

Lista of symbols:

- b_b : cross-section width of the beam framing in the joint panel;
- h_b : cross-section height of the beam framing in the joint panel;
- b_c : cross-section width of the column framing in the joint panel (measured in the direction orthogonal to the direction of analysis of the joint);
- h_c : cross-section height of the column framing in the joint panel (measured in the direction orthogonal to the direction of analysis of the joint);
- *Bay length*: distance between the axis of the columns at the left or right of the joint;
- *Interstorey height*: distance between the axis of the beam at the level of the joint and the axis of the top/bottom beam;
- $A_{s,i}$: total area of the column reinforcements located at the i-th level;
- d_i : distance of the i-th level of column reinforcements from the top side of the cross-section;
- $A_{s,1}$: total area of the beam top reinforcement;
- $A_{s,2}$: total area of the beam bottom reinforcement;
- f_{cm} : mean cylindrical concrete compressive strength;
- f_{ym} : mean yielding tensile stress of reinforcement steel;
- *C.F.*: confidence factor associated to the adopted confidence level (Eurocode 8-3, 2005);
- γ_c : partial safety factor of concrete (equal to 1.5 when calculating the strength capacity of brittle primary seismic elements according to 2.2.1 Eurocode 8-3, 2005);
- γ_{Ra} : overstrength factor (it could be taken equal to 1.2 as suggested at 5.5.3.2(4) of the Eurocode 8-1, 2004);
- N_{Ed} : axial load acting at top/bottom column of the reference joint;
- V_{Ed} : shear force acting at the base of the top column of the reference joint;
- M_{Ed} : bending moment acting at the right/left beam of the reference joint;
- f_{cd} : design concrete compressive strength = $f_{cm}/(C.F. * \gamma_c)$;
- σ_{jt} : maximum demand in term of principal tensile stress in the joint panel;
- $\sigma_{jt,FRP}$: principal tensile stress increase of the joint panel due to FRP strengthening;
- t_f : thickness of the FRP dry fibers;
- E_f : elastic modulus of FRP fibers;
- ε_{fk} : ultimate strain of FRP system;
- η_a : environmental conversion factor (Table 3-2 CNR DT-200 2013), reduction factor *fib* bulletin 90;
- γ_f : partial safety factor (see Table 3-1 and 3-2 *fib* bulletin 90 or Table 3-1 CNR DT-200 (2013));
- n_s : number of joint faces strengthened in shear with FRP;
- n_l : number of FRP plies on the joint panel;
- $t_{f,i}$: thickness of FRP dry fibers in the i-th direction;
- β_i : angle of the i-th fiber measured to the horizontal direction;
- ε_{fd} : design strain of FRP system;
- ϕ_{dowel} : diameter of FRP spike;
- $L_{embedded}$: embedded length of the spike in the concrete support;
- L_{fan} : fan length of the spike;
- α_{fan} : angle of the fan in the horizontal plane;
- ϕ_{hole} : diameter of the hole used for the spikes;
- V_{resin} : shear strength of the resin;
- f_{fu} : ultimate tensile stress of the fibers of the spikes;
- V_{fibers} : volumetric percentage of fibers in the spikes;
- f_k : characteristic compression strength of the masonry infills;
- f_{vk0} : characteristic shear strength of the masonry infill without axial stress;

- γ : angle of the FRP fibers to the horizontal axis;
- f_{fd} : design stress of the FRP system;
- t_f : thickness of FRP dry fibers;
- w_{FRP} : width of the FRP strengthening system to sustain infill action;
- w_{max} : maximum available width.