

## LIST OF ACRONYMS AND ABBREVIATIONS

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AAPOR	American Association of Public Opinion Research
ABC	American Broadcasting Company
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ALE	Arbitrary-Lagrangian-Eulerian
AMCBO	Association of Major City/County Building Officials
ANSI	American National Standards Institute
ANSYS	finite element model
ARA	Applied Research Associates, Inc.
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ASME	American Society of Mechanical Engineers
ASTM	ASTM International
AWS	American Welding Society
BOCA	Building Officials and Code Administrators
BOCA/BBC	BOCA Basic Building Code
BPAT	Building Performance Assessment Team
BPS	Building Performance Study
BSI	British Standards Institution
C/F	cancer free
CATI	computer-assisted telephone interviews
CBR	chemical, biological, and radiological
CBS	Columbia Broadcasting System
CERF	Civil Engineering Research Foundation
CFD	computational fluid dynamics
CIB	International Council for Research and Innovation in Building and Construction
CII	Construction Industry Institute
CNN	Cable News Network

CPP	Cermak Peterka Peterson, Inc.
CPU	central processing unit
CRT	cathode-ray tube
CTB&UH	Council on Tall Buildings and Urban Habitat
CTE	coefficients of thermal expansion
DC/F	BlazeShield DC/F fire protective insulation
DL	dead load
DTAP	dissemination and technical assistance program
EMS	Emergency Medical Service
EMT	Emergency Medical Team
ER&S	Emory Roth & Sons
FBI	Federal Bureau of Investigation
FCA	Flux cored arc
FDNY	New York City Fire Department
FDS	Fire Dynamics Simulator
FE	finite element
FEA	finite element analysis
FEM	finite element model
FEMA	Federal Emergency Management Agency
FMRC	Factory Mutual Research Corp.
FSI	Fire-Structure Interface
FVM	Finite Volume Method
GFI	Government Furnished Information
GG	glass over glass
GHz	gigahertz
GMS, LLP	Gilsanz Murray Steficek, LLP
HAZ	heat affected zone
HNSE	Hugo Nue Schnutzer East
HRR	heat release rate
HVAC	heating, ventilating, and air conditioning
IAQ	indoor air quality
IBC	International Building Code

ICBO	International Conference of Building Officials
ICC	International Code Council
IMTI	Integrated Manufacturing Technology
JFK	John F. Kennedy International Airport
JIS	Japan Industrial Standard
LERA	Leslie E. Robertson Associates
LES	Large Eddy Simulation
LL	live load
LSTC	Livermore Software Technology Corporation
MBC	BOCA National Building Code
MCC	Municipal Code of Chicago
MPI	Message Passing Interface
NBC	National Broadcasting Company
NBFU	National Board of Fire Underwriters
NCSBCS	National Conference of States on Building Codes & Standards, Inc.
NCST	National Construction Safety Team
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIBS	National Institute of Building Sciences
NIST	National Institute of Standards and Technology
NYC	New York City
NYCBC	New York City Building Code
NYCDOB	New York City Department of Buildings
NYPD	New York City Police Department
NYSBC	New York State Building Construction Code
P.L.	Public Law
PANYNJ	Port Authority of New York and New Jersey
PAPD	Port Authority Police Department
PC&F	Pacific Car and Foundry
PDM	Pittsburg-Des Moines
PONYA	Port of New York Authority
R&D	research and development

RWDI	Rowan Williams Davis and Irwin, Inc.
SBCCI	Southern Standard Building Code
SDL	superimposed dead load
SDO	standards development organization
SEAO NY	Structural Engineers Association of New York
SFPE	Society of Fire Protection Engineering
SFRM	spray-on fire resistant material or sprayed fire resistive materials
SHCR	Skilling, Helle, Christiansen, & Robertson
SI	metric
SLB	short legs back-to-back
SMA	Shielded Metal Arc
SOD	Special Operations Division
SOM	Skidmore, Owings & Merrill
SPH	Smoothed Particle Hydrodynamics
SQL	Structured Query Language
SWMB	Skilling, Ward, Magnussen, and Barkshire
TL	Truss Lower Chord
TM	Truss Middle Chord
TU	Truss Upper Chord
UBC	Uniform Building Code
UL	Underwriters' Laboratories, Inc.
USC	United States Code
USM	United States Mineral Products Co.
VCBT	Virtual Cybernetic Building Testbed
WABC	WABC-TV New York
WCBS	WCBS-TV New York
WF	wide flange (a type of structural steel shape now usually called a W-shape). ASTM A 6 defines them as "doubly-symmetric, wide-flange shapes with inside flange surfaces that are substantially parallel."
WNBC	NBC4 New York
WNYW	FOX5 New York
WPIX	WPIX-TV New York
WTC	World Trade Center

WTC 1      World Trade Center Tower 1  
WTC 2      World Trade Center Tower 2  
WTC 7      World Trade Center Building 7

## Abbreviations

×	by
±	plus or minus
°C	degrees Celsius
°F	degrees Fahrenheit
μm	micrometer
2D	two dimensional
3D	three dimensional
cm	centimeter
ft	foot
ft <sup>2</sup>	square foot
$F_y$	yield strength (AISC usage)
g	acceleration (gravity)
g	gram
gal	gallon
h	hour
in.	inch
kg	kilogram
kip	a stress unit equal to 1,000 pounds
kJ	kilojoule
kN	kilonewton
kPa	kilopascal
klb	1,000 pounds
ksi	1,000 pounds per square inch
kW	kilowatt
kW/m <sup>2</sup>	kilowatts per square meter
L	liter
lb	pound
m	meter
m <sup>2</sup>	square meter
mm	millimeter
m/s	meters per second

min	minute
MJ	megajoule
MPa	megapascal
mph	miles per hour
ms	microsecond
Msi	millions pounds per square inch
MW	megawatt
N	newton
Pa	pascal
pcf	pounds per cubic foot
plf	pounds per linear foot
psf	pounds per square foot
psi	pounds per square inch
s	second