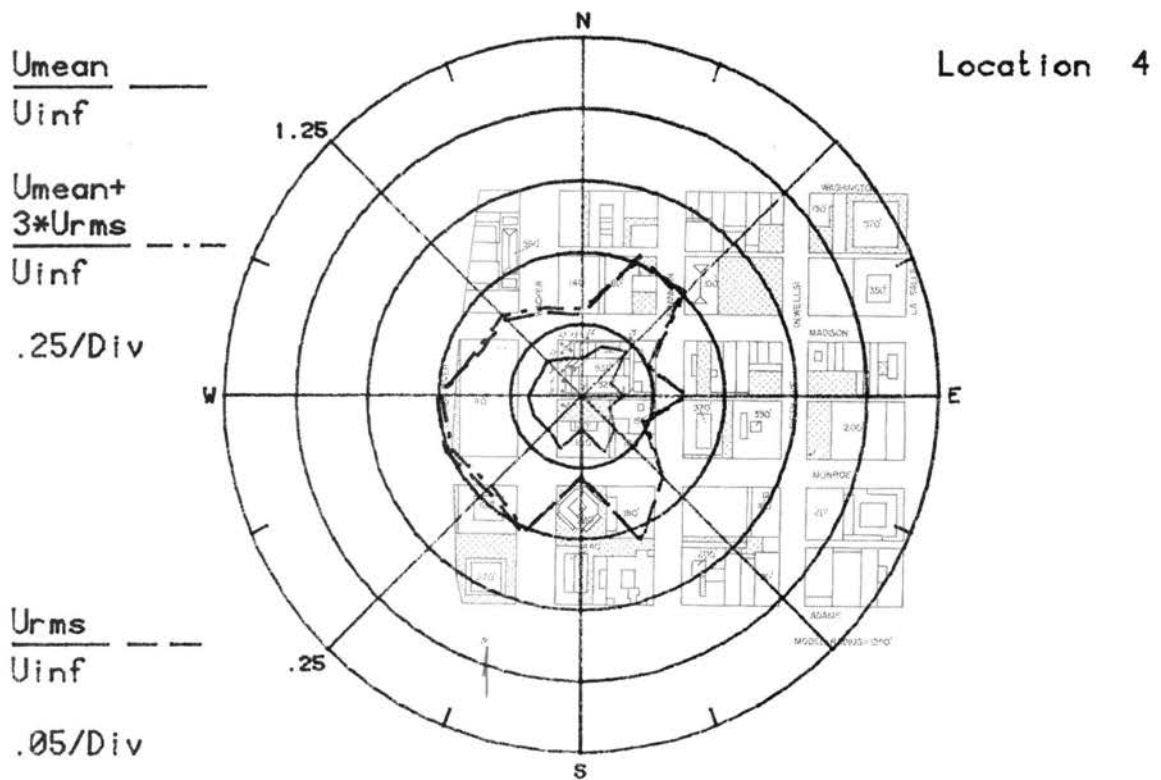
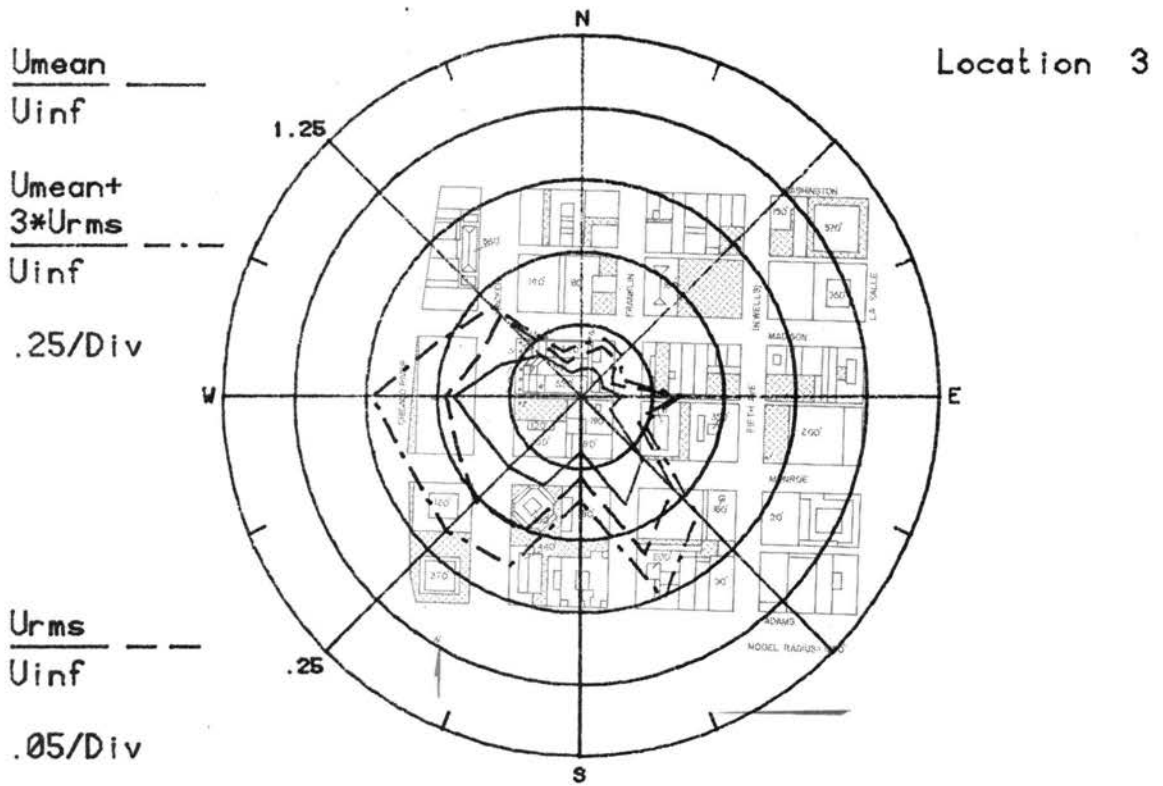


Figure 8b. Mean Velocities and Turbulence Intensities at Pedestrian Locations 3 and 4

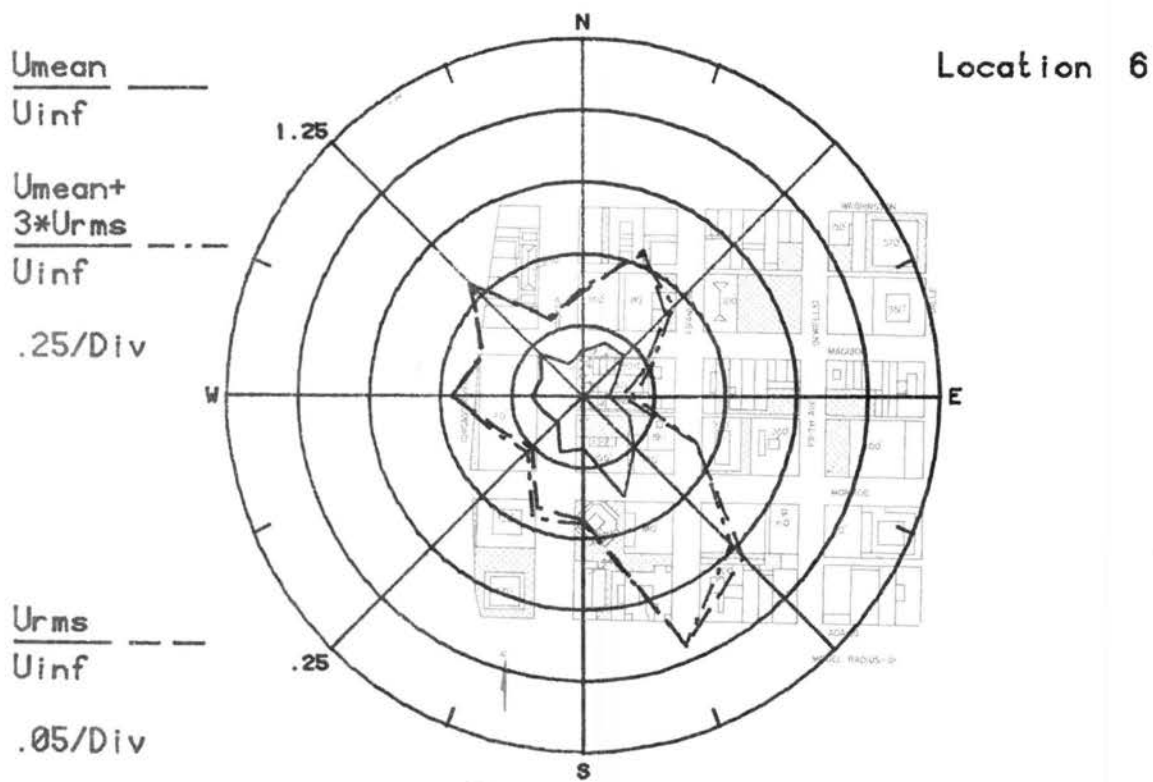
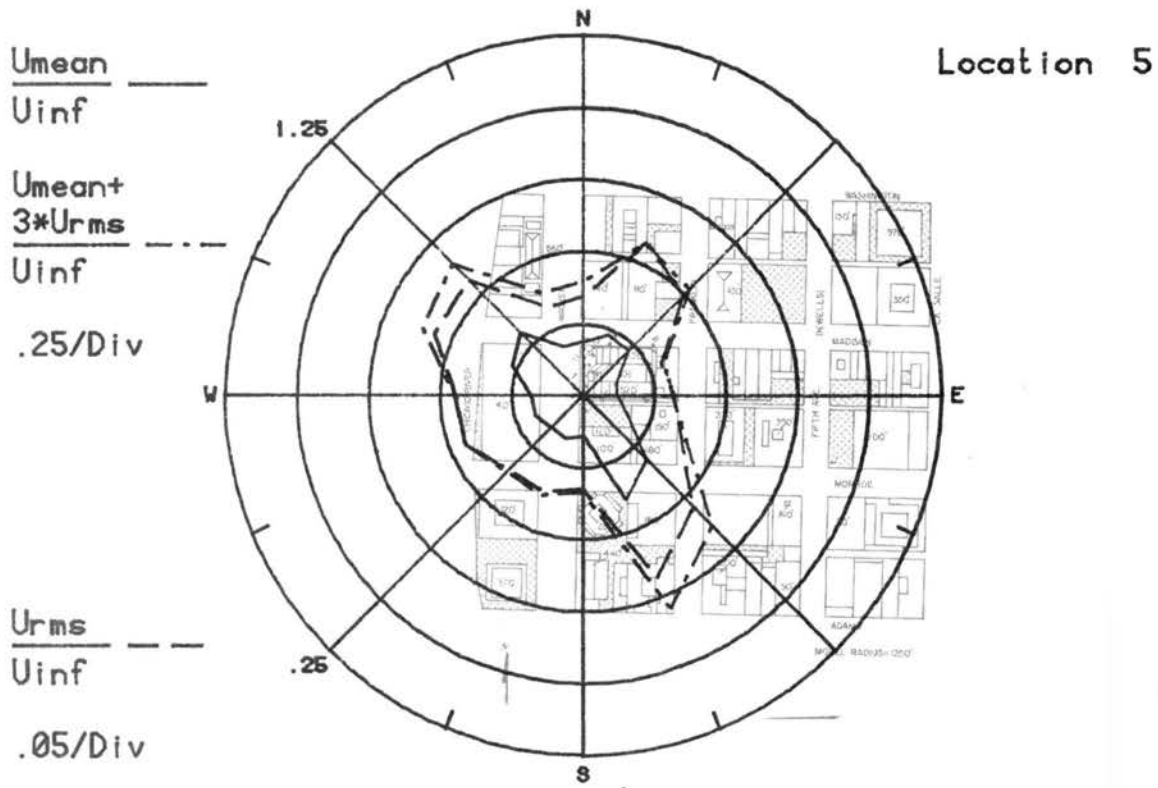


Figure 8c. Mean Velocities and Turbulence Intensities at Pedestrian Locations 5 and 6

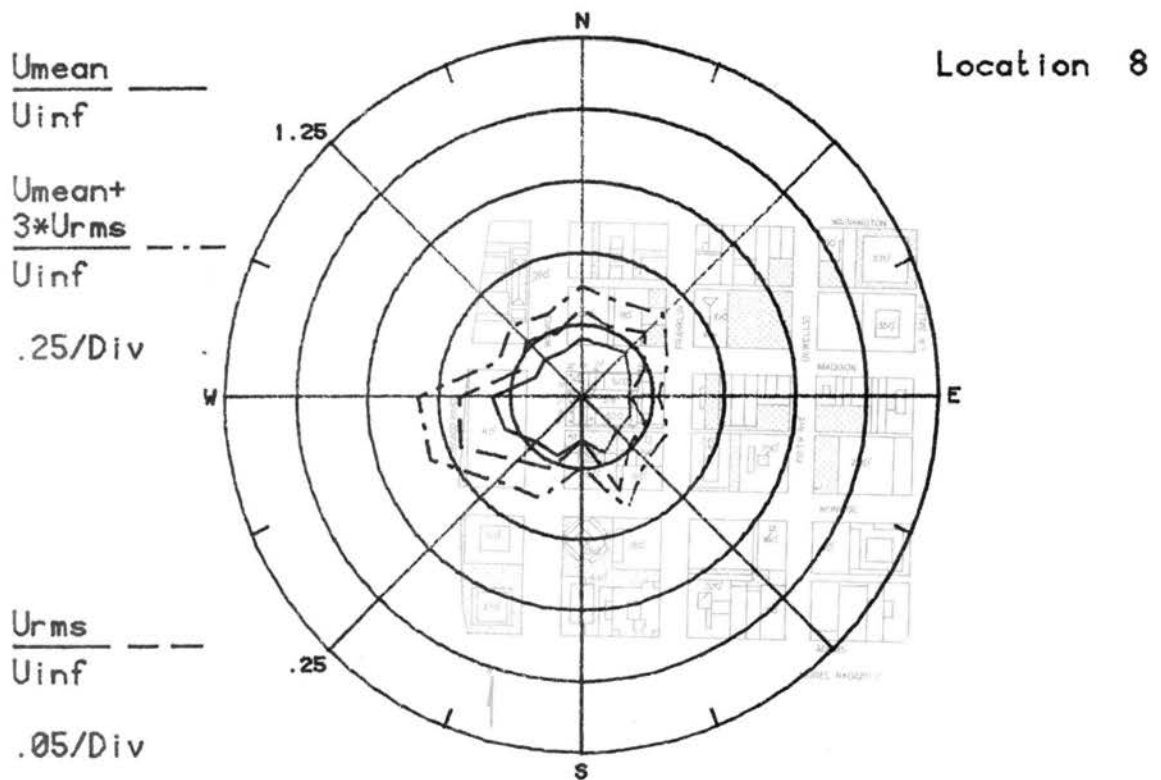
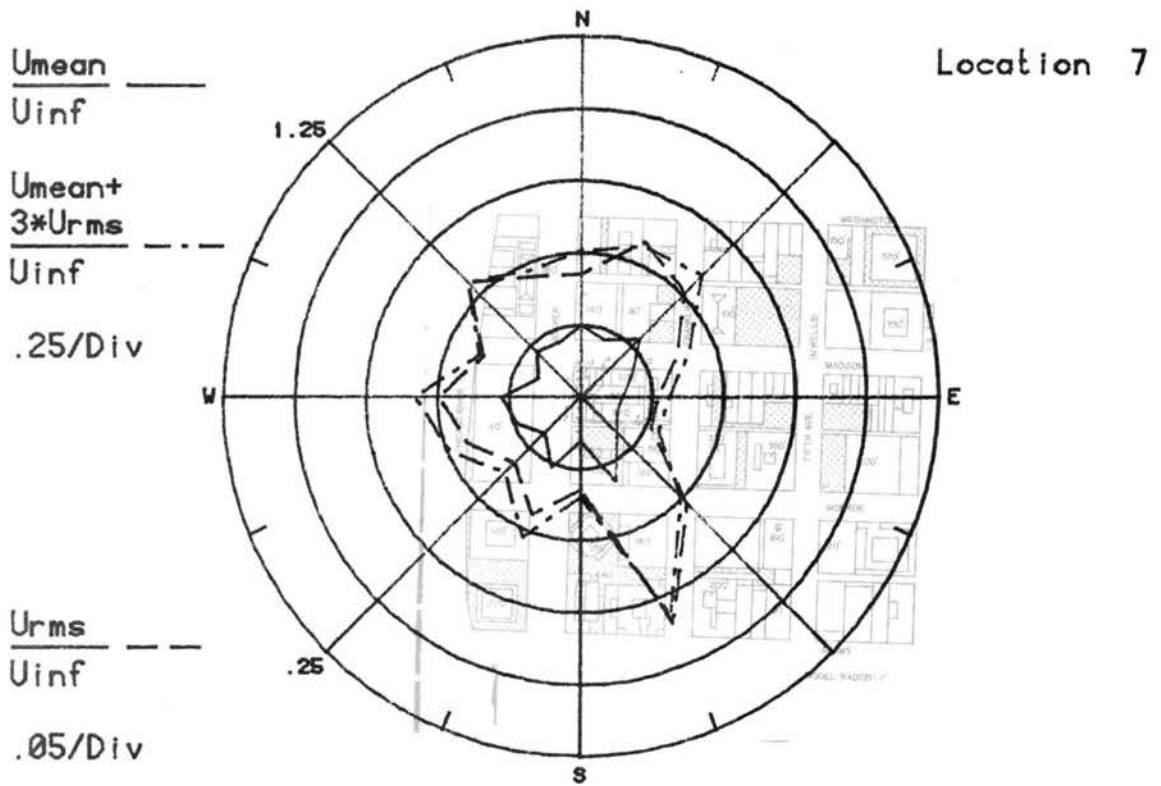


Figure 8d. Mean Velocities and Turbulence Intensities at Pedestrian Locations 7 and 8

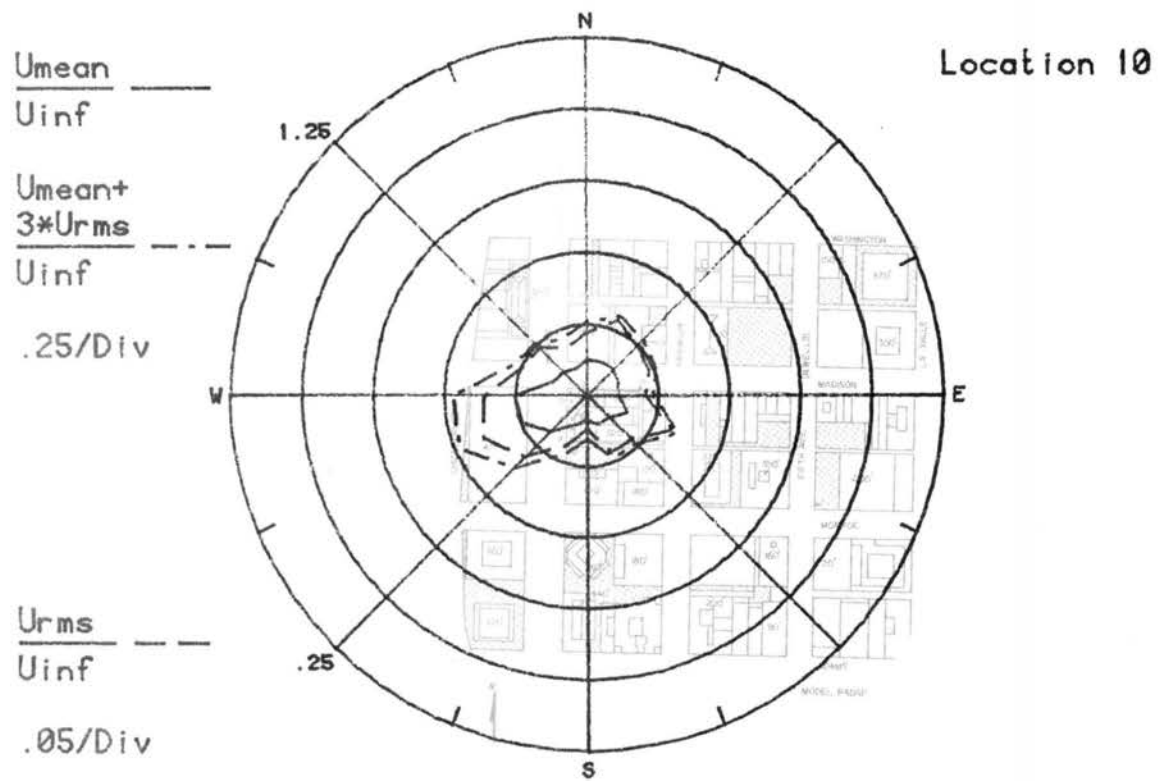
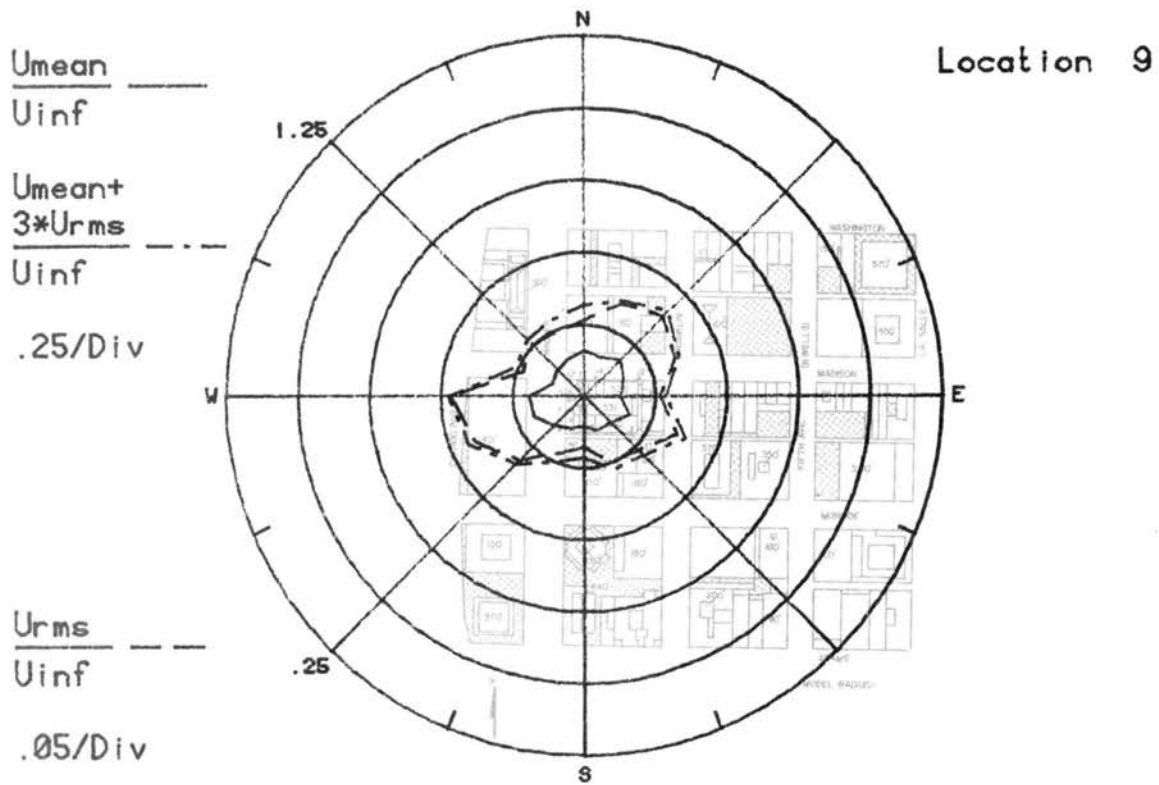


Figure 8e. Mean Velocities and Turbulence Intensities at Pedestrian Locations 9 and 10

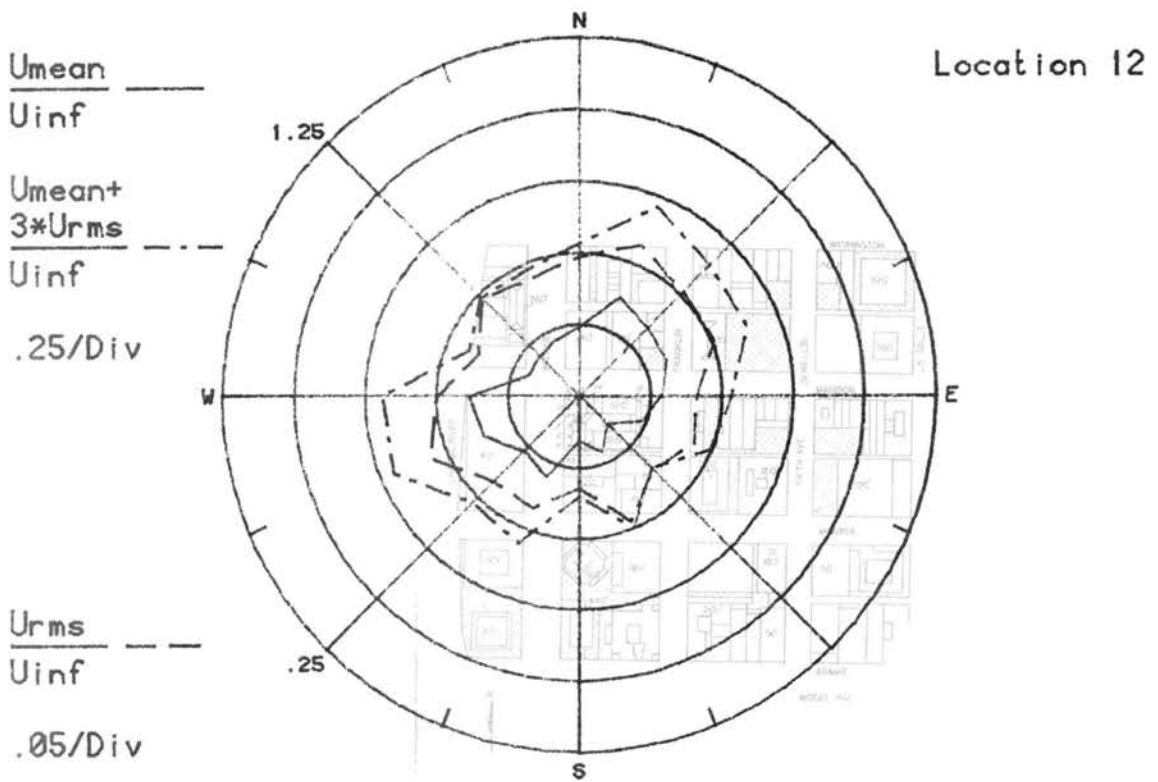
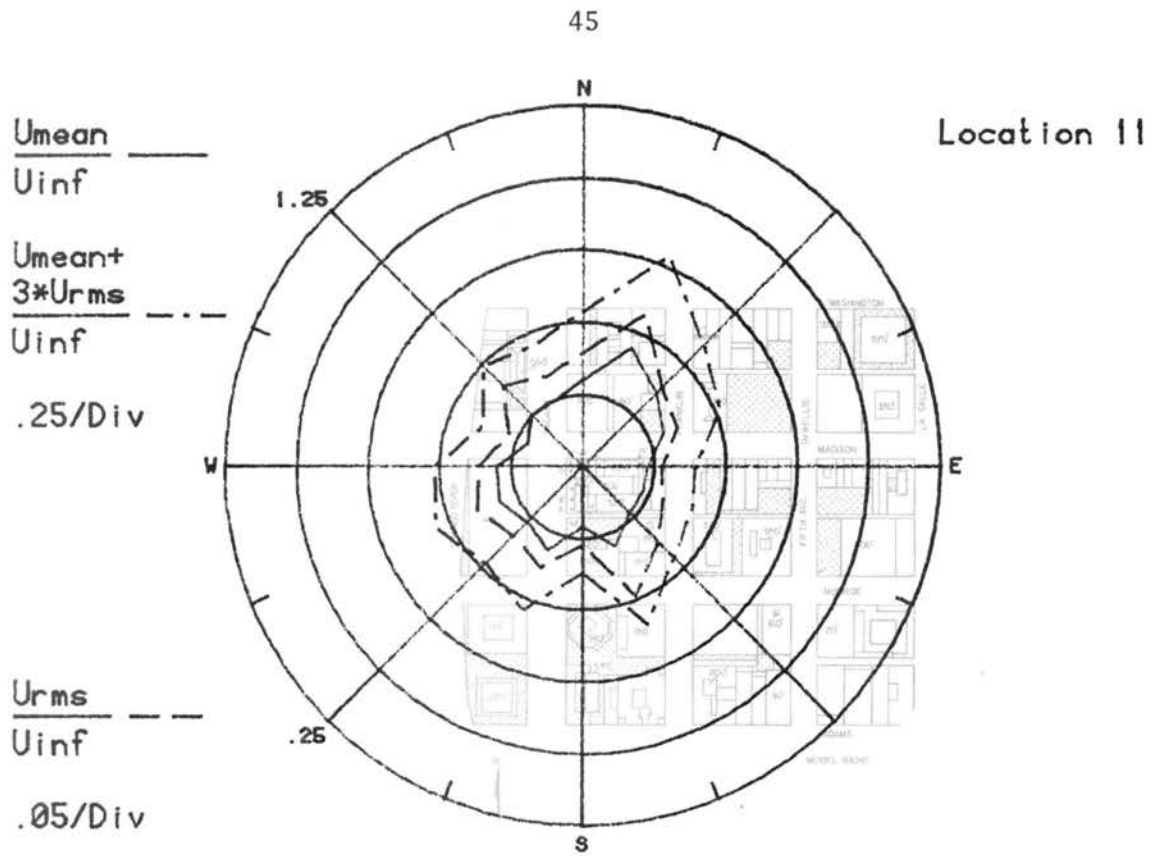
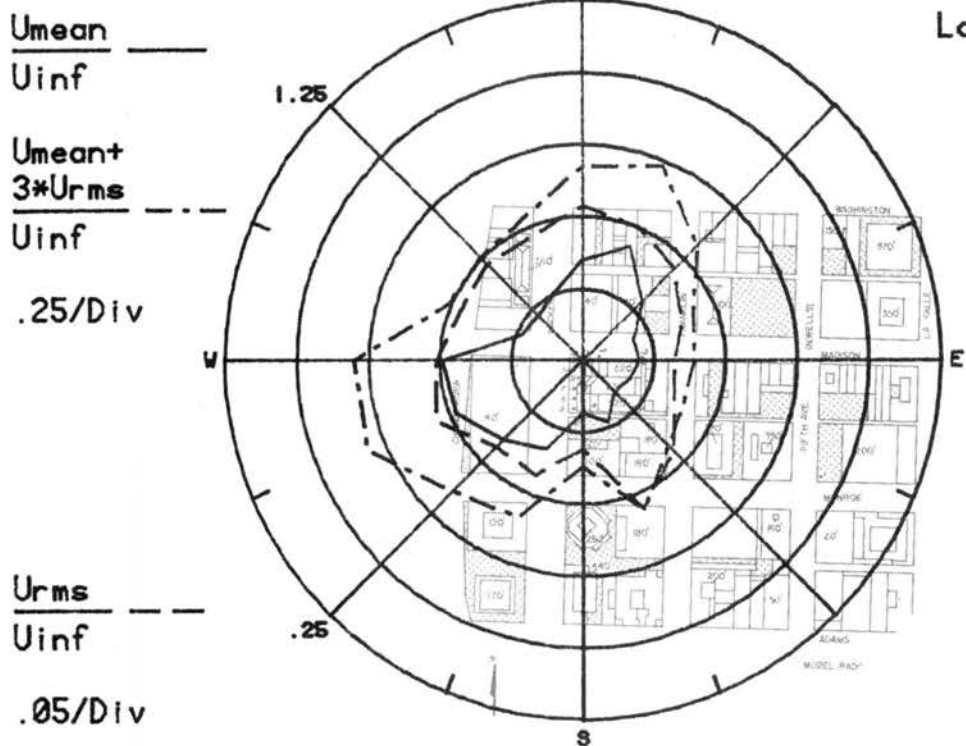


Figure 8f. Mean Velocities and Turbulence Intensities at Pedestrian Locations 11 and 12

Location 13



Location 14

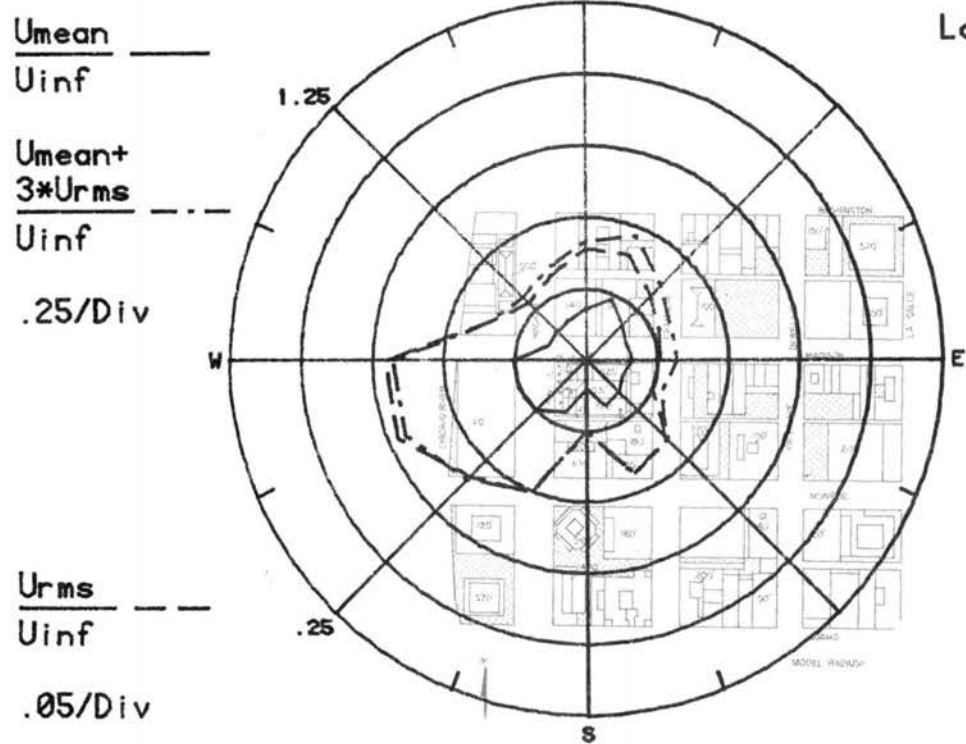


Figure 8g. Mean Velocities and Turbulence Intensities at Pedestrian Locations 13 and 14

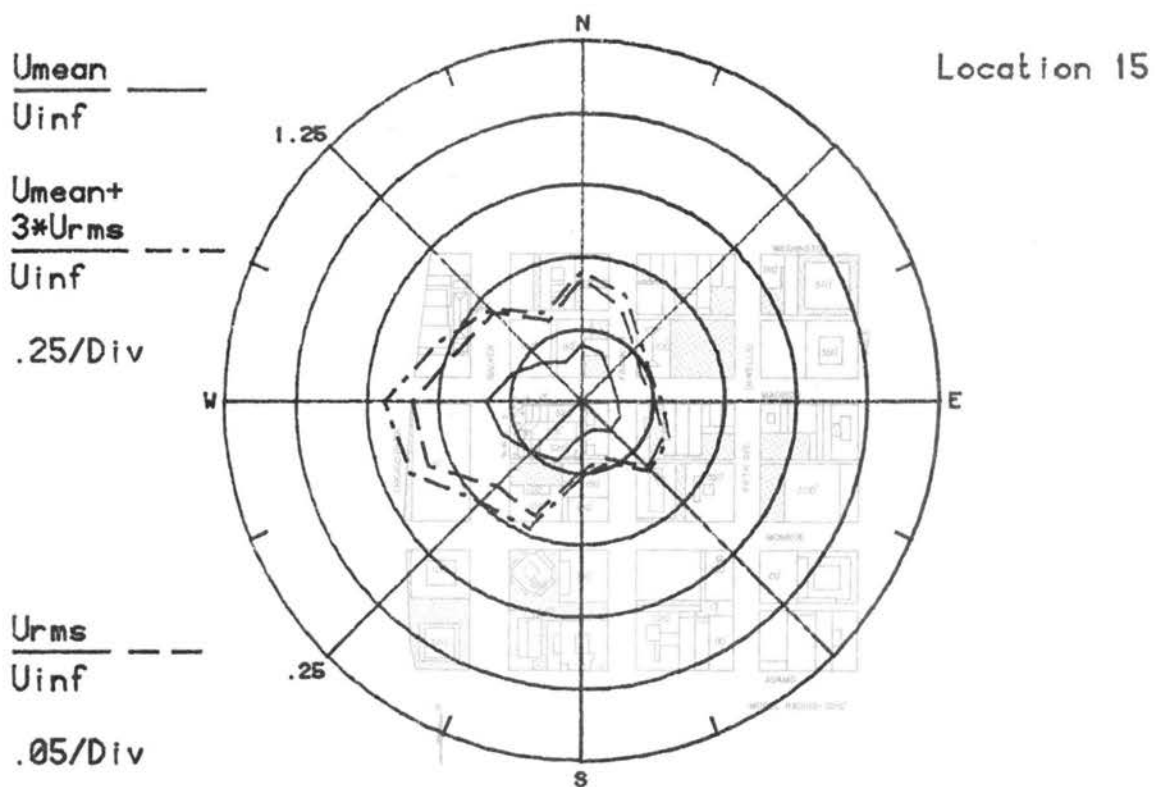


Figure 8h. Mean Velocities and Turbulence Intensities at Pedestrian Location 15

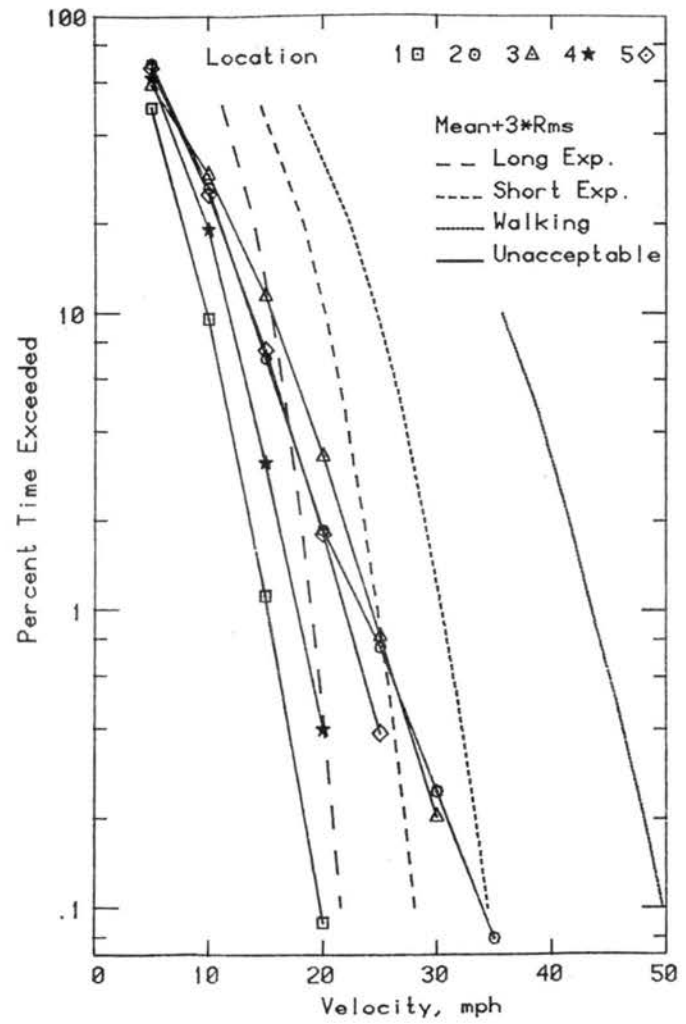
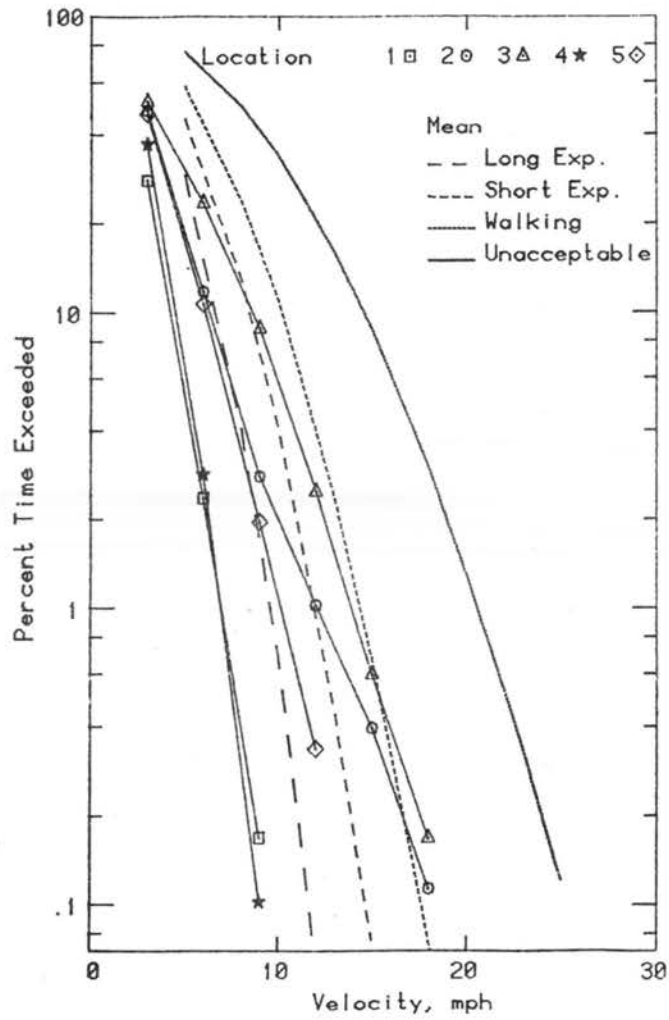


Figure 9a. Wind-Velocity Probabilities for Pedestrian Locations

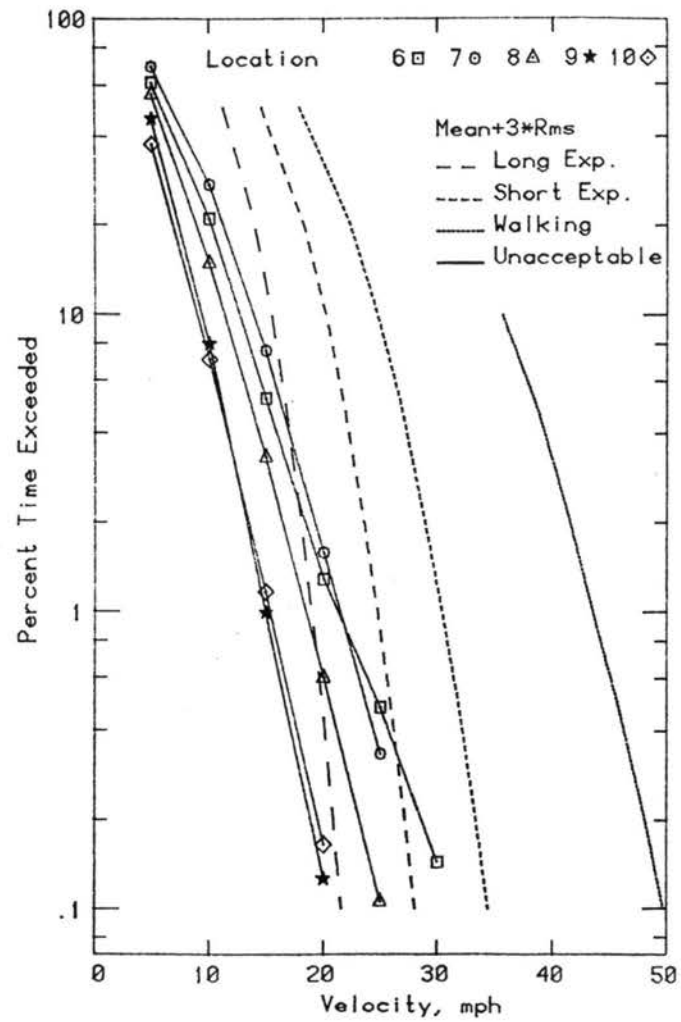
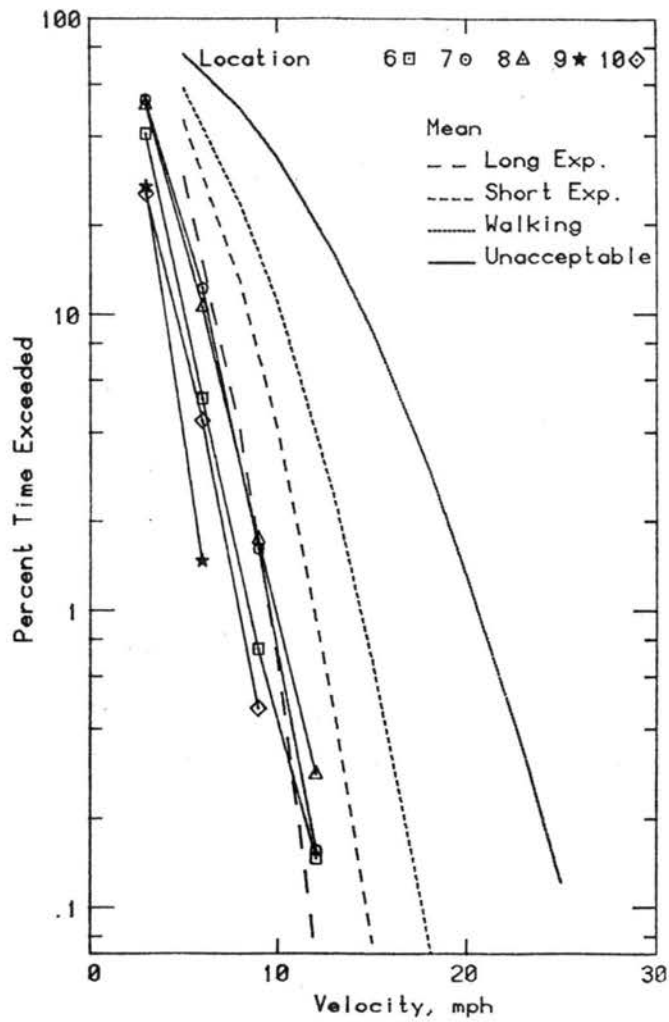


Figure 9b. Wind-Velocity Probabilities for Pedestrian Locations

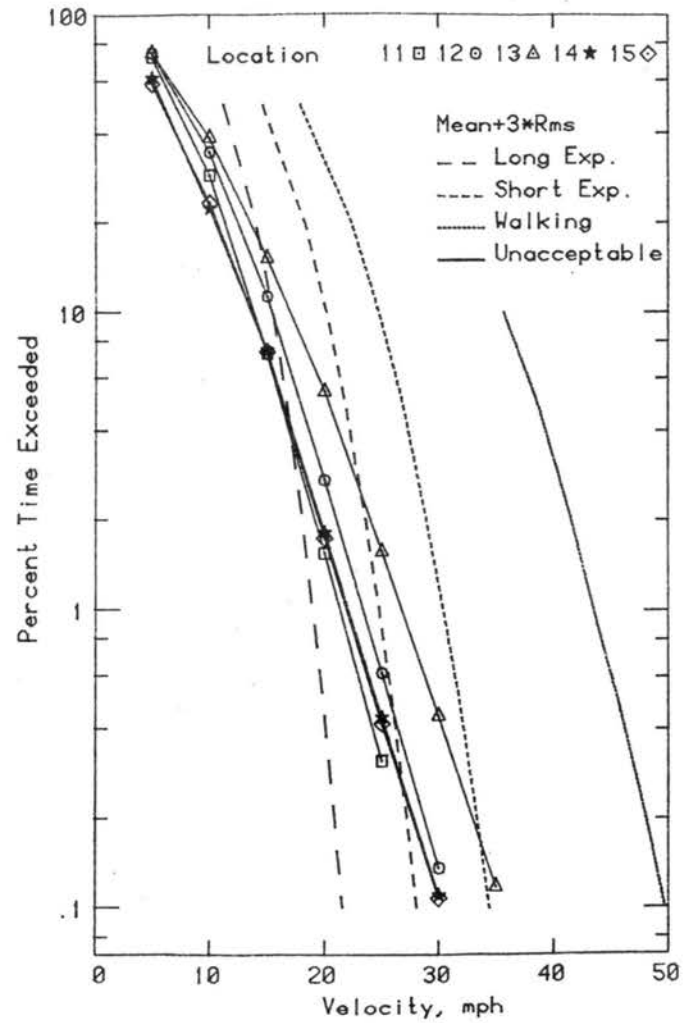
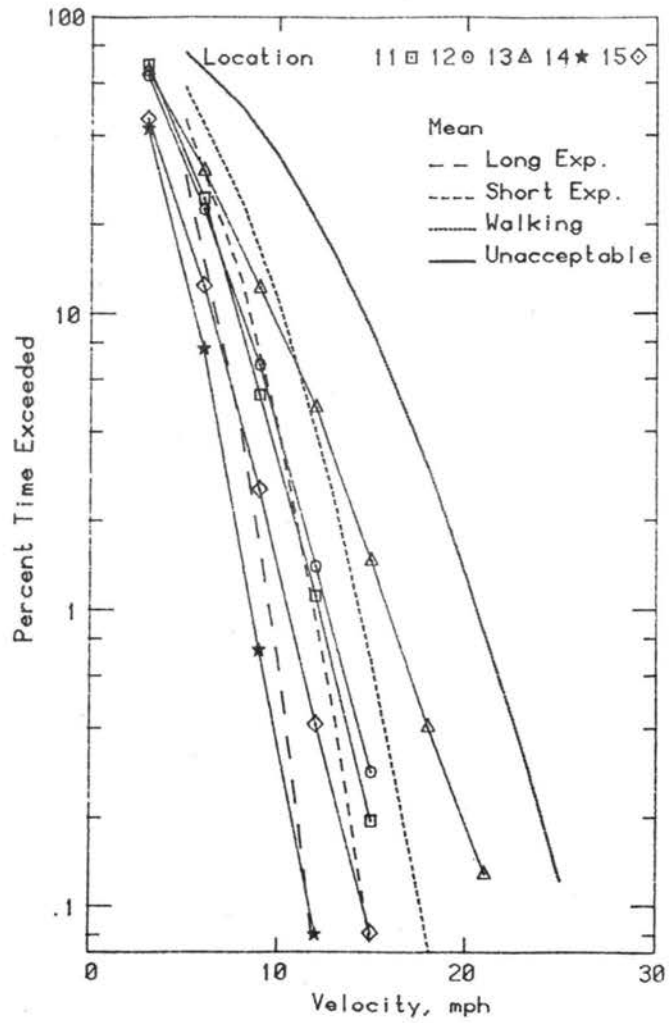


Figure 9c. Wind-Velocity Probabilities for Pedestrian Locations

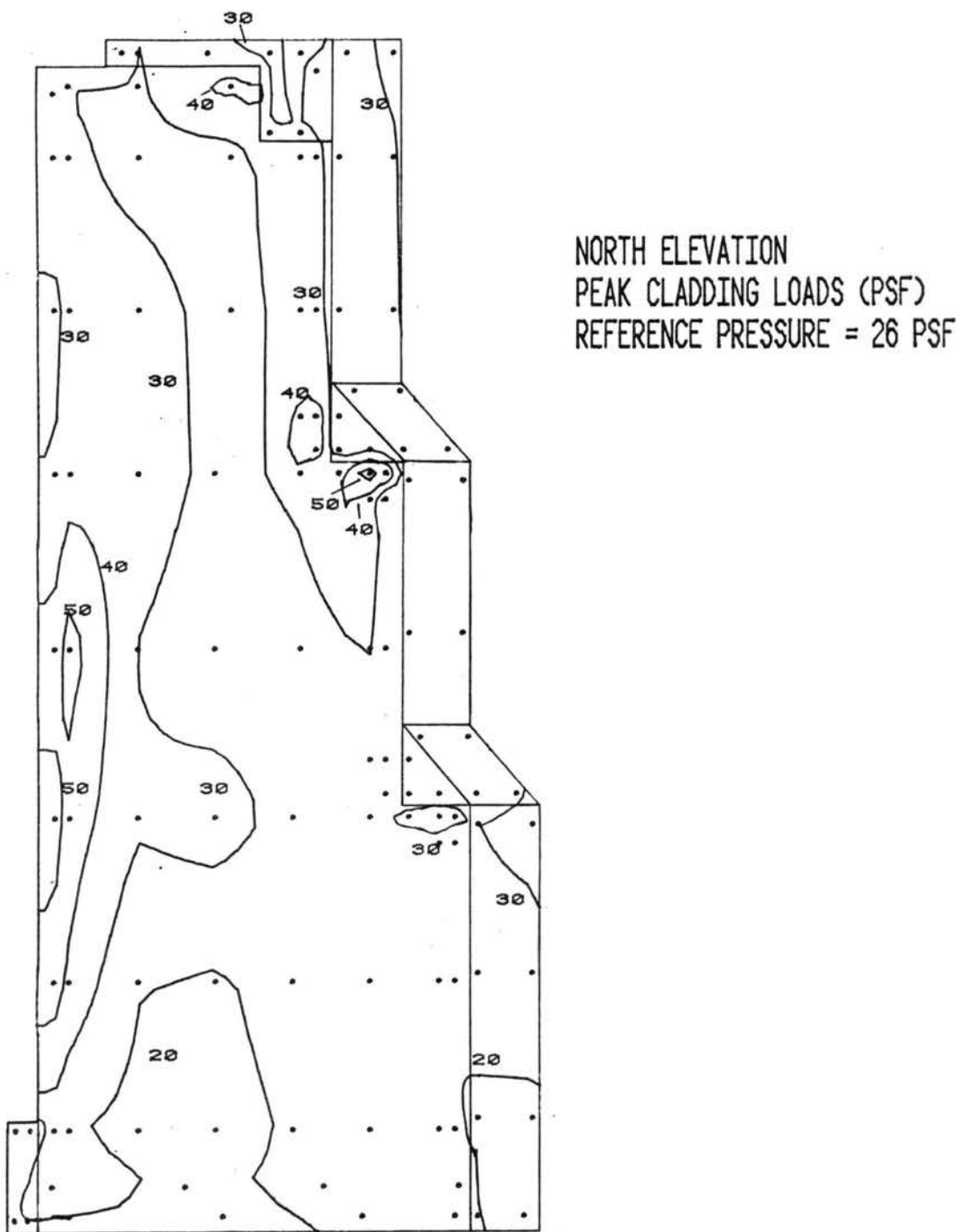
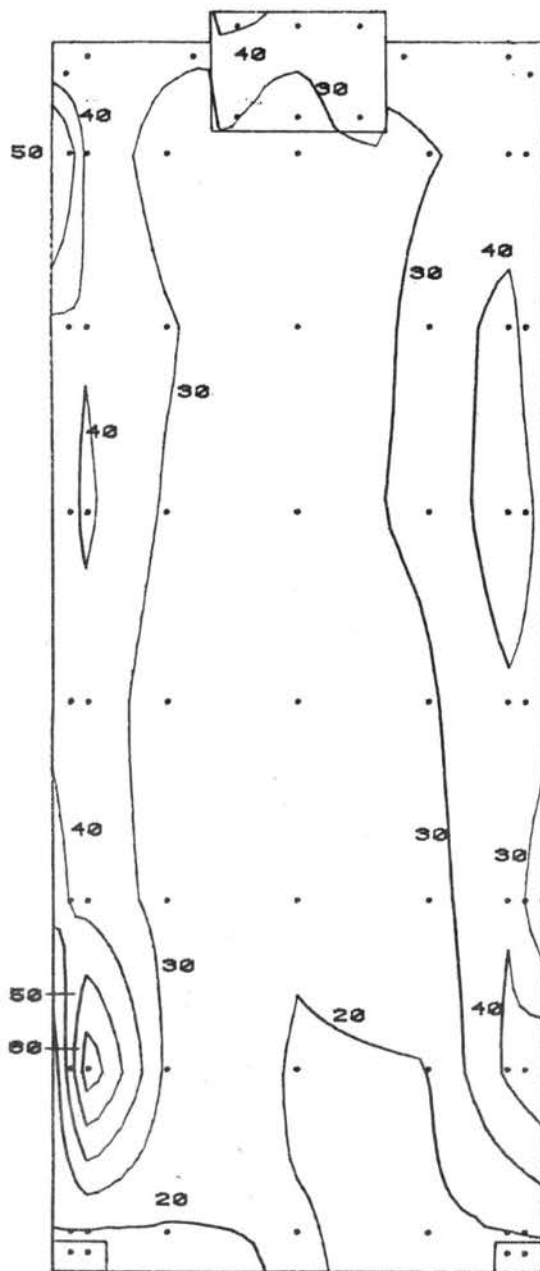


Figure 10a. Peak-Pressure Contours on the Building for Cladding Loads



EAST ELEVATION
PEAK CLADDING LOADS (PSF)
REFERENCE PRESSURE = 26 PSF

Figure 10b. Peak-Pressure Contours on the Building for Cladding Loads

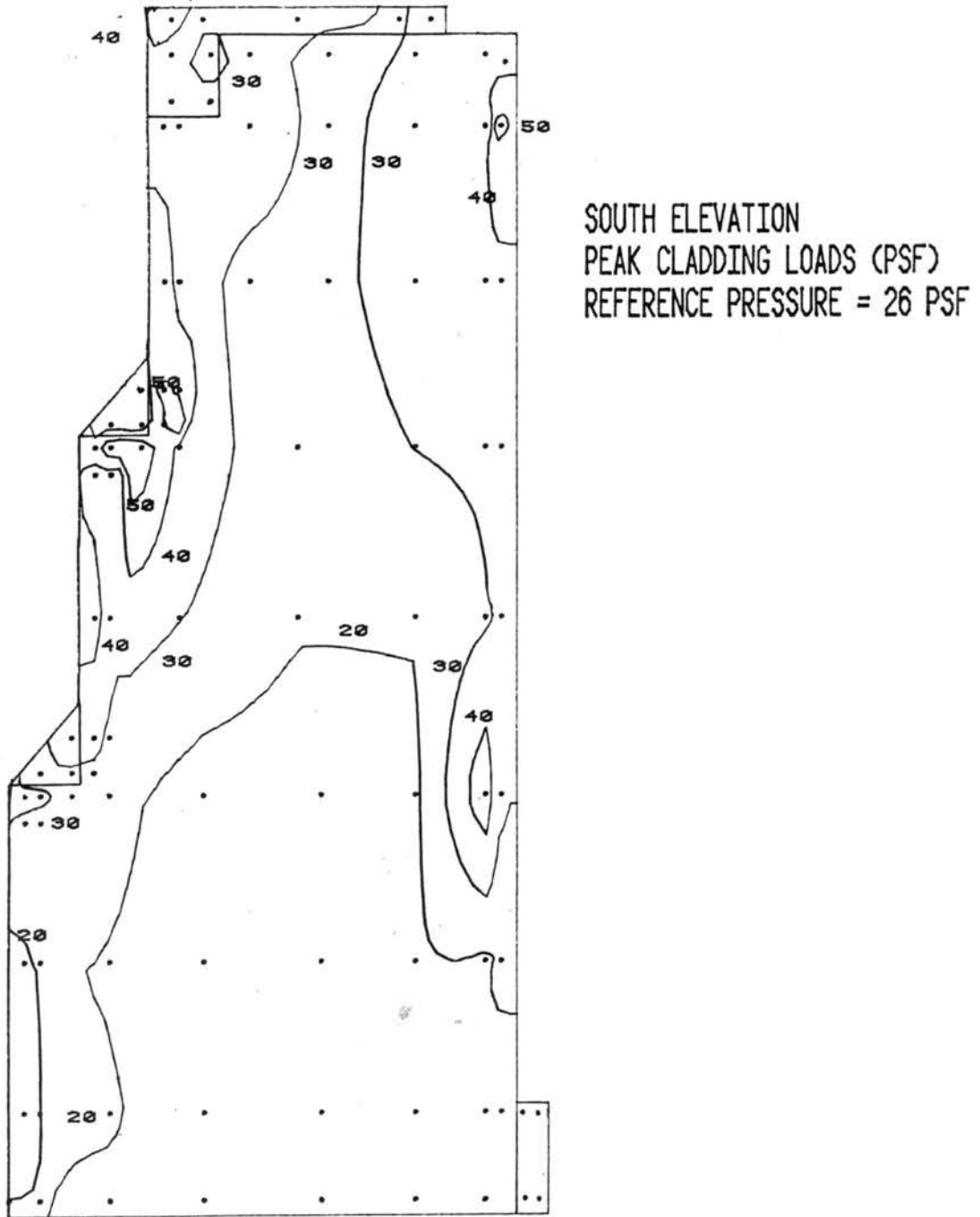


Figure 10c. Peak-Pressure Contours on the Building for Cladding Loads

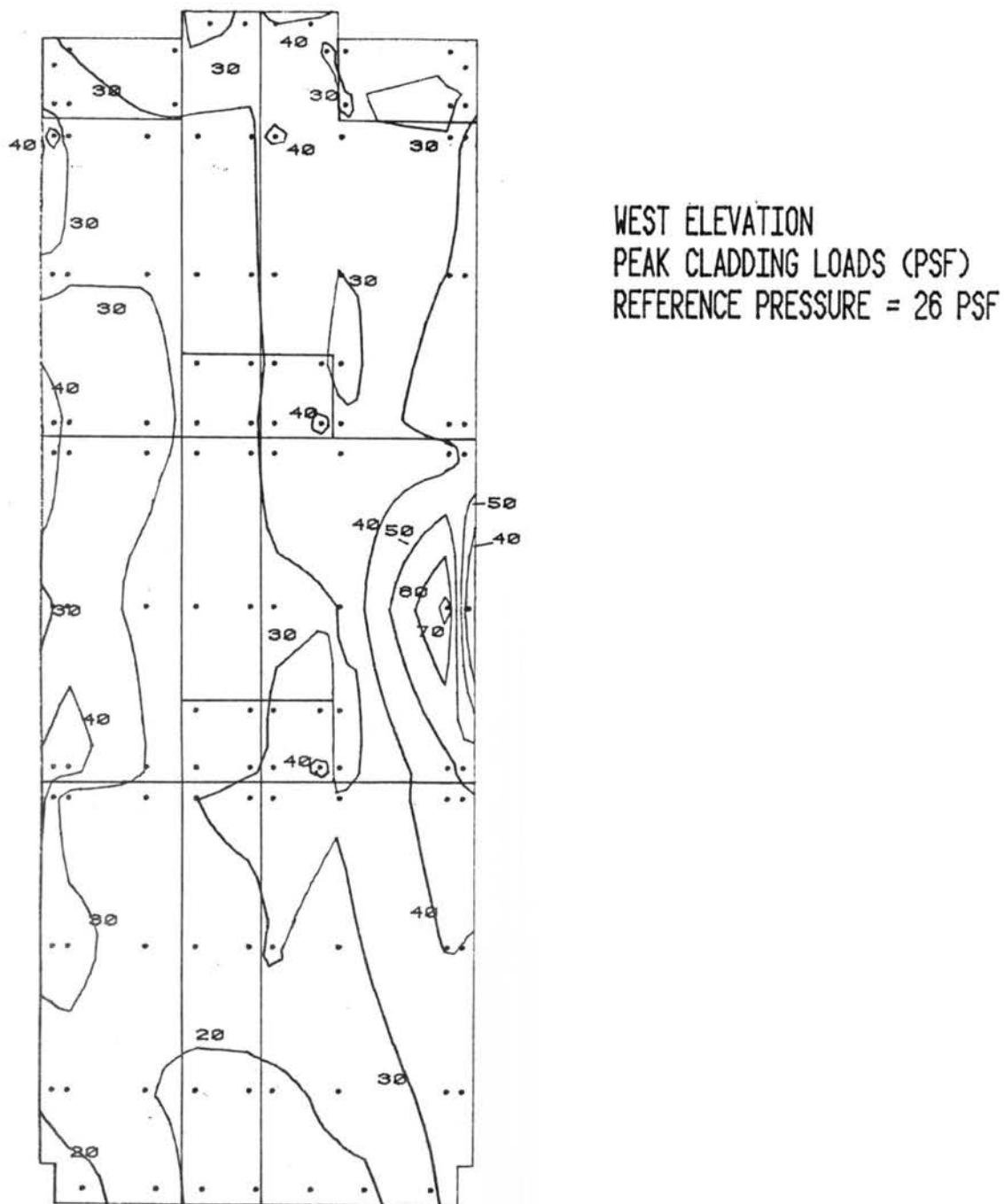


Figure 10d. Peak-Pressure Contours on the Building for Cladding Loads

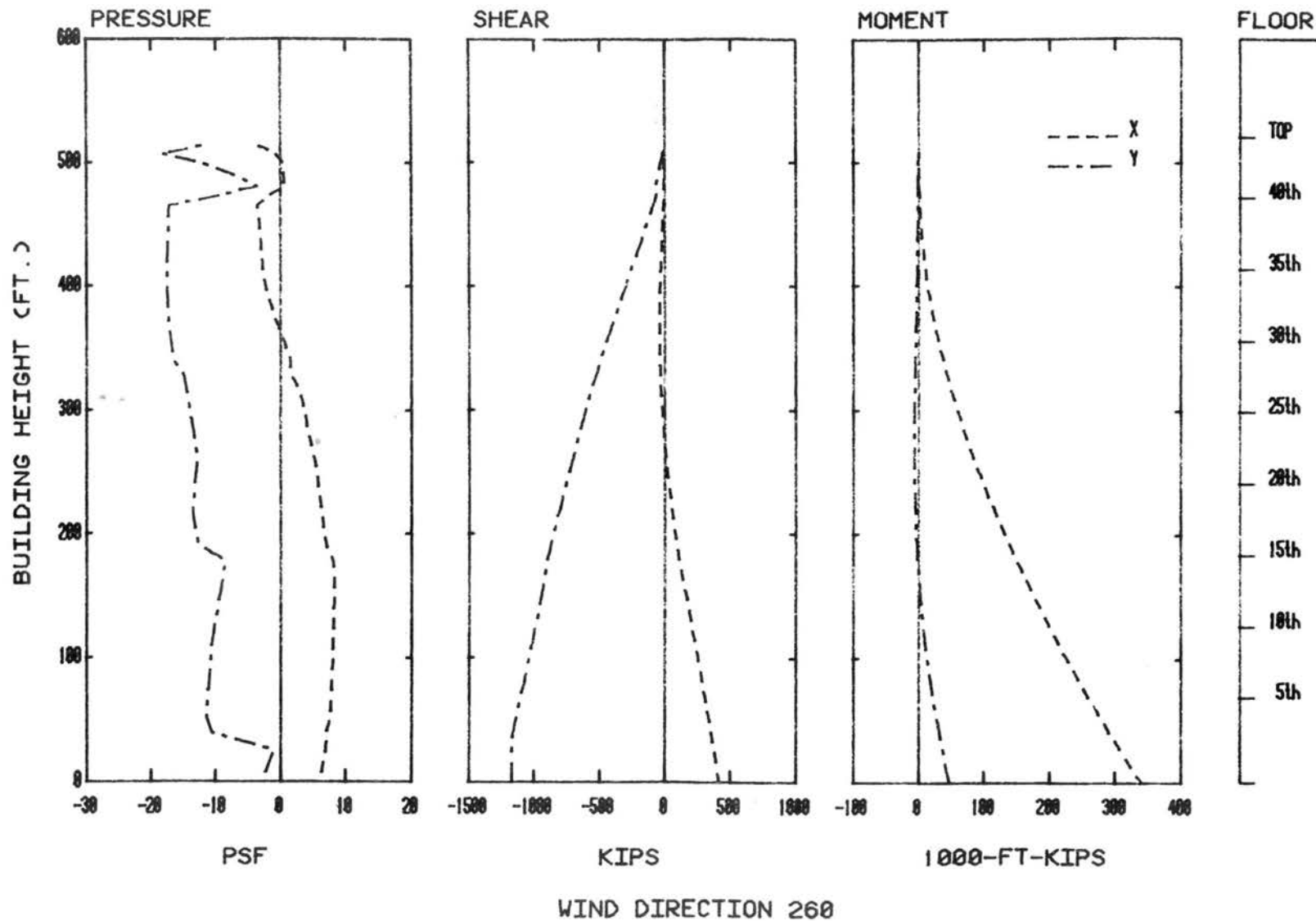


Figure 11. Load, Shear, and Moment Diagrams for Selected Wind Directions

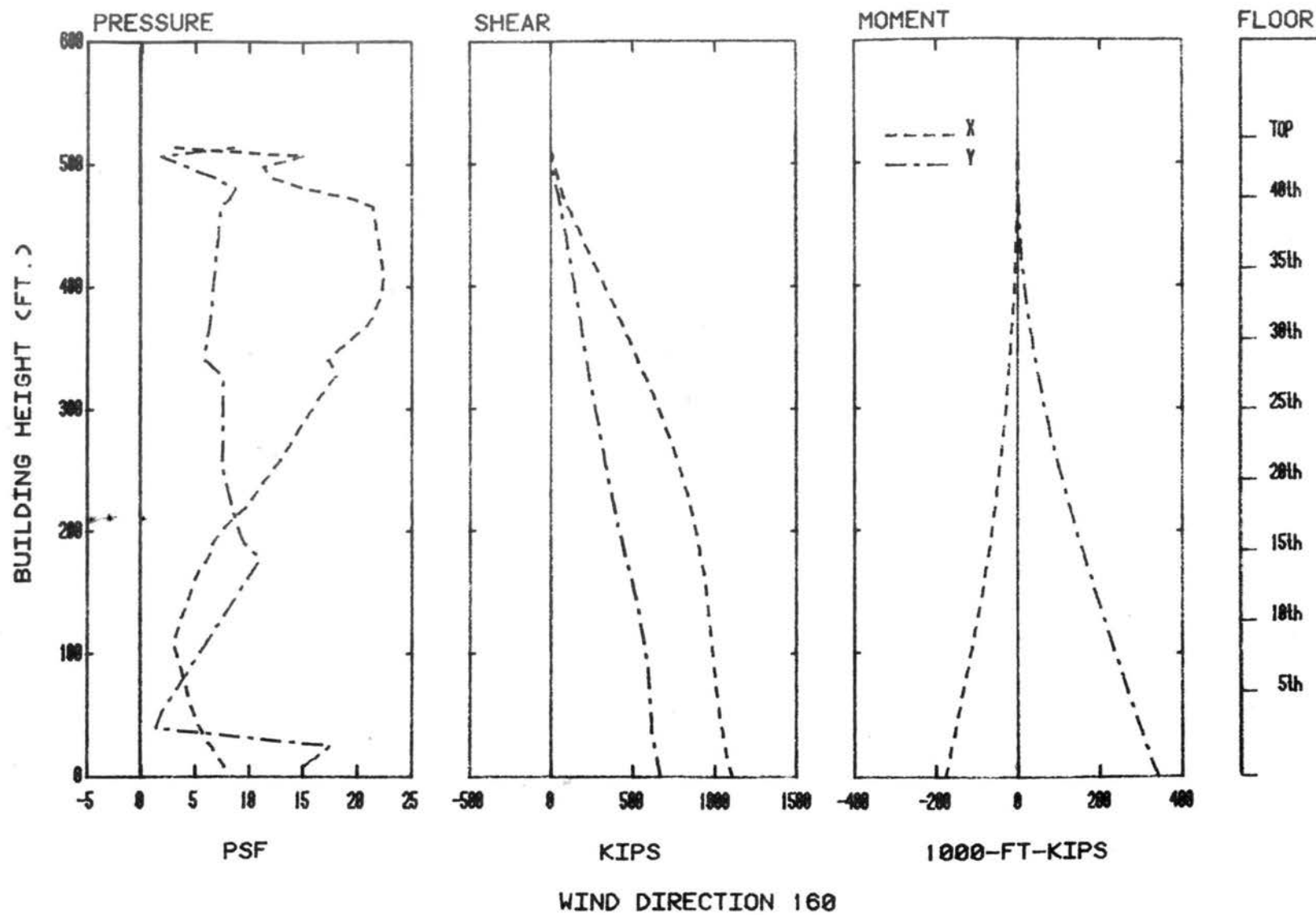


Figure 11. Load, Shear, and Moment Diagrams for Selected Wind Directions

TABLES

TABLE 1

MOTION PICTURE SCENE GUIDE

<u>Run #</u>	<u>Approach Wind Azimuth, degrees</u>
1	0
2	45
3	90
4	135
5	180
6	225
7	270
8	315

TABLE 2--PEDESTRIAN WIND VELOCITIES AND TURBULENCE INTENSITIES
ONE SOUTH WACKER, CHICAGO

LOCATION 1				LOCATION 2			
WIND AZIMUTH	U _{MEAN} /U _{INF} (PERCENT)	U _{RMS} /U _{INF} (PERCENT)	U _{MEAN} +3*U _{RMS} /U _{INF} (PERCENT)	WIND AZIMUTH	U _{MEAN} /U _{INF} (PERCENT)	U _{RMS} /U _{INF} (PERCENT)	U _{MEAN} +3*U _{RMS} /U _{INF} (PERCENT)
0 00	20.5	7.0	41.6	0 00	16.3	3.9	34.1
22 50	17.0	7.7	40.0	22 50	21.3	9.3	49.5
45 00	9.9	4.7	24.1	45 00	22.9	9.6	51.7
67 50	9.4	4.2	22.1	67 50	11.6	5.0	26.8
90 00	13.6	5.9	31.4	90 00	13.3	7.4	37.3
112 50	29.5	9.2	57.0	112 50	19.3	9.1	46.4
135 00	16.4	6.2	35.1	135 00	44.7	12.5	82.1
157 50	15.5	6.2	34.0	157 50	55.2	16.2	103.9
180 00	13.5	6.3	32.3	180 00	14.9	8.5	40.4
202 50	12.3	5.3	28.2	202 50	15.3	7.6	38.4
225 00	16.4	5.8	32.7	225 00	16.9	8.6	42.7
247 50	19.0	8.9	43.3	247 50	17.0	8.5	42.4
270 00	11.3	5.6	28.0	270 00	18.0	9.7	47.2
292 50	16.1	7.0	37.2	292 50	24.1	10.1	54.5
315 00	18.7	6.4	37.9	315 00	26.7	9.3	54.7
337 50	19.9	7.5	42.4	337 50	23.3	8.2	47.8

LOCATION 3				LOCATION 4			
WIND AZIMUTH	U _{MEAN} /U _{INF} (PERCENT)	U _{RMS} /U _{INF} (PERCENT)	U _{MEAN} +3*U _{RMS} /U _{INF} (PERCENT)	WIND AZIMUTH	U _{MEAN} /U _{INF} (PERCENT)	U _{RMS} /U _{INF} (PERCENT)	U _{MEAN} +3*U _{RMS} /U _{INF} (PERCENT)
0 00	9.5	2.9	18.1	0 00	13.3	5.6	30.2
22 50	10.5	3.7	21.7	22 50	18.4	10.5	50.1
45 00	9.6	3.3	20.2	45 00	22.0	9.7	51.2
67 50	8.4	2.7	15.2	67 50	11.0	5.0	25.9
90 00	14.6	6.7	34.8	90 00	14.7	7.5	37.1
112 50	11.0	4.2	23.7	112 50	10.4	4.6	24.2
135 00	36.4	9.1	57.8	135 00	16.2	8.0	40.3
157 50	40.7	11.8	76.1	157 50	21.1	11.0	54.2
180 00	19.3	5.5	36.3	180 00	12.0	5.6	28.7
202 50	33.1	10.2	63.7	202 50	19.5	10.5	51.0
225 00	35.2	10.3	66.0	225 00	16.7	9.3	44.6
247 50	36.7	9.3	64.7	247 50	18.3	10.3	49.2
270 00	44.5	9.4	72.7	270 00	18.8	10.1	49.1
292 50	29.8	7.5	52.4	292 50	16.7	7.8	39.9
315 00	26.0	7.9	43.7	315 00	17.0	7.5	39.3
337 50	9.3	2.5	18.9	337 50	14.3	6.3	33.3

TABLE 2--PEDESTRIAN WIND VELOCITIES AND TURBULENCE INTENSITIES
ONE SOUTH WACKER, CHICAGO

LOCATION 5

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
0 00	18.9	6.9	39.5
2 50	23.0	11.5	57.4
4 00	22.5	10.0	52.5
6 50	12.7	5.9	30.5
9 00	12.1	6.4	31.4
11 2 50	16.6	7.4	38.0
13 5 00	31.4	10.9	64.1
15 7 50	38.9	13.6	79.8
18 0 00	14.2	6.5	33.6
20 0 50	15.9	7.2	37.6
22 0 00	15.5	7.3	37.5
24 4 50	18.0	8.9	44.8
26 7 00	18.0	8.9	45.1
29 2 50	27.0	11.3	60.0
31 5 00	30.7	11.3	64.7
33 7 50	18.5	6.6	38.4

LOCATION 6

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
0 00	16.2	7.4	38.3
2 50	20.4	11.1	53.7
4 00	20.5	8.2	45.1
6 50	11.7	4.5	25.3
9 00	9.1	2.7	17.2
11 2 50	17.6	8.5	43.2
13 5 00	25.3	15.9	73.1
15 7 50	37.9	18.9	94.6
18 0 00	16.5	8.7	44.6
20 0 50	21.1	8.5	46.5
22 0 00	12.4	5.1	27.7
24 7 50	14.6	6.2	33.3
27 0 00	18.1	9.2	45.8
29 2 50	15.9	7.5	38.4
31 5 00	21.1	11.2	54.7
33 7 50	12.6	5.8	30.0

LOCATION 7

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
0 00	25.0	8.6	50.6
2 50	21.6	11.6	56.3
4 00	28.9	10.2	59.6
6 50	19.1	7.2	40.7
9 00	14.8	5.4	31.0
11 2 50	13.7	5.3	29.6
13 5 00	17.9	10.5	49.4
15 7 50	31.7	17.0	82.6
18 0 00	15.4	6.5	34.8
20 0 50	26.5	8.9	53.1
22 0 00	17.6	6.5	37.0
24 4 50	24.0	8.5	49.4
26 7 00	28.0	9.9	57.6
29 2 50	16.1	7.4	38.2
31 5 00	22.3	11.2	56.0
33 7 50	20.3	9.0	47.4

LOCATION 8

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
0 00	20.0	6.1	38.3
2 50	19.4	5.2	35.2
4 00	21.4	6.3	40.3
6 50	18.4	4.7	32.5
9 00	16.7	3.4	27.0
11 2 50	18.4	4.8	32.9
13 5 00	17.3	4.8	31.6
15 7 50	21.2	7.1	42.4
18 0 00	15.4	3.1	24.8
20 0 50	22.1	5.5	38.5
22 0 00	22.8	6.3	41.6
24 7 50	29.6	9.2	57.2
27 0 00	31.6	8.6	57.3
29 2 50	17.6	4.7	31.5
31 5 00	18.2	5.5	34.6
33 7 50	17.0	4.7	31.2

TABLE 2--PEDESTRIAN WIND VELOCITIES AND TURBULENCE INTENSITIES
ONE SOUTH WACKER, CHICAGO

LOCATION 9				LOCATION 10			
WIND AZIMUTH	U _{MEAN} /U _{INF} (PERCENT)	U _{RMS} /U _{INF} (PERCENT)	U _{MEAN} +3*U _{RMS} /U _{INF} (PERCENT)	WIND AZIMUTH	U _{MEAN} /U _{INF} (PERCENT)	U _{RMS} /U _{INF} (PERCENT)	U _{MEAN} +3*U _{RMS} /U _{INF} (PERCENT)
0.00	15.9	5.3	31.8	0.00	12.4	4.5	25.8
22.50	14.8	7.0	35.8	22.50	12.9	5.7	30.0
45.00	18.2	7.8	41.7	45.00	13.0	5.0	27.9
67.50	15.3	6.9	35.9	67.50	11.8	4.7	25.9
90.00	12.6	5.3	28.5	90.00	10.8	4.0	22.9
112.50	17.4	7.1	38.6	112.50	15.5	6.4	34.7
135.00	13.2	5.3	29.2	135.00	10.9	4.4	24.1
157.50	12.7	4.9	27.5	157.50	10.8	4.3	23.8
180.00	10.7	3.6	21.5	180.00	8.6	2.4	15.7
202.50	11.8	4.3	24.6	202.50	11.2	3.8	22.7
225.00	14.5	6.3	33.5	225.00	17.9	6.1	36.3
247.50	18.8	8.3	43.6	247.50	24.7	7.9	48.3
270.00	19.3	9.4	47.5	270.00	25.6	7.2	47.1
292.50	11.9	4.6	25.8	292.50	12.8	5.0	27.7
315.00	12.9	5.0	27.9	315.00	11.6	4.7	25.7
337.50	14.1	4.9	28.8	337.50	10.5	3.7	21.6

LOCATION 11				LOCATION 12			
WIND AZIMUTH	U _{MEAN} /U _{INF} (PERCENT)	U _{RMS} /U _{INF} (PERCENT)	U _{MEAN} +3*U _{RMS} /U _{INF} (PERCENT)	WIND AZIMUTH	U _{MEAN} /U _{INF} (PERCENT)	U _{RMS} /U _{INF} (PERCENT)	U _{MEAN} +3*U _{RMS} /U _{INF} (PERCENT)
0.00	29.9	7.9	53.7	0.00	24.0	9.7	53.1
22.50	44.5	11.4	78.7	22.50	37.1	11.4	71.2
45.00	36.3	7.8	59.6	45.00	33.8	10.3	64.6
67.50	30.5	7.1	51.8	67.50	33.0	10.2	63.6
90.00	22.7	5.5	39.2	90.00	28.7	8.2	53.4
112.50	22.8	6.1	41.0	112.50	23.4	8.7	49.6
135.00	22.8	7.4	45.0	135.00	13.9	7.3	35.7
157.50	29.9	9.8	59.2	157.50	21.3	9.5	49.8
180.00	21.0	5.5	37.4	180.00	15.9	6.5	35.3
202.50	31.4	7.6	54.2	202.50	30.3	8.5	55.7
225.00	27.3	6.8	47.7	225.00	27.4	8.4	52.6
247.50	31.8	7.9	55.6	247.50	36.4	11.3	70.3
270.00	30.0	7.2	51.7	270.00	39.0	10.0	68.8
292.50	20.7	5.6	37.4	292.50	18.8	7.6	41.6
315.00	25.3	7.9	49.1	315.00	19.8	9.6	48.7
337.50	25.1	6.7	45.4	337.50	21.1	8.9	47.7

TABLE 2--PEDESTRIAN WIND VELOCITIES AND TURBULENCE INTENSITIES
ONE SOUTH WACKER, CHICAGO

LOCATION 13

WIND AZIMUTH	UMEAN/UIHF (PERCENT)	URMS/UIHF (PERCENT)	UMEAN+3*URMS/UIHF (PERCENT)
0.00	35.1	10.7	67.2
22.50	42.9	10.0	73.0
45.00	29.4	9.0	56.5
67.50	19.2	7.5	41.7
90.00	19.7	6.4	39.0
112.50	17.6	6.9	38.3
135.00	15.3	9.0	42.2
157.50	23.1	11.1	56.4
180.00	18.4	6.2	37.0
202.50	33.1	8.6	59.0
225.00	38.9	8.5	64.4
247.50	48.1	11.1	81.5
270.00	49.4	10.2	80.1
292.50	25.5	9.2	51.0
315.00	22.1	9.5	50.5
337.50	25.8	8.3	53.7

LOCATION 14

WIND AZIMUTH	UMEAN/UIHF (PERCENT)	URMS/UIHF (PERCENT)	UMEAN+3*URMS/UIHF (PERCENT)
0.00	18.2	7.8	41.6
22.50	23.1	7.9	46.9
45.00	17.7	6.4	36.9
67.50	15.4	5.3	31.9
90.00	16.3	5.2	32.0
112.50	13.7	5.0	28.6
135.00	16.1	7.9	39.9
157.50	17.4	8.7	43.4
180.00	10.3	5.0	23.4
202.50	19.5	10.1	49.8
225.00	24.7	11.6	59.6
247.50	23.9	14.4	69.1
270.00	23.5	14.1	67.7
292.50	14.1	7.2	33.8
315.00	14.5	5.7	31.5
337.50	15.3	6.4	34.5

LOCATION 15

WIND AZIMUTH	UMEAN/UIHF (PERCENT)	URMS/UIHF (PERCENT)	UMEAN+3*URMS/UIHF (PERCENT)
0.00	19.5	8.5	45.0
22.50	18.4	7.1	39.7
45.00	13.5	5.2	29.2
67.50	12.1	4.5	25.7
90.00	12.7	5.1	28.1
112.50	14.6	6.2	33.2
135.00	14.3	6.5	33.9
157.50	10.5	4.2	23.2
180.00	11.9	4.9	26.6
202.50	21.9	8.6	47.7
225.00	24.6	8.3	49.5
247.50	30.2	11.6	65.0
270.00	33.5	11.8	68.9
292.50	25.9	9.3	54.0
315.00	19.0	8.7	45.2
337.50	15.1	6.1	33.2

TABLE 3

PERCENTAGE FREQUENCY OF WIND DIRECTION AND SPEED

CHICAGO, ILLINOIS

MIDWAY AIRPORT (1951-1960)

SEASON : ANNUAL

NO. OF OBS. = 87672

HT. OF MEAS = 48 FT.

VELOCITY LEVELS IN MPH

DIRECTION	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 +	TOTAL
N	.24	.76	1.13	1.03	.21	.07	.04	0.00	0.00	3.50
NNE	.25	1.10	1.58	1.04	.21	.06	0.00	0.00	0.00	4.25
NE	.51	1.68	2.21	.97	.17	.02	0.00	0.00	0.00	5.76
ENE	.44	1.77	2.37	.90	.15	.02	0.00	0.00	0.00	5.66
E	.64	2.27	2.06	.60	.07	.03	0.00	0.00	0.00	5.66
ESE	.34	.94	.74	.41	.07	0.00	0.00	0.00	0.00	2.50
SE	.56	1.87	1.46	.60	.06	.01	0.00	0.00	0.00	4.58
SSE	.30	1.34	1.47	.76	.20	.01	0.00	0.00	0.00	4.08
S	.46	2.38	3.32	1.81	.27	.08	0.00	0.00	0.00	8.34
SSW	.44	2.02	3.54	2.58	.45	.09	.03	.01	0.00	9.16
SW	.46	2.40	3.41	2.36	.41	.08	.03	.01	0.00	9.16
WSW	.27	1.24	2.46	2.11	.46	.13	.02	.02	.03	6.75
W	.51	1.60	3.15	2.82	.60	.15	.07	0.00	0.00	8.90
WNW	.32	1.42	2.41	2.23	.57	.12	.07	.01	0.00	7.14
NW	.47	2.00	2.94	2.86	.56	.09	.04	.01	0.00	8.97
NNW	.23	.94	1.59	1.55	.33	.08	.03	0.00	0.00	4.75
CALM	.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.85
TOT	7.34	25.91	35.84	24.63	4.80	1.05	.33	.07	.03	100.00

TABLE 4

SUMMARY OF WIND EFFECTS ON PEOPLE

	<u>Beaufort number</u>	<u>Speed (mph)</u>	<u>Effects</u>
Calm, light air	0, 1	0- 3	Calm, no noticeable wind
Light breeze	2	4- 7	Wind felt on face
Gentle breeze	3	8-12	Wind extends light flag Hair is disturbed Clothing flaps
Moderate breeze	4	13-18	Raises dust, dry soil and loose paper Hair disarranged
Fresh breeze	5	19-24	Force of wind felt on body Drifting snow becomes airborne Limit of agreeable wind on land
Strong breeze	6	25-31	Umbrellas used with difficulty Hair blown straight Difficult to walk steadily Wind noise on ears unpleasant Windborne snow above head height (blizzard)
Near gale	7	32-38	Inconvenience felt when walking
Gale	8	39-46	Generally impedes progress Great difficulty with balance in gusts
Strong gale	9	47-54	People blown over by gusts

Note: Table from Reference 4, p. 40.

TABLE 5

CALCULATION OF REFERENCE PRESSURE

1. Basic 50-yr fastest mile wind speed at 30 ft has been estimated to be:

ANSI (ref. 6)	70 mph
Revised ANSI	60 mph
Author's Analysis, Midway	62 mph
Author's Analysis, O'Hare	67 mph
Minimum Allowable, Revised ANSI	70 mph

Use 70 mph fastest mile at 30 ft

2. Reference Pressure:

$$\text{Mean hourly wind at 30 ft} = \frac{70}{1.26} = 55.6 \text{ mph}$$

$$\text{Mean hourly wind at gradient} = 55.6 \left(\frac{1000}{30}\right)^{.17} = 100.9 \text{ mph}$$

(gradient height and power law exponent based on data at other sites with similar roughness)

$$\text{Wind tunnel reference ht} = 38 \text{ in.} = 1270 \text{ ft}$$

$$\text{Mean hourly wind at reference ht} = \text{gradient wind} = 100.9 \text{ mph}$$

$$\text{Reference pressure} = 0.5 \rho U_{\text{ref}}^2 = (.98) (.00256) (100.9)^2 = 25.5 \text{ psf}$$

Use 26 psf

3. Gust load factors to convert hourly mean integrated loads to various gust durations (see Sect. 4.4):

<u>Gust Duration, sec</u>	<u>Gust Load Factor</u>
10-15	$(1.4)^2 = 1.96$
30	$(1.32)^2 = 1.74$
45	$(1.26)^2 = 1.59$

30 sec duration load factor was used in Table 7.

TABLE 6A. PEAK LOADS FOR CONFIGURATION A :
LARGEST VALUES OF CLADDING LOAD

ONE SOUTH WACKER, CHICAGO
REFERENCE PRESSURE = 26.9 PSF

TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE POSITIVE		TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE POSITIVE		TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE POSITIVE	
			PEAK PSF	PEAK PSF				PEAK PSF	PEAK PSF					
101	100	1.39	36.1	25.0	149	220	1.04	27.1	20.2	207	230	1.11	28.8	28.8
102	10	1.14	29.6	22.2	150	160	.82	21.3	20.3	208	180	1.40	36.4	31.3
103	290	1.47	38.1	28.9	151	280	.91	23.6	19.0	209	190	1.24	32.1	29.2
104	320	1.05	27.2	27.7	152	290	.93	24.1	24.1	210	100	1.11	28.9	27.8
105	300	1.30	33.7	30.0	153	240	1.13	29.5	21.5	211	270	1.29	33.5	28.6
106	10	1.30	33.9	25.5	154	140	2.10	54.5	16.6	212	100	1.07	27.8	26.8
107	270	1.13	29.5	22.2	155	140	1.75	43.4	12.5	213	160	1.04	27.1	25.3
108	100	1.11	28.9	22.2	156	130	1.22	31.6	12.3	214	330	1.23	31.9	31.9
109	290	1.58	41.2	25.6	157	130	1.35	35.0	13.6	215	250	1.12	29.1	29.1
110	30	1.03	26.9	26.4	158	130	1.01	26.3	18.8	216	230	1.01	26.3	26.3
111	300	1.12	29.0	24.7	159	320	.89	23.3	23.3	217	220	1.13	29.3	29.3
112	300	1.15	29.9	23.7	160	240	1.22	31.8	24.2	218	330	1.66	43.3	21.5
113	80	1.48	38.4	28.9	161	280	1.31	34.1	23.3	219	20	1.07	27.9	25.6
114	70	1.21	31.5	29.9	162	280	1.20	31.1	23.5	220	10	1.08	28.2	26.6
115	350	1.06	27.5	27.7	163	330	.97	25.2	25.2	221	280	1.04	26.9	26.9
116	350	1.01	26.3	26.3	164	250	1.06	27.6	25.7	222	300	1.04	27.1	27.1
117	290	1.41	36.8	23.7	165	130	1.79	46.4	10.4	223	320	1.61	41.8	29.8
118	290	1.23	31.9	23.8	166	130	1.44	37.4	10.7	224	330	1.23	32.0	28.1
119	260	1.05	27.2	22.2	167	130	.79	20.6	10.0	225	200	1.20	31.3	27.3
120	70	1.28	33.3	22.6	168	230	.72	18.6	10.6	226	190	1.67	43.5	28.8
121	90	1.27	33.0	22.6	169	260	.91	23.8	11.7	227	160	1.06	27.5	14.2
122	350	1.04	27.1	22.7	170	250	1.12	29.0	10.2	228	0	1.13	29.4	22.2
123	290	1.27	32.9	23.5	171	230	1.02	26.4	9.5	229	20	1.12	29.2	27.6
124	290	1.27	32.9	23.5	172	260	1.00	25.9	9.6	230	300	.96	24.9	24.9
125	300	1.55	40.4	25.6	173	130	.92	24.0	9.9	231	190	1.02	26.6	25.4
126	300	1.64	42.6	23.3	174	130	.80	20.9	9.3	232	330	1.45	37.7	21.3
127	290	1.87	22.7	22.2	175	120	.65	16.9	12.3	233	330	1.14	29.6	25.9
128	260	1.59	41.4	24.0	176	230	.64	16.6	12.4	234	190	1.55	40.4	27.3
129	330	.90	23.4	23.3	177	120	.81	21.0	12.1	235	190	1.67	43.5	27.1
130	350	1.01	26.2	26.2	178	230	1.04	27.0	12.2	236	10	1.04	27.1	22.1
131	90	1.17	30.3	18.8	179	220	.85	22.2	8.6	237	300	.96	25.0	25.0
132	90	1.34	35.0	20.8	180	240	.94	24.4	9.3	238	330	1.28	33.4	24.4
133	100	1.41	36.5	19.6	181	130	1.01	26.1	10.7	239	330	1.18	30.7	27.9
134	330	1.04	27.0	27.7	182	170	.69	17.9	11.1	240	250	1.08	28.0	28.0
135	290	1.23	32.1	25.1	183	270	.87	22.8	10.7	241	0	1.70	44.1	16.7
136	300	1.48	38.5	24.4	184	230	.90	23.5	8.4	242	320	1.44	37.4	25.6
137	300	2.17	56.4	24.2	185	110	.75	19.6	13.2	243	270	1.47	38.3	38.3
138	280	1.66	43.1	22.7	186	240	.66	17.1	13.2	244	190	.93	24.1	20.1
139	280	1.33	34.5	22.2	187	230	.87	22.5	11.0	245	170	1.08	28.1	22.3
140	290	1.16	28.6	17.7	188	240	.89	23.2	9.5	246	350	1.32	34.4	22.5
141	90	1.67	43.5	19.4	189	120	.79	20.4	10.9	247	170	1.56	40.6	24.2
142	160	1.13	35.5	16.4	190	120	.62	16.1	10.8	248	260	1.16	30.2	30.2
143	100	1.14	29.5	14.5	201	330	.94	24.4	24.4	249	170	1.82	47.3	26.3
144	250	.87	22.7	18.1	202	240	1.28	33.3	26.8	250	170	1.77	46.1	25.1
145	120	1.00	26.1	22.7	203	330	1.55	40.3	28.2	251	330	1.72	44.8	22.7
146	300	1.18	30.6	22.7	204	200	1.47	38.3	23.4	252	0	1.15	29.9	19.3
147	300	.97	25.3	18.4	205	330	1.16	30.2	24.3	253	20	1.23	31.9	21.8
148	220	.93	24.2	24.2	206	330	1.38	35.8	35.8	254	10	1.06	27.5	21.1

TABLE 6A. PEAK LOADS FOR CONFIGURATION A :
LARGEST VALUES OF CLADDING LOAD

ONE SOUTH WACKER, CHICAGO
REFERENCE PRESSURE = 26.0 PSF

TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE PEAK	POSITIVE PEAK	TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE PEAK	POSITIVE PEAK	TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE PEAK	POSITIVE PEAK
			PSF	PSF				PSF	PSF				PSF	PSF
255	170	1.07	27.7	24.2	303	40	.94	24.5	9.7	434	260	1.92	49.9	25.2
256	170	1.31	34.1	19.9	304	50	.78	20.3	11.7	435	260	1.70	44.2	25.7
257	180	1.30	33.9	26.5	305	120	.68	17.7	11.8	436	270	2.28	59.2	25.3
258	160	1.36	35.5	27.5	306	120	.70	18.2	11.9	437	260	2.19	57.1	24.1
259	170	1.73	45.1	25.7	307	130	.67	17.5	10.8	438	270	1.45	37.6	22.3
260	10	1.13	29.3	14.5	308	160	.85	22.1	11.7	439	290	.82	21.4	20.6
261	10	1.32	34.3	14.2	309	160	1.29	33.5	14.0	440	90	1.16	30.3	25.1
262	20	1.07	27.9	16.8	310	160	1.43	37.2	14.9	441	100	1.23	32.1	22.9
263	20	.87	22.5	18.5	311	120	.70	18.1	11.0	442	100	1.30	33.7	24.4
264	170	1.03	26.9	14.4	312	20	.94	24.5	12.6	443	230	1.43	37.1	22.9
265	350	1.06	27.6	15.8	313	30	.65	17.0	14.0	444	270	1.35	35.2	21.9
266	170	1.13	30.0	19.7	314	160	.64	16.6	13.9	445	270	1.67	43.5	16.8
267	170	2.82	73.2	20.2	315	160	.70	18.2	13.6	446	300	1.38	35.9	17.6
268	170	1.34	34.9	19.0	316	150	.68	17.7	14.8	447	290	1.17	30.4	17.5
269	30	1.07	27.9	18.4	317	150	1.10	28.7	15.7	448	150	.81	21.1	21.1
270	160	.96	24.9	13.3	401	310	1.79	46.6	31.2	449	150	.81	20.9	20.9
271	330	1.21	31.5	18.4	402	170	1.23	31.9	31.1	450	100	1.09	28.5	25.1
272	160	1.26	32.7	20.9	403	240	1.26	32.7	28.1	451	100	1.48	38.5	21.2
273	170	1.11	28.9	22.7	404	100	1.12	29.0	24.2	452	170	1.36	35.3	26.4
274	10	1.69	43.9	11.5	405	170	1.26	32.7	28.9	453	290	1.30	33.7	15.9
275	10	1.78	46.4	16.3	406	210	1.28	33.2	33.2	454	290	1.07	27.8	15.5
276	20	1.16	30.2	18.8	407	220	1.00	26.0	26.0	455	150	.96	25.0	21.8
277	160	.91	23.7	15.2	408	260	1.29	33.6	23.4	456	150	1.08	28.2	25.8
278	160	1.10	28.5	10.9	409	270	1.02	26.4	22.5	457	260	1.06	27.6	16.8
279	130	1.17	30.4	14.1	410	100	1.19	30.9	26.1	458	270	1.46	37.8	16.3
280	170	1.65	42.8	15.2	411	100	1.31	34.0	26.5	459	290	1.21	31.4	14.4
281	170	.96	24.9	23.9	412	170	1.42	36.9	26.5	460	290	1.02	26.6	18.9
282	170	1.82	47.3	21.6	413	250	1.19	31.0	27.8	461	260	.87	22.7	15.1
283	170	2.06	53.5	22.6	414	240	1.24	32.2	32.2	462	200	.60	15.6	15.4
284	10	1.31	34.2	9.9	415	220	1.39	36.2	36.2	463	100	.56	14.5	12.7
285	320	.89	23.2	10.5	416	270	1.33	34.5	29.0	464	40	.67	17.3	9.1
286	10	1.03	26.7	18.5	417	200	1.43	37.3	27.3	465	40	1.84	47.8	8.8
287	260	1.15	29.9	16.0	418	100	1.01	26.2	26.0	466	40	1.17	30.5	9.6
288	140	1.36	33.8	11.3	419	100	1.34	34.8	32.2	467	140	.71	18.6	12.1
289	160	1.30	33.7	15.1	420	100	1.50	38.9	31.8	468	330	.80	20.8	12.3
290	160	1.19	30.9	18.0	421	100	1.98	51.4	36.4	469	30	.75	19.6	11.9
291	150	1.72	44.7	18.0	422	260	1.76	45.8	26.5	470	190	.60	15.7	10.5
292	160	1.78	46.4	18.6	423	250	1.56	43.3	23.8	471	120	.54	14.1	11.3
293	310	1.33	34.6	10.6	424	270	1.02	26.5	24.2	472	210	.75	19.5	9.0
294	330	1.35	35.6	9.7	425	170	1.00	26.0	26.0	473	210	.76	19.8	9.5
295	30	.89	23.2	13.7	426	110	1.44	37.3	30.7	474	220	.86	22.3	9.2
296	150	.98	25.4	13.0	427	100	1.46	38.1	29.2	475	130	.64	16.6	12.0
297	180	.95	24.8	12.1	428	100	1.41	36.6	25.8	476	320	.79	20.5	12.2
298	320	1.17	30.5	11.5	429	170	1.21	31.5	31.2	477	40	.79	20.6	12.3
299	160	1.04	27.1	13.7	430	270	1.98	51.4	25.1	478	40	.65	16.9	14.7
300	160	1.56	40.6	16.3	431	260	1.84	47.8	23.2	479	200	.56	14.5	13.0
301	160	1.53	39.7	17.6	432	160	1.24	32.3	28.1	480	180	.63	16.4	10.0
302	30	.88	22.9	8.7	433	260	1.17	30.5	30.5	481	160	.67	17.4	9.8

TABLE 6A. PEAK LOADS FOR CONFIGURATION A
LARGEST VALUES OF CLADDING LOAD

ONE SOUTH WACKER, CHICAGO
REFERENCE PRESSURE = 26.0 PSF

TAP	AZI-MUTH	PRESS COEFF	ABSOLUTE PEAK	POSITIVE PEAK	TAP	AZI-MUTH	PRESS COEFF	ABSOLUTE PEAK	POSITIVE PEAK	TAP	AZI-MUTH	PRESS COEFF	ABSOLUTE PEAK	POSITIVE PEAK
			PSF	PSF				PSF	PSF				PSF	PSF
482	170	.60	15.7	9.9	531	350	1.23	32.1	12.2	937	130	.76	19.8	12.2
483	330	.78	20.2	15.0	532	350	1.80	46.8	14.7	901	330	1.57	40.8	13.3
484	310	.73	19.0	14.3	533	10	1.63	42.3	15.1	902	20	1.61	41.8	13.5
485	40	.73	19.0	13.7	534	150	1.45	37.8	8.9	903	100	1.49	38.8	11.8
486	180	.64	16.7	14.8	535	200	1.42	36.8	8.6	904	300	1.39	36.2	15.8
487	150	.57	14.9	14.9	536	200	.90	23.4	9.3	905	100	1.30	33.9	11.3
488	290	.57	14.9	14.0	537	340	.84	21.7	12.3	906	290	1.39	36.1	11.1
489	260	1.07	27.9	11.0	538	340	1.10	28.7	10.9	907	170	1.26	32.7	7.7
490	260	.95	24.7	14.4	539	330	1.49	39.6	10.2	908	190	2.26	58.8	10.8
501	0	1.61	41.7	21.3	540	330	1.46	37.9	12.7	909	120	1.93	50.3	6.8
502	350	1.27	33.0	21.8	541	220	1.52	39.2	8.6	910	190	1.41	36.7	22.4
503	200	1.20	31.1	15.9	542	220	1.39	36.2	9.9	911	100	1.74	43.1	18.3
504	190	1.39	36.4	30.3	543	220	1.02	26.6	8.5	912	170	1.36	33.3	13.4
505	190	1.18	30.7	23.4	544	220	.82	21.3	9.9	913	200	2.17	56.4	12.1
506	0	1.25	32.5	24.1	545	340	.98	25.5	10.7	914	170	1.97	51.2	11.9
507	200	1.37	35.6	21.8	546	330	1.54	39.9	10.6	915	160	.99	23.7	23.3
508	100	1.27	33.3	27.8	547	330	1.15	29.8	10.2	916	40	.99	23.8	19.3
509	70	1.17	30.3	27.1	548	240	1.77	46.0	10.8	917	290	.86	22.3	22.3
510	40	1.21	31.5	31.5	549	230	2.64	68.0	11.2	918	290	1.81	47.1	23.6
511	130	.98	25.4	25.4	550	210	1.07	27.9	12.3	919	170	1.10	28.6	18.0
512	120	1.38	35.8	35.8	551	150	.73	19.0	8.8	920	130	1.26	32.9	32.9
513	170	2.15	55.8	29.2	552	320	.75	19.6	11.9	921	190	.94	24.4	20.3
514	190	1.43	37.1	27.1	553	330	1.62	42.0	9.6	922	50	.98	23.5	22.5
515	210	.95	24.8	24.0	554	320	1.75	45.5	9.8	923	350	1.63	42.4	35.3
516	100	.95	24.6	24.6	555	150	.77	20.0	9.7	924	290	1.52	39.5	39.5
517	0	1.13	29.4	26.4	556	210	.74	19.2	9.8	925	170	1.42	37.0	31.6
518	0	1.26	32.7	22.8	557	270	.75	19.4	12.3	926	170	1.71	44.3	33.9
519	10	1.36	35.4	23.6	558	270	.79	20.5	13.9	927	30	1.17	30.3	20.5
520	170	1.46	38.4	23.4	559	210	.68	17.8	15.8	928	20	1.71	44.4	22.5
521	170	1.52	39.9	26.0	560	260	.74	19.1	10.9	929	170	1.29	33.4	20.1
522	260	1.19	31.0	21.1	561	290	.79	20.6	11.9	930	160	1.05	27.3	21.2
523	330	.80	20.7	19.5	562	200	.61	15.8	10.9	931	170	1.18	30.7	21.2
524	10	1.27	33.0	20.4	563	270	.57	14.9	9.4	932	270	.77	19.9	10.6
525	10	1.70	44.4	16.8	564	0	.69	18.0	10.0	933	270	.82	21.4	10.5
526	10	1.43	37.3	18.9	565	130	.63	16.8	11.3	934	220	.75	19.6	14.1
527	200	1.48	39.4	11.0	566	110	.60	15.5	12.9	935	290	1.72	44.7	7.0
528	200	1.60	41.6	15.9	567	160	.56	13.1	13.1	936	210	1.34	33.0	32.4
529	150	1.10	28.7	17.7	568	130	.62	16.1	13.0	937	40	1.03	26.8	26.8
530	350	1.61	26.1	16.1										

TABLE 6A. PEAK LOADS FOR CONFIGURATION B :
LARGEST VALUES OF CLADDING LOAD

ONE SOUTH WACKER, CHICAGO
REFERENCE PRESSURE = 26.0 PSF

TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE PEAK	POSITIVE PEAK	TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE PEAK	POSITIVE PEAK	TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE PEAK	POSITIVE PEAK
			----- PSF	-----				----- PSF	-----				----- PSF	-----
267	166	1.54	40.1	16.5	313	178	2.12	55.2	16.6	349	228	1.78	46.4	6.1
283	164	2.30	59.8	17.7										

TABLE 6A. PEAK LOADS FOR CONFIGURATION C :
LARGEST VALUES OF CLADDING LOAD

ONE SOUTH WACKER, CHICAGO
REFERENCE PRESSURE = 26.0 PSF

TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE POSITIVE		TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE POSITIVE		TAP	AZI- MUTH	PRESS COEFF	ABSOLUTE POSITIVE	
			PEAK PSF	PEAK				PEAK PSF	PEAK				PEAK PSF	PEAK
105	320	1.16	30.2	28.1	234	220	1.70	44.3	21.3	302	320	.72	18.8	18.8
118	240	1.19	31.0	29.4	235	180	1.40	36.4	17.7	303	10	.78	20.2	19.7
128	300	1.56	43.1	21.0	241	20	1.25	32.5	19.0	309	150	1.14	29.7	8.7
137	300	1.53	39.9	20.8	242	20	1.47	38.3	22.1	310	160	1.42	36.8	10.1
142	150	.84	21.9	14.9	249	180	1.58	41.1	18.7	311	310	.85	22.1	22.1
151	340	.86	22.4	22.4	250	170	1.65	43.0	16.5	317	160	.95	24.8	10.1
154	160	1.37	35.7	9.7	251	350	1.16	30.2	20.5	406	210	1.07	27.7	27.7
164	310	.86	22.4	22.4	252	20	1.23	32.0	21.6	415	250	1.24	32.2	31.2
180	250	1.33	34.7	11.9	258	170	1.50	39.1	19.6	430	330	1.33	34.7	25.2
188	250	.93	24.3	11.0	259	170	2.34	60.9	20.6	434	190	1.03	27.4	27.4
205	160	1.12	29.1	23.7	260	160	1.03	26.8	14.2	436	190	.92	23.9	17.0
210	0	1.00	25.9	23.8	261	20	1.07	27.8	16.0	437	190	1.03	26.8	20.2
212	340	.84	21.9	21.9	267	170	1.58	41.2	21.7	445	250	1.08	28.2	18.3
213	150	.96	24.9	18.4	268	170	1.86	48.4	15.5	457	170	.81	21.0	13.8
216	170	.96	23.0	21.8	274	20	1.70	44.1	13.6	467	260	.86	22.3	15.2
217	220	1.04	27.0	27.0	275	20	2.06	53.5	12.7	483	220	.64	16.6	9.0
218	20	.97	25.1	21.5	282	170	2.14	55.6	17.8	489	160	.72	18.7	8.6
219	310	1.11	28.9	28.9	283	160	2.09	54.4	15.1	513	170	1.97	51.2	18.2
223	180	1.64	42.6	22.6	284	10	.95	24.8	13.1	519	10	1.83	47.5	19.0
226	190	2.01	52.3	19.7	285	10	.93	24.3	14.0	546	220	1.10	28.7	11.7
227	0	1.07	27.9	21.5	294	20	.78	20.3	15.8	549	220	1.16	30.1	11.8
228	0	1.20	31.2	23.6	298	150	1.00	26.1	11.1	910	240	1.49	38.6	13.2
232	350	1.50	39.0	26.8	301	150	1.42	36.9	20.5	913	190	2.82	73.3	9.8

TABLE 6B. COMPARISON OF CONFIGURATIONS A AND B : ONE SOUTH MACKER, CHICAGO
TAPS WHERE ABSOLUTE PEAK LOAD FOR CONFIG. B EXCEEDED THAT FOR CONFIG. A BY 5 PSF
REF. PRESSURE = 26.0 PSF

TAP	AZIMUTH	A CONFIG. PSF LOAD	AZIMUTH	B CONFIG. PSF LOAD
283	170	53.5	164	59.8

TABLE 6B. COMPARISON OF CONFIGURATIONS A AND C : ONE SOUTH WACKER, CHICAGO
 TAPS WHERE ABSOLUTE PEAK LOAD FOR CONFIG. C EXCEEDED THAT FOR CONFIG. A BY 3 PSF
 REF. PRESSURE = 26.4 PSF

TAP	AZIMUTH	A CONFIG. PSF LOAD	AZIMUTH	C CONFIG. PSF LOAD
180	240	24.4	250	34.7
225	200	31.3	180	42.6
226	190	43.5	190	52.3
259	170	45.1	170	60.9
260	170	34.9	170	46.4
275	10	46.4	20	53.5
282	170	47.3	170	55.6
319	10	35.4	10	47.5
313	200	56.4	190	73.3

TABLE 7. BASE SHEAR AND MOMENT SUMMARY : ONE SOUTH WACKER, CHICAGO
 CONFIGURATION A REFERENCE PRESSURE 26.0 GUST FACTOR 1.32

AZIMUTH DEGREES	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
0	-162.9	59.5	2.4	-190.7	-15.1
10	-154.5	53.1	-	-172.9	-11.8
20	-151.0	50.8	-11.4	-158.8	-11.4
30	-147.8	50.2	-13.7	-136.5	-5.3
40	-147.3	50.0	-16.5	-131.9	-5.3
50	-133.7	40.9	-19.8	-91.6	-5.1
60	-118.6	32.4	-29.9	-33.8	-3.6
70	-148.5	49.4	-15.7	-16.3	5.5
80	-153.0	55.6	-16.0	-5.8	2.2
90	149.0	67.3	-21.3	47.8	5.5
100	411.1	89.4	-26.3	112.6	1.9
110	533.9	70.9	-22.0	151.5	2.9
120	629.6	74.4	-22.6	255.5	2.7
130	1005.4	77.0	-23.0	305.2	3.0
140	999.6	77.0	-21.0	291.7	2.1
150	1111.1	70.1	-19.1	322.3	2.4
160	1106.6	66.7	-17.4	342.4	2.6
170	733.8	66.7	-10.3	242.6	10.4
180	501.1	63.4	-6.6	157.5	3.7
190	493.3	113.3	-30.6	142.7	-
200	515.5	103.3	48.6	192.8	-4.9
210	577.7	105.5	107.3	267.1	-
220	566.6	100.0	167.5	275.7	-
230	776.6	108.3	225.2	203.7	6.0
240	844.4	106.0	331.2	196.6	7.7
250	588.4	108.0	320.0	115.0	11.5
260	448.8	107.7	229.9	47.6	15.5
270	369.9	109.0	134.5	32.2	11.0
280	167.7	153.5	45.5	1.1	4.4
290	167.7	147.6	129.9	-46.3	5.5
300	333.3	153.5	77.7	-68.0	10.6
310	333.3	129.9	117.7	-94.9	9.9
320	613.3	117.7	77.7	-176.7	7.0
330	613.3	88.7	88.7	-196.1	-7.9
340	799.9	66.7	44.4	-208.4	-15.7
350	799.9	77.7	44.4	-209.6	-16.3

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 0

ONE SOUTH WACKER, CHICAGO
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT 1000-FT-KIPS
GRND	0.00	-17.1	9.1	3379	1499	-4.3	5.1	-625.9	59.5	2.4	-190.7	-15.1
ME22	17.30	-12.3	10.2	3356	1605	-3.1	6.7	-608.9	50.4	3.3	-180.1	-15.3
2ND	34.50	-7.7	11.3	3333	2147	-3.9	8.8	-598.6	39.7	4.1	-169.7	-15.5
3RD	46.00	-7.7	11.3	3333	2147	-3.9	8.8	-598.6	37.9	4.5	-162.9	-15.6
4TH	57.50	-7.7	11.3	3333	2147	-3.9	8.8	-598.6	36.3	5.0	-156.2	-15.7
5TH	69.00	-7.7	11.3	3333	2147	-3.9	8.8	-598.6	34.1	5.4	-149.5	-15.8
6TH	80.50	-7.7	11.3	3333	2147	-3.9	8.8	-598.6	31.1	5.7	-142.9	-15.8
7TH	92.00	-6.6	11.3	3333	2147	-4.4	11.7	-560.4	27.6	6.1	-136.5	-16.0
8TH	103.50	-6.6	11.3	3333	2147	-4.4	11.7	-560.4	23.3	6.4	-130.1	-16.1
9TH	115.00	-7.7	11.3	3333	2147	-3.9	8.8	-598.6	18.4	6.6	-123.7	-16.3
10TH	126.50	-8.1	11.3	3333	2147	-3.3	8.2	-540.4	13.5	6.8	-117.5	-16.5
11TH	138.00	-9.1	11.3	3333	2147	-3.7	9.1	-532.3	8.7	6.9	-111.3	-16.6
12TH	149.50	-10.0	11.3	3333	2147	-4.0	10.0	-523.2	4.3	7.0	-105.2	-16.8
13TH	161.00	-11.1	11.3	3333	2147	-4.4	11.3	-502.1	-4.0	7.0	-99.3	-17.0
14TH	172.50	-11.1	11.3	3333	2147	-4.4	11.3	-490.6	-7.7	6.9	-93.7	-17.2
15TH	184.00	-11.1	11.3	3333	2147	-4.4	11.3	-487.7	-8.4	6.9	-88.4	-17.3
COFG	188.80	-11.1	11.3	3333	2147	-4.4	11.3	-478.2	-10.1	6.6	-82.2	-17.3
16TH	195.50	-11.1	11.3	3333	2147	-4.4	11.3	-466.4	-12.3	6.7	-76.7	-17.1
17TH	207.00	-11.1	11.3	3333	2147	-4.4	11.3	-454.9	-14.6	6.6	-71.4	-16.9
18TH	218.50	-11.1	11.3	3333	2147	-4.4	11.3	-452.1	-15.1	6.5	-70.2	-16.9
MODU	221.30	-11.1	11.3	3333	2147	-4.4	11.3	-443.0	-16.8	6.4	-66.3	-16.7
19TH	230.00	-12.2	11.3	3333	2147	-4.9	12.2	-430.5	-19.1	6.2	-61.2	-16.4
20TH	241.50	-12.2	11.3	3333	2147	-4.9	12.2	-417.6	-21.2	5.9	-56.4	-16.2
21ST	253.00	-13.3	11.3	3333	2147	-5.3	13.3	-404.4	-23.2	5.7	-51.6	-15.9
22ND	264.50	-14.4	11.3	3333	2147	-5.7	14.4	-389.7	-24.8	5.4	-47.1	-15.6
23RD	276.00	-15.1	11.3	3333	2147	-6.0	15.1	-383.7	-25.1	5.1	-42.7	-15.2
24TH	287.50	-15.9	11.3	3333	2147	-6.4	15.9	-374.5	-25.8	4.8	-38.5	-14.8
25TH	299.00	-16.6	11.3	3333	2147	-6.8	16.6	-368.6	-27.2	4.8	-34.4	-14.3
26TH	310.50	-17.4	11.3	3333	2147	-7.1	17.4	-362.0	-28.1	4.5	-30.6	-13.8
27TH	322.00	-18.1	11.3	3333	2147	-7.4	18.1	-356.6	-28.7	4.2	-27.0	-13.3
28TH	333.50	-18.8	11.3	3333	2147	-7.7	18.8	-350.5	-29.0	3.8	-23.6	-12.6
COFG	336.30	-18.8	11.3	3333	2147	-7.7	18.8	-350.5	-29.0	3.7	-21.1	-12.1
29TH	348.00	-19.4	11.3	3333	2147	-8.0	19.4	-342.0	-29.9	3.5	-18.4	-11.9
30TH	359.50	-19.9	11.3	3333	2147	-8.3	19.9	-334.4	-30.2	3.2	-16.7	-11.9
31ST	368.00	-20.2	11.3	3333	2147	-8.4	20.2	-328.6	-30.6	2.9	-15.4	-11.1
MODU	370.80	-20.2	11.3	3333	2147	-8.4	20.2	-328.6	-30.6	2.8	-14.6	-10.8
32ND	379.50	-20.6	11.3	3333	2147	-8.6	20.6	-323.0	-31.0	2.6	-14.6	-10.2
33RD	391.00	-21.1	11.3	3333	2147	-8.8	21.1	-317.2	-31.4	2.3	-12.1	-9.3
34TH	402.50	-21.3	11.3	3333	2147	-8.9	21.3	-311.7	-31.7	2.1	-9.8	-8.3
35TH	414.00	-21.6	11.3	3333	2147	-9.0	21.6	-306.4	-32.0	1.8	-7.7	-7.3
36TH	425.50	-21.9	11.3	3333	2147	-9.1	21.9	-301.2	-32.2	1.5	-5.9	-6.4
37TH	437.00	-22.1	11.3	3333	2147	-9.2	22.1	-296.2	-32.4	1.1	-4.3	-5.4
38TH	448.50	-22.2	11.3	3333	2147	-9.2	22.2	-291.4	-32.5	1.1	-3.0	-4.4
39TH	459.00	-22.3	11.3	3333	2147	-9.2	22.3	-286.8	-32.6	1.1	-1.9	-3.4
40TH	471.50	-22.3	11.3	3333	2147	-9.2	22.3	-282.4	-32.6	1.1	-1.1	-2.4
COFG	474.30	-22.3	11.3	3333	2147	-9.2	22.3	-282.4	-32.6	1.1	-1.0	-2.2
ME22	489.80	-22.3	11.3	3333	2147	-9.2	22.3	-282.4	-32.6	1.1	-1.0	-2.2
COFG	491.50	-22.3	11.3	3333	2147	-9.2	22.3	-282.4	-32.6	1.1	-1.0	-2.2
ROFF	506.00	-22.3	11.3	3333	2147	-9.2	22.3	-282.4	-32.6	1.1	-1.0	-2.2
COFG	508.80	-22.3	11.3	3333	2147	-9.2	22.3	-282.4	-32.6	1.1	-1.0	-2.2

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 10

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0	-14.1	11.6	3979	1499	-3.5	7.7	-545.1	363.1	-97.5	-172.9	-11.8
MEZZ	17.7	-14.1	13.4	3979	1605	-2.1	8.4	-531.0	351.5	-91.3	-163.6	-12.1
2ND	34.4	-15.6	12.9	2645	2147	-1.1	1.4	-522.9	338.1	-85.4	-154.5	-12.2
3RD	46.2	-15.6	11.3	2492	2147	-1.1	1.3	-517.3	333.2	-81.5	-148.5	-12.3
4TH	57.9	-15.6	4.0	2492	2147	-2.0	1.3	-511.8	332.0	-77.7	-142.6	-12.3
5TH	69.7	-14.6	4.4	2492	2147	-1.8	2.2	-506.8	328.0	-73.9	-136.7	-12.4
6TH	81.4	-4.2	5.5	2492	2147	-1.7	2.6	-502.2	323.2	-70.2	-130.9	-12.4
7TH	93.2	-3.7	6.6	2492	2147	-1.5	3.0	-498.8	317.6	-66.5	-125.2	-12.4
8TH	104.9	-3.3	7.7	2492	2147	-1.3	3.4	-494.3	311.3	-62.9	-119.5	-12.4
9TH	116.7	-4.3	7.9	2492	2147	-1.7	3.7	-491.0	304.0	-59.3	-113.8	-12.5
10TH	128.4	-5.4	8.4	2492	2147	-2.2	3.9	-488.8	296.2	-55.9	-108.2	-12.5
11TH	140.2	-6.5	9.0	2492	2147	-2.6	4.2	-481.2	287.8	-52.5	-102.6	-12.6
12TH	151.9	-7.6	9.6	2492	2147	-3.1	4.4	-474.7	278.8	-49.3	-97.1	-12.7
13TH	163.7	-8.7	10.1	2492	2147	-3.5	4.7	-467.1	269.2	-46.1	-91.7	-12.8
14TH	175.4	-9.8	10.7	2492	2147	-3.9	5.0	-458.4	259.1	-43.1	-86.4	-13.0
15TH	187.2	-10.9	11.1	607	552	-4.2	4.4	-448.6	248.4	-40.1	-81.2	-13.2
COPG	186	-10.9	11.1	1832	1624	-4.7	4.0	-445.0	246.1	-39.9	-79.9	-13.3
16TH	198.9	-10.7	10.8	2347	2147	-4.3	3.9	-437.3	239.6	-37.3	-76.1	-13.4
17TH	210.7	-10.7	10.5	2232	2147	-4.3	3.9	-427.7	231.1	-34.4	-71.1	-13.4
18TH	222.4	-10.5	10.2	526	526	-4.4	4.0	-416.5	222.2	-32.0	-66.5	-13.5
RODU	221	-10.7	10.5	1624	1624	-4.4	4.0	-414.4	220.9	-31.3	-65.1	-13.5
19TH	232.9	-10.7	10.2	2147	2147	-4.3	4.0	-406.6	214.1	-29.5	-61.5	-13.5
20TH	244.7	-11.0	9.8	2147	2147	-4.1	4.1	-394.3	205.4	-27.7	-56.9	-13.6
21ST	256.4	-11.7	9.9	2147	2147	-4.4	4.2	-384.4	196.6	-26.4	-52.5	-13.7
22ND	268.2	-12.6	9.9	2147	2147	-4.2	4.2	-372.8	187.6	-24.8	-48.1	-13.7
23RD	279.9	-13.6	9.9	2147	2147	-4.0	4.2	-360.2	178.6	-23.0	-43.9	-13.8
24TH	291.7	-14.5	9.9	2147	2147	-3.8	4.1	-346.6	169.7	-21.3	-39.8	-13.8
25TH	303.4	-15.5	9.8	2147	2147	-3.6	4.1	-332.1	160.8	-19.6	-35.9	-13.8
26TH	315.2	-16.5	9.8	2147	2147	-3.4	4.1	-316.6	152.0	-17.8	-32.2	-13.8
27TH	326.9	-17.5	9.7	2147	2147	-3.2	4.0	-300.2	143.3	-16.1	-28.6	-13.8
28TH	338.7	-18.5	9.7	523	523	-3.0	4.1	-282.2	134.6	-14.5	-25.3	-13.9
COPG	338	-18.5	9.7	1591	1624	-3.0	4.1	-280.8	132.4	-14.0	-24.5	-13.9
29TH	350.4	-19.5	9.9	2002	2147	-2.8	4.2	-263.3	123.7	-12.4	-22.1	-13.9
30TH	362.2	-20.5	11.1	1887	2147	-2.6	4.2	-246.8	116.8	-10.9	-22.1	-13.9
31ST	373.9	-21.5	11.1	442	523	-2.4	4.2	-230.2	107.7	-9.3	-19.2	-13.9
RODU	373	-21.5	11.1	1363	1624	-2.4	4.2	-228.8	105.5	-8.8	-18.8	-13.9
32ND	385.7	-22.5	11.1	1802	2147	-2.2	4.1	-212.5	98.7	-7.3	-16.4	-13.9
33RD	397.4	-23.5	11.1	1602	2147	-2.0	4.0	-196.0	89.9	-6.1	-13.8	-13.9
34TH	409.2	-24.5	11.1	1802	2147	-1.8	4.1	-179.0	81.3	-5.0	-11.5	-13.9
35TH	420.9	-25.5	11.1	1802	2147	-1.6	4.3	-162.0	72.5	-4.0	-9.3	-13.9
36TH	432.7	-26.5	11.1	1802	2147	-1.4	4.5	-144.0	63.4	-3.1	-7.3	-13.9
37TH	444.4	-27.5	11.1	1802	2147	-1.2	4.7	-126.0	53.8	-2.4	-5.6	-13.9
38TH	456.2	-28.5	11.1	1802	2147	-1.0	4.9	-108.0	43.8	-1.7	-4.1	-13.9
39TH	467.9	-29.5	11.1	439	523	-0.8	4.8	-90.0	33.4	-1.1	-2.8	-13.9
COPG	468	-29.5	11.1	2272	2272	-0.8	4.8	-88.6	22.6	-0.9	-1.9	-13.9
40TH	480.7	-30.5	11.1	594	594	-0.6	4.4	-70.0	12.4	-0.7	-1.1	-13.9
MEZZ	480	-30.5	11.1	423	423	-0.6	4.4	-68.6	6.7	-0.6	-0.9	-13.9
COPG	480	-30.5	11.1	2272	2272	-0.6	4.4	-67.2	6.7	-0.6	-0.9	-13.9
RODU	480	-30.5	11.1	439	439	-0.6	4.4	-65.8	1.9	-0.5	-0.8	-13.9
COPG	480	-30.5	11.1	1457	767	-0.6	4.4	-64.4	2.0	-0.5	-0.8	-13.9

TABLE 7. SHEAR AND MOMENT DIAGRAMS
WIND DIRECTION 20

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0	14.3	14.4	3397.9	1499.9	1.3	1.4	0	0	0	0	0
MEZZ	17	14.3	14.4	3397.9	1499.9	1.3	1.4	14.3	14.4	169.7	158.8	11.4
2ND	34	14.3	14.4	2644.5	1605.5	1.1	1.1	14.3	14.4	133.0	150.1	11.5
3RD	46	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	143.0	141.6	11.6
4TH	57	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	136.1	11.3
5TH	69	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	130.5	11.4
6TH	80	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	125.0	11.3
7TH	92	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	119.6	11.3
8TH	103	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	114.2	11.3
9TH	115	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	108.9	11.2
10TH	126	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	103.6	11.1
11TH	138	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	98.4	11.0
12TH	149	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	93.2	11.0
13TH	161	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	88.1	10.9
14TH	172	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	83.0	10.9
15TH	184	14.3	14.4	2492.2	2147.7	1.1	1.1	14.3	14.4	133.0	78.3	10.8
COFG	186	14.3	14.4	1852.4	522.3	1.1	1.1	14.3	14.4	43.3	72.1	10.8
16TH	195	14.3	14.4	2234.7	1622.4	1.1	1.1	14.3	14.4	43.0	68.5	10.8
17TH	207	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	40.7	63.3	10.8
18TH	218	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	39.4	59.4	10.8
MOU	221	14.3	14.4	1622.4	1622.4	1.1	1.1	14.3	14.4	39.1	55.5	10.8
19TH	230	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	38.8	51.8	10.4
20TH	241	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	36.8	50.0	10.2
21ST	253	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	35.5	46.7	10.0
22ND	264	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	34.2	42.7	9.7
23RD	276	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	32.8	38.9	9.4
24TH	287	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	31.4	35.2	9.2
25TH	299	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	30.0	31.7	8.9
26TH	310	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	28.5	28.4	8.6
27TH	322	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	27.0	25.2	8.2
28TH	333	14.3	14.4	2234.7	2147.7	1.1	1.1	14.3	14.4	25.5	22.2	7.9
COFG	336	14.3	14.4	1591.1	522.4	1.1	1.1	14.3	14.4	25.1	21.5	7.5
29TH	345	14.3	14.4	2000.2	1622.4	1.1	1.1	14.3	14.4	23.9	19.4	7.3
30TH	356	14.3	14.4	1887.7	2147.7	1.1	1.1	14.3	14.4	22.4	16.8	7.0
31ST	366	14.3	14.4	442.2	522.3	1.1	1.1	14.3	14.4	20.7	14.3	6.4
MOU	370	14.3	14.4	1363.3	1622.4	1.1	1.1	14.3	14.4	20.3	13.7	6.0
32ND	379	14.3	14.4	1800.2	2147.7	1.1	1.1	14.3	14.4	19.1	13.0	5.4
33RD	391	14.3	14.4	1800.2	2147.7	1.1	1.1	14.3	14.4	17.4	12.2	5.3
34TH	402	14.3	14.4	1800.2	2147.7	1.1	1.1	14.3	14.4	15.7	11.5	5.3
35TH	414	14.3	14.4	1800.2	2147.7	1.1	1.1	14.3	14.4	14.0	10.8	4.9
36TH	425	14.3	14.4	1800.2	2147.7	1.1	1.1	14.3	14.4	12.3	10.3	4.8
37TH	437	14.3	14.4	1800.2	2147.7	1.1	1.1	14.3	14.4	10.5	9.5	3.8
38TH	448	14.3	14.4	1800.2	2147.7	1.1	1.1	14.3	14.4	8.8	8.8	3.3
39TH	460	14.3	14.4	1800.2	2147.7	1.1	1.1	14.3	14.4	6.9	8.0	2.7
40TH	471	14.3	14.4	433.9	522.3	1.1	1.1	14.3	14.4	5.1	7.7	2.2
COFG	474	14.3	14.4	2272.2	2707.7	1.1	1.1	14.3	14.4	4.7	7.0	1.6
MEZZ	486	14.3	14.4	423.3	564.4	1.1	1.1	14.3	14.4	3.3	6.6	1.5
COFG	491	14.3	14.4	2272.2	2707.7	1.1	1.1	14.3	14.4	2.6	6.0	1.1
ROOF	506	14.3	14.4	433.9	522.3	1.1	1.1	14.3	14.4	1.7	5.3	0.4
COFG	508	14.3	14.4	1455.7	766.7	1.1	1.1	14.3	14.4	0.9	4.8	0.8

TABLE 7. SHEAR AND MOMENT DIAGRAM 1
 WIND DIRECTION 30 ONE SOUTH WACKER, CHICAGO
 CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	-14.7	17.2	3979	1499	-3.7	11.4	-478.7	638.2	-187.9	-136.5	-3.3
MEZZ	17.30	-9.6	19.8	3956	1605	-2.4	12.3	-464.0	621.0	-177.0	-128.4	-3.7
2ND	34.50	-7.0	6.3	2645	2147	-2.6	2.9	-454.4	601.2	-166.3	-120.3	-3.9
3RD	46.00	-7.0	6.4	2492	2147	-2.8	3.0	-447.4	595.0	-153.6	-115.3	-6.0
4TH	57.50	-7.1	7.0	2492	2147	-2.9	3.2	-440.4	588.6	-152.8	-110.2	-6.1
5TH	69.00	-7.7	7.6	2492	2147	-2.9	3.5	-433.3	581.6	-146.0	-105.2	-6.2
6TH	80.50	-7.7	8.1	2492	2147	-2.9	3.8	-426.1	574.1	-139.4	-100.2	-6.3
7TH	92.00	-7.7	8.7	2492	2147	-2.9	4.1	-418.8	565.9	-132.8	-95.4	-6.4
8TH	103.50	-7.7	9.3	2492	2147	-2.9	4.3	-411.5	557.2	-126.4	-90.6	-6.5
9TH	115.00	-7.7	9.9	2492	2147	-2.9	4.6	-404.1	547.9	-120.0	-85.9	-6.6
10TH	126.50	-8.4	10.5	2492	2147	-3.0	4.9	-396.2	538.8	-113.8	-81.3	-6.6
11TH	138.00	-8.4	11.1	2492	2147	-3.0	5.1	-387.9	527.3	-107.7	-76.8	-6.6
12TH	149.50	-9.4	11.6	2492	2147	-3.0	5.4	-379.9	516.3	-101.7	-72.4	-6.6
13TH	161.00	-9.4	12.1	2492	2147	-4.0	5.7	-369.9	504.9	-95.8	-68.1	-6.6
14TH	172.50	-10.1	12.7	2492	2147	-4.1	5.9	-359.9	492.8	-90.0	-63.9	-6.6
15TH	184.00	-10.5	13.2	523	523	-4.1	6.0	-349.9	480.1	-84.5	-59.8	-6.3
COFG	186.80	-10.6	13.3	1852	1624	-4.1	6.2	-347.7	476.9	-83.1	-58.8	-6.3
16TH	195.50	-10.6	13.3	2347	2147	-4.1	6.6	-333.9	466.9	-79.0	-55.8	-6.2
17TH	207.00	-10.6	13.4	2232	2147	-4.3	6.3	-323.9	453.6	-73.7	-52.0	-6.0
18TH	218.50	-10.6	13.3	526	523	-4.3	6.6	-320.4	440.1	-68.6	-48.3	-5.8
MOBU	221.30	-10.6	13.3	1624	1624	-4.6	6.3	-318.0	436.9	-67.3	-47.4	-5.7
19TH	233.00	-10.6	13.3	2147	2147	-4.8	6.3	-310.5	428.7	-63.6	-44.6	-5.6
20TH	244.50	-10.6	13.4	2147	2147	-4.9	6.3	-300.3	413.2	-58.8	-41.1	-5.4
21ST	255.00	-11.1	13.3	2147	2147	-5.1	6.3	-289.9	399.8	-54.1	-37.7	-5.2
22ND	266.50	-11.1	14.4	2147	2147	-5.3	6.6	-278.9	386.2	-49.6	-34.5	-5.1
23RD	278.00	-11.1	14.9	2147	2147	-5.3	6.9	-267.9	372.0	-45.2	-31.3	-4.9
24TH	289.50	-12.0	15.6	2147	2147	-5.7	7.3	-255.9	357.1	-41.0	-28.3	-4.7
25TH	301.00	-12.7	16.3	2147	2147	-5.9	7.6	-243.3	341.5	-37.0	-25.4	-4.6
26TH	312.50	-13.3	17.0	2147	2147	-6.1	7.9	-230.6	325.2	-33.2	-22.7	-4.4
27TH	324.00	-14.1	17.7	2147	2147	-6.5	8.2	-217.4	308.2	-29.5	-20.1	-4.3
28TH	335.50	-14.4	18.4	523	523	-6.3	7.9	-203.3	290.6	-26.1	-17.7	-4.2
COFG	338.30	-14.5	18.5	1591	1624	-6.0	7.5	-200.0	286.4	-25.3	-17.2	-4.2
29TH	349.80	-14.5	18.5	2602	2147	-6.2	7.8	-190.5	274.2	-22.8	-15.3	-4.0
30TH	361.30	-14.5	18.5	1887	2147	-6.7	8.2	-178.0	257.5	-19.8	-13.3	-3.7
31ST	372.80	-14.4	18.4	442	523	-7.2	8.4	-163.3	240.0	-16.9	-11.4	-3.4
MOBU	375.60	-14.4	18.4	1363	1624	-7.4	8.5	-162.1	235.6	-16.2	-10.9	-3.3
32ND	387.10	-14.5	18.5	1802	2147	-7.6	8.8	-152.0	221.7	-14.3	-9.5	-3.1
33RD	398.60	-14.5	18.5	1802	2147	-7.8	9.1	-143.5	202.9	-11.8	-7.9	-2.8
34TH	410.10	-14.4	18.4	1802	2147	-8.0	9.4	-124.4	183.5	-9.6	-6.4	-2.5
35TH	421.60	-14.4	18.4	1802	2147	-8.1	9.7	-110.0	163.8	-7.6	-5.0	-2.2
36TH	433.10	-14.4	18.4	1802	2147	-8.3	10.0	-93.3	143.3	-5.8	-3.8	-1.9
37TH	444.60	-14.4	18.4	1802	2147	-8.5	10.3	-80.0	123.3	-4.3	-2.8	-1.6
38TH	456.10	-15.1	19.1	1802	2147	-8.8	10.6	-66.0	102.6	-3.0	-2.0	-1.4
39TH	467.60	-15.1	19.1	1802	2147	-9.0	10.9	-50.9	81.6	-1.9	-1.3	-1.1
COFG	470.40	-15.1	19.1	439	523	-8.4	10.0	-35.7	60.2	-1.1	-.8	-.8
MEZZ	473.20	-11.1	2.2	2272	2707	-5.2	9.7	-32.4	55.0	-1.0	-.7	-.7
COFG	485.00	-11.1	2.2	423	564	-4.5	1.1	-20.5	28.8	-.4	-.3	-.4
COFG	491.10	-11.1	2.2	2272	2707	-4.2	3.3	-18.6	24.8	-.3	-.3	-.4
ROOF	502.60	-11.1	2.2	439	523	-3.7	3.5	-9.2	7.7	-.0	-.1	-.3
COFG	508.80	-11.1	2.2	1457	767	-4.6	6.2	-6.7	4.8	-.0	-.0	-.3

TABLE 7. SHEAR AND MOMENT DIAGRAMS
WIND DIRECTION 40

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	-16.3	17.7	3979	1499	-4.1	11.8	-479.3	589.0	-165.9	-131.9	-5.3
MEZZ	17.30	-12.7	20.9	3936	1605	-3.2	13.0	-463.0	571.3	-155.8	-123.8	-5.9
2ND	34.50	-8.8	5.3	2645	2147	-3.3	22.5	-450.2	550.4	-146.2	-115.9	-6.3
3RD	46.00	-8.6	5.6	2492	2147	-3.4	22.6	-441.4	545.2	-139.9	-110.8	-6.5
4TH	57.50	-8.6	6.6	2492	2147	-3.4	31.1	-432.9	539.6	-133.7	-105.8	-6.8
5TH	69.00	-8.6	7.7	2492	2147	-3.4	31.6	-424.4	533.0	-127.5	-100.8	-7.0
6TH	80.50	-8.5	8.7	2492	2147	-3.4	41.1	-415.7	527.3	-121.4	-96.0	-7.2
7TH	92.00	-8.5	9.8	2492	2147	-3.4	41.6	-407.2	520.6	-115.4	-91.3	-7.4
8TH	103.50	-8.5	10.9	2492	2147	-3.4	51.1	-398.6	514.0	-109.3	-86.6	-7.5
9TH	115.00	-8.5	11.4	2492	2147	-3.5	51.3	-390.1	507.3	-103.3	-82.1	-7.7
10TH	126.50	-8.5	11.6	2492	2147	-3.7	51.4	-381.3	499.9	-98.1	-77.7	-7.8
11TH	138.00	-9.9	11.8	2492	2147	-3.8	51.5	-372.1	492.9	-92.6	-73.3	-7.9
12TH	149.50	-9.9	12.0	2492	2147	-4.0	51.6	-362.6	484.5	-87.3	-69.1	-7.9
13TH	161.00	-10.3	12.2	2492	2147	-4.1	51.7	-352.7	476.2	-82.0	-65.0	-7.9
14TH	172.50	-10.3	12.4	2492	2147	-4.1	51.8	-342.5	467.0	-76.9	-61.0	-7.9
15TH	184.00	-2.4	3.2	607	523	-4.0	60.0	-332.2	457.6	-72.0	-57.1	-7.5
COPG	186.80	-7.3	10.2	1832	1624	-3.9	60.3	-329.8	421.4	-70.8	-56.2	-7.4
16TH	195.50	-9.9	13.4	2347	2147	-4.1	62.2	-322.5	411.3	-67.2	-53.3	-7.2
17TH	207.00	-9.9	13.3	2232	2147	-4.3	62.2	-313.0	397.9	-62.5	-49.7	-6.9
18TH	218.50	-2.2	3.2	526	523	-4.4	62.2	-303.4	384.6	-58.0	-46.1	-6.7
MODU	221.30	-7.7	10.0	1624	1624	-4.5	61.1	-301.1	381.3	-56.9	-45.3	-6.6
19TH	230.00	-9.9	13.1	2147	2147	-4.6	61.1	-293.8	371.3	-53.7	-42.7	-6.4
20TH	241.50	-9.9	12.9	2147	2147	-4.6	60.0	-284.4	358.3	-49.5	-39.4	-6.2
21ST	253.00	-10.2	13.0	2147	2147	-4.7	60.0	-274.1	345.3	-45.4	-36.2	-5.9
22ND	264.50	-10.5	13.5	2147	2147	-4.9	60.3	-264.7	332.4	-41.5	-33.1	-5.7
23RD	276.00	-10.8	14.0	2147	2147	-5.0	60.5	-253.3	318.9	-37.8	-30.0	-5.5
24TH	287.50	-11.1	14.5	2147	2147	-5.2	60.8	-242.7	304.9	-34.2	-27.3	-5.3
25TH	299.00	-11.5	15.1	2147	2147	-5.3	70.0	-231.5	290.4	-30.8	-24.5	-5.0
26TH	310.50	-11.8	15.6	2147	2147	-5.5	70.3	-220.1	275.3	-27.5	-21.9	-4.8
27TH	322.00	-12.7	16.2	2147	2147	-5.9	70.5	-208.3	259.7	-24.4	-19.5	-4.6
28TH	333.50	-3.1	3.7	523	523	-5.8	70.0	-195.6	243.5	-21.6	-17.2	-4.4
COPG	336.30	-9.0	10.8	1591	1624	-5.7	66.6	-192.5	239.9	-20.9	-16.6	-4.3
29TH	345.00	-11.9	14.6	2002	2147	-6.0	66.8	-183.5	229.1	-18.8	-15.0	-4.0
30TH	356.50	-12.2	15.3	1887	2147	-6.5	70.3	-171.6	214.4	-16.3	-12.9	-3.7
31ST	368.00	-3.0	3.8	442	523	-6.9	70.1	-159.4	199.2	-13.9	-11.0	-3.4
MODU	370.80	-9.6	12.0	1363	1624	-7.1	70.4	-156.3	195.3	-13.4	-10.6	-3.3
32ND	379.50	-13.1	16.2	1802	2147	-7.3	70.6	-146.7	183.3	-11.7	-9.3	-3.1
33RD	391.00	-13.5	16.6	1802	2147	-7.5	70.8	-133.6	167.1	-9.7	-7.7	-2.8
34TH	402.50	-13.8	16.6	1802	2147	-7.7	70.7	-120.1	150.5	-7.9	-6.2	-2.5
35TH	414.00	-13.9	16.6	1802	2147	-7.7	70.7	-106.3	133.9	-6.2	-4.9	-2.2
36TH	425.50	-14.0	16.5	1802	2147	-7.8	70.7	-92.4	117.3	-4.8	-3.8	-1.9
37TH	437.00	-14.1	16.5	1802	2147	-7.8	70.7	-78.5	100.8	-3.5	-2.8	-1.6
38TH	448.50	-14.1	16.5	1802	2147	-7.9	70.7	-64.4	84.3	-2.5	-1.9	-1.3
39TH	460.00	-14.3	16.5	1802	2147	-7.9	70.7	-50.2	67.8	-1.6	-1.3	-1.0
40TH	471.50	-3.1	4.4	439	523	-7.2	80.4	-36.0	51.3	-0.9	-0.8	-0.7
COPG	474.30	-12.4	24.1	2272	2707	-5.5	80.9	-32.8	46.9	-0.8	-0.6	-0.6
MEZZ	486.80	-2.0	3.6	423	504	-4.7	70.1	-20.4	22.6	-0.3	-0.3	-0.4
COPG	491.50	-9.5	13.8	2272	2707	-4.2	51.1	-18.4	19.2	-0.2	-0.2	-0.3
ROOF	506.00	-2.1	2.1	439	523	-5.2	41.1	-8.9	5.4	-0.0	-0.0	-0.3
COPG	508.80	-6.6	3.3	1457	767	-4.6	40.3	-6.6	3.3	-0.0	-0.0	-0.2

TABLE 7. SHEAR AND MOMENT DIAGRAMS : ONE SOUTH WACKER, CHICAGO
WIND DIRECTION 50 CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT 1000-FT-KIPS
GRND	0.00	-10.5	19.2	397.9	149.9	-2.6	12.8	-337.9	409.9	-98.0	-91.6	-5.1
MEZZ	17.30	-7.9	22.2	395.6	1605	-2.0	13.9	-327.3	390.8	-91.1	-85.9	-5.6
2ND	34.50	-5.4	5.9	264.5	2147	-2.1	2.8	-319.4	368.5	-84.5	-80.3	-5.9
3RD	46.00	-5.4	6.8	249.2	2147	-2.2	3.2	-314.4	362.6	-80.3	-76.7	-6.1
4TH	57.50	-5.3	7.8	249.2	2147	-2.1	3.6	-308.5	355.8	-76.2	-73.1	-6.3
5TH	69.00	-5.2	8.6	249.2	2147	-2.1	4.1	-303.2	348.0	-72.2	-69.6	-6.5
6TH	80.50	-5.1	9.9	249.2	2147	-2.0	4.6	-298.0	339.2	-68.2	-66.1	-6.8
7TH	92.00	-4.9	10.9	249.2	2147	-2.0	5.1	-292.9	329.3	-64.4	-62.7	-6.7
8TH	103.50	-4.8	11.9	249.2	2147	-1.9	5.6	-288.0	318.4	-60.6	-59.4	-6.8
9TH	115.00	-5.2	12.0	249.2	2147	-2.1	6.1	-283.2	306.5	-57.0	-56.1	-6.9
10TH	126.50	-5.7	11.7	249.2	2147	-2.3	6.6	-278.0	294.4	-53.6	-52.9	-7.0
11TH	138.00	-6.2	11.3	249.2	2147	-2.5	7.1	-272.3	282.8	-50.3	-49.7	-6.9
12TH	149.50	-6.6	10.9	249.2	2147	-2.7	7.6	-266.2	271.5	-47.1	-46.6	-6.9
13TH	161.00	-7.1	10.5	249.2	2147	-2.9	8.1	-259.6	260.6	-44.0	-43.6	-6.7
14TH	172.50	-7.6	10.1	249.2	2147	-3.0	8.6	-252.4	250.0	-41.1	-40.6	-6.5
15TH	184.00	-8.1	9.7	60.7	523	-3.0	9.1	-244.9	239.9	-38.3	-37.8	-6.3
COPG	195.50	-8.6	9.3	183.2	1624	-3.0	9.6	-243.0	237.4	-37.6	-37.1	-6.2
16TH	207.00	-9.1	8.9	234.7	2147	-3.3	10.1	-237.4	229.5	-35.6	-35.0	-6.0
17TH	218.50	-9.6	8.5	223.2	2147	-3.7	10.6	-229.8	219.4	-33.6	-32.3	-5.6
18TH	230.00	-10.1	8.1	52.6	523	-3.9	11.1	-221.6	209.5	-30.5	-29.7	-5.3
MODU	241.50	-10.6	7.7	162.4	1624	-4.0	11.6	-219.6	207.7	-29.9	-29.1	-5.3
19TH	253.00	-11.1	7.3	214.7	2147	-4.2	12.1	-213.3	200.6	-28.2	-27.2	-5.1
20TH	264.50	-11.6	6.9	214.7	2147	-4.3	12.6	-204.1	191.9	-25.9	-24.8	-4.8
21ST	276.00	-12.1	6.5	214.7	2147	-4.5	13.1	-194.8	183.5	-23.7	-22.5	-4.5
22ND	287.50	-12.6	6.1	214.7	2147	-4.6	13.6	-185.1	175.6	-21.7	-20.3	-4.3
23RD	299.00	-13.1	5.7	214.7	2147	-4.7	14.1	-175.2	167.6	-19.7	-18.3	-4.1
24TH	310.50	-13.6	5.3	214.7	2147	-4.8	14.6	-165.1	159.3	-17.8	-16.3	-3.9
25TH	322.00	-14.1	4.9	214.7	2147	-5.0	15.1	-154.7	151.3	-16.0	-14.5	-3.7
26TH	333.50	-14.6	4.5	214.7	2147	-5.1	15.6	-144.0	143.1	-14.3	-12.7	-3.6
27TH	345.00	-15.1	4.1	214.7	2147	-5.2	16.1	-133.3	134.7	-12.8	-11.2	-3.5
28TH	356.50	-15.6	3.7	52.3	523	-4.9	16.6	-121.9	126.3	-11.3	-9.7	-3.4
COPG	368.00	-16.1	3.3	159.1	1624	-4.6	17.1	-119.4	124.4	-10.9	-9.4	-3.3
29TH	379.50	-16.6	2.9	290.2	2147	-4.5	17.6	-112.1	118.6	-9.8	-8.3	-3.2
30TH	391.00	-17.1	2.5	188.7	2147	-4.7	18.1	-103.1	110.9	-9.0	-7.7	-3.0
31ST	402.50	-17.6	2.1	44.2	523	-4.9	18.6	-94.2	103.0	-8.3	-7.0	-2.7
MODU	414.00	-18.1	1.7	136.3	1624	-4.9	19.1	-92.0	101.0	-7.7	-6.0	-2.5
32ND	425.50	-18.6	1.3	180.2	2147	-4.9	19.6	-85.3	94.9	-6.2	-4.9	-2.3
33RD	437.00	-19.1	0.9	180.2	2147	-4.9	20.1	-76.4	86.6	-5.1	-4.0	-2.3
34TH	448.50	-19.6	0.5	180.2	2147	-4.9	20.6	-67.6	78.1	-4.2	-3.2	-2.1
35TH	460.00	-20.1	0.1	180.2	2147	-4.8	21.1	-58.8	69.7	-3.3	-2.3	-1.9
36TH	471.50	-20.6	0.0	180.2	2147	-4.7	21.6	-50.0	61.2	-2.6	-1.8	-1.7
37TH	483.00	-21.1	0.0	180.2	2147	-4.7	22.1	-41.7	52.8	-1.9	-1.3	-1.5
38TH	494.50	-21.6	0.0	180.2	2147	-4.6	22.6	-33.3	44.4	-1.3	-0.9	-1.2
39TH	506.00	-22.1	0.0	180.2	2147	-4.6	23.1	-24.8	35.9	-0.9	-0.5	-1.0
40TH	517.50	-22.6	0.0	43.9	523	-4.1	23.6	-16.6	27.5	-0.5	-0.3	-0.7
COPG	529.00	-23.1	0.0	223.2	2707	-3.1	24.1	-14.7	25.3	-0.4	-0.3	-0.6
MEZZ	540.50	-23.6	0.0	4.4	504	-2.4	24.6	-7.7	13.3	-0.2	-0.1	-0.3
COPG	552.00	-24.1	0.0	223.2	2707	-2.1	25.1	-6.7	11.5	-0.1	-0.1	-0.3
ROOF	563.50	-24.6	0.0	43.9	523	-2.0	25.6	-2.0	4.0	-0.0	-0.0	-0.1
COPG	575.00	-25.1	0.0	145.7	767	-1.7	26.1	-1.1	2.5	-0.0	-0.0	-0.1

TABLE 7. SHEAR AND MOMENT DIAGRAMS : ONE SOUTH WACKER, CHICAGO
 WIND DIRECTION 60 CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	-4.3	14.5	3979	1499	-1.1	9.7	-118.6	326.4	-89.1	-33.8	-3.6
MEZZ	17.30	-2.4	17.0	3956	1603	-1.6	10.8	-114.3	311.8	-83.6	-31.8	-3.8
2ND	34.50	-1.8	1.7	2645	2147	-1.7	8.8	-111.9	294.8	-78.4	-29.9	-3.9
3RD	46.00	-2.0	2.6	2492	2147	-1.8	1.2	-110.1	293.1	-75.0	-28.6	-4.0
4TH	57.50	-2.1	3.3	2492	2147	-1.8	1.6	-108.1	290.5	-71.7	-27.3	-4.1
5TH	69.00	-2.1	4.3	2492	2147	-1.9	2.0	-106.0	287.0	-68.3	-26.1	-4.1
6TH	80.50	-2.2	5.2	2492	2147	-1.9	2.4	-103.9	282.2	-65.1	-24.9	-4.1
7TH	92.00	-2.2	6.6	2492	2147	-1.9	2.8	-101.7	277.5	-61.8	-23.7	-4.1
8TH	103.50	-2.2	7.9	2492	2147	-1.9	3.3	-99.5	271.1	-58.7	-22.5	-4.1
9TH	115.00	-2.2	9.3	2492	2147	-1.9	3.4	-97.2	264.3	-55.6	-21.4	-4.1
10TH	126.50	-2.2	10.7	2492	2147	-1.9	3.4	-95.0	257.0	-52.6	-20.3	-4.1
11TH	138.00	-2.2	12.1	2492	2147	-1.9	3.4	-92.9	249.9	-49.7	-19.2	-4.0
12TH	149.50	-2.2	13.5	2492	2147	-1.9	3.4	-90.9	242.5	-46.9	-18.2	-4.0
13TH	161.00	-1.1	14.9	2492	2147	-1.8	3.4	-88.9	235.2	-44.1	-17.1	-3.9
14TH	172.50	-1.1	16.1	2492	2147	-1.8	3.4	-87.0	228.0	-41.4	-16.1	-3.9
15TH	184.00	-1.1	17.2	2492	2147	-1.8	3.4	-85.4	220.8	-38.9	-15.1	-3.9
CDPG	186.80	-1.1	18.4	607	523	-1.1	3.4	-85.4	219.0	-38.2	-14.9	-3.5
16TH	195.50	-1.1	186	1852	1624	-1.1	3.4	-85.4	213.3	-36.4	-14.2	-3.3
17TH	207.00	-1.1	195	2347	2147	-1.1	3.4	-85.4	206.5	-34.0	-13.2	-3.2
18TH	221.80	-2.1	207	2232	2147	-1.0	3.3	-82.1	200.0	-31.6	-12.3	-3.0
MODU	221.80	-1.1	218	526	523	-1.1	3.3	-80.0	199.0	-31.1	-12.1	-3.0
19TH	222.10	-1.1	221	1624	1624	-1.1	3.3	-79.4	197.7	-31.1	-12.1	-2.9
20TH	235.00	-1.1	222	2147	2147	-1.2	3.3	-77.7	192.2	-29.4	-11.4	-2.9
21ST	241.50	-1.1	235	2147	2147	-1.2	3.3	-75.2	185.5	-27.2	-10.5	-2.8
22ND	253.00	-1.1	241	2147	2147	-1.3	3.3	-72.2	179.0	-25.1	-9.6	-2.7
23RD	264.50	-1.1	253	2147	2147	-1.3	3.3	-69.9	172.6	-23.1	-8.8	-2.5
24TH	276.00	-1.1	264	2147	2147	-1.4	3.3	-67.1	166.6	-21.1	-8.0	-2.4
25TH	287.50	-1.1	276	2147	2147	-1.4	3.3	-64.1	159.7	-19.3	-7.3	-2.3
26TH	299.00	-1.1	287	2147	2147	-1.4	3.3	-61.0	153.3	-17.5	-6.6	-2.2
27TH	310.50	-1.1	299	2147	2147	-1.5	3.3	-57.8	146.6	-15.7	-5.9	-2.1
28TH	322.00	-1.1	310	2147	2147	-1.5	3.3	-54.4	140.1	-14.1	-5.2	-2.1
CDPG	333.30	-1.1	322	523	523	-1.1	3.3	-51.1	133.5	-12.5	-4.6	-2.0
29TH	333.30	-1.1	333	1591	1624	-1.1	3.3	-50.4	131.1	-12.1	-4.5	-2.0
30TH	345.00	-1.1	336	2002	2147	-1.1	3.3	-48.8	126.6	-11.0	-4.1	-1.9
31ST	356.50	-1.1	345	1887	2147	-1.1	3.3	-45.8	119.9	-9.6	-3.5	-1.8
MODU	356.50	-1.1	356	442	523	-1.1	3.3	-43.1	112.0	-8.3	-3.0	-1.7
32ND	370.80	-1.1	368	1363	1624	-1.1	3.3	-42.4	110.0	-8.0	-2.9	-1.7
33RD	379.50	-1.1	379	1802	2147	-1.1	3.3	-40.1	104.2	-7.0	-2.5	-1.6
34TH	391.00	-1.1	391	1802	2147	-1.1	3.3	-36.6	95.9	-5.9	-2.1	-1.5
35TH	402.50	-1.1	399	1802	2147	-1.1	3.3	-33.3	87.2	-4.8	-1.7	-1.4
36TH	414.00	-1.1	402	1802	2147	-1.1	3.3	-29.2	78.4	-3.9	-1.3	-1.3
37TH	425.50	-1.1	414	1802	2147	-1.1	3.3	-25.4	69.5	-3.0	-1.0	-1.1
38TH	437.00	-1.1	425	1802	2147	-1.1	3.3	-21.6	60.0	-2.3	-0.7	-1.0
39TH	448.50	-1.1	437	1802	2147	-1.1	3.3	-17.8	51.5	-1.6	-0.5	-0.8
40TH	460.00	-1.1	448	1802	2147	-1.1	3.3	-14.1	42.2	-1.1	-0.3	-0.7
CDPG	471.50	-1.1	460	439	523	-1.1	3.3	-10.4	33.3	-0.7	-0.2	-0.5
MEZZ	474.30	-1.1	471	2272	2707	-1.1	3.3	-9.9	30.0	-0.6	-0.2	-0.4
CDPG	488.80	-1.1	474	423	504	-1.1	3.3	-4.4	17.7	-0.3	-0.1	-0.3
CDPG	491.50	-1.1	488	2272	2707	-1.1	3.3	-4.2	15.6	-0.3	-0.1	-0.2
ROOF	506.00	-1.1	491	439	523	-1.1	3.3	-1.1	5.0	-0.0	-0.0	-0.1
CDPG	508.80	-1.1	506	1457	767	-1.1	3.3	-1.1	2.5	-0.0	-0.0	-0.1

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 70

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	-1.7	11.6	3979	1499	-.4	7.8	-48.5	494.9	-157.1	-16.3	.5
MEZZ	17.30	-.2	14.2	3956	1605	-1.1	8.8	-46.8	483.3	-148.6	-15.5	.4
2ND	34.50	-.5	3.6	2645	2147	-.2	1.7	-46.6	469.1	-140.4	-14.7	.1
3RD	46.00	-.8	4.4	2492	2147	-.3	2.0	-46.1	465.4	-135.1	-14.1	.1
4TH	57.50	-.7	4.9	2492	2147	-.3	2.3	-45.2	461.1	-129.7	-13.6	.0
5TH	69.00	-.6	5.4	2492	2147	-.2	2.5	-44.3	456.2	-124.5	-13.1	.0
6TH	80.50	-.5	5.9	2492	2147	-.2	2.7	-43.9	450.9	-119.2	-12.6	.1
7TH	92.00	-.4	6.4	2492	2147	-.1	3.0	-43.4	445.0	-114.1	-12.1	.1
8TH	103.50	-.2	6.9	2492	2147	-.1	3.2	-43.1	438.6	-109.0	-11.6	.2
9TH	115.00	-.1	7.1	2492	2147	-.1	3.3	-42.8	431.8	-104.0	-11.1	.3
10TH	126.50	-.1	7.3	2492	2147	-.0	3.4	-42.7	424.6	-99.1	-10.6	.4
11TH	138.00	-.0	7.4	2492	2147	-.0	3.5	-42.6	417.3	-94.2	-10.1	.4
12TH	149.50	-.0	7.6	2492	2147	-.0	3.6	-42.6	409.9	-89.3	-9.6	.4
13TH	161.00	.1	7.7	2492	2147	-.0	3.7	-42.6	402.3	-84.4	-9.1	.4
14TH	172.50	.4	7.9	2492	2147	.1	3.7	-42.7	394.6	-80.2	-8.6	.3
15TH	184.00	.1	2.1	607	523	.2	4.0	-43.0	386.7	-75.5	-8.1	.1
COPG	186.00	.3	6.9	1852	1624	-.2	4.3	-43.1	384.6	-74.7	-8.0	.1
16TH	195.50	-.1	8.9	2347	2147	-.1	4.2	-43.4	377.6	-71.3	-7.6	.2
17TH	207.00	-.7	8.6	2232	2147	-.3	4.0	-43.3	368.7	-67.1	-7.1	.2
18TH	218.50	-.2	2.0	526	523	-.4	3.9	-42.6	360.1	-62.9	-6.6	.3
MODU	221.30	-.8	6.3	1624	1624	-.5	3.9	-42.4	358.8	-61.9	-6.5	.3
19TH	230.00	-.1	8.0	2147	2147	-.6	3.7	-41.5	351.8	-58.8	-6.2	.3
20TH	241.50	-.1	7.8	2147	2147	-.7	3.6	-41.1	343.8	-54.8	-5.7	.4
21ST	253.00	-.1	7.7	2147	2147	-.9	3.6	-38.8	336.0	-50.9	-5.2	.5
22ND	264.50	-.1	8.1	2147	2147	-.9	3.8	-36.8	328.3	-47.0	-4.8	.5
23RD	276.00	-.0	8.6	2147	2147	-1.0	4.0	-34.8	320.1	-43.3	-4.4	.6
24TH	287.50	-.2	9.1	2147	2147	-1.0	4.3	-32.7	311.5	-39.7	-4.0	.6
25TH	299.00	-.2	9.6	2147	2147	-1.0	4.5	-30.6	302.4	-36.1	-3.6	.6
26TH	310.50	-.2	10.1	2147	2147	-1.1	4.7	-28.5	292.7	-32.7	-3.3	.6
27TH	322.00	-.3	10.6	2147	2147	-1.1	4.9	-26.4	282.6	-29.4	-3.0	.6
28TH	333.50	-.4	10.9	523	523	-.8	5.3	-23.8	272.0	-26.2	-2.7	.6
COPG	336.30	-.9	9.8	1591	1624	-.5	6.0	-23.3	269.1	-25.5	-2.6	.6
29TH	347.80	-.9	13.5	2062	2147	-.5	6.3	-22.2	259.3	-23.2	-2.4	.6
30TH	359.30	-.9	14.0	1887	2147	-.5	6.5	-21.1	245.8	-20.3	-2.2	.6
31ST	370.80	-.2	3.5	442	523	-.5	6.7	-20.0	231.6	-17.5	-1.9	.6
MODU	373.60	-.7	11.3	1363	1624	-.5	6.9	-20.0	228.3	-16.9	-1.9	.6
32ND	385.10	-.9	15.7	1802	2147	-.5	7.3	-19.9	217.0	-14.9	-1.7	.5
33RD	396.60	-.9	16.5	1802	2147	-.5	7.7	-18.9	201.3	-12.5	-1.5	.5
34TH	408.10	-.9	17.4	1802	2147	-.5	8.1	-18.0	184.8	-10.3	-1.3	.4
35TH	419.60	-.1	18.1	1802	2147	-.6	8.4	-17.1	167.4	-8.3	-1.1	.4
36TH	431.10	-.1	18.8	1802	2147	-.6	8.8	-16.1	149.3	-6.5	-.9	.3
37TH	442.60	-.3	19.5	1802	2147	-.7	9.1	-14.9	130.4	-4.9	-.7	.2
38TH	454.10	-.4	20.2	1802	2147	-.8	9.4	-13.6	110.9	-3.5	-.5	.1
39TH	465.60	-.5	21.0	1802	2147	-.8	9.8	-12.3	90.7	-2.3	-.4	.0
40TH	477.10	-.4	5.1	439	523	-1.0	9.8	-10.8	69.7	-1.4	-.3	-.1
COPG	474.30	-.3	26.4	2272	2707	-1.4	9.8	-10.3	64.6	-1.2	-.2	-.1
MEZZ	486.00	-.7	4.5	423	504	-1.7	8.9	-7.2	38.1	-.5	-.1	-.1
COPG	491.30	-.3	23.6	2272	2707	-1.7	8.7	-6.5	33.7	-.4	-.1	-.1
ROOF	506.00	-.8	5.5	439	523	-1.8	10.6	-2.7	10.1	-.0	-.0	-.0
COPG	508.80	-.9	4.6	1457	767	-1.3	6.0	-1.9	4.6	-.0	-.0	-.0

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 80

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0 00	-1.5	18.0	3979	1499	-4	12.0	-15.7	522.6	-160.0	-5.8	.2
MEZZ	17 30	.6	20.2	3956	1605	1	12.6	-14.3	504.6	-151.1	-3.5	.1
2ND	34 30	3.3	5.6	2645	2147	1	22.6	-14.8	484.4	-142.6	-3.3	.1
3RD	46 00	1.1	6.1	2492	2147	1	22.8	-13.2	478.8	-137.1	-3.1	.1
4TH	37 30	1.1	6.4	2492	2147	0	33.0	-15.3	472.8	-131.6	-3.0	.1
5TH	69 00	1.1	6.7	2492	2147	0	33.1	-15.4	466.4	-126.2	-4.8	.0
6TH	80 30	1.0	7.0	2492	2147	0	33.3	-15.5	459.7	-120.9	-4.6	.0
7TH	92 00	1.0	7.4	2492	2147	0	33.4	-15.5	452.6	-115.6	-4.4	.0
8TH	103 30	1.1	7.7	2492	2147	0	33.6	-15.4	445.3	-110.5	-4.2	.0
9TH	115 00	1.0	7.8	2492	2147	0	33.6	-15.4	437.6	-105.4	-4.1	.0
10TH	126 30	1.0	7.8	2492	2147	0	33.6	-15.4	429.8	-100.4	-3.9	.0
11TH	138 00	1.0	7.8	2492	2147	0	33.7	-15.4	422.0	-95.5	-3.7	.0
12TH	149 30	1.0	7.8	2492	2147	0	33.7	-15.4	414.1	-90.7	-3.5	.0
13TH	161 00	1.0	7.9	2492	2147	0	33.7	-15.5	406.3	-86.0	-3.4	.0
14TH	172 30	1.1	7.9	2492	2147	0	33.7	-15.5	398.4	-81.3	-3.3	.1
15TH	184 00	1.0	2.1	607	523	0	44.0	-15.6	390.6	-76.8	-3.2	.2
COPG	186 00	1.0	6.8	1852	1624	0	44.2	-15.6	388.8	-75.7	-3.0	.3
16TH	195 30	1.1	6.9	2347	2147	1	44.1	-15.6	381.6	-72.4	-2.8	.4
17TH	207 00	1.1	8.6	2232	2147	2	44.0	-15.4	372.8	-68.0	-2.6	.4
18TH	218 30	1.1	8.1	523	523	3	33.9	-15.0	364.2	-63.8	-2.5	.4
MOBU	221 30	1.1	6.3	1624	1624	3	33.9	-14.9	362.1	-62.8	-2.4	.4
19TH	230 00	1.1	6.1	2147	2147	3	33.8	-14.4	355.8	-59.7	-2.3	.4
20TH	236 30	1.1	7.9	2147	2147	3	33.7	-13.8	347.7	-55.6	-2.1	.4
21ST	241 30	1.1	7.9	2147	2147	4	33.7	-13.1	339.8	-51.7	-2.0	.4
22ND	252 00	1.1	8.3	2147	2147	4	33.9	-12.3	331.9	-47.8	-1.8	.4
23RD	264 30	1.1	8.3	2147	2147	5	33.3	-11.6	323.6	-44.0	-1.7	.4
24TH	276 00	1.1	9.3	2147	2147	4	44.3	-11.6	314.8	-40.4	-1.6	.3
25TH	287 30	1.1	9.3	2147	2147	2	44.3	-10.4	305.5	-36.8	-1.4	.3
26TH	299 00	1.1	9.3	2147	2147	4	44.6	-10.4	295.3	-33.3	-1.3	.2
27TH	310 30	1.1	10.3	2147	2147	2	44.8	-10.0	285.4	-30.0	-1.2	.1
28TH	322 00	1.1	10.8	2147	2147	0	53.0	-9.7	274.4	-26.8	-1.1	.1
COPG	333 30	1.1	2.9	523	523	2	33.6	-9.6	271.6	-26.8	-1.1	.1
29TH	345 00	1.1	9.8	1591	1624	3	33.3	-9.7	261.8	-23.7	-1.0	.0
30TH	356 30	1.1	13.4	2002	2147	3	6.3	-10.2	248.4	-20.8	-0.9	.0
31ST	368 00	1.1	8.4	1887	2147	1	6.4	-10.7	234.6	-18.0	-0.7	.0
MOBU	370 00	1.1	10.8	442	523	1	6.5	-10.9	231.2	-17.3	-0.7	.1
32ND	379 30	1.1	14.8	1363	1624	2	6.7	-10.8	220.4	-15.4	-0.6	.1
33RD	391 00	1.1	14.8	1802	2147	4	6.9	-10.6	205.6	-12.9	-0.5	.2
34TH	402 30	1.1	15.3	1802	2147	7	7.1	-9.9	190.3	-10.6	-0.4	.2
35TH	414 00	1.1	16.4	1802	2147	5	7.6	-8.8	173.9	-8.5	-0.3	.2
36TH	425 30	1.1	17.9	1802	2147	9	8.3	-7.5	156.6	-6.6	-0.2	.3
37TH	437 00	1.1	13.4	1802	2147	6	9.0	-6.4	135.6	-5.0	-0.2	.3
38TH	448 30	1.1	20.9	1802	2147	6	9.7	-5.2	115.3	-3.5	-0.1	.3
39TH	460 00	1.1	22.4	1802	2147	5	10.4	-4.2	93.3	-2.3	-0.1	.2
40TH	471 30	1.1	23.9	1802	2147	5	10.5	-3.2	69.4	-1.4	-0.0	.2
COPG	474 30	1.1	5.5	439	523	6	10.5	-2.3	63.9	-1.2	-0.0	.1
MEZZ	486 00	1.1	26.1	2272	2707	7	9.6	-2.0	37.8	-0.8	-0.0	.1
COPG	491 30	1.1	4.4	423	504	5	8.8	-1.5	33.4	-0.4	-0.0	.1
ROOF	506 00	1.1	23.8	2272	2707	1	8.8	-1.1	9.6	-0.0	-0.0	.0
COPG	508 80	1.1	3.9	1457	767	1	5.1	-0.1	3.9	-0.0	-0.0	.0

TABLE 7. SHEAR AND MOMENT DIAGRAMS : ONE SOUTH WACKER, CHICAGO
 WIND DIRECTION 90 CONFIGURATION A REFERENCE PRESSURE 26.0 PSF GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT 1000-FT-KIPS
GRND	0.00	-1.2	17.2	3979	1499	-1.0	11.5	149.8	673.4	-213.2	47.8	.5
MEZZ	1.33		17.7	3956	1605	.3	12.3	150.0	656.2	-201.7	45.2	.3
2ND	3.44		8.6	2645	2147	.2	4.0	148.7	636.5	-190.6	42.6	.1
3RD	4.66	.7	9.6	2492	2147	.1	4.5	148.1	627.9	-183.3	40.9	.1
4TH	5.50	.4	9.7	2492	2147	.2	4.5	147.8	618.3	-176.2	39.2	.1
5TH	6.69	.5	9.7	2492	2147	.2	4.5	147.4	608.6	-169.1	37.5	.1
6TH	8.00	.5	9.8	2492	2147	.3	4.5	146.9	598.9	-162.2	35.8	.0
7TH	9.50	.5	9.8	2492	2147	.3	4.6	146.2	589.2	-155.3	34.1	.0
8TH	11.00	.8	9.9	2492	2147	.4	4.6	145.3	579.4	-148.6	32.5	.1
9TH	11.60	.8	9.9	2492	2147	.5	4.4	144.4	569.5	-142.0	30.8	.2
10TH	13.20	.9	9.9	2492	2147	.6	4.2	143.1	560.0	-135.5	29.1	.4
11TH	14.00	.8	8.8	2492	2147	.7	4.0	141.5	550.9	-129.1	27.5	.4
12TH	15.00	.8	8.8	2492	2147	.9	3.7	139.7	542.4	-122.8	25.9	.5
13TH	16.10	.4	7.7	2492	2147	1.0	3.5	137.5	534.4	-116.8	24.3	.6
14TH	17.20	.4	7.7	2492	2147	1.2	3.3	135.1	526.9	-110.5	22.7	.6
15TH	18.40	.8	7.3	607	523	1.3	3.3	132.2	519.9	-104.5	21.2	.6
COPG	18.60	.7	7.3	1852	1624	1.5	4.4	131.4	517.8	-103.1	20.8	.6
16TH	19.50	.8	6.6	2347	2147	1.6	4.5	128.7	510.6	-98.6	19.7	.6
17TH	20.60	.9	6.6	2232	2147	1.8	4.4	125.0	501.0	-92.8	18.2	.6
18TH	21.80	1.0	6.3	526	523	1.9	4.4	121.0	491.5	-87.1	16.8	.6
MOBU	22.00	.7	6.3	1624	1624	2.0	4.4	120.0	489.9	-85.7	16.3	.6
19TH	22.30	.9	6.3	2147	2147	2.2	4.4	116.7	482.7	-81.5	15.5	.7
20TH	23.40	.9	6.3	2147	2147	2.4	4.4	112.0	472.5	-76.0	14.1	.7
21ST	24.40	.9	6.3	2147	2147	2.5	4.5	106.8	463.0	-70.6	12.9	.8
22ND	25.50	.4	6.3	2147	2147	2.7	4.9	101.4	453.4	-65.3	11.7	.9
23RD	26.60	.4	6.3	2147	2147	3.0	6.0	96.0	442.9	-60.2	10.5	1.0
24TH	27.70	.4	6.3	2147	2147	3.3	5.7	90.6	431.6	-55.2	9.3	1.1
25TH	28.80	.4	6.3	2147	2147	3.5	6.1	85.3	419.4	-50.3	8.3	1.2
26TH	29.90	.4	6.3	2147	2147	3.7	6.5	80.1	406.4	-45.5	7.7	1.3
27TH	31.00	.4	6.3	2147	2147	4.0	6.9	74.9	392.5	-40.9	6.8	1.4
28TH	32.20	.4	6.3	523	523	4.4	7.6	69.5	377.8	-36.5	5.8	1.4
COPG	33.60	.4	6.3	1591	1624	4.8	8.3	68.1	373.8	-35.4	5.6	1.4
29TH	34.50	.9	6.6	2002	2147	5.0	8.7	63.6	360.4	-32.2	5.0	1.4
30TH	35.60	.9	6.4	1887	2147	5.3	9.0	57.7	341.8	-28.2	4.3	1.4
31ST	36.80	.9	6.4	442	523	5.9	9.3	52.1	322.4	-24.4	3.7	1.4
MOBU	37.00	.9	6.4	1363	1624	6.2	9.5	50.8	317.6	-23.5	3.6	1.4
32ND	37.90	.9	6.4	1802	2147	6.7	9.9	46.9	302.2	-20.8	3.1	1.4
33RD	39.10	.9	6.4	1802	2147	7.3	10.3	42.0	281.0	-17.4	2.8	1.3
34TH	40.20	.9	6.4	1802	2147	7.9	10.9	37.5	258.9	-14.3	2.2	1.3
35TH	41.40	.9	6.4	1802	2147	8.6	11.7	33.2	235.5	-11.5	1.8	1.2
36TH	42.50	.9	6.4	1802	2147	9.4	12.5	29.1	210.4	-8.9	1.4	1.0
37TH	43.70	.9	6.4	1802	2147	10.3	13.2	25.3	183.7	-6.7	1.1	.9
38TH	44.80	.9	6.4	1802	2147	11.3	14.0	21.6	155.3	-4.7	.8	.8
39TH	46.00	.9	6.4	1802	2147	12.4	14.7	18.2	125.3	-3.1	.6	.8
40TH	47.10	.9	6.4	439	523	13.6	15.0	15.0	93.6	-1.8	.4	.8
COPG	47.40	.9	6.4	2272	2707	14.4	13.2	14.3	86.3	-1.6	.3	.8
MEZZ	48.80	.9	6.1	423	504	15.2	12.1	11.0	50.5	-.6	.2	.3
COPG	49.10	.9	6.0	2272	2707	16.6	11.8	10.1	44.4	-.5	.1	.3
ROOF	50.60	.4	7.1	439	523	18.8	13.5	4.1	12.6	-.1	.0	.1
COPG	50.80	.8	6.6	1457	767	20.6	7.3	3.8	5.6	-.0	.0	.0

TABLE 7. SHEAR AND MOMENT DIAGRAMS 1
WIND DIRECTION 100

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	9.4	19.6	3979	1499	2.4	13.0	411.9	824.7	-263.2	112.6	1.9
MEZZ	17.30	9.8	22.3	3956	1605	3.4	13.9	402.6	805.1	-249.1	103.6	1.5
2ND	34.50	6.4	11.8	2643	2147	4.4	5.5	392.8	782.8	-233.4	98.7	1.0
3RD	46.00	5.2	12.9	2492	2147	1.1	6.0	388.4	770.9	-226.3	94.3	1.0
4TH	57.50	5.4	12.5	2492	2147	2.2	5.8	381.1	758.1	-217.7	89.8	1.1
5TH	69.00	6.6	12.2	2492	2147	3.3	5.7	375.0	745.5	-209.0	85.5	1.1
6TH	80.50	7.7	11.9	2492	2147	4.4	5.5	370.0	733.4	-200.0	81.2	1.1
7TH	92.00	9.9	11.5	2492	2147	5.5	5.4	364.4	721.5	-192.2	77.0	1.0
8TH	103.50	1.1	11.2	2492	2147	6.6	5.2	358.6	710.0	-183.9	72.8	.9
9TH	115.00	5.5	10.7	2492	2147	7.7	5.0	353.2	698.8	-175.8	68.7	.6
10TH	126.50	6.6	10.1	2492	2147	8.8	4.7	347.9	688.1	-167.9	64.7	.5
11TH	138.00	3.3	9.4	2492	2147	9.9	4.4	343.0	678.0	-160.0	60.8	.4
12TH	149.50	7.7	8.8	2492	2147	10.1	4.1	338.1	668.6	-152.3	56.9	.3
13TH	161.00	8.1	8.2	2492	2147	11.2	3.8	333.3	659.8	-144.6	53.2	.2
14TH	172.50	4.4	7.7	2492	2147	12.3	3.5	328.4	651.6	-137.1	49.5	.2
15TH	184.00	2.2	7.2	607	523	13.4	3.3	323.5	644.0	-129.6	45.9	.1
COPG	186.86	6.6	6.8	1852	1624	14.4	3.0	318.4	641.8	-122.7	43.0	.1
16TH	198.50	5.5	6.1	2347	2147	15.5	2.7	313.4	633.7	-115.1	42.4	.2
17TH	210.00	10.0	5.5	2232	2147	16.6	2.5	308.4	622.2	-107.7	39.9	.2
18TH	221.50	8.8	5.0	526	523	17.7	2.3	303.4	612.3	-100.2	37.9	.1
MODU	223.36	6.0	4.4	1624	1624	18.8	2.1	298.4	609.7	-102.6	35.1	.1
19TH	235.00	6.6	4.1	2147	2147	19.9	1.9	293.4	601.5	-101.0	32.8	.0
20TH	246.50	13.3	3.5	2147	2147	21.0	1.7	288.4	590.6	-94.1	29.8	.1
21ST	258.00	14.1	3.1	2147	2147	22.1	1.5	283.4	579.4	-87.4	27.0	.2
22ND	269.50	13.8	2.7	2147	2147	23.2	1.4	278.4	567.9	-80.8	24.4	.3
23RD	281.00	13.5	2.2	2147	2147	24.3	1.2	273.4	555.2	-74.3	21.9	.4
24TH	292.50	13.2	1.9	2147	2147	25.4	1.1	268.4	541.2	-67.8	19.6	.5
25TH	304.00	11.9	1.6	2147	2147	26.5	1.0	263.4	526.1	-61.9	17.4	.6
26TH	315.50	11.6	1.4	2147	2147	27.6	.8	258.4	509.7	-55.9	15.4	.7
27TH	327.00	11.3	1.1	523	523	28.7	.7	253.4	492.0	-50.2	13.5	.7
28TH	338.50	9.9	.9	1591	1624	29.8	.6	248.4	473.1	-44.6	11.7	.8
29TH	350.00	12.0	.8	2062	2147	30.9	.5	243.4	468.0	-43.3	11.3	.8
30TH	361.50	11.5	.7	1887	2147	32.0	.4	238.4	450.5	-39.3	10.2	.8
31ST	373.00	11.2	.6	442	523	33.1	.3	233.4	426.2	-34.3	8.7	.8
MODU	370.80	8.2	.5	1363	1624	34.2	.2	228.4	400.7	-29.5	7.4	.7
32ND	379.50	10.4	.4	1802	2147	35.3	.1	223.4	394.3	-28.4	7.1	.7
33RD	391.00	9.9	.3	1802	2147	36.4	.1	218.4	373.8	-23.1	6.2	.7
34TH	402.50	9.5	.2	1802	2147	37.5	.0	213.4	345.4	-20.9	5.1	.7
35TH	414.00	9.1	.2	1802	2147	38.6	.0	208.4	315.6	-17.1	4.2	.6
36TH	425.50	8.7	.1	1802	2147	39.7	.0	203.4	284.7	-13.7	3.3	.6
37TH	437.00	8.4	.1	1802	2147	40.8	.0	198.4	252.6	-10.6	2.6	.5
38TH	448.50	8.0	.0	1802	2147	41.9	.0	193.4	219.1	-7.9	2.0	.4
39TH	460.00	7.6	.0	1802	2147	43.0	.0	188.4	184.3	-5.6	1.4	.4
40TH	471.50	7.7	.0	439	523	44.1	.0	183.4	148.3	-3.6	1.0	.3
COPG	474.30	7.3	.0	2272	2707	45.2	.0	178.4	111.0	-2.2	.6	.3
MEZZ	488.80	1.6	.0	423	504	46.3	.0	173.4	102.1	-1.9	.6	.2
COPG	491.50	9.3	.0	2272	2707	47.4	.0	168.4	58.5	-1.7	.3	.2
ROOF	506.00	7.9	.0	439	523	48.5	.0	163.4	51.1	-1.5	.2	.2
COPG	508.80	5.7	.0	1457	767	49.6	.0	158.4	14.2	-1.1	.1	.0

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 110

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	11.0	21.0	3979	1499	2.8	14.0	539.3	709.6	-220.1	151.5	2.9
MEZZ	17.36	11.0	24.4	3956	1603	2.8	15.2	528.3	688.3	-208.0	142.3	2.7
2ND	34.50	7.0	7.9	2645	2147	2.7	3.7	517.4	664.1	-196.4	133.3	2.4
3RD	46.66	5.7	9.1	2492	2147	2.3	4.3	510.3	636.2	-188.8	127.3	2.4
4TH	57.50	6.1	9.4	2492	2147	2.5	4.4	504.6	647.0	-181.3	121.5	2.3
5TH	69.00	6.5	9.8	2492	2147	2.6	4.5	498.5	637.6	-173.9	115.7	2.6
6TH	80.50	6.9	10.1	2492	2147	2.8	4.7	492.0	627.8	-166.7	110.1	2.6
7TH	92.00	7.2	10.4	2492	2147	2.9	4.8	485.1	617.7	-159.5	104.4	2.6
8TH	103.50	7.6	10.7	2492	2147	3.1	5.0	477.9	607.3	-152.3	98.9	2.6
9TH	115.00	8.4	10.4	2492	2147	3.4	4.8	470.2	596.6	-145.3	93.4	2.3
10TH	126.50	9.1	9.6	2492	2147	3.7	4.5	461.9	586.3	-138.7	88.1	2.5
11TH	138.00	9.9	8.9	2492	2147	4.0	4.2	452.8	576.6	-132.0	82.8	2.4
12TH	149.50	10.7	8.2	2492	2147	4.3	3.8	442.9	567.7	-125.5	77.7	2.4
13TH	161.00	11.4	7.5	2492	2147	4.6	3.5	432.2	559.5	-119.0	72.6	2.3
14TH	172.50	12.8	6.7	2492	2147	5.1	3.1	420.8	552.1	-112.6	67.7	2.3
15TH	184.00	13.4	2.1	607	523	5.5	4.1	407.9	545.3	-106.3	63.0	2.3
COPG	186.80	10.9	7.9	1852	1624	5.3	4.8	404.6	543.2	-104.8	61.8	2.3
16TH	195.50	14.5	10.3	2347	2147	6.2	4.8	393.7	535.3	-100.1	58.4	2.4
17TH	207.00	14.7	10.0	2232	2147	6.6	4.6	379.2	525.0	-94.0	53.9	2.4
18TH	218.50	3.7	2.4	526	523	7.0	4.6	364.5	515.1	-88.0	49.6	2.3
HDDU	221.30	11.8	7.6	1624	1624	7.3	4.7	360.8	512.7	-86.6	48.6	2.3
19TH	230.00	16.4	10.2	2147	2147	7.7	4.8	349.0	505.1	-82.1	45.5	2.2
20TH	241.50	17.4	10.4	2147	2147	8.1	4.8	332.6	494.9	-76.4	41.6	2.1
21ST	253.00	18.0	10.8	2147	2147	8.4	5.0	315.2	484.5	-70.7	37.9	2.0
22ND	264.50	17.5	11.9	2147	2147	8.2	5.5	297.1	473.6	-65.2	34.4	2.0
23RD	276.00	17.1	13.1	2147	2147	7.9	6.1	279.6	461.7	-59.9	31.1	1.9
24TH	287.50	16.6	14.2	2147	2147	7.7	6.6	262.5	448.7	-54.6	27.9	1.8
25TH	299.00	16.1	15.4	2147	2147	7.5	7.2	246.0	434.4	-49.5	25.0	1.7
26TH	310.50	15.6	16.6	2147	2147	7.3	7.7	229.9	419.0	-44.6	22.3	1.6
27TH	322.00	15.1	17.7	2147	2147	7.0	8.3	214.3	402.5	-39.9	19.7	1.5
28TH	333.50	3.5	4.8	523	523	6.8	9.2	199.2	384.7	-35.4	17.4	1.4
COPG	336.30	10.6	16.2	1591	1624	6.6	10.0	195.7	379.9	-34.3	16.8	1.3
29TH	345.00	13.9	22.0	2002	2147	6.9	10.2	183.1	363.7	-31.1	15.1	1.3
30TH	356.50	13.5	22.3	1887	2147	7.2	10.4	171.2	341.7	-27.0	13.1	1.2
31ST	368.00	3.2	5.5	442	523	7.3	10.5	157.7	319.4	-23.2	11.2	1.1
HDDU	370.80	10.0	17.3	1363	1624	7.3	10.7	154.5	313.9	-22.3	10.8	1.0
32ND	379.50	13.1	23.5	1802	2147	7.3	11.0	144.5	296.6	-19.7	9.5	.9
33RD	391.00	13.0	24.2	1802	2147	7.2	11.3	131.4	273.1	-16.4	7.9	.8
34TH	402.50	12.9	24.7	1802	2147	7.2	11.5	118.5	248.9	-13.4	6.4	.7
35TH	414.00	12.9	25.7	1802	2147	7.1	12.0	105.6	224.2	-10.7	5.2	.7
36TH	425.50	12.8	26.6	1802	2147	7.1	12.4	92.7	198.5	-8.3	4.0	.6
37TH	437.00	12.8	27.7	1802	2147	7.1	12.9	79.9	171.9	-6.1	3.0	.5
38TH	448.50	12.7	28.8	1802	2147	7.1	13.3	67.1	144.3	-4.3	2.2	.3
39TH	460.00	12.7	29.5	1802	2147	7.0	13.8	54.4	115.7	-2.8	1.5	.2
40TH	471.50	3.0	7.0	439	523	6.8	13.4	41.7	86.2	-1.6	.9	.1
COPG	474.30	14.2	34.8	2272	2707	6.2	12.8	38.7	79.2	-1.4	.8	.1
MEZZ	488.80	2.6	5.8	423	504	6.2	11.5	24.5	44.4	-.5	.4	.0
COPG	491.50	13.0	28.1	2272	2707	5.7	10.4	21.9	38.7	-.4	.3	.0
ROOF	506.00	1.5	5.4	439	523	3.3	10.3	8.9	10.5	-.1	.1	.0
COPG	508.80	7.5	5.1	1457	767	5.1	6.7	7.5	5.1	-.0	.0	.0

TABLE 7. SHEAR AND MOMENT DIAGRAMS : ONE SOUTH WACKER, CHICAGO
WIND DIRECTION 120 CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	15.2	26.8	3979	1499	3.8	17.9	890.2	740.5	-228.3	255.5	3.7
MEZZ	17.30	15.2	30.0	3956	1605	3.8	18.7	875.0	713.7	-215.8	240.2	3.3
2ND	34.50	10.6	7.7	2645	2147	4.0	3.6	859.8	683.7	-203.7	225.3	3.3
3RD	46.00	9.5	8.7	2492	2147	3.8	4.0	849.2	676.0	-195.9	215.5	3.3
4TH	57.50	10.2	9.3	2492	2147	4.1	4.3	839.7	667.3	-188.2	205.8	3.4
5TH	69.00	10.9	9.9	2492	2147	4.4	4.6	829.5	658.0	-180.6	196.2	3.4
6TH	80.50	11.5	10.5	2492	2147	4.6	4.9	818.6	648.1	-173.1	186.7	3.4
7TH	92.00	12.2	11.2	2492	2147	4.9	5.2	807.1	637.5	-165.7	177.3	3.4
8TH	103.50	12.9	11.8	2492	2147	5.2	5.5	794.9	626.3	-158.4	168.1	3.3
9TH	115.00	14.2	11.5	2492	2147	5.7	5.3	782.0	614.6	-151.3	159.1	3.3
10TH	126.50	15.5	10.6	2492	2147	6.2	4.9	767.8	603.1	-144.3	150.1	3.0
11TH	138.00	16.8	9.7	2492	2147	6.8	4.5	752.5	592.5	-137.4	141.4	2.8
12TH	149.50	18.2	8.9	2492	2147	7.3	4.1	735.5	582.7	-130.6	132.9	2.8
13TH	161.00	19.5	8.0	2492	2147	7.8	3.7	717.3	573.9	-124.0	124.5	2.7
14TH	172.50	21.6	7.2	2492	2147	8.7	3.3	697.8	565.8	-117.4	116.4	2.8
15TH	184.00	23.0	6.5	2492	2147	9.1	4.1	678.2	558.6	-111.0	108.5	2.9
COPG	186.80	17.2	7.7	1852	1624	9.3	4.7	670.7	556.5	-109.4	106.6	2.8
16TH	195.50	22.2	10.1	2347	2147	9.7	4.7	653.5	548.8	-104.6	100.8	3.0
17TH	207.00	23.0	9.8	2232	2147	10.3	4.6	630.8	538.8	-98.3	93.4	3.0
18TH	218.50	24.4	9.7	526	523	10.8	4.5	607.8	529.0	-92.2	86.3	2.9
MOBU	221.30	18.2	7.3	1624	1624	11.2	4.3	602.1	526.6	-90.7	84.6	2.9
19TH	230.00	24.9	9.6	2147	2147	11.6	4.5	584.0	519.3	-86.2	79.5	2.8
20TH	241.50	26.0	9.5	2147	2147	12.1	4.4	559.0	509.2	-80.3	72.9	2.8
21ST	253.00	26.8	9.7	2147	2147	12.5	4.5	533.0	500.0	-74.5	66.6	2.7
22ND	264.50	26.5	10.9	2147	2147	12.3	5.1	506.2	490.5	-68.8	60.6	2.6
23RD	276.00	26.2	12.3	2147	2147	12.2	5.7	479.7	479.6	-63.2	55.0	2.5
24TH	287.50	25.9	13.6	2147	2147	12.1	6.3	453.5	467.3	-57.7	49.6	2.4
25TH	299.00	25.6	14.9	2147	2147	11.9	6.9	427.6	453.7	-52.4	44.5	2.3
26TH	310.50	25.4	16.2	2147	2147	11.8	7.6	401.9	438.8	-47.3	39.8	2.2
27TH	322.00	25.1	17.6	2147	2147	11.7	8.2	376.6	422.6	-42.4	35.3	2.2
28TH	333.50	25.9	14.8	523	523	11.4	9.2	351.5	405.0	-37.6	31.1	2.1
COPG	336.30	17.8	16.3	1591	1624	11.2	10.0	345.5	400.2	-36.5	30.1	2.1
29TH	345.00	23.4	22.3	2002	2147	11.7	10.4	327.8	383.9	-33.1	27.2	2.0
30TH	356.50	23.1	22.9	1887	2147	12.2	10.7	304.3	361.6	-28.8	23.6	1.9
31ST	368.00	3.5	5.7	442	523	12.5	10.9	281.3	338.7	-24.7	20.2	1.7
MOBU	370.80	17.2	18.0	1363	1624	12.6	11.1	275.7	333.0	-23.8	19.4	1.7
32ND	379.50	22.8	24.6	1802	2147	12.7	11.4	258.5	315.0	-21.0	17.1	1.6
33RD	391.00	22.9	25.4	1802	2147	12.7	11.9	235.7	290.4	-17.5	14.2	1.5
34TH	402.50	22.9	26.0	1802	2147	12.7	12.1	212.8	265.0	-14.3	11.7	1.4
35TH	414.00	22.9	27.0	1802	2147	12.7	12.6	189.9	238.9	-11.4	9.3	1.4
36TH	425.50	22.8	28.0	1802	2147	12.7	13.0	167.0	211.9	-8.8	7.3	1.1
37TH	437.00	22.8	29.0	1802	2147	12.6	13.5	144.2	183.9	-6.5	5.5	1.0
38TH	448.50	22.7	30.0	1802	2147	12.6	14.0	121.4	154.9	-4.6	4.0	.8
39TH	460.00	22.7	31.0	1802	2147	12.6	14.4	98.7	124.9	-3.0	2.7	.6
40TH	471.50	3.3	7.8	439	523	12.1	14.9	76.0	93.9	-1.7	1.7	.4
COPG	474.30	25.4	40.4	2272	2707	11.2	14.9	70.7	86.2	-1.5	1.5	.4
MEZZ	488.80	4.7	6.5	423	504	11.0	12.9	45.3	45.8	-.5	.7	.2
COPG	491.50	23.1	29.3	2272	2707	10.2	10.8	40.6	39.3	-.4	.5	.2
ROOF	506.00	3.5	4.9	439	523	8.0	9.3	17.5	10.0	-.1	.1	.1
COPG	508.80	14.0	5.1	1457	767	9.6	6.7	14.0	5.1	-.0	.1	.2

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 130

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	18.3	25.5	3979	1499	4.6	17.0	1054.8	770.1	-230.0	305.2	3.0
MEZ2	17.30	17.8	30.5	3956	1605	4.5	19.0	1036.5	744.6	-216.9	287.2	3.0
2ND	34.50	12.2	5.3	2645	2147	4.6	2.5	1018.7	714.1	-204.4	269.5	2.9
3RD	46.00	10.7	6.9	2492	2147	4.3	3.2	1006.5	708.8	-196.2	257.8	3.0
4TH	57.50	11.3	8.5	2492	2147	4.5	3.9	995.8	701.9	-188.1	246.3	3.1
5TH	69.00	11.8	10.0	2492	2147	4.7	4.7	984.5	693.4	-180.1	234.9	3.2
6TH	80.50	12.4	11.6	2492	2147	5.0	5.4	972.7	683.4	-172.1	223.7	3.4
7TH	92.00	12.9	13.2	2492	2147	5.2	6.1	960.4	671.8	-164.4	212.6	3.5
8TH	103.50	13.4	14.8	2492	2147	5.4	6.9	947.5	658.6	-156.7	201.6	3.6
9TH	115.00	15.6	15.0	2492	2147	6.3	7.0	934.0	643.9	-149.2	190.8	3.7
10TH	126.50	17.8	14.5	2492	2147	7.2	6.7	918.4	628.9	-141.9	180.1	3.8
11TH	138.00	20.1	14.0	2492	2147	8.1	6.5	900.6	614.4	-134.7	169.7	3.9
12TH	149.50	22.4	13.4	2492	2147	9.0	6.3	880.5	600.5	-127.8	159.4	4.2
13TH	161.00	24.6	12.9	2492	2147	9.9	6.0	858.1	587.0	-120.9	149.4	4.4
14TH	172.50	27.7	12.4	2492	2147	11.1	5.8	833.5	574.1	-114.3	139.7	4.7
15TH	184.00	6.9	3.2	607	523	11.5	6.1	805.8	561.7	-107.7	130.3	5.2
COPG	186.80	21.3	10.3	1852	1624	11.5	6.3	798.9	558.5	-106.2	128.0	5.2
16TH	195.50	27.7	13.2	2347	2147	11.8	6.2	777.5	548.2	-101.3	121.2	5.4
17TH	207.00	27.6	12.7	2232	2147	12.4	5.9	749.8	535.0	-95.1	112.4	5.4
18TH	218.50	6.8	3.0	526	523	12.9	5.8	722.2	522.3	-89.0	103.9	5.4
MODU	221.30	21.4	9.3	1624	1624	13.2	5.7	715.4	519.3	-87.6	101.9	5.4
19TH	230.00	29.0	11.9	2147	2147	13.5	5.5	693.9	510.0	-83.1	95.8	5.4
20TH	241.50	29.7	11.5	2147	2147	13.8	5.4	665.0	498.1	-77.3	88.0	5.3
21ST	253.00	30.3	11.5	2147	2147	14.1	5.4	635.3	486.6	-71.6	80.5	5.2
22ND	264.50	30.0	12.2	2147	2147	14.0	5.7	604.9	475.1	-66.1	73.4	5.1
23RD	276.00	29.7	13.1	2147	2147	13.9	6.1	574.9	462.8	-60.7	66.6	5.0
24TH	287.50	29.5	13.9	2147	2147	13.7	6.5	545.1	449.8	-55.5	60.1	4.9
25TH	299.00	29.2	14.7	2147	2147	13.6	6.9	515.7	435.9	-50.4	54.0	4.8
26TH	310.50	28.9	15.5	2147	2147	13.5	7.2	486.5	421.2	-45.5	48.3	4.6
27TH	322.00	28.8	16.4	2147	2147	13.4	7.6	457.6	405.6	-40.7	42.8	4.4
28TH	333.50	6.9	4.4	523	523	13.1	8.4	428.8	389.3	-36.1	37.7	4.3
COPG	336.30	20.6	14.6	1591	1624	12.9	9.0	421.9	384.9	-35.0	36.6	4.2
29TH	345.00	27.5	20.5	2002	2147	13.8	9.5	401.4	370.3	-31.8	33.0	4.0
30TH	356.50	27.7	21.7	1887	2147	14.7	10.1	373.9	349.8	-27.6	28.5	3.6
31ST	368.00	6.8	5.5	442	523	15.3	10.5	346.1	328.1	-23.7	24.4	3.3
MODU	370.80	21.1	17.4	1363	1624	15.5	10.7	339.4	322.6	-22.8	23.4	3.3
32ND	379.50	28.4	24.1	1802	2147	15.8	11.2	318.2	305.2	-20.1	20.6	3.0
33RD	391.00	28.9	25.2	1802	2147	16.0	11.8	289.8	281.1	-16.7	17.1	2.8
34TH	402.50	29.2	26.0	1802	2147	16.2	12.1	260.9	255.9	-13.6	13.9	2.5
35TH	414.00	29.1	26.8	1802	2147	16.2	12.5	231.7	229.9	-10.8	11.1	2.3
36TH	425.50	29.1	27.6	1802	2147	16.1	12.8	202.6	203.1	-8.3	8.6	2.0
37TH	437.00	29.0	28.4	1802	2147	16.1	13.2	173.5	175.5	-6.2	6.4	1.7
38TH	448.50	29.0	29.1	1802	2147	16.1	13.6	144.5	147.2	-4.3	4.6	1.5
39TH	460.00	29.0	29.9	1802	2147	16.1	13.9	115.5	118.0	-2.8	3.1	1.2
40TH	471.50	6.6	7.5	439	523	15.1	14.4	86.5	88.1	-1.6	1.9	.9
COPG	474.30	29.8	39.0	2272	2707	13.1	14.4	79.9	80.6	-1.4	1.7	.8
MEZ2	488.80	5.1	6.2	423	504	12.1	12.2	50.1	41.6	-.5	.7	.5
COPG	491.50	25.0	26.6	2272	2707	11.0	9.8	45.0	35.5	-.4	.6	.4
ROOF	506.00	4.7	3.9	439	523	10.7	7.5	20.0	8.9	-.0	.1	.4
COPG	508.80	15.4	4.9	1457	767	10.5	6.5	15.4	4.9	-.0	.1	.3

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 140

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	24.7	21.8	3979	1499	6.2	14.5	993.4	703.2	-210.8	291.7	2.1
MEZZ	17.30	19.8	26.3	3956	1605	5.0	16.4	968.7	681.5	-198.8	274.8	1.9
2ND	34.50	10.6	1.6	2645	2147	4.0	7.7	948.8	655.1	-187.3	258.3	1.7
3RD	46.00	8.2	1.8	2492	2147	3.3	9.9	938.3	633.6	-179.8	247.4	1.7
4TH	57.50	8.1	3.3	2492	2147	3.3	1.7	930.1	651.7	-172.3	236.7	1.8
5TH	69.00	8.1	5.3	2492	2147	3.3	2.5	922.0	648.1	-164.8	226.0	1.9
6TH	80.50	8.1	7.1	2492	2147	3.3	3.3	913.8	642.8	-157.4	215.5	2.2
7TH	92.00	8.1	8.9	2492	2147	3.3	4.1	905.7	635.7	-150.0	205.0	2.4
8TH	103.50	8.1	10.6	2492	2147	3.3	4.9	897.6	626.8	-142.7	194.6	2.8
9TH	115.00	10.4	11.6	2492	2147	4.4	5.4	889.5	616.2	-135.6	184.4	3.1
10TH	126.50	13.0	12.2	2492	2147	5.5	5.7	879.1	604.6	-128.6	174.2	3.6
11TH	138.00	15.5	12.8	2492	2147	6.6	6.0	866.1	592.3	-121.7	164.2	4.0
12TH	149.50	18.1	13.4	2492	2147	7.7	6.3	850.6	579.5	-115.0	154.3	4.5
13TH	161.00	20.6	14.0	2492	2147	8.8	6.5	832.6	566.1	-108.4	144.6	5.0
14TH	172.50	24.4	14.6	2492	2147	9.9	6.8	812.0	552.2	-101.9	135.2	5.5
15TH	184.00	6.2	3.8	607	523	10.2	7.3	787.5	537.4	-95.7	126.0	6.2
COPG	186.80	18.8	12.4	1852	1624	10.2	7.7	781.3	533.6	-94.2	123.8	6.3
16TH	195.50	25.4	16.3	2347	2147	10.8	7.6	762.5	521.1	-89.6	117.0	6.6
17TH	207.00	26.8	16.1	2232	2147	12.0	7.5	737.2	504.8	-83.7	108.4	6.8
18TH	216.50	6.7	3.9	526	523	12.8	7.4	710.4	488.7	-78.0	100.1	6.9
MODU	221.4	21.4	12.0	1624	1624	13.2	7.4	703.6	484.9	-76.6	98.1	7.0
19TH	223.00	29.2	15.6	2147	2147	13.6	7.3	682.2	472.9	-72.4	92.1	7.1
20TH	230.00	30.3	15.4	2147	2147	14.1	7.2	653.0	457.2	-67.1	84.4	7.2
21ST	241.50	31.2	15.5	2147	2147	14.5	7.2	622.7	441.8	-61.9	77.1	7.3
22ND	253.00	30.8	15.6	2147	2147	14.4	7.3	591.5	426.3	-56.9	70.1	7.4
23RD	264.50	30.5	15.7	2147	2147	14.2	7.3	560.7	410.7	-52.1	63.5	7.4
24TH	276.00	30.1	15.7	2147	2147	14.0	7.3	530.3	395.0	-47.5	57.2	7.4
25TH	287.50	29.8	15.8	2147	2147	13.9	7.4	500.2	379.2	-43.0	51.3	7.4
26TH	299.00	29.4	15.9	2147	2147	13.7	7.4	470.4	363.4	-38.8	45.7	7.2
27TH	310.50	29.3	15.9	2147	2147	13.7	7.4	441.0	347.6	-34.7	40.5	7.0
28TH	322.00	6.9	3.9	523	523	13.2	7.5	411.7	331.7	-30.8	35.5	6.8
COPG	333.50	20.5	12.2	1591	1624	12.9	7.5	404.8	327.8	-29.9	34.4	6.7
29TH	345.00	27.2	16.9	2002	2147	13.6	7.9	384.3	315.6	-27.1	31.0	6.4
30TH	356.50	27.3	18.0	1867	2147	14.5	8.4	357.0	298.6	-23.5	26.7	5.9
31ST	368.00	6.6	4.5	442	523	15.0	8.7	329.7	280.7	-20.2	22.8	5.4
MODU	370.80	20.8	14.5	1363	1624	15.2	8.9	323.1	276.1	-19.4	21.8	5.2
32ND	379.50	27.8	20.1	1802	2147	15.4	9.4	302.3	261.6	-17.1	19.1	4.9
33RD	391.00	28.1	21.2	1802	2147	15.6	9.9	274.5	241.5	-14.2	15.8	4.4
34TH	402.50	28.3	22.2	1802	2147	15.7	10.3	246.4	220.3	-11.5	12.8	3.9
35TH	414.00	28.2	23.2	1802	2147	15.7	10.8	218.2	198.1	-9.1	10.1	3.5
36TH	425.50	28.2	24.2	1802	2147	15.7	11.3	189.9	174.9	-7.0	7.8	3.1
37TH	437.00	28.2	25.3	1802	2147	15.6	11.8	161.7	150.7	-5.1	5.8	2.6
38TH	448.50	28.1	26.3	1802	2147	15.6	12.2	133.6	125.5	-3.5	4.1	2.2
39TH	460.00	28.1	27.3	1802	2147	15.6	12.7	105.4	99.2	-2.2	2.7	1.8
40TH	471.50	6.4	6.7	439	523	14.5	12.8	77.3	71.9	-1.2	1.7	1.3
COPG	474.30	27.7	33.8	2272	2707	12.2	12.5	70.9	65.2	-1.1	1.4	1.2
MEZZ	488.80	4.6	5.1	423	504	10.9	10.1	43.2	31.3	-.4	.5	.7
COPG	491.50	22.3	19.9	2272	2707	9.8	7.3	38.6	26.2	-.3	.5	.7
COPG	499.00	4.5	2.3	439	523	10.3	4.4	16.3	6.4	-.0	.1	.5
ROOF	506.80	11.6	4.0	1457	767	8.1	5.3	11.8	4.0	-.0	.1	.4

TABLE 7. SHEAR AND MOMENT DIAGRAMS
WIND DIRECTION 150

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	34.2	23.0	3979	1499	8.6	15.4	1111.1	701.9	-191.0	322.3	2.4
MEZZ	17.30	27.2	28.0	3956	1605	6.9	17.5	1076.9	678.9	-179.0	303.4	2.6
2ND	34.30	14.3	2.3	2643	2147	5.4	1.1	1049.7	650.8	-167.6	285.1	2.7
3RD	46.00	11.5	2.4	2492	2147	4.6	1.1	1035.4	648.6	-160.1	273.1	2.9
4TH	57.30	10.9	4.6	2492	2147	4.4	2.2	1023.9	646.1	-152.7	261.3	3.3
5TH	69.00	10.3	6.8	2492	2147	4.1	3.2	1013.0	641.5	-145.3	249.6	3.7
6TH	80.30	9.8	9.0	2492	2147	3.9	4.2	1002.7	634.6	-137.9	238.0	4.1
7TH	92.00	9.2	11.2	2492	2147	3.7	5.2	992.9	625.6	-130.7	226.5	4.7
8TH	103.30	8.6	13.4	2492	2147	3.5	6.3	983.7	614.3	-123.6	215.1	5.3
9TH	115.00	8.0	15.4	2492	2147	4.3	7.2	975.1	600.9	-116.6	203.9	6.0
10TH	126.30	13.2	17.2	2492	2147	5.3	8.0	964.3	585.5	-109.7	192.7	6.8
11TH	138.00	15.6	19.0	2492	2147	6.3	8.8	951.1	568.3	-103.1	181.7	7.6
12TH	149.30	18.0	20.8	2492	2147	7.2	9.7	935.5	549.4	-96.7	170.9	8.4
13TH	161.00	20.3	22.6	2492	2147	8.2	10.5	917.5	528.6	-90.5	160.2	9.3
14TH	172.30	24.0	24.4	2492	2147	9.6	11.4	897.2	506.0	-84.5	149.8	10.2
15TH	184.00	6.1	5.4	607	523	10.0	10.3	873.2	481.7	-78.9	139.6	11.3
COFG	186.80	18.7	15.4	1852	1624	10.1	9.5	867.1	476.3	-77.5	137.2	11.5
16TH	195.30	23.6	19.5	2347	2147	10.9	9.1	848.5	460.9	-73.4	129.7	11.7
17TH	207.00	27.5	18.7	2232	2147	12.3	8.7	822.8	441.4	-68.3	120.1	11.9
18TH	218.30	7.0	4.4	526	523	13.2	8.4	795.4	422.7	-63.3	110.8	12.0
MODU	221.30	22.3	13.4	1624	1624	13.7	8.2	788.4	418.3	-62.1	108.6	12.0
19TH	230.00	31.1	16.9	2147	2147	14.5	7.9	766.1	404.9	-58.5	101.8	12.0
20TH	241.30	33.0	16.0	2147	2147	15.4	7.5	735.0	388.0	-54.0	93.2	12.0
21ST	253.00	34.7	15.6	2147	2147	16.2	7.2	702.0	372.0	-49.6	84.9	11.9
22ND	264.30	34.8	15.6	2147	2147	16.2	7.3	667.3	356.5	-45.4	77.0	11.8
23RD	276.00	33.0	15.6	2147	2147	16.3	7.2	632.5	340.9	-41.4	67.6	11.7
24TH	287.30	33.1	15.5	2147	2147	16.3	7.2	597.5	325.3	-37.6	62.3	11.5
25TH	299.00	33.2	15.5	2147	2147	16.4	7.2	562.4	309.8	-33.9	55.8	11.3
26TH	310.30	33.4	15.4	2147	2147	16.5	7.2	527.2	294.3	-30.4	49.5	11.1
27TH	322.00	33.9	15.4	2147	2147	16.7	7.2	491.9	278.9	-27.1	43.7	10.9
28TH	333.30	8.4	3.5	523	523	16.1	6.8	455.9	263.5	-24.0	38.2	10.6
COFG	336.30	24.4	10.4	1591	1624	15.3	6.4	447.6	260.0	-23.3	37.0	10.5
29TH	345.00	32.0	14.2	2002	2147	16.0	6.6	423.2	249.6	-21.1	33.2	10.0
30TH	356.30	31.7	15.0	1887	2147	16.8	7.0	391.2	235.3	-18.3	28.5	9.3
31ST	368.00	7.7	3.7	442	523	17.3	7.2	359.4	220.4	-15.7	24.2	8.6
MODU	370.80	23.8	11.9	1363	1624	17.5	7.3	351.8	216.6	-15.1	23.2	8.5
32ND	379.30	31.5	16.4	1802	2147	17.5	7.6	327.9	204.7	-13.2	20.2	7.9
33RD	391.00	31.4	17.1	1802	2147	17.4	8.0	296.5	188.3	-11.0	16.6	7.2
34TH	402.30	31.4	17.8	1802	2147	17.4	8.3	265.0	171.3	-8.9	13.4	6.5
35TH	414.00	31.3	18.4	1802	2147	17.4	8.6	233.7	153.5	-7.0	10.5	5.8
36TH	425.30	31.2	19.0	1802	2147	17.3	8.9	202.4	135.0	-5.4	8.0	5.1
37TH	437.00	31.1	19.7	1802	2147	17.3	9.2	171.2	116.0	-3.9	5.9	4.3
38TH	448.30	31.0	20.3	1802	2147	17.2	9.4	140.0	96.4	-2.7	4.1	3.6
39TH	460.00	30.9	20.9	1802	2147	17.2	9.7	109.0	76.1	-1.7	2.7	2.9
40TH	471.30	6.9	5.3	439	523	15.8	10.1	76.1	55.2	-1.0	1.6	2.1
COFG	474.30	29.1	27.0	2272	2707	12.8	10.0	71.1	50.0	-.8	1.4	2.0
MEZZ	488.80	4.7	3.8	423	504	11.0	7.6	42.0	22.9	-.3	.6	1.3
COFG	491.30	22.9	13.0	2272	2707	10.1	4.8	37.3	19.1	-.2	.5	1.2
ROOF	506.66	5.3	1.1	439	523	12.1	2.2	14.5	6.2	-.0	.1	.8
COFG	508.80	9.2	5.0	1457	767	6.3	6.5	9.2	5.0	-.0	.1	.4

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 120

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	30.7	22.6	3979	1499	7.7	15.1	1106.5	667.8	-175.3	342.4	7.8
MEZZ	17.30	25.5	28.2	3956	1605	6.5	17.6	1075.8	645.2	-164.0	323.5	8.4
2ND	34.50	14.4	3.0	2645	2147	5.4	1.4	1050.2	617.0	-153.1	305.2	8.9
3RD	46.00	12.2	4.0	2492	2147	4.9	1.8	1035.9	614.1	-146.0	293.2	9.4
4TH	57.50	11.3	5.8	2492	2147	4.5	2.7	1023.7	610.1	-139.0	281.4	10.0
5TH	69.00	10.3	7.5	2492	2147	4.1	3.5	1012.4	604.4	-132.0	269.7	10.6
6TH	80.50	9.4	9.3	2492	2147	3.8	4.4	1002.1	596.8	-125.1	258.1	11.2
7TH	92.00	8.5	11.1	2492	2147	3.4	5.2	992.7	587.5	-118.3	246.6	11.9
8TH	103.50	7.5	12.9	2492	2147	3.0	6.0	984.2	576.3	-111.6	235.3	12.6
9TH	115.00	6.5	14.7	2492	2147	2.6	6.9	976.7	563.4	-105.1	224.0	13.4
10TH	126.50	5.7	16.5	2492	2147	2.2	7.7	968.1	548.7	-98.4	212.8	14.2
11TH	138.00	4.9	18.4	2492	2147	1.8	8.6	958.4	532.1	-92.4	201.7	14.9
12TH	149.50	4.1	20.2	2492	2147	1.4	9.4	947.6	513.8	-86.4	190.8	15.7
13TH	161.00	3.3	22.0	2492	2147	1.0	10.2	935.5	493.6	-80.6	179.9	16.4
14TH	172.50	2.5	23.8	2492	2147	0.6	11.1	922.3	471.6	-75.1	169.3	17.2
15TH	184.00	1.7	25.6	607	523	0.2	12.0	906.9	447.8	-69.8	158.7	18.1
COPG	186.80	1.2	27.4	1852	1624	0.7	12.9	903.0	442.5	-68.6	156.2	18.2
16TH	195.50	0.9	29.2	2347	2147	0.5	13.8	890.7	427.1	-64.8	148.4	18.4
17TH	207.00	0.7	31.0	2232	2147	0.4	14.7	873.1	407.6	-60.0	138.3	18.5
18TH	218.50	0.5	32.8	523	523	0.3	15.6	853.5	389.0	-55.4	128.3	18.5
MODU	221.30	0.4	34.6	1624	1624	0.2	16.5	832.0	384.6	-54.3	126.0	18.5
19TH	230.00	0.3	36.4	2147	2147	0.1	17.4	808.3	371.2	-51.0	118.7	18.5
20TH	241.50	0.2	38.2	2147	2147	0.0	18.3	782.7	354.0	-46.9	109.2	18.4
21ST	253.00	0.1	40.0	2147	2147	0.0	19.2	755.0	337.5	-42.9	100.1	18.2
22ND	264.50	0.1	41.8	2147	2147	0.0	20.1	725.6	321.3	-39.1	91.2	18.0
23RD	276.00	0.1	43.6	2147	2147	0.0	21.0	694.4	305.0	-35.5	82.7	17.8
24TH	287.50	0.1	45.4	2147	2147	0.0	21.9	661.4	288.7	-32.1	74.6	17.5
25TH	299.00	0.1	47.2	2147	2147	0.0	22.8	626.7	272.4	-28.8	66.8	17.1
26TH	310.50	0.1	49.0	2147	2147	0.0	23.7	590.2	256.1	-25.8	59.3	16.8
27TH	322.00	0.1	50.8	2147	2147	0.0	24.6	551.4	239.8	-23.0	52.4	16.4
28TH	333.50	0.1	52.6	523	523	0.0	25.5	514.6	223.6	-20.3	45.8	16.0
COPG	336.30	0.1	54.4	1591	1624	0.0	26.4	477.4	220.1	-19.7	44.3	15.8
29TH	345.00	0.1	56.2	2002	2147	0.0	27.3	439.6	210.5	-17.8	39.7	15.0
30TH	356.50	0.1	58.0	1887	2147	0.0	28.2	401.2	197.5	-15.5	34.0	14.0
31ST	368.00	0.1	59.8	442	523	0.0	29.1	361.9	184.1	-13.3	28.7	13.0
MODU	370.80	0.1	61.6	1353	1624	0.0	30.0	321.7	180.8	-12.7	27.5	12.7
32ND	379.50	0.1	63.4	1802	2147	0.0	30.9	281.3	170.3	-11.2	23.8	11.9
33RD	391.00	0.1	65.2	1802	2147	0.0	31.8	241.2	156.3	-9.3	19.5	10.9
34TH	402.50	0.1	67.0	1802	2147	0.0	32.7	201.5	141.9	-7.6	15.5	9.8
35TH	414.00	0.1	68.8	1802	2147	0.0	33.6	162.1	127.3	-6.1	12.1	8.7
36TH	425.50	0.1	70.6	1802	2147	0.0	34.5	123.2	112.4	-4.7	9.1	7.6
37TH	437.00	0.1	72.4	1802	2147	0.0	35.4	84.6	97.3	-3.5	6.5	6.5
38TH	448.50	0.1	74.2	1802	2147	0.0	36.3	46.1	81.9	-2.5	4.4	5.4
39TH	460.00	0.1	76.0	1802	2147	0.0	37.2	27.6	66.3	-1.6	2.8	4.2
40TH	471.50	0.1	77.8	439	523	0.0	38.1	15.0	50.4	-0.9	1.6	3.1
COPG	474.30	0.1	79.6	2222	2707	0.0	39.0	6.8	46.1	-0.8	1.4	2.8
MEZZ	488.80	0.1	81.4	423	504	0.0	40.0	4.2	22.5	-0.3	0.5	1.7
COPG	491.50	0.1	83.2	2272	2707	0.0	41.0	2.6	19.1	-0.3	0.4	1.6
ROOF	506.00	0.1	85.0	439	523	0.0	42.0	1.8	7.5	-0.1	0.0	0.9
COPG	508.80	0.1	86.8	1457	767	0.0	43.0	1.6	6.6	-0.0	0.0	0.3

TABLE 7 SHEAR AND MOMENT DIAGRAMS
WIND DIRECTION 170

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	16.7	19.7	3979	1499	4.2	13.1	738.3	377.4	-103.9	242.6	10.4
MEZZ	17.30	13.0	22.9	3956	1605	3.3	14.3	721.6	357.8	-97.6	229.9	10.6
2ND	34.50	7.2	-1.2	2643	2147	2.7	-	708.6	334.8	-91.6	217.6	10.8
3RD	46.00	6.0	-1.0	2492	2147	2.4	-1.4	701.5	336.1	-87.7	209.5	11.0
4TH	57.50	5.6	1.1	2492	2147	2.3	-	695.3	337.0	-83.9	201.5	11.3
5TH	69.00	5.3	1.2	2492	2147	2.3	0.3	689.9	336.9	-80.0	193.3	11.6
6TH	80.50	4.9	2.2	2492	2147	2.0	1.0	684.6	335.7	-76.1	185.6	11.9
7TH	92.00	4.5	3.3	2492	2147	1.8	1.5	679.7	333.5	-72.3	177.8	12.2
8TH	103.50	4.4	4.4	2492	2147	1.7	2.0	675.2	330.2	-68.5	170.0	12.4
9TH	115.00	4.4	4.4	2492	2147	1.9	2.5	671.1	325.8	-64.7	162.2	12.7
10TH	126.50	5.5	5.5	2492	2147	2.1	3.0	666.4	320.4	-61.0	154.5	13.0
11TH	138.00	5.5	5.5	2492	2147	2.4	3.5	661.1	313.9	-57.3	146.9	13.3
12TH	149.50	6.6	6.6	2492	2147	2.6	4.0	655.5	306.3	-53.8	139.3	13.6
13TH	161.00	7.7	7.7	2492	2147	2.9	4.4	648.8	297.7	-50.3	131.6	13.9
14TH	172.50	8.8	8.8	2492	2147	3.3	5.0	641.1	287.9	-46.8	124.4	14.2
15TH	184.00	2.2	3.3	607	523	3.9	4.8	632.2	277.1	-43.3	117.1	14.4
COFG	186.80	7.7	7.7	1852	1624	4.1	4.6	630.4	274.7	-42.2	115.3	14.8
16TH	195.50	9.9	9.9	2347	2147	4.4	4.6	622.2	267.3	-40.0	109.9	15.3
17TH	207.00	11.1	11.1	2332	2147	4.0	4.6	612.5	257.5	-37.5	102.8	15.5
18TH	218.50	9.9	9.9	526	523	4.4	4.6	601.4	247.5	-34.6	95.8	15.8
MODU	221.30	9.9	9.9	1624	1624	4.4	4.6	598.8	245.1	-33.3	94.1	15.8
19TH	230.00	13.3	13.3	2147	2147	6.2	4.4	589.9	237.7	-31.8	89.9	15.8
20TH	241.50	14.4	14.4	2147	2147	7.3	4.4	576.6	228.1	-29.9	82.3	15.8
21ST	253.00	15.4	15.4	2147	2147	7.3	4.4	561.1	218.7	-26.6	75.7	15.8
22ND	264.50	17.1	17.1	2147	2147	8.0	4.6	545.9	209.3	-24.1	69.3	15.1
23RD	276.00	18.6	18.6	2147	2147	8.7	4.8	528.8	199.4	-21.8	63.2	14.9
24TH	287.50	20.1	20.1	2147	2147	9.4	5.1	510.1	189.0	-19.5	57.2	14.8
25TH	299.00	21.1	21.1	2147	2147	10.1	5.3	490.0	178.1	-17.4	51.4	14.5
26TH	310.50	23.3	23.3	2147	2147	10.8	5.6	468.4	166.8	-15.4	45.9	14.2
27TH	322.00	25.5	25.5	2147	2147	12.0	5.8	445.3	154.9	-13.6	40.7	13.8
28TH	333.50	26.6	26.6	523	523	12.2	5.3	419.6	142.5	-11.9	35.7	13.5
COFG	336.30	19.9	19.9	1591	1624	12.2	5.3	413.2	139.6	-11.3	34.4	13.4
29TH	345.00	22.6	22.6	2002	2147	13.1	5.3	393.7	131.0	-10.3	31.0	12.8
30TH	356.50	26.8	26.8	1867	2147	14.2	4.8	367.7	120.1	-8.9	26.6	12.1
31ST	368.00	22.2	22.2	442	523	15.1	4.7	340.8	109.7	-7.5	22.6	11.2
MODU	376.80	22.2	22.2	1363	1624	15.5	4.6	334.1	107.3	-7.2	21.6	11.0
32ND	379.50	22.9	22.9	1802	2147	16.1	4.6	313.3	99.8	-6.3	18.8	10.4
33RD	391.00	22.9	22.9	1802	2147	16.7	4.3	284.0	89.9	-5.2	15.4	9.8
34TH	402.50	23.3	23.3	1802	2147	17.1	4.3	253.9	80.2	-4.3	12.3	9.6
35TH	414.00	23.3	23.3	1802	2147	17.2	4.2	223.3	71.1	-3.4	9.9	9.2
36TH	425.50	23.3	23.3	1802	2147	17.3	4.0	192.2	62.1	-2.6	7.7	9.0
37TH	437.00	23.3	23.3	1866	2147	17.4	3.9	161.1	53.5	-2.0	5.3	8.6
38TH	448.50	23.3	23.3	1802	2147	17.5	3.7	129.7	45.2	-1.1	3.5	8.3
39TH	460.00	23.3	23.3	1866	2147	17.6	3.6	98.8	37.2	-0.9	2.1	8.0
40TH	471.50	23.3	23.3	439	523	15.8	4.7	66.8	29.4	-0.7	1.2	7.8
COFG	474.20	23.3	23.3	2272	2767	11.7	5.6	39.9	27.0	-0.5	1.0	7.6
MEZZ	488.80	23.3	23.3	504	504	9.5	3.9	33.3	11.9	-0.4	0.4	7.4
COFG	491.50	23.3	23.3	2707	2707	9.7	3.9	28.8	9.9	-0.3	0.3	7.3
COFG	506.00	23.3	23.3	439	523	14.4	1.8	6	5.5	-0.0	0.0	7.2
COFG	506.80	23.3	23.3	439	523	14.4	1.8	6	5.5	-0.0	0.0	7.2

TABLE 7. SHEAR AND MOMENT DIAGRAMS : ONE SOUTH WACKER, CHICAGO
 WIND DIRECTION 180 CONFIGURATION A REFERENCE PRESSURE 26.0 PSF GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	12.8	19.0	3979	1499	3.2	12.6	511.2	241.4	-68.1	157.5	3.7
MEZZ	17.30	11.8	21.6	3956	1605	3.0	13.4	498.4	222.3	-64.1	148.7	4.0
2ND	34.50	7.7	-3.1	2643	2147	2.9	-1.4	486.6	200.9	-80.4	140.3	4.2
3RD	46.00	7.2	-2.7	2492	2147	2.9	-1.3	478.8	203.9	-58.1	134.7	4.4
4TH	57.50	7.0	-1.9	2492	2147	2.8	-0.9	471.6	206.7	-55.8	129.3	4.7
5TH	69.00	6.9	-1.1	2492	2147	2.8	-0.5	464.6	208.6	-53.4	123.9	5.0
6TH	80.50	6.7	-0.3	2492	2147	2.7	-0.2	457.7	209.7	-51.0	118.6	5.3
7TH	92.00	6.6	0.5	2492	2147	2.6	0.2	451.0	210.1	-48.6	113.3	5.5
8TH	103.50	6.4	1.2	2492	2147	2.6	0.6	444.4	209.6	-46.1	108.2	5.8
9TH	115.00	6.4	2.0	2492	2147	2.6	0.9	437.9	208.4	-43.7	103.1	6.0
10TH	126.50	6.4	2.7	2492	2147	2.6	1.2	431.5	206.4	-41.3	98.1	6.3
11TH	138.00	6.3	3.4	2492	2147	2.6	1.6	425.1	203.7	-39.0	93.2	6.5
12TH	149.50	6.3	4.1	2492	2147	2.6	1.9	418.6	200.4	-36.7	88.3	6.7
13TH	161.00	6.3	4.7	2492	2147	2.6	2.2	412.2	196.3	-34.4	83.6	6.9
14TH	172.50	7.1	5.4	2492	2147	2.8	2.5	405.7	191.6	-32.2	78.9	7.1
15TH	184.00	1.8	1.3	607	523	3.0	2.5	398.6	186.1	-30.0	74.2	7.4
COPG	186.80	5.7	4.1	1852	1624	3.1	2.5	396.8	184.8	-29.5	73.1	7.5
16TH	195.50	7.6	5.7	2347	2147	3.3	2.6	391.1	180.7	-27.9	69.7	7.6
17TH	207.00	7.7	5.9	2232	2147	3.3	2.8	383.6	175.0	-25.8	65.2	7.7
18TH	218.50	1.9	1.5	526	523	3.3	2.8	375.8	169.1	-23.9	60.9	7.7
MODU	221.30	6.0	4.7	1624	1624	3.3	2.9	373.9	167.7	-23.4	59.8	7.7
19TH	230.00	8.4	6.3	2147	2147	3.9	2.9	367.3	163.0	-21.9	56.6	7.7
20TH	241.50	9.0	6.5	2147	2147	4.2	3.0	359.3	156.7	-20.1	52.4	7.7
21ST	253.00	9.6	6.8	2147	2147	4.5	3.2	350.3	150.1	-18.3	48.3	7.7
22ND	264.50	10.6	7.0	2147	2147	4.9	3.2	340.9	143.3	-16.7	44.4	7.7
23RD	276.00	11.5	7.1	2147	2147	5.3	3.3	330.3	136.4	-15.0	40.5	7.6
24TH	287.50	12.4	7.2	2147	2147	5.8	3.3	318.8	129.3	-13.5	36.8	7.5
25TH	299.00	13.3	7.3	2147	2147	6.2	3.4	306.4	122.2	-12.1	33.2	7.3
26TH	310.50	14.3	7.4	2147	2147	6.6	3.4	293.1	114.9	-10.7	29.7	7.1
27TH	322.00	15.3	7.5	2147	2147	7.1	3.5	278.9	107.5	-9.4	26.4	6.9
28TH	333.50	4.0	1.8	523	523	7.7	3.4	262.2	100.0	-8.2	23.3	6.7
COPG	336.30	12.1	5.5	1591	1624	7.6	3.4	258.6	98.2	-8.0	22.6	6.6
29TH	345.00	16.1	7.1	2002	2147	8.0	3.3	246.4	92.8	-7.1	20.4	6.3
30TH	356.50	16.2	7.1	1887	2147	8.6	3.3	230.4	85.7	-6.1	17.7	6.0
31ST	368.00	4.0	1.7	442	523	9.0	3.3	214.2	78.6	-5.2	15.1	5.5
MODU	370.80	12.5	5.3	1363	1624	9.2	3.3	210.2	76.9	-4.9	14.5	5.4
32ND	379.50	16.9	7.1	1802	2147	9.4	3.3	197.7	71.6	-4.3	12.7	5.0
33RD	391.00	17.3	7.1	1802	2147	9.6	3.3	180.0	64.5	-3.5	10.6	4.6
34TH	402.50	17.7	7.1	1802	2147	9.8	3.3	163.5	57.3	-2.8	8.6	4.2
35TH	414.00	18.1	7.0	1802	2147	10.0	3.3	145.8	50.3	-2.2	6.8	3.8
36TH	425.50	18.4	7.0	1802	2147	10.2	3.3	127.7	43.2	-1.7	5.2	3.4
37TH	437.00	18.8	7.0	1802	2147	10.4	3.3	109.3	36.2	-1.2	3.9	3.0
38TH	448.50	19.1	7.0	1802	2147	10.6	3.2	90.6	29.2	-0.8	2.7	2.5
39TH	460.00	19.5	6.9	1802	2147	10.8	3.2	71.4	22.3	-0.5	1.8	2.1
40TH	471.50	4.4	1.6	439	523	10.0	3.0	51.9	15.3	-0.3	1.1	1.6
COPG	474.30	18.6	7.0	2272	2707	8.2	2.6	47.5	13.8	-0.3	0.9	1.4
MEZZ	488.80	3.0	0.9	423	504	7.1	1.8	28.9	6.7	-0.1	0.4	0.8
COPG	491.50	16.7	2.1	2272	2707	7.3	1.8	25.9	5.8	-0.1	0.3	0.7
ROOF	506.00	4.6	1.1	439	523	10.5	1.1	9.9	3.8	-0.0	0.0	0.3
COPG	508.80	4.6	3.7	1457	767	3.2	4.8	4.6	3.7	-0.0	0.0	0.0

TABLE 7. SHEAR AND MOMENT DIAGRAMS 1
WIND DIRECTION 190

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	14.8	19.6	3979	1499	3.7	13.1	493.8	135.0	-30.6	142.7	- .8
MEZZ	17.30	14.7	22.0	3956	1605	3.7	13.7	479.0	115.4	-28.4	134.3	- .4
2ND	34.50	9.6	-2.7	2643	2147	3.6	-1.3	464.3	93.4	-26.6	126.2	- .1
3RD	46.00	9.2	-2.6	2492	2147	3.7	-1.2	454.6	96.1	-25.5	120.9	.2
4TH	57.50	9.1	-2.0	2492	2147	3.7	-.9	443.4	98.7	-24.4	115.7	.3
5TH	69.00	9.1	-1.4	2492	2147	3.6	-.7	436.3	100.7	-23.3	110.6	.8
6TH	80.50	9.0	-.8	2492	2147	3.6	-.4	427.2	102.1	-22.1	105.7	1.0
7TH	92.00	9.0	-.2	2492	2147	3.6	-.1	418.2	103.0	-20.9	100.8	1.3
8TH	103.50	8.9	.4	2492	2147	3.6	.2	409.2	103.2	-19.7	96.1	1.5
9TH	115.00	8.8	.9	2492	2147	3.5	.4	400.3	102.9	-18.5	91.4	1.7
10TH	126.50	8.7	1.4	2492	2147	3.5	.6	391.5	102.0	-17.4	86.8	1.9
11TH	138.00	8.6	1.9	2492	2147	3.5	.9	382.8	100.6	-16.2	82.4	2.2
12TH	149.50	8.5	2.4	2492	2147	3.4	1.1	374.1	98.8	-15.1	78.0	2.4
13TH	161.00	8.4	2.8	2492	2147	3.4	1.3	365.6	96.4	-13.9	73.8	2.6
14TH	172.50	8.6	3.3	2492	2147	3.5	1.6	357.2	93.5	-12.8	69.6	2.9
15TH	184.00	2.2	3.8	607	523	3.6	1.6	348.3	90.2	-11.8	65.6	3.2
COPG	186.80	6.9	2.5	1852	1624	3.7	1.6	346.3	89.4	-11.5	64.6	3.2
16TH	195.50	8.8	3.3	2347	2147	3.7	1.6	339.5	86.9	-10.8	61.6	3.4
17TH	207.00	8.5	3.6	2232	2147	3.8	1.7	330.7	83.4	-9.8	57.8	3.5
18TH	218.50	2.0	.9	526	523	3.8	1.7	322.3	79.8	-8.8	54.0	3.6
MOBU	221.30	6.2	2.9	1624	1624	3.8	1.8	320.3	78.9	-8.6	53.1	3.6
19TH	230.00	8.3	4.0	2147	2147	3.9	1.8	314.1	76.0	-7.9	50.4	3.6
20TH	241.50	8.5	4.1	2147	2147	3.9	1.9	305.7	72.1	-7.1	46.8	3.6
21ST	253.00	8.7	4.3	2147	2147	4.1	2.0	297.3	67.9	-6.3	43.3	3.6
22ND	264.50	9.2	4.4	2147	2147	4.3	2.0	288.5	63.7	-5.5	40.0	3.6
23RD	276.00	9.7	4.4	2147	2147	4.5	2.0	279.3	59.4	-4.8	36.7	3.6
24TH	287.50	10.2	4.4	2147	2147	4.7	2.0	269.6	55.0	-4.2	33.5	3.6
25TH	299.00	10.7	4.4	2147	2147	5.0	2.1	259.4	50.7	-3.6	30.5	3.6
26TH	310.50	11.2	4.5	2147	2147	5.2	2.1	248.7	46.2	-3.0	27.6	3.6
27TH	322.00	12.4	4.5	2147	2147	5.8	2.1	237.6	41.7	-2.5	24.8	3.6
28TH	333.50	3.0	.9	523	523	5.7	1.8	225.2	37.2	-2.0	22.1	3.6
COPG	336.36	8.9	2.5	1591	1624	5.6	1.5	222.2	36.2	-1.9	21.5	3.6
29TH	345.00	12.2	3.3	2002	2147	6.1	1.5	213.3	33.7	-1.6	19.6	3.6
30TH	356.56	12.1	3.3	1887	2147	6.4	1.5	201.1	30.5	-1.3	17.2	3.0
31ST	368.00	2.9	.8	442	523	6.5	1.5	189.0	27.2	-.9	15.0	2.8
MOBU	376.86	9.1	2.2	1363	1624	6.6	1.6	186.1	26.4	-.9	14.4	2.7
32ND	379.50	12.4	3.3	1802	2147	6.9	1.6	177.1	23.8	-.6	12.9	2.5
33RD	391.00	13.0	3.6	1802	2147	7.2	1.7	164.6	20.4	-.4	10.9	2.3
34TH	402.50	13.4	3.7	1802	2147	7.5	1.7	151.7	16.8	-.2	9.1	2.1
35TH	414.00	13.8	4.0	1802	2147	7.7	1.9	138.2	13.1	-.0	7.4	1.9
36TH	425.50	14.2	4.3	1802	2147	7.9	2.0	124.4	9.1	.1	5.9	1.7
37TH	437.00	14.7	4.6	1802	2147	8.1	2.2	110.1	4.8	.2	4.5	1.5
38TH	448.50	15.1	5.0	1802	2147	8.4	2.3	95.5	2.2	.2	3.4	1.4
39TH	460.00	15.5	5.3	1802	2147	8.6	2.5	80.4	-.4	.2	2.4	1.2
40TH	471.50	3.8	.2	439	523	8.6	.3	64.9	-10.0	.1	1.3	1.1
COPG	474.36	19.5	-.5	2272	2707	8.6	-2.0	61.2	-10.2	.1	1.3	1.0
MEZZ	488.80	3.7	-1.2	423	504	8.8	-2.4	41.7	-4.9	-.0	.6	.4
COPG	491.56	22.2	-7.0	2272	2707	9.8	-2.6	38.0	-3.7	-.0	.5	.3
ROFG	506.00	4.7	-.5	439	523	10.6	-.9	15.7	3.3	-.0	.1	-.1
COPG	508.86	11.1	3.8	1457	767	7.6	4.9	11.1	3.8	-.0	.1	-.3

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 200

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	12.4	15.8	3379	1499	3.1	10.6	613.8	-155.1	48.6	192.8	-4.9
MEZZ	17.30	12.8	18.2	3356	1603	3.2	11.3	603.4	-171.0	45.8	182.3	-4.4
2ND	34.50	8.9	-7.3	2645	2147	3.4	-3.3	590.6	-189.1	42.7	172.0	-4.4
3RD	46.00	8.8	-7.9	2492	2147	3.3	-3.7	581.7	-181.6	40.3	163.2	-3.7
4TH	57.50	8.3	-7.3	2492	2147	3.4	-3.4	572.9	-173.7	38.3	158.6	-3.3
5TH	69.00	8.2	-6.6	2492	2147	3.2	-3.1	564.4	-166.4	36.3	152.1	-3.3
6TH	80.50	7.9	-6.6	2492	2147	3.3	-2.8	556.2	-159.8	34.6	145.6	-3.2
7TH	92.00	7.3	-5.3	2492	2147	3.0	-2.5	548.4	-153.8	32.8	139.3	-3.0
8TH	103.50	7.2	-4.7	2492	2147	3.0	-2.2	540.6	-148.3	31.1	133.0	-2.8
9TH	115.00	7.8	-4.4	2492	2147	3.1	-2.0	533.3	-143.8	29.4	126.8	-2.6
10TH	126.50	8.4	-4.2	2492	2147	3.4	-1.9	525.5	-139.4	27.7	120.7	-2.4
11TH	138.00	8.9	-4.0	2492	2147	3.6	-1.8	517.7	-135.2	26.2	114.7	-2.2
12TH	149.50	9.3	-3.9	2492	2147	3.8	-1.7	509.8	-131.1	24.7	108.8	-1.9
13TH	161.00	10.1	-3.7	2492	2147	4.1	-1.6	501.9	-127.3	23.2	103.1	-1.6
14TH	172.50	11.0	-3.6	2492	2147	4.4	-1.5	493.9	-123.5	21.7	97.4	-1.3
15TH	184.00	11.2	-3.2	607	523	4.4	-1.4	485.9	-120.0	20.4	91.8	-1.0
COPG	186.80	8.6	-4.4	1832	1624	4.7	-2.7	477.9	-118.8	20.0	90.3	-1.0
16TH	195.50	11.0	-5.5	2347	2147	4.7	-2.6	469.9	-114.4	19.3	86.4	-0.8
17TH	207.00	10.7	-5.5	2232	2147	4.8	-2.4	461.9	-108.8	17.7	81.1	-0.6
18TH	218.50	10.4	-5.5	526	523	4.8	-2.3	453.9	-103.6	16.5	75.9	-0.5
HDBU	221.30	7.8	-1.1	1624	1624	4.8	-2.2	445.9	-102.3	16.2	74.7	-0.5
19TH	230.00	10.6	-3.3	2147	2147	5.0	-2.1	437.9	-98.7	15.3	70.8	-0.4
20TH	241.50	11.0	-4.4	2147	2147	5.1	-1.9	429.9	-94.3	14.2	65.9	-0.3
21ST	253.00	11.5	-4.0	2147	2147	5.4	-1.7	421.9	-90.2	13.2	61.1	-0.3
22ND	264.50	12.3	-3.3	2147	2147	5.7	-1.6	413.9	-86.7	12.2	56.4	-0.2
23RD	276.00	13.1	-3.2	2147	2147	6.1	-1.5	405.9	-83.3	11.1	51.9	-0.1
24TH	287.50	14.0	-3.0	2147	2147	6.5	-1.4	397.9	-80.2	10.2	47.5	-0.1
25TH	299.00	14.8	-2.9	2147	2147	6.9	-1.3	389.9	-77.1	9.3	43.2	-0.1
MEZZ	311.50	15.6	-2.7	2147	2147	7.3	-1.3	381.9	-74.3	8.5	39.3	-0.1
26TH	323.00	17.2	-2.5	2147	2147	7.9	-1.2	373.9	-71.6	7.7	35.3	-0.1
27TH	334.50	18.1	-2.2	523	523	8.0	-1.1	365.9	-69.0	6.9	31.3	0.1
COPG	337.30	12.3	-3.6	1591	1624	7.7	-2.2	357.9	-68.1	6.6	30.7	0.1
28TH	345.00	16.6	-4.4	2002	2147	8.3	-2.2	349.9	-64.6	6.0	28.0	0.1
29TH	356.50	16.7	-4.4	1887	2147	8.6	-2.0	341.9	-61.9	5.3	24.7	0.1
30TH	368.00	18.0	-4.4	442	523	8.6	-2.0	333.9	-58.6	4.7	21.3	0.1
31ST	379.50	11.3	-1.1	1363	1624	8.7	-1.9	325.9	-54.6	4.3	20.8	0.1
HDBU	379.50	11.3	-1.1	1363	1624	8.7	-1.9	325.9	-54.6	4.3	20.8	0.1
32ND	391.00	16.4	-3.3	1802	2147	9.1	-1.8	317.9	-51.3	4.0	18.6	0.1
33RD	402.50	17.1	-3.3	1802	2147	9.5	-1.7	309.9	-47.6	3.3	15.8	0.1
34TH	414.00	17.9	-3.3	1802	2147	9.9	-1.5	301.9	-44.0	3.0	13.2	0.1
35TH	425.50	18.8	-2.2	1802	2147	10.4	-1.4	293.9	-40.8	2.5	10.8	0.1
36TH	437.00	19.7	-2.2	1802	2147	10.9	-1.3	285.9	-38.0	2.2	8.7	0.1
37TH	448.50	20.6	-2.2	1802	2147	11.4	-1.1	277.9	-35.6	1.9	6.7	0.1
38TH	460.00	21.5	-1.6	1802	2147	11.9	-1.0	269.9	-33.7	1.7	5.0	0.1
39TH	471.50	22.4	-1.1	1802	2147	12.4	-0.9	261.9	-32.1	1.5	3.5	0.1
40TH	483.00	23.3	-0.9	439	523	12.4	-0.8	253.9	-30.9	1.4	2.1	0.1
COPG	474.50	15.7	-1.5	2272	2707	12.0	-0.9	245.9	-29.3	1.4	1.9	0.1
MEZZ	486.00	13.3	-2.2	423	564	12.3	-0.9	237.9	-27.7	1.3	1.4	0.1
COPG	491.50	30.6	-1.3	2272	2707	13.5	-0.9	229.9	-26.4	1.1	1.1	0.1
MEZZ	503.00	11.1	-1.1	439	523	14.6	-0.8	221.9	-25.2	1.0	0.8	0.1
COPG	508.90	20.1	-3.9	1457	767	13.8	-0.8	213.9	-24.1	0.9	0.6	0.1

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 210

CONFIGURATION A

ONE SOUTH WACKER, CHICAGO
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	19.7	16.9	3979	1499	5.0	11.2	876.8	-358.4	107.3	267.1	-9.0
MEZZ	17.30	19.5	19.5	3956	1605	4.9	12.1	857.0	-375.3	100.9	252.1	-8.4
2ND	34.50	11.6	-10.1	2645	2147	4.4	-4.7	837.5	-394.8	94.3	237.5	-7.9
3RD	46.00	11.2	-11.1	2492	2147	4.5	-5.2	826.0	-384.6	89.8	227.9	-7.4
4TH	57.50	11.4	-10.5	2492	2147	4.6	-4.9	814.8	-373.5	85.5	218.5	-7.1
5TH	69.00	11.6	-9.9	2492	2147	4.6	-4.6	803.4	-363.0	81.2	209.2	-6.7
6TH	80.50	11.8	-9.3	2492	2147	4.7	-4.3	791.8	-353.1	77.1	200.0	-6.4
7TH	92.00	12.0	-8.6	2492	2147	4.8	-4.0	780.1	-343.9	73.1	191.0	-6.0
8TH	103.50	12.2	-8.0	2492	2147	4.9	-3.7	768.8	-335.2	69.2	182.1	-5.5
9TH	115.00	13.3	-7.8	2492	2147	5.3	-3.6	755.9	-327.2	65.4	173.3	-5.1
10TH	126.50	14.4	-7.9	2492	2147	5.8	-3.7	742.6	-319.4	61.7	164.7	-4.6
11TH	138.00	15.5	-8.0	2492	2147	6.2	-3.7	728.3	-311.5	58.0	156.3	-4.1
12TH	149.50	16.6	-8.1	2492	2147	6.6	-3.8	712.8	-303.5	54.5	148.0	-3.5
13TH	161.00	17.7	-8.1	2492	2147	7.1	-3.8	696.3	-295.4	51.1	139.9	-2.9
14TH	172.50	18.7	-8.2	2492	2147	7.5	-3.8	678.6	-287.3	47.7	132.0	-2.2
15TH	184.00	4.5	-2.5	607	523	7.4	-4.7	659.9	-279.1	44.5	124.3	-1.4
COPG	186.80	13.2	-8.8	1852	1624	7.1	-5.4	655.4	-276.6	43.7	122.4	-1.2
16TH	195.56	16.5	-11.7	2347	2147	7.0	-5.5	642.3	-267.8	41.3	116.8	-1.0
17TH	207.00	15.9	-11.7	2232	2147	7.1	-5.4	625.8	-256.1	38.3	109.5	-0.7
18TH	216.56	3.8	-2.8	526	523	7.1	-5.4	609.9	-244.4	35.4	102.4	-0.5
MODU	221.30	11.7	-8.8	1624	1624	7.2	-5.2	606.1	-241.6	34.7	100.7	-0.5
19TH	223.66	15.7	-10.7	2147	2147	7.3	-5.0	594.5	-233.1	32.7	95.5	-0.4
20TH	241.50	16.0	-10.2	2147	2147	7.4	-4.7	578.8	-222.4	30.1	88.7	-0.3
21ST	253.66	16.5	-9.6	2147	2147	7.7	-4.5	562.2	-212.2	27.6	82.2	-0.1
22ND	264.50	17.4	-9.4	2147	2147	9.1	-4.4	546.3	-202.6	25.2	75.8	0.0
23RD	276.66	18.4	-9.3	2147	2147	8.6	-4.3	528.9	-193.2	22.9	69.6	0.3
24TH	287.50	19.4	-9.2	2147	2147	9.0	-4.3	510.5	-183.9	20.7	63.6	0.5
25TH	299.66	20.4	-9.0	2147	2147	9.5	-4.2	491.0	-174.7	18.7	57.9	0.8
26TH	310.50	21.4	-8.9	2147	2147	10.0	-4.2	470.6	-165.7	16.7	52.3	1.1
27TH	322.66	22.8	-8.8	2147	2147	10.6	-4.1	449.2	-156.7	14.9	47.0	1.4
28TH	333.50	5.6	-2.6	523	523	10.7	-4.9	426.4	-147.9	13.1	42.0	1.8
COPG	336.36	16.9	-9.2	1591	1624	10.6	-5.7	420.8	-145.3	12.7	40.8	1.8
29TH	345.00	22.5	-11.5	2002	2147	11.3	-5.4	403.9	-136.2	11.5	37.2	1.8
30TH	356.56	18.7	-10.6	1887	2147	11.8	-4.9	381.4	-124.6	10.0	32.7	1.7
31ST	369.00	5.5	-2.4	442	523	12.0	-4.7	359.1	-114.0	8.6	28.5	1.6
MODU	376.86	16.6	-9.3	1363	1624	12.2	-4.5	353.8	-111.6	8.3	27.5	1.6
32ND	379.50	18.0	-8.8	1802	2147	12.7	-4.2	337.2	-104.3	7.3	24.5	1.4
33RD	391.66	18.0	-8.8	1802	2147	13.2	-3.8	314.4	-95.4	6.2	20.7	1.3
34TH	402.50	18.0	-7.7	1802	2147	13.9	-3.5	290.0	-87.2	5.1	17.2	1.3
35TH	414.66	18.0	-7.7	1802	2147	14.6	-3.5	265.5	-79.5	4.2	14.0	1.2
36TH	425.50	18.0	-7.7	1802	2147	15.4	-3.5	239.9	-71.9	3.3	11.1	1.2
37TH	437.66	18.0	-7.7	1802	2147	16.2	-3.4	211.5	-64.5	2.5	8.5	1.1
38TH	448.50	18.0	-7.7	1802	2147	16.9	-3.4	182.4	-57.1	1.8	6.3	1.1
39TH	460.66	18.0	-7.7	1802	2147	17.7	-3.3	151.9	-49.9	1.2	4.3	1.0
40TH	471.50	4.3	-2.8	439	523	17.5	-5.3	120.0	-42.7	.7	2.8	1.0
COPG	474.36	37.8	-19.9	2272	2707	16.6	-7.3	112.3	-39.9	.6	2.5	.9
MEZZ	488.80	6.9	-3.6	423	504	16.3	-7.1	74.5	-20.1	.1	1.1	.0
COPG	491.56	37.4	-18.0	2272	2707	16.4	-6.7	67.6	-16.5	.1	.9	-.1
ROOF	506.00	17.4	-1.9	439	523	17.4	-3.7	30.3	1.5	-.0	.2	-.5
COPG	508.86	22.6	3.5	1457	767	15.5	4.5	22.6	3.5	-.0	.1	-.5

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 220

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	20.5	13.2	3979	1499	5.1	8.8	908.4	-620.0	187.5	275.7	-1.5
MEZZ	17.30	20.0	13.4	3976	1605	5.0	9.6	887.9	-633.2	176.6	260.2	-1.2
2ND	34.50	12.8	-11.3	2643	2147	4.9	-3.2	868.0	-648.5	163.6	243.1	-1.1
3RD	46.00	12.1	-12.3	2492	2147	4.9	-3.8	853.1	-637.3	158.2	235.2	-1.4
4TH	57.50	12.1	-12.2	2492	2147	4.9	-3.7	843.0	-624.8	151.0	225.4	-1.7
5TH	69.00	12.3	-11.9	2492	2147	5.0	-3.5	830.7	-612.6	143.8	215.8	-1.0
6TH	80.50	12.3	-11.3	2492	2147	5.1	-3.4	818.2	-600.7	136.9	206.3	-1.4
7TH	92.00	12.3	-11.2	2492	2147	5.2	-3.2	805.5	-589.2	130.0	197.0	-1.7
8TH	103.50	13.3	-10.9	2492	2147	5.2	-3.1	792.8	-578.0	123.3	187.8	-2.0
9TH	115.00	13.3	-10.9	2492	2147	5.3	-3.1	779.3	-567.1	116.7	178.7	-2.3
10TH	126.50	14.6	-11.1	2492	2147	5.3	-3.2	765.9	-556.2	110.3	169.9	-2.7
11TH	138.00	15.5	-11.3	2492	2147	6.2	-3.2	751.1	-545.1	103.9	161.1	-3.0
12TH	149.50	15.5	-11.4	2492	2147	6.6	-3.3	735.3	-533.8	97.7	152.6	-3.3
13TH	161.00	17.3	-11.6	2492	2147	6.9	-3.4	719.4	-522.4	91.7	144.2	-3.7
14TH	172.50	17.3	-11.6	2492	2147	7.0	-3.5	702.2	-510.7	85.7	136.0	-4.1
15TH	184.00	15.4	-3.8	607	523	7.0	-7.3	684.3	-498.9	79.9	128.1	-4.4
COFG	186.80	13.3	-14.1	1852	1624	7.0	-8.7	680.0	-495.1	78.5	126.2	-4.4
16TH	195.50	16.6	-19.3	2347	2147	7.1	-9.1	667.7	-481.0	74.3	120.3	-4.3
17TH	207.00	16.6	-20.1	2322	2147	7.3	-9.4	650.9	-461.6	68.9	112.7	-4.3
18TH	2218.50	13.3	-4.9	526	523	7.4	-9.4	634.6	-441.5	63.7	105.3	-4.3
MODU	221.30	10.0	-15.2	1624	1624	7.4	-9.4	630.7	-436.6	62.4	103.6	-4.4
19TH	236.00	16.6	-19.9	2147	2147	7.6	-9.3	618.7	-421.3	58.7	98.1	-4.3
20TH	241.50	16.6	-19.7	2147	2147	7.8	-9.2	602.2	-401.4	54.0	91.1	-4.3
21ST	253.00	17.3	-19.3	2147	2147	8.1	-8.9	585.5	-381.7	49.5	84.3	-4.2
22ND	264.50	18.8	-18.5	2147	2147	8.6	-8.5	568.9	-362.5	45.2	77.6	-4.3
23RD	276.00	19.9	-17.7	2147	2147	9.2	-8.1	552.3	-344.4	41.1	71.2	-4.3
24TH	287.50	20.0	-16.9	2147	2147	9.8	-7.8	535.9	-326.8	37.3	65.0	-4.4
25TH	299.00	20.0	-15.9	2147	2147	10.3	-7.4	519.9	-310.1	33.6	59.0	-4.3
26TH	310.50	20.0	-15.1	2147	2147	10.9	-7.0	487.0	-294.3	30.1	53.3	-4.7
27TH	322.00	20.0	-14.3	2147	2147	11.6	-6.7	463.6	-279.2	26.8	47.8	-4.9
28TH	333.50	18.8	-4.1	523	523	11.6	-7.9	438.7	-264.9	23.7	42.6	-5.2
29TH	345.00	18.8	-14.3	1591	1624	11.5	-9.0	432.7	-260.8	23.0	41.4	-5.2
COFG	346.30	18.8	-14.3	2002	2147	11.9	-8.8	414.4	-246.2	20.8	37.7	-5.1
30TH	357.50	20.0	-19.3	1887	2147	12.4	-8.5	390.5	-227.2	18.0	33.1	-4.9
31ST	368.00	15.3	-4.3	442	523	12.6	-8.3	367.1	-208.9	15.5	28.7	-4.5
MODU	370.80	17.3	-13.1	1363	1624	13.0	-8.1	361.6	-204.5	15.0	27.7	-4.4
32ND	379.50	20.0	-16.6	1802	2147	13.3	-7.7	344.1	-191.4	13.2	24.7	-4.1
33RD	391.00	20.0	-15.6	1802	2147	13.8	-7.3	320.0	-174.9	11.1	20.8	-3.7
34TH	402.50	20.0	-14.9	1802	2147	14.5	-7.0	295.5	-159.2	9.2	17.3	-3.4
35TH	414.00	20.0	-14.9	1802	2147	15.2	-6.9	269.9	-144.3	7.5	14.1	-3.1
36TH	425.50	20.0	-14.9	1802	2147	15.9	-6.9	244.1	-129.4	5.9	11.1	-2.7
37TH	437.00	20.0	-14.8	1802	2147	16.6	-6.9	218.3	-114.5	4.4	8.5	-2.4
38TH	448.50	20.0	-14.8	1802	2147	17.3	-6.9	193.3	-99.7	3.3	6.2	-2.1
39TH	460.00	20.0	-14.8	1802	2147	18.0	-6.9	168.0	-84.9	2.2	4.3	-1.8
40TH	471.50	20.0	-4.5	439	523	17.9	-8.6	142.7	-70.1	1.3	2.4	-1.5
COFG	474.30	20.0	-28.0	2272	2707	17.1	-10.4	111.8	-65.6	1.1	1.9	-1.4
MEZZ	488.80	5.7	-5.0	423	504	16.5	-10.3	73.0	-37.6	.4	1.1	-.5
COFG	491.50	5.7	-28.0	2272	2707	16.5	-10.4	66.0	-32.4	.3	.9	-.3
ROOF	506.00	7.3	-5.0	439	523	16.7	-9.6	28.4	-4.2	.0	.2	-.3
COFG	568.80	21.1	8.8	1437	767	14.5	1.0	21.1	.8	.0	.1	-.3

TABLE 7. SHEAR AND MOMENT DIAGRAMS 1
WIND DIRECTION 230

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	25.2	5.7	3979	1499	6.3	3.8	776.3	-863.4	252.8	203.7	6.0
ME22	17.30	26.5	7.6	3956	1605	6.7	4.7	751.3	-869.1	237.8	190.5	6.4
2ND	34.50	17.3	-16.9	2645	2147	6.6	-7.9	724.8	-876.7	222.8	177.8	6.7
3RD	46.00	16.5	-18.3	2492	2147	6.6	-8.5	707.5	-859.8	212.8	169.6	7.1
4TH	57.50	16.7	-17.9	2492	2147	6.7	-8.3	691.0	-841.5	203.0	161.5	7.3
5TH	69.00	16.8	-17.5	2492	2147	6.7	-8.2	674.3	-823.6	193.4	153.7	7.9
6TH	80.50	16.9	-17.2	2492	2147	6.8	-8.0	657.5	-806.0	184.1	146.0	8.3
7TH	92.00	17.0	-16.8	2492	2147	6.8	-7.8	640.7	-788.9	174.9	138.6	8.6
8TH	103.50	17.1	-16.4	2492	2147	6.9	-7.7	623.7	-772.1	165.9	131.3	8.9
9TH	115.00	17.2	-16.3	2492	2147	6.9	-7.6	606.6	-755.6	157.1	124.2	9.3
10TH	126.50	17.3	-16.2	2492	2147	7.0	-7.5	589.3	-739.4	148.5	117.3	9.9
11TH	138.00	17.7	-16.1	2492	2147	7.1	-7.5	571.9	-723.2	140.1	110.7	9.8
12TH	149.50	17.9	-16.0	2492	2147	7.2	-7.5	554.2	-707.1	131.9	104.2	10.0
13TH	161.00	18.1	-16.0	2492	2147	7.3	-7.4	538.8	-691.1	123.9	97.9	10.2
14TH	172.50	18.0	-15.9	2492	2147	7.2	-7.4	523.4	-675.1	116.0	91.9	10.4
15TH	184.00	4.3	-4.7	607	523	7.1	-9.0	509.9	-659.3	108.8	86.0	10.3
COPG	186.60	12.9	-16.6	1852	1624	7.0	-10.2	493.3	-654.6	106.5	84.6	10.3
16TH	195.50	16.1	-22.7	2347	2147	6.9	-10.6	483.1	-638.0	100.9	80.3	10.3
17TH	207.00	15.6	-23.4	2232	2147	7.0	-10.9	466.9	-615.2	93.7	74.9	10.3
18TH	218.50	3.7	-5.7	526	523	6.9	-10.9	451.3	-591.9	86.7	69.6	10.1
MODU	221.30	11.3	-17.7	1624	1624	6.9	-10.9	447.7	-566.1	80.5	68.3	10.0
19TH	230.00	15.0	-23.1	2147	2147	7.0	-10.8	436.4	-568.5	80.1	64.5	9.8
20TH	241.50	15.2	-22.8	2147	2147	7.1	-10.6	421.4	-545.4	73.6	59.6	9.5
21ST	253.00	15.5	-22.4	2147	2147	7.2	-10.4	406.2	-522.5	67.5	54.8	9.2
22ND	264.50	16.1	-22.2	2147	2147	7.5	-10.4	390.6	-500.2	61.6	50.2	8.9
23RD	276.00	16.7	-22.0	2147	2147	7.8	-10.4	374.5	-478.0	56.0	45.8	8.7
24TH	287.50	17.2	-21.8	2147	2147	8.0	-10.4	357.7	-455.7	50.6	41.6	8.5
25TH	299.00	17.8	-21.5	2147	2147	8.3	-10.4	340.0	-433.5	45.5	37.6	8.3
26TH	310.50	18.4	-21.2	2147	2147	8.6	-10.4	322.2	-411.2	40.7	33.8	8.1
27TH	322.00	18.8	-20.9	2147	2147	8.7	-10.4	304.4	-388.9	36.1	30.2	8.0
28TH	333.50	4.5	-5.8	523	523	8.6	-11.1	285.8	-366.5	31.7	26.8	7.8
COPG	336.30	13.4	-18.9	1591	1624	8.4	-11.6	281.3	-360.8	30.7	26.0	7.8
29TH	345.00	17.2	-25.0	2062	2147	8.6	-11.7	267.9	-341.9	27.6	23.6	7.7
30TH	356.50	16.6	-25.3	1887	2147	8.8	-11.8	250.7	-316.7	23.9	20.6	7.5
31ST	368.00	3.9	-6.3	442	523	8.8	-11.8	234.1	-291.4	20.4	17.8	6.6
MODU	370.80	12.2	-19.0	1353	1624	8.9	-11.7	230.2	-285.3	19.8	17.2	6.5
32ND	379.50	16.6	-24.7	1662	2147	9.2	-11.5	218.1	-266.3	17.2	15.2	6.0
33RD	391.00	17.2	-24.4	1802	2147	9.5	-11.3	201.5	-241.6	14.2	12.8	5.5
34TH	402.50	17.6	-24.6	1862	2147	9.8	-11.2	184.3	-217.2	11.6	10.6	4.9
35TH	414.00	17.9	-24.0	1802	2147	9.9	-11.2	168.7	-193.2	9.2	8.6	4.4
36TH	425.50	18.2	-23.9	1802	2147	10.1	-11.1	148.8	-169.2	7.2	6.8	3.9
37TH	437.00	18.5	-23.3	1802	2147	10.3	-11.1	130.6	-145.3	5.3	5.2	3.4
38TH	448.50	18.9	-23.6	1802	2147	10.5	-11.1	112.0	-121.5	3.8	3.6	2.8
39TH	460.00	19.2	-23.7	1802	2147	10.6	-11.0	93.2	-97.8	2.5	2.6	2.3
40TH	471.50	4.8	-5.1	439	523	10.9	-9.8	74.0	-74.1	1.6	1.8	1.8
COPG	474.30	25.7	-23.4	2272	2707	11.3	-8.6	69.2	-69.0	1.4	1.4	1.7
ME22	486.80	4.3	-4.3	423	504	10.7	-9.7	43.5	-45.6	.5	.6	.9
COPG	491.50	23.7	-30.2	2272	2707	10.4	-11.1	39.9	-40.7	.4	.5	.8
ROOF	506.00	4.3	-6.8	439	523	9.8	-13.0	15.4	-10.6	.0	.1	.2
COPG	508.80	11.1	-3.8	1457	767	7.6	-4.9	11.1	-3.8	.0	.1	.0

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 240

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	30.2	3.4	3979	1499	7.6	2.2	814.7	-1055.0	312.9	196.6	7.8
ME22	17.30	33.1	3.7	3956	1605	8.0	3.6	784.3	-1038.4	294.6	182.8	8.4
2ND	34.50	21.2	-19.8	2643	2147	8.0	-9.2	752.8	-1064.1	276.3	169.6	9.0
3RD	46.00	20.0	-21.1	2492	2147	8.1	-9.8	731.6	-1044.2	264.2	161.0	9.3
4TH	57.50	19.0	-20.8	2492	2147	8.0	-9.7	711.4	-1023.1	252.3	152.7	10.0
5TH	69.00	19.0	-20.8	2492	2147	7.8	-9.6	691.6	-1002.3	240.7	144.7	10.5
6TH	80.50	19.0	-20.2	2492	2147	7.7	-9.4	672.0	-981.8	229.3	136.8	11.0
7TH	92.00	18.9	-20.0	2492	2147	7.6	-9.3	652.8	-961.5	218.1	129.2	11.4
8TH	103.50	18.6	-19.7	2492	2147	7.5	-9.2	633.9	-941.5	207.2	121.8	11.7
9TH	115.00	18.1	-19.5	2492	2147	7.4	-9.1	615.3	-921.9	196.4	114.6	12.0
10TH	126.50	17.9	-19.3	2492	2147	7.3	-9.0	596.6	-902.4	186.0	107.7	12.3
11TH	138.00	17.6	-19.0	2492	2147	7.2	-8.9	577.6	-883.1	175.7	100.9	12.6
12TH	149.50	17.1	-18.8	2492	2147	7.1	-8.8	558.6	-863.9	165.6	94.4	12.9
13TH	161.00	16.7	-18.5	2492	2147	7.0	-8.7	539.5	-844.9	155.8	88.1	13.1
14TH	172.50	16.1	-18.2	2492	2147	6.9	-8.6	520.3	-826.0	146.2	82.1	13.4
15TH	184.00	15.5	-17.9	2492	2147	6.8	-8.5	501.3	-807.2	136.8	76.3	13.7
COFG	195.50	14.9	-17.6	1852	1624	6.6	-8.4	486.6	-801.7	134.6	75.0	13.7
16TH	207.00	14.3	-17.3	2234	2147	6.5	-8.3	470.0	-782.3	127.7	70.8	13.7
17TH	218.50	13.7	-17.0	2232	2147	6.4	-8.2	451.3	-755.9	118.8	65.5	13.5
18TH	230.00	13.0	-16.7	2232	2147	6.3	-8.1	432.6	-728.8	110.3	60.4	13.3
ME21	241.50	12.4	-16.4	1624	1624	6.2	-8.0	428.2	-722.2	108.3	59.2	13.2
MOBUDU	253.00	11.8	-16.1	1624	1624	6.1	-7.9	414.6	-701.9	102.1	55.5	13.0
19TH	264.50	11.2	-15.8	2147	2147	6.0	-7.8	398.7	-675.5	94.2	50.9	12.6
20TH	276.00	10.6	-15.5	2147	2147	5.9	-7.7	378.7	-649.6	86.5	46.4	12.3
21ST	287.50	10.0	-15.2	2147	2147	5.8	-7.6	360.0	-624.4	79.2	42.2	12.0
22ND	299.00	9.4	-14.9	2147	2147	5.7	-7.5	341.7	-599.4	72.2	38.1	11.7
23RD	310.50	8.8	-14.6	2147	2147	5.6	-7.4	322.4	-574.4	65.4	34.3	11.5
24TH	322.00	8.2	-14.3	2147	2147	5.5	-7.3	302.2	-549.5	59.0	30.7	11.2
25TH	333.50	7.6	-14.0	2147	2147	5.4	-7.2	282.2	-524.5	52.8	27.3	11.0
26TH	345.00	7.0	-13.7	2147	2147	5.3	-7.1	261.4	-499.6	46.9	24.2	10.7
27TH	356.50	6.4	-13.4	523	523	5.2	-7.0	240.7	-474.7	41.3	21.3	10.5
28TH	368.00	5.8	-13.1	1624	1624	5.1	-6.9	223.8	-468.0	40.0	20.7	10.4
COFG	379.50	5.2	-12.8	2002	2147	5.0	-6.8	221.7	-443.6	36.0	18.7	10.1
29TH	391.00	4.6	-12.5	1887	2147	4.9	-6.7	204.6	-414.9	31.1	16.2	9.8
30TH	402.50	4.0	-12.2	442	523	4.8	-6.6	188.7	-383.3	26.5	14.0	9.5
31ST	414.00	3.4	-11.9	1363	1624	4.7	-6.5	183.1	-373.5	23.4	13.4	9.3
MOBUDU	425.50	2.8	-11.6	1802	2147	4.6	-6.4	174.0	-351.2	22.2	11.9	9.1
32ND	437.00	2.2	-11.3	1802	2147	4.5	-6.3	159.4	-319.1	18.4	10.0	8.8
33RD	448.50	1.6	-11.0	1802	2147	4.4	-6.2	144.8	-286.8	14.9	8.2	8.5
34TH	460.00	1.0	-10.7	1802	2147	4.3	-6.1	130.3	-254.4	11.8	6.6	8.2
35TH	471.50	0.4	-10.4	1802	2147	4.2	-6.0	115.7	-221.7	9.1	5.2	8.0
36TH	483.00	-0.2	-10.1	1802	2147	4.1	-5.9	101.2	-188.8	6.7	4.0	7.8
37TH	494.50	-0.8	-9.8	1802	2147	4.0	-5.8	86.7	-155.6	4.7	2.9	7.6
38TH	506.00	-1.4	-9.5	1802	2147	3.9	-5.7	72.3	-122.2	3.1	2.0	7.4
39TH	517.50	-2.0	-9.2	439	523	3.8	-5.6	57.8	-88.5	1.9	1.2	7.2
COFG	529.00	-2.6	-8.9	2272	2707	3.7	-5.5	54.1	-81.9	1.7	1.1	7.0
ME22	540.50	-3.2	-8.6	423	504	3.6	-5.4	32.9	-55.7	.7	.4	6.8
COFG	552.00	-3.8	-8.3	2272	2707	3.5	-5.3	29.9	-50.1	.5	.4	6.6
ROOF	563.50	-4.4	-8.0	439	523	3.4	-5.2	10.7	-13.9	.1	.1	6.4
COFG	575.00	-5.0	-7.7	1437	767	3.3	-5.1	7.6	-5.3	.0	.0	6.2

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 250

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT 1000-FT-KIPS
GRND	0.00	25.2	8.8	3979	1499	6.3	5.5	588.4	-1083.9	320.2	115.0	11.5
MEZZ	17.30	27.2	2.8	3956	1605	6.9	1.8	533.2	-1084.7	301.4	103.2	12.1
2ND	34.50	17.0	-19.4	2845	2147	7.2	-9.1	327.9	-1087.5	282.8	93.9	12.5
3RD	46.60	18.7	-20.9	2492	2147	7.5	-9.7	508.9	-1068.1	270.4	89.9	13.1
4TH	57.50	18.6	-20.7	2492	2147	7.5	-9.7	490.2	-1047.2	258.2	84.2	13.6
5TH	69.60	18.5	-20.6	2492	2147	7.4	-9.6	471.6	-1026.5	246.3	78.7	14.1
6TH	80.50	18.4	-20.4	2492	2147	7.4	-9.5	453.1	-1005.9	234.8	73.3	14.6
7TH	92.60	18.3	-20.2	2492	2147	7.3	-9.4	434.7	-985.5	223.1	68.2	15.0
8TH	103.50	18.2	-20.1	2492	2147	7.3	-9.4	416.4	-965.3	211.9	63.3	15.4
9TH	115.60	18.4	-20.6	2492	2147	7.4	-9.3	398.2	-945.2	200.9	58.7	15.7
10TH	126.60	18.8	-19.9	2492	2147	7.5	-9.3	379.8	-925.2	190.2	54.2	16.0
11TH	138.60	19.1	-19.6	2492	2147	7.7	-9.2	361.1	-905.5	179.7	49.9	16.2
12TH	149.50	19.5	-19.5	2492	2147	7.8	-9.2	342.2	-885.6	169.4	45.9	16.4
13TH	161.60	19.8	-19.4	2492	2147	8.0	-9.1	323.2	-865.9	159.3	42.1	16.6
14TH	172.50	19.6	-19.4	2492	2147	7.9	-9.1	304.2	-846.4	149.4	38.5	16.8
15TH	184.60	14.5	-5.4	607	523	7.5	-10.7	285.3	-827.0	139.6	35.1	16.9
COPG	186.80	12.7	-1.5	1852	1624	6.8	-12.0	278.5	-821.4	137.5	34.3	16.9
16TH	195.50	16.1	-26.1	2347	2147	6.9	-12.2	265.8	-801.9	130.4	31.9	16.8
17TH	207.00	15.9	-26.3	2232	2147	7.1	-12.2	249.7	-775.8	121.4	29.0	16.6
18TH	218.50	3.7	-6.4	526	523	7.1	-12.2	233.8	-749.5	112.6	26.2	16.3
MODU	221.30	11.3	-1.6	1624	1624	6.9	-12.1	230.1	-743.1	110.5	25.5	16.3
19TH	230.60	14.7	-25.5	2147	2147	6.9	-11.9	218.8	-723.5	104.1	23.6	16.0
20TH	241.50	14.5	-25.1	2147	2147	6.8	-11.7	204.1	-698.0	96.0	21.2	15.6
21ST	253.60	14.3	-24.7	2147	2147	6.7	-11.5	189.6	-672.9	88.1	18.9	15.1
22ND	264.50	14.1	-24.1	2147	2147	6.6	-11.7	175.3	-648.3	80.5	16.8	14.6
23RD	276.60	14.0	-23.9	2147	2147	6.5	-12.1	161.1	-623.1	73.2	14.9	14.1
24TH	287.50	13.9	-23.6	2147	2147	6.5	-12.4	147.7	-597.2	66.2	13.1	13.6
25TH	299.60	13.7	-23.3	2147	2147	6.4	-12.7	133.3	-570.6	59.4	11.5	13.1
26TH	310.50	13.6	-22.8	2147	2147	6.3	-13.1	119.0	-543.3	53.0	10.0	12.6
27TH	322.60	12.1	-22.8	2147	2147	5.7	-13.4	106.0	-515.2	46.9	8.7	12.0
28TH	333.50	2.8	-7.4	523	523	5.3	-14.1	93.8	-486.4	41.2	7.6	11.4
COPG	336.30	7.9	-23.9	1591	1624	5.0	-14.7	91.1	-479.0	39.8	7.3	11.2
29TH	345.00	8.9	-32.6	2002	2147	4.4	-15.2	83.3	-455.1	35.8	6.6	10.8
30TH	356.50	7.6	-33.7	1887	2147	4.0	-15.7	74.3	-422.5	30.7	5.7	10.2
31ST	368.00	1.7	-8.3	442	523	3.8	-15.9	66.7	-388.9	26.1	4.8	9.5
MODU	370.80	4.9	-25.9	1363	1624	3.6	-15.9	63.0	-380.6	25.0	4.7	9.3
32ND	379.50	6.0	-34.3	1802	2147	3.3	-16.0	60.2	-354.7	21.8	4.1	8.7
33RD	391.00	5.4	-34.4	1802	2147	3.0	-16.0	54.2	-320.4	17.9	3.5	7.9
34TH	402.50	5.0	-34.6	1802	2147	2.8	-16.1	48.8	-286.0	14.4	2.9	7.3
35TH	414.00	4.7	-34.6	1802	2147	2.6	-16.1	43.8	-251.3	11.3	2.3	6.3
36TH	425.50	4.3	-34.5	1802	2147	2.4	-16.1	39.1	-216.8	8.6	1.9	5.5
37TH	437.60	4.0	-34.5	1802	2147	2.2	-16.1	34.7	-182.2	6.3	1.4	4.7
38TH	448.50	3.7	-34.4	1802	2147	2.0	-16.0	30.0	-147.7	4.4	1.1	3.8
39TH	460.00	3.4	-34.4	1802	2147	1.9	-16.0	27.7	-113.3	2.9	0.7	3.0
40TH	471.50	1.2	-5.9	439	523	2.8	-11.4	23.7	-78.9	1.8	0.4	2.2
COPG	474.30	10.4	-18.9	2272	2707	4.6	-7.0	22.5	-73.0	1.6	0.4	2.0
MEZZ	488.80	1.7	-4.5	423	504	4.1	-9.0	12.1	-54.1	0.7	0.1	1.3
COPG	491.50	8.7	-32.3	2272	2707	3.8	-11.9	10.3	-49.5	0.6	0.1	1.2
ROOF	506.00	1.3	-8.9	439	523	2.9	-17.0	1.6	-17.2	0.1	0.0	0.6
COPG	508.80	0.3	-8.3	1457	767	2.2	-10.9	0.3	-8.3	0.0	0.0	0.4

TABLE 7. SHEAR AND MOMENT DIAGRAM 1
WIND DIRECTION 260

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	25.2	-3.4	3979	1499	6.3	-2.2	418.5	-1173.1	339.8	47.8	15.3
MEZZ	17.30	27.6	-1.6	3956	1605	7.0	-1.0	393.3	-1169.7	319.5	40.8	16.3
2ND	34.50	19.0	-22.2	2645	2147	7.2	-10.6	343.7	-1168.2	299.4	34.3	17.0
3RD	46.60	19.1	-24.4	2492	2147	7.7	-11.3	346.7	-1145.4	286.1	30.2	17.7
4TH	57.50	19.3	-24.0	2492	2147	7.7	-11.2	327.6	-1121.1	273.1	26.3	18.5
5TH	69.00	19.5	-23.6	2492	2147	7.8	-11.0	308.3	-1097.1	260.3	22.6	19.1
6TH	80.50	19.7	-23.3	2492	2147	7.9	-10.8	288.8	-1073.5	247.9	19.2	19.8
7TH	92.00	19.9	-22.9	2492	2147	8.0	-10.7	269.1	-1050.2	235.7	16.0	20.3
8TH	103.50	20.2	-22.6	2492	2147	8.1	-10.5	249.1	-1027.2	223.7	13.0	20.9
9TH	115.00	20.4	-22.1	2492	2147	8.1	-10.2	229.0	-1004.7	212.0	10.3	21.3
10TH	126.50	20.6	-21.1	2492	2147	8.2	-9.8	208.7	-982.8	200.6	7.8	21.7
11TH	138.00	20.6	-20.6	2492	2147	8.3	-9.5	188.3	-961.7	189.4	5.5	22.0
12TH	149.50	20.8	-19.9	2492	2147	8.3	-9.1	167.7	-941.4	178.5	3.4	22.3
13TH	161.00	20.8	-18.1	2492	2147	8.4	-8.7	147.0	-921.9	167.8	1.6	22.4
14TH	172.50	20.9	-17.7	2492	2147	8.4	-8.3	126.0	-903.2	157.3	0.0	22.4
15TH	184.00	20.9	-15.5	667	523	8.6	-10.6	105.9	-885.4	147.0	-1.3	22.4
COPG	186.80	13.0	-20.0	1852	1624	7.7	-12.0	101.2	-879.8	144.5	-1.6	22.4
16TH	195.50	15.6	-22.7	2347	2147	6.6	-13.0	88.2	-859.6	136.9	-2.4	22.3
17TH	207.00	14.6	-22.8	2232	2147	6.5	-13.4	72.6	-831.1	127.2	-3.3	22.3
18TH	218.50	13.3	-17.7	526	523	6.3	-13.4	58.0	-803.0	117.8	-4.1	21.5
19TH	221.30	10.0	-21.1	1624	1624	6.6	-13.4	54.7	-796.0	115.6	-4.2	21.4
HODU	222.10	12.6	-22.8	2147	2147	6.1	-13.2	44.4	-774.3	108.7	-4.7	21.0
20TH	233.00	11.4	-22.8	2147	2147	5.3	-13.0	32.1	-745.9	100.0	-5.1	20.4
21ST	241.50	11.4	-22.8	2147	2147	5.3	-12.8	20.1	-718.0	91.6	-5.4	19.8
22ND	253.00	10.3	-22.8	2147	2147	4.8	-13.0	8.7	-690.4	83.5	-5.6	19.1
23RD	264.50	9.4	-22.8	2147	2147	4.4	-13.4	-1.6	-662.5	75.7	-5.6	18.3
24TH	276.00	8.4	-23.9	2147	2147	3.9	-13.8	-11.0	-633.7	68.3	-5.5	17.5
25TH	287.50	8.4	-24.0	2147	2147	3.5	-14.1	-19.4	-604.2	61.1	-5.4	16.6
26TH	299.00	7.4	-31.1	2147	2147	3.0	-14.5	-26.8	-573.9	54.4	-5.1	15.7
27TH	310.50	6.5	-31.1	2147	2147	1.8	-14.8	-33.3	-542.8	47.9	-4.8	14.7
28TH	322.00	5.9	-31.1	523	523	1.6	-15.7	-37.2	-511.0	41.9	-4.4	13.5
29TH	333.50	5.8	-26.6	1591	1624	1.6	-16.4	-38.0	-502.8	40.5	-4.2	13.2
COPG	336.30	2.5	-36.6	2002	2147	1.9	-16.8	-40.5	-476.1	36.2	-3.9	12.6
30TH	345.00	1.7	-36.6	1887	2147	2.2	-17.1	-42.3	-440.1	30.9	-3.4	11.7
31ST	356.50	3.3	-19.9	442	523	4.4	-17.3	-42.6	-403.3	26.1	-2.9	10.8
HODU	368.00	1.1	-22.8	1363	1624	1.8	-17.3	-42.4	-394.3	23.0	-2.8	10.5
32ND	370.80	1.1	-33.7	1802	2147	1.4	-17.4	-41.3	-366.2	21.7	-2.5	9.8
33RD	379.50	2.5	-33.7	1802	2147	2.0	-17.5	-38.8	-328.8	17.7	-2.0	8.9
34TH	391.00	6.6	-33.7	1802	2147	5.3	-17.5	-35.1	-291.3	14.1	-1.6	8.0
35TH	402.50	6.6	-33.7	1802	2147	5.3	-17.4	-30.7	-253.7	11.0	-1.2	7.1
36TH	414.00	8.8	-33.7	1802	2147	8.8	-17.4	-25.9	-216.2	8.3	-0.9	6.2
37TH	425.50	5.5	-33.7	1802	2147	2.2	-17.3	-20.7	-178.9	6.0	-0.6	5.2
38TH	437.00	5.5	-33.7	1802	2147	2.2	-17.2	-15.3	-141.7	4.2	-0.4	4.2
39TH	448.50	8.8	-33.7	1802	2147	4.4	-17.2	-9.4	-104.7	2.7	-0.3	3.2
40TH	460.00	2.2	-15.5	439	523	1.1	-10.1	-3.3	-67.8	1.7	-0.2	2.2
COPG	474.30	1.7	-19.9	2272	2707	0.8	-3.0	-2.4	-62.5	1.6	-0.2	2.0
MEZZ	488.80	2.2	-3.3	423	504	5.3	-7.0	-4.1	-53.0	1.7	-0.1	1.5
COPG	491.50	1.2	-30.9	2272	2707	5.3	-11.4	-4.3	-49.5	1.6	-0.1	1.4
ROOF	506.00	1.3	-19.9	439	523	6.6	-18.3	-5.5	-18.6	1.1	-0.0	0.6
COPG	508.80	5.2	-9.0	1457	767	3.6	-11.7	-5.2	-9.0	1.1	-0.0	0.5

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 270

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	25.6	-3.9	3979	1499	6.4	-2.6	369.3	-990.3	277.8	32.2	11.0
ME22	17.30	28.3	-2.5	3956	1605	7.2	-1.5	343.7	-986.4	260.7	26.0	12.1
2ND	34.56	19.3	-22.5	2645	2147	7.3	-10.5	315.4	-983.9	243.8	20.3	13.1
3RD	46.00	19.4	-24.3	2492	2147	7.8	-11.3	296.1	-961.4	232.6	16.8	13.9
4TH	57.56	19.3	-23.6	2492	2147	7.8	-11.0	276.8	-937.1	221.7	13.5	14.7
5TH	69.00	19.3	-22.9	2492	2147	7.8	-10.7	257.4	-913.5	211.1	10.4	15.5
6TH	80.56	19.3	-22.1	2492	2147	7.7	-10.3	238.1	-890.6	200.7	7.6	16.2
7TH	92.00	19.3	-21.4	2492	2147	7.7	-10.0	218.8	-868.5	190.6	5.0	16.9
8TH	103.56	19.2	-20.7	2492	2147	7.7	-9.6	199.6	-847.1	180.7	2.6	17.6
9TH	115.00	19.2	-19.9	2492	2147	7.7	-9.3	180.3	-826.4	171.1	.4	18.2
10TH	126.56	19.2	-19.2	2492	2147	7.7	-8.9	161.1	-806.5	161.7	-1.6	18.7
11TH	138.00	19.3	-18.5	2492	2147	7.7	-8.6	141.9	-787.3	152.5	-3.3	19.2
12TH	149.56	19.3	-17.7	2492	2147	7.8	-8.2	122.6	-768.8	143.6	-4.9	19.6
13TH	161.00	19.3	-17.0	2492	2147	7.8	-7.9	103.3	-751.1	134.8	-6.1	19.9
14TH	172.56	18.5	-16.2	2492	2147	7.4	-7.6	83.9	-734.1	126.3	-7.2	20.1
15TH	184.00	4.2	-4.9	607	523	7.0	-9.3	65.4	-717.9	118.0	-8.1	20.2
COPG	186.80	12.6	-17.5	1852	1624	6.5	-10.8	61.2	-713.1	116.0	-8.3	20.2
16TH	195.50	14.7	-23.6	2347	2147	6.3	-11.0	49.2	-695.6	109.8	-8.7	20.2
17TH	207.00	13.7	-24.0	2232	2147	6.1	-11.2	34.5	-671.9	102.0	-9.2	20.0
18TH	218.56	3.1	-5.8	526	523	5.8	-11.2	20.8	-648.0	94.4	-9.5	19.7
MODU	221.30	8.9	-18.1	1624	1624	5.5	-11.1	17.8	-642.1	92.6	-9.6	19.6
19TH	230.00	10.9	-23.8	2147	2147	5.1	-11.1	8.8	-624.0	87.1	-9.7	19.3
20TH	241.56	9.9	-23.6	2147	2147	4.6	-11.0	-2.1	-600.3	80.0	-9.7	18.8
21ST	253.00	9.0	-23.3	2147	2147	4.2	-10.8	-12.0	-576.7	73.2	-9.7	18.2
22ND	264.56	8.1	-23.5	2147	2147	3.8	-10.9	-21.0	-553.4	66.8	-9.5	17.5
23RD	276.00	7.3	-23.9	2147	2147	3.4	-11.1	-29.1	-529.9	60.5	-9.2	16.7
24TH	287.56	6.4	-24.4	2147	2147	3.0	-11.4	-36.4	-506.0	54.6	-8.8	15.9
25TH	299.00	5.5	-24.8	2147	2147	2.6	-11.6	-42.8	-481.7	48.9	-8.4	15.0
26TH	310.56	4.7	-25.3	2147	2147	2.2	-11.8	-48.3	-456.8	43.5	-7.8	14.0
27TH	322.00	3.1	-25.7	2147	2147	1.5	-12.0	-53.0	-431.6	38.4	-7.3	13.0
28TH	333.56	.6	-6.5	523	523	1.2	-12.4	-56.1	-405.9	33.6	-6.6	11.9
COPG	336.30	1.7	-20.6	1591	1624	1.1	-12.7	-56.8	-399.4	32.4	-6.5	11.6
29TH	345.00	.9	-28.0	2002	2147	.4	-13.1	-58.5	-378.8	29.1	-6.0	11.1
30TH	356.56	.5	-28.9	1887	2147	.3	-13.4	-59.3	-359.7	24.9	-5.7	10.3
31ST	368.00	.4	-7.1	442	523	.8	-13.6	-58.8	-321.9	21.0	-4.6	9.5
MODU	370.80	-1.7	-22.1	1363	1624	-1.2	-13.6	-58.5	-314.8	20.1	-4.4	9.3
32ND	379.50	-3.0	-29.3	1802	2147	-1.6	-13.6	-56.8	-292.6	17.5	-3.9	8.6
33RD	391.00	-3.8	-29.3	1802	2147	-2.1	-13.6	-53.8	-263.4	14.3	-3.3	7.8
34TH	402.50	-4.6	-29.3	1802	2147	-2.5	-13.7	-50.0	-234.1	11.4	-2.7	6.9
35TH	414.00	-5.2	-29.6	1802	2147	-2.9	-13.8	-45.4	-204.8	8.9	-2.2	6.1
36TH	425.50	-5.8	-29.9	1802	2147	-3.2	-13.9	-40.2	-175.2	6.7	-1.7	5.3
37TH	437.00	-6.4	-30.2	1802	2147	-3.5	-14.0	-34.5	-145.4	4.8	-1.2	4.4
38TH	448.50	-7.0	-30.4	1802	2147	-3.9	-14.2	-28.1	-115.2	3.3	-.9	3.5
39TH	460.00	-7.6	-30.7	1802	2147	-4.2	-14.3	-21.1	-84.8	2.2	-.6	2.7
40TH	471.50	-1.4	-4.4	439	523	-3.2	-8.4	-13.5	-54.1	1.4	-.4	1.8
COPG	474.30	-2.2	-7.6	2272	2707	-1.0	-2.8	-12.1	-49.7	1.3	-.4	1.7
ME22	486.80	-.4	-2.7	423	504	-1.1	-5.3	-10.0	-42.1	.6	-.2	1.2
COPG	491.50	-2.3	-23.6	2272	2707	-1.0	-8.7	-9.5	-39.4	.5	-.2	1.2
ROOF	506.00	-.9	-7.7	439	523	-2.1	-14.8	-7.2	-15.8	.1	-.1	.6
COPG	508.80	-6.3	-8.1	1457	767	-4.3	-10.6	-6.3	-8.1	.0	-.0	.4

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 280

ONE SOUTH WACKER, CHICAGO
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	13.7	-2.2	3979	1499	3.4	-1.5	103.6	-536.0	133.8	1.3	4.2
MEZZ	17.30	14.6	-2.3	3956	1605	3.7	-1.4	90.0	-533.8	126.3	-1.4	4.7
2ND	34.50	19.8	-1.7	2645	2147	3.7	-8.2	75.4	-531.4	117.4	-1.8	4.9
3RD	48.50	19.3	-1.9	2492	2147	3.8	-8.8	65.6	-513.9	111.3	-2.6	3.2
4TH	63.50	19.3	-1.8	2492	2147	3.7	-8.6	56.1	-495.0	103.5	-3.3	3.6
5TH	78.50	19.0	-1.7	2492	2147	3.9	-8.4	46.8	-476.3	100.0	-3.9	3.9
6TH	93.50	17.7	-1.8	2492	2147	3.3	-8.2	37.8	-458.4	94.6	-4.4	6.2
7TH	108.50	16.2	-1.7	2492	2147	3.3	-7.9	29.1	-440.9	89.4	-4.8	6.5
8TH	123.50	15.5	-1.7	2492	2147	3.3	-7.7	20.6	-423.9	84.4	-5.1	6.8
9TH	138.50	14.9	-1.5	2492	2147	2.8	-7.3	12.4	-407.4	79.7	-5.3	7.1
10TH	153.50	14.8	-1.4	2492	2147	2.3	-6.9	5.3	-391.6	75.1	-5.4	7.3
11TH	168.50	14.6	-1.4	2492	2147	1.8	-6.5	-1.9	-375.6	70.6	-5.4	7.5
12TH	183.50	14.4	-1.3	2492	2147	1.4	-6.1	-5.1	-360.2	66.4	-5.4	7.7
13TH	198.50	14.2	-1.2	2492	2147	.9	-5.7	-8.4	-344.8	62.3	-5.3	7.8
14TH	213.50	14.0	-1.1	2492	2147	.4	-5.3	-10.6	-330.7	58.3	-5.3	7.9
15TH	228.50	13.8	-1.0	607	523	.3	-5.0	-11.5	-322.6	54.5	-5.1	7.9
COPG	243.50	13.7	-1.0	1652	1624	.3	-4.8	-11.7	-323.3	53.6	-5.0	8.0
16TH	258.50	13.5	-1.0	2347	2147	.1	-4.6	-12.3	-315.7	50.8	-4.9	8.0
17TH	273.50	13.3	-1.0	2232	2147	.0	-4.3	-12.6	-309.4	47.3	-4.8	8.0
18TH	288.50	13.1	-1.0	523	523	.2	-4.1	-12.6	-293.4	43.8	-4.6	7.9
MODU	303.50	12.9	-1.0	1624	1624	.3	-3.9	-12.5	-290.6	43.0	-4.6	7.9
19TH	318.50	12.7	-1.1	2147	2147	.3	-3.7	-12.1	-281.7	40.5	-4.5	7.8
20TH	333.50	12.5	-1.1	2147	2147	.4	-3.5	-11.4	-269.9	37.4	-4.4	7.6
21ST	348.50	12.3	-1.1	2147	2147	.4	-3.3	-10.5	-258.1	34.3	-4.2	7.4
22ND	363.50	12.1	-1.1	2147	2147	.0	-3.1	-9.5	-246.3	31.4	-4.1	7.1
23RD	378.50	11.8	-1.0	2147	2147	.4	-2.9	-8.6	-234.4	28.7	-4.0	6.9
24TH	393.50	11.7	-1.0	2147	2147	.8	-2.7	-7.7	-224.2	26.0	-3.9	6.6
25TH	408.50	11.5	-1.0	2147	2147	.2	-2.5	-6.8	-214.1	23.5	-3.8	6.3
26TH	423.50	11.3	-1.0	2147	2147	.6	-2.3	-5.9	-204.3	21.1	-3.6	6.1
27TH	438.50	11.1	-1.0	2147	2147	1.6	-2.1	-5.0	-195.3	18.8	-3.4	5.8
28TH	453.50	10.9	-1.0	523	523	1.7	-1.9	-4.2	-187.2	16.6	-3.2	5.5
COPG	468.50	10.7	-1.0	1591	1624	1.3	-1.7	-4.2	-185.0	16.1	-3.1	5.4
29TH	483.50	10.5	-1.0	2002	2147	.9	-1.6	-4.8	-177.9	14.5	-2.9	5.3
30TH	498.50	10.3	-1.0	1887	2147	.4	-1.4	-4.8	-167.3	12.5	-2.6	5.0
31ST	513.50	10.1	-1.0	442	523	.1	-1.3	-5.6	-156.0	10.6	-2.3	4.7
MODU	528.50	9.9	-1.0	1363	1624	.1	-1.1	-5.7	-153.0	10.2	-2.2	4.6
32ND	543.50	9.7	-1.0	1802	2147	.4	-1.0	-6.1	-143.7	8.9	-2.0	4.4
33RD	558.50	9.5	-1.0	1802	2147	.7	-0.9	-6.1	-130.9	7.3	-1.7	4.0
34TH	573.50	9.3	-1.0	1802	2147	.7	-0.8	-6.3	-117.8	5.9	-1.4	3.6
35TH	588.50	9.1	-1.0	1802	2147	.3	-0.6	-6.8	-104.2	4.6	-1.1	3.2
36TH	603.50	8.9	-1.0	1802	2147	.6	-0.5	-6.8	-90.0	3.5	-.8	2.8
37TH	618.50	8.7	-1.0	1802	2147	.9	-0.4	-7.1	-75.4	2.6	-.6	2.4
38TH	633.50	8.5	-1.0	1802	2147	.2	-0.3	-7.3	-60.2	1.8	-.4	2.0
39TH	648.50	8.3	-1.0	1802	2147	.5	-0.2	-7.5	-44.6	1.2	-.3	1.5
40TH	663.50	8.1	-1.0	439	523	.4	-0.2	-6.9	-28.4	.8	-.2	1.1
COPG	678.50	7.9	-1.0	2272	2707	1.0	-0.1	-6.0	-26.1	.7	-.1	.8
MEZZ	693.50	7.7	-1.0	423	564	.7	-0.1	-6.0	-22.3	.3	-.1	.8
COPG	708.50	7.5	-1.0	2272	2707	.3	-0.1	-6.0	-21.2	.3	-.1	.7
ROFF	723.50	7.3	-1.0	439	523	.8	-0.1	-6.0	-19.4	.1	-.0	.4
COPG	738.50	7.1	-1.0	1457	767	1.7	-0.1	-6.8	-15.2	.0	-.0	.3

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 290

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	-1	9	3979	1499	-0	6	-167.5	-476.2	129.2	-46.3	3.8
MEZZ	17.30	2.4	1.9	3956	1605	6	1.2	-167.3	-477.2	121.0	-43.4	3.8
2ND	34.50	1.7	-14.9	2645	2147	6	-6.9	-169.7	-479.1	112.8	-40.5	3.6
3RD	46.00	1.6	-15.9	2492	2147	6	-7.4	-171.4	-464.2	107.3	-38.3	3.7
4TH	57.50	1.3	-15.2	2492	2147	5	-7.1	-173.0	-448.3	102.1	-36.3	3.9
5TH	69.00	1.1	-14.5	2492	2147	4	-6.7	-174.3	-433.1	97.0	-34.3	6.0
6TH	80.50	8	-13.8	2492	2147	3	-6.4	-175.4	-418.6	92.1	-32.5	6.1
7TH	92.00	6	-13.0	2492	2147	2	-6.1	-176.2	-404.9	87.4	-30.3	6.1
8TH	103.50	3	-12.3	2492	2147	1	-5.7	-176.8	-391.8	82.8	-28.3	6.1
9TH	115.00	-1	-11.7	2492	2147	-6	-5.4	-177.1	-379.5	78.4	-26.4	6.1
10TH	126.50	-3	-11.1	2492	2147	-4	-5.2	-175.5	-367.8	74.1	-24.4	6.0
11TH	138.00	-5	-10.4	2492	2147	-2	-4.9	-172.0	-356.8	69.9	-22.4	3.9
12TH	149.50	-7	-9.8	2492	2147	-3	-4.6	-166.5	-346.3	65.9	-20.5	3.7
13TH	161.00	-9	-9.2	2492	2147	-3	-4.3	-159.1	-336.3	61.9	-18.6	3.4
14TH	172.50	-10	-8.6	2492	2147	-4	-4.0	-149.7	-327.3	58.1	-16.8	3.0
15TH	184.00	-10	-8.0	607	523	-4	-4.2	-138.9	-318.7	54.4	-15.2	4.6
COPG	186.80	-7	-7.1	1852	1624	-4	-4.4	-136.3	-316.5	53.5	-14.8	4.6
16TH	195.50	-9	-6.8	2347	2147	-4	-4.6	-128.8	-309.4	50.8	-13.6	4.4
17TH	207.00	-9	-6.3	2232	2147	-4	-4.8	-119.3	-299.6	47.3	-12.2	4.2
18TH	218.50	-2	-5.5	526	523	-4	-4.8	-110.0	-289.2	43.9	-10.9	4.0
MODU	221.30	-7	-5.0	1624	1624	-4	-4.8	-107.7	-286.7	43.1	-10.6	4.0
19TH	230.00	-9	-4.7	2147	2147	-4	-4.6	-100.4	-279.0	40.6	-9.7	3.8
20TH	241.50	-9	-4.4	2147	2147	-4	-4.5	-90.7	-269.0	37.5	-8.6	3.5
21ST	253.00	-9	-4.1	2147	2147	-4	-4.3	-80.9	-259.3	34.5	-7.6	3.3
22ND	264.50	-8	-3.9	2147	2147	-3	-4.4	-71.3	-250.0	31.5	-6.7	3.0
23RD	276.00	-7	-3.7	2147	2147	-3	-4.4	-62.8	-240.6	28.7	-5.9	2.7
24TH	287.50	-6	-3.5	2147	2147	-2	-4.5	-55.5	-230.9	26.0	-5.2	2.5
25TH	299.00	-5	-3.4	2147	2147	-2	-4.7	-49.4	-221.0	23.4	-4.6	2.3
26TH	310.50	-4	-3.2	2147	2147	-1	-4.8	-44.4	-210.8	20.9	-4.1	2.1
27TH	322.00	-3	-3.0	2147	2147	-1	-5.0	-40.6	-200.4	18.3	-3.6	1.9
28TH	333.50	-2	-2.8	523	523	-1	-5.0	-37.4	-189.7	16.3	-3.2	1.7
COPG	336.30	-2	-2.5	1591	1624	-1	-5.1	-36.6	-187.1	15.8	-3.1	1.7
29TH	345.00	-3	-2.3	2002	2147	-1	-5.4	-34.1	-178.9	14.2	-2.8	1.6
30TH	356.50	-3	-2.1	1887	2147	-1	-5.8	-30.6	-167.2	12.2	-2.4	1.4
31ST	368.00	-1	-1.9	442	523	-1	-6.0	-27.5	-154.7	10.3	-2.1	1.3
MODU	370.80	-2	-1.8	1363	1624	-1	-6.1	-26.9	-151.5	9.9	-2.0	1.3
32ND	379.50	-2	-1.7	1802	2147	-1	-6.1	-25.0	-141.7	8.6	-1.7	1.3
33RD	391.00	-2	-1.6	1802	2147	-1	-6.2	-22.6	-128.6	7.1	-1.5	1.2
34TH	402.50	-2	-1.5	1802	2147	-1	-6.2	-20.5	-115.3	5.7	-1.2	1.2
35TH	414.00	-1	-1.4	1802	2147	-1	-6.5	-18.5	-102.0	4.4	-1.0	1.3
36TH	425.50	-1	-1.3	1802	2147	-1	-6.8	-16.6	-88.0	3.3	-.8	1.2
37TH	437.00	-1	-1.2	1802	2147	-1	-7.0	-14.8	-73.5	2.4	-.6	1.2
38TH	448.50	-1	-1.1	1802	2147	-1	-7.3	-13.1	-58.5	1.7	-.5	1.1
39TH	460.00	-1	-1.0	1802	2147	-1	-7.6	-11.6	-42.8	1.1	-.3	1.1
40TH	471.50	-1	-0.9	439	523	-1	-7.7	-10.2	-26.6	.7	-.2	1.0
COPG	474.30	-1	-0.8	2272	2707	-2	-7.9	-9.6	-24.1	.6	-.2	.9
MEZZ	488.80	-1	-0.7	423	504	-1	-8.0	-8.4	-19.1	.3	-.1	.6
COPG	491.50	-1	-0.6	2272	2707	-2	-8.1	-7.7	-17.8	.2	-.1	.6
ROOF	506.00	-1	-0.5	439	523	-1	-8.2	-7.0	-8.4	.0	-.0	.4
COPG	508.80	-1	-0.4	1457	767	-1	-8.3	-6.4	-4.9	.0	-.0	.3

TABLE 7. SHEAR AND MOMENT DIAGRAMS
WIND DIRECTION 300

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT 1000-FT-KIPS
GRND	0.00	-2.5	4.5	3979	1499	-1.6	3.0	-280.7	-530.8	176.3	-68.0	10.6
ME22Z	17.30	-2.2	-2.2	3956	1605	-1.6	3.9	-274.2	-535.3	167.3	-63.2	10.2
2ND	34.50	-1.6	-1.1	2643	2147	-2.2	-4.3	-272.0	-541.5	158.0	-58.5	9.9
3RD	46.99	-1.6	-1.1	2492	2147	-2.2	-4.3	-271.3	-532.4	151.9	-55.4	9.8
4TH	57.56	-1.1	-1.1	2492	2147	-1.4	-4.2	-270.8	-522.8	145.8	-52.3	9.8
5TH	69.00	-1.6	-1.1	2492	2147	-1.6	-4.2	-269.7	-513.7	139.8	-49.2	9.8
6TH	80.50	-2.0	-1.1	2492	2147	-1.8	-3.7	-268.2	-505.1	134.0	-46.1	9.7
7TH	92.00	-2.5	-1.1	2492	2147	-1.0	-3.5	-266.6	-497.1	128.2	-43.0	9.6
8TH	103.50	-1.6	-1.1	2492	2147	-1.2	-3.2	-265.1	-489.7	122.5	-39.9	9.5
9TH	115.00	-3.1	-1.1	2492	2147	-2.0	-3.0	-263.6	-482.7	116.9	-36.9	9.3
10TH	126.50	-2.3	-1.1	2492	2147	-2.9	-2.8	-262.1	-476.3	111.4	-34.0	9.1
11TH	138.00	-3.4	-1.1	2492	2147	-3.8	-2.5	-260.6	-470.4	106.0	-31.1	8.9
12TH	149.50	-4.9	-1.1	2492	2147	-4.6	-2.3	-259.1	-464.9	100.6	-28.3	8.8
13TH	161.00	-3.7	-1.1	2492	2147	-3.5	-2.1	-257.6	-460.0	95.3	-25.6	8.1
14TH	172.50	-3.3	-1.1	2492	2147	-6.1	-1.8	-256.1	-455.6	90.0	-23.1	7.6
15TH	184.00	-3.6	-1.4	607	523	-5.9	-3.8	-198.2	-451.7	84.8	-20.7	7.1
COPG	186.80	-3.7	-1.4	1852	1624	-5.6	-3.5	-194.6	-450.2	83.6	-20.1	7.0
16TH	195.50	-3.3	-1.3	2347	2147	-5.7	-3.9	-184.2	-444.5	79.7	-18.5	6.8
17TH	207.00	-3.2	-1.1	2232	2147	-5.9	-4.2	-170.9	-436.1	74.6	-16.5	6.6
18TH	218.50	-2.3	-1.3	526	523	-6.3	-4.4	-157.7	-427.0	69.6	-14.6	6.4
MODU	221.30	-10.4	-7.0	1624	1624	-6.4	-4.4	-154.4	-424.8	68.4	-14.1	6.4
19TH	230.00	-14.0	-9.2	2147	2147	-6.5	-4.4	-144.0	-417.7	64.8	-12.8	6.2
20TH	241.50	-14.2	-9.1	2147	2147	-6.6	-4.4	-130.0	-408.6	60.0	-11.3	6.0
21ST	253.00	-14.1	-8.8	2147	2147	-6.6	-4.1	-113.8	-399.7	55.4	-9.8	5.8
22ND	264.50	-12.7	-9.4	2147	2147	-5.9	-4.4	-101.7	-390.7	50.8	-8.6	5.7
23RD	276.00	-11.3	-10.2	2147	2147	-5.3	-4.8	-89.0	-381.3	46.4	-7.5	5.5
24TH	287.50	-10.0	-11.0	2147	2147	-4.6	-5.1	-77.7	-371.1	42.1	-6.5	5.3
25TH	299.00	-8.6	-11.9	2147	2147	-4.0	-5.3	-67.7	-360.1	37.9	-5.7	5.1
26TH	310.50	-7.3	-12.7	2147	2147	-3.4	-5.9	-59.1	-348.2	33.8	-5.0	4.9
27TH	322.00	-6.2	-13.5	2147	2147	-2.9	-6.3	-51.8	-335.5	29.9	-4.3	4.6
28TH	333.50	-4.4	-14.4	523	523	-2.6	-8.4	-45.6	-321.9	26.1	-3.8	4.3
COPG	336.30	-3.8	-16.3	1591	1624	-2.4	-10.0	-44.2	-317.6	25.2	-3.6	4.3
29TH	345.00	-5.1	-17.7	2002	2147	-2.6	-10.6	-40.4	-301.3	22.5	-3.3	4.2
30TH	356.50	-4.4	-23.6	1887	2147	-2.3	-11.0	-35.3	-278.5	19.2	-2.8	3.9
31ST	368.00	-3.9	-23.3	442	523	-2.0	-11.2	-30.9	-254.9	16.1	-2.5	3.7
MODU	370.80	-2.4	-18.1	1363	1624	-1.7	-11.2	-30.0	-249.0	15.4	-2.4	3.7
32ND	379.50	-2.6	-23.9	1802	2147	-1.4	-11.1	-27.7	-230.9	13.3	-2.1	3.5
33RD	391.00	-1.9	-23.8	1802	2147	-1.1	-11.1	-25.1	-207.7	10.8	-1.8	3.3
34TH	402.50	-1.6	-23.6	1802	2147	-1.1	-11.0	-23.2	-183.2	8.5	-1.5	3.1
35TH	414.00	-1.7	-24.1	1802	2147	-1.1	-11.2	-21.6	-159.5	6.6	-1.3	2.9
36TH	425.50	-1.7	-24.5	1802	2147	-1.0	-11.4	-19.9	-135.4	4.9	-1.1	2.7
37TH	437.00	-1.8	-25.0	1802	2147	-1.0	-11.6	-18.2	-110.9	3.5	-0.8	2.4
38TH	448.50	-1.9	-25.4	1802	2147	-1.0	-11.9	-16.4	-85.9	2.3	-0.6	2.1
39TH	460.00	-1.9	-25.9	1802	2147	-1.1	-12.1	-14.5	-60.5	1.5	-0.5	1.8
40TH	471.50	-1.6	-23.5	439	523	-1.4	-6.7	-12.6	-34.6	.9	-0.3	1.5
COPG	474.30	-4.0	-1.4	2272	2707	-2.0	-1.5	-11.9	-31.0	.8	-0.3	1.4
ME22Z	488.80	-1.4	-1.4	423	564	-1.6	-2.9	-7.3	-27.0	.4	-0.1	.9
COPG	491.50	-2.5	-13.0	2272	2707	-1.1	-4.8	-6.6	-25.6	.4	-0.1	.8
ROOF	506.60	-1.7	-4.7	439	523	-1.6	-9.1	-4.1	-12.6	.1	-0.0	.5
COPG	508.90	-3.4	-7.9	1457	767	-2.3	-10.3	-3.4	-7.9	.0	-0.0	.4

TABLE 7. SHEAR AND MOMENT DIAGRAMS : ONE SOUTH WACKER, CHICAGO
WIND DIRECTION 310 CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	-9.1	8.3	3979	1499	-2.3	5.6	-384.3	-297.1	117.7	-94.9	9.9
MEZZ	17.30	-5.1	10.0	3956	1605	-1.3	6.3	-375.2	-305.4	112.4	-88.3	9.4
2ND	34.50	-3.0	-4.0	2643	2147	-1.1	-1.9	-370.1	-313.5	107.1	-81.9	8.9
3RD	46.00	-3.1	-4.0	2492	2147	-1.2	-1.9	-367.1	-311.4	103.5	-77.7	8.7
4TH	57.50	-3.7	-3.1	2492	2147	-1.3	-1.5	-364.0	-307.4	99.9	-73.3	8.5
5TH	69.00	-4.2	-2.3	2492	2147	-1.7	-1.1	-360.3	-304.3	96.4	-69.3	8.3
6TH	80.50	-4.8	-1.4	2492	2147	-1.9	-0.6	-356.1	-302.0	92.9	-65.2	8.0
7TH	92.00	-5.4	-0.5	2492	2147	-2.1	-0.2	-351.3	-300.6	89.5	-61.1	7.7
8TH	103.50	-5.9	-0.3	2492	2147	-2.4	0.3	-346.0	-300.1	86.0	-57.1	7.4
9TH	115.00	-8.1	0.7	2492	2147	-3.2	0.2	-340.1	-300.5	82.6	-53.2	7.0
10TH	126.50	-10.3	0.9	2492	2147	-4.1	0.4	-332.0	-301.2	79.1	-49.3	6.6
11TH	138.00	-12.6	1.0	2492	2147	-5.1	0.5	-321.6	-302.1	75.6	-45.3	6.1
12TH	149.50	-14.8	1.1	2492	2147	-6.0	0.5	-309.1	-303.1	72.2	-41.9	5.7
13TH	161.00	-17.1	1.3	2492	2147	-6.9	0.6	-294.2	-304.2	68.7	-38.4	5.3
14TH	172.50	-18.8	1.4	2492	2147	-7.5	0.7	-277.1	-303.5	63.2	-35.2	4.9
15TH	184.00	-4.3	-1.1	607	523	-7.1	-0.2	-258.3	-306.9	61.6	-32.1	4.6
COPG	186.80	-11.9	-1.5	1852	1624	-6.4	-0.9	-254.0	-306.8	60.8	-31.4	4.5
16TH	195.50	-14.6	-2.6	2347	2147	-6.2	-1.2	-242.1	-305.3	58.1	-29.2	4.3
17TH	207.00	-14.1	-3.2	2232	2147	-6.3	-1.5	-227.5	-302.7	54.6	-26.5	4.0
18TH	218.50	-3.5	-0.9	526	523	-6.7	-1.6	-213.4	-299.4	51.2	-24.0	3.8
MODU	222.30	-11.1	-2.8	1624	1624	-6.8	-1.7	-209.9	-298.6	50.3	-23.4	3.7
19TH	230.00	-14.6	-4.1	2147	2147	-6.8	-1.9	-198.8	-295.7	47.7	-21.6	3.5
20TH	241.50	-14.6	-4.4	2147	2147	-6.8	-2.1	-184.2	-291.7	44.4	-19.4	3.3
21ST	253.00	-14.5	-4.6	2147	2147	-6.7	-2.2	-169.6	-287.2	41.0	-17.4	3.1
22ND	264.50	-13.5	-5.3	2147	2147	-6.3	-2.5	-155.1	-282.6	37.7	-15.5	2.9
23RD	276.00	-12.5	-6.2	2147	2147	-5.8	-2.9	-141.6	-277.3	34.5	-13.8	2.7
24TH	287.50	-11.6	-7.1	2147	2147	-5.4	-3.3	-129.1	-271.1	31.4	-12.2	2.6
25TH	299.00	-10.6	-8.0	2147	2147	-4.9	-3.7	-117.5	-264.1	28.3	-10.8	2.5
26TH	310.50	-9.6	-8.9	2147	2147	-4.5	-4.1	-107.0	-256.1	25.3	-9.3	2.4
27TH	322.00	-8.5	-9.8	2147	2147	-4.0	-4.5	-97.3	-247.2	22.4	-8.3	2.3
28TH	333.50	-1.8	-3.2	523	523	-3.5	-6.1	-88.8	-237.5	19.6	-7.3	2.3
COPG	336.30	-4.8	-12.1	1591	1624	-3.0	-7.5	-87.0	-234.3	19.0	-7.0	2.3
29TH	345.00	-6.4	-16.4	2002	2147	-3.2	-7.6	-82.2	-222.1	17.0	-6.3	2.3
30TH	356.50	-6.5	-16.4	1887	2147	-3.4	-7.6	-75.8	-205.8	14.5	-5.4	2.2
31ST	368.00	-1.6	-4.0	442	523	-3.6	-7.7	-69.3	-189.4	12.2	-4.5	2.2
MODU	370.80	-4.8	-12.5	1363	1624	-3.5	-7.7	-67.8	-185.4	11.7	-4.4	2.2
32ND	379.50	-6.2	-16.7	1802	2147	-3.4	-7.8	-62.9	-172.8	10.2	-3.8	2.1
33RD	391.00	-6.0	-16.9	1802	2147	-3.3	-7.9	-56.7	-156.2	8.3	-3.1	2.1
34TH	402.50	-6.0	-17.0	1802	2147	-3.3	-7.9	-50.7	-139.3	6.6	-2.5	2.0
35TH	414.00	-6.1	-17.7	1802	2147	-3.4	-8.2	-44.8	-122.3	5.1	-1.9	2.0
36TH	425.50	-6.2	-18.3	1802	2147	-3.4	-8.5	-38.7	-104.6	3.8	-1.4	1.9
37TH	437.00	-6.3	-19.0	1802	2147	-3.5	-8.9	-32.5	-86.2	2.7	-1.0	1.8
38TH	448.50	-6.4	-19.7	1802	2147	-3.6	-9.2	-26.2	-67.2	1.8	-0.7	1.7
39TH	460.00	-6.5	-20.3	1802	2147	-3.6	-9.5	-19.8	-47.6	1.1	-0.4	1.6
40TH	471.50	-6.5	-20.9	439	523	-3.4	-10.3	-13.3	-27.2	0.7	-0.2	1.5
COPG	474.30	-6.1	-4.3	2272	2707	-2.7	-1.6	-11.8	-24.4	0.6	-0.2	1.4
MEZZ	486.80	-1.8	-1.2	423	504	-1.8	-2.5	-5.7	-20.0	0.3	-0.1	1.3
COPG	491.50	-2.4	-10.1	2272	2707	-1.1	-3.7	-4.9	-18.8	0.2	-0.1	1.2
ROOF	504.80	-3.4	-3.5	439	523	-1.9	-6.6	-2.5	-8.7	0.0	-0.0	1.1
COPG	509.80	-2.1	-3.5	1457	767	-1.4	-6.9	-2.1	-5.3	0.0	-0.0	1.0

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 320

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	-8.1	8.5	3979	1499	-2.0	5.7	-583.8	-161.4	71.3	-176.7	1.0
MEZZ	17.39	-4.8	10.4	3577	1605	-1.2	6.5	-575.7	-169.9	68.4	-166.7	.6
2ND	34.50	-1.7	11.7	2643	2147	-1.9	-1.8	-570.9	-180.3	65.4	-156.8	.3
3RD	46.00	-2.2	11.8	2492	2147	-1.9	-1.8	-568.6	-178.7	63.4	-150.2	.1
4TH	57.50	-3.0	11.7	2492	2147	-1.9	-1.6	-566.2	-176.8	61.3	-143.7	.0
5TH	69.00	-3.6	11.7	2492	2147	-1.9	-1.3	-563.3	-175.6	59.3	-137.2	.1
6TH	80.50	-4.3	11.1	2492	2147	-1.7	-1.0	-559.2	-174.9	57.3	-130.8	.3
7TH	92.00	-4.9	11.4	2492	2147	-2.0	-2.2	-553.3	-174.8	55.3	-124.4	.0
8TH	103.50	-5.5	11.1	2492	2147	-2.2	-2.2	-550.4	-173.3	53.3	-118.0	.7
9TH	115.00	-7.7	11.4	2492	2147	-3.1	-2.6	-544.9	-176.4	51.2	-111.7	.0
10TH	126.50	-10.1	11.5	2492	2147	-4.1	-2.7	-537.0	-177.7	49.2	-105.3	.1
11TH	138.00	-12.6	11.7	2492	2147	-5.0	-2.8	-526.6	-179.2	47.1	-99.4	.3
12TH	149.50	-14.4	11.8	2492	2147	-6.0	-2.8	-514.3	-180.9	45.1	-93.4	.2
13TH	161.00	-17.7	22.0	2492	2147	-6.9	1.9	-499.3	-182.7	43.0	-87.6	.8
14TH	172.50	-19.1	22.1	2492	2147	-7.7	1.0	-482.0	-184.7	40.9	-81.9	.4
15TH	184.00	-20.4	22.1	607	523	-7.2	-1.1	-462.8	-186.8	38.7	-76.5	.1
COFG	186.80	-20.4	22.1	1852	1624	-6.6	-1.5	-458.4	-186.9	38.2	-75.2	.2
16TH	195.50	-19.3	22.1	2047	2147	-6.4	-1.9	-446.1	-186.0	36.6	-71.3	.4
17TH	207.00	-14.4	22.1	2332	2147	-6.5	-1.9	-431.2	-184.5	34.5	-66.2	.3
18TH	221.8	-3.7	22.1	326	523	-7.0	-1.0	-416.6	-182.6	32.3	-61.3	.4
MODU	222.1	-11.6	22.1	1624	1624	-7.1	-1.1	-412.9	-182.1	31.8	-60.2	.3
19TH	233.0	-15.4	22.2	2147	2147	-7.2	-1.2	-401.4	-180.4	30.3	-56.6	.4
20TH	241.50	-15.5	22.2	2147	2147	-7.2	-1.4	-386.6	-177.8	28.2	-52.1	.4
21ST	253.00	-19.3	22.2	2147	2147	-7.3	-1.5	-370.0	-174.8	26.2	-47.8	.3
22ND	264.50	-16.0	22.2	2147	2147	-7.4	-1.7	-354.0	-171.7	24.2	-43.6	.2
23RD	276.00	-16.2	22.2	2147	2147	-7.3	-2.0	-338.8	-168.1	22.2	-39.6	.4
24TH	287.50	-16.4	22.3	2147	2147	-7.6	-2.3	-322.7	-163.6	20.3	-35.9	.4
25TH	299.00	-16.6	22.3	2147	2147	-7.7	-2.6	-306.3	-158.9	18.3	-32.2	.1
26TH	310.50	-16.8	22.3	2147	2147	-7.8	-2.9	-289.8	-153.3	16.7	-28.7	.0
27TH	322.00	-16.9	22.3	2147	2147	-7.8	-3.2	-273.0	-147.0	14.9	-25.5	.9
28TH	333.50	-16.9	22.3	523	523	-7.7	-3.2	-256.3	-140.1	13.3	-22.5	.9
COFG	336.30	-11.6	22.3	1591	1624	-7.2	-4.2	-252.4	-138.1	12.9	-21.8	.8
29TH	343.00	-15.5	22.3	2002	2147	-8.8	-4.3	-240.9	-131.2	11.7	-19.6	.7
30TH	356.50	-16.4	22.2	1887	2147	-8.8	-4.4	-225.2	-122.0	10.3	-16.9	.5
31ST	368.00	-4.1	22.2	442	523	-9.3	-4.4	-208.8	-112.9	8.9	-14.4	.2
MODU	370.80	-13.0	22.2	1363	1624	-9.3	-4.1	-204.7	-110.7	8.6	-13.9	.2
32ND	379.50	-17.5	22.2	1802	2147	-9.7	-3.8	-191.7	-104.1	7.7	-12.1	.0
33RD	391.00	-18.0	22.2	1802	2147	-10.0	-3.5	-174.4	-95.9	6.5	-10.0	.7
34TH	402.50	-18.8	22.2	1802	2147	-10.1	-3.3	-156.6	-88.3	5.3	-8.1	.5
35TH	414.00	-18.8	22.3	1802	2147	-10.0	-3.4	-138.8	-81.3	4.3	-6.4	.2
36TH	425.50	-18.7	22.3	1802	2147	-9.9	-3.5	-120.0	-74.0	3.6	-4.9	.9
37TH	437.00	-18.7	22.3	1802	2147	-9.9	-3.7	-102.2	-66.4	2.8	-3.7	.6
38TH	448.50	-18.7	22.3	1802	2147	-9.8	-3.8	-84.3	-58.6	2.1	-2.6	.4
39TH	460.00	-18.7	22.3	1802	2147	-9.7	-3.9	-66.6	-50.5	1.4	-1.7	.1
40TH	471.50	-18.7	22.3	439	523	-9.0	-4.6	-49.1	-42.1	.9	-1.1	.9
COFG	474.30	-14.4	22.3	2272	2707	-6.6	-5.3	-45.1	-39.7	.8	-1.1	.8
MEZZ	486.80	-15.2	22.3	2233	504	-6.8	-5.4	-28.8	-25.4	.3	-1.4	.3
COFG	499.80	-14.4	22.2	2272	2707	-6.6	-5.6	-25.5	-22.6	.3	-1.3	.2
ROOF	511.50	-15.2	22.2	439	523	-6.6	-5.7	-10.0	-7.4	.0	-1.0	.2
COFG	523.90	-8.4	22.2	1457	767	-6.8	-5.7	-8.4	-4.4	.0	-1.0	.1

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 330 CONFIGURATION A

ONE SOUTH WACKER, CHICAGO
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	-8.6	8.8	3979	1499	-2.2	5.8	-613.2	-170.7	88.7	-196.1	-7.9
MEZZ	17.30	-3.4	10.8	3936	1605	-1.4	6.7	-604.6	-179.3	83.7	-183.3	-7.9
2ND	34.50	-3.3	5	2643	2147	-1.3	3	-399.2	-170.2	82.3	-173.2	-8.1
3RD	46.00	-3.4	6	2492	2147	-1.4	3	-393.7	-190.8	80.3	-168.3	-8.2
4TH	57.50	-3.9	1.2	2492	2147	-1.6	5	-392.2	-191.4	78.1	-161.3	-8.2
5TH	69.00	-4.4	1.8	2492	2147	-1.7	8	-388.3	-192.3	75.9	-154.7	-8.3
6TH	80.50	-4.8	2.4	2492	2147	-1.9	1.1	-384.0	-194.3	73.7	-148.0	-8.4
7TH	92.00	-5.3	3.0	2492	2147	-2.1	1.4	-379.2	-196.7	71.3	-141.3	-8.6
8TH	103.50	-5.7	3.6	2492	2147	-2.3	1.7	-373.9	-199.7	69.2	-134.6	-8.8
9TH	115.00	-7.2	4.0	2492	2147	-2.9	1.9	-368.2	-203.3	66.9	-128.1	-9.0
10TH	126.50	-8.6	4.4	2492	2147	-3.5	2.0	-361.0	-207.4	64.3	-121.6	-9.3
11TH	138.00	-10.1	4.8	2492	2147	-4.1	2.2	-352.4	-211.8	62.1	-115.2	-9.6
12TH	149.50	-11.6	5.1	2492	2147	-4.6	2.4	-342.3	-216.3	59.6	-108.9	-10.0
13TH	161.00	-13.0	5.5	2492	2147	-5.2	2.5	-330.7	-221.6	57.1	-102.7	-10.3
14TH	172.50	-14.0	5.8	2492	2147	-5.6	2.7	-317.6	-227.1	54.3	-96.7	-10.7
15TH	184.00	-3.3	8	607	523	-3.4	1.3	-503.6	-232.9	51.9	-90.8	-11.1
COPG	186.80	-9.9	8	1832	1624	-3.4	5	-500.3	-233.7	51.2	-89.4	-11.2
16TH	193.30	-12.4	3	2347	2147	-5.3	1	-490.4	-234.3	49.2	-85.1	-11.2
17TH	207.00	-12.3	1	2232	2147	-5.3	1	-478.0	-234.8	46.3	-79.3	-11.1
18TH	218.50	-3.2	2	326	523	-6.0	2	-463.7	-234.4	43.8	-74.1	-10.9
MODU	221.30	-10.1	8	1624	1624	-6.2	5	-462.6	-234.2	43.1	-72.8	-10.9
19TH	230.00	-13.8	1	2147	2147	-6.4	1	-452.3	-233.4	41.1	-68.8	-10.7
20TH	241.50	-14.2	2	2147	2147	-6.6	1	-438.7	-231.8	38.4	-63.7	-10.5
21ST	253.00	-14.8	2	2147	2147	-6.9	1	-424.3	-229.3	35.8	-58.7	-10.2
22ND	264.50	-15.3	3	2147	2147	-7.1	1	-409.7	-226.8	33.2	-53.9	-9.8
23RD	276.00	-15.8	3	2147	2147	-7.3	1	-394.4	-223.3	30.6	-49.3	-9.5
24TH	287.50	-16.2	3	2147	2147	-7.6	1	-378.6	-218.8	28.0	-44.9	-9.2
25TH	299.00	-16.7	3	2147	2147	-7.8	1	-362.3	-213.3	25.3	-40.6	-8.9
26TH	310.50	-17.2	3	2147	2147	-8.0	1	-345.6	-206.8	23.1	-36.3	-8.7
27TH	322.00	-17.7	3	2147	2147	-8.3	1	-328.4	-199.2	20.8	-32.0	-8.4
28TH	333.50	-4.3	3	523	523	-8.2	1	-310.7	-190.7	18.3	-29.0	-8.2
COPG	336.30	-13.2	3	1591	1624	-8.3	1	-306.4	-188.2	18.0	-28.1	-8.1
29TH	345.00	-17.1	3	2002	2147	-8.6	1	-293.2	-179.2	16.4	-25.3	-7.7
30TH	356.50	-17.7	3	1887	2147	-9.4	1	-276.1	-167.4	14.4	-22.2	-7.2
31ST	368.00	-4.5	3	442	523	-10.1	1	-258.4	-153.9	12.6	-19.2	-6.6
MOGU	370.80	-14.2	3	1363	1624	-10.4	1	-253.9	-153.2	12.1	-18.3	-6.3
32ND	373.50	-19.3	3	1802	2147	-10.7	1	-239.7	-144.8	10.8	-16.3	-6.0
33RD	391.00	-19.9	3	1802	2147	-11.0	1	-220.3	-134.2	9.2	-13.7	-5.4
34TH	402.50	-20.3	3	1802	2147	-11.3	1	-200.6	-123.9	7.7	-11.2	-4.8
35TH	414.00	-20.6	3	1802	2147	-11.4	1	-180.3	-114.2	6.4	-9.1	-4.1
36TH	425.50	-20.9	3	1802	2147	-11.6	1	-159.7	-104.3	5.1	-7.1	-3.5
37TH	437.00	-21.1	3	1802	2147	-11.7	1	-138.9	-94.2	4.0	-5.4	-3.0
38TH	448.50	-21.4	3	1802	2147	-11.9	1	-117.7	-84.0	3.0	-3.9	-2.4
39TH	460.00	-21.7	3	1802	2147	-12.1	1	-96.3	-73.3	2.1	-2.7	-1.9
40TH	471.50	-21.9	3	439	523	-11.7	1	-74.6	-62.9	1.3	-1.7	-1.3
COPG	474.30	-24.3	3	2272	2707	-10.8	1	-69.4	-59.2	1.1	-1.3	-1.2
MEZZ	488.80	-4.3	3	423	504	-10.2	1	-44.9	-34.3	0.4	-0.7	-0.4
COPG	491.50	-22.8	3	2272	2707	-10.0	1	-40.6	-30.1	0.3	-0.5	-0.2
ROOF	506.00	-3.8	3	439	523	-8.7	1	-17.8	-8.4	0.0	-0.1	-0.3
COPG	508.80	-14.6	3	1457	767	-9.6	1	-14.0	-5.3	0.0	-0.1	-0.2

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 340

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A
REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	-15.2	7.0	3979	1499	-3.8	4.7	-659.8	-162.3	84.7	-202.4	-15.7
MEZZ	17.30	-10.1	9.1	3956	1605	-2.6	5.7	-644.6	-169.3	81.8	-191.1	-13.6
2ND	34.50	-6.6	1.8	2645	2147	-2.5	8.8	-634.5	-178.4	78.8	-180.1	-13.5
3RD	46.00	-6.0	1.7	2492	2147	-2.4	8.8	-628.0	-180.2	76.8	-172.8	-13.5
4TH	57.50	-6.1	2.3	2492	2147	-2.5	1.1	-622.0	-181.8	74.7	-165.6	-15.5
5TH	69.00	-6.3	3.0	2492	2147	-2.5	1.4	-615.9	-184.2	72.6	-158.5	-15.5
6TH	80.50	-6.4	3.7	2492	2147	-2.6	1.7	-609.6	-187.2	70.5	-151.5	-15.6
7TH	92.00	-6.6	4.3	2492	2147	-2.6	2.0	-603.2	-190.8	68.3	-144.5	-15.7
8TH	103.50	-6.7	5.0	2492	2147	-2.7	2.3	-596.7	-195.1	66.1	-137.6	-15.9
9TH	115.00	-7.9	5.3	2492	2147	-3.2	2.5	-590.0	-200.1	63.8	-130.8	-16.0
10TH	126.50	-9.2	5.5	2492	2147	-3.7	2.5	-582.2	-205.4	61.5	-124.0	-16.2
11TH	138.00	-10.4	5.6	2492	2147	-4.2	2.6	-572.9	-210.9	59.1	-117.4	-16.4
12TH	149.50	-11.7	5.8	2492	2147	-4.7	2.7	-562.4	-216.5	56.6	-110.9	-16.6
13TH	161.00	-12.9	5.9	2492	2147	-5.2	2.8	-550.7	-222.3	54.1	-104.5	-16.8
14TH	172.50	-14.0	6.1	2492	2147	-5.6	2.8	-537.8	-228.2	51.5	-98.2	-16.9
15TH	184.00	-3.4	7.7	607	523	-5.6	1.4	-523.8	-234.3	48.8	-92.1	-17.1
COPG	186.80	-10.8	3.3	1852	1624	-5.8	2.2	-520.4	-235.0	48.2	-90.6	-17.0
16TH	195.50	-13.8	1.8	2347	2147	-5.9	1.4	-509.7	-235.2	46.1	-86.2	-17.0
17TH	207.00	-13.7	-2.0	2232	2147	-6.1	1.9	-495.6	-234.4	43.4	-80.4	-16.7
18TH	218.50	-3.5	-1.6	526	523	-6.6	1.2	-482.0	-232.4	40.7	-74.8	-16.4
MODU	221.30	-11.2	-2.3	1624	1624	-6.9	-1.4	-478.5	-231.1	40.1	-73.4	-16.3
19TH	233.00	-15.4	-3.8	2147	2147	-7.2	-1.8	-467.3	-229.9	38.1	-69.3	-15.9
20TH	241.50	-16.0	-4.7	2147	2147	-7.5	-2.2	-452.2	-225.9	35.5	-64.0	-15.5
21ST	253.00	-16.7	-5.2	2147	2147	-7.8	-2.4	-436.0	-220.7	32.9	-58.9	-14.9
22ND	264.50	-16.8	-5.6	2147	2147	-7.8	-2.6	-419.3	-215.7	30.4	-54.0	-14.3
23RD	277.00	-16.9	-6.2	2147	2147	-7.9	-2.9	-402.5	-210.0	27.9	-49.3	-13.8
24TH	287.50	-17.0	-6.7	2147	2147	-7.9	-3.1	-385.7	-203.9	25.6	-44.7	-13.2
25TH	299.00	-17.0	-7.2	2147	2147	-7.9	-3.4	-368.7	-197.2	23.3	-40.4	-12.6
26TH	310.50	-17.1	-7.7	2147	2147	-8.0	-3.6	-351.7	-190.0	21.0	-36.3	-12.0
27TH	322.00	-17.8	-8.3	2147	2147	-8.3	-3.9	-334.5	-182.2	18.9	-32.3	-11.4
28TH	333.50	-4.4	-2.4	523	523	-8.5	1.5	-316.7	-174.0	16.8	-28.6	-10.9
COPG	336.30	-14.2	-8.3	1591	1624	-8.9	1.1	-312.3	-171.6	16.4	-27.7	-10.7
29TH	345.00	-18.4	-10.8	2002	2147	-9.2	-5.0	-298.1	-163.3	14.9	-25.0	-10.2
30TH	356.50	-18.8	-10.5	1867	2147	-10.0	-4.9	-279.7	-152.4	13.1	-21.7	-9.5
31ST	368.00	-4.7	-2.5	442	523	-10.7	-4.8	-260.8	-141.9	11.4	-18.6	-8.7
MOBU	370.80	-15.0	-7.6	1363	1624	-11.0	-4.7	-256.1	-139.4	11.0	-17.9	-8.5
32ND	377.50	-30.5	-9.8	1802	2147	-11.4	-4.6	-241.1	-131.8	9.8	-15.7	-7.9
33RD	391.00	-21.1	-9.4	1802	2147	-11.8	-4.4	-220.6	-122.0	8.4	-13.1	-7.1
34TH	402.50	-21.1	-9.9	1802	2147	-12.0	-4.2	-199.4	-112.6	7.0	-10.6	-6.3
35TH	414.00	-21.1	-9.9	1802	2147	-12.1	-4.3	-177.8	-103.6	5.8	-8.5	-5.5
36TH	425.50	-22.2	-9.5	1802	2147	-12.2	-4.3	-155.9	-94.4	4.6	-6.6	-4.7
37TH	437.00	-22.2	-9.5	1802	2147	-12.3	-4.4	-134.0	-85.1	3.6	-4.9	-3.9
38TH	449.50	-22.2	-9.6	1802	2147	-12.4	-4.4	-111.1	-75.7	2.7	-3.5	-3.1
39TH	466.00	-22.2	-9.5	1802	2147	-12.5	-4.5	-89.5	-66.6	1.9	-2.3	-2.4
40TH	477.50	-5.2	-3.2	439	523	-11.9	-6.6	-67.0	-58.3	1.2	-1.4	-1.7
COPG	474.30	-21.1	-1.1	2272	2707	-10.5	-7.8	-61.7	-53.1	1.0	-1.2	-1.5
MEZZ	488.80	-4.1	-3.9	423	504	-9.7	-7.8	-37.8	-32.0	.4	-.5	-.4
COPG	491.50	-21.1	-2.2	2272	2707	-9.4	-7.5	-33.7	-28.1	.3	-.1	-.2
ROOF	506.00	-2.9	-3.0	439	523	-6.6	-5.7	-12.2	-7.8	.0	-.1	.2
COPG	506.80	-9.3	-4.9	1457	767	-6.4	-6.4	-9.3	-4.9	.0	-.1	.2

TABLE 7. SHEAR AND MOMENT DIAGRAMS :
WIND DIRECTION 350

ONE SOUTH WACKER, CHICAGO
CONFIGURATION A REFERENCE PRESSURE 26.0 PSF

GUST FACTOR 1.32

FLOOR	HEIGHT FT	X-FORCE KIPS	Y-FORCE KIPS	X-AREA SQ FT	Y-AREA SQ FT	X-PRESS PSF	Y-PRESS PSF	X-SHEAR KIPS	Y-SHEAR KIPS	X-MOMENT 1000-FT-KIPS	Y-MOMENT 1000-FT-KIPS	Z-MOMENT
GRND	0.00	-16.9	6.6	3979	1499	-4.2	4.4	-672.7	7.7	24.2	-209.6	-16.3
MEZZ	17.30	-11.4	8.7	3936	1603	-2.9	5.4	-633.8	1.1	24.3	-198.1	-16.2
2ND	34.30	-7.2	2.4	2643	2147	-2.7	1.1	-644.3	-7.6	24.2	-186.9	-16.0
3RD	46.00	-6.4	2.4	2492	2147	-2.6	1.1	-637.2	-10.0	24.1	-179.6	-16.0
4TH	57.30	-6.2	3.0	2492	2147	-2.5	1.4	-630.9	-12.4	24.0	-172.3	-15.9
5TH	69.00	-6.1	3.5	2492	2147	-2.5	1.6	-624.6	-15.4	23.8	-165.1	-15.9
6TH	80.30	-6.0	4.1	2492	2147	-2.4	1.9	-618.3	-18.9	23.6	-157.9	-15.9
7TH	92.00	-5.9	4.6	2492	2147	-2.4	2.1	-612.3	-23.0	23.4	-150.8	-15.9
8TH	103.30	-5.8	5.1	2492	2147	-2.3	2.4	-606.6	-27.6	23.1	-143.8	-15.9
9TH	115.00	-5.7	5.5	2492	2147	-2.3	2.6	-600.8	-32.7	22.7	-136.9	-16.0
10TH	126.30	-5.6	5.8	2492	2147	-2.2	2.9	-593.7	-38.2	22.3	-130.0	-16.1
11TH	138.00	-5.5	6.1	2492	2147	-2.2	3.0	-587.4	-44.1	21.9	-123.2	-16.2
12TH	149.30	-5.4	6.4	2492	2147	-2.1	3.2	-581.3	-50.2	21.3	-116.3	-16.4
13TH	161.00	-5.3	6.7	2492	2147	-2.1	3.3	-575.4	-56.6	20.7	-110.0	-16.6
14TH	172.30	-5.2	7.0	2492	2147	-2.0	3.3	-569.3	-63.3	20.0	-103.6	-16.8
15TH	184.00	-5.1	7.9	607	523	-3.4	1.8	-533.9	-70.4	19.2	-97.3	-17.0
COPG	186.80	-5.0	1.0	1852	1624	-3.7	6.6	-533.7	-71.3	19.0	-95.8	-17.0
16TH	195.30	-4.9	9.9	2347	2147	-3.7	4.3	-523.2	-72.3	18.4	-91.2	-17.0
17TH	207.00	-4.8	7.7	2232	2147	-3.8	3.4	-511.9	-73.2	17.6	-85.2	-16.8
18TH	218.30	-4.7	1.1	526	523	-6.2	3.3	-498.9	-73.9	16.7	-79.4	-16.3
MODU	221.30	-4.6	4.4	1624	1624	-6.3	2.2	-493.7	-74.0	16.3	-78.0	-16.4
19TH	230.00	-4.5	4.4	2147	2147	-6.7	2.2	-483.2	-74.4	15.9	-73.7	-16.1
20TH	241.30	-4.4	2.2	2147	2147	-6.9	1.1	-470.9	-74.7	15.0	-68.2	-13.8
21ST	253.00	-4.3	2.2	2147	2147	-7.3	1.1	-455.9	-74.9	14.2	-62.9	-15.4
22ND	264.30	-4.2	1.1	2147	2147	-7.4	0.0	-440.3	-75.1	13.3	-57.8	-14.9
23RD	275.00	-4.1	1.1	2147	2147	-7.6	1.1	-424.3	-75.2	12.4	-52.8	-14.4
24TH	286.30	-4.0	1.3	2147	2147	-7.7	2.3	-408.1	-75.1	11.6	-48.0	-13.9
25TH	299.00	-3.9	1.6	2147	2147	-7.9	3.4	-391.5	-74.7	10.7	-43.4	-13.4
26TH	310.30	-3.8	1.8	2147	2147	-8.0	4.4	-374.6	-74.2	9.9	-39.0	-12.9
27TH	322.00	-3.7	1.0	2147	2147	-8.4	5.5	-357.4	-73.4	9.0	-34.8	-12.4
28TH	333.30	-3.6	6.6	523	523	-8.7	1.1	-339.3	-72.4	8.2	-30.8	-11.9
COPG	336.30	-3.5	6.6	1591	1624	-9.4	1.6	-334.8	-71.9	8.0	-29.8	-11.7
29TH	345.00	-3.4	2.2	2002	2147	-9.5	1.6	-319.8	-69.3	7.4	-27.0	-11.3
30TH	356.30	-3.3	3.4	1887	2147	-10.1	5.5	-300.7	-65.9	6.6	-23.4	-10.6
31ST	368.00	-3.2	8.8	442	523	-10.9	1.4	-281.6	-62.7	5.8	-20.1	-9.7
MODU	370.80	-3.1	3.3	1363	1624	-11.3	4.4	-276.8	-62.0	5.7	-19.3	-9.5
32ND	382.30	-3.0	0.0	1802	2147	-11.8	1.4	-261.4	-59.6	5.1	-17.0	-8.9
33RD	391.00	-2.9	0.0	1802	2147	-12.4	1.4	-240.2	-56.6	4.5	-14.1	-8.0
34TH	402.30	-2.8	7.7	1802	2147	-12.8	1.3	-217.9	-53.6	3.8	-11.4	-7.1
35TH	414.00	-2.7	9.9	1802	2147	-13.2	3.3	-194.8	-50.9	3.2	-9.1	-6.3
36TH	425.30	-2.6	6.6	1802	2147	-13.6	1.4	-171.0	-48.1	2.7	-7.0	-5.4
37TH	437.00	-2.5	4.4	1802	2147	-13.9	1.5	-146.5	-45.1	2.1	-5.1	-4.5
38TH	448.30	-2.4	3.3	1802	2147	-14.3	1.6	-121.3	-41.9	1.6	-3.6	-3.7
39TH	459.00	-2.3	3.3	1802	2147	-14.6	1.6	-95.7	-38.3	1.1	-2.3	-2.9
40TH	471.30	-2.2	4.3	439	523	-13.6	5.5	-69.3	-35.0	1.2	-1.4	-2.1
COPG	474.30	-2.1	8.8	2272	2707	-11.2	4.7	-63.4	-33.4	1.0	-1.2	-1.9
MEZZ	488.80	-2.0	4.4	423	504	-10.3	8.8	-38.0	-20.3	0.3	-0.3	-0.8
COPG	491.30	-1.9	9.9	2272	2707	-10.5	4.8	-33.6	-18.1	0.2	-0.4	-0.6
ROOF	506.80	-1.8	2.2	439	523	-5.8	4.1	-9.8	-5.3	0.0	-1.1	-0.2
COPG	508.80	-1.7	1.1	1437	767	-5.0	4.1	-7.2	-3.1	0.0	-0.0	0.3

TABLE 7. ONE SOUTH WACKER, CHICAGO
 PROJECT = 7270 CONFIGURATION A
 SCALE = 400 REF. PRESSURE = 26.0
 GUST FACTOR = 1.32 STANDARD FLOOR HEIGHT = 11.50
 NUMBER OF SIDES = 4 NO. OF FLOORS = 50

SIDE	ANGLE	Z-AXIS
1	0.0	0.000
2	90.0	0.000
3	180.0	0.000
4	270.0	0.000

FLOOR #	LABEL	HEIGHT-FT
1	GRND	11.50
2	MEZZ	11.50
3	GRND	11.50
4	GRND	11.50
5	3RD	11.50
6	4TH	11.50
7	5TH	11.50
8	6TH	11.50
9	7TH	11.50
10	8TH	11.50
11	9TH	11.50
12	10TH	11.50
13	11TH	11.50
14	12TH	11.50
15	13TH	11.50
16	14TH	11.50
17	15TH	11.50
18	COFG	09.70
19	16TH	11.50
20	17TH	11.50
21	18TH	11.50
22	RODU	09.70
23	19TH	11.50
24	20TH	11.50
25	21ST	11.50
26	22ND	11.50
27	23RD	11.50
28	24TH	11.50
29	25TH	11.50
30	26TH	11.50
31	27TH	11.50
32	28TH	11.50
33	COFG	09.70
34	29TH	11.50
35	30TH	11.50
36	31ST	09.70
37	RODU	09.70
38	32ND	11.50
39	33RD	11.50
40	34TH	11.50
41	35TH	11.50
42	36TH	11.50
43	37TH	11.50
44	38TH	11.50
45	39TH	11.50
46	40TH	11.50
47	COFG	14.50
48	MEZZ	09.70
49	COFG	14.50
50	ROOF	12.00
51	COFG	11.50