DIVISION 06 00 00. WOOD, PLASTICS, AND COMPOSITES

06 00 00 - Wood, Plastics, and Composites
Contractor shall review construction documents and provide labor and materials pertaining to carpentry work as required in said documents and as specified herein, while complying with all applicable building codes.

06 05 73 – Wood Treatment

SPECIFIER NOTE:
resource management: Some species of wood are naturally resistant to decay caused by the elements while others are resistant to termite attack. These include the following species whose heartwood is commonly recognized by the building codes as are resistant to decay: black locust, cedar, and black walnut. Redwood and Eastern red cedar are resistant to termite attack.

toxicity/IEQ: Lumber, timber, wood structural panels, piles and poles supporting permanent structures are often required by building codes to be preservative treated in accordance with the requirements of an applicable American Wood-Preservers Association (AWPA) species, product, preservative and end use.

There are three broad classes of wood preservatives: (1) creosote, which is generally used in railroad ties, utility poles, and pilings; (2) oil-borne preservatives, such as pentachlorophenol and copper napthenate, generally used for utility poles, assembly area roof supports and glulam construction; and, (3) waterborne preservatives which are the most common preservatives used in residential, commercial and industrial construction. Waterborne preservatives include: ammoniacal copper arsenate (ACA), alkaline copper quaternary (ACQ-B and ACQ-D), ammoniacal copper zinc arsenate (ACZA), chromated copper arsenate (CCA), copper boron azole (CBA-A and CA-B), and copper napthenate, sodium borate (SBX), used as a fungicide to control fungal diseases on trees and crops.

In use, wood preservatives are usually of fairly low volatility, but may outgas over time. While their emissions rates are not large and they do not generally result in high indoor air concentrations, some may pose health hazards. CCA has been the most common waterborne preservative treatment. However, on February 12, 2002, EPA announced by industry to move consumer use of treated lumber products away from contains arsenic by December 31, 2003, in favor of preservatives that do not contain arsenic for most residential uses. This decision affects preservative-treated wood used in play structures, decks, picnic tables, landscaping timbers, residential fencing, patios and walkways. As of January 1, 2004, EPA will not allow CCA to be used to treat wood intended for these residential uses. This decision on CCA, however, does not restrict the use of CCA preservative-treated wood for pilings, permanent wood foundations and similar applications.

performance: Wood preservatives are used to make wood resistant to fungus growth and termite attack. Most building codes require that structural wood elements in direct contact with earth, embedded in concrete/masonry that is in direct contact with earth, or exposed to moisture, be of naturally durable wood or preservative-treated wood. Where alternative products or systems are used, a variance from the building department may be required. Do not specify wood furnishings or finishes that require tight humidity controls of the mechanical systems. Comfort standards typically allow humidity to fluctuate to save energy.
PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes:
   1. Wood Treatment.
   2. Natural Decay and Insect Resistant Wood.

B. Related Sections:
   1. 06 10 00 (06100) - Rough Carpentry.
   2. 06 16 00 (06160) - Sheathing.

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:
   Specifying local materials may help minimize transportation impacts; however, they may not have a significant impact on reducing the overall embodied energy 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™ v2.2 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.

1. Local/Regional Materials:
   a. Sourcing location(s): Indicate location of extraction, harvesting, and recovery; indicate distance between extraction, harvesting, 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™ v2.2, for example, includes credits for low-emitting materials, including: adhesives and sealants, paints and coatings, carpets, and composite wood and agrifiber products. Under LEED™ v2.2, adhesives and sealants are to comply with California's South Coast Air Quality Management District (SCAQMD) #1168; aerosol adhesives are to comply with Green Seal GS-36; interior architectural paints are to comply with Green Seal GS-11; anti-corrosive paints are to comply with Green Seal GS-03; clear wood finishes are to comply with Green Seal GS-39.
SCAQMD #1113; carpet with the Carpet and Rug Institute (CRI) Green Label Plus; carpet cushion with CRI Green Label program; and, composite wood and agrifiber products are to contain no added urea-formaldehyde.

As per USGBC published Credit Interpretations, the credits for low-emitting materials are directed towards interior, site-installed (i.e. not prefabricated) products. Verify project requirements for low VOC roofing products.

Both the Adhesive and Sealant Council (ASC) and the SCAQMD have indicated that low VOC adhesives may have performance difficulties in extreme temperature and humidity conditions. Green Seal, an independent, non-profit organization, certifies low-emitting products using internationally recognized methods. 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.

Engineered wood products manufactured in accordance with ANSI standards are also available. For example, the Composite Panel Association’s (CPA’s) Standard for Particleboard, ANSI A208.1, includes maximum formaldehyde emissions for different grades of particleboard; ANSI A208.2, the Composite Panel Association’s Standard for MDF, covers MDF for interior applications and includes maximum formaldehyde emission level for different grades of MDF.

2. VOC data:
   a. Adhesives:
      2. Submit Green Seal Certification to GS-36 as a basis for certification.
      3. [Submit manufacturer’s certification that products comply with SCAQMD Rule 1168.] [Submit manufacturer’s certification that products comply with SCAQMD Rule 1168 in areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur. In areas where freeze/thaw conditions do exist or direct exposure to moisture can occur, submit manufacturer’s certification that products comply with Bay Area AQMD Reg. 8, Rule 51 for containers larger than 16 oz and with California Air Resource Board for containers 16 oz or less.]
   b. Engineered Wood Products: Provide documentation that composite wood and agrifiber products [are third-party certified as standard requirements for formaldehyde emissions added urea-formaldehyde resins.]
      1. ANSI A208.1 - 1999, Particleboard
      2. ANSI A208.2 - 2002, Medium Density Fiberboard for Interior Applications
SPECIFIER NOTE: Green building rating systems typically include credit for sustainably harvested wood. USGBC-LEED v2.2 includes credit for use of sustainably harvested wood, under Forest Stewardship Council Guidelines. Under LEED v2.2, a minimum of 50 percent of wood-based products incorporated into the Project must comply with the Forest Stewardship Council Guidelines. Green Globes-US also provides points for wood products that originate from certified sources, such as, Forest Stewardship Council, Sustainable Forestry Initiative, and Canadian Standards Association Forest Management Program.

B. Letter of Certification(s) for Sustainable Forestry:
   1. Forest Stewardship Council (FSC): Provide letter of certification signed by lumber supplier. Indicate compliance with FSC "Principles for Natural Forest Management" and identify certifying organization.
      a. Submit FSC certification numbers; identify each certified product on a line-item basis.
      b. Submit copies of invoices bearing the FSC certification numbers.
   2. Sustainable Forestry Board: Provide letter of certification signed by lumber supplier. Indicate compliance with the Sustainable Forestry Initiative (SFI) and identify certifying organization.
      a. Submit SFI certification numbers; identify each certified product on a line-item basis.
      b. Submit copies of invoices bearing the SFI certification numbers.
   3. Canadian Standards Association (CSA): Provide letter of certification signed by lumber supplier. Indicate compliance with the CSA and identify certifying organization.
      a. Submit CSA certification numbers; identify each certified product on a line-item basis.
      b. Submit copies of invoices bearing the CSA certification numbers.

C. Letter of Certification for Pressure Treatment: Submit Certification from treating plant stating chemicals and process used and net amount of preservatives in conformance with specified standards.

PART 2 - PRODUCTS

SPECIFIER NOTE: EO 13423 includes requirements for Federal Agencies to reduce "the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of by the agency"; and, 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, for USDA-designated biobased products, Federal agencies must use products meeting or exceeding USDA's biobased content recommendations; and for other products, biobased products made from rapidly renewable resources and certified sustainable wood products.
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.

2.1 MATERIALS

A. Preservative Pressure Treatment:
   1. Toxicity/IEQ: Products containing chromium will not be permitted. Products containing arsenic will not be permitted.
   2. Waterborne Wood Preservatives:
      a. Wood products shall be treated with waterborne wood preservatives conforming to AWPA Standards P5, excluding those which contain arsenic and/or chromium.
      b. Pressure treatment of wood products shall conform to the requirements of AWPA Standards U1 and T1.
   c. Retention of preservatives:
      1. Moderate service conditions (weather exposure): 0.25 pounds per cubic foot (oxide basis).
      2. Severe conditions (constant contact with ground or water): 0.40 pounds per cubic foot (oxide basis).

   **SPECIFIER NOTE:**
   Some preservatives are not recommended for use of wood in direct contact with ground because of the potential for leaching out of the preservative. For example, AWPA standards prohibit wood treated with borates for use in direct contact with the ground or exposed direct precipitation or continuous exposure to liquid water.

   3. Borate-based preservative:
      a. Impregnate lumber with preservative treatment conforming to AWPA Standard P18.

B. Fire Retardant Treatment:
   1. Toxicity/IEQ: Fire-retardant-treated wood products shall be free of halogens, sulfates, ammonium phosphate and formaldehyde.
   2. Fire Retardant Formulations:
      a. Wood products shall be treated with fire retardants conforming to AWPA Standard P17.
      b. Fire retardant treatment of wood products shall conform to the requirements of AWPA Standard U1, Commodity Specification H and AWPA Standard T1, Section 8.8.

C. Natural Decay and Insect Resistant Wood:
   1. Resource Management: Provide sustainably harvested; certified or labeled in accordance with [FSC] [SFI] [CSA] guidelines. Naturally Durable Wood is the heartwood of the following species with the exception that an occasional piece with corner sapwood is permitted if 90 percent or more of the width of each side on which it occurs is heartwood. Acceptable species:
      a. Decay resistant. Redwood, South American ipe, bald cypress, cedar, black locust and black walnut.
b. Termite resistant. Redwood and Eastern red cedar.

PART 3 - EXECUTION

3.X SITE ENVIRONMENTAL PROCEDURES

A. As specified in Division 01 (1) and Section 06 10 00 (06100) - Rough Carpentry.

06 10 00 - Rough Carpentry
Lumber shall be of live, sound stock and properly dried. Pressure treated lumber shall be used where any lumber shall come into contract with concrete, masonry block as support members for decks, porches or balconies. Lumber for use at exterior shall have a maximum 12 percent moisture content, for dry climates 9 percent is recommended. Provide adequate bracing and shoring during the construction process. Studs and joists cut to install plumbing and/or wiring shall be reinforced by adding metal or wood structural reinforcing to strengthen member back to original capacity and maintain structural integrity. Holes bored shall not be larger than 1/3 the depth and not closer than 2" to the top or bottom of the joist.

Wood Species: #2 Southern Yellow Pine, Douglas Fir, etc.

SPECIFIER NOTE:
resource management: Wood is a renewable resource. Forests provide many environmental benefits, including: habitats, potential sources for medicines, and climatic control. Many certified sources of sustainably harvested wood are available. Non-sustainable harvesting can produce soil erosion, pollutant runoff, increased levels of atmospheric carbon dioxide, global warming, and habitat loss.

Forest Certification Standards in North America include:
- The American Tree Farm System developed by the American Forest Foundation; refer to www.treefarmsystem.org/aboutfarming/whatis.cfm
- Canada's National Sustainable Forest Management Standard; refer to certifiedwood.csa.ca
- ISO 14001 developed by the International Organization for Standardization. Although not a forest-specific standard, ISO offers a special technical report ISO 14061 that is specific to forestry and assists with implementation of ISO 14001 in forestry; refer to www.iso.ch
- The Principles for Natural Forest Management developed by The Forest Stewardship Council; for Canada visit www.fsccanada.org, for the USA visit fscus.org/
- The Sustainable Forestry Initiative® created through the American Forest & Paper Association and currently managed by the Sustainable Forestry Board (an independent entity established to manage SFI); refer to www.afandpa.org/Content/NavigationMenu/Environment_and_Recycling/SFI/SFI.htm

Most trees in the United States are referred to as either "hardwoods" or "softwoods." Hardwood trees are deciduous trees that, with a few exceptions, lose their leaves in the fall or winter. Softwood forest types are conifers and evergreens such as pines, spruce, fir, and hemlock. Wood that is used in construction of buildings is primarily softwood.
Much of America’s hardwoods, such as oaks, are found along the East Coast. Softwood trees are concentrated in the West and South. Douglas-fir is the dominant softwood in the West, while Southern pines, such as loblolly and shortleaf, are the most abundant softwoods in the South. Quaking aspen, a hardwood, is the most widely distributed tree species in North America.

The term "Engineered Wood Product" (EWP) refers to a wood-based product with specified design properties assigned to it. EWPs are often manufactured as a combination of smaller pieces of wood that together create larger high strength structural elements. Engineered wood components include: plywood, oriented strand board (OSB), composite wood panels, glue laminated beams, structural composite lumber, including laminated veneer lumber and parallel strand lumber, as well as I-joists and metal plate connected wood trusses. An additional sub-component of structural composite lumber would include laminated strand lumber. Finger-jointed lumber, which is interchangeable with solid sawn lumber, is considered an EWP. Finger-jointed lumber or end-jointed lumber is permitted to be used interchangeably with solid-sawn members of the same species and grade. If finger jointed lumber is marked "STUD USE ONLY" or "VERT USE ONLY" the user shall be limited to use where any bending or tension stresses are of short duration.

Engineered wood products are typically prefabricated, not site fabricated. Engineered wood products are frequently more efficient in construction of assemblies than solid sawn lumber due to the lower coefficient of variance of EWPs. EWP assemblies tend to be more resource efficient than assemblies constructed of solid sawn members.

toxicity/IEQ: Adhesive binders used in engineered wood products are any of several synthetic resins that pose varying degrees of human health risks. Refer to Section 06 05 73 (06070) - Wood Treatment for information regarding treated wood.

performance: Wood is a natural and efficient building material. The structural characteristics of wood change over time as a result of changes in weather and other growing factors. These changes in structural design values of various wood species are recorded through an in-grade testing program of lumber and published periodically in the National Design Specification© (NDS©) for Wood Construction. For efficient resource use of solid sawn lumber, it is recommended that the least acceptable grade of lumber be specified to suit the purpose. As an alternate to new solid sawn lumber, reclaimed lumber can be used since it performs comparably to new lumber if properly graded by a grading agency in accordance with American Lumber Standards Committee grading rules. Further, the use of engineered wood products can result in resource efficiencies than might be expected of conventional lumber/timber construction. However, engineered wood products might be more difficult to recycle than standard, solid sawn lumber due to the binders used in the manufacture of the engineered wood product.

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes:
   1. Framing with dimension lumber.
   2. Engineered wood products.
   3. Wood furring, grounds, nailers, and blocking.

B. Related Sections:
labor. USGBC-LEED™ v2.2 includes credits for materials extracted/harvested and manufactured within a 500 mile radius of 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 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 credits for low-emitting materials. USGBC-LEED™ v2.2, for example, includes credits for low-emitting materials, including: adhesives and sealants, paints and coatings, carpets, and composite wood and agrifiber products. Under LEED™ v2.2, adhesives and sealants are to comply with California's South Coast Air Quality Management District (SCAQMD) #1168; aerosol adhesives are to comply with Green Seal GS-36; interior architectural paints are to comply with Green Seal GS-11; anti-corrosive paints are to comply with Green Seal GS-03; clear wood finishes are to comply with SCAQMD #1113; carpet with the Carpet and Rug Institute (CRI) Green Label Plus; carpet cushion with CRI Green Label program; and composite wood and agrifiber products are to contain no added urea-formaldehyde.

As per USGBC published Credit Interpretations, the credits for low-emitting materials are directed towards interior, site-installed (i.e. not prefabricated) products. Verify project requirements for low VOC roofing products.

Both the Adhesive and Sealant Council (ASC) and the SCAQMD have indicated that low VOC adhesives may have performance difficulties in extreme temperature and humidity conditions.

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.

Engineered wood products manufactured in accordance with ANSI standards are also available. For example, the Composite Panel...
labor. USGBC-LEED™ v2.2 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 locally harvested.

2. Local/Regional Materials:
   a. Sourcing location(s): Indicate location of extraction, harvesting, and recovery; indicate distance between extraction, harvesting, 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™ v2.2, for example, includes credits for low-emitting materials, including: adhesives and sealants, paints and coatings, carpets, and composite wood and agrifiber products. Under LEED™ v2.2, adhesives and sealants are to comply with California's South Coast Air Quality Management District (SCAQMD) #1168; aerosol adhesives are to comply with Green Seal GS-36; interior architectural paints are to comply with Green Seal GS-11; anti-corrosive paints are to comply with Green Seal GS-03; clear wood finishes are to comply with SCAQMD #1113; carpet with the Carpet and Rug Institute (CRI) Green Label Plus; carpet cushion with CRI Green Label program; and, composite wood and agrifiber products are to contain no added urea-formaldehyde.
As per USGBC published Credit Interpretations, the credits for low-emitting materials are directed towards interior, site-installed (i.e. not prefabricated) products. Verify project requirements for low VOC roofing products.
Both the Adhesive and Sealant Council (ASC) and the SCAQMD have indicated that low VOC adhesives may have performance difficulties in extreme temperature and humidity conditions.
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 Agency’s criteria for third-party certifiers of environmentally preferable products; and the criteria for bona fide ecolabeling bodies of the Global Ecolabeling Network.
Engineered wood products manufactured in accordance with ANSI standards are also available. For example, the Composite Panel...
Association's (CPA's) Standard for Particleboard, ANSI A208.1, includes maximum formaldehyde emissions for different grades. ANSI A208.2, the Composite Panel Association's Standard for MDF, covers MDF for interior applications and includes maximum formaldehyde emission level for different grades of MDF.

3. VOC data:
   a. Adhesives:
      2. Submit Green Seal Certification to GS-36 on an annual basis for certification.
      3. [Submit manufacturer's certification that products comply with SCAQMD #1168.] [Submit manufacturer's certification that products comply with SCAQMD Rule 1168 in areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur. In areas where freeze/thaw conditions do exist or direct exposure to moisture can occur, submit manufacturer's certification that products comply with Bay Area AQMD Reg. 8, Rule 51 for containers larger than 16 oz and with California Air Resource Board for containers 16 oz or less.]
   b. Engineered Wood Products: Provide documentation that composite wood and agrifiber products [are third-party certified as meeting ANSI standard requirements for formaldehyde emissions, contain no added urea-formaldehyde resins.]
      1. ANSI A208.1 - 1999, Particleboard
      2. ANSI A208.2 - 2002, Medium Density Fiberboard for Interior Applications

**SPECIFIER NOTE:**
Green building rating systems typically include credit for sustainably harvested wood. USGBC-LEED includes credit for use of sustainably harvested wood under Forest Stewardship Council Guidelines. Under LEED v2.2, a minimum of 50 percent of wood-based products incorporated into the Project must be certified in accordance with the Forest Stewardship Council Guidelines. Green Globes-US also provides points for wood products that originate from certified sources, such as, Forest Stewardship Council, Sustainable Forestry Initiative, and the CSA Sustainable Forest Management Program.

B. Letter of Certification(s) for Sustainable Forestry:
   1. Forest Stewardship Council (FSC): Provide letter of certification signed by lumber supplier. Indicate compliance with FSC "Principles for Natural Forest Management" and identify certifying organization.
      a. Submit FSC certification numbers; identify each certified product on a line-item basis.
      b. Submit copies of invoices bearing the FSC certification numbers.
2. Sustainable Forestry Board: Provide letter of certification signed by lumber supplier. Indicate compliance with the Sustainable Forestry Initiative (SFI) and identify certifying organization.
   a. Submit SFI certification numbers; identify each certified product on a line-item basis.
   b. Submit copies of invoices bearing the SFI certification numbers.

3. Canadian Standards Association (CSA): Provide letter of certification signed by lumber supplier. Indicate compliance with the CSA and identify certifying organization.
   a. Submit CSA certification numbers; identify each certified product on a line-item basis.
   b. Submit copies of invoices bearing the CSA certification numbers.

1.3 QUALITY ASSURANCE

A. Sustainably Harvested Wood: Certification Organizations shall be accredited by the [Forest Stewardship Council] [Sustainable Forestry Board] [Canadian Standards Association] [xxxxxxxxx].

B. Recycled Content Materials: Where recycled lumber materials are used for structural applications, include lumber certification and quality grading.

C. Engineered Wood Products:
   1. Determine formaldehyde concentrations in air from wood products under test conditions of temperature and relative humidity in accordance with ASTM D6007 or E1333.
   2. Determine Volatile Organic Compounds (VOC), excluding formaldehyde, emitted from manufactured wood-based panels in accordance with ASTM D6330.

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, 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 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."

Additionally, for USDA-designated biobased products, Federal agencies must use products meeting or exceeding USDA's biobased content recommendations; and for other products, biobased products made from rapidly renewable resources and certified sustainable wood products.

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..."
2.1 MATERIALS

A. Lumber:
   1. Resource Management:

   **SPECIFIER NOTE:**
   Disallowing the use of old growth timber may conflict with the use of timber recovered and cut from public lands than have been burned in wildland fires on public land. As of this draft, two examples of viable and on-going timber salvage from past wildland fires on public land are the 500,000 acre (60 mile x 60 mile) Biscuit Fire in SW Oregon and the 150,000 acre (10 mile x 5 mile) McNally Fire in the South Central Sierra Nevada.

   a. Virgin Lumber: [Lumber fabricated from old growth timber is not permitted.] Provide sustainably harvested; certified in accordance with [FSC] [SFI] [CSA] [xxxx] guidelines.

   b. Salvaged Lumber: Lumber from deconstruction or demolition of existing buildings or structures. Unless otherwise noted, salvaged lumber shall be delivered clean, denailed, and free of paint and finish materials and other contamination.

   c. Recovered Lumber: Previously harvested lumber pulled from riverbeds or otherwise abandoned. Unless otherwise noted, recovered lumber shall be delivered clean and free of contamination.

B. Engineered Wood Products:
   1. Toxicity/IEQ:
      a. Products shall contain no added urea-formaldehyde.

2.2 ACCESSORIES

A. Adhesive:
   1. Toxicity/IEQ: Comply with applicable regulations regarding toxic and hazardous materials, GS-36 for Commercial Adhesive, [South Coast Air Quality Management District Rule 1168] [Bay Area AQMD Reg 8, Rule 51 for containers larger than 16 oz and with California Air Resource Board (CARB) for containers 16 oz or less], and as specified.

B. Fasteners:
   1. Recycled Content: Fabricated from 100 percent re-melted steel.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install as indicated and in accordance with the National Association of Home Builders (NAHB) Advanced Framing Techniques: Optimum Value Engineering.

3.X SITE ENVIRONMENTAL PROCEDURES

A. Indoor Air Quality:
   1. Temporary ventilation: Provide temporary ventilation during
a. During and immediately after installation of treated wood products, and laminated wood products at interior spaces, provide temporary ventilation.

B. Waste Management: As specified in Section 01 74 19 (01351) - Construction Waste Management and as follows:
   1. Select lumber sizes to minimize waste; reuse scrap lumber to the greatest extent possible. Clearly separate scrap lumber for use on site as components, including: shims, bracing, and blocking.
   2. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill. Prevent saw dust and wood shavings from entering the storm drainage system.
   3. Do not burn scrap lumber that has been pressure treated.
      a. Do not send lumber treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.

06 11 00 - Wood Framing

Floor Framing - Information below pertains to conventional stick framing. Pre-engineered trusses are used follow manufactures guidelines for installation. Pressure treated lumber shall be used where any lumber shall come into contract with concrete, masonry block, roof curbing or roof blocking.

Girders: Install girders in pockets formed in the foundation or on top of the sill plate. The pocket should allow a minimum of 1/2” on both sides for circulation.

Girders: solid wood, two or more 2” planks, laminated veneer lumbers, steel beams

Sills: Install single 2”x 6”, 4”x 6” or double 2”x 6” solid pressure treated lumber horizontally on foundation. Bore holes in sills for anchor bolts.

Floor Joists: Space floor joists 12” to 16” on center (OC) depending on the load bearing and spanning capabilities of wood species with a minimum 1 1/2” of bearing wood or 3” of masonry. Cut joists flush with the edge of sill. If joists are lapped over girders, the minimum amount of lap is 4” and maximum overhang is 12”. Do not lap at wood I-beams. Joists shall be installed so that the end of the sub-floor sheets fall directly on the center of the floor joists. Space floor joists 12” on center (OC) at each bearing point using one 8d or 10d nail on each side. Nails shall be at least 1 1/2” from ends. Wood cross bridging shall be at least nominal 1” x 3” lumber with two 6d nails at each end. Install one row of bridging for 12'-0” spans and less, install two rows of bridging.

Floor Joists: 2” x 10”s, 2” x 12”s, wood I-beams, wood or steel trusses, at 16” on center (OC).

Exterior Walls - All exterior walls shall be constructed with 2”x 4”, 2”x 6” framing at mid-height of all walls. For exterior corner joints, install (3) 2”x 4”s, 2”x 6”s. Where interior partitions meet exterior walls, install 2 studs fastened together with blocking approximately one foot long. One block is placed at the bottom, one near center of the studs.