Position Title: Assistant Cooperative Extension Specialist in Engineered Wood Products and Design

Position: The Department of Architecture (ARCH) with the Department of Environmental Science, Policy, and Management (ESPM) with University of California, Berkeley seeks an Assistant Cooperative Extension Specialist in Engineered Wood Products. This position is a full time, career-track appointment. The general disciplinary focus of this position is the use of forest and wood resources for structural and engineering applications in the design of buildings, landscapes, and other projects. Priority issues include fabrication and testing of forest products, development of advanced materials from wood, efficiency and conservation in forest products technology, and the impacts of utilization on community development, economic, and environmental concerns. The College of Environmental Design/Rausser College of Natural Resources (CED/RCNR) CE Specialist in Engineered Wood Products will develop and promote methods for efficient and environmentally acceptable utilization of wood and the role in State Forest management, fire risk reduction, and greenhouse gas emissions goals

The completion of all Ph.D. degree requirements except the dissertation or relevant terminal degree such as a Masters in Architecture is required at the time of application. The successful candidate will have a doctoral degree (or relevant terminal degree) in a discipline related to forest products, material technologies, design, and their uses. Preferred qualifications include demonstrated writing and public speaking skills to communicate to a diverse audience of professional and non-technical clientele, the ability to design and carry out high quality research in a discipline related to forest products, and the capacity to serve as a team member on interdisciplinary projects involving the life cycle of forest-based products and associated land management practices. The candidate should be able to work productively with diverse communities and stakeholders, and to build cross-disciplinary teams. The Specialist will be expected to develop a nationally competitive research program and to obtain extramural grant funds.

The issues addressed by this position are of importance in every county in California that has a forest base or an existing or potential wood manufacturing industry. The client base for this position includes public and private forestland owners and managers, county-based Cooperative Extension personnel, forest product companies, as well as public agencies involved in climate change policy development, waste management and forestry issues. Interest in this position is proposed to be equally split between the following University of California units: UC Berkeley College of Environmental Design (Department of Architecture and UC Berkeley Rausser College of Natural Resources (Department of Environmental Sciences and Policy Management, Berkeley Forests,). In addition, the need for this position is recognized and supported by many of the ANR County based CE Advisors and CED community and state partners, especially those with a notable economic forest base and those in the construction and design industries who design, develop, test, and build with wood materials, including site furnishings, infrastructure, architecture, and construction/fabrication.

Justification: California manages one of the nation's largest forest resources, is a leading manufacturer of lumber and wood products, and is the leading consumer of wood-based products in the US. The dense urban population centers and agricultural industries in California also produce vast quantities of woody biomass residues that are an underutilized energy and economic resource with important climate change implications, human health, and wellbeing.

This Specialist position fills a critical need and provides an opportunity for UCANR leadership and collaboration with many universities and public agencies in the globally important issues related to sustainable manufacturing and use of products from a renewable resource that has a competitive greenhouse gas advantage over fossil fuel- based products. In addition, it addresses the potential opportunity to use small or cosmetically blemished biomass that is not sold as dimensional lumber but could be utilized in new engineered wood products and emergent technologies such as additive manufacturing using sawdust and other byproducts, etc. The position opens an opportunity to investigate and develop new approaches to architecture and/or landscape design in support of carbon sequestration capacities and nature-based climate solutions across various design scales.

California has large volumes from densely packed stands of small diameter trees, drought-stressed and beetlekilled trees, chaparral, and other forms of non- commercial woody biomass in much of California's timberlands and the wildland/urban interface. This woody biomass significantly adds to fuel loads that can be burned in catastrophic wildfires. The CED/RCNR CE Specialist position will provide valuable support, information, analysis, and leadership to the CE Advisors, CED/RCNR CE partners, landowners, land managers, planners and policy developers involved with maintaining a healthy forest products economy, managing the wildfire risk, and providing economic and operational guidance for forest-based communities and users of wood products in multiple sectors encompassed in the built environment. The position provides capacity to help develop strategies to grow productive forest and biomass-based communities, design intelligent waste management systems, and build a sustainable bio-based materials research and technologies of architecture, landscape design, and engineering convergence relevant to California.

Extension: Extension activities expected of this position include the initiation of successful outreach efforts. Key expectations are:

- Assist and collaborate with county-based extension advisors, especially those involved with natural resources related community and economic development, and public policy. Relevant topics include evaluation of local resources and feedstocks, technological innovation in wood-based design and products, repositioning the resourcing/utilization of woody material from insect and disease outbreaks.
- Develop, implement, and facilitate statewide conferences and regional workshops.
- Participate in regional planning and economic development activities providing expertise in integrating engineered wood products into manufacturing, architecture and landscape design, and value-added processing.
- Provide leadership on statewide committees and workgroups involved with biomass issues, including the Joint Institute for Wood Products Innovation.
- Collaborate with AES and other UC faculty involved with wood products and design.
- Help identify areas of potential future research and link these ventures to the Berkeley IPIRA office and industry partners.
- Expand on innovative extension delivery through the ANR websites and social media, factsheets, maps, interactive analysis tools, and ANR publications.
- Increase the knowledge base through collaboration with the major public, private industrial, and private non-industrial landowners of California.
- Provide expertise to the multiple sectors and agencies involved in wood-based design and engineering including policymakers and legislators on forest products and bioenergy, private sector, and community-based organizations.

Research: In the forest products area, important research topics include evaluation and clarification of climate benefits of using manufactured wood products instead of non-renewable, fossil fuel intensive products such as concrete and steel; evaluation of physical properties and utilization opportunities of under-utilized wood resources; and economic impacts of technology and policy changes on the forest products industry. There is also considerable scope to promote the increased use of traditional and innovative wood products in building technology, landscape design, ranging from small units to large commercial and residential structures, and landscapes.

ANR Network: Collaboration opportunities for this Specialist include the AES faculty of RCNR, faculty of ESPM, the faculty of CED and ARCH, and the Natural Resource Advisors in counties with important forestbased economies, high wildfire risk, or with wood or biomass processing facilities.

The 2004 closure of the UC Forest Products Laboratory and the retirement of several UCANR Advisors has left a critical gap in cooperative extension expertise in wood products. Two of the strongest supporters of the program, the USDA Forest Service and Cal Fire (California Department of Forestry and Fire Protection), are committed to supporting a UCANR Specialist position.

Support: Office space, administrative support, office supplies, internet and telephone access will be provided by the CED-ARCH and RCNR-ESPM consistent with that provided to other faculty. Funding for research and program travel will be sourced from a variety of agencies that grant funds for forest product, biomass, and bioenergy projects. The following organizations have provided input to and support this proposal: the USDA Forest Service, Cal Fire, California Energy Commission, California EPA Secretary for Climate and Policy, and the California Resources Agency Secretariat for Energy and Climate Change. Additional opportunities for financial support are through grants from the US Department of Energy, USDA National Institute of Food and Agriculture, and Small Business Innovation Research/Small Business Technology Transfer.

Headquarters and Coverage Area: UC Berkeley ARCH and ESPM are strong homes for this position. UC Berkeley has a critical mass of faculty with expertise in forestry, forest products, biomass, and bioenergy issues and a long history of design exploration in association with new material technologies. Additional expertise in construction and design exists in UC Berkeley's College of Engineering.

Developed and proposed by: The UCANR Forestry Workgroup, the College of Environmental Design, and the Rausser College of Natural Resources were involved in the development of the position.