ANNEX: GLOSSARIES

TECHNICAL GLOSSARY

Axial Load - Force coincident with primary axis of a member.

Base Plate - Bottom plate of a wood stud wall. See also "Sill Plate" for wall directly on foundation.

Base Shear - Total shear force acting al the base of a structure. Also referred to as equivalent lateral force.

Bay - One repeated division of a building, such as the space enclosed between two adjacent columns, beams, or walls.

Bearing Wall - A wall designed as a part of the building's structure to transfer the weight of the floors and roof to the foundation; walls that help bear the weight of the building.

Blind Elevation - A building wall that has no openings (windows or doors) that is constructed along the property line against an adjacent building.

Blocking - Short pieces of wood (also called solid bridging) which are nailed between adjacent floor or roof joists to stiffen the joists by preventing torsional rotation between them, and to provide backing for nailing of the flooring (Figure 5). See also Cross Bridging

Braced Frame - Framing system that depends on diagonal braces for stiffness and is resistant to lateral forces such as earthquake or wind forces.

Brittle Failure - Failure in material which generally has a very limited plastic range; material subject to sudden failure without warning.

Building Configuration - The size, shape and proportions of a building.

Cantilever - A beam fixed at one end and free at the other.

Compression - Forces which compress, squeeze or tend to crush a structural member.

Cripple Wall - A short stud wall, not a full story in height, extending from the foundation sill plate to the first floor

Damping - A rate at which natural vibration decays as a result of absorption of energy.

Diaphragm - Generally a horizontal member composed or a web (such as a floor or roof slab) with adequate flanges, which distributes lateral forces to the vertical resisting elements.
Or with other words the floors and roof of a building that are designed to transfer lateral forces to shear walls, frames, or other resisting elements. The diaphragm acts as a horizontal beam, the floor or roof acts as the web of the beam, and the walls act as flanges.

Dowel - Pin in one part which fits into a hole in the other part.

Drift - In buildings, the horizontal displacement of basic building elements due to lateral earthquake forces.

Ductility - Ability to withstand inelastic strain without fracturing. or: - The ability of a material or combination of materials to withstand repeated bending and major deformation without fracture or failure.

Dynamic - Having to do with bodies in motion.

Elasticity - The ability of a material to return to its original form or condition after a displacing force is removed.

End bay - End division of a building.

Energy Absorption - Energy is absorbed as a structure distorts inelastically.

Gables:
Gable Roof - A peaked roof formed by two sets of rafters.
Gable End Walls - Triangular portions of a wall that extend upward under the roof eaves to the peak of the roof.
Gable Studs - Wall studs extending from a horizontal top plate to the underside of the sloping roof.
Girts - A horizontally spanning beam used in braced wood frame construction, similar in function to the double top plate. A girt braces vertical members against lateral forces, such as wind or earthquake forces, perpendicular to the wall surface where there is no abutting floor.

Hanger - A metal connection for supporting joists on the side of a beam or wall, or a larger member.

Header - A beam that spans over a door or window opening and carries the wall load across the opening.

Hoop - Band (e.g. of iron).

Through-stones - Stones that reach through the whole thickness of the wall.

Tie-Beam - A beam designed to resist tension forces.

Torsion - The twisting of a structural member about its longitudinal axis. Often applied to a tendency of a structure to rotate or twist when subjected to earthquake or wind forces, due to a lack of symmetry in the location of earthquake-resisting structural elements.

Trellis - Lath-work.

Truss - A structure composed of a combination of members usually in same triangular arrangement so as to constitute a rigid framework.

SEISMOLOGY GLOSSARY

Aftershock - An earthquake, usually a member of an aftershock series often within the span of several months following
the occurrence of a large earthquake (main shock). The magnitude of an aftershock is usually smaller than the main shock.

Amplification - An increase in earthquake motion as a result of resonance of the natural period of vibration with that of
the forcing vibration.

Amplitude - Maximum deviation from mean of centre line of a wave.

Aseismic Region - One that is relatively free of earthquakes.

Core - The central part of the earth below a depth of 2,900 kilometres. It is thought to be composed of iron and nickel and to be molten on the outside with a central solid inner core.

Creep (along a fault) - Very slow periodic or episodic movement along a fault trace unaccompanied by earthquakes.

Crust - The lithosphere, the outer 80 kilometres of the earth's surface made up of crustal rocks, sediment and basal General composition is silicon-aluminium-iron.

Epicentre - The point of the earth's surface directly above the focus or hypocenter of an earthquake.

Faulting - The movement which produces relative displacement of adjacent rock masses along a fracture.

Faults:
Fault - Planar or gently curved fracture in the earth's crust across which relative displacement has occurred.
Fault Zones - The zone surrounding a major fault, consisting of numerous interlacing small faults.
Normal Fault - A fault under tension where the overlying block moves down the dip or slope of the fault plane.
Oblique-Slip Fault - A combination of normal and slip or from its original position during an earthquake. thrust and slip faults whose movement is diagonal along the dip of the fault plane.
Strike-Slip Fault (or lateral slip) - A fault whose relative are caused by tensional crustal forces. displacement is purely horizontal.

Thrust (Reverse) Fault - A fault under compression where earthquake forces. the overlying block moves up the dip of the fault plane.

Focal Depth - Depth of the earthquake focus (or hypocenter) below the ground surface.

Focus (of an earthquake) - The point which the rupture occurs; synonymous with hypocenter. (It marks the origin of the elastic waves of an earthquake.)

Frequency - Referring to vibrations; the number of wave peaks which pass through a point in a unit of time, usually measured in cycles per second.

Graben (rift valley) - Long, narrow trough bounded by one or more parallel normal faults. These down-dropped fault blocks

Ground Acceleration - Acceleration of the ground due to earthquake forces

Ground Displacement - The distance which ground moves

Ground Failure - A situation in which the ground does not hold together such as landsliding, mud flows and liquefaction.

Ground Movement - A general term; includes all aspects of motion (acceleration, particle velocity, displacement)

Ground Velocity - Velocity of the ground during an earthquake.

Hypocenter - The point below the epicentre al which an earthquake actually begins; the focus.

Inelastic Behaviour - Behaviour of an element beyond its elastic limit.

Intensity - A subjective measure of the force of an earthquake at a particular place as determined by its effects on persons,
structures and earth materials. Intensity is a measure of energy. The principal scale used in the United Stales today is the
Modified Mercalli, 1956 version.

Isoseismals - Map contours drawn to define limits of estimated intensity of shaking for a given earthquake

Liquefaction - Transformation of a granular material (soil) from a solid state into a liquefied state as a consequence of increased pore-water pressure induced by vibration.

Macrozones - Large zones of earthquake activity such as zones designated by the Uniform Building Code map.

Magnitude - A measure of earthquake size which describes the amount of energy released.

Mantle - The main bulk of the earth between the crust and core, varying in depth from 40 to 3,480 kilometres.

Microzonation - Seismic zoning, generally by use of maps, for land areas smaller than regions shown in typical seismic code maps, but larger than individual building sites.

Modified Mercalli - See Intensity.

Period - The time for a wave crest to traverse a distance equal to one wave length or the time for two successive wave crests to pass a fixed point; the inverse of frequency.

Plate Tectonics - The theory and study of plate formation, movement, interaction, and destruction; the theory which explains seismicity, volcanism, mountain building and paleomagnetic evidence in terms of plate motions.

Richter Magnitude Scale - A measure of earthquake size which describes the amount of energy released. The measure is determined by taking the common logarithm (base 10) of the largest ground motion observed during the arrival of a P-wave or seismic surface wave and applying a standard
correction for distance to the epicentre.

Rift - A fault trough formed in a divergence zone or in other areas in tension. (See Graben)

Scarp - A cliff, escarpment, or steep slope of some extent formed by a fault or a cliff or steep slope along the margin of a plateau, mesa or terrace.

Seiche - A standing wave on the surface of water in an enclosed or semi-enclosed basin (lake, bay or harbor).

Seismic - Pertaining to earthquake activities.

Seismicity - The world-wide or local distribution of earthquakes in space and time; a general term for the number of earthquakes in a unit of time, or for relative earthquake activity.

Seismograph - An instrument which writes or tapes a permanent continuous record of earth motion, a seismogram.

Subduction - The sinking of a plate under an overriding plate in a convergence zone.

Trench - A long and narrow deep trough in the sea floor; interpreted as marking the line along which a plate bends down into a subduction zone.

Tsunami - A sea wave produced by large areal displacements of the ocean bottom, the result of earthquakes or volcanic activity.

Vibration - A periodic motion which repeats itself after a definite interval of time.

Waves:
Longitudinal Wave - Pure compressional wave with volume changes.
Love Wave - Transverse vibration of seismic surface waves.
P-Wave - The primary or fastest waves travelling away from a seismic event through the earth's crust, and consisting of a train of compression's and dilatation's of the material.
Rayleigh Wave - Forward and vertical vibration of seismic surface waves.
S-Wave - Shear wave, produced essentially by the shearing or tearing motions of earthquakes at right angles to the direction or wave propagation.
Seismic Surface Wave - A seismic wave that follows the earth's surface only, with a speed less than that of S-waves.

Wave Length - The distance between successive similar points on two wave cycles.

NOTES:

ANNEX: LIST OF ILLUSTRATIONS

Page	Figure	Source
		Vulnerability Reduction
21	2.3-1	UNHCR, Refugees N° 89, Geneva, May 1992.
		Behavior for Change
29	2.4-1	UNDRO, Shelter after Disaster, Geneva, 1982, p. 49.
		Building together
48	1.4-1	UNCHS, Human Settlements and Natural Disasters, Nairobi, 1989, p. 14.
50	2.2-1	BSHF, Low Cost Typhoon-Resistant Housing, Coalville (Leicestershire), 1993, p 18.
		Authorities as facilitators
69	2.2-1	DHV Consultants, Dash Project, Amersfoort, 1989, p. 11.
75	4.4-1	IDNDR, Stop Disasters, Bulletin N° 1, Naples/Geneva, 1991, p. 9.
76	4.5-1	UNDP/UNDRO, An overview of Disaster Management, DMTP, 1992, p. 55 (photo: Paul Chesley).
81	6.1-1	Swiss RE, Newcastle: the writing on the wall, Zurich, 1990, p.43 (fig. 37).
		Public Health
86	2-1	WHO/LRCRCS, Coping with Natural Disasters: the role of local health personnel and the community, Geneva, 1989, p. 33.
87	3-1	WFP Journal, special issue n° 15, July/Sept 1990, p. 20. (photo: WFP Christiano Laruffa).
89	4-1	Swiss RE, Earthquakes and Vulcanic Eruptions: A Handbook on Risk Assessment, Zurich, 1992, p. 627 (fig. 627).
		Strengthening Buildings
130	3.1-1a	Swiss RE, Earthquakes and Vulcanic Eruptions, Zurich 1992, p. 386 (fig. 319).
141	5.1-7	Swiss RE, Earthquakes and Vulcanic Eruptions, Zurich, 1992, p. 463 (fig. 453).
141	5.1-8	Swiss RE, Earthquakes and Vulcanic Eruptions, Zurich, 1992, p 446 (fig 415)
145	6 1-2	Swiss RE, Earthquakes and Vulcanic Eruptions, Zurich, 1992, p 391 (fig. 329).

145	6.1-3	Swiss RE, Earthquakes and Vulcanic Eruptions, Zurich, 1992, p. 391 (fig. 328).
185	13.1-9A	Swiss RE, Earthquakes and Vulcanic Eruptions, Zurich, 1992, p. 394 (fig. 334).

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