

**NOTES FOR SECTION 01350**

**SPECIAL ENVIRONMENTAL REQUIREMENTS**

**Note 1:**

- 1.1 Section 01350 is one of the most important specification sections in terms of guiding and controlling the environmental impact of a project. It is this general requirements section that sets the tone for the project and informs the environmental requirements of individual specification sections. While an attempt has been made to simplify this specification, it is understood that the issues raised may be new to the Architect, and may appear complex. For this reason, it is recommended that the section be carefully reviewed prior to use, and that it be integrated carefully into the Project Manual Specification. If uncertainty exists, it may be advisable to utilize the services of a Specifications consultant, and an Indoor Air Quality consultant.
- 1.2 The requirements of section 01350 apply to almost all the specification sections, and these other sections should be coordinated with section 01350.
- 1.3 The Special Environmental Requirements incorporate three major issues:
  - A. Energy conservation and efficiency: Specification Section 01350 references energy conservation and efficiency, and deals specifically with the other two issues.
  - B. Indoor environmental and air quality: Specification section 01350 references the environmental issues, and deals specifically with indoor air quality. Reducing pollutant sources in buildings is probably the most effective method for improving the indoor air quality. This specification section provides a requirement for major materials used inside a building to be submitted for an emissions chamber test prior to installation. Various Chemicals of Concern are listed and the results of the chamber test should be reviewed for conformance with the limits established here. The laboratory write up of the test results will indicate whether the test results meet the specification requirements or not.
  - C. Resource efficient materials and systems: This specification section provides a method for documenting products recycled content and is based on the California State Agency Buy Recycled Campaign (SABRC). The SABRC must be used for California Department of General Services (DGS) projects (excluding schools), and the documentation requirements have been adapted to conform to specification requirements and for use on other projects as a reporting tool to the Architect and to the project Owner.
- 1.4 Life Cycle Assessment: Life Cycle Assessment (LCA) is needed to assist the Architect in making judgments about the appropriate use of specific materials and systems. Since LCA is not yet sufficiently developed, it is not presented in this specification, but much of the information requested by this section will be helpful in the future when LCA becomes available.

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### **Note 2:**

- 2.1 Specification section 01350 article 1.2, Design Requirements is included in this specification specifically to advise the contractor about the design requirements used by the design team in the design of the project and the preparation of the Contract Documents. The Contractor needs access to this information if they decide to propose sustainable building enhancements, or if they decide to propose material and system substitution requests. For substitution requests, the contractor will need to compare the proposed substitution to the specified product and will need to highlight the sustainable building design requirements in their proposals.
- 2.2 Some of the goals noted below may appear to be contradictory, and the project team may need to evaluate and make a selection based on project-specific goals. The design team for each project should evaluate project priorities and goals with the school district as part of the design process prior to preparation of Construction Documents.

### **Note 3:**

- 3.1 For school projects, special care should be taken with lighting design for the sports fields, and to achieve a safe site environment at night.

### **Note 4:**

- 4.1 Specification Section 01350 Article 1.2, I: When using composite wood products that contain post-consumer recycled content, there is a possibility that the final product may contain lead, arsenic, and semi-volatile organic compounds including Pentachlorophenol, Chlordane, and Chlorpyrifos. While there are currently no established safe air concentration limits for these compounds, it is important to recognize that they may present a significant health hazard. Therefore, bulk testing of the product is recommended to show that they are free of contamination. The Project client should be notified of the compound content as they may be required under CA Proposition 65 to notify building users of the presence of these compounds if such compounds are installed into a building. The architect and the Project client should make a determination whether such products should be installed.

### **Note 5:**

- 5.1 For State funded projects, State agencies are required to comply with the State of California Public Contract Code Sections 10233, 10308.5 and 10354. School projects are not required to comply with these codes; however, the certification form has been adapted for use on school projects.

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### **Note 6:**

- 6.1 For FSC accredited certifiers visit <http://fsuc.org/html/index.html>
- 6.2 \*"Well-managed" shall mean forests that are being managed through professionally-administered forestry management and logging plans that ensure regeneration of desired species so that timber growth equals or exceeds harvesting rates in both quantity and quality over the long term. Other considerations include protecting rivers and streams from degradation, minimizing damage of the forest when harvesting, promoting biodiversity, operating in concert with the lawful interests of local populations, and maximizing both the yield and value of the forest products.

### **Note 7:**

- 7.1 It is not practical to request the submission of MSDS's for review by the Architect in design-bid-build construction procurement projects. This information should be requested and reviewed by the Architect in the design phases. Specification Section 01350 Article 1.3, B should contain the following text when using non design-build construction procurement methods. However, the Architect should in all circumstances obtain this information prior to specifying a product:

"Environmental Issues Data: Furnish material safety data sheets (MSDS) for materials where as required in each specific Specification sections. All

- A. MSDSs submitted must contain specific chemical content data identifying the percent of the total product mass represented by each listed chemical in the MSDS.
- B. Chemicals listed as proprietary or not listed on MSDS shall be separately listed and submitted to Architect for review under a non-disclosure agreement.
- C. Requirements for identified chemicals are not limited to those listed by OSHA as hazardous nor to those present at greater than 1% by weight."
- 7.2 Specification Section 01350 Article 1.3 B and D require the contractor to provide Emission Test Data for materials and products. The information requested by this requirement, is usually obtained by the General Contractor, through the subcontractor and from the product manufacturer. The manufacturer obtains this information from the test laboratory, and both of the testing laboratories listed in this section are experienced at preparing the data in a form usable by the architect. Much of the test description provided in this specification section is given for the benefit of the laboratory.

### **Note 8:**

- 8.1 The Architect should review the pattern of the decay curve for TVOC and formaldehyde for the duration of the test. The decay curve should be dropping over time. If TVOC and formaldehyde emissions are high and/or if the decay curve is not dropping, temporary ventilation may be needed in the installation area.

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### Note 9:

- 9.1 The Architect should compare emissions from maintenance products to those from maintenance products for other materials being considered for the same use for Project, and evaluate. Exclude materials whose maintenance products VOC emissions are in upper half of those compared for same applications.

***There is now in draft form a State of California, Department of General Services, Technical Specification For the Evaluation of Environmentally Preferable Janitorial Chemicals. For State funded Projects, excluding schools, it is necessary to refer to these guidelines. Both are available on the internet at:***

***<http://www.ciwmb.ca.gov/greenbuilding/Specs/Janitorial.doc> and <http://www.resd.dgs.ca.gov/BPM/lists.htm>***

### Note 10:

- 10.1 Indoor air emissions testing laboratories are currently not widely available. The following laboratories are listed for the convenience of the specification user. However, this listing does not imply an endorsement of the laboratories by the authors or by the State of California nor does the absence of a laboratory from the list imply that it would not be acceptable.
- 10.2 The State of California does not currently have a certification process for labs analyzing air samples.
- 10.3 In the future, California's Department of Health Services (DHS) is planning to certify, accredit, or otherwise approve of those laboratories performing air monitoring analyses as mandated by Senate Bill 2203 (Sher et al., Statutes of 2000). This became effective on January 2, 2001 (California Health and Safety Code Section 100825-100920). The DHS does maintain a list of commercial laboratories without any endorsement or evaluation of the quality of services (Refer to <http://www.cal-iaq.org/FIRMS/>).

### Note 11:

- 11.1 Emissions testing provides emission factors for the test specimen under the loading and ventilation used in the test. The emission factor must be used with project-specific product loading and ventilation data to determine whether a material complies with the requirements of this specification. Re-testing is not necessary for different material applications, but new calculations are required.

### Note 12:

- 12.1 The OEHHA Chronic REL for Formaldehyde is the goal, but in most cases it cannot be met. Due to its status as an identified carcinogen, a preferred approach to control of formaldehyde concentrations is based on the principle of ALARA, As Low As Reasonably Achievable.

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- 12.2 Note that the OEHHA Chronic REL for formaldehyde is approximately the same as the typical concentration in outdoor air. Products containing wood even without formaldehyde-based resins and many common fibrous glass insulation products are made with formaldehyde-based resins as are many composite wood products. In order to not eliminate many common building products that will inevitably emit some formaldehyde, we have used an alternative concentration limit of 33 µg/m<sup>3</sup> (27 ppb) based on OEHHA's recommended maximum concentration in office environments. Nevertheless, due to formaldehyde's status as a listed carcinogen, it is strongly recommended that the ALARA (As Low As Reasonably Achievable) approach be applied and that 3 µg/m<sup>3</sup> be the goal.

### **Note 13:**

- 13.1 These specifications require that the Contractor provide calculations obtained from the product manufacturer and prepared by the testing laboratory. The Contractor will need to provide to the laboratory the required dimensional information needed for the calculations. Should the architect elect to perform these calculations, he/she may do so using information, design assumptions, and materials quantities for the Project.

### **Note 14:**

- 14.1 Specification Section 01350, 1.4, D 10, Reporting Requirements: The items required by the reporting requirements should be included in a submittal and used by the Architect as follows:
- A. Compounds listed on OEHHA list – Reported calculated concentration should be equal to or less than ½ the OEHHA regulations.
  - B. Compounds on Proposition 65 list – Report these to the project owner (school district). The Owner is required by law to identify these compounds with a warning sign in the building.
  - C. California Toxic Air Contaminants list – available at <http://www.arb.ca.gov/toxics/taclist.htm> Report the calculated concentrations of any compounds on this list to the Owner for their information. The Architect should attempt to obtain this information in the design phases if possible so that timely decisions can be made.

### **Note 15:**

- 15.1 The SABRC is mandatory for State projects, excluding schools, but can be used for all projects as adapted in these specifications as a way to report to the Architect, and a school district, the recycled content of a product.
- 15.2 For updated information on SABRC recycled-content goals, recycled-content categories and reporting procedures, contact Jerry Hart: 1001 I Street, P.O. Box 4025, Sacramento, California 95812-4025 91, telephone 916.341.6000 or 1501 E. Orangethorpe Ave., Suite

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150, Fullerton, California 92831, telephone 714.449.7072, fax 714.449.4780,  
[www.ciwmb.ca.gov](http://www.ciwmb.ca.gov) and [www.ciwmb.ca.gov/BuyRecycled/StateAgency](http://www.ciwmb.ca.gov/BuyRecycled/StateAgency).

### Note 16:

- 16.1 The list of Chronic Inhalation RELs is included in this draft specification for illustrative purposes only. The Architect should use the latest version of the list, copied from the website ([http://www.oehha.org/air/chronic\\_rels/allChrels.html](http://www.oehha.org/air/chronic_rels/allChrels.html)), when preparing the specifications.
- 16.2 Note that not all Chemicals of Concern are included on the lists at this time and that revisions to the lists will occur from time-to-time. These revisions may require re-testing of some products, and/or re-evaluating of some products using available test data.

### REFERENCES

References for more information:

1. California State Agency Buy Recycled Campaign, The Department of General Services and the Californian Integrated Waste Management Board.  
<http://www.ciwmb.ca.gov/buyrecycled/stateagency>
2. Sustainable Building Technical Manual, Green Building Design, Construction and Operations, Chapters 13 and 15 for Indoor Air Quality and Building Commissioning produced by Public Technology Inc. and co-sponsored by the U.S. Green Building Council, Department of Energy, and the U.S. Environmental Protection Agency, 1996.
3. Leon Alevantis, M.S., P.E., Indoor Air Quality Section, Environmental Health Laboratory Branch, Division of Environmental and Occupational Disease Control, California Department of Health Services, Reducing Occupant Exposure to Volatile Organic Compounds (VOCs) from Office Building Construction Materials: Non-Binding Guidelines, July 1996. Available on the web at: <http://www.cal-iaq.org/VOC/>
4. LEED™ Reference Guide, Leadership in Energy and Environmental Design, Green Building Rating System, version 2.0, May 2000, U.S. Green Building Council.  
<http://www.usgbc.org>.
5. California Proposition 65. *The Safe Drinking Water and Toxic Enforcement Act of 1986*. Available on the internet at <http://www.oehha.ca.gov/prop65.html>
6. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. 2002. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part III, Technical Support Document for the Determination of Noncancer Chronic Reference Exposure Levels*, California Environmental Protection Agency, Office of Environmental Health Hazards Assessment, Air Toxicology and Epidemiology Section, September 2002 (or most recent edition). Available on the internet at:  
[http://www.oehha.org/air/chronic\\_rels/allChrels.html](http://www.oehha.org/air/chronic_rels/allChrels.html)

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7. State of California, 2001b. *Technical Specification for Environmentally Preferable Janitorial Chemicals – Golden Seal Program*. Available on the internet at:  
<http://www.ciwmb.ca.gov/greenbuilding/Specs/Janitorial.doc>
8. State of California, 2002b. List of Environmentally Preferable Janitorial Chemicals for the Department of General Services. Available on the internet at:  
<http://www.resd.dgs.ca.gov/BPM/lists.htm>