SEAW RSM-03

SEAW's Handbook of a
Rapid-Solutions Methodology™
for Wind Design

by

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2004
The formal and elegant explanation of wind:

“If the air were always quiet, it would not be necessary for engineers to consider wind forces when designing structures. They would need to consider only the static pressure due to the weight of the air. However, the air is seldom quiet but flows, sometimes with great violence, under the influences of forces generated by heat from the sun, and the centrifugal forces resulting from the earth’s rotation.”—“Wind Forces on Structures”, American Society of Civil Engineer, TRANSACTIONS, Vol. 126, Part II, 1961

The more concise explanation of wind:

“The wind is like the air, only pushier.” – Taken from an anonymous 5th grade science exam answer

This SEAW Handbook and its companion document, SEAW’s Wind Commentary (SEAW/ATC-60 Report), was a long time coming. They emerge from a thirteen-year SEAW Wind Engineering Committee dream of helping the general practitioners – be they design engineers, governmental and scientific organizations, contractors, or even researcher – understand the mechanics of wind analysis and design as regulated by modern building codes and standards. Although the International Building Code and American Society of Civil Engineers Standard No. 7 are primarily used in the United States along with its territories and protectorates, as well as Canada and some parts of South America and the Middle East, the concepts and shortcut formats we present can be extended to other methods of designing for wind pressures.

The SEAW Wind Engineering Committee began the RSM short-cut rapid-solution provisions in late 1992 when the Wind Engineering Committees of the three Pacific coast Structural Engineers Associations of Washington, Oregon and California joined forces in order to work on wind-related issues including those in codes and standards. (See Chapter 1 of SEAW’s Wind Commentary for the history of the TS-SEA.)

The Structural Engineers Association of Washington (SEAW) Rapid Solutions Methodology™ for Wind Design (RSM) consists of simplifications to the ASCE 7 Analytical Method for common structures of all heights.

The authors of this book have between them decades of varied experience and a deep respect for each other and those other experts from whom we solicited advice and expertise. If one wants to learn any subject thoroughly, I can easily recommend that you try to write a textbook or even a learned-treatise on that subject.

The synergy that was unleashed by the individuals listed below was nothing short of marvelous. One individual, more than any deserves individual credit and that is Tony Tschanz, PhD, who in my estimation is an “Engineer Extraordinaire.” Tony’s efforts to egg us on to find ever shorter, simpler, cleverer and more “perfect” ways to describe or summarize points was crucial. Tony also has always felt that the science and technology of wind engineering must be made as clear as can be for those willing to study and understand it.

The following SEAW members contributed to and developed this report. In addition members of this committee have volunteered for years to help maintain and improve ASCE 7 and the IBC.

- Donald Scott (Chairman of the SEAW Wind Engineering Committee),
- Ahmad, Asili,
- Scott Beard,
- Edwin T. Huston,
- Edgar Lebert,
- John V. Loscheider,
- William H. Mooseker, and
- Tony Tschanz.

Also, we wish to acknowledge the essential efforts of A. Gerald Brady who edited our drafts for the report, and Peter N. Mork, Michelle Schwartzbach, all of the Applied Technology Council who provided report production services and Angela Seybold here in Seattle who provided local report production services as well. The affiliations of these individuals are provided in the list of project participants.

Finally, a special thanks is due to our spouses and friends who supported us over the last 3 ½ years in this effort. Admittedly, however, the support was also accompanied by somewhat skeptical questions of if we would ever really finish!

Jerry J. Barbera
Chairman, SEAW Handbook Committee
Seattle, Washington, June, 2004
Preface .................................................................................................................................................. iii

List of Figures ........................................................................................................................................ ix

List of Tables ........................................................................................................................................ xv

1. **METHOD**: Simplifications to ASCE 7 Analytical Method 2 for Common Structures ............... 1
   1.1 Introduction ............................................................................................................................... 1
   1.2 General Background ................................................................................................................. 1
   1.3 Comparison of Potential Methods ............................................................................................. 2
   1.4 Overview: Certain Aspects of the RSM for Calculating Wind Pressures .............................. 2
   1.5 Comparison of ASCE 7 and SEAW RSM General Equations ............................................... 6

2. **RULES**: Rapid-Solutions Methodology™ Rules for Calculating Wind Pressures .................... 7
   2.1 General ..................................................................................................................................... 7
   2.2 Definitions ............................................................................................................................... 7
   2.3 Symbols and Notations ........................................................................................................... 8
   2.4 Design Wind Pressures ........................................................................................................... 9
   2.5 Basic Wind Speed ................................................................................................................... 9
   2.6 Terrain Effects ...................................................................................................................... 9
   2.6.1 Exposure Determination .................................................................................................... 9
   2.6.2 Topographic Factor, Kt ..................................................................................................... 9
   2.7 Importance Factors .............................................................................................................. 9
   2.8 Building Enclosure Classification .......................................................................................... 10
   2.8.1 General ............................................................................................................................ 10
   2.8.2 Selection of Enclosure Classification ................................................................................ 10
   2.8.3 Cladding over Openings .................................................................................................. 10
   2.8.4 Wind Debris Regions ....................................................................................................... 10
   2.8.5 Multiple Classifications .................................................................................................. 10
   2.9 Lateral-Force-Resisting Systems .......................................................................................... 10
   2.9.1 General ............................................................................................................................ 10
   2.9.2 Determination of Pressures .............................................................................................. 10
       2.9.2.1 Velocity Pressure Factor, Kz, and Wind Speed-Up Effect Factor, Kt .................. 10
       2.9.2.2 RSM Pressure Coefficients, Crsm ................................................................. 10
       2.9.2.3 Application of Pressures .................................................................................... 11
   2.10 Components and Cladding .................................................................................................. 11
       2.10.1 General ........................................................................................................................ 11
       2.10.2 Determination of Pressures ......................................................................................... 11
           2.10.2.1 Velocity Pressure Factor, Kz, and Wind Speed-Up Effect Factor, Kt .......... 11
           2.10.2.2 RSM Pressure Coefficients, Crsm ............................................................... 11
           2.10.2.3 Application ................................................................................................. 12

3. **CHARTS**: Rapid-Solutions Methodology™ Charts and Figures .............................................. 13
   3.1 Introduction ............................................................................................................................. 13
   3.2 Guidelines for the Use of the Charts and Figures .................................................................. 14
   Charts and Tables ....................................................................................................................... 15
   Charts for Net LFRS (MWFRS) Pressure Coefficients ............................................................. 21
   Net Component & Cladding Pressure Coefficient Charts .......................................................... 29
Contents

1. Application Problem 1-LFRS: Wind Loading on a Steep Gable Rectangular Building ................................................. A1-1
   A1.1 Problem Description and Design Data ............................................................ A1-1
   A1.2 General Discussion ......................................................................................... A1-2
   A1.2.1 Wind Direction and Shear Resistance ...................................................... A1-3
   A1.2.2 Can the SEAW Rapid-Solutions Methodology™ be Used for this Building? A1-3
   A1.2.3 Parameters for Use with the RSM ............................................................ A1-3
   A1.3 Design Wind Pressures Using C_{rsm}'s from Figures 3-4EB and 3-4ED ........ A1-3
      A1.3.1 For the Transverse Direction ................................................................. A1-4
      A1.3.2 Transverse Wind Forces Resisted by East, West and Center Shear Walls A1-4
      A1.3.3 Design of Transverse (East and West) First Story Shear Walls .......... A1-10
      A1.3.4 Design of First-Story Central Transverse Shear Wall ......................... A1-11
      A1.3.5 In the Longitudinal Direction ............................................................... A1-12
      A1.3.6 Longitudinal North and South Shear Wall Stress and Resistance .......... A1-14
   A1.4 Comparison of the Results using the RSM and the IBC and ASCE 7 Methods A1-15
      A1.4.1 East & West Transverse-End-Wall Wind Force Summary .................... A1-16
      A1.4.2 Central Interior-Transverse-Wall Wind Force Summary ....................... A1-16
      A1.4.3 Longitudinal-Side-Wall Wind Force Summary ..................................... A1-17
      A1.4.4 Discussion of the Ease of Using the Wind Force Methods ..................... A1-17

2. Application Problem 2-LFRS: Wind Loading for a Two-Story Shallow Gable Roof Building ................................. B1-1
   B1.1 Problem Description and Data ................................................................. B1-1
   B1.2 Design Procedure ..................................................................................... B1-2
   B1.3 Design Wind Pressures per RSM Figures 3-4EB and 3-4ED ..................... B1-2
   B1.4 Wind Forces Resisted by the East and West End Walls: ............................ B1-3
   B1.5 Compare the Design Wind Pressures between this Application Problem and Commentary Example Problem No. 2 B1-5

3. Application Problem 3-LFRS: Wind Loading on a One Story Tilt-up Building ......................................................... C1-1
   C1.1 Problem Data and Description ................................................................. C1-1
   C1.2 Problem Discussion .............................................................................. C1-2
   C1.3 Wind Pressures using the Rapid-Solutions Methodology™ ...................... C1-2
      C1.3.1 Parameters for Use with the RSM ..................................................... C1-2

4. BACKGROUND: Derivation of the SEAW Rapid-Solutions Methodology™ Charts ................................................. 97
   4.1 Development of the RSM Charts for Net Pressure Coefficients, C_{rsm}........ 97
   4.2 The Main Wind-Force-Resisting System .................................................. 102
   4.3 Important Details Concerning the Windward C_{rsm} ..................................... 102
   4.4 Further Discussion of Roofs with Slope less than 10° .................................. 105
   4.5 The Component and Cladding Charts ...................................................... 109
   4.6 Producing Practical Charts ................................................................. 110

Appendices A-F Problem Solutions by SEAW’s Rapid-Solutions Methodology™ ................................. App-1
C1.3.2 Determine Horizontal Design Wind Forces/Overtur... C1-3
C1.3.3 Vertical Wind Forces at End Walls.............................................................. C1-5
C1.4 Comparison: RSM, IBC & ASCE-7 LFRS Wind Forces for Enclosed, Ballooning: ........ C1-6

C2 Application Problem 3-C&C: Component Wind Pressures on a One-Story Tilt-Up Building .... C2-1
C2.1 Problem Data and Design Parameters............................................................. C2-1
C2.2 SEAW’s Rapid-Solutions Methodology™ Procedure: ........................................ C2-2
C2.2.1 Can the RSM Simplified Procedure be Used for this Building?....................... C2-2
C2.2.2 Component and Cladding Wind Pressures:................................................... C2-2
C2.3 Wind Pressures for a Roof Joists “A” near the Center of the Building................ C2-2
C2.4 Wind Pressures for Roof Joists Bearing on the North & South Walls................. C2-3
C2.4.1 Case 1: Joists within Edge and Corner Zones (Joists “B” - See Figure C2-1)....... C2-4
C2.4.2 Case 2: Interior Roof Joists at End Zones (Joists “C” - See Figure C2-1)......... C2-4
C2.5 Wall Anchorage ............................................................................................. C2-6
C2.5.1 Wall Pressures ............................................................................................. C2-6

C3 Application Problem 3-LFRS/ C&C: Loading/Cladding on a Tilt-up Store with Wind Speed-Up.... C3-1
C3.1 Problem Data and Description ....................................................................... C3-1
C3.2 Problem Discussion ....................................................................................... C3-3
C3.2.1 Wind Pressures with Speed-Up Effects Using the
Rapid-Solutions Methodology™ ........................................................................... C3-3
C3.3 Determine Wind Speed-Up Effects Using the General Equation ......................... C3-4
C3.3.1 Determining the Three Coefficients of Equation 2-3 ...................................... C3-4
C3.4 Determine Wind Speed-Up on the Controlling Case of the Enclosed Building Wall
Pressures and Ballooning with Positive Internal Pressure: ........................................ C3-4
C3.5 Determine Wind Speed-Up Effects Considering Pressures on Specific Members and
Connections: ........................................................................................................... C3-5
C3.5.1 Wind Pressures for a Roof Joists “A” near the Center of the Building.............. C3-5
C3.6 Wall Anchorage ............................................................................................. C3-5
C3.6.1 Wall Pressures ............................................................................................. C3-5
C3.7 Other Details .................................................................................................. C3-6

D1 Application Problem 4-LFRS: Wind Loading on a Five-Story Building ...................... D1-1
D1.1 Problem Description and Design Data ............................................................. D1-1
D1.2 Rapid-Solutions Methodology™ Criteria ...................................................... D1-1
D1.2.1 Can the RSM for All Heights, be Used for this Building?............................... D1-1
D1.2.2 Parameters for Use with the RSM............................................................... D1-1
D1.3 Horizontal and Vertical Wind Pressures and Forces, Transverse Direction .......... D1-4
D1.3.1 Ballooning Case – Shear Forces and Overtur Moment – North/South .......... D1-4
D1.3.2 Deflating Case – Shear Forces and Overtur Moment – North/South .............. D1-4
D1.4 Horizontal and Vertical Wind Pressures and Forces, Longitudinal Direction .... D1-5
D1.4.1 Ballooning Case – Shear Forces and Overtur Moment– East/West ................. D1-5
D1.4.2 Deflating Case – Shear Forces and Overtur Moment– East/West ................. D1-5
D1.5 Discussion of Results by the RSM as Compared with the ASCE 7 Procedure .... D1-6

D2 Application Problem 4-C&C: Components Pressures on a Five-Story Building ............ D2-1
D2.1 Problem Description and Design Data ............................................................. D2-1
D2.2 Rapid-Solutions Methodology™ Criteria ...................................................... D2-2
D2.2.1 General Discussion: C&C Pressures at the Low Roof and Wall Studs Just Below and Just Above the Roof at the Parapet ...................................................... D2-2
D2.2.2 Component and Cladding Pressures ............................................................ D2-3
D2.3 Determining Wall and Roof Wind Component or Cladding Pressures in General... D2-3
D2.3.1 Calculating Roof Pressures ........................................................................ D2-3

E1 Application Problem 5-LFRS: Wind Loading on a One-Story Gable-Frame Building .....E1-1
E1.1 Project Description and Design Data ............................................................... E1-1
E1.2 Determine if Building is “Enclosed” or “Partially Enclosed” ................................................ E1-3
E1.3 SEAW’s Rapid-Solutions Methodology™ Procedure .......................................................... E1-4
  E1.3.1 Parameters Needed in Order to Determine Wind Pressures and Design Forces ........ E1-4
E1.4 Design Wind Pressures per Figures 3-5 PEB and 3-5 PED ................................................. E1-7
  E1.4.1 Wind Forces – Winds South to North (South Wall is Windward Wall) .......... E1-8

E2 Application Problem 5-C&C: Wind Pressures on a One-Story Gable-Frame Building with Openings .................................................................................................................. E2-1
  E2.1 Problem Description and Design Data ................................................................. E2-1
  E2.2 Component and Cladding Pressures for Walls and Roofs per the RSM ................. E2-3
    E2.2.1 Determine Areas of Discontinuity Width, “a”, of End Zone ......................... E2-3
    E2.2.2 Determine Values of C_{rsm} per RSM Figures .......................................... E2-3
  E2.3 Wind Design of Roof Beams Using the ASCE 7-02 Data ...................................... E2-4
    E2.3.1 Wind Forces Acting on Roof Purlins ......................................................... E2-4
    E2.3.2 Wind Design of Wall Girts and Wind Columns ........................................ E2-7

F1 Application Problem 6-LFRS: Wind Loading on a Seven-Story Office Building .......... F1-1
  F1.1 Problem Description and Design Data ................................................................. F1-1
  F1.2 RSM Procedure .................................................................................................... F1-2
    F1.2.1 Parameters for Use with the RSM ....................................................... F1-2
    F1.2.2 Horizontal Wind Pressures in the Longitudinal (N-S) Direction .......... F1-4
  F1.3 Calculation of Torsional Wind Effects by the ASCE 7-98 Criteria ...................... F1-5
    F1.3.1 Calculate the Torsional Equivalent Wind Case 2 Wind Loading: .......... F1-6
    F1.3.2 Torsional Case 4 Wind Loading ............................................................... F1-7
  F1.4 Calculate Torsional Wind Effects by the ASCE 7-02 Criteria .............................. F1-7
    F1.4.1 Torsional Case 2 Wind Loading for a Building ........................................ F1-7
    F1.4.2 Torsional Case 4 Wind Loading for the Building ...................................... F1-7
  F1.5 Canopy Analysis by SEAW’s RSM ................................................................. F1-8
    F1.5.1 Design Wind Pressures on the Canopy: ................................................. F1-8

F2 Application Problem 6-C&C: Components and Cladding Wind Pressures on a Seven-Story Office Building ................................................................. F2-1
  F2.1 Problem Description and Data ............................................................................. F2-1
  F2.2 Component and Cladding Pressures per RSM-03 .................................................. F2-3
  F2.3 Determine Width of End Zone Area of Discontinuity on the Walls ...................... F2-3
  F2.4 Values for C_{rsm} Come from RSM Figure 3-16EW on Pages 64 and 65 .......... F2-3
  F2.5 Top Floor Mullion Design by the RSM ............................................................... F2-4
    F2.5.1 Cantilever Moment in the Mullion Due to Wind Acting on the Parapet .. F2-4
    F2.5.2 Maximum Moment in the Studs Between the Roof and the 7th Floor .... F2-6
    F2.5.3 The Connection of the Top Story Mullions to the Roof Diaphragm ........ F2-7

Project Participants ........................................................................................................ G-1