Industry Coalition Comments to the Green Building Code Advisory Committee February 12, 2008

To follow is a consolidated list of comments/issues received from a broad range of industry associations and companies that work within California. Through these comments we hope to advise the Committee regarding issues that our members have raised that will make this a better code and one that can be implemented in a manner consistent with the nine-point criteria mandated in Health and Safety Code Section 18930.

If you have any questions, need more information, or would like to discuss anything in these comments, on behalf of the coalition please contact Matthew Hargrove, Sr. Vice President of Governmental Affairs, CBPA, at 916-443-4676, or mhargrove@cbpa.com. Thank you for taking our views into consideration.

GENERAL CONCERNS/COMMENTS

1. Is the green building code to be phased into state regulation over (at least) two code update cycles? Please clarify.

2. With regards to HCD's proposed mandatory items; HCD needs to make it clearer which items will be self-certified (i.e. included in subcontractor scope-of-work contract) as opposed to those which would be inspected by local building departments. One suggestion may be that they work closely with CALBO and other interested parties in the development of the 45-Day Language.

3. With Regards to Chapter 4 in its entirety, we strongly urge disapproval of most of the items. This appears to be (for the most part) lifted right out of LEED ND (Neighborhood Design), a pilot program (i.e. DRAFT) . It is anti-Greenfield development and would create huge problems for design and grading of planned communities and other projects, contains vague, ambiguous and conflicting planning, land-use and zoning references that, if left intact, will create significant confusion. Planning and land use issues have long been under the direct purview of local cities and counties and this chapter should be changed to reflect that. Title 24 should stay a building code only.

4. The current draft of the CGBS misses the opportunity to promote current Green and Sustainable building habits. Each of the production homebuilders in California view and build Green differently. This has come about through the many Green, sustainable and energy programs locally and nationwide that many have participated in resulting in multiple solutions that would be practical for each of the categories covered by the CGBS. The current AC-HCD checklist covering residential construction is very restrictive in that it allows only one method for compliance in a majority of the Green Building Measures listed. We request the opportunity to have choice within each of these sections. The end result should be the requirement with the builder having choices on how to meet the requirement.

5. If the proposed regulation is intended to apply towards private office buildings, without doing a quantitative analysis, the requirements are similar to "Silver" LEED certification (with some minor exceptions that are not part of LEED). However, the requirements are fixed without allowing the choices that LEED provides (although, the Chapter 11 checklist shows them as optional). If the proposed regulations are applied towards private office buildings, the costs would be similar to

attaining a "Silver" LEED certification, resulting in an approximately 5 - 10% increase in construction costs. In addition, the fixed requirements could further increase construction costs and limit a builder's flexibility. One suggestion would be to create a menu like LEED where builders can choose a required number of items to attain the desired level of sustainability.

6. From a code-implementation standpoint, some found the document to be incomplete and in need of work; both because the requirements proposed herein are unachievable in many cases and because the "code language" being proposed is not at all appropriate for this kind of document. For example, are the individual proposals written in such a way that lends them to consistent enforcement throughout the state?

7. Since the document is not a "guideline" evidenced by the intent to adopt it as an action of the CBSC, it is clear it was intended to be drafted as a "code" document. If that is in fact the case, some find this "code" to be inadequate as a document intended to be enforced, as any code document would be. A large number of the sections are not written in generally accepted code language and many do not contain specific information to guide the user in the proper conformance with the provisions outlined in the sections. In short, it would be impossible to enforce this code without major changes to the provisions by local governmental jurisdictions intending to make compliance with the provisions in this document either mandatory or to comply with the requirements of a "voluntary" green building program.

8. The Notice of Proposed Action indicates adoption of this code would have NO adverse economic impact on any state or local agency or governmental body. That seems incongruous as its implementation would require, at a minimum, such things as training of state and/or local officials just as one would expect when any new code is adopted. A claim of "no significant statewide adverse economic impact on businesses" is equally curious since compliance with the provisions of this code would at a minimum entail some initial costs. We request that the CBSC analyze the economic impact of this proposed code so actual costs can be considered as items are adopted.

9. In the section titled "Cost Impact on Representative Private Person or Business", CBSC states that initial cost impacts "would be recouped in long-range savings of utility and transportation costs, worker productivity, health costs, and goodwill." How was this determined? What studies were reviewed to lead to this conclusion? Will the "long-range savings" alluded to be realized by the person or business who incurred the initial costs? We ask that this be looked at as part of the CBSC's economic impact analysis.

10. In the section titled "Assessment of the Effect of Regulations Upon Jobs and Business Expansion, Elimination or Creation," What analysis was used to come to the conclusion that use of this code will create jobs, create new business and expand opportunities for existing business in California? Again, we request economic analysis be done to assess such claims.

11. Aside from the financial concerns, there are schedule concerns (that have financial ramifications). Designing green buildings can take longer to design and permit, given the experience of the teams in

place. There is a real concern that green requirements will create a whole new layer of plan checking bureaucracy and confusion. Part of this concern should be mitigated through expedited plan checks.

12. There are challenges in the holistic building approach on commercial buildings because many times the ultimate building design is not realized until far into the design (and sometimes the construction process). Many of the green design strategies are based on end-user needs. This is true with many commercial buildings that have tenants that are not present in the early design stages. Over-prescribing requirements for future tenant build-out could greatly limit the flexibility needed for a successful project.

13. Many designers and builders are hesitant to embrace new building technologies (especially with new building materials) until they are proven to be successful. Forcing owners to incorporate new technologies may be met with resistance out of concern for unknown and unintended consequences and/or the costs of investing in unproven technology.

14. Although it is understood that this document is a building code, we call on members of the CBSC to recommend to policymakers that some statewide measures be adopted concurrently to this code to further incentivize rapid adoption of green technologies. Here are just a few measure that could be helpful if implemented/supported by the state:

    * Expedited/Fast-Track Permitting Processes for Green Buildings.
    * Carbon Credits under AB 32.
    * Funding for Training and Education of Building Operators/Managers.
    * Support Voluntary Electrical Submetering.
    * Support Voluntary Benchmarking Programs.
    * Assistance for Retro Commissioning of Private Sector Buildings.
    * Support and Promotion of All Third Party Green Building Certifications.
    * Creation of a Certified “California Green Building” Label.
    * Management of a Statewide Local Government Green Building Incentives List.
    * Funding for CBSC Green Building Development & Education.
    * SB 1 commercial offset program.
    * Support for Full Net Metering.
    * Support for Energy & Water Conservation Audits.

SPECIFIC CONCERNS

CHAPTER 1: Administration

101.3 – BSC: Scope – it's unclear how this is a voluntary code given the wording of this section.

101.3.1 – BSC: This item states all buildings; does this include sheds and agricultural buildings?

101.7 – BSC: This section may encourage variations across the state which has the opposite effect of a single statewide code.

102 – BSC: The need for verification as defined in Section 102, just as in the LEED/USGBC arena is very time/labor intensive and would drive costs of compliance up significantly. One example project calculated compliance costs (both hard and soft) for a LEED retail store was over $300k. Although costs will move downwards as the market matures and becomes more sophisticated, the range of costs and project delays is sizable. The proposed item seems to have essentially copy-pasted the USGBC system, even down to the category names. With so many "optional" categories, why not simplify the document and highlight those areas that would be mandated, and let the market drive the other changes as needed.

102.1 – BSC: Does registered design professional include architect who is licensed?

CHAPTER 4:Planning and Design

With regards to Chapter 4 in its entirety, we strongly urge disapproval of most of the items. This appears to be (for the most part) lifted right out of LEED ND (Neighborhood Design), a pilot program (i.e. DRAFT) . It is anti-Greenfield development and would create huge problems for design and grading of planned communities and other projects, contains vague, ambiguous and conflicting planning, land-use and zoning references that, if left intact, will create significant confusion. Planning and land use issues have long been under the direct purview of local cities and counties and this chapter should be changed to reflect that. Title 24 should stay a building code only. With that in mind, we offer the following comments:

402.1 – BSC: Is hardscape defined?

405.1 – BSC: This section instructs the developer to "Maintain at least 75% of existing building structure (including structural and roof decking) and envelope (exterior skin and framing) based on surface area." Is this meant to disallow tearing down buildings? Are the cities are as dense as they're ever going to be, and the only means of accommodating growth is sprawl at the perimeter? That's hardly advisable and not recommended as a model for sustainable development.

405.2 – BSC: Who documents weights; designer or contractor?

406.2- HCD: The Department is proposing to implement SWPPP protocols on small lot projects less than 1 acre. Shouldn't be a problem; no significant impact to high production homebuilders.

406.2 -1 – BSC: Who determines what constitutes "sufficient size?"

406.4 – BSC: 10% or more is not enforceable code language – either it should either be 10% or another number. Also, what is meant by "long term storage?"

406.4 - BSC: Where is "long term storage" located?

406.5.1 – BSC: What is the definition of a "low-emitting and fuel-efficient vehicle?" It is imperative to define this specifically, otherwise a code official will have to interpret this in the field and different officials may define this differently. Does a Prius qualify? Does a hybrid Hummer qualify?

406.5.2.1, 406.5.2.2, and 406.5.2.3 – BSC: This section assumes all-electric, plug-in style vehicles will be the "green" vehicles of choice, which does not appear to be the trend in current auto technology as gas-electric hybrids are dominating the market. What if it's a hydrogen, or some other type of alternative fuel, vehicle instead?

406.6 - BSC: What about visitors parking?

CHAPTER 5:Energy Efficiency

501.1 – BSC: What is the definition of "optimum building energy efficiency?"

503 - HCD: The CEC administers the California New Solar Home Program which encourages the voluntary application of photovoltaic (solar) energy systems in new residential dwellings via (substantial) financial incentives. Although HCD's Residential Green Building provisions are slated for statewide mandate; could a discussion/overview of the CEC's voluntary NSHP be made in the Appendix of Part 11 in order to alert users of the code to this program?

503.1.1 and 503.1.2 – BSC: There is no reference to Tier 1 and Tier 2 buildings. This should be clarified.

503.2- HCD: GB standard requires all new homes to meet **or exceed** minimum requirements of the CEC's California Energy Efficiency Standards. The new CEC 2008 Update of the energy efficiency standards will take effect in mid-2009 and will **increase by 20% the stringency** of the current 2005 energy efficiency standards. Since local cities and counties have the authority to adopt more stringent energy efficiency standards than those required by the state (via PRC 25402 and H&S 17958.7), is it necessary for HCD to include the words "or exceed" in that sentence? For clarity purposes, the words "or exceed" should be replaced with the word "the"; this reduces the vagueness/ambiguity by simply stating that all new homes will comply with the CEC energy efficiency standards.

504.2 – How common is this technology and what is the cost?

504.4 – Which "generally accepted industry standards" does this section make reference to? Also, who would do this commissioning?

504.4.4 – Is this testing a one-time requirement, is it required on a regular basis, or is it required every time there's a change in the equipment?

504.5 – What is meant by "total exterior shade?" Also, what exactly can a user do to "protect the building from thermal loss, drafts, and degradation of the building envelope caused by wind and wind-driven materials?"

504.5 -3 – BSC: Is the shading for "all year" or hot months only?

506.1- HCD: Air Sealing Package: This section does step up current practice of sealing penetrations and voids in the conditioned envelope of the home. Estimate additional $300 per home.

511.1 – BSC: Requires 1% of the "electrical service load" be on-site renewable. The economics are disastrous, not to mention the lack of clarity in "service load." Is this item seeking to meet peak, average, or some other loading? The amount has significant impacts on sizing and therefore expense of technology. Section 511.2 continues the confusion with the requirement to "participate" with the local utility. Is the item simply suggesting users "acquire" 50% of electrical power in some renewable form?

511.1 – BSC: Is there no exception to the requirements of this section? What about a high-rise structure on an urban infill lot that does not have the roof area to install the required solar panels or wind turbines to provide the 1% of electrical service load?

511.2 – BSC: Is the participation in a local utility program (if there is even one available) required 100% of the time? Is it mandatory that a building get 50% of its power from renewable sources all the time or is it enough to "average" 50% throughout some time period (a year for instance)?

CHAPTER 6: Water Efficiency and Conservation

602 – BSC: Regarding the "recycled water" definition. Are there clear standards on what "suitable" quality is for recycling grey water for irrigation? Many people get nervous in having any recycling due to airborne/exposure issues. Unless the state has some regulations they can point to, "suitable" is too vague.

602.1 – BSC: Density Factor – are the Kd ranges reasonable?

603.1 – BSC: What's the cost to provide separate meters for indoor and outdoor water use? What additional plumbing cost will this incur? Are there any current prohibitions by local water utilities throughout California to the installation of multiple meters?

603.2 – BSC: Are all the fixtures listed available?

603.2- HCD: The HCD proposal only allows for fixtures **within** the home to be considered in calculations for reduced water flow. There will be an additional (albeit nominal) cost for specified low flow fixtures. The flow rate requirements listed of 1.75 GPM has only recently been introduced by the major manufacturers. **HCD needs to confirm an adequate statewide supply of compliant product.** There are missed opportunities in this section by not allowing landscape irrigation to be a choice for water saving. HCD may want to consider this during the next update of their GB standards. Gravity Tank Water Closets- $200 each.

603.3 – How many manufacturers have units that meet the requirements of this section? Also, the costs would seem pretty high to comply with #3 through #6 – has a cost analysis been done to analyze the impact on a project?

605 – What is the intent of leaving this section blank? Are gray water systems not allowed?

CHAPTER 7:Material Conservation and Resource Efficiency

703 – Why was the section on foundation systems not included?

704.1 – Does this section apply to all portions of every project? If so, why would the code be so restrictive? This section needs to recognize that there are a number of reasons why OVE framing might not be used.

704.2 - BSC: May be reliant on incorrect information as strategy referenced is obsolete. Please check fact -- the U factor is 0.102, not 0.88 as referenced. In addition, EZFRAME is no longer used by the Energy Commission. Performance programs such as MicroPas and Energy Pro should be referenced instead. Tables in the Joint Appendices should be referenced as they provide the basis for the programs or for prescriptive approaches. For example, wood framing walls is Table 4.3.1, nonresidential steel framing is 4.3.3 and residential steel framing is 4.3.4. There are also tables for roof construction and structural insulated panels etc.

704.2 - The last sentence should read "Techniques for ~~accomplishing~~ avoiding thermal…." Also, #3 may conflict with sheer wall design required by the seismic zone within which the project lies.

705.1 – Materials are not always available within 500 miles of a building site and this requirement should be removed. Also, in #1 the term "low embodied energy" is unclear and should be defined. In #2 why is the amount of materials required based on 10% of cost of the total materials? Why not base it on 10% of the total material quantity?

705.3- HCD: Numbering error - should be "804.3." This section covers Pollutant Control during Construction and does not belong in this section. Covering duct openings during construction is a "best practice" that can be written into the trade "scope of work" contract and should be listed as "self-certify" via the builder/subcontractors; local building officials should not be expected to enforce this measure.

705.3 – We appreciate that the commission has recognized all wood certification standards as it will help promote competition and neutrality in the green building market place.

708.2 and 708.3 – Which of these sections is required? One requires 50% reduction of construction waste and one requires 75%.

708.2- HCD: With regards to the "50%"; what is the base "metric?" Without that being clarified, how does one know if they have complied?

708.2- HCD: Construction Waste Reduction, Disposal and Recycling: Numbering error, should be listed as "Section 708." This is another section which has multiple ways to achieve the goal. Anticipated costs of up to $400 per home impact for requirement of recycling 50% of generated job site waste. HCD should consider allowing credit in this section for builders who utilize construction methods that do not generate waste to begin with.

710.2 – HCD: Building Maintenance and Operation: Provide operation and maintenance manual to homeowners. Estimated additional cost of $50-$100 to update current homeowner manuals. This is an item that should be "self-certify" by the builder; local building departments should not have to enforce this.

710.2 – HCD: To whom must the Operation and Maintenance Manual be provided?

710.2 -1b. Is this stating to keep gutters clean? What about washing windows to allow more light into these spaces?

CHAPTER 8: Environmental Quality

803.1 – BSC: According to this section, ONLY a "direct-vent sealed-combustion gas or sealed wood fireplace or …woodstove" is allowed. Is this really what the Commission intends? No other type of unit is allowed? And, what is a wood fireplace? Does this mean a masonry fireplace? Regardless, how does one provide a "sealed" fireplace? This needs much more detail for the user to understand what is required and what is intended.

804.1.2 – BSC: In #2, where does the standard of 3 air changes per hour requirement come from? This does not conform to any known standard, guideline, code related publication or study.

804.1.3 – BSC: In #3, what is a "sufficient period" to allow odors and VOCs to disperse? In #4, what does this mean? This item may infer that once these various materials get to the job, the builder is to install the "worst" materials first? The intent and implementation of this section is unclear.

804.2 – BSC: What document is referenced to get the time requirements in this section? Has anyone computed the energy loss of complying with this section? It is unclear how a builder could maintain an internal temperature of at least 60 degrees and not more than 78 degrees in a structure for 14 days for 24

hours a day WHILE pushing 100% outside air through the HVAC units? What if the structure does not have a forced air heating/cooling system?

804.4.4 – BSC: There may be other items on the market that comply with this section but are not listed. Is the items intent actually to disallow specific products? If not, that should be clarified.

804.1.1- HCD: Numbering Error; should be section 804.4.1. Consistent with current codes.

804.1.2- HCD: Numbering Error; should be section 804.4.2. Consistent with current codes.

804.1.3- HCD: Numbering Error; should be section 804.4.3. Most of the major manufacturers meet this requirement. More attention will need to be paid to carpet cushion requirements.

804.1.4.1- HCD: Numbering Error; should be section 804.4.4.1. Most of the component manufacturers such as cabinet and casework companies follow these guidelines. The challenge will be policing the trades that perform construction and assembly of components on site such as with finish carpentry. These requirements can be written into the "scopes of work" and included in data sheets as requested; should be self-certified by builder/sub-contractor rather than by local building department.

804.1.4.2- HCD: Numbering Error: should be section 804.4.4.2. Same comment as above.

804.2 – BSC: Does sensitive electronic function well with 60% relative humidity?

804.5 – BSC: The words "minimize" and "control" must be defined in this section. Since this is a code intended to be enforced by local and state building officials how are they to know what the minimum is or what it means to control the entry of these pollutants? How is the builder to know?

804.5.1 – BSC: What does the term "permanent" mean in this section. Does a removable mat of the dimension stated comply? It would seem so according to #3 as long as it is "maintained regularly by janitorial contractors." Should define "regularly" and "janitorial contractors."

804.6.3 – BSC: What does this section mean? No refrigerants are allowed?

805 – BSC: What standards are required for "Radon Control?" There is no nationally accepted standard for commercial buildings – only schools and single family detached homes. More importantly, since when does California have a "radon problem?" At best, there are 3-4 relatively small areas of the state with levels of radon gas that measures above 4 Pico curies, but not above 20 Pc; so why is this being considered in a **statewide** standard? We recommend this be removed.

805.2.1 – HCD: Interior Moisture Control: The Department is proposing to require a vapor retarder and capillary break under foundation slabs. The required method in the standard is to replace the current sand/visqueen/sand section commonly used with 4" of gravel over a vapor barrier to create the capillary break. This is an extreme measure that is not reasonable or needed throughout all the climate zones found in California. This in itself would be a waste of material resources and is contrary to the concept of "green

building." As an alternative, doubling the visqueen in desert and/or high cooling-load climates, for example, has been found to be more than sufficient to offset water issues with slabs.

805.2.1 - HCD: Interior Moisture Control: Mandates a capillary break under foundation slabs with the use of gravel in lieu of sand. I have built foundation slabs utilizing gravel as a capillary break in California. This detail adds considerable additional cost to any slab design and is just not needed in several of our climate zones. Concrete mixes need to be formulated to offset the faster curing time that is present when concrete is poured over gravel. Labor tends to increase due to workability of the new mix design. Lastly, to prevent excessive damage to the vapor barrier under the gravel, pea gravel is the preferred aggregate. This type of aggregate is not available in all markets. Costs for importing this can triple the actual cost of the gravel **and waste resources**.

805.2.1-3 – BSC: Does this include licensed architects?

805.3- HCD: Moisture Content: General Specification from most Structural Engineers for allowable moisture in wood prior to covering is 19%. Will require moisture meters as part of superintendent's kit ($200). Lots of questions about field application are not addressed by proposed regulation. As such, this should be self-certified by subcontractors as opposed to enforcement by local building department.

806.2 – BSC: Where is the builder to install the carbon monoxide detectors? In the exception, what kinds of "alarms" are required, and, what is meant by "ventilation deficiencies?"

806.3 – HCD: Air Quality and Exhaust: Additional cost for bathroom exhaust fans becoming standard in every bathroom may not be warranted in this code.

806.4 – HCD: MERV 6 or higher filters required. Good requirement; but there may be a significant pressure drop, depending on design. May want to consider an exception for cases where design constraints preclude installation due to pressure loss concerns?

807.1.1.1 and 807.1.1.2 – BSC: How would the builder or code enforcement officer know the 90% and 50% thresholds in these sections have been met? There is no explanation of how one would determine these levels.

807.1.2 – How is one to provide lighting and thermal comfort controls? Does a series of light switches and a thermostat on each floor comply? This item is vague and must be better defined.

807.2 – This item is extremely confusing and should be removed. In #1, from whom are the voluntary anonymous responses to be obtained? The user and enforcer have no idea who is supposed to be surveyed – could be someone in Connecticut who has never laid eyes on the project by the way the section is written, and what corrective action is required if the survey shows 20% of the phantom survey respondents are dissatisfied. Dissatisfied how? How much dissatisfaction is enough – any at all?

807.3 – item is extremely confusing and should be removed. "Consider the following" in order to comply, does not provide sufficient guidance. Does this mean the item can be skipped once the item is considered even if none of the options are chosen?

Exceptions to 807.3 and 807.4 – What is an "intermittently or infrequently occupied space?" The user must understand what areas must comply or he/she will never be able to meet the requirements.

807.5.1 – Does this section cover any part of the building? How about the rooms farthest away from the noise? How is the 1000 feet or the 5 mile distances measured? In #2, what is a "commercial jet?" Does a private business jet qualify or does this only apply to airliners hauling passengers for a fee? In #3, what does it mean to "regularly" exceed 65 decibels? All the time, or some portion of the day? What about at night?

807.5.1 -2 – BSC: How was the "10,000" figure reached?

807.5.2 – BSC: Does public places mean outside of the building? Fifty is harder to achieve in a stick residence.

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