

2009 IBC Chapter 34 highlights

1. 2009 IBC rearrange chapter sections and format them similar to IEBC - International Existing Building Code.
2. Carry -over definitions from IEBC - "Substantial Structural Damage", "Dangerous "
3. 2009 IBC Chapter 34 allow alternative compliance if work in accordance with IEBC
4. Compliance criteria changed from "seismic forces" (2006 IBC) to "demand-capacity ratio" (2009 IBC)
5. New section for REPAIRS in 2009 IBC - contain requirements for repair evaluation, extent of repair for compliant and non-compliant building similar to IEBC.
6. BSC,SFM,HCD propose amendment to Chapter 34 2009 IBC (only on sections to be adopted) are similar to 2007 amendments.

Code section (2009 IBC)	2006 IBC	2009 IBC
<p>3401.4 - Building materials</p> <p>3401.4.1 Existing material</p> <p>3401.4.2 New and replacement materials</p> <p>3401.5 - Alternative compliance</p> <p>3402 - Definitions</p> <p style="padding-left: 100px;">Dangerous</p> <p style="padding-left: 100px;">Substantial Structural Damage</p> <p style="padding-left: 20px;">1 - Lateral force-resisting system</p> <p style="padding-left: 20px;">2 - Gravity load-carrying component</p>		<p>New</p> <p>New Material already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the building code official to be dangerous to life, health or safety.</p> <p>New Materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs and alternations, provided no hazard to life, health or property is credited. Hazardous materials shall not be usedm where the code for new construction would not permit their use in building of similar occupancy, purpose and location.</p> <p>New Work performed in accordance with the International Existing Building Code shall be deemed to comply with the provisions of this chapter.</p> <p>New New definition, (less defined when compare with 2006 IEBC definition).</p> <p>New New definition, (Same as defined by 2006 IEBC)</p> <p>Vertical elements of lateral force-resisting system have suffer damage such that the lateral load-carrying capacity of the structure in any horizontal direction has reduced by more than 20% from its predamaged</p> <p>The capacity of any vertical gravity load-carrying component, or any group of such components, that support more than 30% of the total area of the structure's floor(s) and roof(s) has been reduced more than 20% from its pre-damage condition and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75% of that required by this code for new buildings of similar structure, purpose and location.</p>
<p>3403 -ADDITIONS</p> <p>3403.3 - Existing structural elements carrying gravity load</p> <p>3403.3.1 Design Live load for gravity carrying elements</p> <p>3403.4 Existing structural element carrying lateral load</p>	<p>Additions, alternations or repairs all in one section</p>	<p>3403 for ADDITIONS only</p> <p>New gravity load demand on existing member >5% from addition shall be strengthened/supplemented/replaced as needed to carry the increased load required by this code for new structure.</p> <p>New</p> <ol style="list-style-type: none"> 1. Use design LL per 1607 when addition result in increased design LL. 2. If Design LL per 1607 > approved LL then provide Placards of approved design indicating the approved LL 3. if approved LL = 1607 design LL,, use approved LL <p>Revised Exception : Any existing lateral load-carrying structural element whose demand-capacity ratio with the addition considered is no more than 10% greater than its demand-capacity ratio with the addition ignored shall be permitted to remain unaltered. For the purpose of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design loads or forces in accordance with Sections 1609 and 1613. For the purpose of this exception, comparisons of demand-capacity ratios and calculations of design lateral loads, forces and capacities shall account for cumulative effects of additions and alternations since original</p>

<p>3404 -ALTERNATIONS</p> <p>3404.3 - Existing structural elements carrying gravity load</p> <p>3404.3.1 Design Live load for gravity carrying elements</p> <p>3404.4 Existing structural element carrying lateral load</p> <p>3404.5 Voluntary seismic improvements</p>	<p>Additions, alternations or repairs all in one section</p> <p>it was an exception under 2006 IBC sec 3403.2.3.2</p>	<p>3404 for ALTERNATIONS only</p> <p>New gravity load demand on existing member >5% from ALTERNATION shall be strengthened/supplemented/replaced as needed to carry the increased load required by this code for new</p> <p>New 1. Use design LL per 1607 when addition result in increased design LL.</p> <p>2. If Design LL per 1607 > approved LL then provide Placards of approved design indicating the approved LL</p> <p>3. if approved LL = 1607 design LL,, use approved LL</p> <p>Revised Exception : Any existing lateral load-carrying structural element whose demand-capacity ratio with the alternation considered is no more than 10% greater than its demand-capacity ratio with the alternation ignored shall be permitted to remain unaltered. For the purpose of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces per Sections 1609 and 1613. For the purpose of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces, and capacities shall account for the cumulative effects of additions and alternations since original construction.</p> <p>New Appear as new section under 2009 IBC, with similar condition as 2006 IBC</p>
<p>3405 REPAIRS</p> <p>3405.2 Substantial structural damage to vertical elements of the lateral force-</p> <p>3405.2.1 Evaluation</p> <p>3405.2.2 Extent of repair for compliant buildings</p> <p>3405.2.3 Extent of repair for noncompliant buildings</p> <p>3405.3 Substantial structural damage to vertical elements of the gravity load-carrying components.</p> <p>3405.3.1 Lateral force-resisting elements</p> <p>3405.4 Less than substantial structural damage</p>	<p>Additions, alternations or repairs all in one section (repair =</p>	<p>New 3405 for REPAIRS only (repairs not equal to ALTERNATIONS)</p> <p>See DEFINITION</p> <p>Evaluation shall establish whether the damaged building, if repaired to its predamaged state, would comply with the provisions of this code for wind and earthquake loads. Wind loads for this evaluation shall be those prescribed in section 1609. Earthquake loads for this evaluation shall be permitted to be 75% of section 1613.</p> <p>New repair shall be permitted that restore the building to its predamage state using materials and strengths that existed prior to the damage</p> <p>New building shall be rehabilitated to comply with applicable provisions of this code for load combinations, including wind and seismic loads. Wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be as required by the code in effect at the time or as required by this code whichever are greater. Earthquake loads for this rehabilitation design shall be those required for the design of the predamage building, but not less than 75% of those prescribe in sec 1613. Connection shall comply with the detailing provision of this code for new Gravity load-carrying components shall be rehabilitated to comply with applicable provision of this code for Dead and Live load. Existing gravity load-carrying structural elements shall be permitted to be designed for LL approved prior to the damage. Nondamaged gravity load-carrying components that receive DL,LL,SL shall also be rehabilitated or shown to have the capacity to carry the design loads of the rehabilitation design. New structural members and connections required by this rehabilitation design shall comply with the detail provision</p> <p>New Regardless of the level of damage to vertical elements of the lateral force-resisting system. If substantial structural damage to gravity load-carrying components was caused primary by wind or earthquake effects, then the building shall be evaluated in accordance with 3405.2.1, and if noncompliant, rehabilitated in</p> <p>New repair shall be allowed that restore the building to its predamage state using materials and strengths that exist exists prior to the damage. New structural members and connections used for this repair shall comply with the detailing provision of this code for new buildings with imilar structure, purpose and location.</p>