

This is a guidance document with sample specification language intended to be inserted into project specifications on this subject as appropriate to the agency's environmental goals. Certain provisions, where indicated, are required for U.S. federal agency projects. Sample specification language is numbered to clearly distinguish it from advisory or discussion material. Each sample is preceded by identification of the typical location in a specification section where it would appear using the SectionFormat™ of the Construction Specifications Institute; the six digit section number cited is per CSI Masterformat™ 2004 and the five digit section number cited parenthetically is per CSI Masterformat™ 1995.

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SECTION 09 29 00 (SECTION 09250) - GYPSUM BOARD

SPECIFIER NOTE:

resource management Mining raw materials (gypsum, limestone, clay, talc, mica, and perlite) produces soil erosion, pollutant runoff, and habitat loss. Gypsum is a non-renewable although relatively abundant resource. Pre-consumer recycled gypsum may be obtained from synthetic sources such as Flue Gas Desulfurization and acid neutralization in chemical processes. Also, clean construction waste can be processed to renew the gypsum in the core.

Calcining (heating at 325 - 340 degrees F to become the hemihydrate of calcium sulfate, stucco) produces particulate emissions, including: calcium sulfate dihydrate, calcium sulfate hemihydrate, anhydrous calcium sulfate, and gangue. Paper (cellulose) is a renewable resource. Paper manufacture is considered water intensive and energy intensive. It generates air and water pollutants; however, it should be noted that the paper industry has made significant progress in converting its papergrade bleached kraft mills' bleaching processes to elemental chlorine free (ECF) bleaching. Effluents from mills using ECF are "non-detect" for dioxin, using the EPA approved method with a minimum level of 10 parts per quadrillion (ppq).

toxicity/IEQ: Additives used to produce waterproof gypsum board ("green board") and fire resistant gypsum board may include VOCs. The paper backing may contain chemicals from previous uses (most paper backing contains recycled materials) and additives or chemicals used in the production of the paper itself. VOCs may be emitted from taping compounds and finishes during the curing process.

performance: Performance is comparable for green methods and standard methods.

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes:
 - 1. Interior gypsum wallboard.
 - 2. Exterior gypsum board panels for ceilings and soffits.

1.2 SUBMITTALS

- A. Product data. Unless otherwise indicated, submit the following for each type of product provided under work of this Section:

SPECIFIER NOTE:

Green building rating systems often include credit for materials of recycled content. USGBC-LEED™ v3, for example, includes credit for materials with recycled content, calculated on the basis of pre-consumer and post-consumer percentage content, and it includes credit for use of salvaged/recovered materials. Green Globes US also provides points for reused building materials and components and for building materials with recycled content.

- 1. Recycled Content:

- a. Indicate recycled content; indicate percentage of pre-consumer and post-consumer recycled content per unit of product.
- b. Indicate relative dollar value of recycled content product to total dollar value of product included in project.
- c. If recycled content product is part of an assembly, indicate the percentage of recycled content product in the assembly by weight.
- d. If recycled content product is part of an assembly, indicate relative dollar value of recycled content product to total dollar value of assembly.

SPECIFIER NOTE:

Specifying local materials may help minimize transportation impacts; however it may not have a significant impact on reducing the overall embodied energy of a building material because of efficiencies of scale in some modes of transportation.

Green building rating systems frequently include credit for local materials. Transportation impacts include: fossil fuel consumption, air pollution, and labor.

USGBC-LEED™ v3 includes credits for materials extracted/harvested and manufactured within a 500 mile radius from the project site. Green Globes US also provides points for materials that are locally manufactured.

2. Local/Regional Materials:
 - a. Sourcing location(s): Indicate location of extraction, harvesting, and recovery; indicate distance between extraction, harvesting, and recovery and the project site.
 - b. Manufacturing location(s): Indicate location of manufacturing facility; indicate distance between manufacturing facility and the project site.
 - c. Product Value: Indicate dollar value of product containing local/regional materials; include materials cost only.
 - d. Product Component(s) Value: Where product components are sourced or manufactured in separate locations, provide location information for each component. Indicate the percentage by weight of each component per unit of product.

SPECIFIER NOTE:

Green building rating systems may include credit for low emitting materials. USGBC-LEED™ v3 does not include joint compounds in its credits.

Green Seal certified environmentally preferable products are also available. Green Seal, an independent, non-profit organization, certifies low-emitting products using internationally recognized methods and procedures. Green Seal certification meets the criteria of ISO 14020 and 14024, the environmental standards for ecolabeling set by the International Organization for Standardization (ISO); the U.S. Environmental Protection Agency's criteria for third-party certifiers of environmentally preferable products; and the criteria for bona fide ecolabeling bodies of the Global Ecolabeling Network.

3. VOC data: Submit manufacturer's product data for joint compounds. Indicate VOC limits of the product. Submit MSDS highlighting VOC limits.
- B. Submit environmental data in accordance with Table 1 of ASTM E2129 for products provided under work of this Section.

PART 2 - PRODUCTS

SPECIFIER NOTE:

EO 13423 includes requirements for Federal Agencies to use "sustainable environmental practices, including acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-content products"

Specifically, under the Sustainable Building requirements per Guiding Principle #5 Reduce Environmental Impact of Materials, EO13423 directs Federal agencies to "use products meeting or exceeding EPA's recycled content recommendations" for EPA-designated products and for other products to "use materials

with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.”

And, under the Sustainable Building requirements per Guiding Principle #4 Enhance Indoor Environmental Quality, EO13423 directs Federal agencies to use “materials and products with low pollutant emissions, including adhesives, sealants, paints, carpet systems, and furnishings.”

Executive Order 13514; *Federal Leadership in Environmental, Energy, and Economic Performance*; was signed on October 5, 2009. <http://www.ofee.gov/execorders.asp> It expands upon the environmental performance requirements of EO 13423.
http://www1.eere.energy.gov/femp/regulations/printable_versions/eo13423.html

EO 13514 sets numerous federal requirements in several areas, including sustainable buildings and communities. Federal agencies must implement high performance sustainable federal building design, construction, operation and management, maintenance, and deconstruction, including:

- Ensuring all new Federal buildings, entering the design phase in 2020 or later, are designed to achieve zero net energy by 2030.
- Ensuring all new construction, major renovations, or repair or alteration of Federal buildings comply with the Guiding Principles of Federal Leadership in High Performance and Sustainable Buildings <http://www1.eere.energy.gov/femp/pdfs/mouhighperfsustainfedfacs.pdf>
- Ensuring at least 15% of existing agency buildings and leases (above 5,000 gross square feet) meet the Guiding Principles by fiscal year 2015 and that the agency makes annual progress towards 100% compliance across its building inventory.

2.1 MATERIALS

SPECIFIER NOTE:

Green building rating systems often include credit for materials of recycled content and may distinguish allowable credit for post-consumer and post-industrial (or pre-consumer) recycled content. USGBC-LEED™ v3, for example, factors 100 percent of post-consumer recycled content but only 50 percent of pre-consumer (post-industrial) recycled content into calculations for its recycled content materials credit. LEED v3 grants one credit to a project for using materials with recycled content such that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 10 percent of the total value of the materials in the project; 10% (post-consumer + 1/2 post-industrial). It grants an additional point for 20% (post-consumer + 1/2 post-industrial).

Green Globes US also provides points for reused building materials and components and for building materials with recycled content.

Recycled content is typically determined by calculating the weight of the recycled material divided by the total weight of the product and expressed as a percentage by weight. (The recycled content “value” of a product as assessed under LEED is determined by multiplying the recycled content percentage and the cost of the product.)

Verify with manufacturer for product availability and recycled content.

Most gypsum board products are manufactured with paper backing from primarily recycled paper and gypsum core containing minimum 10 percent recycled gypsum. Percentages vary depending on the manufacturing facility and are generally increasing throughout the industry as manufacturing facilities upgrade.

- A. Gypsum Board:
 1. Recycled Content: Minimum [5] [10] [xxxx] percent post-consumer recycled content, or minimum [20] [40] [xxxx] percent pre-consumer recycled content at contractor’s option.

2.2 ACCESSORIES

- A. Reinforcing Tape:
 - 1. Toxicity/IEQ: Sheetrock Joint Tape. Paper; fiberglass joint tape not permitted.
- B. Joint-Treatment Materials:
 - 1. Toxicity/IEQ: Lime compound. All purpose joint and texturing compound containing inert fillers and natural binders. Pre-mixed compounds shall be free of antifreeze, vinyl adhesives, preservatives, biocides and other slow releasing compounds

PART 3 - EXECUTION

3.X SITE ENVIRONMENTAL PROCEDURES

- A. Indoor Air Quality:
 - 1. Temporary ventilation: Provide temporary ventilation for work of this Section.
 - 2. Multi-layer gypsum board: Screw attach. Adhesive attachment will not be permitted.
- B. Waste Management: As specified in Section 01 74 19 (01351) – Construction Waste Management and as follows:
 - 1. Select panel sizes and layout panels to minimize waste; reuse cutoffs to the greatest extent possible.
 - 2. Scrap gypsum: Coordinate with Section 32 90 00 (02900) - Planting to identify requirements for gypsum soil amendment and to prepare scrap gypsum board for use as soil amendment. Do not use products containing glass fiber.

END OF SECTION